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Precinct 2 Picton East

(Lot 2009 & 2010 Giorgi Road)

LOCAL WATER MANAGEMENT REPORT

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- A. Servicing Report
- B. Survey
- C. Environmental Assessment report
- D. Structure Plan
- E. Detailed Site Inspection

1 EXECUTIVE SUMMARY

This Local Water Management Report (LWMR) has been developed to accompany the Structure Plan for Lots 2009 and 2010 Giorgi Road, Picton East in the Shire of Dardanup. It also encompasses the unmade Temple Road reserve along the northern boundary. This subject site is also referred to as Precinct 2 – Picton East. The proposed development is for future industrial lots. There will also be drainage landuses within Public Open Space (POS) reserves as well as an area reserved for the future widening of the South West Highway. The subject site is approximately 69.92ha in area.

The subject site is bounded by the bushland to the north, an unmade road reserve and industrial land to the east, South West Highway to the south, while to the west is located Giorgi Road and existing industrial lots. The Site can be seen in Figure 1 and 2, with the location in relation to surrounding areas shown in Figure 1.

The subject site is predominately currently used for low intensity agricultural activities (Lot 2010), while Lot 2009 contains remnant infrastructure from the former bio diesel plant and open paddocks. It contains large, cleared areas on the broad flats, with some native overstorey present on the low sand dunes. There is also a large area of revegetation with a range of Australian native plants along the southern boundary. There are numerous farms drains as well as excavations into the groundwater across the subject site. The existing site features are shown on Figures 3 to 11.

The objective of this LWMR is to detail the best management practices approach to water management that will be undertaken for the development. This will include managing, protecting and conserving the total water cycle of the local environment and the greater catchment. The practices will involve:

- Stormwater management that incorporates suitable options for industrial developments;
- Flood protection from localised stormwater and the regional flood flows;
- Groundwater resource management;
- Protection of onsite and surrounding ecosystems; and
- Sustainable water servicing

The effectiveness, efficiency and benefits provided by the best management practices require a collaborative effort between local governments, developers and relevant regulatory authorities. The developers are committed to the concepts and outcomes outlined within the approved LWMR for the subject land. This includes the implementation, monitoring and maintenance of the best management practices for stormwater designed specifically for this site.

1.1 PLANNING SUMMARY

This LWMR has been produced to accompany the Precinct 2 Structure Plan ('P2 SP') pertaining to Lots 2009 and 2010 Giorgi Road, Picton East. The structure plan area is intended to include large industrial lots where, if subdivided, would be greater than 1 ha. A Public Open Space Reserve of approximately 6.67ha is located along the southern side, with will include drainage management infrastructure and retained vegetation. Furthermore, the structure plan recognises and reflects the Greater Bunbury Region Scheme 'Primary Regional Roads' reserve that would facilitate future widening / realignment of the South Western Highway along the southern boundary. The structure plan area includes the existing unmade 20m-wide Temple Road reserve, which is intended to be constructed as an industrial road to local government specifications. This is intended to link through to the South Western Highway via a future 30m wide road reserve. The eastern portion of the subject site will remain as an investigation for future industrial uses. The general layout can be seen in Figure 2.

This LWMR will guide the LSP and future subdivisions, to ensure that the land is developed in a sustainable manner, fulfils the objectives of the WAPC as described in Liveable Neighbourhoods (WAPC, 2009) and in accordance with the objectives of the Department of Water and Environmental Regulation (DWER) and the Shire of Dardanup (Shire). It also outlines the necessary water management strategies to guide the subsequent water reports to be undertaken as a condition of subdivision or development applications.

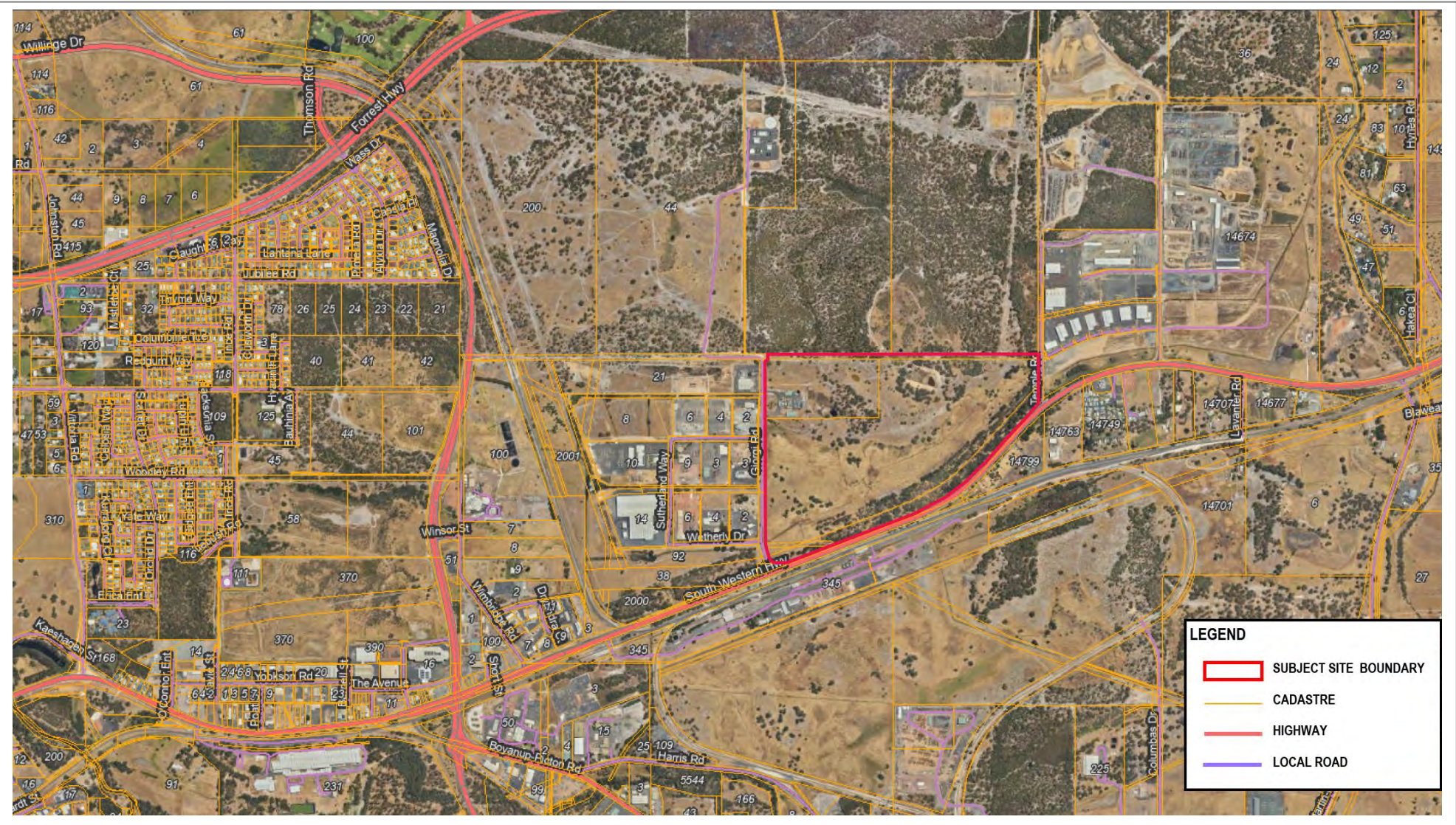


Figure 1 Location Plan

2 KEY ELEMENTS PLAN

Water management strategies for the subject land are based on best practice water sensitive urban designs that integrate sustainability and the provision of attractive communities. The strategies will be achieved through the synthesis of planning and designs to manage, protect and conserve the total water cycle. The plans and designs for the development are appropriate for the subject land’s residential development, surrounding environment, former and future stages and local drainage characteristics.

A summary of the WSUD elements that will be implemented within the development to achieve best management practices are outlined below. The general strategies can also be seen in Figure 2.

Water Conservation and Servicing

- The site is to be serviced with potable water from the Water Corporation’s network.
- Wastewater is to be managed through approved individual on lot treatment systems.
- Future landscaping is designed to be waterwise to minimise irrigation requirements.

Stormwater Management

- All lots are to detain and infiltrate the 10%AEP within their lot.
- 1EY stormwater treatment is achieved through on lot detention and infiltration in conjunction with road runoff treatment through the bioretention basins and planted swale network.
- Peak discharge for the site is to be at or below the pre development flow rates
- All roadside swales, bioretention systems and basins are to have their bases above the AAMGL, to minimise standing water in their bases outside of the peak winter/spring period.

Flood Protection

- All finished floor levels will be designed to be a minimum 300mm above the adjoining road gutter flows and the onsite basins as relevant.
- All 1% AEP peak flows are at or below the pre development peak flow rates.
- Internal flood flows generated within the subject site will be managed to protect infrastructure and human safety, with the flows being controlled through the road and swale network.

Groundwater Management

- Groundwater quality is managed via infiltration of stormwater through the planted basins and swales as well as industrial best practice within the lots.
- The natural separation to groundwater in combination with the filling of the site provides suitable post development separation to groundwater.
-

Ecosystem Protection

- New ephemeral riparian habitat will be created within the final basin and bioretention systems by using native riparian species plantings suited to the local conditions and are to incorporate species that complement the nearby bushland.
- The WSUD elements used within the subject site will improve discharging water quality, assisting with protecting and enhancing downstream ecosystems.
- The landscaping will utilise nutrient and waterwise practices to minimise contamination of the groundwater and surface runoff to any sensitive ecosystems.
- All lots are to implement best practice water management to minimise leaching of contaminants into the groundwater or surface water system.

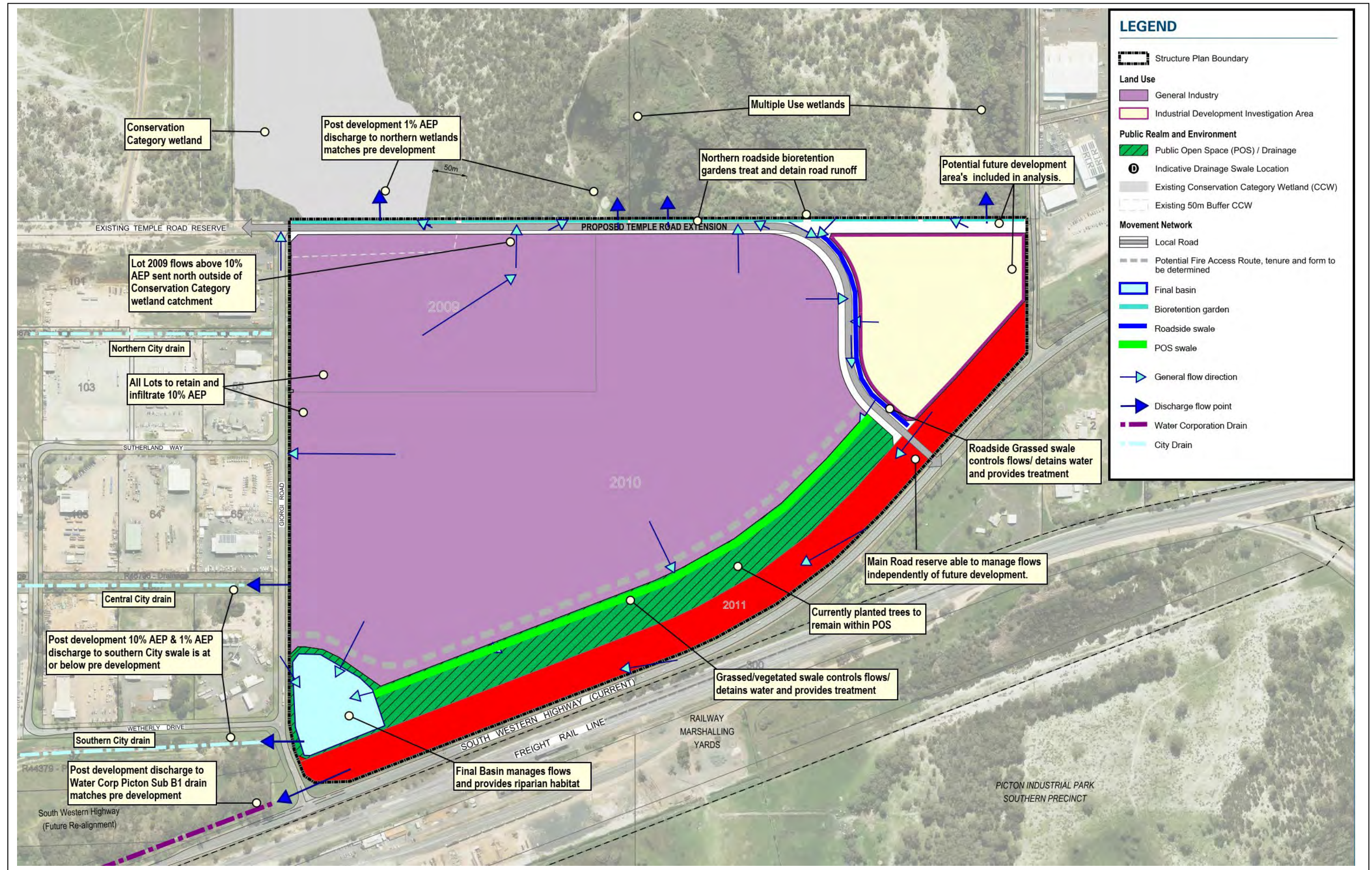


Figure 2 Key Elements Plan

3 LANDFORM

The subject site is composed of 2 main landforms, a gently undulating winter wet plain and low sand rises. Between these 2 landforms, there is a seep line, resulting from groundwater discharging out of the sand dune to the heavier soil on the plain.

The sand dunes are generally across the northwestern third of the subject site, with gentle undulations between 12 and 13m AHD. There are isolated rises to between 14.5m AHD and 15.75m AHD.

The plain generally falls in a west - southwesterly direction from approximately 12.25m AHD on the northeast boundary, to 10m AHD in the southwest corner. The lower portions of the undulating plain experience winter waterlogging. Within this plain is a network of shallow farm drains between 0.4 and 0.8m deep below the surrounding plain. These drain through to 3 culverts at Giorgi Road on the western boundary. Peak seasonal groundwater would generally be intercepted by these drains.

A number of constructed soaks and dams have been created across the subject site. There are 2 large excavations within the sand dune area, which may have been used to access sand. These extend down into the groundwater. There is also a series of smaller soaks, generally along the seep lines.

Directly to the north of the subject land lines a series of low sand dunes with interdunal wetlands. The north western and middle wetland are trapped systems, while the eastern wetland is connected to a swale that flows to the east through existing industrial land. The middle wetland also contains 2 excavations into the groundwater.

A constructed drain (Water Corporation, East Picton Main Drain) traverses the site from the southeast boundary to the eastern end of the northern boundary. The drain is generally incised into the surrounding undulating plain by approximately 0.8m to 1.2m

The general site characteristics can be seen in Figure 3. A survey of the subject site can be seen in Appendix B.

4 GEOTECHNICAL

The following information is taken from the *Report on Geotechnical Investigation Proposed Industrial Park Lot 2010 Giorgi Road, Picton East, WA* and the *Report on Detailed Site Investigation Preston Industrial Park Lot 2009 Giorgi Road, Picton, WA*. The Lot 2010 and 2009 field testing was undertaken in August 2025 and July 2025 respectively, which represents the maximum seasonal groundwater level.

4.1 GENERAL GEOLOGY AND GEOMORPHOLOGY

The subject site is generally composed of sandy topsoil overlying Bassendean Sand with cemented silty sand, with patches of 'coffee rock' present across the site. Below this is a range of the Guildford Formation clayey soils. There was also some areas of fill. A summary of the soils is detailed below:

Topsoil - Sand (SP / SP-SM) - Fine to medium grained sand, generally with silt (SP-SM) and occasionally trace silt (SP), commonly dark grey-brown to grey and present from surface to between 0.1 m to 0.2 m depth.

Bassendean Sand - Sand (SP / SP-SM / SM) - Fine to medium grained sand with a trace of silt (SP), occasionally with silt (SP-SM) or silty (SM), generally medium dense but loose in some zones, predominantly pale grey to pale brown, found underlying the topsoil to depths ranging from 0.3 m (TP18 and TP20) to more than 2.5 m (TP13).

Silty sand (SM) was encountered in TP2 from 1.4 m and TP20 from 0.3 m to 0.6 m.

Cemented Sand – and / Silty Sand (SP-SM / SM) – Colloquially known as **coffee rock**. Moderately to strongly cemented fine to medium grained sand was encountered discontinuously across the site within, or at the base of the Bassendean sand, generally with silt (SP-SM) or silty (SM), dark brown colour, medium dense to very dense.

'Coffee rock' was encountered in Lot 2010 test pits 1, 4-6, 8, 15, 16, 22, 23 and 25 at between 0.9 m (TP22) and 1.7 m depth (TP1), but generally around 1.2 m depth.

Guildford Formation – Sand / Gravel / Clayey Sand / Sandy Clay / Clay – generally low to medium plasticity, firm (or stiffer) sandy clay and clayey sand, underlying the Bassendean Sand (and coffee rock) and encountered within testing depth in many test pits (Lot 2010: 7, 9, 14-24 and 26-28). Cohesive materials of the Guildford formation were encountered at varied depths as shallow as 0.3 m. The depth to encountered clayey materials is summarised in Table 2, below.

FILL / Sand (SP-SM) - Granular fill containing debris, including brick, concrete, metal and potential asbestos containing material (PACM) was encountered in Lot 2010 in test pits 29, 30 and 31 to a depth of between 0.25 m and more than 1.0 m. These test pits targeted envelopes of former buildings.

While no detailed geotechnical soil analyst has been undertaken, the geology mapping and site inspection suggest that the soil profile is similar to Lot 2010. The sand layer is likely to be similar to the boundary samples taken in Lot 2010, which suggest a sand layer of greater than 1.5m deep.

A summary of the encountered clayey or reactive soils is summarised in Table 1. The test locations can be seen in Figure 4.

Table 1 Depth to encountered clayey or reactive material – Lot 2010

Location	Surface Elevation (m AHD)	Depth to Clay or Reactive Soils (m)	Clay Level (m AHD)
TP1	11.8	0.6	11.2
TP2	8.5	0.4	8.1
TP3	12.8	Not encountered within 2 m	-
TP4	11.9	1.8	10.1
TP5	11.9	Not encountered within 1.5 m	-
TP6	12.9	Not encountered within 2.5 m	-
TP7	11.7	1.8	9.9
TP8	11.7	Not encountered within 2 m	-
TP9	10.5	1.3	9.2
TP10	12.4	Not encountered within 1.5 m	-
TP11	12.7	Not encountered within 1.5 m	-
TP12	13.8	Not encountered within 1.8 m	-
TP13	14	Not encountered within 2.5 m	-
TP14	11.3	0.6	10.7
TP15	11.7	1.7	10
TP16	10.6	1.5	9.1
TP17	10.6	1.3	9.3
TP18	10.5	0.3	10.2
TP19	11.1	0.7	10.4
TP20	11.2	0.6	10.6
TP21	10.8	1.8	9
TP22	10.5	1.3	9.2
TP23	10.6	1.35	9.25
TP24	11	2.5	8.5
TP25	11	Not encountered within 2 m	-
TP26	10.2	1.8	8.4
TP27	10.1	0.5	9.6

4.2 PHOSPHORUS RETENTION INDEX

The Phosphorus Retention Index (PRI) for the subject site's soils has not been tested. Based on the soil type, the PRI is likely to be low in the Bassendean sand and high in the Guildford soils.

4.3 PERMEABILITY

Surface and shallow groundwater across most of the site impacted the performance of in situ infiltration testing. 2 valid tests were able to be undertaken within Lot 2010 in the portions of deeper sands; TP6 and TP12. The permeability results are summarised in Table 2 below.

No testing was undertaken on the lower plain areas. Due to the heavier soil type and waterlogged conditions, it is likely that the infiltration would be less than 0.1m/day during periods of high groundwater.

Table 2 Infiltration Test Results

Test Location	Depth (m)	Measured Permeability (m/day)	Ground Conditions
TP6	1	5	SAND (SP) trace silt, over SAND (SP-SM) with silt from 1.1 m, over Silty SAND (SM) from 1.4 m. Medium dense.
TP12	1	9	SAND (SP) trace silt. Loose to medium dense.

4.4 ACID SULFATE SOILS

The Acid Sulfate Soil (ASS) Risk Mapping shows that the entire subject site is considered to be an area of Moderate to Low Risk within 3m of the surface. The sand dune rises are unlikely to have an ASS risk, however this has not been delineated in the broad scale mapping.

ASS testing was undertaken within Lot 2010. The laboratory results indicate the following:

- The results for pHF are not indicative of actual acid sulfate soils conditions at the sampling locations to a depth of up to 2.5 m;

The results for pHFOX are indicative of potential acid sulfate soil conditions at some of the sampling locations, generally from a depth of 1.5 m, although low pHFOX was recorded as shallow as 0.5 m in TP24; and

- The calculated net acidity was reported above the adopted action criterion of 0.03%S for seven of 21 samples submitted for chromium suite analysis. The exceedances were in broad agreement with the reported pHFOX <3. The maximum net acidity was 5.2% S in the dark grey clay at 2.5 m depth in TP24, which is considered to be very high.

4.5 GROUNDWATER – FROM GEOTECHNICAL INVESTIGATION

Groundwater was encountered in the majority of test pits for Lot 2010. The depth varied from the surface to greater than 2m deep. The depths in August 2025 can be seen in Table 3 and Figure 4. Monitoring wells in Lot 2009 also recorded groundwater. These results for September 2025 can be seen in Table 4, with the locations shown in Figure 6. Additional groundwater levels below Lot 2009 were taken in October 2025, however these levels were generally deeper.

Table 3 Lot 2010 Encountered groundwater depth – August 2025

Location	Surface Level (AHD)	Depth to Groundwater (m)	Groundwater Level (AHD)
TP1	11.8	0.6	11.2
TP2	8.5	0.4	8.1
TP3	12.8	Not observed within 2 m depth	
TP4	11.9	1	10.9
TP5	11.9	0.8	11.1
TP6	12.9	1.7	11.2
TP7	11.7	0.3	11.4
TP8	11.7	0.2	11.5
TP9	10.5	0	10.5
TP10	12.4	Not observed within 1.5 m depth	
TP11	12.7	Not observed within 1.5 m depth	
TP12	13.8	Not observed within 1.8 m depth	
TP13	14	Not observed within 2.5 m depth	
TP14	11.3	0	11.3
TP15	11.7	0.5	11.2
TP16	10.6	0.2	10.4
TP17	10.6	0	10.6
TP18	10.5	0	10.5
TP19	11.1	0	11.1
TP20	11.2	0	11.2
TP21	10.8	0	10.8
TP22	10.5	0	10.5
TP23	10.6	0.2	10.4
TP24	11	0.3	10.7
TP25	11	0.6	10.4
TP26	10.2	0	10.2
TP27	10.1	0	10.1
TP28	10.1	0.1	10
TP29	11.2	0.6	10.6
TP30	11.3	0.4	10.9
TP31	11	0.5	10.5
TP32	11.3	0.3	11

Table 4 Lot 2009 September 2025 groundwater levels

Monitoring Well	Top of Casing Level (mAHD)	Groundwater Depth (m btoc)*	Groundwater Level (mAHD)
MW01	13.459	2.08	11.4
MW02	12.846	1.3	11.6
MW03	13.42	1.87	11.6
MW04	13.619	2.32	11.3
MW05	13.006	1.58	11.4
MW06	12.884	1.75	11.1

Notes: * btoc = below top of casing.

4.6 ON SITE CONTAMINATION AND NEARBY CONTAMINATED SITES

4.6.1 Subject Site

For Lot 2009 the site investigation review potential contaminants that may be present from previous land uses, including a bio-diesel production facility. There has also been some fly tipping since the closure and partial removal of the bio-diesel plant. The investigation looked at both soil and groundwater contamination.

Soil

For the soil component the analytical results are summarised as follows:

- Concentrations of TRH, BTEX, PAH for all analysed samples were reported below the laboratory limit of reporting (LOR) and below the adopted health and ecological based SAC for a commercial/industrial land use;
- Detectable concentrations of PFAS above the laboratory LOR were reported at most test locations, however, reported concentrations were below the adopted health and ecological based criteria for a commercial/industrial land use; and
- Concentrations of arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc for all analysed samples were either reported below the laboratory LOR and/or below the adopted health and ecological based SAC for a commercial/industrial land use except for zinc at location TP10 (0 – 0.1) which reported a concentration of 130 mg/kg which exceeded the adopted EIL of 80 mg/kg (commercial/industrial).

Groundwater

For the groundwater component the results varied across the tested area. The following is a summary of the quality results.

- Total nitrogen exceeded the short-term irrigation criterion of 25 mg/L at locations MW04, with a concentration of 29 mg/L and the long-term criterion of 5 mg/L at locations MW03, MW04 and MW07 with concentrations of 6.2 mg/L, 29 mg/L and 6.5 mg/L respectively;
- Ammonia as N exceeded the adopted freshwater criterion of 0.08 mg/L at locations MW01, MW02, MW03, MW05, MW06, MW07, MW08 and SW1 with concentrations ranging from 0.1mg/L (MW06) to 3.1 mg/L (MW07);
- Ammonia as N exceeded the adopted NPUG criterion of 0.5 mg/L at locations MW07 and MW08 with concentrations of 3.1 mg/L and 0.62 mg/L respectively;
- NOX and N exceeded the adopted freshwater criterion of 0.15 mg/L at locations MW01, MW02, MW03, MW04, MW06 and MW07 with concentrations ranging from 0.51 mg/L (MW06) to 28 mg/L (MW04);
- Total Phosphorus exceeded the adopted freshwater criterion of 0.065 mg/L at locations MW04, MW06, MW08, SW1, SW2 and SW3 with concentrations ranging from 0.07 mg/L (MW04) to 0.17 mg/L (MW08);
- Total Phosphorus exceeded the adopted long-term irrigation criterion of 0.05 mg/L at locations MW03, MW04, MW06, MW07, MW08 and SW1 with concentrations ranging from 0.062 mg/L (MW03) to 0.17 mg/L (MW08);
- Dissolved zinc exceeded the adopted freshwater criterion of 8 µg/L at location MW03 and SW1 with a concentration of 47 µg/L and 14 µg/L respectively; and
- PFOS concentrations exceeded the adopted freshwater criteria of 0.00023 µg/L at locations MW03, MW04, MW05, MW07 and MW08 with concentrations of between 0.00033 µg/L and 0.011 µg/L.
- Concentrations of BTEX, PAH, VOC and alcohols (including methanol) were reported below the LOR in all analysed samples.
- The pH of the groundwater was generally slightly acidic with the results for redox suggesting that, with the exception of MW07 and MW07, oxidising conditions are prevalent.
- TDS was reported between 291 mg/L and 931 mg/L indicating that groundwater/surface water at the site is fresh to marginal
- The ionic composition of the groundwater is dominated by the following:
 - o Sodium-chloride at locations MW05, SW1, SW2 and SW3;
 - o Calcium-bicarbonate at locations MW01, MW02, MW06 and MW08; and
 - o Calcium-magnesium-chloride at locations MW03, MW04 and MW07.

The dominance of calcium, bicarbonate and magnesium in groundwater wells located in the vicinity of the former bio-diesel facility may be attributed to imported limestone materials (evident as limestone gravel in fill) or in the abundance of concrete structures
- The concentrations of Total recoverable hydrocarbons (TRH) were above the level of reporting in MW01, MW06 and MW07:

The full testing results can be seen in the DSI (Appendix E).

4.6.2 Surrounding areas

The Department of Water and Environmental Regulation (DWER) contaminated sites database was also searched for known contaminated sites (sites classified as Contaminated-restricted use, remediated for restricted use or Contaminated- remediation required) in proximity to the site. The nearest registered contaminated site is located more than 900km to the west, making it downgradient for groundwater and surface water flows.



Figure 3 Site landform characteristics

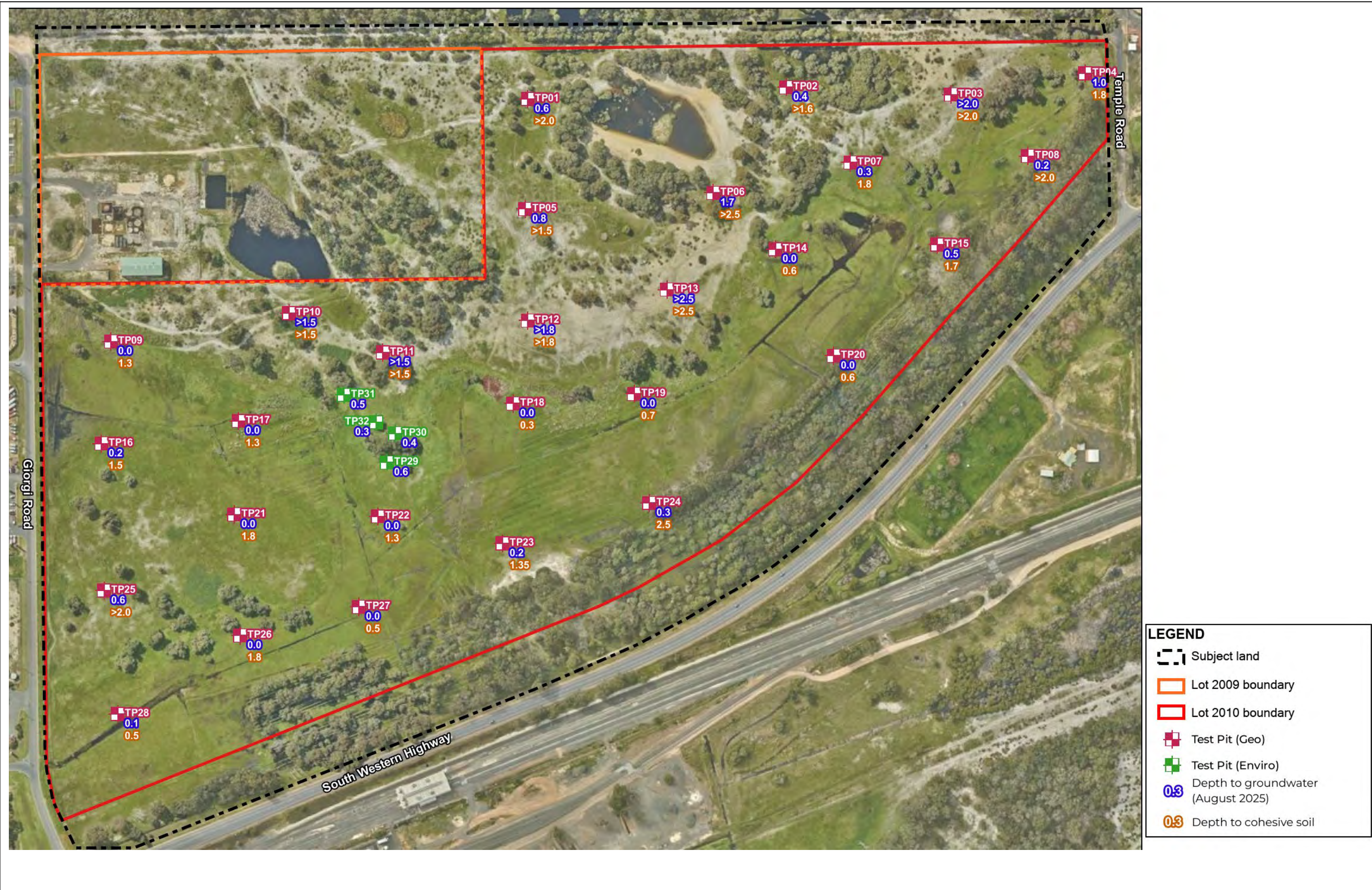


Figure 4 Lot 2010 geotechnical test locations and depth to groundwater

Legend

- Lot 2009 boundary
- AoPC 1 - Storage of Bulk Liquids
- AoPC 2 - Tailings Pond and Water Body
- AoPC 3 - Workshop
- AoPC 4 - Boiler System
- AoPC 5 - Uncontrolled Fill
- Test Pit and Soil Sampling Location
- Subject land boundary



Figure 5 Lot 2009 test pit and soil sampling locations

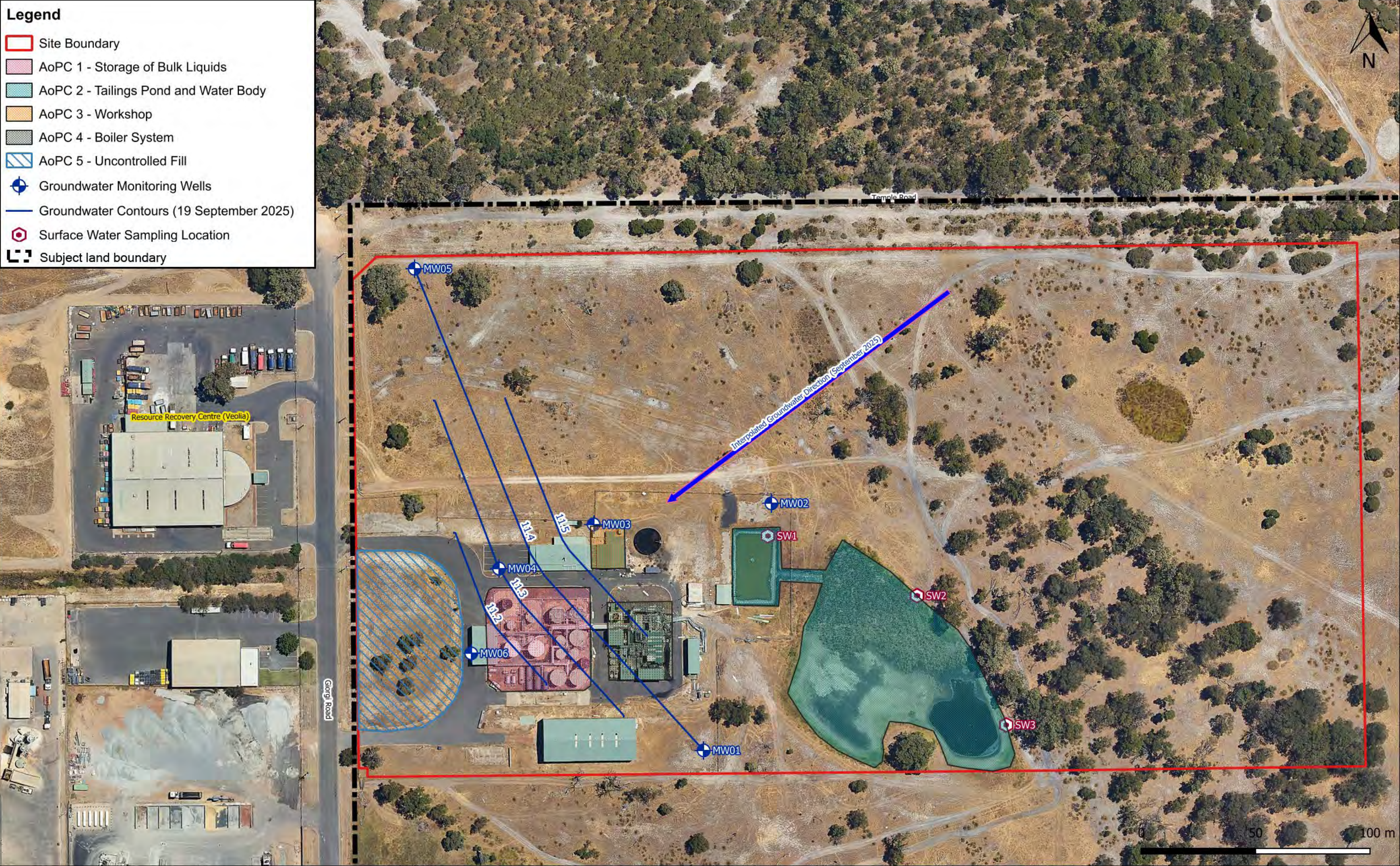


Figure 6 Lot 2009 groundwater monitoring bores and water sampling locations

5 GROUNDWATER

The following is a summary of the current groundwater characteristics of the site. This information is based on groundwater investigations undertaken between 2008 and 2014 as well as more recent analysis in 2025 as part of the geotechnical study and DSI.

5.1 GROUNDWATER LEVELS

The groundwater analysis between 2008 and 2014 involved bore fields across the subject site and surrounding proposed industrial areas to the north west and east. The bore field and subsequent proposed groundwater contours can be seen in Figure 7.

The more detailed analysis of groundwater undertaken in August and September 2025 provides additional data points of the seasonal maximum groundwater level. These refine the groundwater for the subject site. The recorded levels can be seen in Figures 6 (Lot 2009) and 4 (Lot 2010). Using this information and analysis of aerial photography and on-site observations, an overall site-specific refined analysis of the groundwater was undertaken. The revised AAMGL contours can be seen in Figure 8.

It is noted that during peak groundwater periods, there is localised mounding (to approximately 11.6mAHD) within the areas of sand dunes, which results in the groundwater sheeting outwards towards the surrounding low flats. Within the subject site this effect can be seen within the northern sand dune area and the seep line around the edge of the dunal system. In the lower areas, groundwater rises to the surface, with farm drains then transporting with water away, effectively controlling any further rise. This effect can be seen within the northeast to southwest drainage network, which creates a localised draw down on the groundwater. Within this portion the groundwater drops from approximately 11.25mAHD to 10.0mAHD. Once the peak groundwater period has passed, the groundwater tends to follow the underlying clay/sand divide, with water generally moving in a west- north westerly direction.

5.2 GROUNDWATER QUALITY

There is no available groundwater quality monitoring for Lot 2010. Analysis was undertaken as part of the Lot 2009 DSI.

The outcomes of this are covered in Section 4.6.1. As a summary, the groundwater shows similar characteristics to similar areas on the Swan Coastal plain in areas where agriculture has previously been undertaken. This includes high nutrient levels and a slightly lowered pH. There is also some potential oil and PFAS contamination from previous industrial usage.

Groundwater monitoring of industrial areas immediately to the east of the subject site also has also been undertaken, with the results incorporated into the East Picton Lot 1 & 38 South West Hwy D/LWMS. Total Nitrogen and Total Phosphorus exceeded the Leschenault Estuary WQIP target values of 1.0 mg/L and 0.1 mg/L respectively, with levels up to 20.2mg/L for TN and 1.87mg/L for TP. Aluminium and iron concentrations were also found to exceed ANZACC guideline values, noting this is typical of soils within the swan coastal plain soils.

5.3 GROUNDWATER AVAILABILITY

There are 3 aquifers noted as being under the subject land that are subject to licensing. These are all within the Bunbury Area. The aquifers are:

- Dardanup Subarea, Perth Superficial Swan,
- Dardanup Subarea, Perth – Leederville
- Bunbury – Yarragadee Sub area, Perth – Yarragadee South.

As of April 2026, there is allocation available in all three aquifers.

There is an existing current groundwater licence within Lot 2009 (Licence number 166963). This is for 5000KL within the Leederville Aquifer.

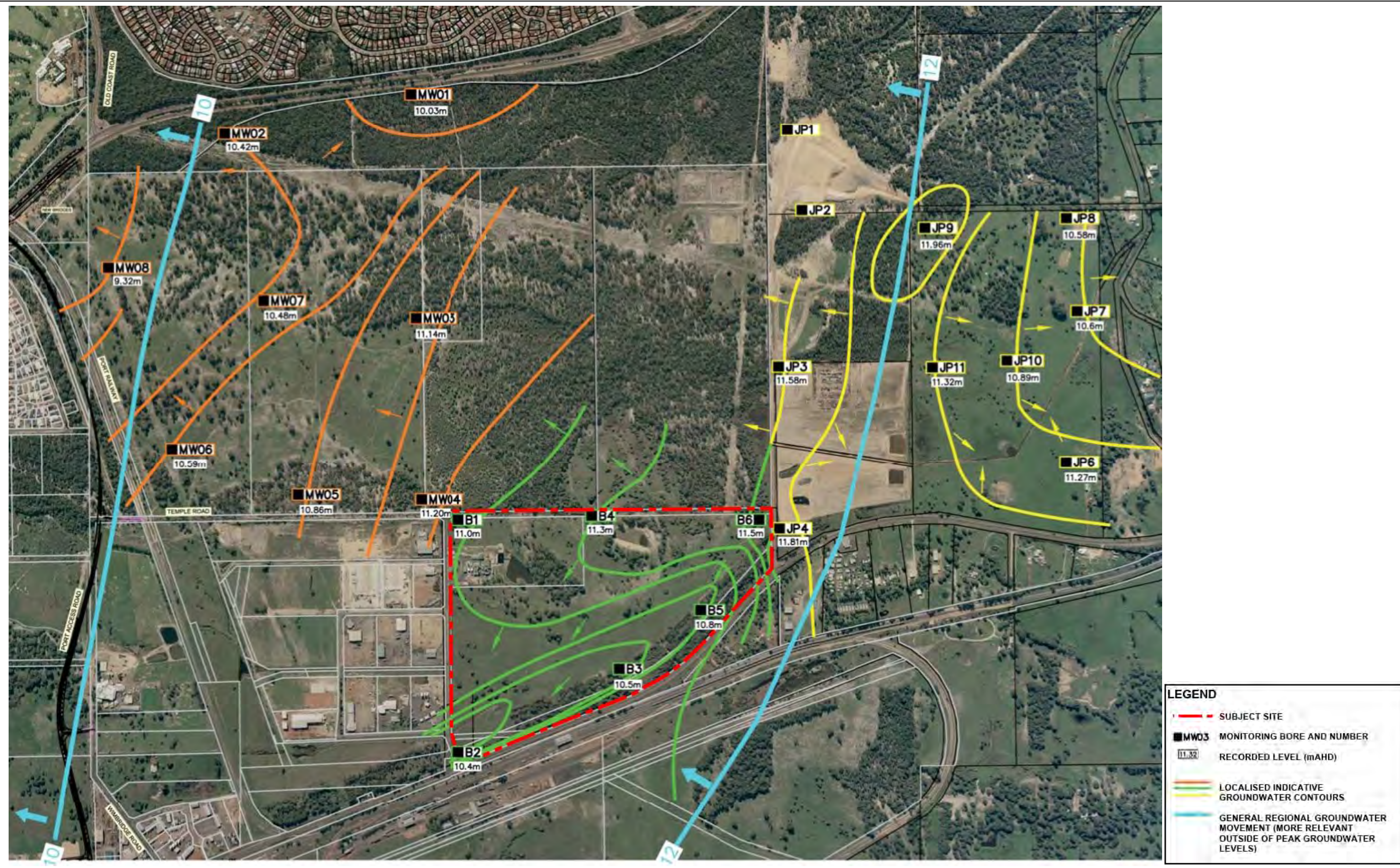


Figure 7 Broadscale groundwater mapping

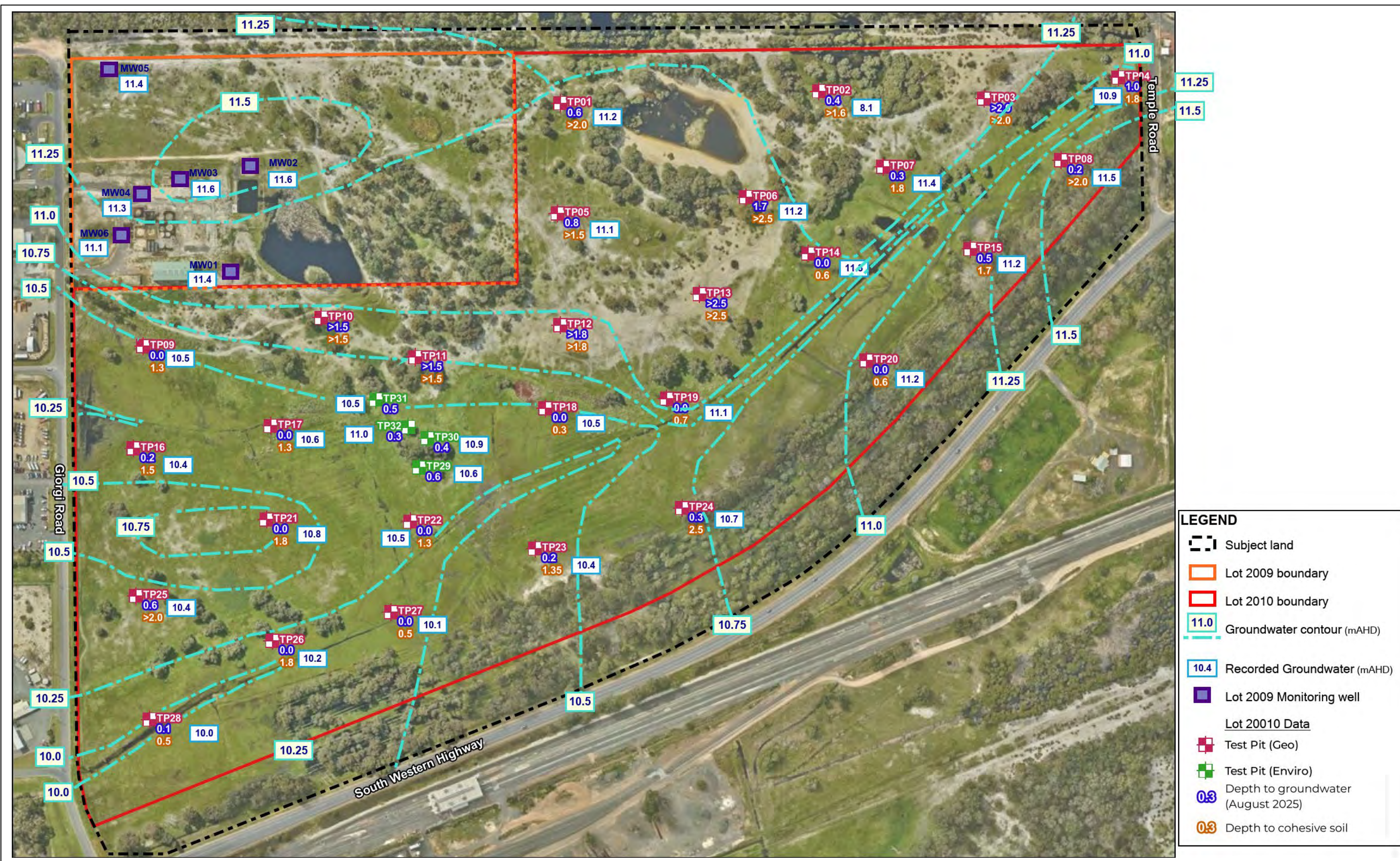


Figure 8 Pre development Groundwater plan

6 ENVIRONMENTAL CONDITIONS AND HERITAGE

6.1 ENVIRONMENTAL

The following is a summary of the environmental characteristics of the subject land, with relevant references to the surrounding areas. This information has been summarised from the Preston Industrial Park Precinct 2 Environmental Assessment Report (PGV 2026) as well as onsite observations by Oversby Consulting.

6.1.1 VEGETATION

The SP area has been extensively cleared and used for rural purposes for more than 50 years. The remaining native vegetation types were mapped on the site by PGV Environmental in 2015. There have been no appreciable changes in the vegetation coverage since. The vegetation types and summarised below:

- **EmCcAf** - *Eucalyptus marginata/Corymbia calophylla* Low Woodland to Open Forest over *Agonis flexuosa/Xylomelum occidentale* Low Woodland with occasional *Kunzea glabrescens* over *Xanthorrhoea brunonis/Dasypogon bromeliifolius* Low Shrubland;
- **EmCcBa** - *Eucalyptus marginata/Corymbia calophylla/Banksia attenuata* Low Woodland to Open Forest with occasional *Kunzea glabrescens*, *Nuytsia floribunda* and *Agonis flexuosa*;

- **ErMp** - *Eucalyptus rudis/Melaleuca preissiana/Melaleuca raphiophylla* Low Open Woodland over *Lepidosperma longitudinale/ Xanthorrhoea brunonis/Pericalymma ellipticum* Sedgeland/Low Shrubland
- **EmCc** - *Eucalyptus marginata/Corymbia calophylla* Low Woodland to Open Forest with *Xylomelum occidentale*;
- **Mp** - *Melaleuca preissiana* Low Open Woodland over *Juncus pallidus* Sedgeland and pasture grasses;
- **MpAf** - *Melaleuca preissiana* Low Open Woodland to Forest over *Astartea fascicularis* Shrubland to Open Heath
- **Mr** – *Melaleuca raphiophylla* Low Open to Closed Forest

Of these vegetation units, **EeMp**, **Mp**, **MpAf** and **Mr** are riparian in nature. There is no native understorey associated with any of the areas containing native vegetation. The understory consists largely of pasture grasses and forbes. There has also been a strip of revegetation along the south eastern boundary. This is composed of tree and large shrub species over grass

All vegetation was assessed as being in a completely Degraded Condition. The vegetation types can be seen in Figure 10.

6.1.2 FAUNA

PGV Environmental undertook a Level 1 Fauna Survey in 2015. The fauna habitats on the SP area are considered to be Highly Degraded for the areas with no or limited native trees and shrubs and mapped as Disturbed for parkland cleared treed areas. The fauna habitat mapping undertaken was primarily for Western Ringtail Possum and Black Cockatoos. There is potentially some limited riparian fauna habitat for generalist species associated with the winter inundated areas, however there has been no dedicated assessment on this aspect.

6.1.3 WETLANDS AND WATERWAYS

Approximately 70% of the subject site is covered by Multiple Use wetlands, with the majority being a Palusplain system (UFI 14,329). There is also a sumpland that extends over the northern boundary (UFI 1400) into the bushland area and another (UFI 1243) the stretches to the east into Giorgi Rd and adjoining industrial land. In the northwest corner there is a degraded Dampland (UFI 1401) that extends to the boundary. From here, this same wetland system becomes a conservation Category wetland - Damplanp (UFI 1237) The wetland mapping can be seen in Figure 9.

There are no natural waterways within the subject land. The farm drains have no appreciable riparian environmental attributes, other than containing some isolated sedge and rush clumps and providing degraded habitat for some riparian fauna (as above). The soaks and excavations into the groundwater provide some degraded permanent/semi permanent open water habitat, however the lack of riparian vegetation limits its value.

6.2 HERITAGE SITES

A search on the Aboriginal Heritage Inquiry System on the Department of Indigenous Affairs (DIA) website, indicated no Aboriginal Cultural Heritage places recorded within the subject land

A search on the Heritage Council of Western Australia (2011) database reveals no European heritage exists within the subject area.

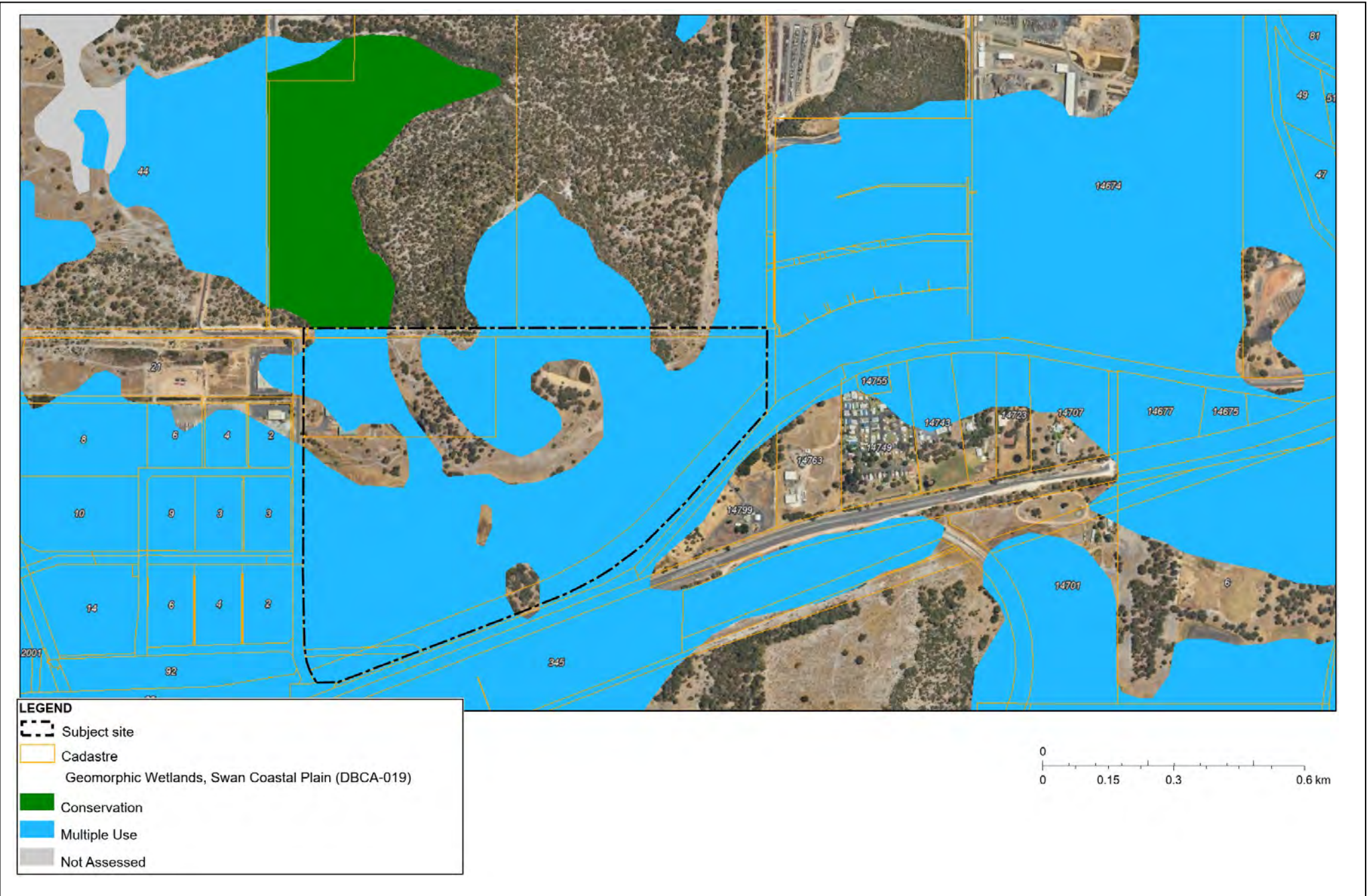
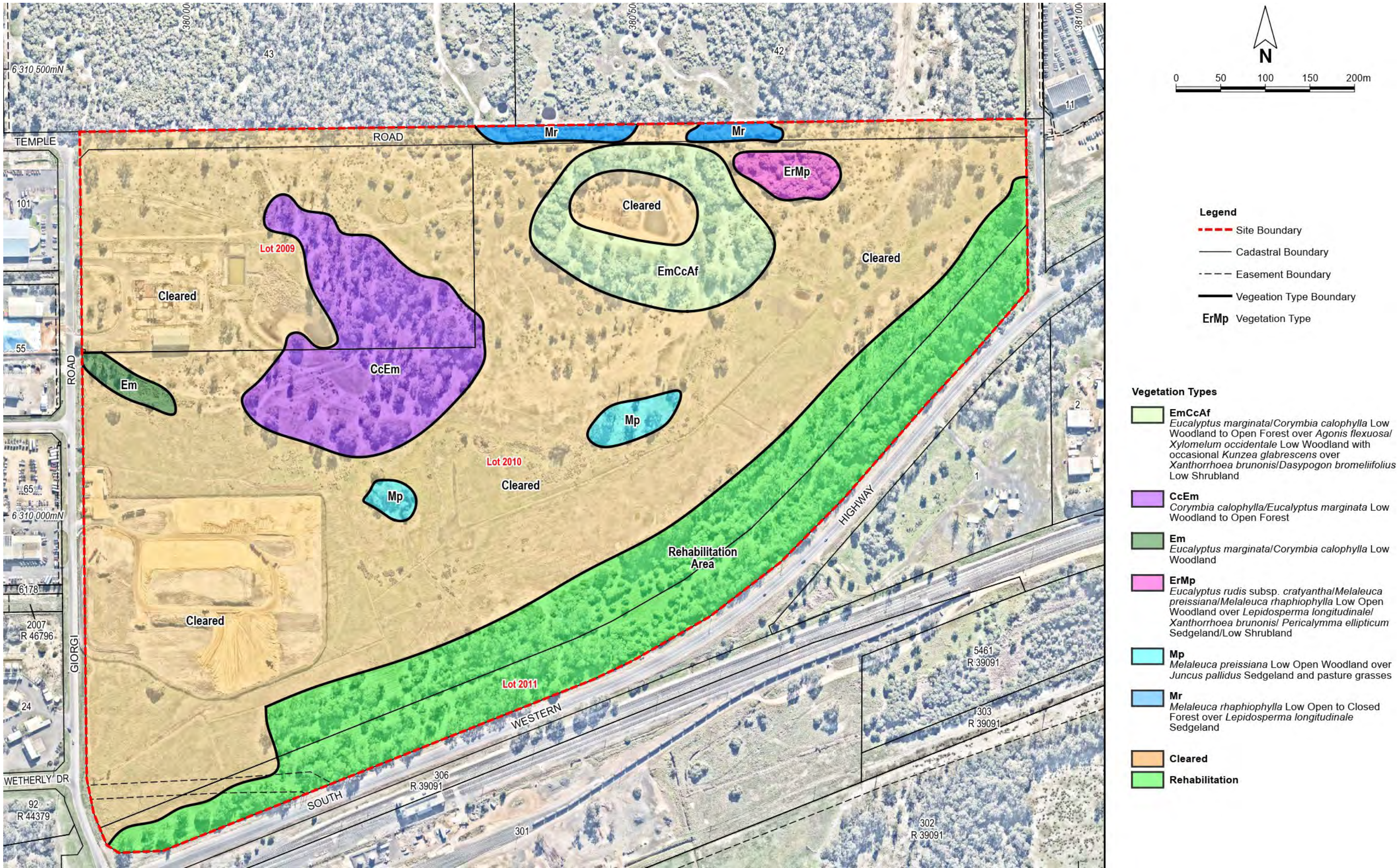


Figure 9 Mapped wetlands



7 PRE DEVELOPMENT SURFACE WATER SITUATION

7.1 INTERNAL SURFACE WATER CHARACTERISTICS AND CATCHMENTS

There are no natural waterways within the actual subject site. There are numerous farm drains across the southern 2/3rds of the subject site. These drains are found within Catchments A, B and MR and predominately discharge to the west and under Giorgi Road. The majority of this drainage flow is directed to the southern City of Bunbury drain, via a 450mm culvert. The other major discharge is to the central City of Bunbury drain, via the Giorgi Street pipe network. The initial inlet pipe is a 300mm culvert. At the most south western corner of the subject land there is also a small drain that discharges under Giorgi Road via twin 600mm culverts. This is primarily to take potential flows from the south west highway, and the area to be set aside for a future widening of the highway (Catchment MR). The Water Corporation's East Picton Sub B1 drain is a constructed channel that takes flow from the twin 600mm pipes at the southern end of Giorgi Rd. The two City drains also eventually join the B Branch approximately 1km downstream.

For the northern portion of the site, there are 2 main catchments. In the north west, there is a trapped catchment (Catchment C), with all water contained within the subject site in localised depressions and the large excavation within Lot 2009. Historical minor earth moving in the unmade Temple Road reserve effectively cuts of any connection to the north at the boundary of Lot 2009. The western portion of the unmade Temple Road reserve (Catchment N TW) generally infiltrates its stormwater due to the deep sands, with some minor discharge into the adjoining northern bushland/wetland adjoining the subject land. In the northern mid-section (Catchment D), water is directed north into the wetland system, before crossing over the northern border. There is a sub catchment (Catchment D1) within this area that incorporates a trapped system, due to historical earthworks. All water within this catchment is discharged into the groundwater.

The far northeastern portion of the unmade Temple Road reserve forms a poorly defined catchment boundary, that is likely altered by the earthworks of the informal track. For this analysis, this small area (Catchment N TE) has been determined to flow northward into the adjoining multiple use wetland system. The northeastern wetland system discharges eastward via a drainage network through existing industrial land.

The catchments, drainage channels and general flow directions can be seen in Figure 11.

Table 5 Internal Pre Development Catchment summary

Location	Area (m²)	Comments
A	78940	Mid Western portion flowing to Giorgi Rd then central City drain
B	284722	Main Lot 2010 portion flowing to Giorgi Rd then southern City drain
C	71880	North west trapped low (mainly Lot 2009)
D	102777	Northern portion over Lot 2009 & s010 - discharges to northern bushland/wetland
D1	17812	Excavated trapped low in northern potion
N TW	4952	Western portion of unmade Temple Rd reserve adjoining CC wetland
N TE	3000	Eastern portion of unmade Temple Rd reserve - discharges to northern MU wetland
MR	62118	Southern portion for South West Hwy and future widening - discharges to twin 600 pipes under Giorgi Rd to WC Picton Sub B1 drain.
Total	626201	

Table 6 External Pre Development Catchment summary

Location	Area (m²)	Comments
G1	3300	Far Northern portion of Giorgi Rd - Flows to G2 via pipe and gutter
G2	4250	Mid Northern portion of Giorgi Rd - Flows to G3 via pipe and gutter
G3	3725	Mid portion of Giorgi Rd - Flows to northern City drain. Minor trapped low at pit.
G4	6725	Southern portion of Giorgi Rd - Flows to Final Basin
Total	18000	

7.2 DRAINAGE MODELLING

The key modelling assumptions and characteristics are as follows:

- Horton/ ILSAX drainage modelling method used.
- ARR 2016 methodology and rainfall figures used.
- Catchments were designed to be logical areas of stormwater capture and discharge and as per Table 5 & 6 and Figure 11.
- All existing made roads were assumed to conservatively be 90% impervious, with 10% of this indirectly connected.
- A roughness coefficient ('n') of 0.01 for paved roads and sheds utilised.
- A roughness coefficient ('n') of 0.25 for treed and dense grass pervious areas in non- waterlogged areas utilised.
- A roughness coefficient ('n') of 0.3 for high groundwater/inundated areas that are vegetation utilised.
- A roughness coefficient ('n') of 0.15 for sparsely vegetated non- waterlogged sandy soils was utilised.
- Catchment grade determined from survey.
- Impervious area % determined by aerial photography.
- Waterlogged and inundated areas determined by aerial photography and groundwater mapping
- An initial loss of 5 mm assumed for all pervious, non-waterlogged/inundated catchments to account for initial trapping in small dips within the catchment.
- Available paddock detention during determined from survey for both discharging areas to Giorgi Rd and for the 2 major trapped lows.
- Swale paths determined from survey
- Tail water effects incorporated into City and Water Corporation drains to account for likely levels during storm events.

7.2.1 RESULTS

Due to the sandy soils over much of the northern portion, there was limited flow from these areas in the 10% AEP. In the 1% AEP, the infiltration capacity of the sands was exceeded and there were discharging flows. There was also no discharge from both trapped lows (eg Catchment's C and D1) in the 1% AEP or smaller events.

The low wet areas did produce discharging flows in both the 10% and 1% AEP. The relatively flat slopes and vegetated covering, in combination with the significant areas of potential flood storage influences the peak discharge for these areas in larger events. The peak flows and corresponding storm event can be seen in Table 7.

Table 7 Pre development flow rate

Discharge points from Site	Flows				Comments
	10% AEP		1% AEP		
	Rate (m3/s)	Critical event	Rate (m3/s)	Critical event	
North - 1	0	NA	0.047	10min	Discharge to CC Wetland as overland sheet flow
North - 2	0.02	3hr	0.451	10 - 15min	Discharge to mid northern MU wetland/bushland as overland sheet flow
North - 3	0	NA	0.025	15min	Discharge to eastern MU wetland as overland sheet flow
Giorgi - 1	0.047	1hr	0.238	1.5hr at site boundary	Discharge to Giorgi Rd pipe network then central City drain - significant storage available at pipe discharge location. First row is flow from site and second includes Giorgi Rd flows into City drain.
Giorgi - 1 City Drain	0.118	30min	0.238	25min	
Giorgi - 2 City Drain	0.081	3hr	0.155	2hr	Discharge under Giorgi Rd to southern City drain - significant storage available at pipe discharge location. Includes Giorgis Rd flows that discharge into site.
Giorgi - 3 WC Drain	0.083	1hr	0.207	1hr	Discharge under Giorgi Rd to WC Picton Sub B1 drain via twin 600mm culverts
Total*	0.302		1.123		

Note: * Total conservatively doesn't take into account differences in times of concentrations for different discharge points

7.3 SURFACE WATER QUALITY

Surface water was sampled from Lot 2009 as part of the DSI. It is noted that this was effectively the exposed groundwater and the lined pond, rather than being true natural surface water systems. The sampling locations SW1 (lined pond) and SW2 & SW3(excavation into groundwater) can be seen in Figure 6.

A summary can be seen in Table 8, which incorporates analytes found above the limit of detection. Yellow highlighted cells show results that exceed the Freshwater guidelines. More detailed information can be found in the DSI (Appendix E).

Table 8 Surface water quality summary– Lot 2009 DSI

Analyte Group / Analyte	Unit	PQL	SW1	SW2	SW3
Ionic Balance					
Calcium - Dissolved	mg/L	0.5	26	21	21
Potassium - Dissolved	mg/L	0.5	25	30	30
Magnesium - Dissolved	mg/L	0.5	13	15	15
Sodium - Dissolved	mg/L	0.5	89	110	110
Bicarbonate HCO3 as CaCO3	mg/L	5	120	110	100
Total Alkalinity as CaCO3	mg/L	5	120	110	100
Chloride	mg/L	1	150	200	190
Sulphate	mg/L	1	29	37	37
Ionic Balance	%	-	-2.3	-3.9	-2.9
Hardness as CaCO3	mg/L	3	120	110	120
Nutrients					
Total Nitrogen	mg/L	0.1	2.4	1.8 FW	1.8 FW
Total Phosphorus	mg/L	0.05	0.13	0.075	0.074
Dissolved Metals					
Chromium-Dissolved	µg/L	1	1.2	1.1	1.1
Zinc-Dissolved	µg/L	1	14	6.5	6.1
Total Recoverable Hydrocarbons					
TRH C15 - C28	µg/L	100	<100	<100	110
TRH >C16 - C34	µg/L	100	<100	<100	140
Per-and poly fluoroakyl substances (PFAS)					
Perfluorobutanesulfonic acid (PFBS)	µg/L	0.0004	0.0007	0.00076	0.00092
Perfluorooctanoic acid (PFOA)	µg/L	0.0002	0.012	0.0084	0.0089
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/L	0.0004	0.0017	<0.00040	0.00045
Total +ve PFOA+PFOS	µg/L	0.0002	0.012	0.0084	0.0089
Total +ve PFAS	µg/L	0.0002	0.014	0.092	0.01

At a broader scale, there has been some water quality recorded as part of the Leschenault Estuary WQIP. A summary of the average winter water quality within the Ferguson River catchment are presented in Table 9x and summarised as follows:

- The Ferguson River Catchment has a TN export per unit area of 1.67 to 2.54kg/ha/year and a TP of 0.06 to 0.08kg/ha/year. These are considered moderate and low levels respectively.

Table 9 Catchment water quality

Waterway	Total Nitrogen -TN (mg/L)	Total Phosphorus - TP (mg/L)
Lower Ferguson	1.5	0.11

In general, the elevated nutrient levels for the waterways linked to the overall subject site are due to the current and historical farming practices. The Ferguson River is considered to be within a Recovery catchments in the WQIP, due to the elevated nutrient levels. This classification specifies a Total Nitrogen and Total Phosphorus target concentration of 1.0 mg/L and 0.1 mg/L respectively.



Figure 11 Pre development drainage characteristics

8 DRAINAGE MANAGEMENT STRATEGY OVERVIEW

The aim of Drainage Management for the subject site is to generally manage the water flows so that water treatment is achieved and that the major storms are managed through the subject site.

The majority of the 1EY is to be treated to reduce nutrients, sediments and other contaminant prior to discharge offsite. Above the 1EY, the main function is to control the flow of drainage water throughout the subject land and its release from the subdivision in a controlled manner.

The following sections show in more detail how water is treated and conveyed in the different AEP scenarios,

7.4 – 1EY

7.5 – 10%AEP

7.6 – 1%AEP

The drainage network, including indicative basin locations can be seen in Figure 13.

8.1 CATCHMENTS AND DRAINAGE INFRASTRUCTURE

The subject site and inflowing external catchments have been assessed as part of the post development drainage modelling. The subject site has been divided into 16 main internal catchments, with these further divided as required into sub catchments for larger lot areas. These include road, lot, POS and Main Road Reserve catchments. External catchment associated with the exiting Giorgi Road drainage network were also incorporated. The Catchment can be seen in Figure 12, with further details in Tables 10 and 11.

The drainage infrastructures within the proposed road and POS areas are to be handed over to the Shire of Dardanup for long-term management.

8.1.1 Lots

All lots are to retain and infiltrate the 10% AEP storm event. The exact storage volume will depend on the system utilised. As a generalised assessment, using a 1m deep straight sided basin, the required volume is approximately 1m³ for every 26m² of lot area (assuming 90% impervious). Once filled, water will generally discharge to the road network as overland flow, noting that for Catchment **Ind W**, a 225mm pipe connection for flows above the 10% AEP was incorporated, to allow flows out to the existing Giorgi Rd pipe network. A 225mm pipe with the same configuration was also incorporated for the **Ind SW** catchment, with this to discharge to the final basin.

All on lot systems are to be designed to have a 300mm separation to the CGL. To assist with managing the rise of groundwater, the infiltration systems are to be located near to the lot subsoil network.

8.1.2 Temple Road

To manage flows from the 20m wide Temple Road reserve into the northern wetland, bioretention gardens are to be utilised to both treat and detain stormwater runoff. All systems are design to infiltrate the entire 10% AEP as well as releasing flows in the 1%AEP to the northern wetlands at approximately the pre development rates. For the portion adjoining the Conservation Category wetland, the bioretention garden is designed as a 0.3m deep by 4.0m wide. It is assumed to cover 200m of the 230m road reserve length within this portion (with the additional area assumed to be set aside for the existing electrical pole setbacks). Once stormwater fills to 0.3m deep, it will overtop into the Conservation Category wetland edge (for events above the 10% AEP). This portion of Temple Road will not receive any additional flows from adjoining lots in events above the 10% AEP.

For the remaining areas of Temple Rd, including the future extension, the bioretention gardens are 0.4m deep by 4.2m wide. This is to accommodate both the road runoff and overflow from lots as relevant. These bioretention gardens incorporate a pit and pipe network and low weirs to allow flows above the 10% AEP to initially discharge through to the new eastern road swale (See Section 8.1.3). Once the capacity of this initial discharging system is exceeded, flow then discharge northward to the Multiple Use wetland at pre development rates.

The bioretention gardens are to incorporate bioretention media and suitable plants in line with the *Vegetation guidelines for stormwater biofilters in the south west of Western Australia* (Monash, 2014).

8.1.3 New Eastern Road

The new eastern road is to be 30m wide and incorporate a grassed swale. The swale is to be approximately 0.8m deep with a 1m wide base and 1:6 side slopes. It is to be set a minimum of 0.3m above the AAMGL/CGL to minimise ponding or standing water. The swale will also receive stormwater overflow from adjoining lots and the Temple Rd bioretention gardens in events above the 10% AEP. The roadside swale is to discharge into the proposed swale within the POS strip.

8.1.4 POS Strip

The majority of the proposed POS Strip will remain relatively unchanged, with the existing planted trees to predominately remain. A swale is to be constructed along the interface with the proposed industrial area. The swale is conceptually designed as being 0.3m deep, with a 2.5m wide base and 1:6 sides. The swale provides a conveyance for flows off the new eastern road, as well as the overflow from the southern industrial lots. The swale is to either be designed to:

- mimic the existing farm drains, with its base at the AAMGL, which will also allow for the flow off the POS to enter it, or;
- be raised a minimum of 0.3m above the AAMGL to minimise groundwater intrusion and associated winter flow, in which case a small separate drain alongside will transport POS flows westward.

The swale discharges into the Final Basin located in the far southwest corner of the POS strip. This basin is designed to be approximately 0.6m below the existing Giorgi Rd low point, with a base at approximately 10.4mAHD. As the AAMGL is approximately 10mAHD, this provides for the basin to have a subsoil pipe network below it to control groundwater. The existing outlet pipe is at 9mAHD, providing a suitable depth to discharge the subsoil at.

The stormwater outflow culvert is assumed to be at the base of the basin, to minimise any standing water. The culvert is a 450mm concrete pipe to match the existing control under Giorgi Rd. The basin is to be planted with suitable native species to provide habitat and assisted with water quality improvement, noting that there is no direct runoff from the new industrial or road landuses to this basin in the 1EY. The only direct flows are from a small section of the existing Giorgi Rd and the planted POS.

The current basin configuration results in a reduced outflow compared to pre development. This allows for some potential refinement as part of detailed design, including a separate POS minor drain outflow and a potential road along the southern boundary of the industrial area. The final basin sizing is to be reviewed as part of the detailed design process and reflect final lot and road configurations, as well as levels.

8.1.5 Main Road reserve

The Main Road reserve area was assumed to remain in its current form for the foreseeable future. This area has twin 600mm culverts at its downstream discharge point, which provides for significantly more flow capacity than is currently generated within the unmade road reserve portion and the portion of the existing made road portion that discharges to this area. As such this portion of the subject site was assumed to continue to flow along the southern edge and be effectively unchanged as per to this proposed development. The only modification is the introduction of the new eastern road connecting to the South West Hwy. This has the potential to interrupt flows along this reserved strip. Suitably sized culverts are to be installed under the new eastern road as part of its construction. Based on initial analysis, the culvert sizing would be approximately a 600mm pipe, however this is to be refined as part of detailed design and in consultation with Main Roads as part of the detailed design process. When this area is developed as part of the widening of the South West Hwy, suitable stormwater management is to be incorporated, so that there is no impact on the stormwater management within the rest of the subject site. This will primarily involve the stormwater being suitably detained and directed to the existing twin 600mm culverts under Giorgi Rd.

8.2 MODELLING

The key modelling assumptions and characteristics are as follows:

- Horton/ ILSAX drainage modelling method used.
- ARR 2016 methodology and rainfall figures used.
- Catchments were designed to be logical areas of stormwater capture and discharge and as per Table 10 and 11.
- All roads were assumed to conservatively be 90% impervious, with 10% of this indirectly connected.
- All lots were assumed to conservatively be 90% impervious, with 10% of this indirectly connected.

Precinct 2 Picton East (Lot 2009 & 2010 Giorgi Road)

Local Water Management Report

- Drainage portions of reserves were assumed to be 90% impervious.
- The drainage infrastructure configurations are as per Table 12. Infiltration from structures is assumed to be:
 - Bioretention gardens - 4m/day from the base only
 - Final basin – 0.5m/day from base and sides (conservative)
 - Eastern roadside swale – 2m/day from base and sides
 - POS swale – no infiltration (conservative)
- Lot storage was assumed to be in soakwells or similar underground structures. An infiltration rate of 0.25m/day from the base and 0.3m/day from the sides was assumed as a conservative infiltration rate for filled sand areas.
- Giorgi Rd catchments and pipes are to remain as they currently are.
- Directly connect impervious areas (eg roads, basins during floods and rooves) had an assumed retardance coefficient of 0.01, while supplementary impervious areas eg footpaths and on lot paving had an assumed retardance coefficient of 0.013.
- Road and lot pervious surfaces (eg areas of verge or landscaping) were assumed to have a retardance coefficient of 0.1.
- The POS areas were assumed to be 50% impervious due to high groundwater/inundation, with a retardance factor between 0.25 and 0.3 to account for the trees and dense grass.
- Backflow effects from the western outflow drains have been incorporated to allow for their effect to be accommodated within the model (water assumed to be 0.5 and 0.7m deep for the central and southern City drains respectively).
- The final storms modelled were the 5min,10min,15min, 20min, 25min, 30min, 45, 1 hr, 1.5hr, 2hr, 3hr, 4.5hr, 6 h, 9hr,12hr, 18hr and 24hr. Longer events were not modelled as the peak events were generally 9 hours or less for flows leaving the site. These were modelled for the 10%AEP and 1%AEP.

Table 10 Internal Post Development Catchment summary

Location	Area (m ²)	Comments
Ind 1N	33750	Lot 2010 portion - Flows north to Temple Rd
Ind 1E	52500	Lot 2010 portion - Flows east to new eastern road
Ind 1S	139538	Lot 2010 portion - Flows south to POS swale
Ind1SW	50000	Lot 2010 portion - Flows south to Final Basin
Ind 1W	42400	Lot 2010 portion - Flows west to Giorgi Rd
Ind 2	100142	Lot 2009 portion - Flows north to Temple Rd - outside of CC wetland
Ind 3	50626	Lot 2010 portion (Investigation area)- Flows west to new eastern road
POS A	49665	Green strip along southern boundary
POS B	17020	Basin portion of POS strip - discharges under Giorgi Rd
N3	4925	Western Temple Rd adjoining CC wetland- flows north to CC wetland
N2	4040	Temple Rd remaining portion fronting Lot 2009- flows to bio garden then initially to N1 bio garden, with high flows north to wetland/bushland
N1	5400	Temple Rd portion fronting Lot 2010 to west of new 'East' Rd- flows to bio garden then initially East Rd, with high flows north to wetland/bushland
N Fut	7110	Temple Rd Future new road - flows to bio garden then initially East Rd, with high flows north to wetland/bushland
Rd E	10474	New 'East' Rd - New north south aligned road. Flows to grassed roadside swale
MR 1	50240	Eastern portion of main roads future area - discharges to western MR portion.
MR2	11878	Western portion of main roads future area - discharges under Giorgi Rd via 2 x 600mm culverts
Total	474015	

Table 11 External Post Development Catchment summary

Location	Area (m ²)	Comments
G1	3300	Far Northern portion of Giorgi Rd - Flows to G2 via pipe and gutter
G2	4250	Mid Northern portion of Giorgi Rd - Flows to G3 via pipe and gutter
G3	3725	Mid portion of Giorgi Rd - Flows to northern City drain. Minor trapped low at pit.
G4	6725	Southern portion of Giorgi Rd - Flows to Final Basin
Total	18000	

Table 12 Drainage structure summary

Structure	Base area (m ²)	Side slope (1:X)	Outlet pipe/weir size (mm)	Low level Weir/pit height from base (m)	High Weir/tip height from base (m)	Top area of basin (m ²)	Volume to high weir(m ³)	Comments
Bio North 1	1008	Vertical	1500 wide weir	0.3	0.4	1008	403	Temple Rd Bioretention garden discharging initially to East Rd swale, with high flows to adjoining Northern bushland/ Multiple Use wetland
Bio North 2	756	Vertical	2 x 300 pipe	0.25	0.4	756	302	Temple Rd Bioretention garden discharging initially to Bio North 2, with high flows to adjoining Northern bushland/ Multiple Use wetland
Bio North 3	800	Vertical	NA	NA	0.3	700	210	Temple Rd Bioretention garden discharging to adjoining Conservation Wetland
Bio North Fut	1334	Vertical	100 pipe	0.37	0.4	1334	538	Future Temple Rd - eastern end, discharging initially to East Rd swale, with high flows to adjoining Northern bushland/ Multiple Use wetland
Final Basin	12,000	6	450pipe	pipe from base	0.6	14904	13,426	Basin in POS strip. Weir is effectively low point of Giorgi Rd.

8.3 1EY STORM EVENT AND WATER QUALITY

Key points of the minor drainage system strategy are as follows:

- On lot storage systems will infiltrate the entire 1EY. Propriety treatment systems will be utilised where necessary to further assist with lot derived stormwater quality management.
- The use of grassed swales and vegetated basins will trap and assimilate potential contaminants generated within the development.
- The Final Basin is to incorporate a sinuous flow path within the base, using 150mm high bunds to force low flows through vegetation in an extended flow path. A low 150mm high bund with a 250mm wide straight sided notch to the base is to be created in a 1.5m radius around the outlet pipe. This is to assist with slowing low flows through the basin vegetation. It will also not impede larger storm flows.
- Bioretention media is to be utilised to assimilate nutrients and other contaminants.

8.4 DRAINAGE MANAGEMENT PLAN – 10%AEP

The drainage infrastructure is designed to detain and transport the stormwater from the internal road network. Key points for the 10% AEP event are:

- Lot based detention is completely filled but does not overtop to the road network.
- All flows discharged are at or below the pre development 10% AEP rate. This includes infiltration of water along Temple Rd within the bioretention gardens, so that the stormwater feeds the northern wetlands.

The discharge rates for the 10% AEP can be seen in Table 13. Flow comparisons for the pre and post 10% AEP can be seen in Table 14.

8.5 DRAINAGE MANAGEMENT PLAN – 1%AEP

The subject site has been designed to safely manage the 1%AEP flood event so that impacts within the subject site and downstream are minimised.

Key points of the major drainage system strategy are as follows:

- The roads are graded to direct flow overland to the basin and swales areas.
- Lots will discharge flows to the relevant road network via overland sheet flow and potentially pipes where levels allow.
- All bioretention basins have high flow weirs design to manage the 1% AEP outflow and to allow for safe outflows, even with the discharge pipe blocked.
- The flow from the subject site, for the north discharge points is slightly below the pre development peak flow rate in the 1% AEP.
- Discharge to the central City drain is slightly lower than the pre development flow, due to the delaying of the peak flow from the subject land. The actual flow from the subject land is higher in the 1% AEP, with this coming after the Giorgi Rd peak has passed.
- The discharge to the southern City Drain is below the pre development rate, mainly due to the potential to infiltrate water within the large basin area available. The basin could be decreased, depending on the final development outcome for the subject site, with this to be determined as part of detailed design. The spare capacity provides a conservative outcome in case of blockages or lot storage not functioning correctly in the future, which protects the downstream infrastructure.
- There is no overtopping of Giorgi Rd from the Final Basin or the area associated with the twin 600 pipe discharge.
- All lot infrastructure is to be set either 300mm above the adjoining road kerb height or 200mm above the surrounding lot level to allow storm flows to move through the lot without flooding of key infrastructures.

The discharge rates for the 1% AEP can be seen in Table 13. The comparison of the pre and post flows can be seen in Table 14.

While not incorporated into the drainage analysis specifically, the POS strip also allows for significant additional storage in the event of failures within the subject site’s drainage network, overflow from the South West Hwy or rain events in excess of the 1% AEP.

Table 13 Post development flow summary

Discharge points from Site	Flows				Comments
	10% AEP		1% AEP		
	Rate (m3/s)	Critical event	Rate (m3/s)	Critical event	
North - 1	0	NA	0.026	6hr	Discharge to CC Wetland as sheet flow from weir in 1%AEP.
North - 2	0.001	15min	0.416	6hr	Discharge to mid northern MU wetland/bushland as sheet flow from weir. Peak discharge flow averaged over weirs. Flow (0.13m3/s) also sent to East Road swale in 1%AEP
North - 3	0	NA	0.002	12hr	Discharge to eastern MU wetland as sheet flow from weir. Some peaks to 0.02m³/s in 1%AEP. Flows (0.010m3/s) also sent to East Road swale in 1%AEP
Giorgi - 1	0	NA	0.208	4.5hr at site boundary	Discharge to Giorgi Rd pipe network then central City drain. First row is flow from site and second includes Giorgi Rd flows into City drain. Significant delay in site flows allows street peak flows to dissipate before site flows enter.
Giorgi - 1 City Drain	0.111	25min	0.23	15min	
Giorgi - 2 City Drain	0.001	3hr	0.076	9hr	Discharge under Giorgi Rd to southern City drain - significant storage available in basin. Includes Giorgis Rd flows that go into basin.
Giorgi - 3 WC Drain	0.085	1hr	0.215	1hr	Discharge under Giorgi Rd to WC Picton Sub B1 drain via twin 600mm culverts
Total*	0.198		0.965		

Note: * Total conservatively doesn’t take into account differences in times of concentrations for different discharge points

Table 14 Pre vs post development flow comparison

Discharge points from Site	Flows			
	10% AEP(m3/s)		1% AEP(m3/s)	
	Pre	Post	Pre	Post
North - 1	0	0	0.047	0.026
North - 2	0.02	0.001	0.451	0.416
North - 3	0	0	0.025	0.002
Giorgi - 1	0.047	0	0.238	0.208
Giorgi - 1 City Drain	0.118	0.111	0.238	0.23
Giorgi - 2 City Drain	0.081	0.001	0.155	0.076
Giorgi - 3 WC Drain **	0.083	0.085	0.207	0.215
Total *	0.302	0.198	1.123	0.965

Note: * Total conservatively doesn’t take into account differences in times of concentrations for different discharge points

** Minor increase in flow due to formalisation of drain within model



Figure 12 Post Development Catchments

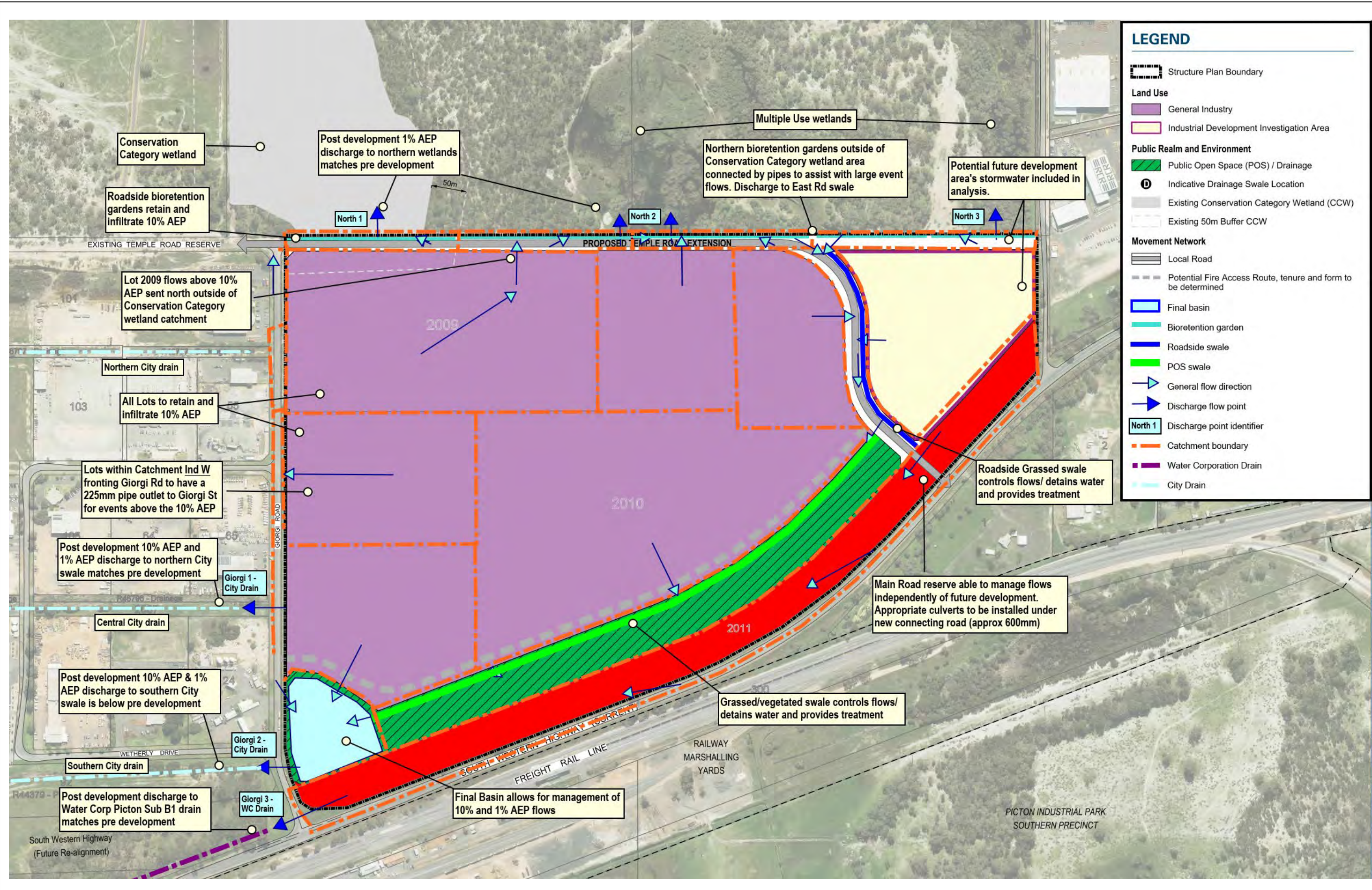


Figure 13 Drainage Plan

9 GROUNDWATER MANAGEMENT STRATEGY

The aim of groundwater management for the subject land is to maintain groundwater as close as possible to existing levels, while maintaining adequate separation from infrastructure. Furthermore, groundwater will be managed to improve water quality before it leaves the subject land. By maintaining the groundwater at a level similar to the current level, the development will have minimal impact on any groundwater dependent ecosystems that exist within or down gradient of the subject land. Groundwater will still be fed from the soil profile at similar rates to the current situation. The following provides further information on groundwater management.

9.1 INFRASTRUCTURE SEPARATION

A suitable vertical separation between significant infrastructure and the onsite groundwater is to be implemented.

The Controlled Groundwater Level (CGL) is to be set so that there are no adverse impacts for onsite or offsite significant ecosystems. The actual separation will depend on the landuse, associated infrastructure and its sensitivity to groundwater. Where separation is required, this will generally be achieved through the use of clean fill, subsoil piping and open swales. Where the development's groundwater is directly influencing sensitive ecological systems, groundwater levels are to be managed to minimise any potential impacts. This is covered in more detail within Section 9.1.4.

In general, groundwater will be controlled at a level similar to the current AAMGL, to minimise impact on the groundwater dependent ecosystems. Groundwater will still feed into the wetland systems and the receiving rivers through the drainage system, as well as direct ground flow.

A minimum of 1.2m of separation between groundwater and buildings will generally be implemented. Separation to effluent disposal areas will generally be a minimum of 1.5m.

9.1.1 SUBSOIL SYSTEM

Subsoil placement will influence the CGL directly. In general subsoils will be laid in conjunction with and adjacent to the road drainage network. Further subsoils may also be used within lots, where there is a need to minimise mounding. This is likely to be the case for the larger lots within the flat plain areas. The final distance between sub-soil pipes will be determined by the permeability of the natural soil and fill within that section of the development and the sensitivity of the infrastructure and landuse above. The subsoil discharge points (if separate to the drainage network) will generally be set 100mm above the base of the swale or basin. Subsoils may also be incorporated below the bioretention gardens and swale network, to minimise the chance of groundwater rising within these systems. These subsoils are to be set at the AAMGL.

9.1.2 SWALES

The base of the swales will generally be above the AAMGL, with subsoils below them to control groundwater. During extreme wet periods, if the groundwater rises above the subsoil network, the swales will provide additional control, in a similar manner to the current farm drains. By using the subsoil and swale network, with its ability to have free draining outlets, mounding of the groundwater is minimised. This will result in the minimisation of fill across the site.

9.1.3 FILL

For a portion of the site, a cut to fill process will be utilised to achieve separation to the groundwater, that utilises the on-site sand resource. External sand fill will also be required to achieve suitable separation to the groundwater for the lower portions of the site. High permeability sands (minimum of 4m/day infiltration rate) are to be used to facilitate direct on-lot infiltration of stormwater into the groundwater.

Where soakwells are to be used, their sizing is likely to impact the required separation distances to groundwater. This means that the CGL (including mounding) will need to be below the invert of the soakwell. By using surface basins, rather than soakwells on lots, fill levels are likely to be minimised. Above ground storage, or sealed below ground systems with a trickle outlet may also be used to minimize the fill requirements. Subsoil networks placed close to the on lot stormwater infiltration areas will further assist with minimising any groundwater mounding and therefore minimise the need for additional fill.

Further details on the finished levels, cut -to-fill requirements, clay grading and subsoil network are to be determined at detailed design and reported in the SDWMR.

Any fill of imported sands will require compaction to relevant standards.

9.1.4 LOWERING OF GROUNDWATER LEVELS

Localised lowering of groundwater to below the existing pre-development groundwater regime, can assist with minimising fill. This will only be suitable where it can be shown that it will not have negative impacts on nearby and downstream/downgradient ecosystems, especially the Conservation Category wetland. The current farm drainage network has a localised groundwater lowering impact. A similar localised lowering may be able to be achieved through the detailed design phase. Any lowering should not be below the current invert levels of the discharging points into Giorgi Road and its associated downstream swale network. Using this as the controlling level, the groundwater discharge will be similar to the current impacts of the farm drains.

The risk of Acid Sulfate Soils (ASS) will need to be carefully considered as well, although if the levels are only slightly reduced below the maximum and don't impact the minimum levels, then there is unlikely to be significant impact on both the production of ASS and the mobilisation of acidic groundwater and pollutants mobilised by the increase in acidity. Due to the area being identified as moderate ASS risk, an ASS management plan, including on site geotechnical investigations, will need to accompany any investigation into options for lowering groundwater. This will assist with managing any potential risks, with the findings outlined in the SDWMR.

Any lowering of groundwater must be approved by the Department of Water and Environmental Regulation.

9.2 QUALITY MANAGEMENT

Groundwater quality will be improved through WSUD structures, subsoil treatment and appropriate landuse management. This includes both management of existing groundwater quality and long-term groundwater generated as part of development of the subject site.

The treatment of stormwater via infiltration through WSUD structures, is covered in Section 8. The general philosophy is to treat stormwater prior to its infiltration into the soil profile, which will result in groundwater receiving minimal new pollutant loads. This includes treating water through bioretention gardens and swales, alongside specific on-lot treatment systems for the individual landuse and wastewater treatment system.

Subsoil systems may also incorporate amended soil filter media to manage nutrients and other pollutants moving into the subsoil system. One potential product that may be used is 'Ironman Gypsum' mixed with sand. This product is shown to be effective in removing nutrients from water filtering through it. An indicative cross section of this is shown in Figure 14. This is likely to be an option for any subsoil networks which are likely to be part of any localised groundwater lowering, so that any legacy nutrients are effectively treated.

As the lot subsoil networks will generally discharge into the stormwater system, they will also achieve further treatment within the swales and planted basins.

Fertiliser use for lot landscaping areas will be minimal given the use of locally native plants. This will reduce the total load of nutrients applied to the development area compared to pre development agriculture and minimise the risk for nutrient movement into the groundwater.

All industrial enterprises are to incorporate industry best practice so that any potential contaminants are captured and treated before they enter the soil profile (and potentially the groundwater system).

9.3 PROTECTION OF GROUNDWATER DEPENDENT ECOSYSTEMS

Potential threats to groundwater dependent ecosystems will be managed by:

- No proposed irrigation or fertilization of the POS
- Infiltrate water close to source to minimise hydrological changes (eg all lots infiltrate the 10% AEP)
- The swale and subsoil network is connected to the outlet stormwater pipe system and discharge the treated excess groundwater offsite.

Further information can be found in Section 11.

9.4 DEWATERING

Throughout the construction phase of the development, dewatering may be required. Prior to the commencement of any dewatering, a licence to take water will be required through application to DWER. If possible, site preparation should occur during dry periods to reduce or eliminate dewatering requirements.

Should it be required, a dewatering management plan is to be produced as part of detailed design. It is to cover the treatment and management of groundwater including but is not limited to pH monitoring and neutralisation, heavy metal monitoring and hydrocarbon analysis. The management plan is to set monitoring parameters so that levels are to remain within set guidelines and have contingency plans enacted if guidelines are exceeded. All dewatering effluent is to be infiltrated as close to source as possible to limit groundwater drawdown outside the area required for excavation.

9.5 GROUNDWATER USAGE

There is no proposed groundwater use as part of the development. Should there be a need for groundwater use for construction purposes, a groundwater license will be applied as part of the detailed design stage. Individual lot owners may install groundwater bores to facilitate their industrial process. All groundwater usage will be subject to licensing by DWER. Further information can be found in Section 10.5.

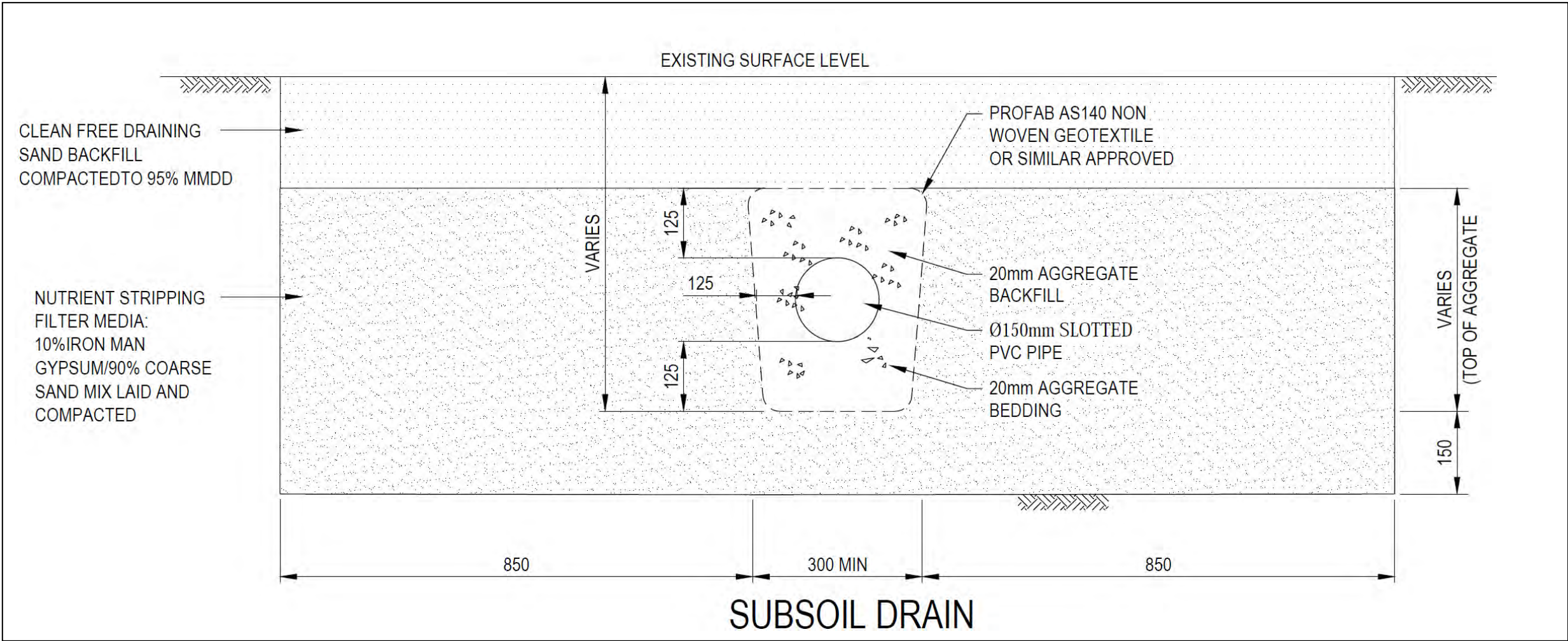


Figure 14 Subsoil groundwater treatment system

10 WATER SERVICING AND SUSTAINABLE USAGE STRATEGY

10.1 POTABLE WATER

The subject site is located within the license area currently held by Aqwest (Bunbury Water Board) for the provision of water services. The wider Preston Industrial Park (Northern Precinct) is currently serviced by both the Water Corporation and Aqwest (Bunbury Water Board). Each service body operates in a separate license area, however if required the agencies could readily service areas across these boundaries and have their license areas extended. The proposed subdivision is serviceable from an existing 300mm diameter water main in Harris Road, approximately 800 meters to the south of the site. Aqwest has confirmed the existing main has the capacity to supply the Proposed Industrial Subdivision.

Water Corporation currently service the Preston Enterprise Park portion to the west of Giorgi Road) using a 200-diameter main extended from Eaton. This main is connected to 150mm diameter mains within the existing industrial area. The Water Corporation have also constructed a new bore and a water treatment plant on Lot 1 approximately 1km to the north of the subject site). Water Corporation have advised that assuming sufficient source water is available then developments in the area could be serviced off the existing 150mm diameter mains in the precinct.

Aqwest are also a possible supplier for the area if required and if Water Corporation have issues supplying the precinct. The internal water reticulation shall be designed and constructed in accordance with standard Aqwest requirements. This service is to be managed by Aqwest.

10.2 WASTEWATER MANAGEMENT

The existing wider Preston Enterprise Park is unsewered and only dry industries are permitted. Further expansion of this industrial area with small lots will however likely require all lots to be sewerred. If larger lots (>1ha) are provided, then it is possible onsite effluent disposal could be used and extension of sewer to the area not required. At present the Water Corporation is the sole ERA licensed sewer provider for the area with its license area shown in Figure 11.

The Water Corporation sewer planning and existing sewer infrastructure indicates the industrial area is planned to be serviced by three future sewer pumpstations. The nearest sewer system capable of taking the flows from the Industrial Estate is Pumpstation 1, a Type 40 Pumpstation in Ince Road Glen Iris. Water Corporation have confirmed there are no plans to upgrade this pumpstation in the near future, and it would currently not be able to cater for any flows from the Industrial Area if it were to be sewerred. It would be recommended that large lots be considered instead of sewerred this area.

Based on this it is currently assumed that all wastewater management within the subject site is to be in by individual on lot wastewater treatment systems. These will need to comply with the recommendations of a future Site and Soil Evaluation (SSE), as well as other detailed investigations undertaken as part to the subdivision conditions.

As an interim strategy, the following are to be considered to be minimum requirements for the design and installation of the effluent management systems for all Lots:

- Generated effluent from each lot should be treated using a secondary treatment system (STS) with nutrient removal.
- The land application areas shall achieve a minimum vertical separation of 1.5 m between the discharge point of the application system and the peak groundwater level.
- Where fill is imported, the material shall be a sandy loam with an approximate clay content between 10-20% and achieve a minimum PRI of 20. The soil shall be able to be classified as a Category 2 soil in accordance with AS 1547.
- The irrigation and surrounding area shall be vegetated or revegetated immediately following the system's installation, preferably with turf/shrubbery.
- The area should be fenced or otherwise delineated (such as landscaping) to prevent vehicle access; signs should be erected to inform owners/tenants and visitors of the effluent irrigation area's extent and limit their access and impact on the area.
- Stormwater must not be disposed of in the wastewater treatment system or the land application area.

These design parameters are only applicable to the disposal of domestically generated wastewater and does not allow for the disposal of trade waste or industrial wastewater within the system. Specific assessments relevant to any industrial process will need to be undertaken by each lot owner for commercial wastewater management, where required.

10.3 LANDSCAPING

The proposed bioretention basins, roadside and POS swale areas are to be landscaped/revegetated. The bioretention systems are to incorporate locally native plants, with a focus on plants outlined in the *Vegetation guidelines for stormwater biofilters I the south west of Western Australia* (Monash, 2014). The planting is to also be undertaken in winter to maximise survival without supplementary watering. Should any temporary watering be undertaken due to extreme weather outside of normal seasonal conditions, the watering would be by hand using tankered water during the first 2 years of establishment, subject to the seasonal conditions. Roadside swales are to be grassed, with establishment also in winter, to minimise water use. The proposed swale within the POS may be either grass or planted with native vegetation, with the final outcome to be determined in consultation with the Shire as part of detailed design. These structures will also receive direct irrigation from stormwater runoff, minimising the need for additional external irrigation. More detail on the general landscaping and any irrigation requirements will be determined in the final landscaping plans at subdivision stage.

10.4 FIREFIGHTING WATER SUPPLY

Fire hydrants will be provided throughout, as per the relevant regulations.

10.5 GROUNDWATER USAGE

Individual lots may utilise groundwater for on-lot uses. Any groundwater usage will be subject to licensing by DWER at the time of application. It is noted that there is currently allocation available within the Superficial, Leederville and Yarragadee aquifers (April 2026) below the subject site.

11 WATER DEPENDENT ECOSYSTEMS MANAGEMENT STRATEGY

11.1 EXISTING ECOSYSTEM PROTECTION

The treatment of water prior to it entering the groundwater and surface water flowing off site will assist with protecting these systems. The strategies used to achieve this are outlined in Sections 8 and 9. The general reduction in nutrients and other contaminants will minimise impacts on any groundwater fed ecosystems down gradient of the subject site, including the adjoining Conservation Category wetland and the Ferguson River.

11.2 NEW HABITAT CREATION

The planted drainage bioretention basins and final Giorgi Road basin will also act as new ephemeral riparian habitat, due to the ephemeral inundation and locally native vegetation suited to these conditions. This will be complimented by the potential use of other native plants within the streetscape planting and the additional restoration activities within the POS area.

Furthermore, the protection of the formerly revegetated areas within the proposed POS will assist with maintaining an ecological link, while locally controlling the groundwater through evapotranspiration. As the bioretention basin and final basin are generally located within or adjacent to the conservation and retained vegetated areas, these will complement these wider areas and provide a range of habitats in close proximity.

11.3 DISEASE VECTOR AND NUISANCE INSECT MANAGEMENT

The ephemeral nature of the drainage network means that they do not generally offer a suitable habitat for mosquito breeding. The open vegetated drainage systems are designed to drain significantly quicker than the guideline of 96 hours after rain ceasing. This will be achieved through the Final basin including an outlet pipe set at the base, so that water drains out completely and any rising groundwater is moved through. As the swales are generally set above the AAMGL, these will generally not have a seasonal base flow, except potentially in exceptionally wet years for short periods.

12 MONITORING & MAINTENANCE

12.1 SURFACE AND GROUNDWATER MONITORING

Surface water

Some pre development surface water monitoring was undertaken as part of the Lot 2009 DSI. The works are outlined in Section 7.

As there are no natural surface water features on site, there will be no further pre development monitoring, other than that as may be required for any future remediation works in Lot 2009.

Groundwater

There is sufficient predevelopment groundwater level information for the Site, based on previous data collection.

The value of post development groundwater monitoring is to be determined as part of the SDWMR. If this is determined to be useful for monitoring level changes or water quality variations, then a monitoring program can be determined in consultation with the relevant authority. The location of any post development monitoring bores is to be determined in consultation with the Shire and DWER as part of the SDWMR, noting that some existing bores are located in areas that are likely to remain as POS.

12.2 GENERAL - CONSTRUCTION PHASE

Installation of drainage control structures ahead of the construction phase of the subdivision development will be utilised. This will include the use of water sensitive urban design techniques such as sediment curtains, hydro mulching and temporary detention basins to maintain the quality of the water leaving the development area during construction.

Any temporary basins will be monitored for any damage, including compaction, sediment build up, oils and litter during and at the completion of construction to ensure the structure’s effectiveness is not diminished.

Sediment and litter on roads will be monitored, with removal as necessary with street sweeping. Further details can be seen in Table 15.

12.3 GENERAL - POST-DEVELOPMENT

Compared to traditional engineered structures for stormwater runoff management, the WSUD elements will generally require routine maintenance that is generally of a landscape maintenance nature. The most common maintenance is the removal of weeds, debris and siltation. The most time intensive period of maintenance for a vegetated WSUD system is during plant establishment (which typically includes two growing seasons), when supplementary watering, plant replacement and weeding may be required.

It is recommended that vegetated WSUD elements are monitored by personnel with floristic knowledge and/or qualifications as they will be capable of identifying evasive species within the natively vegetated WSUD systems. Furthermore, personnel in charge of monitoring should have a good understanding of principles and the functional design of the WSUD elements and the treatment system. The maintenance activities prompted through monitoring activities will generally require coordination between landscape and civil services.

Maintenance inspections should be scheduled to be conducted after a significant storm event (mobilises sediments and coarse material). Inspections should focus on ponding time for the different systems, unequal surface flow distribution and scouring. As well as this, the maintenance will also include the factors outlined for the temporary basins above.

Performance monitoring of the basins will be undertaken to ensure the effective working of the system. Indicators will be used to provide cost effective methods to evaluate the adequacies of the operation and performance of WSUD elements. It can be assumed that if the WSUD elements operate in accordance with the designs, then it can be expected that they are delivering the desired management objectives.

The key aspects monitored will include:

- ensuring the inlet and outlet structures are free of debris;
- vegetative cover of the systems is maintained;
- sediment build up is not impeding the functionality;
- erosion is not present;
- soils are not compacted;
- litter is removed; and
- excessive hydrocarbons are not present in the system
- weeds controlled
- infiltration of stormwater is maintained
- groundwater is not present in the systems for extended periods

These are outlined further in Table 15.

Due to being in a large lot industrial estate, the roadside swales are likely to be composed of mowed grass for ease of maintenance. The monitoring is therefore focused on erosion and sediment control as well as maintaining a dense surface grass cover. The flow channel is to be kept free of any significant obstructions, which may include a need to mow and remove the clippings of any dense grass stands from time to time. Other soil and litter obstructions are also to be removed along with problematic weeds.

The drainage pit and pipe network is to be monitored for functionality. This includes blockages of pits or pipes, sediment accumulation, blockages of outlets and cracking of pipes.

Table 15 Monitoring and Maintenance Schedule

Function	Item to Monitor	Details Monitored	Trigger for Immediate Action	Maintenance Action Required	Monitoring Frequency during maintenance period	Responsible Authority (Timeline)
CONSTRUCTION PHASE & POST-DEVELOPMENT						
Drainage Management Systems (includes traditional and WSUD systems)	Structural Design	Systems are constructed to engineer detailed design specification	Systems constructed differs to design specifications.	Remedial work to rectify systems to meet design specifications.	During and after construction	Developer until handover to Local Authority
	Structural Effectiveness (inlets, traps and outlets)	Inspection for debris, litter and sediments surrounding structural components	Debris, litter or sediments causing blockages or impairing functions.	Remove any debris or blockages. Inspect systems for any erosion related issues.	Monthly	Developer until handover to Local Authority
	Erosion	Inspection for erosion.	Presence of severe erosion or erosion impairing functions.	Investigate, identify and rectify the cause of the erosion. Replace filter media as required.	Monthly	Developer until handover to Local Authority
	Sediment Build Up	Inspection for sediment accumulation within pits, on the surface of bioretention systems and within basins.	Accumulation of large volumes of sediments and/or silts in pits or on the surface (according to Shire standards).	Investigate, identify and stabilise cause of sediment source. Remove accumulated sediments and replace filter media or plants removed. Undertake street sweeping	Event based (mobilisation of sediments) and a minimum of every 3 months	Developer until handover to Local Authority
	Compaction	Inspection of filter media for compaction, could include being driven on.	Water remains ponding longer than designed in bioretention system after a storm event.	Investigate cause of compaction. If localised, remove top 500mm of filter media, break up the filter and then return to system without	Monthly	Developer until handover to Local Authority
	Weeds	Inspection for the presence of weeds.	Weeds are noxious or highly invasive or if weeds cover more than 25% of area.	Manual removal or targeting herbicide application, with waterway approved products.	Monthly	Developer until handover to Local Authority
	Plant Condition	Inspection of vegetation health and cover, and presence of dead plants.	Plants dying or a pattern of plant deaths.	Investigate cause of plant deaths and rectify. Infill planting may be required.	Monthly	Developer until handover to Local Authority
	Organic Litter	Inspection for the presence of organic litter (e.g.. leaves) on surface.	Organic litter coverage is thick or extensive, or detracting from the visual appearance of the system.	Investigate source of litter and undertake appropriate response e.g. alter landscaping maintenance practices, community education).Remove litter.	Monthly	Developer until handover to Local Authority
	Rubbish	Inspection for the presence of rubbish.	Rubbish is blocking structures or detracting from the visual appearance of the system.	Identify source of rubbish and undertake appropriate responses, including removal.	Every 3 months	Developer until handover to Local Authority
	Oil/Hydrocarbons	Inspection for the occurrence of oil on surface.	Oil coverage persists for more than 3 weeks.	Notify the EPA of the spill, if significant and clean up requirements.	Every 3 months	Developer until handover to Local Authority
	Infiltration/Standing water	Inspection of basins to determine if water is infiltrating after rain events in basins	Water is still present after 96 hours, excluding small volumes of groundwater inflow from subsoil	Check subsoil network and filter media is functioning as designed and repair/upgrade.	Every month over winter and spring	Developer until handover to Local Authority

13 IMPLEMENTATION PLAN

The developer is committed to undertaking the water management strategies outlined in this report. The following information details the actions and works to be undertaken by the developer and relevant authorities as part of the development of the subject land.

Implementation of the strategies outlined in this report will be undertaken prior to developmental works, as part of subdivisional works and into the post development phase. The relevant items are to be included in SDWMR's or development applications for the subject site. This is to include:

COMMITMENTS BY DEVELOPERS

- Refinement of drainage modelling including connections to surrounding drainage networks.
- Design and construction of overall drainage and subsoil system including bioretention systems and swales.
- Appropriate fill used across the site.
- Sediment control during construction.
- Street sweeping undertaken
- Maintenance during agreed maintenance periods of the stormwater drainage systems and infrastructure.
- Produce and implement Construction and Sediment Control reports.
- Construct the Potable water systems.
- Produce a waterwise detailed Landscape Management Plan including any irrigation requirements.
- Implementation of approved landscaping plans.
- Produce a Dewatering Management Plan, if required
- Produce a SSE report to guide wastewater management.

REQUIREMENTS OF THE SHIRE OF DARDANUP

- Review and approval of the SDWMR and Development Approvals.
- Approval of drainage design and other water management works.
- Approval of on-lot stormwater detention systems.
- Approval of on-lot wastewater treatment systems and disposal areas in line with the SSE
- Responsibility for the maintenance of the stormwater system after handover

REQUIREMENTS OF THE DEPARTMENT OF WATER AND ENVIRONMENTAL REGULATION

- Review and approval of the LWMR.
- Assist the Shire in relation to assessing the SDWMR as required.

REQUIREMENTS OF THE WATER CORPORATION

- Review and approval of potable water servicing.
- Manage the potable water service post handover.

LOT OWNERS

- Installation and maintenance of approved wastewater treatment system
- Installation and maintenance of on lot stormwater detention infrastructure.
- Installation and maintenance of other relevant water management systems specific to the industrial process used.

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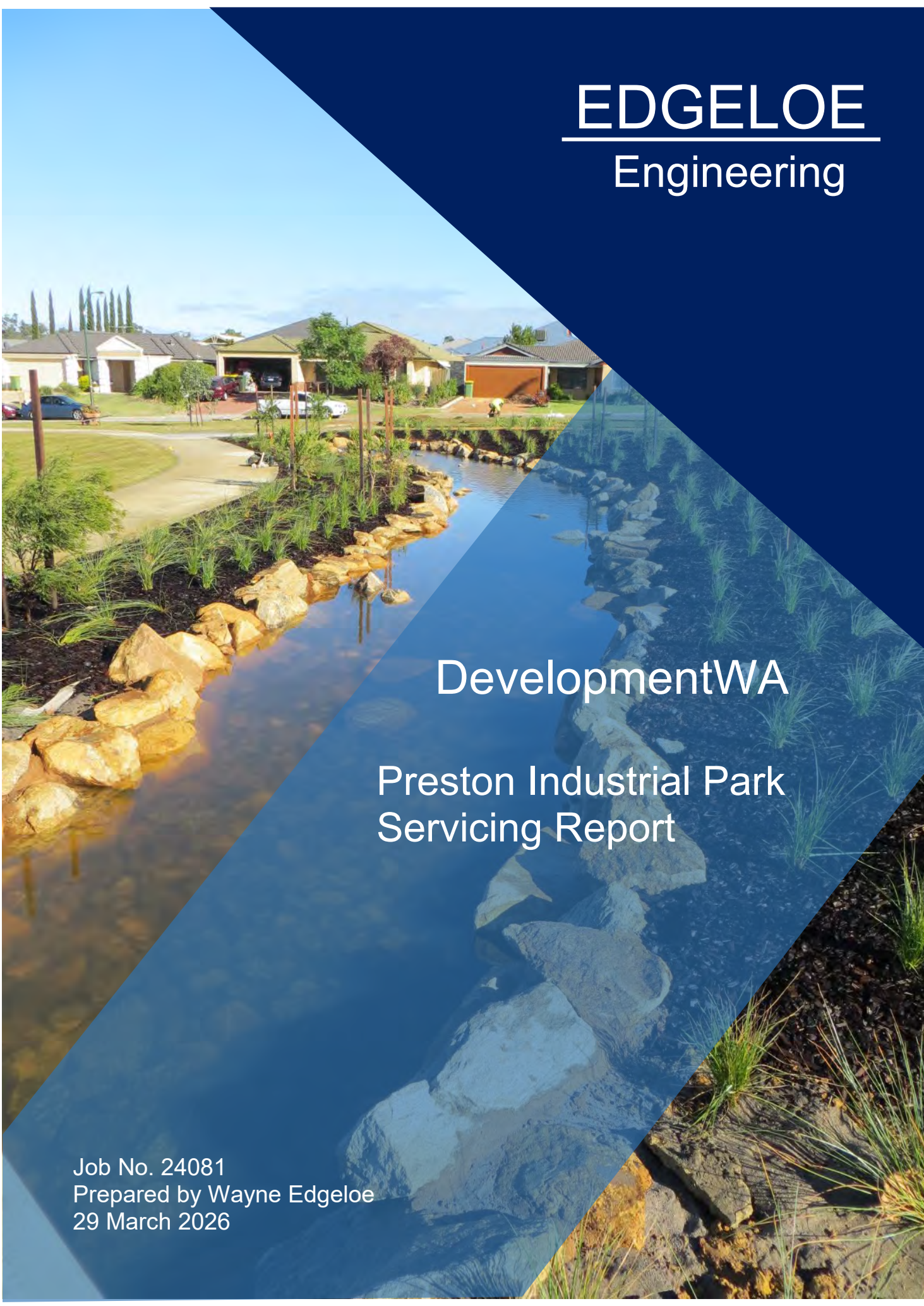
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APPENDIX A : SERVICING REPORT



EDGELOE Engineering

DevelopmentWA

Preston Industrial Park Servicing Report

Job No. 24081
Prepared by Wayne Edgeloe
29 March 2026

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Document Status

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3	W Edgeloe	Report updated		29/03/2026

1 INTRODUCTION

Edgeloe Engineering Pty Ltd have been commissioned by Development WA to investigate and report on the servicing infrastructure availability and constraints for the DevelopmentWA properties and also Lot 2009 within the Preston Industrial Park (Northern Precinct) Structure Plan area.

DevelopmentWA controls Lots 200, 44 and 2010, and Lot 2009 is in private ownership as shown in Figure 1.



Figure 1 Locality Plan

Lots 200 and 44 are within the City of Bunbury and Lots 2009 and 2010 are in the Shire of Dardanup.

There is existing Industrial development on the west of Giorgi Road with dry industry uses and a former renewable fuels development was previously operating on Lot 2009 on the east side of Giorgi Road.

2 PREVIOUS WORKS

Extensive previous works and investigations have occurred on the Precinct and most recently included the proposed release of a single lot as a subdivision from Lot 2010 to create a Western Power Depot site as shown in Figure 2.

This 6.5 ha site was to be serviced with water, power, Telstra and fronted and existing road.

Sewer was not to be provided and on-site effluent disposal was proposed for the development.

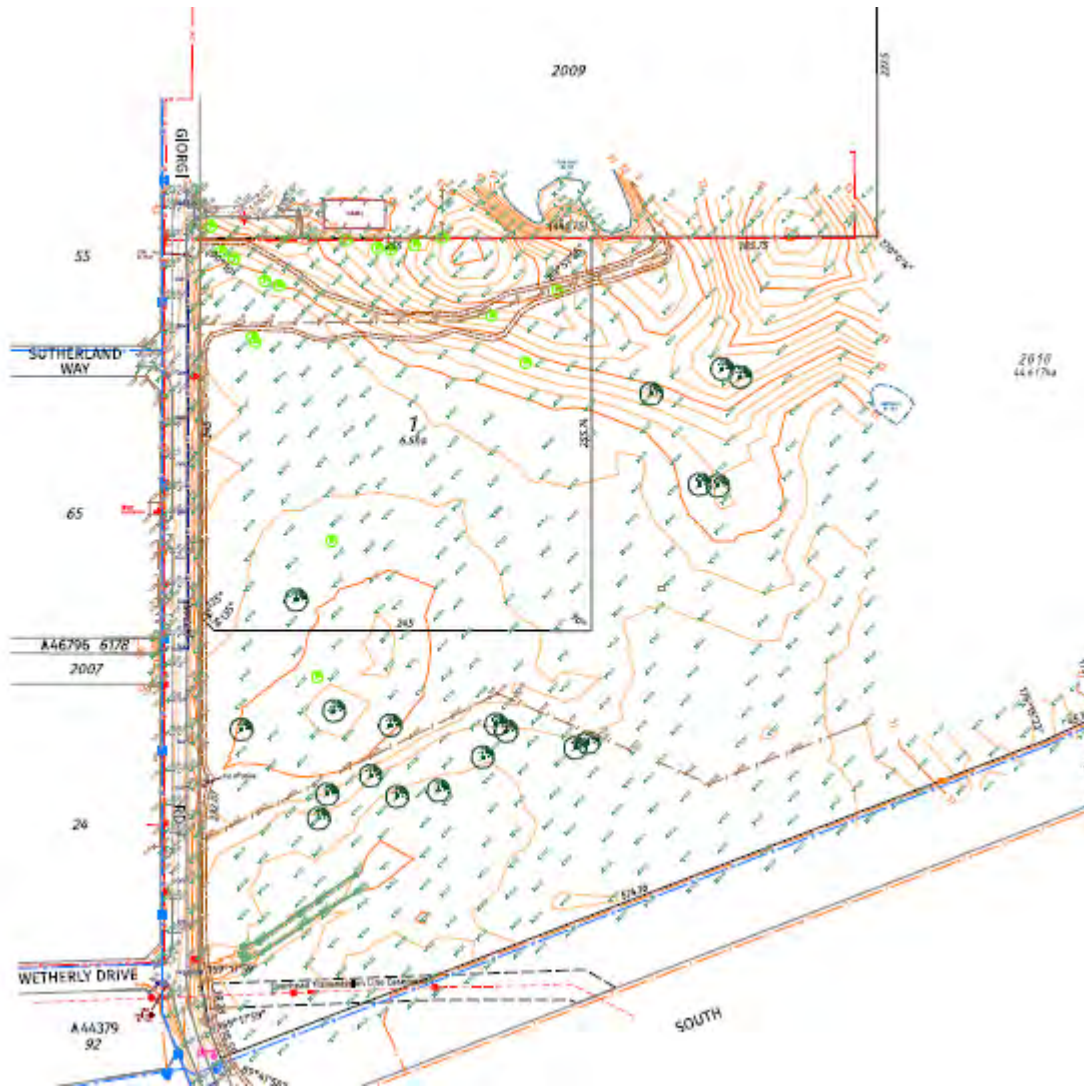


Figure 2 Previous proposed Western Power site

3 ROADWORKS

Lots 2009 and 2010 are currently serviced by direct frontage to Giorgi Road on their western boundaries. There is an unconstructed section of Temple Road along the northern boundaries of Lots 2009 and 2010.

In previous discussions with Main Roads an intersection was proposed off South West Highway into Lot 2010 and this is reflected in the Proposed Structure Plan as shown in Figure 3.



Figure 3 Proposed access from South West Highway

Lots 200 and 400 do not currently have access to a constructed road but do have the Temple Road Reserve along their southern boundary.

This reserve has overhead powerlines and sewer pressuremain in it and would need upgrading to service these lots or an alternate access provided.

The road is also on a ridge line and not well suited for access with additional environmental constraints.

A crossing off the Willinge Drive has been constructed for Temple Road as shown in Figure 4 but no rail crossing has been built to access the lots.



Figure 4 Temple Road intersection with Willinge Drive

Earlier studies had indicated possible link roads through the lots with a major interchange at Australind Bypass Road.

4 DRAINAGE

Extensive previous drainage investigations have occurred across the site.

The area is part of the Roelands Drainage District and is only serviced by a low-level system of drains that would need upgrading to service industrial development and development flows also compensated so as not to cause increases in the downstream drainage.

The rural drainage network is shown in Figure 5.

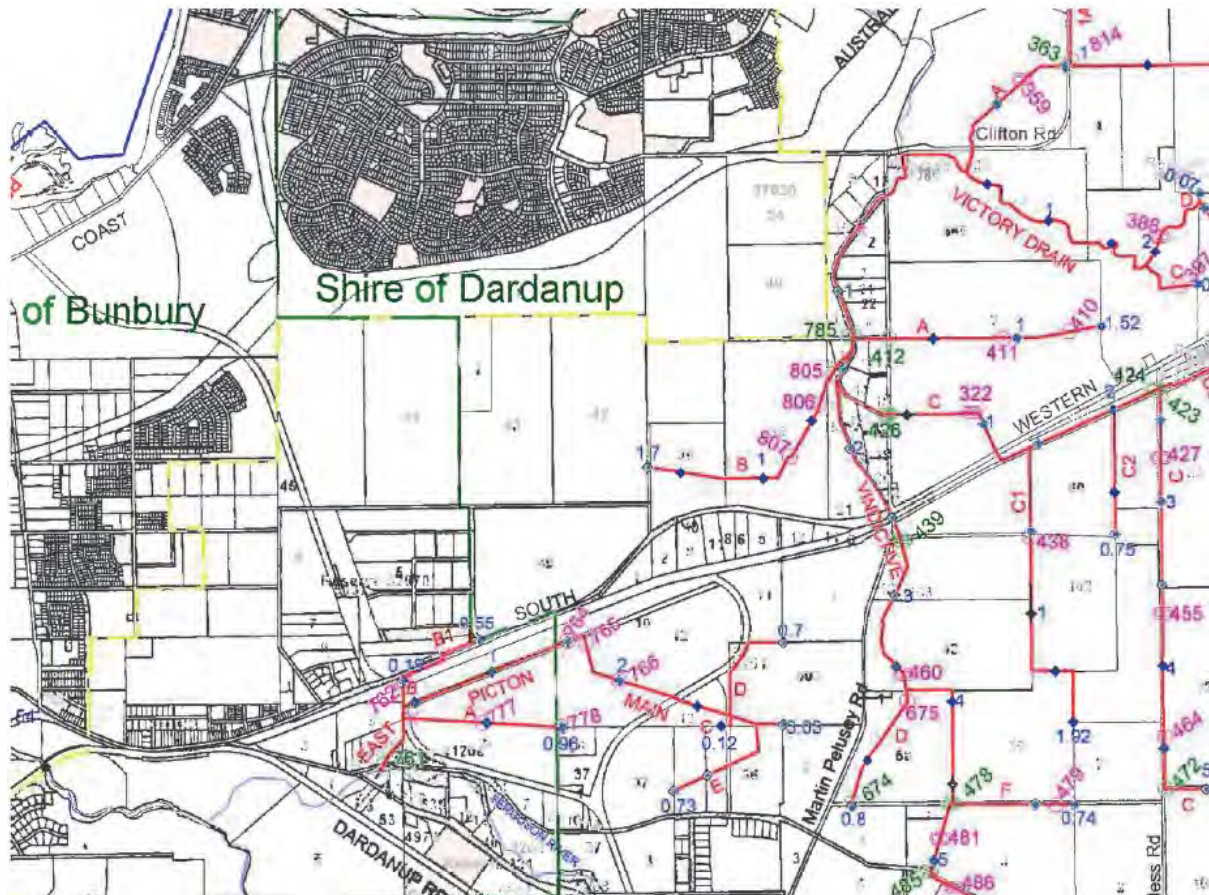


Figure 5 Rural Drainage networks

The existing ground levels are shown in Figure 6 with associated drainage catchments.

Drainage catchments are also defined in Figure 7.



Figure 6 Landform and Drainage catchments

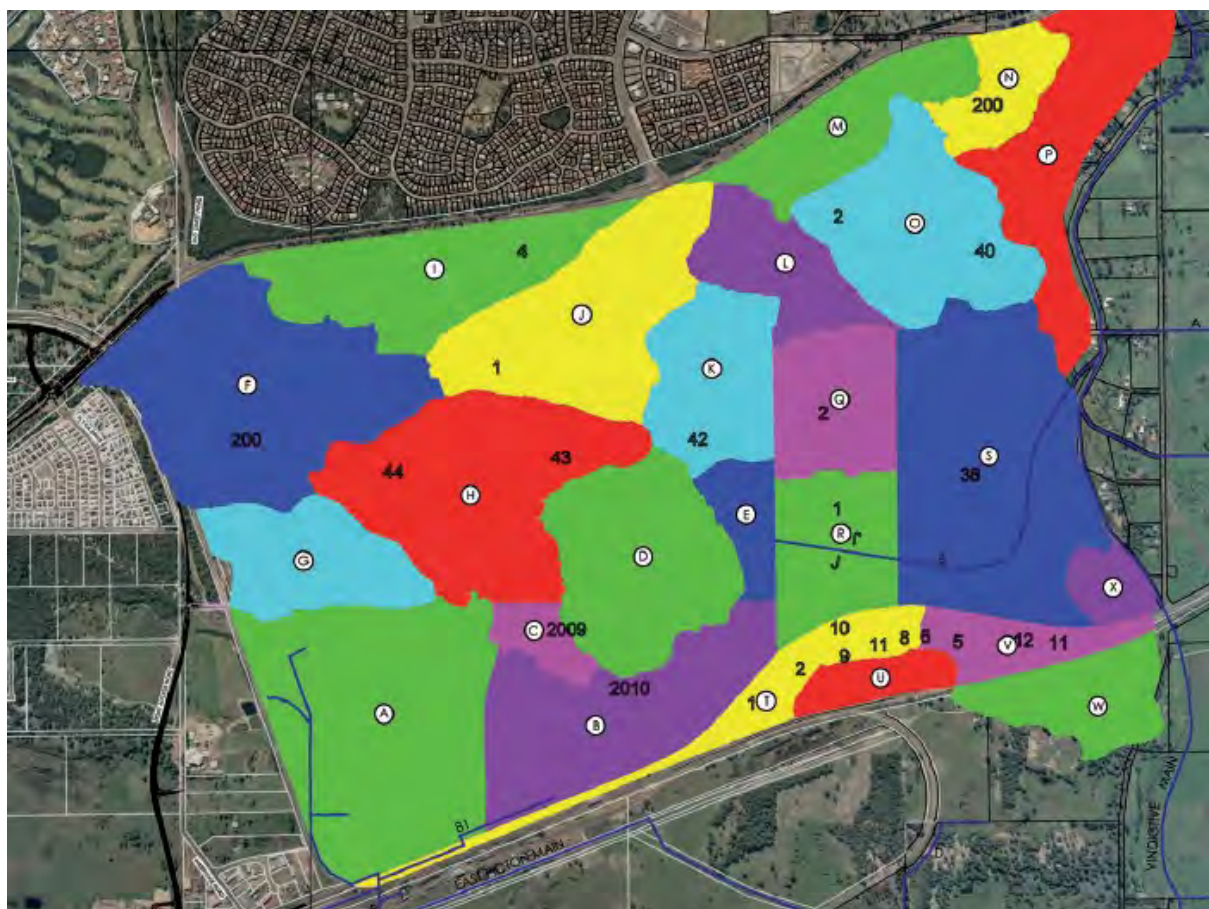


Figure 7 Catchment and Drainage Plan

Strategies have been previously developed for creation of lots in each precinct and drainage of those but they would need updating based on new lot layouts and sizes.

5 WATER SUPPLY

The Preston Industrial Park (Northern Precinct) is currently serviced by both the Water Corporation and Aqwest (Bunbury Water Board)

Each service body operates in a separate license area as shown in Figure 8 however if required the agencies could readily service areas across these boundaries and have their license areas extended.

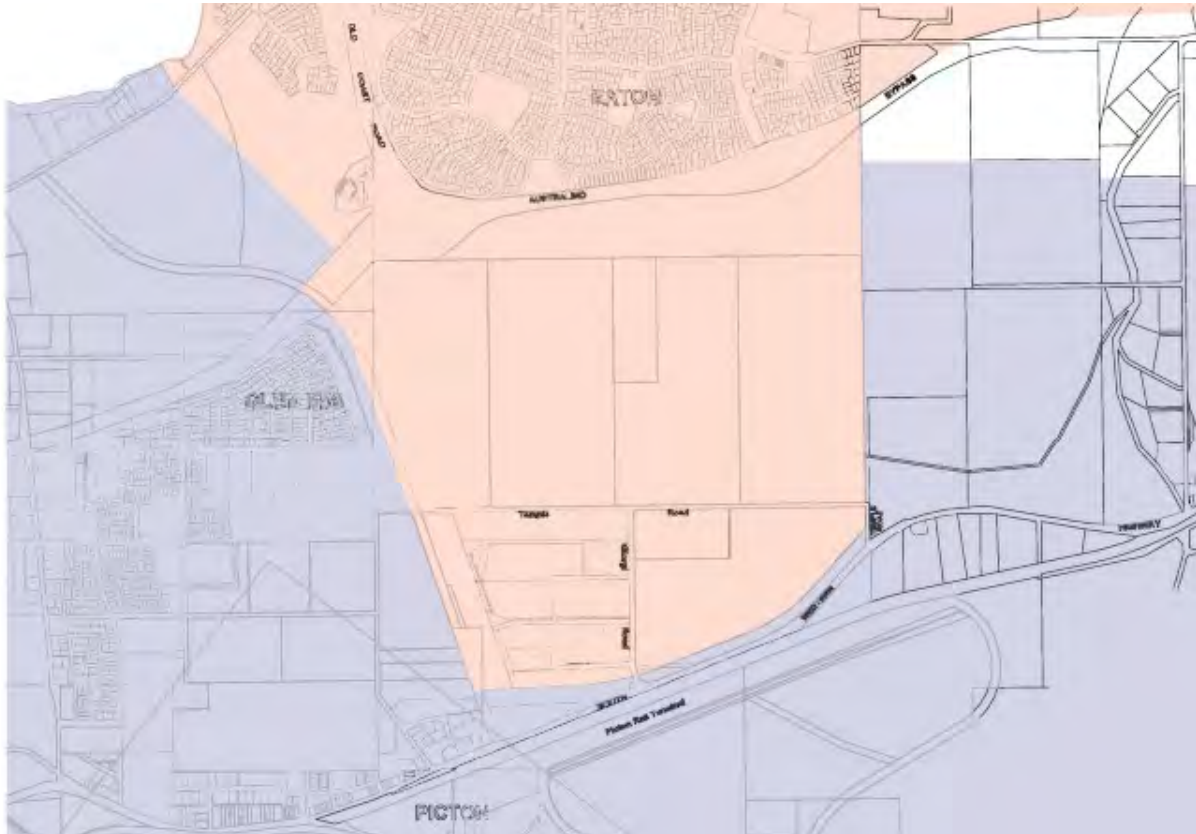


Figure 8 Water License Areas

Water Corporation currently service the Preston Enterprise Park (section west of Giorgi Road) using a 200-diameter main extended from Eaton and laid along the side boundary of Lot 44.

This main is connected to 150 dia mains within the existing industrial area.

The Water Corporation have also constructed a new bore and a water treatment plant on Lot 1 as shown in Figures 9 and 10.

Water Corporation have advised that assuming sufficient source water is available then developments in the area could be serviced off the existing 150 diameter mains in the precinct.

Water is supplied to the area via a 2.5km long 200mm diameter main coming from the Diadem Elevated Tank (45m top water level). The tank has capacity of 1,000m³. The capacity of the elevated tank and of the 200mm main to supply the development of the full Industrial precinct would require further assessment. Larger mains may be required as part of this assessment.

The minimum main size for industrial areas is 150 diameter largely due to fire demands. All mains less than 250 diameter would be at full cost to developers. Mains 300 dia and above are generally prefundable.

Aqwest are also a possible supplier for the area if required and if Water Corporation have issues supplying the precinct.

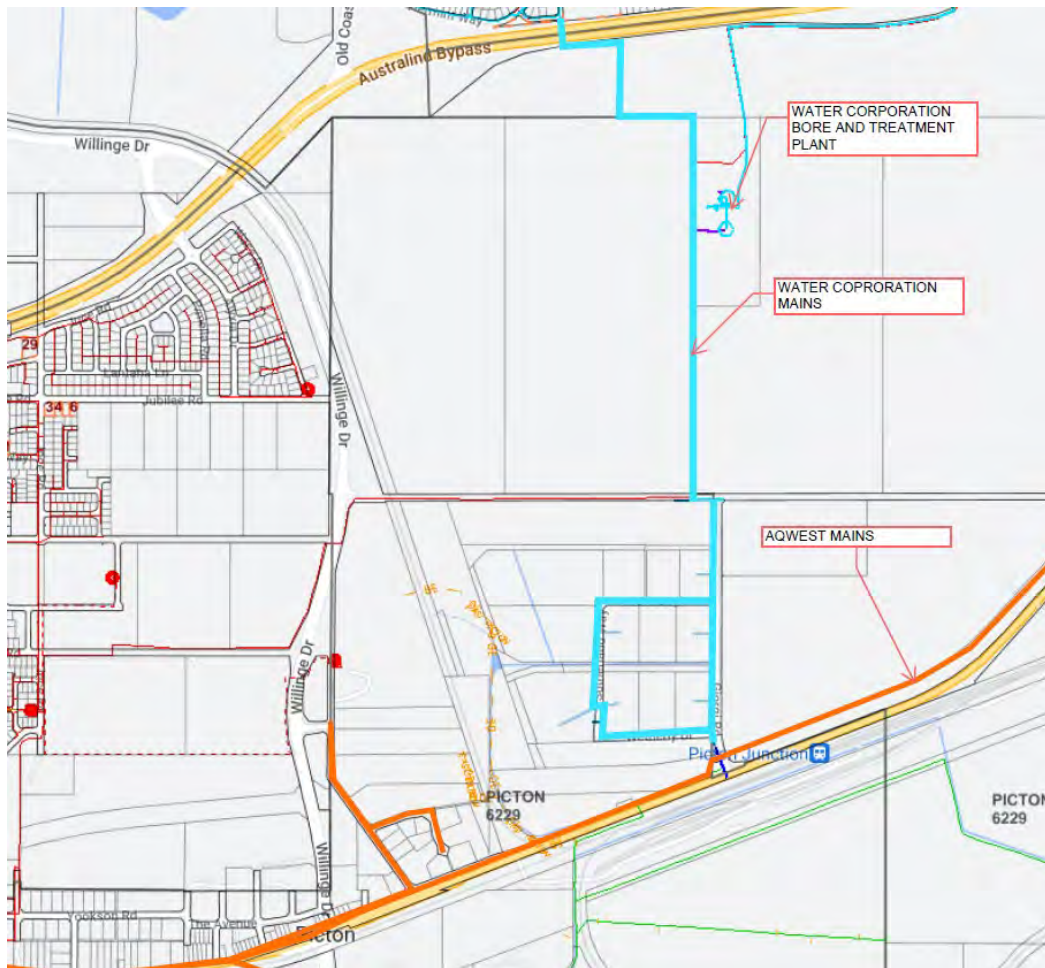


Figure 9 Water mains

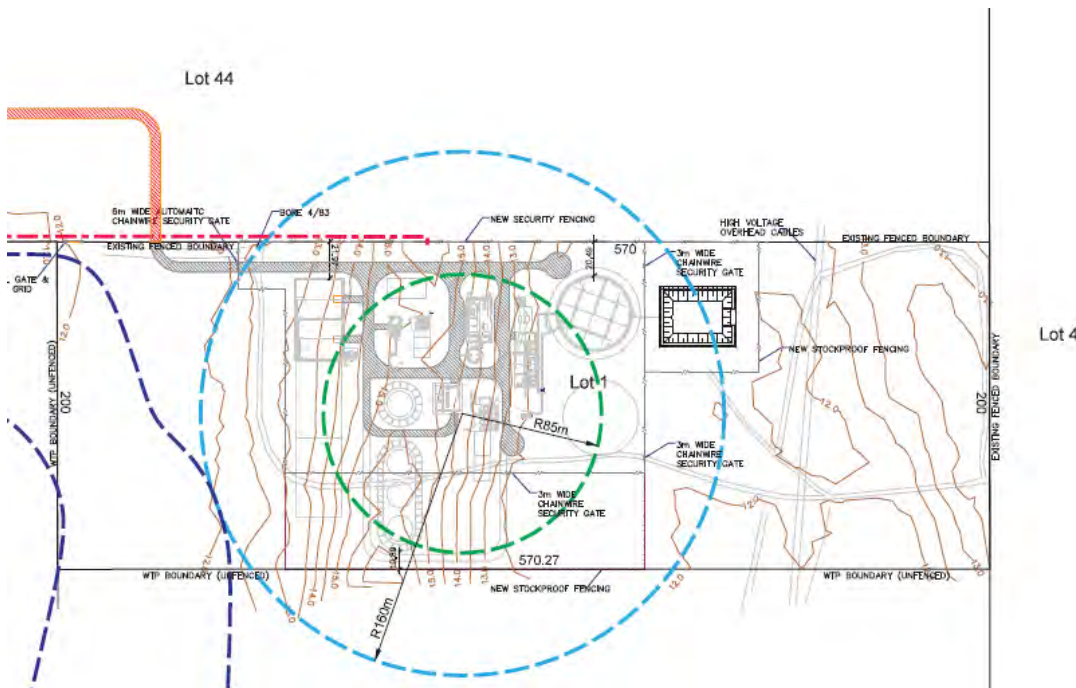


Figure 10 Picton Water Treatment Plant

6 SEWER

The existing Preston Enterprise Park is unsewered and only dry industries are permitted. Further expansion of this industrial area with small lots will however likely require all lots to be sewer.

If larger lots (>1ha) are provided then it is possible onsite effluent disposal could be used and extension of sewer to the area not required.

At present the Water Corporation is the sole ERA licensed sewer provider for the area with its license area shown in Figure 11.

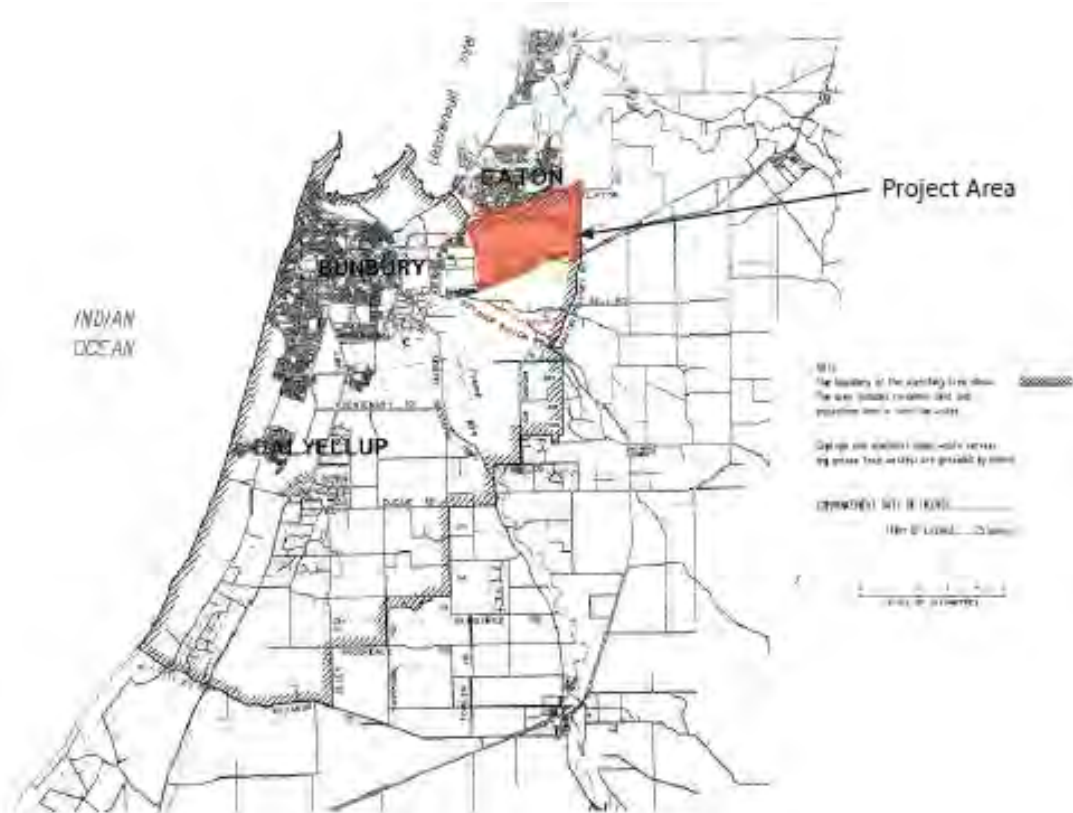


Figure 11 Water Corporation Sewer License Area

The Water Corporation sewer planning and existing sewer infrastructure is shown in Figure 12.

This indicates the industrial area is planned to be serviced by three future sewer pumpstations.

The nearest sewer system capable of taking the flows from the Industrial Estate is Pumpstation 1, a Type 40 Pumpstation in Ince Road Glen Iris.

This is an interim pumpstation however and has current restrictions on its capacity and requires an increase in the size of pressuremain leaving this pumpstation. The pressuremain is currently only 100 diameter and requires a 250 diameter pressuremain.

Funding of this upgrade will depend on the timing and rate of development in the industrial estate and development of the balance of Glen Iris and other surrounding areas.

This pumpstation is also planned to be replaced in the future by another larger pumpstation with a design flow rate of approximately 226 l/s.

Water Corporation have confirmed there are no plans to upgrade this pumpstation in the near future and it would currently not be able to cater for any flows from the Industrial Area if it were to be sewer.

It would be recommended that large lots be considered instead of sewer this area.

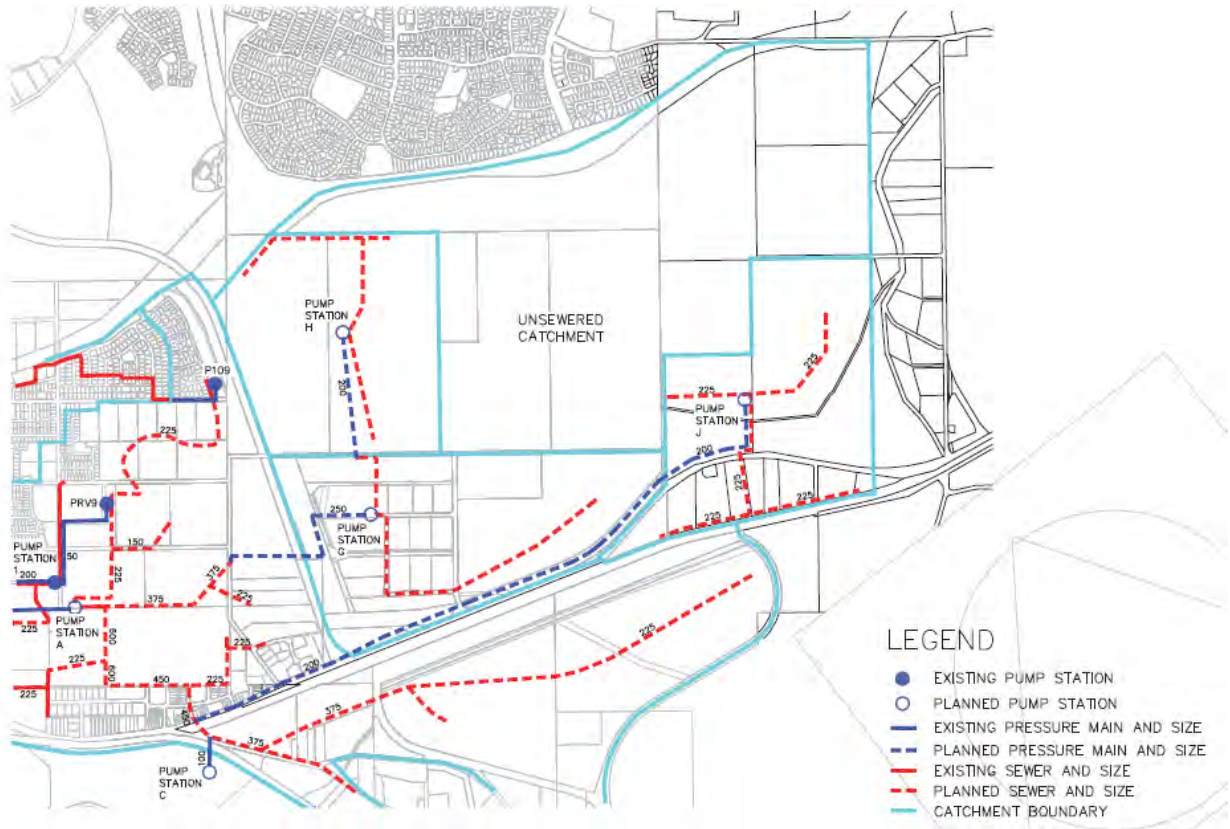


Figure 12 Current Water Corporation Sewer Planning

7 POWER SUPPLY

Existing Western Power Infrastructure for the sites are shown in Figure 13.

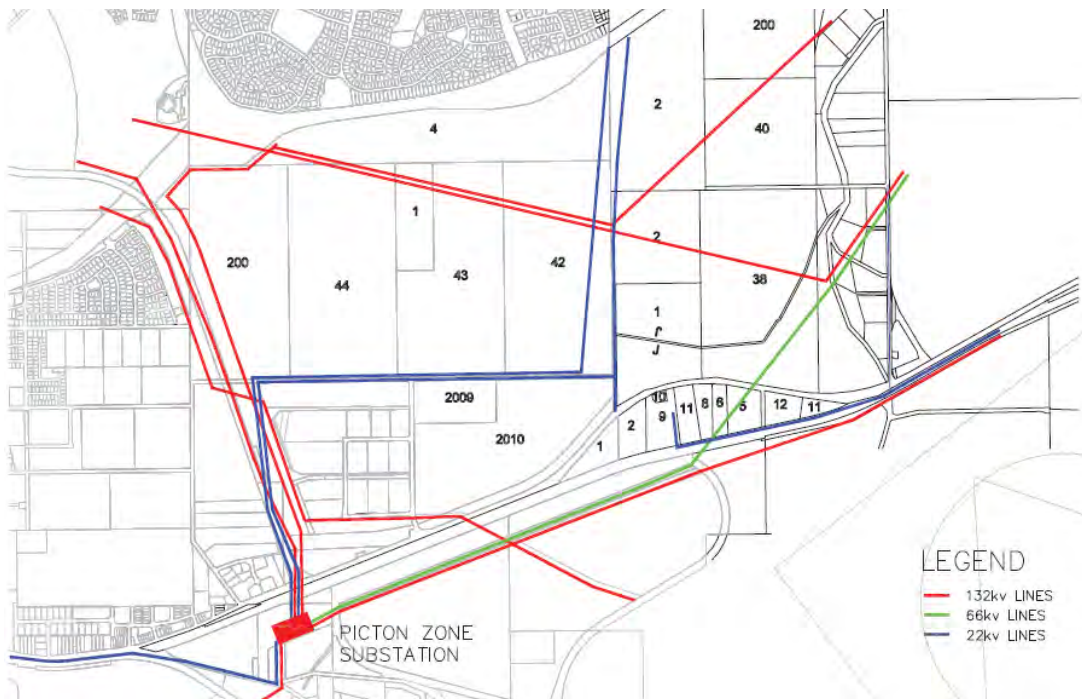


Figure 13 Western Power Facilities

There is a range of overhead high voltage lines crossing and adjacent the site consisting of 132kV, 66kV and 22kV lines as shown in Figure 13.

There are currently three 132kv transmission lines that cross the site. They are located:

- In the east from the middle of the Lot 38 eastern boundary and traversing the site to the north west corner of Lot 200.
- From the north east corner of the site, running south west to the boundary of Lots 2 and 42 and then north west adjacent the other 132 kV line to the north west corner of Lot 200.
- From the south west corner of Lot 2010, along Wetherley Drive Road and then north along the Glen Iris Service Corridor. This power line previously traversed the site but was diverted some years ago around the Picton Enterprise Park so it followed road reserves and the Glen Iris Service Corridor.

There are two additional 132kV lines that run in the Glen Iris Service Corridor along the western end of the site. These lines carry power from the Collie power stations to the Picton Zone substation and the Bunbury Port substation.

These 132 kV lines require an easement of between 18 metres and 36 metres depending on the form of construction. They are constructed in single pole, dual pole and triple pole configurations with respective easement requirements of 18 metres, 36 metres and 36 metres respectively. 132kV lines are shown in Figure 14.



Figure 14 132 kV lines

Construction of roads can generally occur to approximately 5 metres of the poles. Relocation of these power lines is expensive. Parking and hard stand areas can also be built under the lines where they are in easements in lots.

Services are not constructed directly off these lines as they are transmission lines. There is also a single 66 kV distribution line crossing the south east corner of Lot 38.

The existing Preston Enterprise Park is serviced with an overhead 22kV network. At the time this was installed overhead to assist in reducing costs to the development but now all 22kV lines will need to be installed underground.

The network of 22 kV lines across the site is shown in Figure 16. As development of the site occurs these will likely need to be installed underground in conjunction with development of the land although if they are in existing road reserves and can be maintained on a 2.7 metre alignment then they may be permitted to remain overhead.

Any new 22kV power lines would be installed underground on standard alignments within road reserves and without the need for special or additional easements.



Figure 15 22 kV line along Temple Road Reserve

The Bunbury and Picton power schemes are currently heavily loaded and so any significant extra demand could require extra works.

Western Power have advised they can supply a 1MVA load from the existing overhead network but larger loads will likely require new feeders back to the Picton Substation or possible upgrades at the Substation.

The Western Power Capacity Mapping Tool shows 20 to 25 MVA Capacity currently remaining in this area as shown in Figure 16. Western Power have advised the Picton Substation has 28.89 MVA Capacity available in 2025 and 25.24 by 2034.

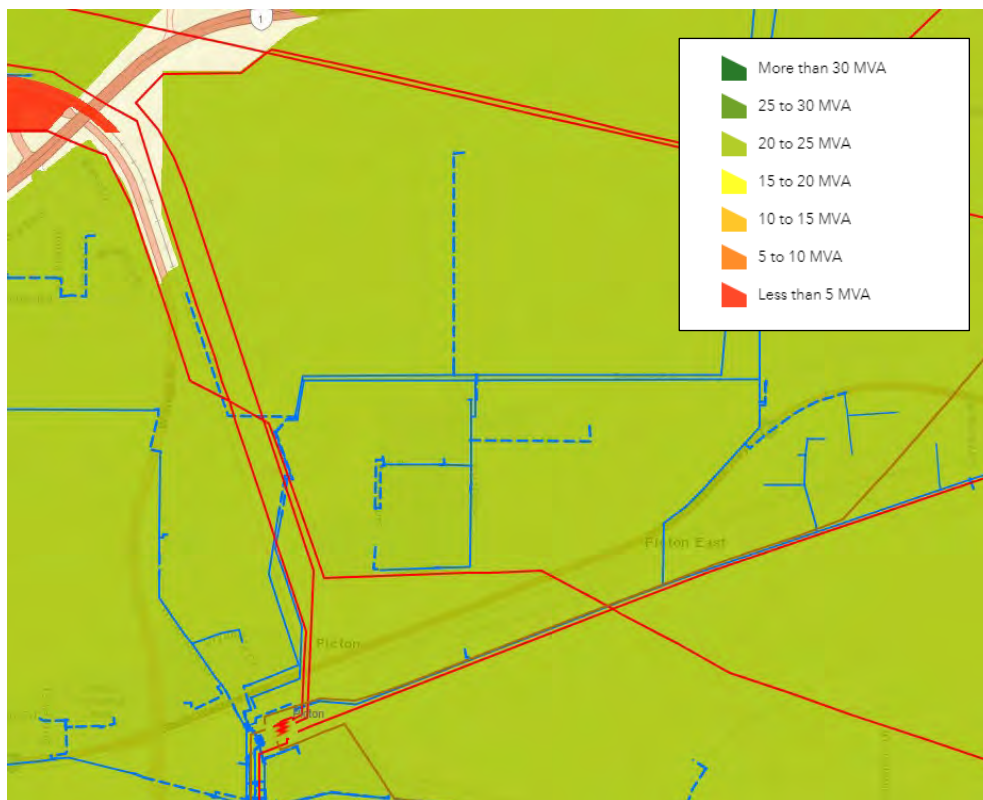


Figure 16 Western Power Capacity in System

8 NBN

NBN services are available nearby to the estate but any major development is likely to require off site extensions to provide the required services.

The nbn rollout map also indicates portion of this area is to be serviced by Fixed Wireless services and so extensions of pit and pipe may not be required.

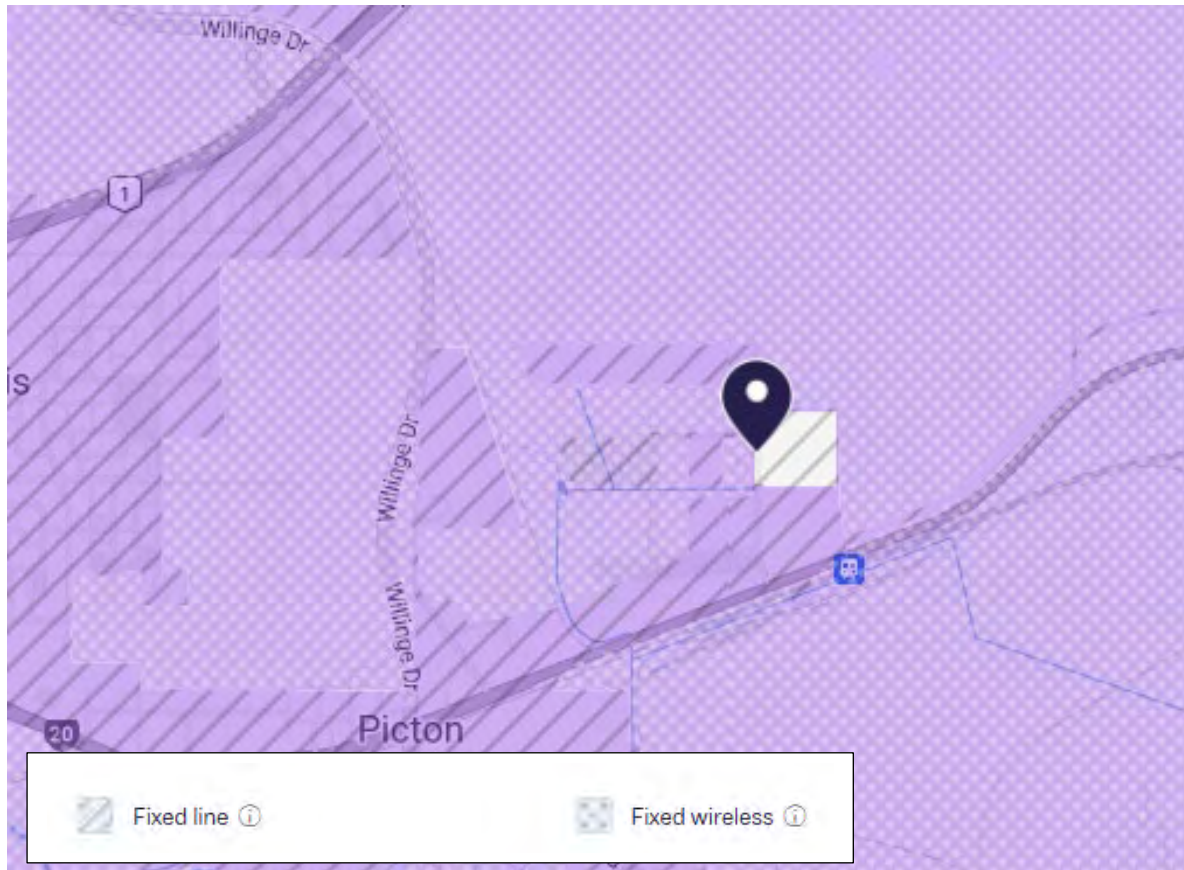


Figure 17 nbn service rollout map

9 GAS

Gas is not available in this estate.

Existing Alinta gas services in this area are shown in Figure 18.

At present there is a medium pressure gas system serving Glen Iris residential area to the west and the Eaton residential area to the North. These medium pressure systems however do not have capacity to service an Industrial area.

To the East of the site a High-Pressure gas main runs along Hynes Road. This main is expected to have sufficient capacity to service the site if required but would need a pressure reducing set and the extension of gas infrastructure to the site.

Gas is not essential to the industrial estate and other nearby industrial estates do not have a gas connection.

If gas was required for a major user in the estate such as a brick works then network capacity reinforcement may also be required.



Figure 18 Existing Gas

APPENDIX B : SURVEY





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*THIS PLAN IS COMPILED FROM A VARIETY OF DATA SOURCES. REFER TO THE METADATA PANEL FOR FURTHER INFORMATION. THE CONTENTS OF THIS PLAN ARE CURRENT AND CORRECT AS OF THE DATE DRAWN. ALL PERSONS WISHING TO UTILISE THIS DATA SHOULD SATISFY THEMSELVES OF THE CURRENCY AND ACCURACY OF THE DATA SUPPLIED FROM THIRD PARTIES.

SCALE 1:2 000 @ A1 - 1:4 000 @ A3
0 40 160
ALL DISTANCES ARE IN METRES

PRESTON INDUSTRIAL PARK, PICTON, WA

DETAIL SURVEY PLAN

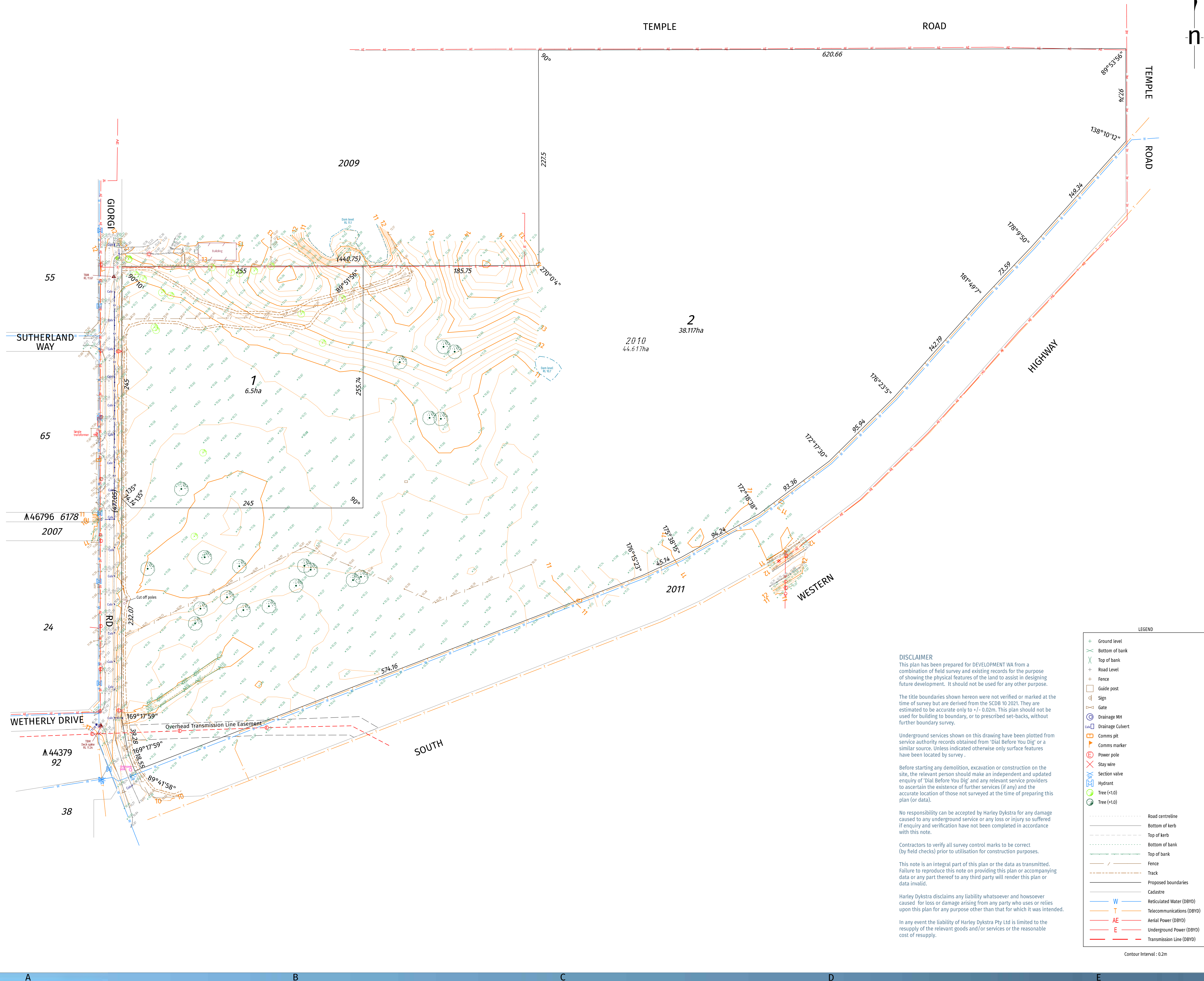
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CADASTRAL DATA	N/A	N/A	N/A	±/-0.25m	PROJECTION: PCG94 ZONE: N/A
TOPOGRAPHY	MNG	22/11/24	N/A	ENG GRADE	CONTOUR INTERVAL: 0.25m/1m

LEGEND:

DATE: 25/08/25 DRAWN: SWE CHECK: OVP

106728-OPM-009-A

Job Number Type Plan Number Version



D	Additional survey areas	JD	14/02/22
C	Updated Plan Title	CP	05/01/22
B	Additional survey areas	SB	21/12/21
A	Original drawing	SB	09/12/21
rev	details	approved	date
survey	SB 24/11/21	cad file	23055-01B.dgn
drawn	BdR 09/12/21	checked	SB 22/12/21
horiz datum	PCG2020	level datum	AHD

scale at A1 all distances are in metres

1 : 2000

plan type
**FREEHOLD SUBDIVISION,
FEATURE SURVEY & PRECALCULATION**

client

DEVELOPMENT WA

description
**Lot 2010 on DP43721
Giorgi Road
PICTON EAST**

drawing no
23055-01B

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APPENDIX C : ENVIRONMENTAL ASSESSMENT REPORT

PRESTON INDUSTRIAL PARK PRECINCT 2

ENVIRONMENTAL ASSESSMENT REPORT

Prepared for: DevelopmentWA

Report Date: 17 July 2026

Version: 1

Report No. 2026-990



pgv ENVIRONMENTAL

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1 INTRODUCTION

1.1 Location

DevelopmentWA is planning to develop Precinct 2 of the Preston Industrial Park North Precinct (PIPNP) for General Industry. Precinct 2 includes Lots 2009 and Lot 2010 Giorgi Road and the unmade road reserve for Temple Road.

Precinct 2 (the site) is located approximately 5km to the east of the Bunbury Port within the Shire of Dardanup (Figure 1). The site is bound by Giorgi Road to the west, bushland to the north, South Western Highway to the south and industrial development to the east (Figure 2).

This Environmental Assessment Report was commissioned by DevelopmentWA to assist with the Structure Planning of the Precinct.

1.2 Background

The PIPNP is recognised for its strategic location to existing transport corridors, the Bunbury Port, labour market and other existing infrastructure. A Structure Plan was prepared for the PIPNP and endorsed by the WAPC in May 2009 (Appendix 1). A further review of the DSP was undertaken by the PIPNP landowners, and a revised DSP was referred to the Environmental Protection Authority (EPA) under section 38 of the EP Act in March 2011. The EPA (EPA, 2008a) gave Section 16e advice on the proposed development in relation areas of conservation significance. The EPA recommended that approximately 40% or 258ha of the land be conserved, which significantly reduced the developable area within PIPNP. The DSP shows 271.4ha of developable land and 233.05ha of Conservation Area (Appendix 1).

The EPA determined that the level of assessment on the PIPNP Structure Plan (Assessment 1900) would be an Assessment on Proponent Information (API) Category A. Several site surveys (flora, vegetation, fauna, ecological communities) were undertaken to inform the API Report.

DevelopmentWA withdrew the assessment from the EPA process on 16 August 2019 due to issues relating to the future management of the proposed 233.05ha of bushland being retained for conservation purposes.

1.3 Scope of Works

The scope of work for the Environmental Assessment Report (EAR) addresses the following:

- Site Description
 - Physical characteristics including a description of:
 - Landform and soils; and
 - Geological, hydrogeological and hydrological characteristics;
 - Recent and present land use including:
 - Assessment of current and historical activities on the site; and
 - Surrounding land uses;

- Flora and Vegetation description;
- Fauna description;
- Database searches including:
 - DWER Contaminated Sites; and
 - DPLH Heritage database.
- Environmental Impacts of the proposed Structure Plan;
- Implications, if any, under Western Australian policies and legislation such as the *Environmental Protection Act 1986* and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act); and
- Strategies to specifically address the protection and/or enhancement of the site's important environmental features.

2 LEGISLATION, POLICY AND GUIDELINES

The environmental assessment of the site has taken into consideration the following legislation, policy and guidelines and these will guide the required and expected management outcomes from the Commonwealth, State and Local government agencies.

2.1 Commonwealth Legislation

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is the Australian Government's central piece of environmental legislation. It provides a legal framework to protect and manage nationally and internationally important heritage places, ecological communities, flora and fauna that are defined in the Act as Matters of National Environmental Significance (MNES).

The Environmental Assessment identifies any MNES that may be impacted by development on the site. There is fauna habitat within the SP area that provides resources for listed species of Black Cockatoos and the Western Ringtail Possum.

2.2 State Legislation

2.2.1 *Environmental Protection Act 1986*

The *Environmental Protection Act 1986* (EP Act) is administered by the Department of Water and Environment Regulation (DWER). The Act provides for conservation, preservation, protection, enhancement and management of the environment and for matters incidental to or connected with it. The Act establishes head powers to provide mechanisms for the development of Environmental Protection Policies (EPP), the referral and assessment of proposals, the control of pollution and enforcement.

The Act also provides for an Environmental Protection Authority (EPA) that is a statutory authority and is the primary provider of independent environmental advice to Government (Environmental Protection Authority, 2024). The EPA is assisted by the Office of the EPA that forms part of DWER.

Under the EP Act, clearing of native vegetation requires a permit from DWER unless there is an exemption under the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*. Proposals that have approval by means of a subdivision are exempt from requiring a clearing permit to clear native vegetation if implementing the subdivision in accordance with the subdivision conditions requires the clearing of native vegetation.

2.2.2 *Biodiversity Conservation Act 2016*

The *Biodiversity Conservation Act 2016* (BC Act) protects all native species and threatened ecological communities. The BC Act recognises that activities involving the taking of flora or fauna (other than threatened species) and the disturbing of fauna (including threatened species) that are approved under the EP Act do not require further approval under the BC Act, if they are undertaken in accordance with any biodiversity conservation conditions that are applied to an authorisation. These activities include clearing of native vegetation done in accordance with an implementation decision under Part IV of the EP Act.

2.2.3 Aboriginal Heritage Act 1972

The *Aboriginal Heritage Act 1972* (AH Act) protects all Aboriginal sites whether or not they are known and registered under the AH Act.

If any artefacts or other heritage values are discovered during preliminary searches consultation, clearing or construction works they will be required to be managed according to the AH Act.

2.3 State Policy and Guidance

2.3.1 State Planning Policy No. 2.9 Water Resources

State Planning Policy No. 2.9 Water Resources (SPP 2.9) (Government of Western Australia, 2006) aims to ensure the protection and appropriate management of water resources in line with state guidelines as included within the planning framework. The broad aims of this policy are to:

- Protect, conserve and enhance water resources;
- Assist in ensuring the availability of suitable water resources to maintain essential requirements for human and other biological life and to maintain or improve the quality and quantity of water resources; and
- Promote and assist in the management and sustainable use of water resources.

As a part of implementing this policy, the Better Urban Water Management framework was developed (WAPC, 2008). The framework provides detail on how water resources should be considered at each stage of planning by identifying the various actions and investigations required with regard to regional and local planning strategies, town planning schemes, structure plans, subdivisions, strata subdivision and development applications (WAPC, 2008).

2.3.2 Environmental Guidance for Planning and Development

The purpose of Environmental Protection Authority (EPA) Guidance Statement No. 33 *Environmental Guidance for Planning and Development* (EPA, 2008) is to outline the significance of environmental factors and to provide the key definitions associated with the environmental factors. Ensuring that environmental factors are considered in line with the EPA's principals and objectives and within the planning framework is what this EAR is primarily targeted at. In particular, EPA Guidance Statement No. 33 aims to:

- Provide an overview to environmental protection processes and information;
- Describe the referral and environmental impact assessment process under Part IV of the EP Act; and
- Provide the EPA's position and advice on a range of environmental factors, outlining how to protect, conserve and enhance the environmental values.

2.4 Greater Bunbury Region Scheme

The Greater Bunbury Region Scheme (GBRS) is a planning framework that guides land use and development in the Greater Bunbury region, covering areas such as the City of Bunbury and the shires of Harvey, Dardanup, and Capel.

The GBRS key features include:

- Zoning and Reservations;
- Planning Rules and
- Environmental Considerations.

The Structure Plan area is zoned Industrial under the GBRS.

2.5 Shire of Dardanup

Lot 2010 is zoned as Industrial development under the Shire of Dardanup *Local Planning Scheme No.9* (DPLH, 2025). Lot 2011 along the southern boundary of the SP area is not zoned in the Shire's Scheme.

2.6 EPA Section 16(e) Advice

The EPA gave Section 16(e) advice on Areas of Conservation Significance in the Preston Industrial Park in March 2008 (EPA Bulletin 1282). Investigation Areas 4 and 22 from the EPA report are within the Precinct 2 Structure Plan area (Plate 1).

Plate 1: Investigation Areas in EPA Section 16 Advice.



The advice in relation to the two Investigation Areas in the EPA report is as follows:

Investigation Area 4

- Investigation Area 4 is a regionally significant natural area of high value which should be retained within the future planning for the Preston Industrial Park area; and
- Investigation Area 4 should be retained as Regional Open Space as a future amendment to the GBRS and appropriately managed.

It should be noted that the Investigation Area 4 is a large area of native bushland predominantly located on Lots to the north of the Precinct 2 area. Only a small southern extension of Area 4 is within

Precinct 2. In addition the southern extension was not included in Conservation Area A which was recommended by the EPA to be protected.

Investigation Area 22

- Investigation Area 4 is an area of remnant vegetation that covers an area of approximately 2ha.
- Investigation Area 22 may have habitat for regionally significant fauna included three species of Black Cockatoo and the Western Ringtail Possum, but without further survey cannot be confirmed; and
- Investigation Area 22 may be a regionally significant natural area, but due to insufficient information, no specific recommendations have been made. However, since it may be regionally significant as habitat for threatened fauna, the EPA's precautionary principle means there is a presumption that this area shall be retained. The onus is on the proponent of any proposal for development in this area to demonstrate that this area is not a significant habitat for rare fauna species.

The EPA's advice in relation to wetlands in the PIPNP as follows:

- Appropriate buffers for wetlands be determined based on the values of the wetlands and proposed land uses, and protected and appropriately managed as part of any future rezoning, subdivision or development, whichever comes first.

The EPA also identified areas for enhancement or restoration in strategic locations between their recommended conservation areas to contribute to regionally significant ecological linkages. Within the Precinct 2 area the EPA identified one area of enhancement (yellow area on Plate 2) and one area of restoration (blue area on Plate 2).

Plate 2: EPA Section 16 Advice on Restoration and Enhancement



3 EXISTING ENVIRONMENT

3.1 Land Use

3.1.1 Historic Land Use

The earliest aerial photography available from 1970 (Landgate, 2026) shows the Structure Plan (SP) area has been heavily cleared and disturbed probably for grazing at this date (Plate 3). Some native plants remain. Lot 2010 is shown for reference.

Plate 3: Aerial Photograph from 1970 (Landgate, 2026)



In the aerial photograph from 2000 the SP area is largely unchanged (Plate 4). Industrial development has commenced on the western side of Giorgi Road and revegetation works have occurred along the southern boundary adjacent to South Western Highway. The vegetation in the north-central part of the site has been mostly cleared to excavate a farm dam.

The 2010 aerial photograph shows the SP area has remained the same as previous years. A biofuel facility has been constructed on Lot 2009 (Plate 5).

The 2026 aerial photograph shows the SP area has not changed (Plate 6). The biofuel facility on Lot 2009 has been decommissioned.

Plate 4: Aerial Photograph from 2000 (Landgate, 2026)



Plate 5: Aerial Photograph from 2010 (Landgate, 2026)



Plate 6: Aerial Photograph from 2026(Landgate, 2026)



3.1.2 Surrounding Land Use

To the west of the SP area, there is general industry development within Lots 11 and 38. Native vegetation occurs on the lots to the north. The South Western Highway separates the SP area from marshalling yards and the PIPNP SP area to the south. A revegetated corridor extends along the southern boundary of Lot 2010 and was identified under the PIPNP to be retained (Figure 2).

3.2 Environmentally Sensitive Areas

The north-west corner of the SP area is mapped as an Environmentally Sensitive Area (Plate 7). The area is part of the 50m buffer to the Conservation Category wetland on the lot to the north.

Plate 7: Environmentally Sensitive Area Map



3.3 Topography

The SP area is flat to gently undulating with low lying areas around 10m Australian Height Datum (AHD) surrounding a slight rise in the centre with maximum elevation of around 14m AHD (Figure 2).

3.4 Geomorphology and Soils

3.4.1 Geology

The SP area is located on the western side of the Swan Coastal Plain.

The SP area is mapped on The Pinjarra Plain System that consists of broad low relief plain west of the foothills, comprising predominantly Pleistocene fluvial sediments and some Holocene alluvium associated with major current drainage systems (Bolland, 1998).

Four soil types are mapped in the SP area as shown in Figure 3 and described below:

Low-lying areas

- Pinjarra P5a Phase - dark cracking clays with subsoil becoming alkaline with a thin veneer of grey sand

- Pinjarra P1b Phase – Flat to very gently undulating plain with deep acidic mottled yellow duplex soils
- Pinjarra B6 Phase – Sandplain and broad extremely low rises with imperfectly drained deep or very deep grey siliceous sands

Raised dune ridge areas

- Bassendean B1a phase – Extremely low to very low relief dunes, undulating sandplain and discrete sand rises with deep bleached grey sands with an intensely coloured yellow B horizon occurring within 1m of the surface.

3.4.2 Acid Sulphate Soils

Acid sulphate soils (ASS) are wetland soils and unconsolidated sediments that contain iron sulphides which, when exposed to atmospheric oxygen in the presence of water, form sulphuric acid. ASS form in protected low energy environments such as barrier estuaries and coastal lakes and commonly occurs in low-lying coastal lands such as Holocene marine muds and sands. When disturbed, these soils are prone to produce sulphuric acid and mobilise iron, aluminium, manganese and other heavy metals. The release of these reaction products can be detrimental to biota, human health and built infrastructure.

The ASS Risk on the DA has been mapped by the Department of Water and Environmental Regulation (DWER) as being Moderate to Low (<3m from the surface) within three metres of the natural soil surface (SLIP, 2026).

3.5 Hydrology

3.5.1 Groundwater

The SP area is located within the Dardanup sub area of the Bunbury Groundwater area. This groundwater area is protected under the Rights in Water and Irrigation (RiWI) Act 1914; therefore, a licence to take water in this sub-area must be applied for and granted by DWER if required. Groundwater quality in the SP area is consistent with nutrient trends associated with past rural land use on Bassendean sands (TME, 2014).

3.5.2 Surface Water

The SP area is located within the Collie Coastal, Lower Collie Tributaries and Ferguson Sub-areas of the Preston and Collie Surface Water Allocation Areas. These areas are not managed under the RiWI Act 1914 (TME, 2014)

The SP area contains some minor any drainage lines (TME, 2014). An excavated dam is located in the eastern end of the SP area as well as on Lot 2009.

3.5.3 Public Drinking Water Source Areas

The Geographic Data Atlas (DWER) identified no Public Drinking Water Source Areas (PDSWA) located within the SP area.

3.5.4 Wetlands

Five Multiple Use (MU) wetlands are mapped on the site as shown on Figure 4 and described below:

- MU Palusplain UFI 14329 – mapped over most of the low-lying parts of the site. Part of an extensive wetland that extends across 5,085ha.
- MU Sumpland UFI 1243 – a small 1.4ha wetland near the north-west corner
- MU Dampland UFI 1401 – a small 3.0ha wetland in the north-east corner
- MU Sumpland UFI 1414 – a very small 0.5ha wetland near the south-west corner
- MU Sumpland UFI 1400 – in the central north of the site and part of a 20.3ha wetland that is predominantly on the lots to the north.

A Conservation Category dampland wetland (UFI 1237) is located on Lot 43 to the north of the north-west corner of the SP area. The 50m buffer to the CCW extends into Lot 2009.

3.6 Flora and Vegetation

3.6.1 Previous Studies

The flora and vegetation within the wider PIPNP including the SP area has been assessed in a number of studies undertaken to inform the structure planning process. Of note are four surveys that were undertaken in accordance with EPA Guidance Statement No. 51, namely:

- Bennett Environmental Consulting Pty Ltd 2002. Botanical Survey Picton. Unpublished report to Thompson McRobert Edgeloe, Western Australia;
- Bennett Environmental Consulting Pty Ltd 2003a. Vegetation and flora of Selected Area, Bunbury Outer Ring Road and Port Access Road. Unpublished report to Main Roads, Perth, Western Australia;
- Bennett Environmental Consulting Pty Ltd 2003b. Vegetation and Flora Port Access Road Route off Boyanup-Picton Road, Reserve 40552, Loc 5545. Unpublished report to Main Roads, Perth, Western Australia.
- Bennett Environmental Consulting Pty Ltd 2005. Preston Industrial Park. Unpublished Report to ENV Environmental, Perth, Western Australia.

PGV Environmental refined the mapping of Bennett (2005) in June 2015. In addition, PGV Environmental undertook a site inspection of the native vegetation across the SP area in April 2025 to verify the vegetation mapping of Bennett Environmental Consulting (2005) and to update the vegetation condition.

3.6.2 Vegetation Type

The SP area has been extensively cleared and used for rural purposes for many years as shown in Plates 1-4.

The native vegetation types mapped on the site by PGV Environmental, 2015 are shown in Figure 5 and summarised below:

- EmCcAf - *Eucalyptus marginata*/*Corymbia calophylla* Low Woodland to Open Forest over *Agonis flexuosa*/*Xylomelum occidentale* Low Woodland with occasional *Kunzea glabrescens* over *Xanthorrhoea brunonis*/*Dasypogon bromeliifolius* Low Shrubland;

- EmCcBa - *Eucalyptus marginata*/*Corymbia calophylla*/*Banksia attenuata* Low Woodland to Open Forest with occasional *Kunzea glabrescens*, *Nuytsia floribunda* and *Agonis flexuosa*;
- ErMp - *Eucalyptus rudis*/*Melaleuca preissiana*/*Melaleuca raphiophylla* Low Open Woodland over *Lepidosperma longitudinale*/ *Xanthorrhoea brunonis*/*Pericalymma ellipticum* Sedgeland/Low Shrubland
- EmCc - *Eucalyptus marginata*/*Corymbia calophylla* Low Woodland to Open Forest with *Xylomelum occidentale*;
- Mp - *Melaleuca preissiana* Low Open Woodland over *Juncus pallidus* Sedgeland and pasture grasses; and
- MpAf - *Melaleuca preissiana* Low Open Woodland to Forest over *Astartea fascicularis* Shrubland to Open Heath
- Mr – *Melaleuca raphiophylla* Low Open to Closed Forest

There is no native understorey associated with any of the areas containing native vegetation. The understorey consists largely of pasture grasses.

Plates 8-11 show representative photos of the main vegetation types.

Plate 8: MpAf Vegetation



Plate 9: Mr Vegetation



Plate 10: EmCc Vegetation



Plate 11: EmCcAf Vegetation



3.6.3 Floristic Community Types

Bennett (2005) assigned Floristic Community types (FCTs) to each of the vegetation types in the PIPNP using a desktop comparison of the survey data with Table 12 in Gibson *et al.* (1994).

The FCTs assigned by Benett (2005) in the wider PIPNP area were:

- FCT21a 'Central *Banksia attenuata*- *Eucalyptus marginata* woodlands' (EmCcAf, EmCcBa)'
- FCT21c 'Low lying *Banksia attenuata* woodlands or shrublands' (EmCc, BaKg);
- FCT17 '*Melaleuca raphiophylla* and *Gahnia trifida* wetlands(Mr, CcAf);
- FCT11 'Wet forests and woodlands' (ErMp); and
- FCT4 '*Melaleuca preissiana* dampland' (Mr, MpAf,Kg).

The parkland cleared trees and shrubs in the SP area are too degraded to be representative of any of these FCTs.

3.6.4 Vegetation Condition

The condition of the vegetation in the SP area was assessed by Bennett in 2005 and by PGV Environmental in 2025 according to the system devised by Keighery and described in Bush Forever (Government of Western Australia, 2000) (Table 1).

Table 1: Vegetation Condition Rating Scale

Condition	Description
Pristine	Pristine or nearly so, no obvious signs of disturbance.
Excellent	Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species.
Very Good	Vegetation structure altered, obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and grazing.
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbance. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and grazing.
Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. For example, disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and grazing.
Completely Degraded	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs.

Source: Government of Western Australia, 2000.

The vegetation in the SP area is all in Completely Degraded Condition.

3.6.5 Conservation Significant Vegetation and Flora

The SP area is in a completely degraded condition and does not contain any conservation significant vegetation or flora. There are a few *Banksia* trees in the upland areas, but they are not dominant and the vegetation is in Completely Degraded condition. Therefore, these areas are not considered part of the *Banksia* Woodlands of the Swan Coastal Plain Threatened Ecological Community.

3.7 Fauna

3.7.1 Level 1 Fauna Survey

PGV Environmental (2015) undertook a Level 1 Fauna Survey in accordance with Guidance Statement 56: *Terrestrial Fauna Surveys for Environmental Impact Assessment in Western Australia* (EPA, 2004) over the wider PIPNP area that included the SP area. The survey included:

- Review of the previous studies undertaken on the site;
- Desktop searches and review of DPaW's Threatened Fauna database and Naturemap for the general area for Threatened and Priority Species;
- A search of the Commonwealth Government's database of fauna of national environmental significance to identify species potentially occurring within the area that are protected under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) or international migratory bird agreements (JAMBA/CAMBA);
- A review of the significance of the site for conservation significant species in a local and regional context;
- A reconnaissance site visit to identify fauna habitat types and to assess the condition and quality of available fauna habitat;
- Identification of potential impacts/risks to fauna from proposed vegetation clearing; and
- Recommendations that will avoid, mitigate or minimise impacts on fauna and fauna habitat, including specially protected fauna.

Fauna habitat can be assessed using several factors including, the size of the habitat, the level of habitat connectivity, availability of specific resources (e.g. tree hollows) and overall vegetation quality. The habitat was assessed according to the categories provided in Table 2 (Coffey Environments, 2009).

Table 2: Fauna Habitat Criteria

Fauna Habitat Condition	Description
High Quality	These areas closely approximate the vegetation mix and quality that would have been in the area prior to any disturbance. The habitat has connectivity with other habitats and is likely to contain the most natural vertebrate fauna assemblage.
Very Good	These areas show minimal signs of disturbance (e.g. grazing, clearing, fragmentation, weeds) and generally retain many of the characteristics of the habitat if it had not been disturbed. The habitat has connectivity with other habitats and fauna assemblages in these areas are likely to be minimally affected by disturbance
Good	These areas showed signs of disturbance (e.g. grazing, clearing, fragmentation, weeds) but generally retain many of the characteristics of the habitat if it had not been disturbed. The habitat has connectivity with other habitats and fauna assemblages in these areas are likely to be affected by disturbance.

Fauna Habitat Condition	Description
Disturbed	These areas showed signs of significant disturbance. Many of the trees, shrubs and undergrowth are cleared. These areas may be in the early succession and regeneration stages. Areas may show signs of significant grazing, contain weeds or have been damaged by vehicle or machinery. Habitats are fragmented or have limited connectivity with other fauna habitats. Fauna assemblages in these areas are likely to differ significantly from what might be expected in the area had the disturbance not occurred.
Highly Degraded	These areas often have a significant loss of vegetation, an abundance of weeds, and a large number of vehicle tracks or are completely cleared. Limited or no fauna habitat connectivity. Faunal assemblages in these areas are likely to be significantly different to what might have been in the area pre-disturbance

Coffey Environments, 2009

The fauna habitats on the SP area are considered to be Highly Degraded in areas with no or limited native trees and shrubs to Disturbed for parkland cleared treed areas.

3.7.2 Conservation Significant Species

GHD undertook a Western Ringtail Possum survey of the Structure Plan area in 2014 as part of a survey of the whole Preston Industrial Park precinct. GHD recorded some High, Medium and Low WRP habitat in the SP area (Figure 8).

PGV Environmental undertook a Black Cockatoo habitat assessment of the SP area in 2016, also as part of a broader survey of the Preston Industrial Park. PGV Environmental recorded Good foraging habitat and around 80 potential breeding habitat trees in the SP area.

Due to the age of those surveys, an updated survey of WRP and Black Cockatoo Habitat was undertaken for the SP area.

The Targeted Western Ringtail Possum survey and Black Cockatoo Habitat Tree Assessment was undertaken in the SP area by Terrestrial Ecosystems over a period from July 2025 through to March 2026. A summary of the results as well as observations from PGV Environmental in 2025 are provided below:

- The Jarrah and Marri trees and the few Banksia trees provide foraging habitat for Black Cockatoos; Carnaby's Cockatoo (*Zanda latirostris*), Baudin's Cockatoo (*Zanda baudinii*) and the Forest Red-tailed Black-cockatoo (*Calyptorhynchus banksii naso*). Evidence of foraging by Black Cockatoos has been observed on Marri nuts and Banksia cones. Foraging habitat is restricted to Lots 2009 and 2010. The trees in the rehabilitation strip do not provide foraging habitat for Black Cockatoos. The amount of foraging habitat in the SP area is shown in Figure 6 and is 1.62ha
- The site contains 84 native trees with a Diameter at Breast Height of 50cm or more and are therefore considered potential breeding habitat for Black Cockatoos. The total consisted of 51 Jarrah, 31 Marri and 2 Flooded Gum. There are also 4 Standing Dead Trees. Two Jarrah trees had hollows large enough for Black Cockatoos to breed in, however no evidence of breeding was observed. (Figure 7)
- A further 60 cockatoo habitat trees of an exotic Eucalyptus species were recorded in the strip of rehabilitation along the southern boundary.

- Western Ringtail Possums (WRP) were observed in the SP area on multiple occasions (Figure 9). The possums were observed in Jarrah, Marri, Peppermint trees as well as non-native trees within the rehabilitation area adjacent to the South Western Highway. One WRP drey was recorded in a Peppermint tree on Lot 2009.

3.7.3 Biodiversity Value

The EPA's (2002) *Terrestrial Biological Surveys as an Element of Biodiversity Protection Position Statement No. 3* indicated an ecological assessment of a site must consider its biodiversity value at the genetic, species and ecosystem levels; and its ecological functional value at the ecosystem level.

The vegetation and fauna habitat in the SP area is fragmented with little to no ecological linkage and is disturbed, with the likely presence of feral species such as foxes, cats and rabbits which would have highly modified the fauna assemblage from pre-European settlement.

3.8 Heritage

3.8.1 European Heritage

Heritage sites can be listed under the following lists/registers:

- World Heritage Sites;
- National Heritage Sites;
- Commonwealth Heritage Sites;
- Sites on the register of the National Estate; and
- Sites on the Western Australian Heritage Council Register.

There are no listed Heritage Sites or Interim Heritage Sites on the SP area (National Map, 2025; Heritage Council of Western Australia, 2025; DCCEEW, 2025).

3.8.2 Aboriginal Cultural Heritage

There are no registered Aboriginal Cultural Heritage Sites mapped on the SP area.

3.9 Contaminated Sites

There are no known or suspected contaminated sites mapped on or near the SP area (DWER, 2026).

4 ENVIRONMENTAL ASSESSMENT

4.1 Proposed Structure Plan

The proposed Structure Plan (SP) for Precinct 2 is provided as Appendix 2.

The SP includes the following land uses:

- Most of the site as proposed for General Industry.
- The eastern end of the SP area is designated Industrial Development Investigation Area (IDIA).
- A southern strip of Public Open Space (POS)/Drainage. The POS width of the POS area is around 70m. The drainage basin is enlarged in the south-west corner of the Precinct.
- Road access is proposed in the northwestern corner and near the southeastern corner. The northern route of the access road follows the Temple Road reserve.

The SP as shown also includes the future alignment of the South Western Highway in Lot 2011. However, construction and environmental approvals for the Highway re-alignment will be the responsibility of Main Roads WA.

4.2 Land Use

The previous land use on the SP area is not a constraint to future development.

4.3 Geology and Soils

The Pinjarra Plain System soils are not a constraint for development. There are similar developments on these land units in the surrounding area.

The soils mapped on the site have a high risk of being susceptible to wind erosion and therefore dust controls will be required during construction. Wind erosion risk will be minimised once the site is fully developed as the ground disturbing activities have been completed.

The soils on the site do not provide an environmental impediment to the development of the site.

4.4 Hydrology

Stormwater management will be required to be addressed in accordance with SPP 2.9: *Water* (Government of Western Australia, 2026). The SP includes a drainage basin located in the south-west corner of the site. The management of stormwater is not considered a constraint to development.

4.5 Wetlands

Most of the SP area is located in on areas mapped as Multiple Use (MU) wetlands. The MU rating of the wetlands is considered appropriate given the mostly cleared and parkland cleared nature of the wetlands. MU wetlands are not an environmental constraint to development.

Conservation Category Wetland (CCW) UFI 1237 occurs to the north of the north-west corner of the SP area. The nominal 50m buffer of the CCW extends into the north-west corner of the SP area. The

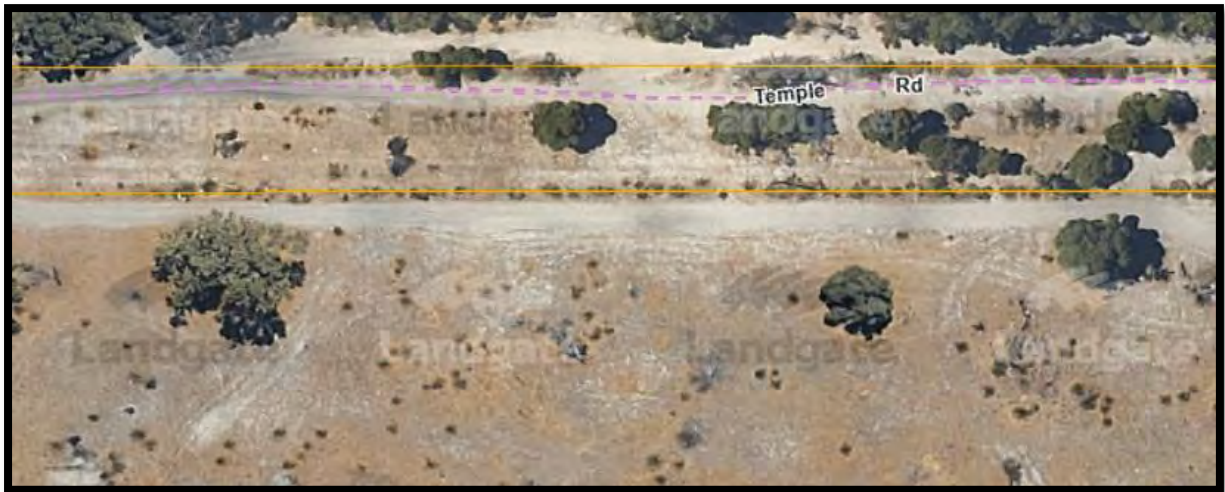
first 20m of the buffer is the unmade section of Temple Road road reserve. The next 30m is within Lot 2009.

The 50m wetland buffer is mostly cleared, with one Marri tree in the section of buffer on Lot 2009 and some *Melaleuca preissiana* shrubs within the road reserve section and Lot 2009 (Plate 12).

The Structure Plan proposes to construct Temple Road in the designated road reserve. This will result in a zero buffer to the CCW. Aligning the road reserve outside the buffer was considered by the project team but Temple Road would then meet Giorgi Road too close to the right-angle left-hand bend and would be unsafe as well as not workable for the size of trucks proposed to use the future industrial development.

Construction of Temple Road next to the CCW will be managed by a Construction Environment Management Plan (CEMP) to ensure no direct or indirect impacts on the CCW.

Plate 12: CCW 50m Wetland Buffer



4.6 Flora and Vegetation

The flora and vegetation on the SP area have been significantly impacted by historical clearing (pre 1970) and rural land use and is Completely Degraded. The proposed development would not result in conservation significant flora or conservation significant vegetation being impacted.

The impact of the Structure Plan on the vegetation types is shown in Figure 10.

4.7 Fauna

The SP area contains trees that provide habitat for three listed species of Black Cockatoos as well as Western Ringtail Possums.

The impact of the Structure Plan on Black Cockatoo foraging habitat is shown in Figure 11. The Structure Plan would likely lead to the clearing of most of the 1.60ha foraging habitat in the General Industry area. The eastern IDIA area has a further 0.02ha of foraging habitat. There is opportunity to revegetate some of the eastern IDIA area with Black Cockatoo habitat species.

The impact of the Structure Plan on Black Cockatoo potential breeding habitat is shown in Figure 12. A total of 88 Jarrah and Marri habitat trees are located on Lots 2009 and 2010. Most (84) are located in the General Industry area and are highly unlikely to be able to be retained due to the requirement to cut and fill the lots to accommodate industrial development. Four trees are in the eastern Industrial Development Investigation Area and may be retained. Sixty exotic Eucalyptus trees are in the southern rehabilitation strip which will be retained.

Western Ringtail Possums (WRPs) were observed in Jarrah, Marri, Peppermint trees on Lots 2009 and 2010 as well as non-native trees within the southern rehabilitation strip. One WRP drey was recorded in a Peppermint tree on Lot 2009.

The impact of the Structure Plan on Western Ringtail Possum habitat is shown in Figure 13 and summarised in Table.

Clearing of trees will have an impact on WRPs by reducing habitat trees. There is opportunity to revegetate some of the eastern IDIA area with Western Ringtail Possum habitat trees and create an ecological linkage between the vegetation along the southern boundary of the Structure Plan area and the vegetation in the Lots to the north.

Table 3: Impact of Structure Plan on Western Ringtail Possum Habitat

Habitat Value	Area of Habitat (ha)		
	General Industry and Local road	Public Open Space/Drainage	Industrial Development Investigation Area
High	1.27	3.82	1.10
Medium	4.94	0	0.74
Low*	34.60	2.47	3.23
TOTAL	40.81	6.29	5.07

* The Low Habitat Value on Figure 13 are very scattered trees. Therefore, the full hectare amount is well over the actual canopy cover of trees.

4.8 Heritage

There are no known Aboriginal Cultural Heritage Site mapped on the SP area.

5 ENVIRONMENTAL APPROVALS

5.1 State Approvals

5.1.1 Referral and Assessment

Due to the potential impact on State listed Black Cockatoo species and the Western Ringtail Possum, a referral of development should be made to the Environmental Protection Authority. However, a Structure Plan is not able to be assessed under Section 38 of the *Environmental Protection Act 1956*. Therefore, the referral could be a future subdivision or individual Development Applications (DAs). The referral of individual DAs would have the advantage that a particular DA area that would not have an impact on Black Cockatoos or WRPs, such as the southwestern portion of Lot 2010 and western half of Lot 2009 would not be caught up in an assessment of the whole Structure Plan area.

5.2 Commonwealth Approvals

Any Action that is likely to have a significant impact on Matters of National Environmental Significance (MNES) must be referred under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The three species of Black Cockatoo and the Western Ringtail Possum are MNES listed under the EPBC Act.

Full clearing of the General Industry land would impact on 1.60ha of Black Cockatoo foraging habitat and species and 88 potential breeding habitat trees. The EPBC Act Black Cockatoo Referral Guidelines state that the clearing of more than 1ha of quality foraging habitat and just one breeding habitat tree could have a significant impact and a Referral is highly recommended. On that basis, a Referral is recommended. However, based on the amount of clearing, a full assessment may not be required if only the impact on Black Cockatoo habitat is considered.

Full clearing of the General Industry land would impact on 1.27ha of High WRP habitat and 4.94ha of Medium habitat and retention of 3.82ha of Medium habitat in POS. The Structure Plan area is within the Supporting Habitat area for WRPs. According to the EPBC Act Significant Impact Guidelines for Western Ringtail Possums the following could lead to a significant impact on WRPs in the Supporting Habitat area:

- Clearing in a remnant habitat patch that is greater than 0.5ha in size
- Clearing of more than 50 per cent of a remnant habitat patch that is between 0.2 and 0.5ha in size, or
- Fragmentation of existing habitat linkages.

The clearing of High and Medium WRP habitat would meet the first two criteria above. Therefore, a Referral would be required and a full Controlled Action assessment the likely outcome of the referral.

A Structure Plan is able to be assessed under the EPBC Act. In order to not sterilise land that does not contain MNES, a Referral will need to carefully consider the boundaries of the area referred and assessed. A full assessment under the EPBC Act will require offsets to be identified. The time from Referral to a decision could take at least 12 months and sometimes considerably longer if an offset package proves difficult to find.

6 SUMMARY AND CONCLUSIONS

6.1 Summary

The Environmental Assessment of the Precinct 2 Structure Plan has found the following:

- The historic and current land-uses on the site are not a constraint to development;
- There are no listed contaminated sites mapped in the area;
- The Multiple Use wetlands mapped on the site are not a constraint to development;
- Construction of Temple Road next to the CCW will be managed by a Construction Environment Management Plan (CEMP) to ensure no direct or indirect impacts on the CCW.
- There are no Threatened or Priority flora species in the SP area. Therefore flora is not a constraint to development;
- The vegetation on the site is Completely Degraded and is not representative of a Threatened or Priority Ecological Community. Therefore, vegetation is not considered to be a constraint to development;
- The Structure Plan area contains habitat for three species of Black Cockatoos including 1.62ha of foraging habitat and 88 potential breeding habitat trees;
- Clearing for development will result in most of the foraging and breeding habitat trees being cleared. Sixty Eucalyptus trees of a non-native species but with Black Cockatoo habitat value will be retained in the POS area along the southern boundary and potentially in the IDIA area;
- The Structure Plan area contains habitat for the Western Ringtail Possum. Clearing for development will result in 1.92ha of High and 4.94ha of Medium habitat being cleared and 3.82ha of High habitat being retained in Public Open Space/Drainage areas;
- Due to the potential impact of development on Black Cockatoos and Western Ringtail Possums future development that involves habitat clearing will need to be referred to both the State and Commonwealth environmental agencies for a decision on whether a full assessment is required or not; and
- There are no Aboriginal Heritage sites or sites of other heritage values in the SP area.

6.2 Conclusion

The Environmental Assessment of the Precinct 2 Structure Plan concludes that development of the site will have some impact on Black Cockatoo Habitat and Western Ringtail Possum habitat. There is an opportunity to mitigate impacts by planting Black Cockatoo Habitat trees and WRP trees in the eastern Industrial Development Investigation Area and create an ecological linkage between the vegetation along the southern boundary of the SP area and the vegetation in Lots to the north of the SP area. This would be consistent with the EPA's Section 16 advice with regards to the restoration in strategic locations to contribute to regionally significant ecological linkages.

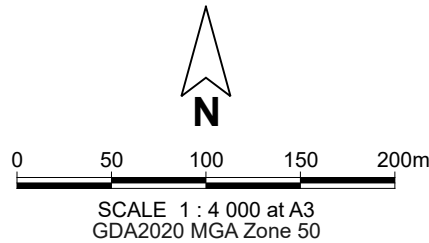
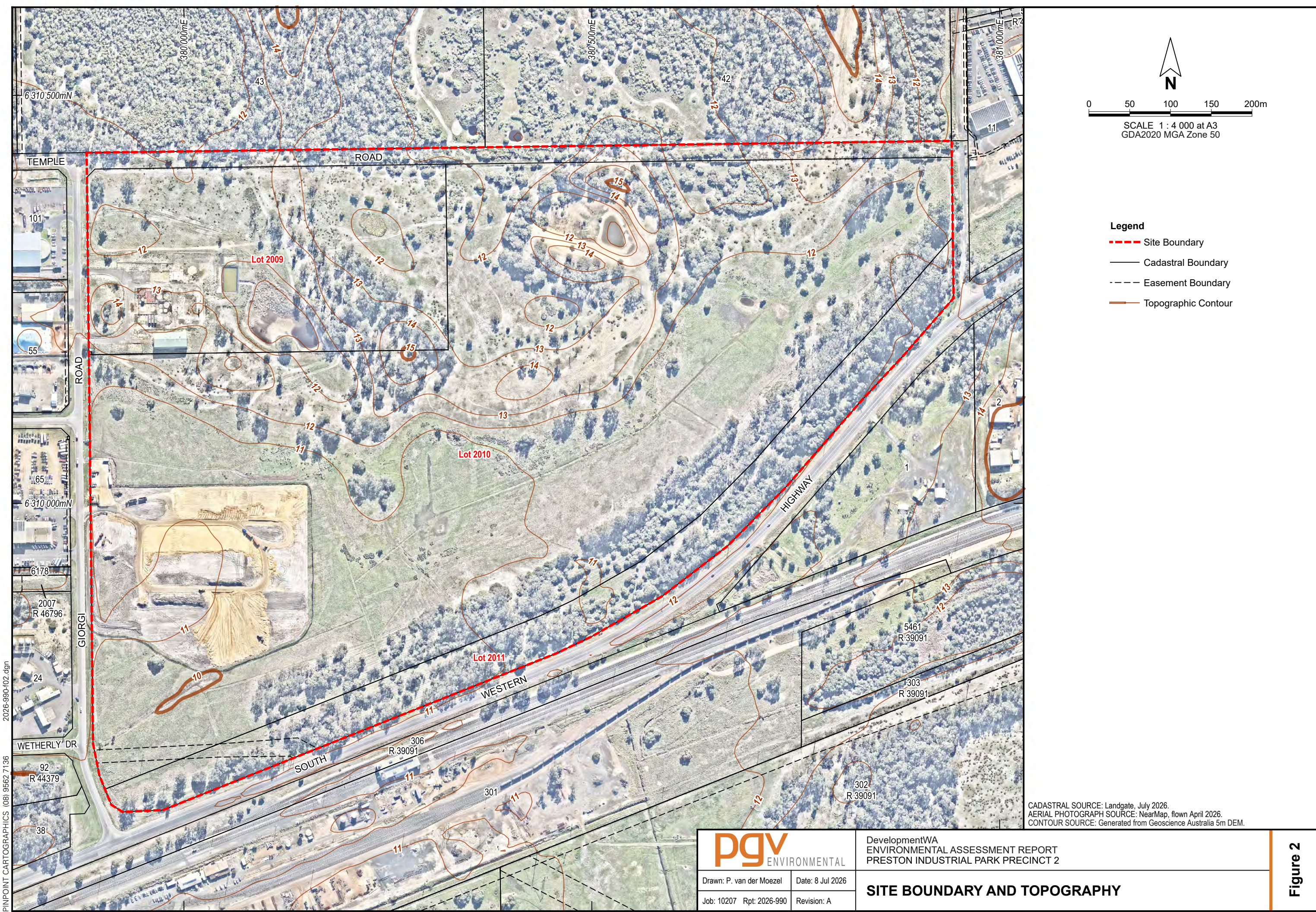
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TME (2014) Preston Industrial Park - Northern Precinct District Structure Plan and Environmental Appraisal

Terrestrial Ecosystems (2025) *Targeted Western Ringtail Possum survey and Black-Cockatoo habitat tree assessment for Lots 200 and 44 Giorgi Road and Lots 2009 and 2010 Temple Road, Picton.*

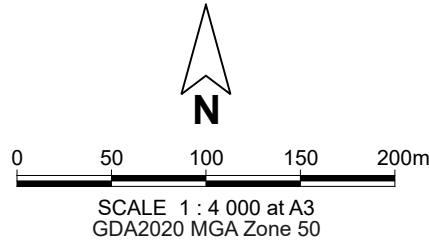
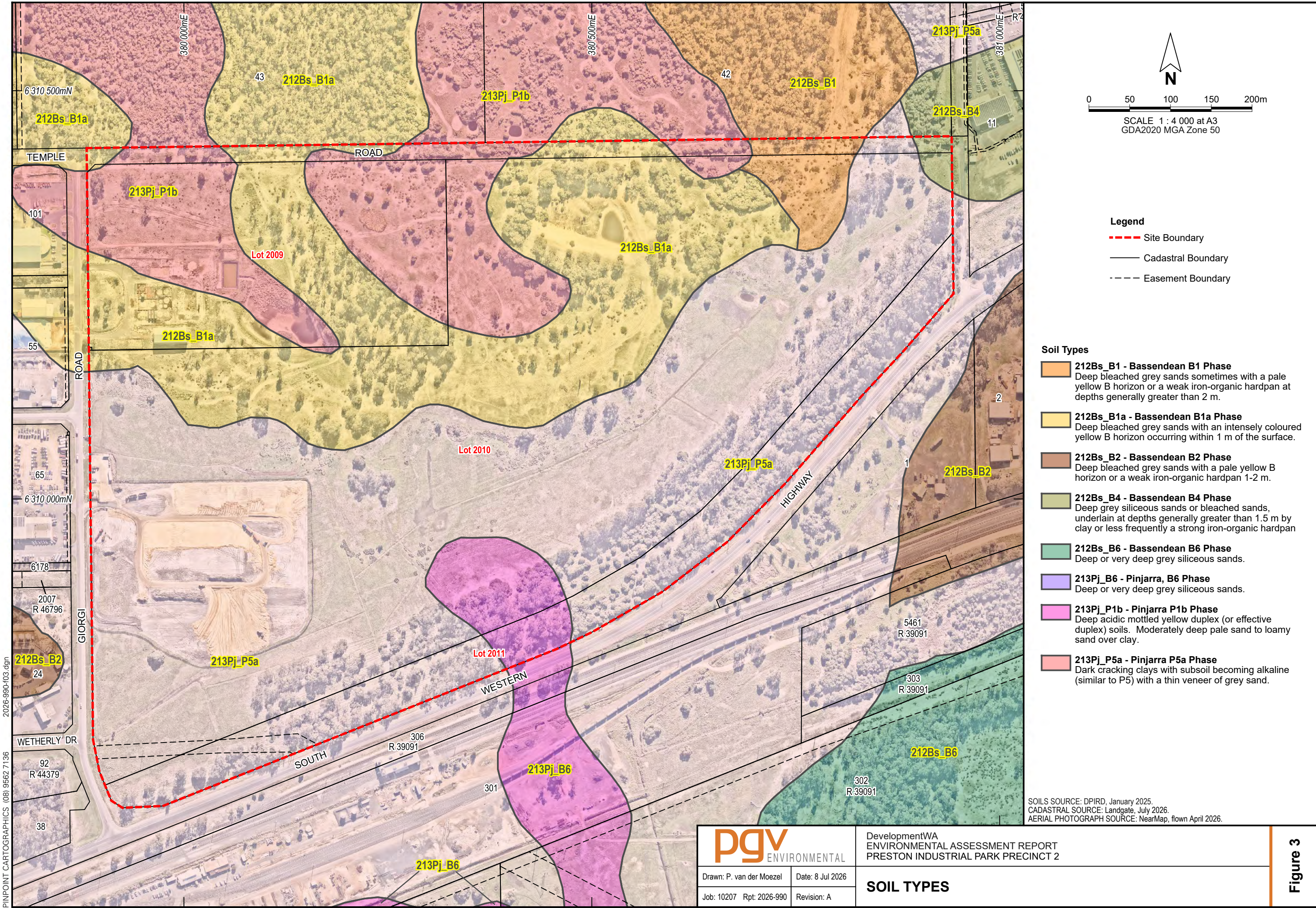
FIGURES



- Legend**
- Site Boundary
 - Cadastral Boundary
 - - - Easement Boundary
 - Topographic Contour

CADASTRAL SOURCE: Landgate, July 2026.
AERIAL PHOTOGRAPH SOURCE: NearMap, flown April 2026.
CONTOUR SOURCE: Generated from Geoscience Australia 5m DEM.

		DevelopmentWA ENVIRONMENTAL ASSESSMENT REPORT PRESTON INDUSTRIAL PARK PRECINCT 2	
Drawn: P. van der Moezel		Date: 8 Jul 2026	
Job: 10207 Rpt: 2026-990		Revision: A	
SITE BOUNDARY AND TOPOGRAPHY			Figure 2



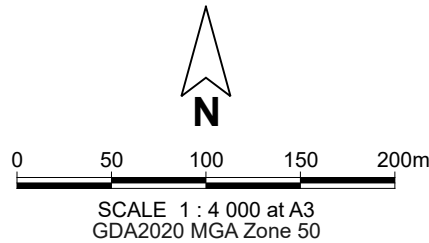
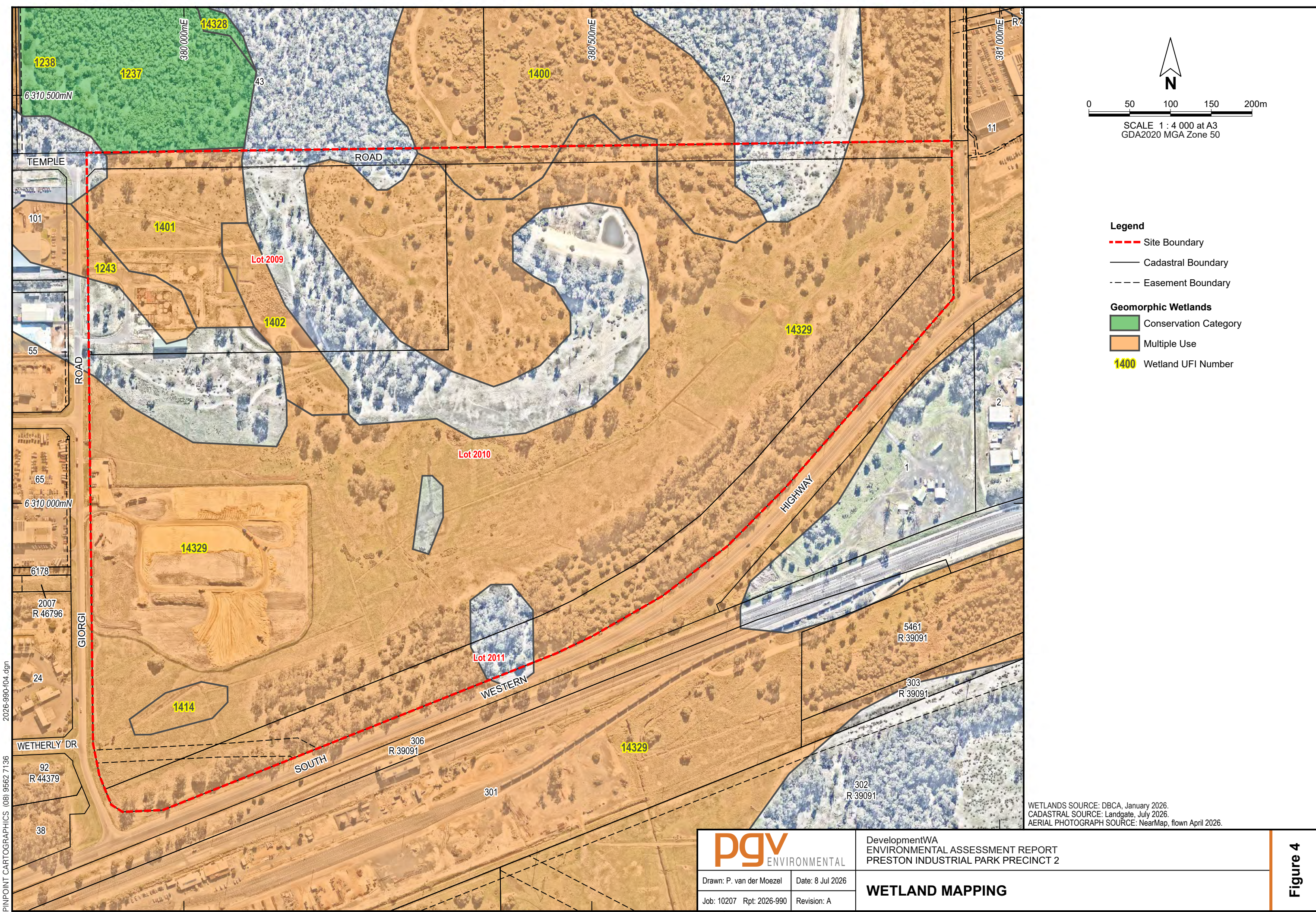
- Legend**
- Site Boundary
 - Cadastral Boundary
 - - - Easement Boundary

- Soil Types**
- 212Bs_B1 - Bassendean B1 Phase**
Deep bleached grey sands sometimes with a pale yellow B horizon or a weak iron-organic hardpan at depths generally greater than 2 m.
 - 212Bs_B1a - Bassendean B1a Phase**
Deep bleached grey sands with an intensely coloured yellow B horizon occurring within 1 m of the surface.
 - 212Bs_B2 - Bassendean B2 Phase**
Deep bleached grey sands with a pale yellow B horizon or a weak iron-organic hardpan 1-2 m.
 - 212Bs_B4 - Bassendean B4 Phase**
Deep grey siliceous sands or bleached sands, underlain at depths generally greater than 1.5 m by clay or less frequently a strong iron-organic hardpan
 - 212Bs_B6 - Bassendean B6 Phase**
Deep or very deep grey siliceous sands.
 - 213Pj_B6 - Pinjarra, B6 Phase**
Deep or very deep grey siliceous sands.
 - 213Pj_P1b - Pinjarra P1b Phase**
Deep acidic mottled yellow duplex (or effective duplex) soils. Moderately deep pale sand to loamy sand over clay.
 - 213Pj_P5a - Pinjarra P5a Phase**
Dark cracking clays with subsoil becoming alkaline (similar to P5) with a thin veneer of grey sand.

SOILS SOURCE: DPIRD, January 2025.
CADASTRAL SOURCE: Landgate, July 2026.
AERIAL PHOTOGRAPH SOURCE: NearMap, flown April 2026.

		DevelopmentWA ENVIRONMENTAL ASSESSMENT REPORT PRESTON INDUSTRIAL PARK PRECINCT 2	
Drawn: P. van der Moezel	Date: 8 Jul 2026	SOIL TYPES	
Job: 10207 Rpt: 2026-990	Revision: A		

Figure 3

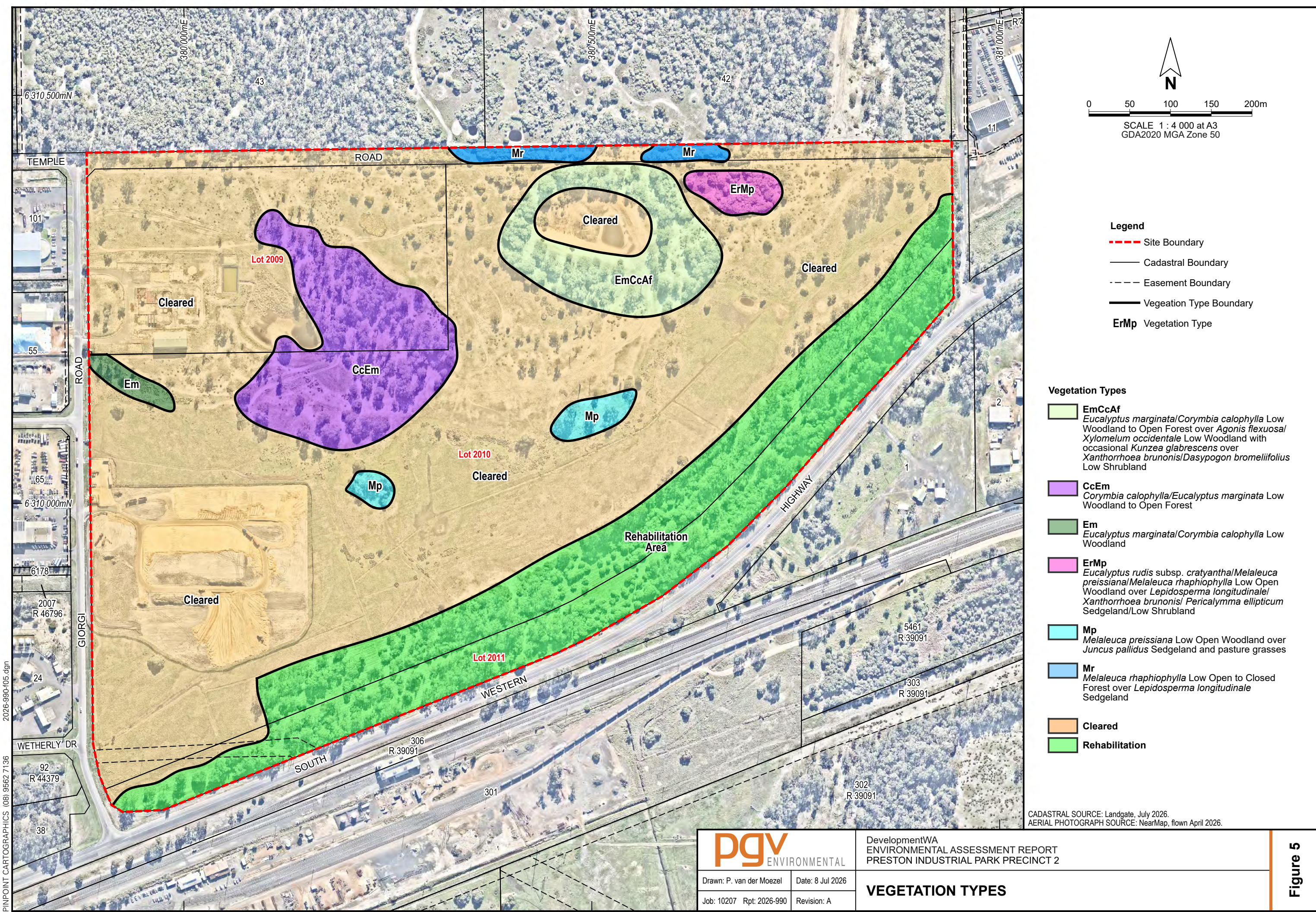


- Legend**
- Site Boundary
 - Cadastral Boundary
 - - - Easement Boundary
- Geomorphic Wetlands**
- Conservation Category
 - Multiple Use
 - 1400 Wetland UFI Number

WETLANDS SOURCE: DBCA, January 2026.
CADASTRAL SOURCE: Landgate, July 2026.
AERIAL PHOTOGRAPH SOURCE: NearMap, flown April 2026.

		DevelopmentWA ENVIRONMENTAL ASSESSMENT REPORT PRESTON INDUSTRIAL PARK PRECINCT 2	
Drawn: P. van der Moezel	Date: 8 Jul 2026	WETLAND MAPPING	
Job: 10207 Rpt: 2026-990	Revision: A		

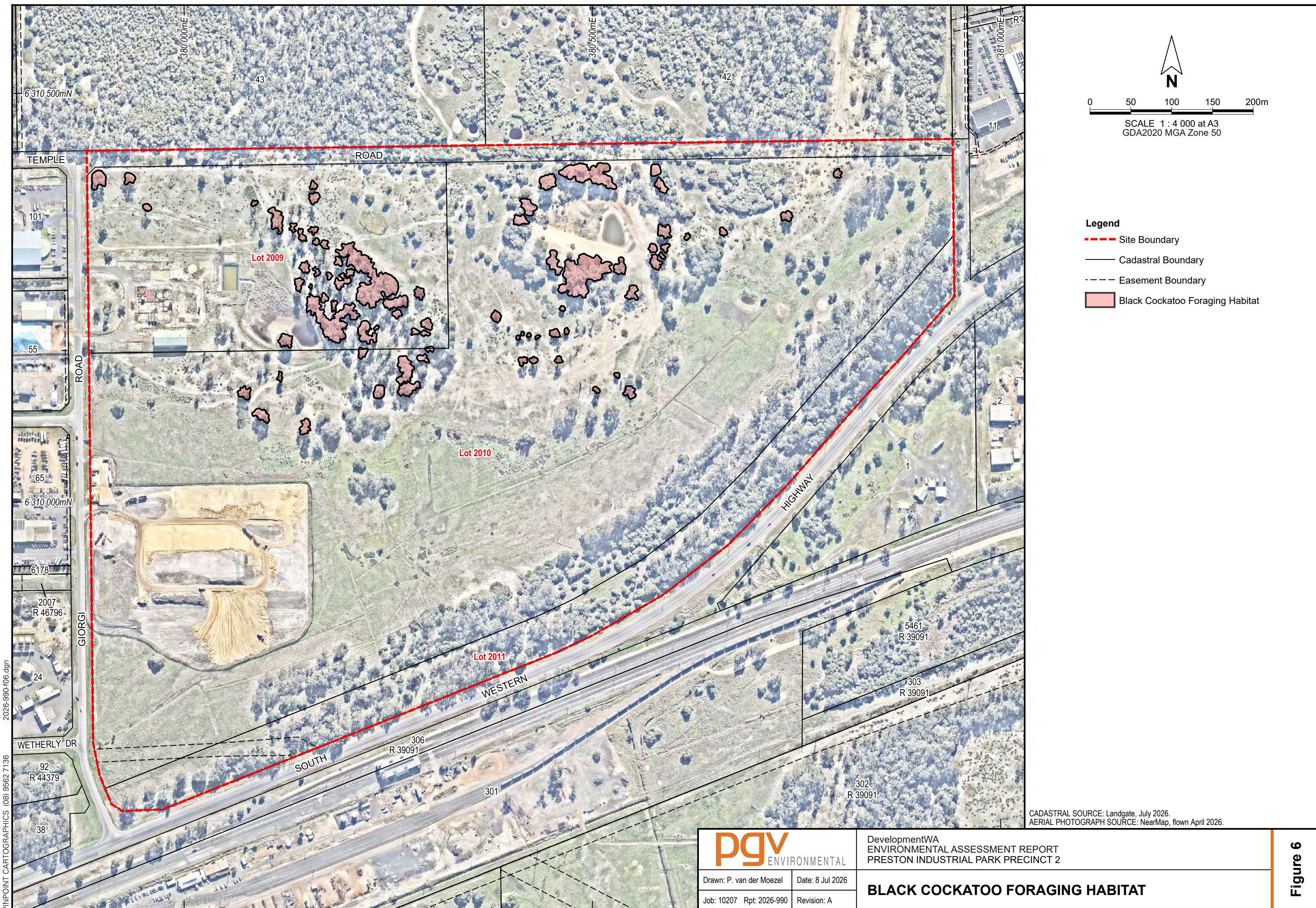
Figure 4

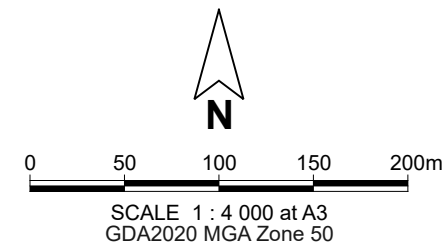
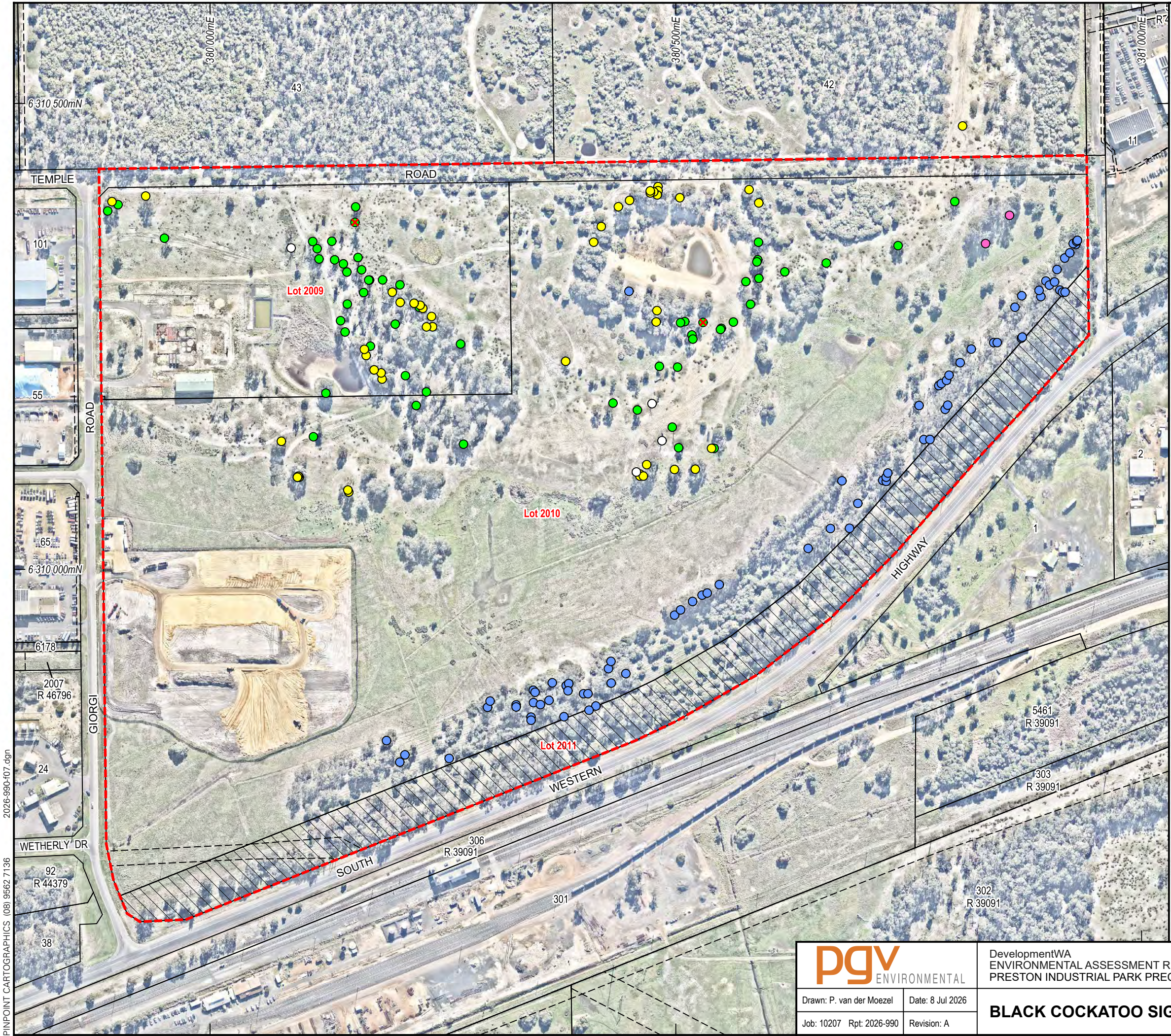


PINPOINT CARTOGRAPHICS (08) 9562 7136 2026-990-f05.dgn

pgv ENVIRONMENTAL		DevelopmentWA ENVIRONMENTAL ASSESSMENT REPORT PRESTON INDUSTRIAL PARK PRECINCT 2	
Drawn: P. van der Moezel	Date: 8 Jul 2026	VEGETATION TYPES	
Job: 10207 Rpt: 2026-990	Revision: A		

CADASTRAL SOURCE: Landgate, July 2026.
AERIAL PHOTOGRAPH SOURCE: NearMap, flown April 2026.





- Legend**
- Site Boundary
 - Cadastral Boundary
 - - - Easement Boundary
- Significant Trees**
- [Hatched Box] Area Not Assessed
 - Marri (*Corymbia calophylla*)
 - Jarrah (*Eucalyptus marginata*)
 - Flooded Gum (*Eucalyptus rudis*)
 - *Eucalyptus* species
 - Standing Dead Tree
 - ✕ Tree with Hollow

CADASTRAL SOURCE: Landgate, July 2026.
AERIAL PHOTOGRAPH SOURCE: NearMap, flown April 2026.
SIGNIFICANT TREES SOURCE: Terrestrial Ecosystems, Rpt No. 2025-0230, 28 May 2026.

		DevelopmentWA ENVIRONMENTAL ASSESSMENT REPORT PRESTON INDUSTRIAL PARK PRECINCT 2	
Drawn: P. van der Moezel	Date: 8 Jul 2026	BLACK COCKATOO SIGNIFICANT TREES	
Job: 10207 Rpt: 2026-990	Revision: A		

Figure 7

PINPOINT CARTOGRAPHICS (08) 9562 7136 2026-990-107.dgn

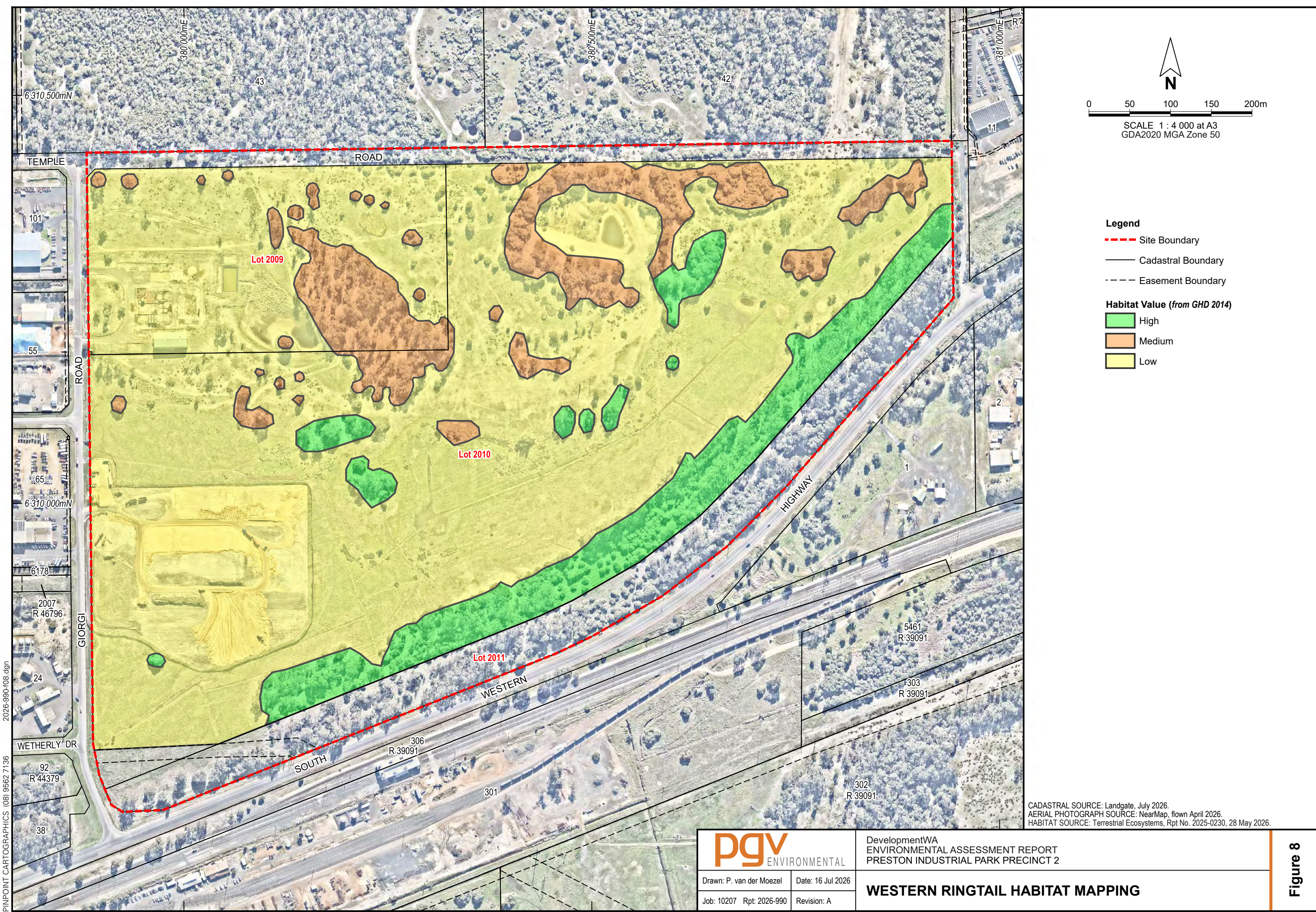
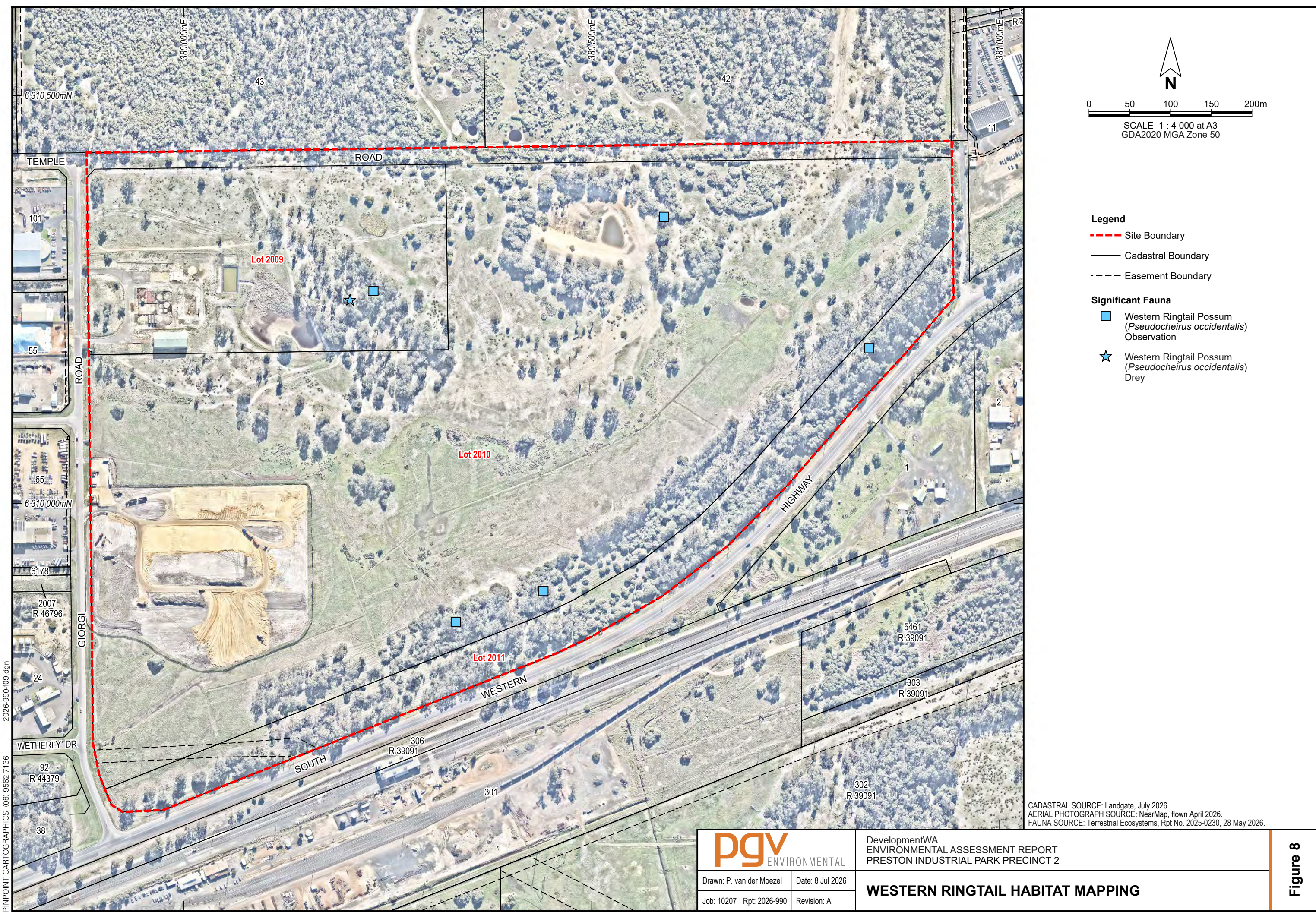
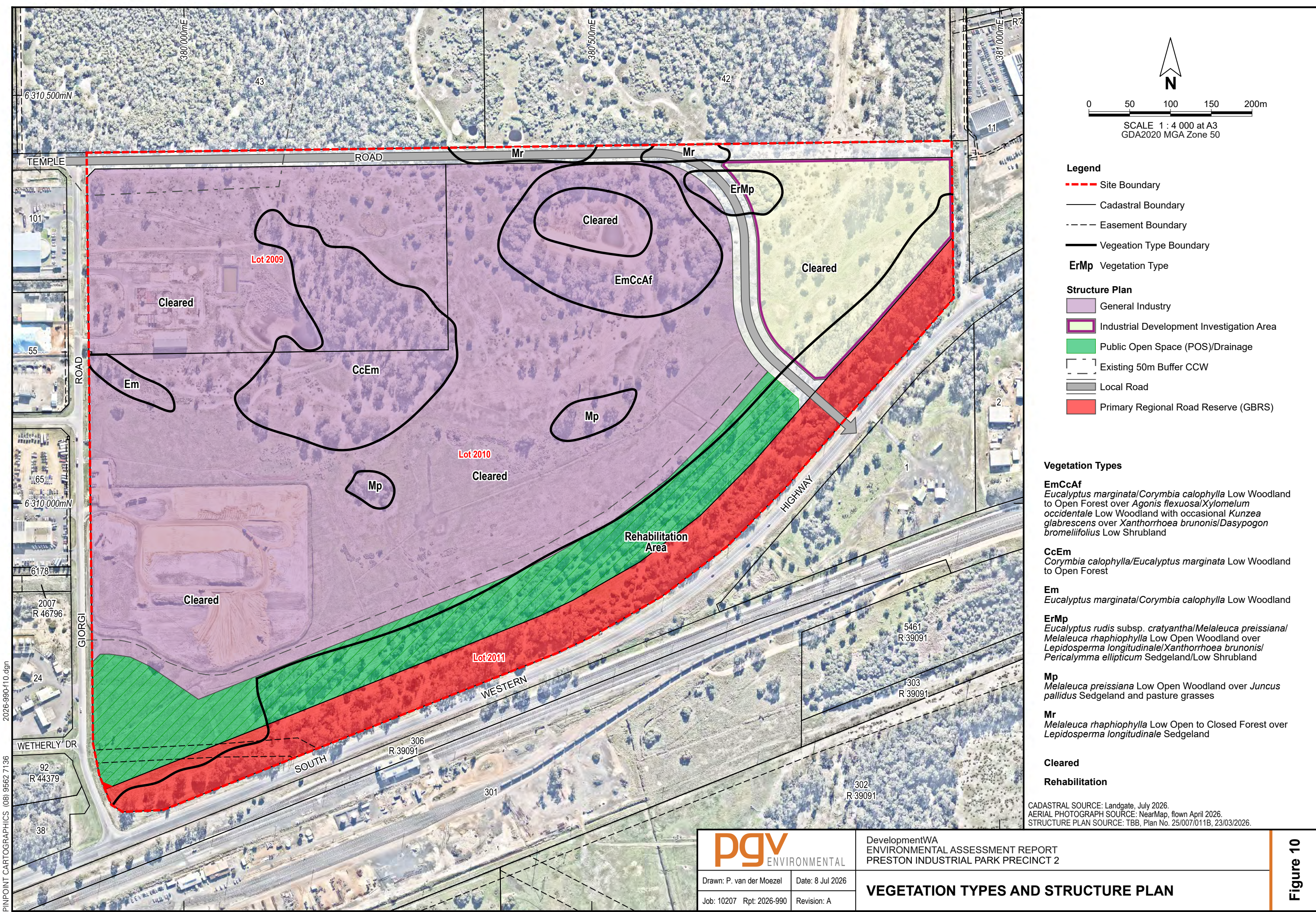


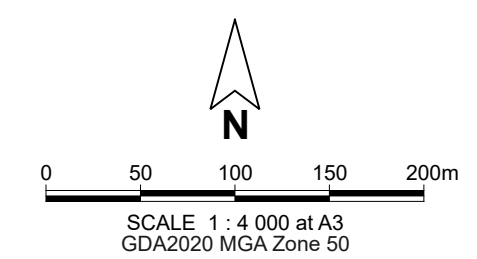
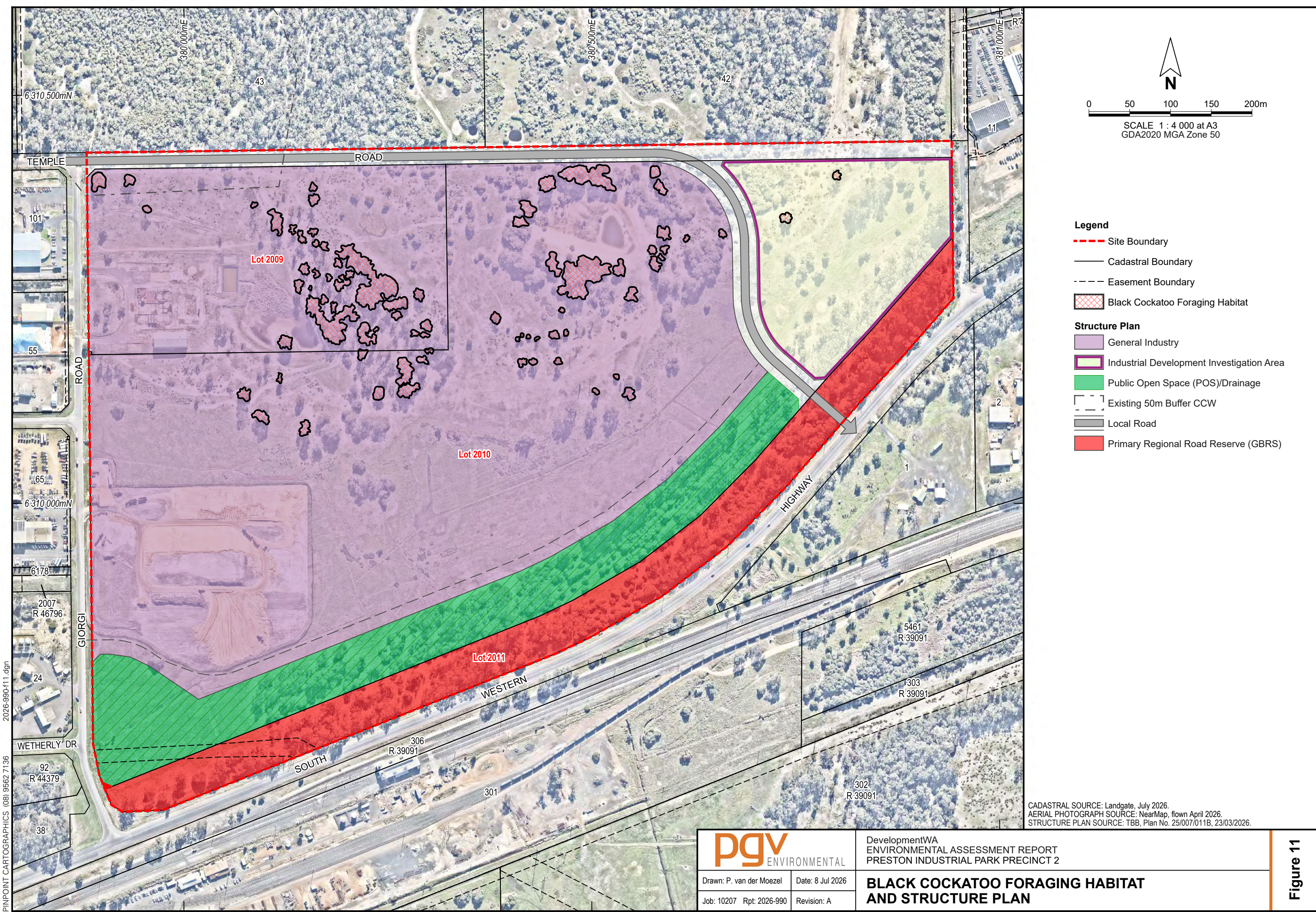
Figure 8





PINPOINT CARTOGRAPHICS (08) 9562 7136 2026-990-110.dgn

pgv ENVIRONMENTAL		DevelopmentWA ENVIRONMENTAL ASSESSMENT REPORT PRESTON INDUSTRIAL PARK PRECINCT 2	
Drawn: P. van der Moezel	Date: 8 Jul 2026	VEGETATION TYPES AND STRUCTURE PLAN	
Job: 10207 Rpt: 2026-990	Revision: A		



- Legend**
- Site Boundary
 - Cadastral Boundary
 - - - Easement Boundary
 - [Cross-hatched box] Black Cockatoo Foraging Habitat
- Structure Plan**
- [Purple box] General Industry
 - [Purple outline box] Industrial Development Investigation Area
 - [Green box] Public Open Space (POS)/Drainage
 - [Dashed line box] Existing 50m Buffer CCW
 - [Grey line box] Local Road
 - [Red box] Primary Regional Road Reserve (GBRS)

CADASTRAL SOURCE: Landgate, July 2026.
AERIAL PHOTOGRAPH SOURCE: NearMap, flown April 2026.
STRUCTURE PLAN SOURCE: TBB, Plan No. 25/007/011B, 23/03/2026.



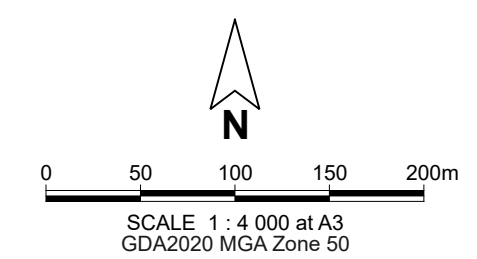
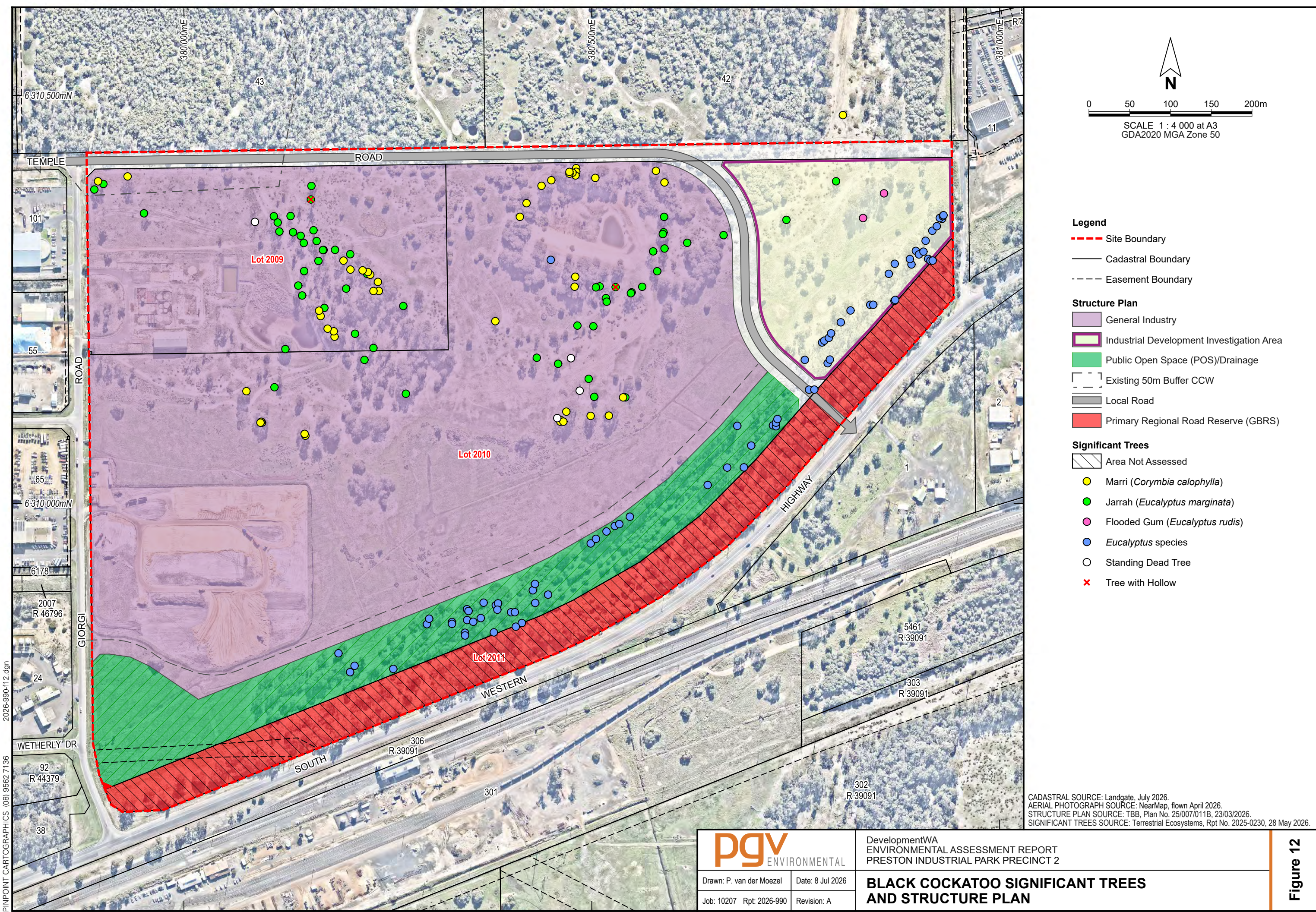
DevelopmentWA
ENVIRONMENTAL ASSESSMENT REPORT
PRESTON INDUSTRIAL PARK PRECINCT 2

Drawn: P. van der Moezel
Job: 10207 Rpt: 2026-990

Date: 8 Jul 2026
Revision: A

**BLACK COCKATOO FORAGING HABITAT
AND STRUCTURE PLAN**

Figure 11



Legend

- Site Boundary
- Cadastral Boundary
- - - Easement Boundary
- Structure Plan**
- General Industry
- Industrial Development Investigation Area
- Public Open Space (POS)/Drainage
- Existing 50m Buffer CCW
- Local Road
- Primary Regional Road Reserve (GBRS)

Significant Trees

- Area Not Assessed
- Marri (*Corymbia calophylla*)
- Jarrah (*Eucalyptus marginata*)
- Flooded Gum (*Eucalyptus rudis*)
- Eucalyptus* species
- Standing Dead Tree
- Tree with Hollow

CADASTRAL SOURCE: Landgate, July 2026.
AERIAL PHOTOGRAPH SOURCE: NearMap, flown April 2026.
STRUCTURE PLAN SOURCE: TBB, Plan No. 25/007/011B, 23/03/2026.
SIGNIFICANT TREES SOURCE: Terrestrial Ecosystems, Rpt No. 2025-0230, 28 May 2026.



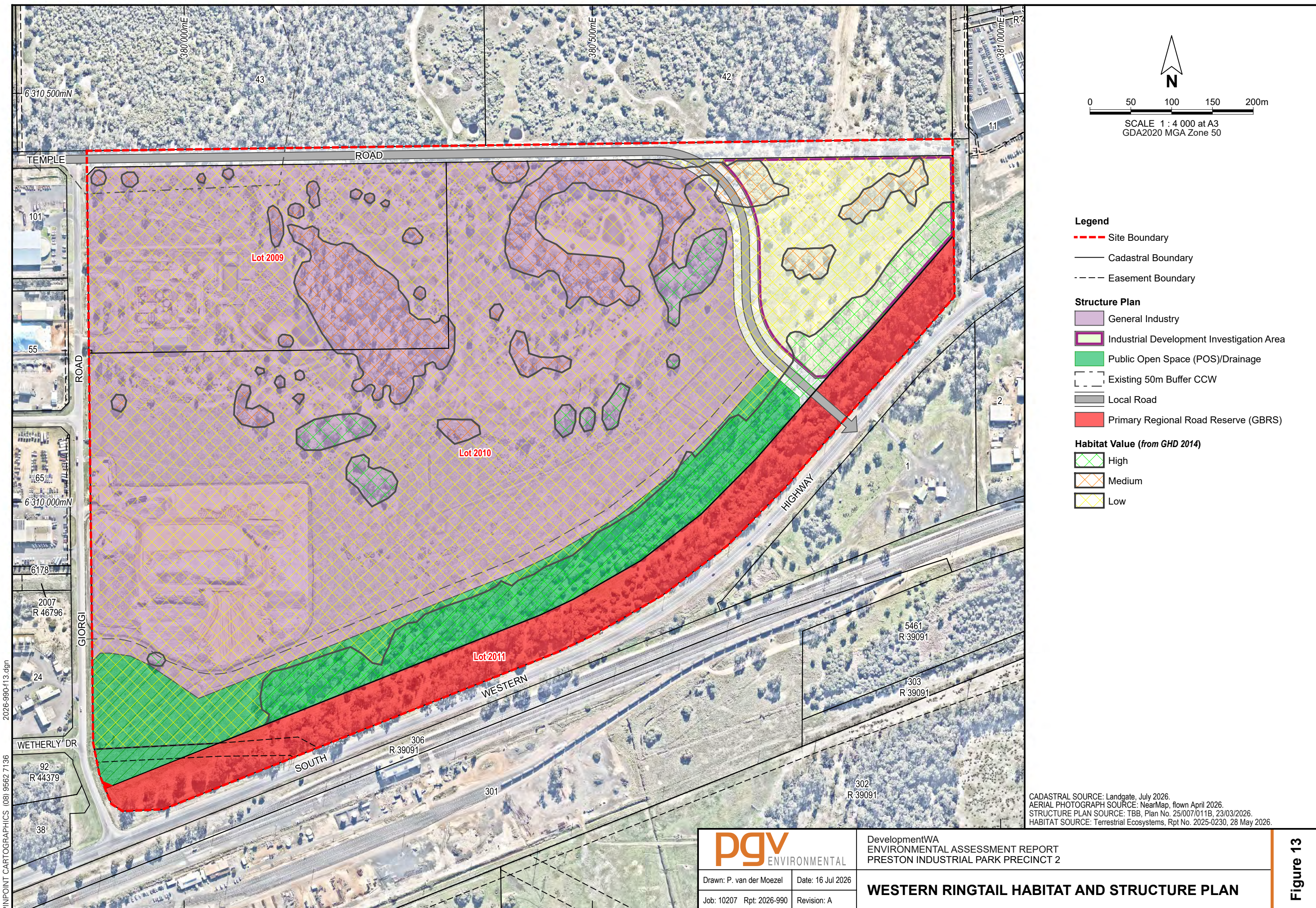
DevelopmentWA
ENVIRONMENTAL ASSESSMENT REPORT
PRESTON INDUSTRIAL PARK PRECINCT 2

Drawn: P. van der Moezel
Job: 10207 Rpt: 2026-990

Date: 8 Jul 2026
Revision: A

**BLACK COCKATOO SIGNIFICANT TREES
AND STRUCTURE PLAN**

Figure 12



APPENDIX 1

PIPNP Structure Plan Approval

Endorsement Page

This structure plan is prepared under the provisions of the City of Bunbury Local Planning Scheme No. 8.

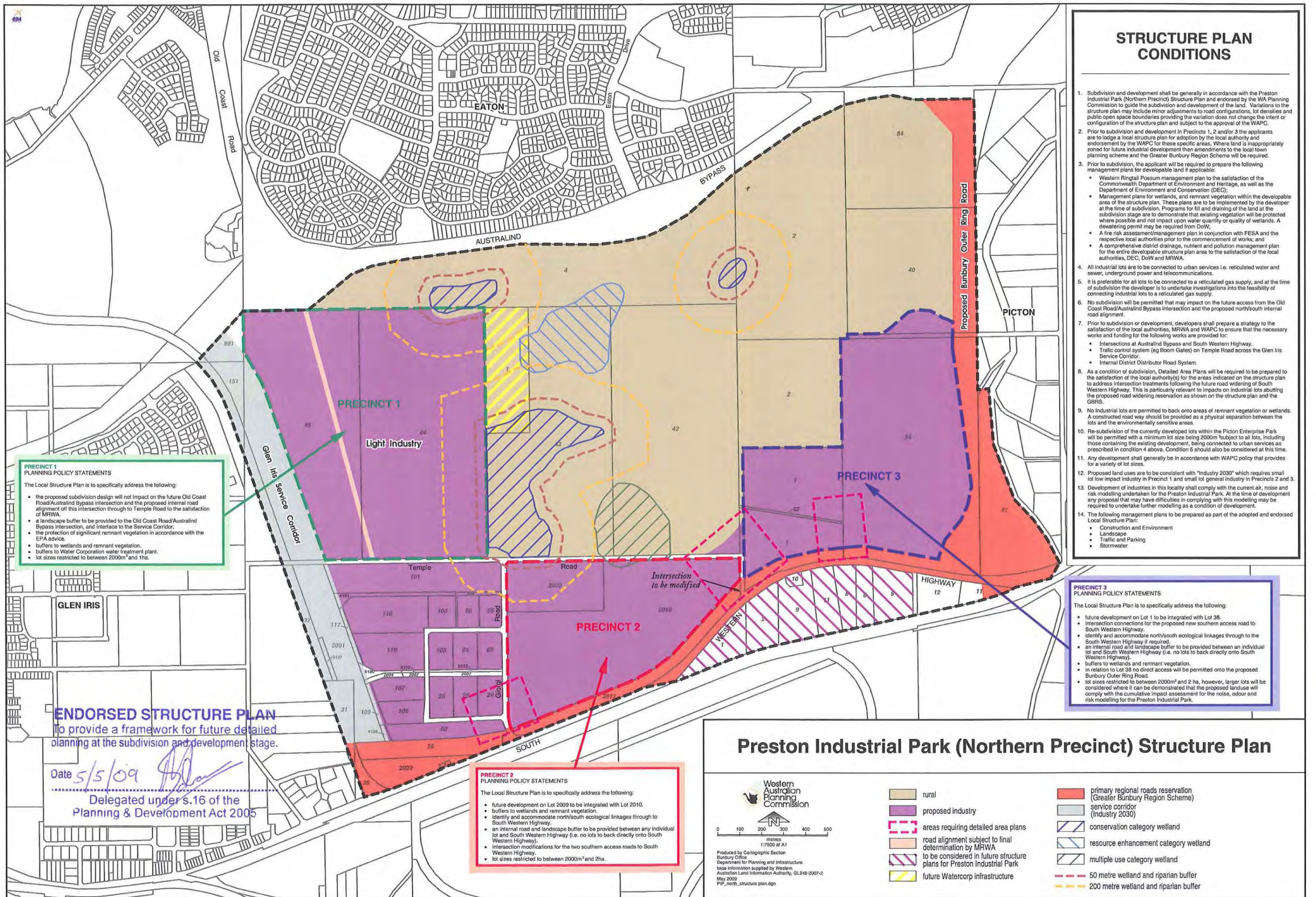
IT IS CERTIFIED THAT THIS STRUCTURE PLAN WAS APPROVED BY RESOLUTION OF THE WESTERN AUSTRALIAN PLANNING COMMISSION ON:

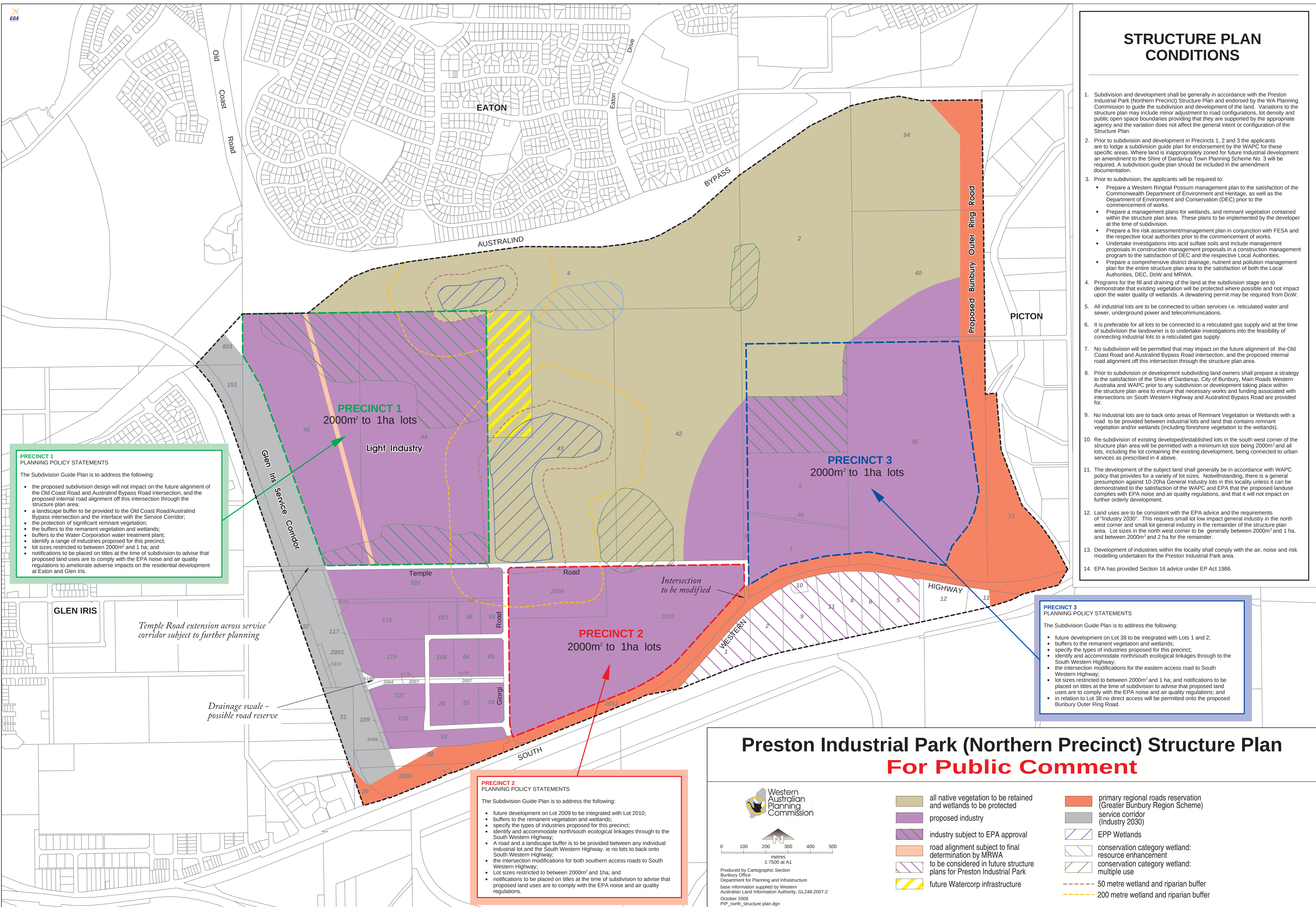
05 MAY 2009

In accordance with Schedule 2, Part 4, Clause 28 (2) and refer to Part 1, 2. (b) of the *Planning and Development (Local Planning Schemes) Regulations 2015*.

Date of Expiry:

19 OCTOBER 2028





Your Ref: N/A
Our Ref: 801/06/01/0028P
Enquiries: Luke Mifsud
(Luke.Mifsud@dplh.wa.gov.au)

Chief Executive Officer
City of Bunbury
PO Box 21
Bunbury WA 6231

Transmission via electronic mail to records@bunbury.wa.gov.au ; info@bunbury.wa.gov.au ; records@dardanup.wa.gov.au ; admin@tbbplanning.com.au

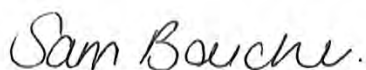
Dear Sir/Madam

**EXTENSION OF APPROVAL PERIOD – PRESTON INDUSTRIAL PARK (NORTHERN PRECINCT)
STRUCTURE PLAN
WAPC REFERENCE: 801/06/01/0028P**

Pursuant to Clause 28 (2), Part 4, Schedule 2 of the *Planning and Development (Local Planning Schemes) Regulations 2015*, the Western Australian Planning Commission on 14 July 2025, approved an extension of the approval period for the Preston Industrial Park (Northern Precinct) Structure Plan for a further period of 3 years, expiring on 19 October 2028.

A copy of the current approved structure plan is attached to this emailed correspondence.

Yours sincerely



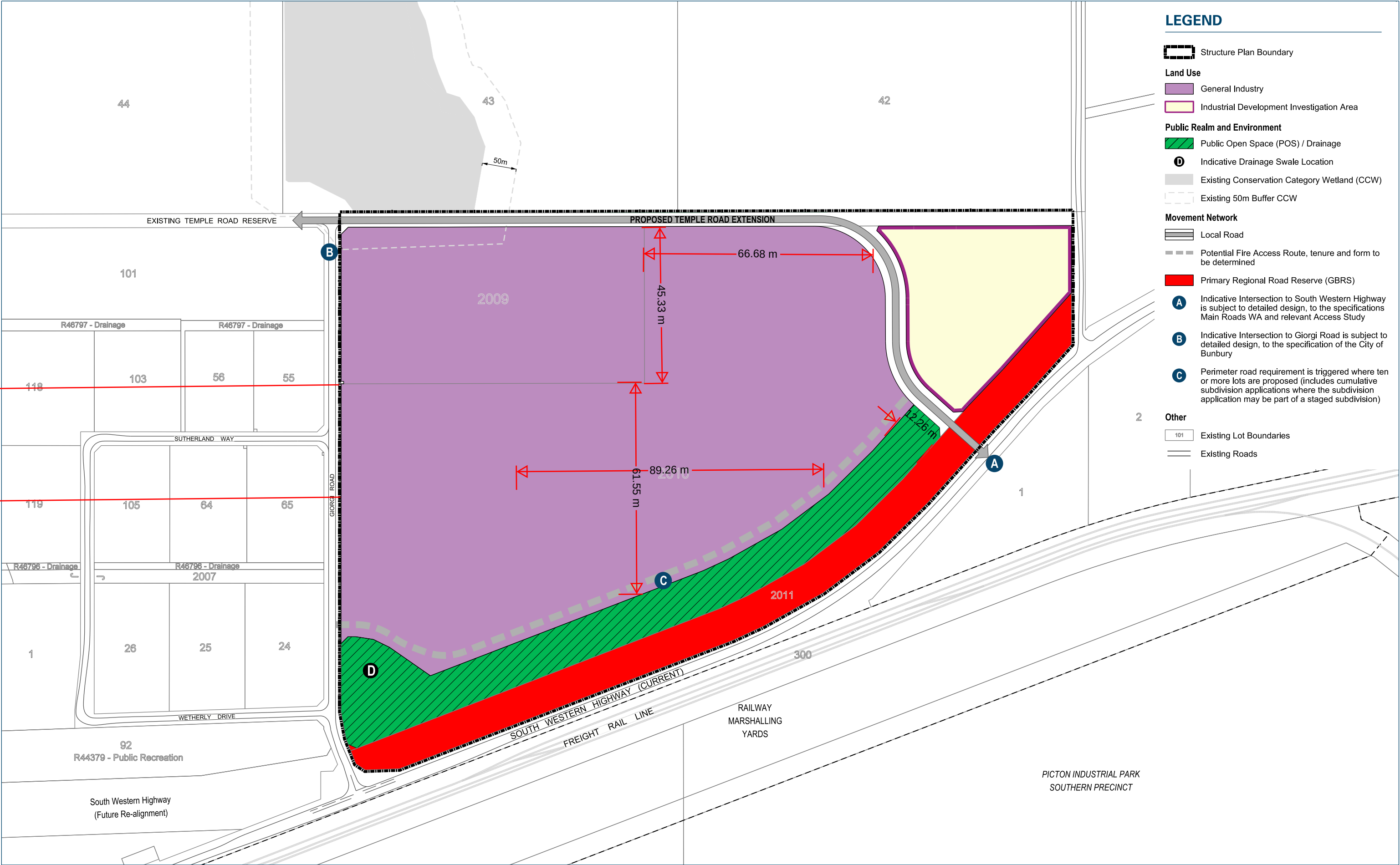
Ms Sam Boucher
Secretary
Western Australian Planning Commission

15 July 2025

APPENDIX 2

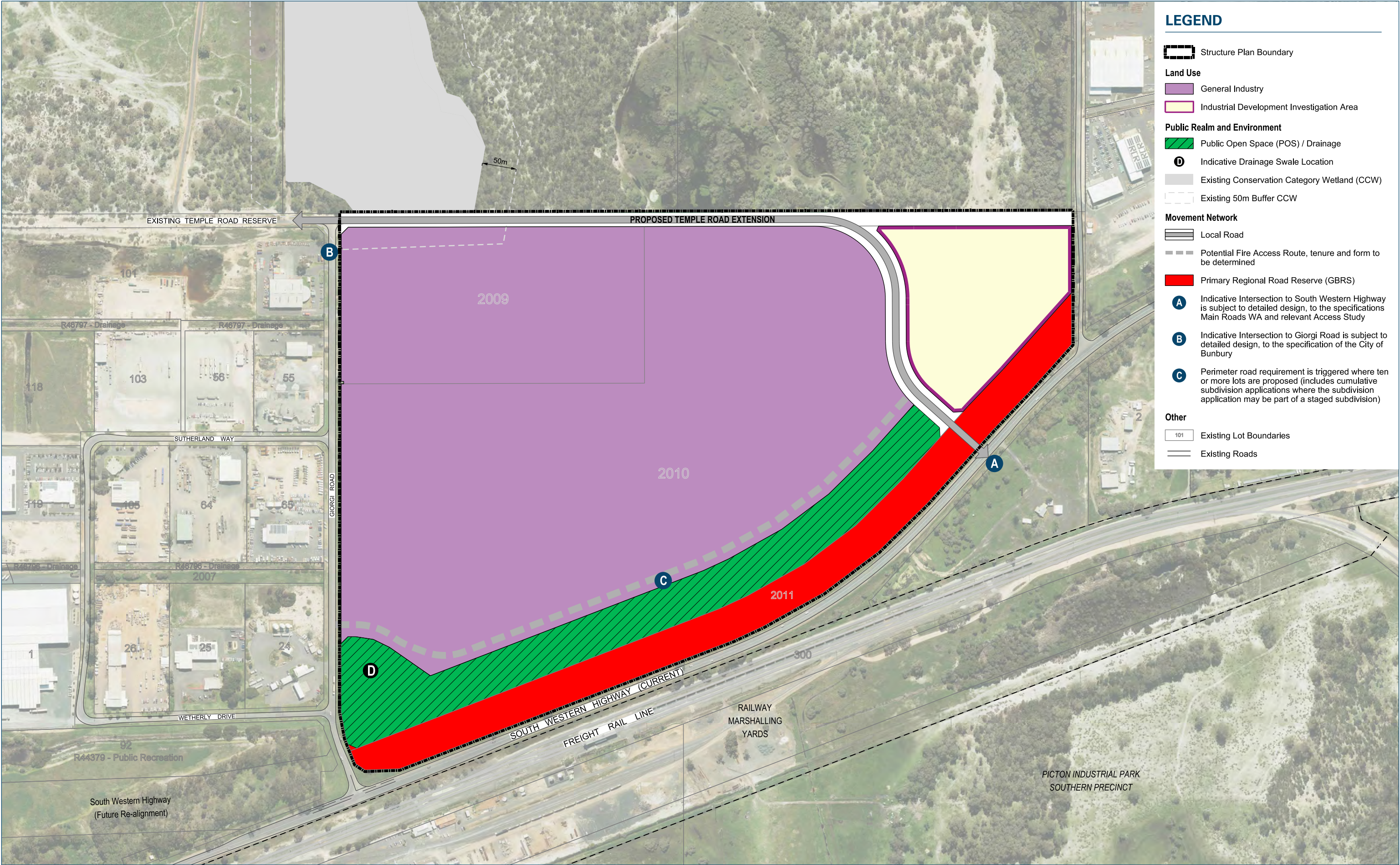
Precinct 2 Structure Plan

APPENDIX D : STRUCTURE PLAN



LEGEND

- Structure Plan Boundary
- Land Use
 - General Industry
 - Industrial Development Investigation Area
- Public Realm and Environment
 - Public Open Space (POS) / Drainage
 - Indicative Drainage Swale Location
 - Existing Conservation Category Wetland (CCW)
 - Existing 50m Buffer CCW
- Movement Network
 - Local Road
 - Potential Fire Access Route, tenure and form to be determined
 - Primary Regional Road Reserve (GBRS)
- Other
 - Indicative Intersection to South Western Highway is subject to detailed design, to the specifications Main Roads WA and relevant Access Study
 - Indicative Intersection to Giorgi Road is subject to detailed design, to the specification of the City of Bunbury
 - Perimeter road requirement is triggered where ten or more lots are proposed (includes cumulative subdivision applications where the subdivision application may be part of a staged subdivision)
 - Existing Lot Boundaries
 - Existing Roads



LEGEND

- Structure Plan Boundary
 - Land Use
 - General Industry
 - Industrial Development Investigation Area
 - Public Realm and Environment
 - Public Open Space (POS) / Drainage
 - Indicative Drainage Swale Location
 - Existing Conservation Category Wetland (CCW)
 - Existing 50m Buffer CCW
 - Movement Network
 - Local Road
 - Potential Fire Access Route, tenure and form to be determined
 - Primary Regional Road Reserve (GBRS)
 - Other
 - Existing Lot Boundaries
 - Existing Roads
- A** Indicative Intersection to South Western Highway is subject to detailed design, to the specifications Main Roads WA and relevant Access Study
- B** Indicative Intersection to Giorgi Road is subject to detailed design, to the specification of the City of Bunbury
- C** Perimeter road requirement is triggered where ten or more lots are proposed (includes cumulative subdivision applications where the subdivision application may be part of a staged subdivision)

APPENDIX E : DETAILED SITE INVESTIGATION

Report on Detailed Site Investigation

Preston Industrial Park

Lot 2009 Giorgi Road, Picton, WA

Prepared for DevelopmentWA

Project 236293.02

13 November 2025

Document History

Details

Project No.	236293.02
Document Title	Report on Detailed Site Investigation
Site Address	Lot 2009 Giorgi Road, Picton, WA
Report Prepared For	DevelopmentWA
Filename	236293.02.R.001.Rev0

Status and Review

Status	Prepared by	Reviewed by	Date issued
Revision 0	Rob Shapland	Dean Woods	13 November 2025

Distribution of Copies

Status	Issued to
Revision 0	DevelopmentWA, Kelli Howell

The undersigned, on behalf of Douglas Partners Pty Ltd, confirm that this document and all attached drawings, logs and test results have been checked and reviewed for errors, omissions and inaccuracies.

Signature

Date

Author		13 November 2025
Reviewer		13 November 2025

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Appendix B: Drawings 1 to 6

Photo Plates

Appendix C: Historical Aerial Photographs

Certificate of Titles

Basic Summary of Records

Shire of Dardanup FOI

Appendix D: DWER Operating Licence and Associated Information

DWER FOI

Appendix E: Data Quality Assessment

Appendix F: Field Work Results (Test Pit Logs, Groundwater Monitoring Well Construction Logs)

Groundwater Monitoring Well Survey (BCE)

Calibration Certificates (PID and YSi)

Appendix G: Table G-1: Summary of Soil Analytical Results

EIL Calculation Sheets

95% UCL Calculation Sheet

Laboratory Reports and Chain of Custody Forms

Appendix H: Table H-1: Summary of Groundwater Analytical Results

Laboratory Reports and Chain of Custody Forms

Appendix I: Data Quality Assurance and Quality Control

Report on Detailed Site Investigation

Preston Industrial Park

Lot 2009 Giorgi Road, Picton, WA

1. Introduction

This report prepared by Douglas Partners Pty Ltd (Douglas) presents the results of a detailed site investigation (DSI) on Lot 2009 Giorgi Road, Picton, WA (the site). The DSI was commissioned by emails instructing to proceed dated 7 July 2025 and 29 August 2025 from Kelli Howell of DevelopmentWA (DevWA) and was undertaken in general accordance with Douglas' proposals P236293.00.P.001.Rev1 dated 18 June 2025 and email dated 29 August 2025 respectively.

The site was most recently used by Australian Renewable Fuels Picton Pty Ltd (ARF) as a bio-diesel facility. However, at the time of writing this report, the facility had ceased operations and had mostly been decommissioned.

Douglas recently completed a Preliminary Site Investigation (PSI) to inform of potential contamination issues and to support local structure planning in the Preston Industrial Park. The PSI identified a number of Areas of Potential Concern (AoPC) and a DSI was subsequently recommended to assess the nature and extent of soil and groundwater contamination associated with the identified AoPCs. This DSI includes all relevant information from the PSI (Douglas, 2025).

This report must be read in conjunction with all appendices including the notes provided in Appendix A.

2. Objectives of the Investigation

The objectives of the DSI, with reference to the National Environment Protection (Assessment of Site Contamination) Measure (2013) Schedule B2 Guideline on Site Characterisation (NEPM, 2013) and the DWER (2021) Assessment and management of contaminated sites (DWER, 2021), were to:

- Identify potential sources of contamination and establish associated contaminants of potential concern (CoPC) at the site;
- Identify areas of potential contamination at the site;
- Identify potential human and ecological receptors that may be impacted by the CoPC;
- Identify potentially affected media (ie soil, groundwater, surface water, soil vapour); and
- Investigate the nature and extent of contamination, if any, at the site; and
- Investigate and report on the risk posed by the contamination status of the site to human health and environmental receptors under the proposed land use; and
- Provide recommendations for further detailed investigations, remediation or management, if required.

3. Site Information

3.1 Site Identification

A summary of the site identification details is provided in Table 1. The site locality and an aerial photograph are presented on Drawings 1 and 2, Appendix B respectively.

Table 1: Site Identification Details

Identification	Description
Land Title	Lot 2009 on Deposited Plan 43721 Volume/Folio: 2593/990
Address	Lot 2009 Giorgi Road, Picton
Site Area ¹	10.0129 ha
Local Government Area	Shire of Dardanup
Zoning ¹	Industrial Development (Town Planning Scheme 3)
Registered Owner	Konkera Pty Ltd
Current Land Use	Former Australian Renewable Fuels (bio-diesel facility)

Notes 1. Site area sourced from Landgate and zoning from Shire of Dardanup www.dardanup.wa.gov.au

3.2 Surrounding Land Uses

Land uses surrounding the site include the following (refer to Drawing 2, Appendix B):

- North: Temple Road, beyond which is undeveloped bushland;
- South: Undeveloped land (Lot 2010) possibly used for agricultural purposes (grazing);
- East: Undeveloped land (Lot 2010) possibly used for agricultural purposes (grazing); and
- West: Giorgi Road beyond which is existing commercial/industrial including a resource recovery centre (Veolia) and asphaltec.

4. Existing Environment

In order to gain an understanding of the existing environmental setting and potential sensitive receptors, a review of available published information was conducted. The findings of the review are outlined in the following sections.

4.1 Topography

According to a publicly available LiDAR, the surface levels across the site vary between approximately RL 10 m with reference to the Australian Height Datum (AHD) and RL 14 m.

4.2 Geology

The 1:50,000 Bunbury-Burekup Environmental Geology sheet indicates subsurface conditions across the site comprising of three soil units (refer to Figure 1:

- Thin Bassendean Sand over Guildford Formation (Qpb/Qpa);
- Guildford Formation (Qpa); and
- Bassendean Sand (Qpb).

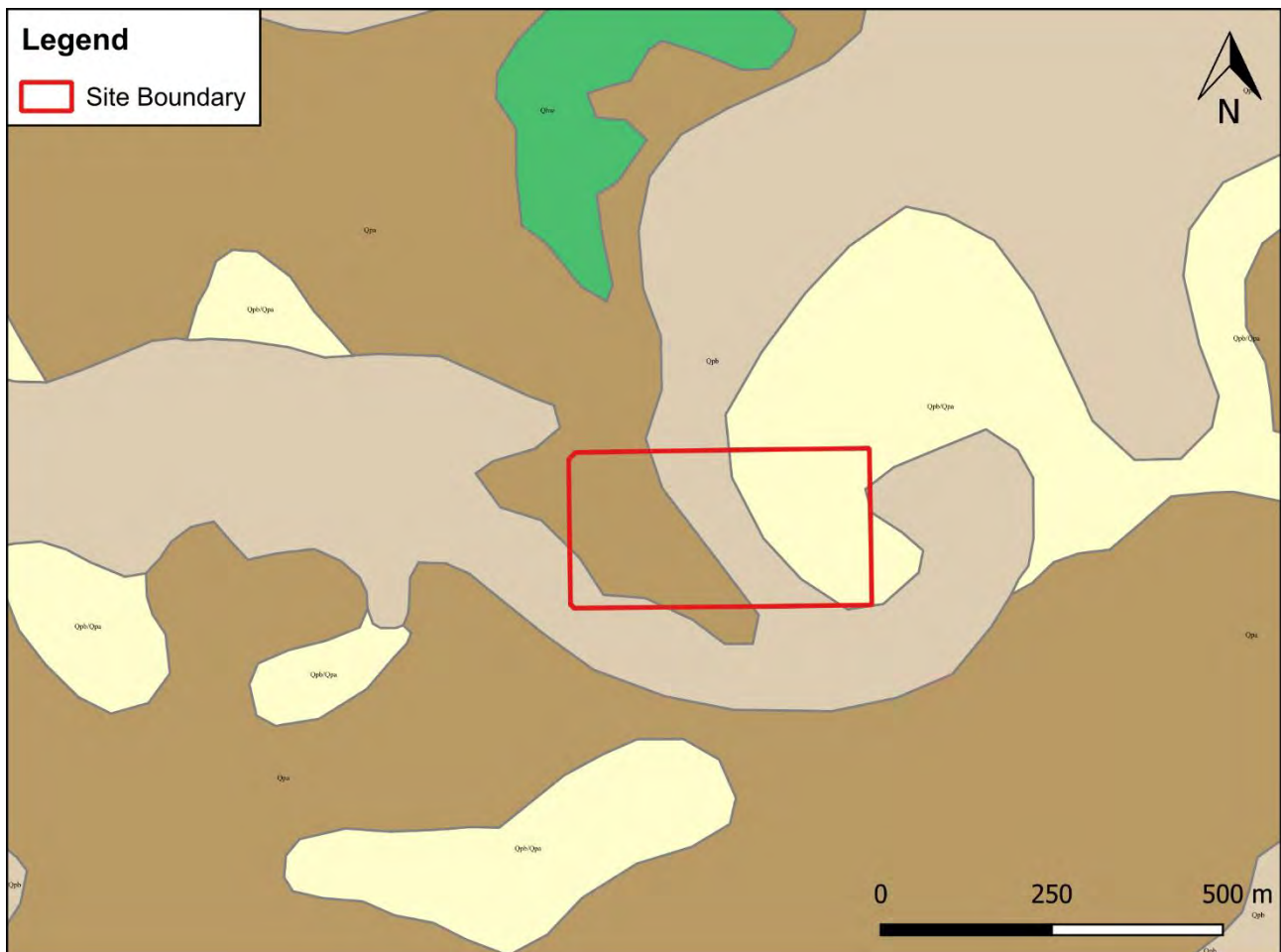


Figure 1: Published Geological Mapping

4.3 Hydrology

There are two surface water bodies on the site which include:

- A man-made excavated water body that is understood to be connected with groundwater; and
- A lined pond used for management of stormwater.

With reference to a Department of Environment (DoE) Environmental Assessment Report prepared in May 2006 (DoE, 2006), it is understood that stormwater collected over the operational area of the former bio-diesel facility was directed to the lined pond before overflowing to the excavated water body. Other surface water bodies of note include tributaries of the Preston River located approximately 1.3 km south and the Preston River located approximately 3.5 km west.

4.4 Hydrogeology

The site is outside the extents of the Perth Groundwater Atlas, so there is limited information on likely groundwater levels. However, based on a review of aerial imagery, surrounding areas to the south appear to be low-lying with water ponding on surface across some areas. Furthermore, as noted in Section 4.3, it is understood that the excavated water body is connected with groundwater. In this regard, groundwater beneath the site is expected to be encountered at shallow depth.

A plan titled 'Preston Industrial Area: Water Related Opportunities and Constraints' provided by DevWA indicates that the regional groundwater flow direction is approximately northwest towards Vittoria Bay, although there may be localised influences due to site and nearby drainage features.

4.5 Acid Sulfate Soil Risk Mapping

Based on published acid sulfate soil risk mapping, the site is mapped as "moderate to low risk of acid sulfate soils within 3 m of natural soils surface". It is noted, however, that two areas mapped as "high to moderate risk" are located approximately 100 m west and 220 m north of the site (refer to Figure 2).

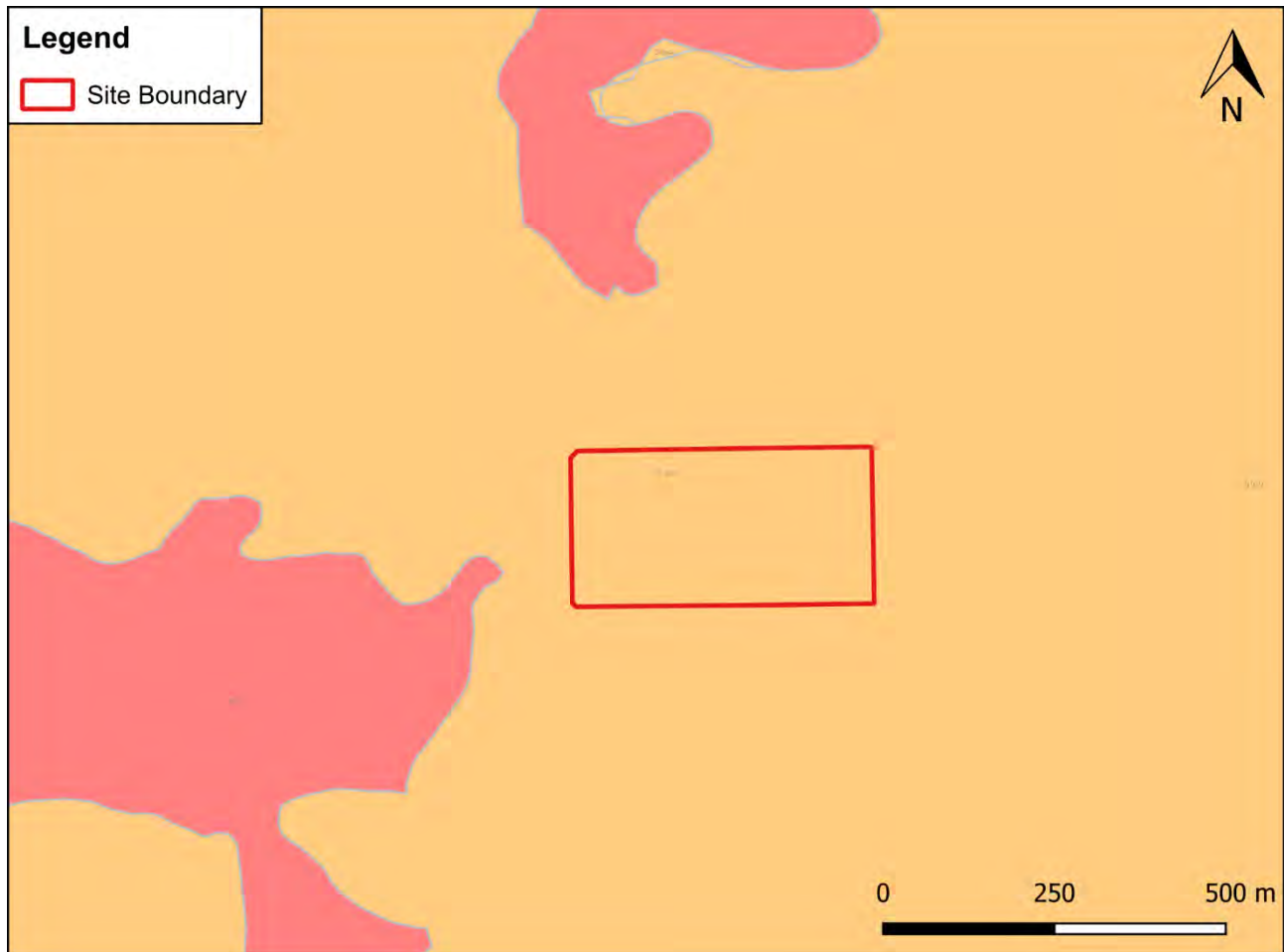


Figure 2: Published Acid Sulfate Soil Mapping

4.6 Registered Groundwater Bores

A search was undertaken of DWER's Water Register of bore licences (<https://maps.water.wa.gov.au/#/webmap/register>). Based on the results, the following comments can be made:

- There is one groundwater license (166963) shown on the site for 5,000 kL registered to Australian Renewable Fuels Picton and is associated with the former bio-diesel facility;
- There are several groundwater licenses within a 1 km radius of the site including:
 - o Various licences located approximately 700 m southwest of the site (ie immediately south of South Western Highway) which are associated with a caravan park and a sawmill;
 - o Licence 108048 for 3,340,000 kL for Water Corporation located 700 m north of the site and associated with a waste water treatment plant;
 - o Licence 61485 for 10000 kL for Australia Western Railroad Pty Ltd located approximately 570 m south of the site and associated with the railway yard;
 - o Various licences for properties located adjacent to the east of Temple Road and associated with the Glendale industrial estate;

- o Various licences for properties located immediately west of Giorgi Road and associated with the existing commercial/industrial area.

A request was also submitted to DWER to access registered bore information within a 1 km radius of the site. At the time of writing this report, the website to access the information was closed for maintenance and therefore, could not be accessed. Notwithstanding, given the locations of the abovementioned groundwater licenses, there are likely to be registered bores present within a 1 km radius, likely used to abstract groundwater for non-potable and/or irrigation purposes.

4.7 Geomorphic Wetlands

The DWER geomorphic wetlands database indicates that most of the site and areas to the south, west and northeast are mapped as a Multiple Use Wetland (multiple IDs) and described as 'palusplain' and 'sumpland'. A Conservation Category Wetland (ID 1237) described as a 'dampland' is also shown approximately 20 m north of the site.

With reference to Position Statement: Wetlands, Waters & Rivers Commission, 2001, the above-mentioned wetlands are described as:

- Multiple Use wetlands with few remaining important attributes and functions;
- Resource Enhancement are wetlands which have been partially modified but still support substantial ecological attributes and functions; and
- Conservation Category wetlands which support substantial ecological attributes and functions.

4.8 Public Drinking Water Source Areas

The DWER Public Drinking Water Source Area (PDWSA) database (2018) indicates that the site is not located within a PDWSA. The nearest PDWSA is greater than 1.5 km from the site.

5. Site History

5.1 Historical Information Sources

The following sources of information, detailed in Table 2, were accessed to assess the history of the site and the surrounding area. It should be noted that where requested information was not available at the time of writing this report, this has been stated in the relevant sections.

Table 2: Historical Information Sources

Source	Location of Source	Year or Date of Information Source	Details
Aerial Photographs	Landgate	1970 to 2025	Refer to Section 5.2
Certificate of Title	Landgate	Current and historical titles	Refer to Section 5.3
Contaminated Sites Database (online) and Basic Summary of Records	DWER	July 2025	Refer to Section 5.4
Dangerous Goods Documents Search	Department of Local Government, industry Regulation and Safety (DLGIRS)	Not received.	Refer to Section 5.5
Freedom of Information Requests	Shire of Dardanup	September 2025	Refer to Section 5.6
DWER operating Licence and related information	DWER (online)	August 2025	Refer to Section 5.7
Freedom of Information Requests	DWER	September 2025	Refer to Section 5.8

An integrity assessment of the site history information is also provided to assess the quality of the information obtained (see Section 5.10).

5.2 Historical Aerial Photographs

Based on the review of available historical aerial photographs between 1970 and the present day provided in Appendix C, the following comments can be made:

- In 1970, the site was mostly cleared with areas of trees mainly in the northern part of the site. The site was free of any obvious structures/buildings and appeared to be used for agricultural purposes (possibly grazing);
- Between 2001 and 2007, the western half of the site was developed as a bio diesel facility which operated until sometime in 2025 when the facility was decommissioned. A large open water body was evident immediately adjacent to the east of the facility. The operational areas of the bio-diesel facility generally remained unchanged from 2007 until present day;
- Other than changes in vegetation coverage, the undeveloped areas of the site generally remained unchanged from 1970 and until present day; and

- Surrounding areas were generally progressively developed for commercial/industrial uses from the late 1990's until around late 2000's.

5.3 Certificates of Title

Current and historical titles were obtained from Landgate which are provided in Appendix C. A summary of ownership activities (where available) is provided in Table 3.

Table 3: Summary of Title Review

Title Ref.	Type		Details of Ownership	
Vol/Folio	Current	Historical	Date Acquired	Owner/Occupation
2593/990	X		26 August 2024	Konkera Pty Ltd
2503/681		X	9 April 2002	South West Development Commission
2119/633		X	7 November 1997	South West Development Commission
2065/201		X	2 January 1996	South West Development Commission
1788/635		X	4 February 1988	South West Development Commission
1056/643		X	28 November 1938	Edward James Rafferty (farmer)
545/63		X	29 February 1913	James Cockell (farmer)
LG45-63 (Crown Grant)		X	19 February 1913	James Cockell (farmer)

5.4 Basic Summary of Records and Contaminated Sites Database (online)

A Basic Summary of Records (BSR) search was submitted to the DWER on 11 July 2025 to confirm whether or not the site had been reported to DWER as a known or suspected contamination site. The results of the BSR search request for the site confirmed that as of 24 July 2025, "this site has not been reported to the department as a known or suspected contaminated site either prior to or after the commencement of the Contaminated Sites Act 2003". A copy of the DWER response (ref: DMO 9511) is provided in Appendix C.

A search of the DWER online Contaminated Sites Database (CSD) was also conducted to assess for the presence of classified properties within a 500 m radius of the site. The CSD holds information on known contaminated sites, ie sites that have been classified by the DWER as:

- Contaminated - remediation required (CRR);
- Contaminated - restricted use (CRU); and
- Remediated for restricted use (RRU).

As of August 2025, there were no properties classified as CRR, CRU or RRU located within a 1 km radius of the site.

5.5 Department of Local Government, Industry Regulation and Safety

An application was made to the Department of Local Government, Industry Regulation and Safety (DLGIRS), formerly Department of Energy Mines Industry Regulation and Safety (DEMIRS), on 11 July 2025 seeking access to current and historical dangerous goods storage licence documents for the site. At the time of writing this report, a response from DLGIRS had not yet been received. Based on anecdotal information, it is understood that a dangerous goods licence was acquired in relation to dangerous goods being stored onsite.

5.6 Shire of Dardanup Freedom of Information Search

A freedom of information (FOI) request was submitted to Shire of Dardanup seeking access to the following documents:

- Building applications or approvals;
- Property inspections with regards to contamination; and
- Complaints with regards to contamination.

A notice of decision together with various documents was provided by the Shire on 18 September 2025. A copy of the documents are provided in Appendix C.

Based on a review, the documents provided generally relate to the following:

- Documents associated with a building license (2005)
- Concerns raised by Department of Fire and Emergency Services (DFES) around 2017 regarding potential fire risk and inability to access the site for annual inspections due to the site being unoccupied;
- Documents associated with a building licence for the shed located south of the facility (2009); and
- Documents associated with an application for demolition permit (2024).

5.7 DWER Operating Licence and Associated Documentation

The bio-diesel facility (whilst in operation) was subject to a DWER operating licence (Licence Number: L8098/2002/5). As such, the following documents, which are publicly available from DWER were accessed:

- Department of Environment (May 2006) Environmental Assessment Report for Australian Renewable Fuels Picton Pty Ltd (DoE, 2006);
- DWER Operating Licence (L8098/2002/5); and
- DWER Decision Report - Application to renew licence dated 25 May 2022 (DWER, 2022).

A copy of the abovementioned documents is provided in Appendix D. Based on a review of the above documents, the following information relevant to this investigation was noted:

- The operating licence relates to Category 31 (prescribed premises category) Chemical Manufacturing: premises (other than premises within category 32) on which chemical products are manufactured by a chemical process of up to 40,000 tonnes per year;
- The operating licence was issued on 31 May 2006 and since this time has been subject to numerous renewals together with an amendment;
- The current licence was issued on 22 May 2022 and expires on 14 September 2029. With reference to an application to renew the operating licence (DWER, 2022), DWER noted that 'there have been no complaints or non-compliance incidents relevant to the premises and identified by the Department in the last 9 years'. DWER also noted 'there have been no enforcement actions taken against the licence holder in the last 9 years';
- The main activity occurring at the premises under the licence was processing of tallow and vegetable oils to produce bio-diesel and two byproducts, ie raw glycerine and sulfate of potash fertiliser;
- Alcohol (typically methanol) was used to react with vegetable oil or animal oil in the presence of a caustic catalyst (sulfuric acid). The caustic catalyst causes the methanol to react with the oil, forming glycerine and crude bio-diesel. Due to its higher density, the glycerine sinks to the bottom of the process vessel while the crude bio-diesel floats on top, facilitating separation. The products were then processed further (chemically washed) to remove excess methanol and unreacted catalyst which was reused. The main byproduct was glycerine, which was reused as a fuel for the process. The introduction of reagents (ie methanol and sodium hydroxide) causes the production of sulfate of potash (paste);
- The production facility was designed so that all stormwater runoff and filtered/treated process water was initially collected in the lined pond before discharging into the dedicated infiltration wetland basin;
- Stormwater and associated wastewater that collected in the bunded areas, including oily process water was directed to the oil-water separator before being discharged to the lined pond;
- There are no solid or liquid wastes produced from the process;
- The following raw materials were stored in bulk at the facility:
 - o Lipids (animal and vegetable oils in liquid state stored in two 600 m³ tanks);
 - o Potassium hydroxide (flake form, 1 tonne bulka bags);
 - o Methanol (liquid form, stored in totally enclosed vessel)
 - o Sulfuric acid (liquid form, 98% concentrate)
 - o Natural gas reticulated around property using Alinta Gas mains supply;
 - o Hot water/saturated steam (produced onsite via gas-fired boiler);
 - o Bio-diesel (C2 combustible liquid stored in totally enclosed tank);
 - o Raw glycerine (semi-solid gel form); and
 - o Potassium sulfate (semi-solid paste form).
- A dangerous good licence covers all reagents/chemicals used in the process and complies with the storage and handling requirements (ie adequate bunding etc); and

- With reference to the facility layout (DoE, 2006), the key features are presented on Drawing 3, Appendix B.

5.8 Freedom of Information (DWER Licensing)

A FOI request was submitted to the DWER on 11 July 2025 requesting access to documents concerning environmental field notices and incident reports relating to the site operating licences (L8098/2002/5). A copy of the information provided is presented in Appendix D.

Based on the information provided, it is understood that an inspection conducted by Pollution Response and DWER licensing officer observed an area of corrosion inside the bund where a historical spill had occurred and corroded the cement surface. The information also notes that no leaks or cracks were leading out of the bund, however, it was raised by DWER as a potential issue if a major leak was to occur. DWER also noted that the company went into administration in January 2016 and the facility is still in care and maintenance mode.

No other information relevant to this investigation was noted.

5.9 Summary of Site History

In summary, the site history can be summarised as follows:

- Prior to 2004, the site was historically used for agricultural purposes (possible grazing) which is a land use considered to pose a low potential for broadscale contamination;
- A bio-diesel facility was constructed in the southwest portion of the site and operated between 2006 and 2025 under a DWER operating license. DWER noted 'there have been no complaints or non-compliance incidents relevant to the premises and identified by the Department in the last 9 years and there have been no enforcement actions taken against the licence holder in the last 9 years';
- Based on information provided by DWER via an FOI, the facility may have ceased operations sometime in 2016, when it was placed into care and maintenance mode; and
- By 2025, most of the associated structures were decommissioned and removed from site.

5.10 Site History Integrity Assessment

The information used to determine the history of the site was sourced from reliable reference documents, many of which were official records held by Government agencies. The databases maintained by various Government agencies can contain high quality information, but some of these do not contain any data.

In particular, aerial photographs can provide high quality information that is generally independent of memory or documentation. They are only available at intervals of several years, so some gaps exist in the information from this source. The observed site features are open to different interpretations and can be affected by the time of day and/or year at which they were taken, as well as specific events such as flooding. Care has been taken to consider different possible interpretations of aerial photographs and to consider them in conjunction with other lines of evidence. Overall, the site history information is considered to provide a relatively reliable indication of past land uses and likely site activities.

6. Information Provided by DevelopmentWA

Douglas requested the following information (where available) from DevWA:

- Previous environmental or geotechnical reports prepared for the site; and
- Facility layout plan.

In response, the following information relevant to the site was provided:

- PGV Environmental (July 2025) Lot 2009 Giorgi Road, Picton – Environmental Due Diligence (PGV, 2025); and
- PGV Environmental (November 2024) Preston Industrial Park North Precinct, Environmental Gap Analysis (PGV, 2024).

Based on a review of the above report, no relevant information pertaining to contamination including contamination sources or activities were noted.

7. Site Inspection

A site walkover was conducted by a Douglas environmental engineer on 30 July 2025 and indicated the following (refer to Drawing 3, Appendix B):

- The site was accessible from Giorgi Road;
- The western boundary adjacent to Giorgi Road was fenced by pole and wire style fencing, however, the northern, southern and eastern boundaries were unfenced;
- The former bio-diesel facility located in the southwestern portion of the site was no longer operational, with most of the above ground structures decommissioned and removed from site. Some residual tanks possibly associated with oil-water separation and storage of sulfuric acid were evident together with remnant concrete bunding and concrete footings associated with the former tanks;
- The bund around the tanks possibly associated with oil-water separation contained stormwater with what appeared to be some residual bio-diesel product floating on the water;
- A large shed which included a concrete floor was evident along the southern boundary and was currently being used to store numerous intermediate bulk containers (IBC) which contained an unknown liquid;
- A lined tailings pond which contained water was evident together with a lined overflow drain east of the former bio-diesel facility. The pond included a lined open drain which connected the pond with the adjacent water body;
- An existing groundwater monitoring well was observed adjacent to the northwest boundary of the site. Depth to groundwater below the top of the casing was measured to be approximately 2.1 m;
- Numerous metal risers were observed at various locations around the former bio-diesel facility with some containing groundwater. Given the locations around the facility and that some contained groundwater, the risers were initially thought to be possibly groundwater monitoring wells. However, given they did not contain an internal PVC casing which is typical for a groundwater monitoring well, the actual purpose could not be established;

- A raised area indicating the possible presence of fill was observed in an isolated area west of the former bio-diesel facility. Based on visual inspection, the material appeared to be sandy with no obvious indicators to suggest broadscale foreign inclusions on the surface. Whilst the actual source is unknown, it is possible that the fill was site won, possibly from excavation of the tailings pond, the man-made water body and/or surplus material generated during construction of the facility;
- The remainder of the site was undeveloped and generally comprised a grassed surface with areas of tree coverage. Numerous areas of flytipped wastes were observed, particularly in the central part of the site. Flytipping generally included inert wastes such as car tyres, metal and domestic type wastes (ie clothing); and
- No obvious evidence was noted to suggest widespread importing of fill in areas east of the facility.

A selection of site photographs is provided in Appendix B.

8. Identified Areas of Potential Concern

From the site history review and site inspection, areas of potential concern (AoPC) as well as contaminants of potential concern (CoPC) are summarised below in Table 4 and shown on Drawing 4, Appendix B.

Table 4: Summary of Identified Areas of Potential Concern

AoPC#	Identified from	Description	CoPC	Comment
1	DWER Operating Licence and Associated information	Storage of bulk liquids including methanol, bio-diesel, sulfuric acid, vegetable and animal oils, glycerine, potassium methoxide and the tanks associated with oil-water separator	• Metals/metalloids • TRH • BTEX • PAH • VOC • Methanol • PFAS; • Nutrients • pH	Whilst the facility was constructed relatively recently, was in operation for a relative short period of time and all tanks were bunded, storage of bulk liquids can present as a contamination source given their potential to inadvertently enter the environment.
2	Site Inspection	Tailings pond Water body	• Metals/metalloids • TRH • BTEX • PAH • VOC • Methanol • PFAS; • Nutrients • pH	The tailings pond routinely received stormwater prior to being discharged to the water body. Whilst the risk of gross contamination is considered to be low, some impacts due to leaks in the liner and/or inadequate operation of the oil-water separator cannot be entirely ruled out.

AoPC#	Identified from	Description	CoPC	Comment
3	DWER Operating Licence and Associated information	Workshop	- Metals/metalloids - TRH - BTEX - PAH - VOC	Specific information on the nature of activities conducted within the workshop could not be established on the basis of the information received to date. In the absence of further information, the potential for localised impacts associated with the workshop are considered possible.
4	DWER Operating Licence and Associated information	Boiler System	- Metals/metalloids - TRH - BTEX - PAH - VOC - Methanol - PFAS - pH	Specific information on the nature and operation of the boiler system could not be established on the basis of the information received to date. In the absence of further information, the potential for localised impacts are considered possible in this area.
5	Site Walkover	Uncontrolled Fill (raised area)	- Metals/metalloids - TRH - BTEX - PAH - Bonded asbestos	Uncontrolled fill of unknown origin can present as a source of contamination. In this regard, the contamination of the fill in this area is currently unknown.
6	Site Walkover	Fly-tipping	Bonded Asbestos	Flytipping (generally inert household items) were observed at some locations Whilst obvious widespread PACM associated with flytipping was not observed as part of the walkover, the potential for localised undiscovered surface PACM is considered possible.

Notes: Metals/metalloids including arsenic, cadmium, chromium, copper, mercury, nickel, lead and zinc
 Total recoverable hydrocarbons (TRH);
 Benzene, toluene, ethyl benzene, xylene and naphthalene (BTEXN);
 Polycyclic aromatic hydrocarbons (PAH);
 Organochlorine pesticides (OCP);
 Organophosphorus pesticides (OPP); and
 Per-and polyfluoroalkyl substances (PFAS).

9. Preliminary Conceptual Site Model

To assist in the understanding of the site and risk, a preliminary conceptual site model (CSM) has been prepared. A CSM is a representation of site-related information regarding contamination sources, receptors and exposure pathways between those sources and receptors. The CSM provides the framework for identifying how the site became contaminated and how potential receptors may be exposed to contamination either in the present or in the future.

Potential Sources (S)

The following potential sources of contamination have been identified (refer to Table 4).

- S1:** Storage of bulk liquids;
- S2:** Tailings pond and water body;
- S3:** Workshop;
- S4:** Boiler System;
- S5:** Uncontrolled fill (raised area); and
- S6:** Flytipping with respect to bonded asbestos.

Potential Receptors (R)

The following potential human receptors have been identified:

- R1:** Future construction and maintenance workers;
- R2:** Future site users (commercial/industrial development);
- R3:** Adjacent site users (commercial/industrial).

Given that the site is currently vacant, current site users have not been included as a potential human health receptor.

The following potential environmental receptors have been identified:

- R4:** On-site local flora and fauna;
- R5:** Off-site native ecological receptors;
- R6:** Groundwater.

Potential Pathways (P)

The following potential pathways have been identified:

- P1:** Ingestion and dermal contact;
- P2:** Inhalation of dust, fibres and/or vapours;
- P3:** Lateral migration of groundwater providing base flow to water bodies;
- P4:** Leaching of contaminants and vertical migration into groundwater; and
- P5:** Contact with terrestrial ecology.

Summary of Potentially Complete Exposure Pathways

A 'source–pathway–receptor' approach has been used to assess the potential risks of harm being caused to human or environmental receptors from contamination sources on or in the vicinity of the site, via exposure pathways (potential complete pathways). The possible pathways (P1 to P5) between the above sources (S1 to S6) and receptors (R1 to R6) are outlined in Table 5.

Table 5: Preliminary Conceptual Site Model

Source	Exposure Pathway	Receptor	Risk Rating	Risk Management Action
S1: Storage of bulk liquids. S2: Tailings dam and water body. S3: Workshop; S4: Boiler System. S5: Uncontrolled fill (raised area).	P1: Ingestion and dermal contact P2: Inhalation of dust, fibres and/or vapours P3: Leaching of contaminants and vertical migration into groundwater P4: Lateral migration of groundwater providing base flow to water bodies P5: Contact with terrestrial ecology	R1: Future construction and maintenance workers; R2: Future site users [commercial/industrial development]; R3: Adjacent site users (commercial/industrial). R4: On-site local flora and fauna; R5: Off-site native ecological receptors; R6: Groundwater.	Medium to low: Whilst the facility was constructed relatively recently, was in operation for a relative short period of time and all tanks were bunded, storage, dispensing and processing of bulk liquids can present a contamination risk given their potential to inadvertently enter the environment.	An intrusive soil and groundwater investigation is recommended to assess for the presence of possible contamination associated with these potential sources.
S6: Flytipping	P2: Inhalation of dust/fibres	R1: Future construction and maintenance workers R2: Future site users	Low: Whilst obvious widespread PACM associated with flytipping was not observed as part of the walkover, the potential for localised undiscovered surface PACM is considered possible.	Preparation of an unexpected finds protocol (UFP) to be implemented during earthworks.

10. Sampling and Analysis Quality Plan

10.1 Relevant Published Guidelines

The primary published guidelines relevant to this DSI are as follows:

- ANZECC & ARMCANZ (2000), *National water quality management strategy. Australian and New Zealand guidelines for fresh and marine water quality*, Australian and New Zealand Conservation Council & Agriculture and Resource Management Council of Australia and New Zealand;
- ANZG (2018), *Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2018*, Australian and New Zealand Conservation Council & Agriculture and Resource Management Council of Australia and New Zealand;
- Department of Environment Regulation (2021) Assessment and management of contaminated sites (DWER, 2021);
- Department of Health (May, 2021) Guidelines for the Assessment, remediation and management of asbestos-contaminated sites in Western Australia, (DoH, 2021);
- DoH (2025) *Contaminated Sites Ground and Surface Water Chemical Screening Guidelines - Non-potable groundwater use*;
- HEPA PFAS National Environmental Management Plan 3.0 (NEMP) (HEPA, 2025);
- NHMRC and NRMCC (2025) National Water Quality Management Strategy, Australian Drinking Water Guidelines;
- National Environment Protection Council (1999 – amended 2013) National Environment Protection (Assessment of Site Contamination) Measure, Schedule B1 - Guidelines on investigation levels for soil and groundwater; (NEPC, 2013a); and
- National Environment Protection Council (1999 – amended 2013) National Environment Protection (Assessment of Site Contamination) Measure, Schedule B2 - Guideline on site characterisation (NEPC, 2013b).

10.2 Data Quality Objectives

The DSI was prepared with reference to the seven-step data quality objective (DQO) process which is provided in Appendix B, Schedule B2 of the National Environment Protection (Assessment of Site Contamination) Measure 1999 as amended 2013 (NEPC, 2013a). The DQO process is outlined as follows:

- (1) State the Problem
- (2) Identify the Decision/Goal of the Study
- (3) Identify Information Inputs
- (4) Define the Study Boundaries
- (5) Develop the Analytical Approach (or decision rule)
- (6) Specify the Performance or Acceptable Criteria
- (7) Optimise the design for obtaining data

Each of the above steps is detailed in Appendix E.

10.3 Soil Sampling Strategy and Rationale

In order to assess the identified AoPCs outlined in Table 4, a program of judgemental and targeted soil sampling and analysis was conducted.

A total of 17 test pits (TP1 to TP17) locations were considered appropriate to achieve the objectives of the investigation and were selected on the basis of the following:

- Locations TP01 to TP03 were targeted to the raised area (possible uncontrolled fill);
- Locations TP04, TP05 and TP16 were targeted to accessible areas around the former workshop;
- Locations TP06 to TP11 targeted to accessible areas just outside the bunded area where bulk liquids were stored;
- Locations TP11 to TP15 were targeted to accessible areas around the former boiler system; and
- Location TP17 was selected on a judgemental basis to be in an area which had not been developed or subject to obvious historical land uses. Soil sampling at this location was used to support calculation of site specific EILs.

It should be noted that owing to the presence of remnant concrete and reinforced bunds, test locations could only be placed in accessible areas immediately adjacent to the bunds. The soil sampling locations (TP01 to TP17) are presented on Drawing 5, Appendix B.

10.4 Soil Sampling Methodology

Soil sampling from test pits TP1 to TP17 was undertaken on 22 and 23 September 2025 by an environmental engineer from Douglas. The test pits were excavated using an 8-tonne backhoe fitted with a 450 mm wide toothed bucket to depths of between 0.8 m and 2.5 m.

Ground conditions were logged in general accordance with Australian Standard (AS 1726, 2017). The location and surface levels at all test pit locations were surveyed by Douglas using a differential global positioning system (dGPS) with variable accuracy depending on satellite coverage. The test pit logs are provided in Appendix F.

Soil samples were collected at broadly regular intervals based on observed changes in strata and upon obvious signs of potential contamination such as odours or staining. The minimum number of samples collected from each location was:

- One surface sample i.e., 0.0 m – 0.1 m depth;
- Samples at 0.5 m intervals through encountered filling material; and
- One sample at the apparent groundwater table at selected locations adjacent to the bunded areas where bulk storage of products occurred.

For each primary sample, a field replicate soil sample was collected in a sealed zip-lock bag. These samples were screened in the field with a pre-calibrated photo-ionisation detector (PID) to screen for the possible presence of volatile organic compounds (VOCs) in the soil. A copy of the calibration certificate is provided in Appendix F.

All soil samples were recorded on Douglas chain of custody sheets, and the general sampling procedure (for the assessment of chemical contamination) comprised:

- Collection of samples directly from the excavator bucket;
- Sampler wearing disposable nitrile gloves that were changed prior to the collection of each sample;
- Transfer of samples for non PFAS testing into laboratory-prepared glass jars;
- Transfer of samples for PFAS testing into laboratory-prepared plastic jars (i.e., no Teflon);
- Additional samples collected per the above sampling procedure for QC purposes;
- Labelling of sample containers with individual and unique identification details, including project number and sample location; and
- Placement of the sample jars into ice-cooled, insulated, and sealed containers for transport to the laboratory.

Soil sampling for the assessment of bonded ACM was undertaken with due consideration of Section 5.7.1 of the DoH (2021) guidelines and included:

- Collection of one bulk (~10 L) soil sample per metre depth of potentially impacted strata (ie uncontrolled filling material), where encountered per test pit;
- Screening of each bulk sample through a ≤ 7 mm aperture sieve;
- Weighing of all retrieved PACM fragments; and
- Calculation of the asbestos % weight for weight (w/w) in soil, as per DoH (2021) guidelines.

10.5 Soil Analytical Programme

32 primary soil samples were submitted to a NATA accredited laboratory, within the recommended holding times, for analysis of the following CoPC's identified in Table 4:

- Metals/metalloids including arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc;
- Total recoverable hydrocarbons (TRH);
- Benzene, toluene, ethyl benzene, xylene and naphthalene (BTEXN);
- Polycyclic aromatic hydrocarbons (PAH); and
- Per-and polyfluoroalkyl substances (PFAS).

In addition, one background soil sample was also analysed for pH, cation exchange capacity (CEC) and total organic carbon (TOC) to establish site-specific ecological investigation levels (EILs). The sample was collected from natural soils at a location which has not been subject to obvious land uses (other than grazing).

Three intra-laboratory replicate soil samples and two trip spike/trip blank samples were analysed by MPL for quality control (QC) purposes. Two inter-laboratory replicate soil samples were also analysed by Eurofins. Both laboratories are accredited by NATA for all analyses conducted.

10.6 Groundwater Sampling Strategy and Rationale

The groundwater monitoring well layout (MW01 to MW06) was initially evaluated based on a regional groundwater flow direction of northwest and the following rationale (refer to Drawing 6, Appendix B):

- MW01 located hydraulically up-gradient and representing groundwater quality entering the site; and
- MW02, MW03, MW04, MW05 (existing well installed by others) and MW06 located hydraulically down-gradient of AoPCs 1 to 4.

However, following installation of the planned groundwater wells and completion of the well survey, the groundwater flow direction was interpolated to be southwest. In this regard, an additional two groundwater monitoring wells (MW07 and MW08) were installed to address the data gaps relating to groundwater quality down-gradient of the storage of bulk liquids (AoPC1) and boiler system (AoPC4) between MW01 and MW06. As such, based on the flow direction of southwest, the rationale for the final groundwater monitoring well layout was as follows:

- MW02, MW03 and MW05 are located hydraulically up-gradient and represent groundwater quality entering the site and/or beneath the former bio-diesel facility; and
- MW01, MW04, MW06, MW07 and MW08 are located hydraulically down-gradient of AoPCs 1 to 4.

In order to provide preliminary information on the contamination status of the tailings pond and water body (AoPC2) previously used for management of stormwater, three surface water samples (SW1 to SW3) were collected. The groundwater monitoring wells and surface water sampling locations are shown on Drawing 6, Appendix B.

10.7 Monitoring Well Installation and Construction Methodology and Survey

Groundwater monitoring wells MW01, MW02, MW03, MW04 and MW06 were installed on 12 September 2025 and MW07 and MW08 were installed on 16 October 2025 by Direct Push Probing (DPP) in the presence of an environmental engineer from Douglas. The boreholes were drilled through the soils using push probe methods to a depth of 4.5 m below the existing surface level. The boreholes were logged by a representative from Douglas in general accordance with test procedures outlined in AS 1726:2017.

The wells were constructed of Class 18 UPVC screen and blank sections. The joints were screw threaded to prevent the use of glues which may contaminate the well. To allow for the presence of any light non-aqueous phase liquid (LNAPL) to be measured, the screened interval of the monitoring wells intersected and extended above the standing water table. The screened section was backfilled with a washed sand filter pack to 0.5 m above the screened interval. The well was completed with a hydrated bentonite plug at least 0.5 m thick and the annulus was subsequently backfilled with the drilling returns.

Following installation, the wells were developed by continuous pumping until the water was visual free of sediment and to facilitate the hydraulic connection of the well to the local groundwater regime.

Given the anticipated low groundwater gradient, the monitoring well casings of newly installed groundwater wells (MW01, MW02, MW03, MW04 and MW06) including the existing groundwater well (MW05), were surveyed by BCE Surveying Pty Ltd (BCE). The top of casings of MW07 and MW08 were surveyed by Douglas using a differential GPS with variable accuracy depending on satellite coverage. A copy of the survey results is provided in Appendix F.

The well construction details for MW01 to MW04 and MW06 to MW08 are presented on the respective borehole logs in Appendix F. Construction details for the existing groundwater well (MW05) were not provided to Douglas.

10.8 Groundwater Sampling Methodology

Groundwater sampling of monitoring wells MW01 to MW06 was undertaken on 19 September 2025 whilst sampling of monitoring wells MW07 and MW08 was undertaken on 23 October 2025.

All groundwater sampling was performed in general accordance with standard operating procedures outlined in the Douglas Field Procedures Manual. Groundwater samples were collected using a low flow pump in order to minimise aeration of the sample and disturbance to the water column. The sampling method is described as follows:

- Measurement of the static water level using an electronic interface probe and recording of the thickness of any LNAPL (if encountered);
- The low flow pump was fitted with bore dedicated tubing (suitable for PFAS) and lowered into the well at a level estimated to be at the midpoint of the water column within the screened section of the monitoring well;
- Physical parameters (pH, temperature, dissolved oxygen, electrical conductivity, redox and total dissolved solids) were measured by continuously passing the purged water through a flow cell; and
- Following stabilisation of the parameters (nominally +/- 10%), sampling commenced and the appropriate laboratory prepared sample bottles were filled; and
- Samples collected for analysis of dissolved metals were field filtered through a bore dedicated inline 0.45 µm filter.

10.9 Groundwater and Surface Water Analytical Programme

Primary groundwater and surface samples were submitted to a NATA accredited laboratory, within the recommended holding times, for analysis of the following CoPC's identified in Table 4:

- Metals/metalloids including aluminium, arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc;
- TRH;
- BTEXN;
- VOC;
- Methanol;
- PAH;
- PFAS;

- Nutrients including total nitrogen, nitrate as N, nitrite as N, Ammonia as N, total Kjeldahl nitrogen (TKN), total phosphorus; and
- Major cations and anions.

One intra-laboratory replicate groundwater sample, one trip blank sample and one trip spike sample were analysed by MPL for QC purposes. One inter-laboratory replicate groundwater sample was also analysed by Eurofins. Both laboratories are accredited by NATA for all analyses conducted.

10.10 Data Quality Control Programme

Data QC comprised an integral component of the DSI. A review of the adopted QC procedures and results was used to establish whether the DQIs were met and whether the data is suitable to fulfil the aims of the DSI. The following field QC samples were collected:

- One intra-laboratory replicate sample per 20 primary samples for analysis of CoPCs (except PFAS);
- One inter-laboratory replicate sample per 20 primary samples for analysis of CoPCs (except PFAS);
- One intra-laboratory replicate sample per 10 primary samples for analysis of PFAS (as per HEPA, 2025);
- One inter-laboratory replicate sample per 10 primary samples for analysis of PFAS (as per HEPA, 2025);
- One trip blank per sampling day; and
- One trip spike per sampling day.

Equipment rinsates (groundwater) were not considered to be necessary, given new, bore-specific sampling tubing was used for sampling each groundwater monitoring well.

The analytical laboratory is required to carry out in house QC procedures. Laboratory QC samples and procedures included the use of:

- Laboratory duplicates;
- Laboratory control samples;
- Method blanks; and
- Matrix spikes.

The methodologies adopted and the results of the above outlined field and laboratory QC procedures are detailed in Appendix I.

11. Site Assessment Criteria (SAC)

11.1 Soils

The adopted Soil Assessment Criteria (SAC) are derived from Health Investigation Levels (HILs), Health Screening Levels (HSLs) and Environmental Investigation Levels (EILs) from Schedule B1

of the National Environment Protection Council (NEPC) National Environment Protection (Assessment of Site Contamination) Measure (NEPM, 1999 – amended 2013) [NEPC, 2013] Schedule B1 – Guidelines on investigation levels for soil and groundwater.

The health investigation levels (HILs) 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 scenarios. Given the proposed land use, HIL-D commercial/industrial has been adopted.

Consideration of HSLs has also been given with regard to evaluating vapour intrusion risks associated with any hydrocarbon contaminated soil. The HSL-D criteria for a sand soil type and the contaminant depth for relevant soil samples have been adopted.

In addition to appropriate consideration and application of the HSLs, there are additional considerations which reflect the nature and properties of petroleum hydrocarbons, including:

- Formulation of observable LNAPL;
- Fire and explosion hazards; and
- Effects on buried infrastructure e.g. penetration of, or damage to, in-ground services.

Management Limits to avoid or minimise these potential effects have been adopted in NEPC (2013) as interim Tier 1 guidance. The following site-specific data and assumptions have been used to determine the Management Limits:

- The Management Limits will apply to any depth within the soil profile; and
- “Coarse” soil texture has been adopted as a conservative screen.

The use of Ecological Investigation Levels (EILs) is discussed in NEPC (2013) for selected metals and organic compounds, and they are applicable for assessing risk to terrestrial ecosystems. Ecological Screening Levels (ESLs) are used to assess the risk to terrestrial ecosystems of selected petroleum hydrocarbon compounds, BTEX and benzo(a)pyrene. EILs and ESLs apply to the top 2 m of the soil profile, which essentially corresponds to the root zone and habitation zone of many species. Generic EILs for different land use settings are available in NEPC (2013) for arsenic and naphthalene. Soil-specific EILs for Cu, Cr (III), Ni, Pb and Zn, EILs were used during this assessment and are determined using the following formula:

$EIL = ABC + ACL$, where

ABC = Ambient Background Concentration

ACL = Added Contaminant Limit

The ABC of a contaminant is the soil concentration in a specific locality that is the sum of naturally occurring background levels and the contaminant concentrations that have been introduced from diffuse or non-point sources (eg motor vehicle emissions). The ABC is determined through direct measurement at an appropriate reference site (preferred) or through the use of methods defined by Olszowy et al. (1995) or Hamon et al. (2004). ACLs are based on the soil characteristics of pH, cation exchange capacity (CEC) and clay content.

As part of the DSI, a sample of natural soil was collected from test location TP17 (0.5 – 0.6) to allow calculation of site specific EILs. The following site-specific and presumed data has been used to establish the EILs:

- A protection level of 60% (commercial/industrial) has been adopted;
- The EILs apply to the top 2 m of the soil profile;
- pH of 6.4 (based on pH for TP17 (0.5 – 0.6 m);
- Presumed clay content of 1%;
- Cation exchange capacity of 0.15 meq/100g (based on TP17 (0.5 – 0.6 m);
- Total organic carbon content of 0.05% (based on result for TP17 (0.5 – 0.6 m);
- The ABCs for old suburbs in low traffic areas in South Australia, as derived from Olszowy et al. (1995), and presented in Schedule B5c of NEPC (2013) have been used; and
- Given the length of time the surrounding sites have been developed (>5 years), “aged” EILs were adopted.

PFAS assessment criteria comprised the guidelines presented in the PFAS NEMP (HEPA, 2025). The PFAS NEMP guidelines are broadly consistent with the NEPM HIL/HSL and EIL/ESL categories including consideration of site land use. The following criteria from HEPA, 2025 were adopted for this investigation:

- Human Health Investigation Level (HHIL) – commercial/industrial use;
- Ecological Guideline Value for Direct Exposure (EGV-DE) – Applicable to all land uses; and
- Ecological Guideline Value for Indirect Exposure (EGV-IE) – Applicable to all land uses.

The adopted SAC are presented in Table G-1, Appendix G, together with the soil analytical results. Additionally, a copy of the EIL calculation sheets is provided in Appendix G.

11.2 Groundwater

The Groundwater Investigation levels (GILs) adopted for the assessment are largely taken from the DWER (2021) Assessment and management of contaminated sites guidelines, which are based on:

- ANZG (2018), Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2018, Australian and New Zealand Conservation Council & Agriculture and Resource Management Council of Australia and New Zealand;
- ANZECC & ARMCANZ (2000), National water quality management strategy. Australian and New Zealand guidelines for fresh and marine water quality, Australian and New Zealand Conservation Council & Agriculture and Resource Management Council of Australia and New Zealand;
- DoH (2025) Contaminated Sites Ground and Surface Water Chemical Screening Guidelines - Non-potable groundwater use;
- HEPA PFAS National Environmental Management Plan 3.0 (NEMP) (HEPA, 2025); and
- NEPC (2013) National Environment Protection (Assessment of Site Contamination) Measure (NEPM, 1999 – amended 2013) Schedule B1 - Guidelines on investigation levels for soil and groundwater, National Environment Protection Council.

The DWER (2021) guidelines stipulate that where groundwater quality is being assessed, the most appropriate assessment level depends on the beneficial use of groundwater at the site, including the possible presence of groundwater dependent ecosystems, as well as that at the discharge location.

In accordance with this guidance, the potential uses of groundwater at, or down-gradient of the site, and beneficial uses based on identified exposure scenarios, have been considered. Potential uses at, or down-gradient, of the site include:

- Potential non-potable uses; and
- Potential abstraction for irrigation; and
- Groundwater discharge to water bodies sustaining aquatic ecosystems.

Consequently, the following criteria have been adopted:

- Slightly-moderately disturbed ecosystems protection levels, for protection of 95% of freshwater water species (ANZG, 2018);
- Non-potable uses of groundwater (NPUG) criteria from DWER (2021) and DoH (2025);
- Short term irrigation (STI) and long-term irrigation (LTI) criteria from ANZECC (2000);
- HEPA PFAS National Environmental Management Plan 3.0 (NEMP) (HEPA, 2025); and
- Consideration of the Health Screening Levels (HSLs) presented in NEPC (2013) has also been given with respect to evaluating vapour intrusion risks associated with hydrocarbon contaminated groundwater.

With respect to the adopted NPUG criteria, typically these are based on 10 x Australian Drinking water Guidelines for health-based values. However, as per DoH, 2025, given that PFAS is a bio-accumulative and persistent contaminant, the adopted NPUG should default to the Australia Drinking Water Guidelines (ADWG). In this regard, Douglas considers an NPUG equal to the ADWG to be conservative under a commercial/industrial land use. In this regard, an NPUG based on 10 x ADWG has been adopted for the following reasons:

- Groundwater is unlikely to be used for cooking, drinking, showering, bathing, laundering clothes, filling pools/spas;
- Groundwater is unlikely to be used for a recreation use; and
- Groundwater is unlikely to be used for irrigation of edible plants/vegetables.

As the site will be serviced by integrated water supply under a future proposed development and noting that the site is not located within a PDWSA, adoption of the drinking water assessment criteria (potable uses of groundwater) has not been considered further.

The adopted GILs are presented in Table H-1, Appendix H, together with the groundwater analytical results.

12. Field Work Results - Soils

12.1 Subsurface Conditions

Logs of the ground conditions are presented in Appendix F, and should be read in conjunction with the notes defining descriptive terms and classification methods provided in Appendix A.

Ground conditions encountered at the test locations generally comprised sand fill with varying amounts of silt and limestone gravel overlying natural sands with varying amounts of silt to the depth of investigation. Cemented sand was also encountered at a number of test locations. The fill profile was encountered at all test locations to depths of between 0.2 m and 1.5 m.

12.2 PID Screening

All PID readings for VOCs in sampled soils were recorded below 5 ppm, which indicates that significant VOCs were unlikely to be present in the sampled soils.

12.3 Bulk Sieving (Bonded ACM)

Bulk samples were collected from fill profiles at test locations TP1 to TP17 and screened for the presence of PACM. Obvious PACM fragments were not evident in any of the bulk samples. Furthermore, no obvious foreign non-soil inclusions were evident in any of the sampled soils.

12.4 Soil Analytical Results (Chemical)

The analytical results are summarised in Table G-1, provided in Appendix G and indicated that:

- Concentrations of TRH, BTEX, PAH for all analysed samples were reported below the laboratory limit of reporting (LOR) and below the adopted health and ecological based SAC for a commercial/industrial land use;
- Detectable concentrations of PFAS above the laboratory LOR were reported at most test locations, however, reported concentrations were below the adopted health and ecological based criteria for a commercial/industrial land use; and
- Concentrations of arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc for all analysed samples were either reported below the laboratory LOR and/or below the adopted health and ecological based SAC for a commercial/industrial land use except for zinc at location TP10 (0 – 0.1) which reported a concentration of 130 mg/kg which exceeded the adopted EIL of 80 mg/kg (commercial/industrial).

12.5 Discussion of Soil Results

AoPCs 1 to 5 were assessed by way of a programme of targeted and judgemental soil sampling and analysis. Based on the results of analytical testing, concentrations of chemical contaminants in the analysed samples were mostly reported below the adopted SAC and are unlikely to present an unacceptable risk to human health or ecological receptors under a commercial-industrial land use. As such, the site's recent use as a bio-diesel facility has not resulted in broadscale soil contamination which would preclude a commercial/industrial land use.

In view of the recorded EIL exceedance for zinc, the 95% upper confidence limit of the mean (95% UCL) concentration was calculated using available results. The 95% UCL was calculated to be

15.2 mg/kg for zinc (using 95% Student-t UCL) which is below the adopted EIL of 80 mg/kg. The standard deviation was calculated to be 22.6 mg/kg which is below 50% of the EIL criterion of 80 mg/kg. Additionally, no individual zinc concentration (in the data set) was greater than 250% of the EIL criterion. A copy of the 95% UCL calculation sheet is provided in Appendix G. Based on the above discussion and in light of the statistical analysis, the elevated zinc in excess of the adopted EIL is not considered to be significant and unlikely to present an unacceptable risk to ecological receptors.

With respect to AoPC5, uncontrolled fill (sand with varying amounts of silt and limestone gravel) was encountered at all test locations to depths of between 0.2 m and 1.5 m. The fill material was likely used during construction of the facility to form the design level with an appropriate clearance from the shallow groundwater. Based on visual observations and field sieving, the fill profile does not appear to be impacted with PACM at the sampling locations which is supported by the apparent absence of non-soil foreign inclusions which are commonly found in conjunction with PACM.

13. Field Works Results – Groundwater

13.1 Groundwater Levels and Flow Direction

Depth to groundwater was measured on 19 September and 23 October 2025 prior to groundwater sampling. A summary of the measurements are provided in Tables 6 and 7. Based on the recorded groundwater levels in September 2025, the groundwater flow beneath the site has been gauged to be approximately southwest (refer to Figure 3).

It should be noted that groundwater levels and flow direction are affected by climatic conditions, land usage, soil permeability and anthropogenic influences (ie drains, manmade water bodies, drainage basins) and will therefore vary spatially, and over time.

Table 6: Summary of Recorded Groundwater Levels (19 September 2025)

Monitoring Well	Top of Casing Level (m, AHD) ^[1]	Groundwater Depth (m, btoc) ^[2]	Groundwater Level (m, AHD)
MW01	13.459	2.08	11.4
MW02	12.846	1.30	11.6
MW03	13.42	1.87	11.6
MW04	13.619	2.32	11.3
MW05	13.006	1.58	11.4
MW06	12.884	1.75	11.1

Notes:

1. Surveyed by BCE.
2. Measured by Douglas using an electronic water depth metre. m, btc = metres below the top of casing

Table 7: Summary of Recorded Groundwater Levels (23 October 2025)

Monitoring Well	Top of Casing Level (m, AHD) ^[1]	Groundwater Depth (m, btoc) ^[3]	Groundwater Level (m, AHD)
MW01	13.459	2.31	11.2
MW02	12.846	1.51	11.3
MW03	13.42	2.17	11.3
MW04	13.619	2.59	11.0
MW05	13.006	1.98	11.0
MW06	12.884	1.93	11.0
MW07	13.6 ^[2]	2.75	10.8
MW08	12.9 ^[2]	1.75	11.2

Notes:

1. Surveyed by BCE.
2. Surveyed by Douglas using a differential GPS
3. Measured by Douglas using an electronic water depth meter. m, btc = metres below the top of casing

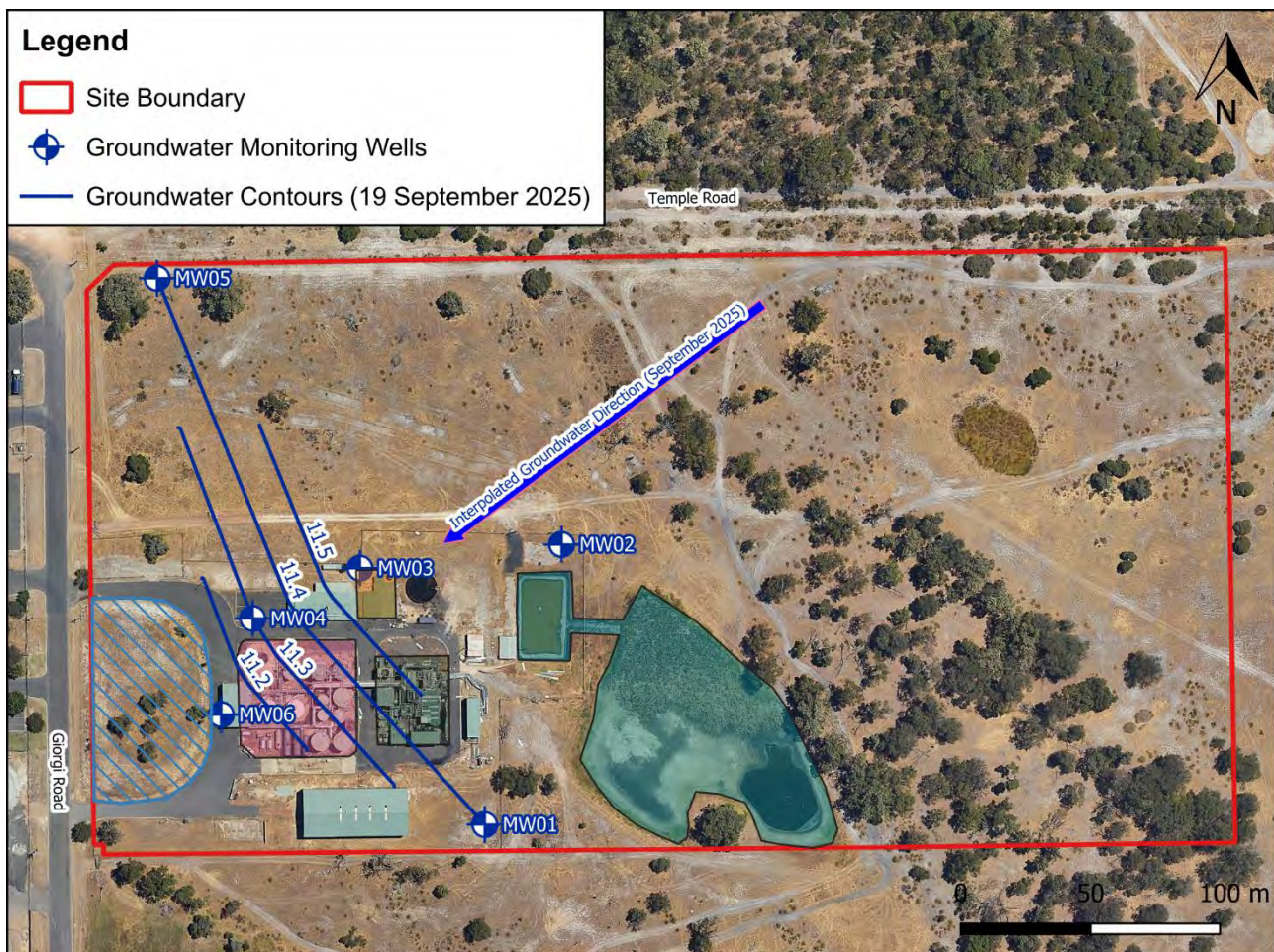


Figure 3: Groundwater Contours (19 September 2025)

13.2 Groundwater Field Parameters

Groundwater field parameters were continuously measured through a flow cell during purging prior to collection of the groundwater samples. Groundwater field parameters were also recorded at the surface sampling locations in the tailings pond and water body. The field results are presented in Table 8.

With reference to Table 8, the pH of the groundwater was generally slightly acidic with the results for redox suggesting that, with the exception of MW07 and MW07, oxidising conditions are prevalent. TDS was reported between 291 mg/L and 931 mg/L indicating that groundwater/surface water at the site is fresh (ie TDS of between 0 mg/L and 500 mg/L to marginal (i.e., TDS of between 501 mg/L and 1,000 mg/L).

Table 8: Summary of Groundwater Field Parameters

Monitoring Well	LNAPL Thickness	pH	DO (ppm)	EC (µS/cm)	Redox Potential (mV)	Temp (°C)	TDS (mg/L)
MW01	0.0	5.9	4.8	349	14	17.4	345
MW02	0.0	5.9	0.7	329	90	17.2	328
MW03	0.0	5.9	3.7	281	138	17.8	291
MW04	0.0	5.8	5.2	531	110	20.5	520
MW05	0.0	5.9	4.0	271	110	20.5	240
MW06	0.0	5.9	0.1	521	90	19.4	501
MW07	0.0	6.3	0.5	920	-115.1	20.2	501
MW08	0.0	6.4	0.4	720	-160	20.2	499
SW1 (tailing pond)	N/A	5.8	8.1	922	108	19.2	921
SW2 (water body)	N/A	5.8	7.1	941	105	19.0	931
SW3 (water body)	N/A	5.8	7.0	899	109	20.2	890

Notes: 1. DO – Dissolved Oxygen, EC – Electrical Conductivity, TDS – Total Dissolved Solids
LNAPL gauged using an oil-water interface meter provided by Environmental Test Solutions. All other parameters measured using a YSI water quality meter provided by Environmental Test Solutions.

13.3 Groundwater Analytical Results

The analytical results presented in Table H-1, Appendix H show that the CoPC were reported at concentrations below the adopted GIL's except for the following:

- Total nitrogen exceeded the adopted freshwater criterion of 1.2 mg/L at locations MW01, MW02, MW03, MW04, MW06, MW07, MW08, SW1, SW2 and SW3 with concentrations ranging from 1.3 mg/L (MW01) to 29 mg/L (MW04);

- Total nitrogen exceeded the short-term irrigation criterion of 25 mg/L at locations MW04, with a concentration of 29 mg/L and the long-term criterion of 5 mg/L at locations MW03, MW04 and MW07 with concentrations of 6.2 mg/L, 29 mg/L and 6.5 mg/L respectively;
- Ammonia as N exceeded the adopted freshwater criterion of 0.08 mg/L at locations MW01, MW02, MW03, MW05, MW06, MW07, MW08 and SW1 with concentrations ranging from 0.1 mg/L (MW06) to 3.1 mg/L (MW07);
- Ammonia as N exceeded the adopted NPUG criterion of 0.5 mg/L at locations MW07 and MW08 with concentrations of 3.1 mg/L and 0.62 mg/L respectively;
- NOX and N exceeded the adopted freshwater criterion of 0.15 mg/L at locations MW01, MW02, MW03, MW04, MW06 and MW07 with concentrations ranging from 0.51 mg/L (MW06) to 28 mg/L (MW04);
- Total Phosphorus exceeded the adopted freshwater criterion of 0.065 mg/L at locations MW04, MW06, MW08, SW1, SW2 and SW3 with concentrations ranging from 0.07 mg/L (MW04) to 0.17 mg/L (MW08);
- Total Phosphorus exceeded the adopted long-term irrigation criterion of 0.05 mg/L at locations MW03, MW04, MW06, MW07, MW08 and SW1 with concentrations ranging from 0.062 mg/L (MW03) to 0.17 mg/L (MW08);
- Dissolved zinc exceeded the adopted freshwater criterion of 8 µg/L at location MW03 and SW1 with a concentration of 47 µg/L and 14 µg/L respectively; and
- PFOS concentrations exceeded the adopted freshwater criteria of 0.00023 µg/L at locations MW03, MW04, MW05, MW07 and MW08 with concentrations of between 0.00033 µg/L and 0.011 µg/L.

Concentrations of BTEX, PAH, VOC and alcohols (including methanol) were reported below the LOR in all analysed samples.

It is noted that some LORs were raised by the laboratory due to the presence of “foam” which were subsequently higher than the adopted GILs. Based on the overall results of the investigation, the relevant CoPCs where LORs were raised (except PFAS) are unlikely to be present at detectable concentrations and are therefore, not considered to be significant.

It is noted that concentrations of TRH above the LOR were reported:

- Location MW01:
 - o TRH (C15-C28) of 140 µg/L;
 - o TRH (>C10-C16) of 58 µg/L;
 - o TRH (>C10-C16) less N (F2) of 58 µg/L;
 - o TRH (>C10-C34) (F3) of 130 µg/L.
- Location MW06:
 - o TRH (C10-C14) of 62 µg/L;
 - o TRH (C15-C28) of 390 µg/L;
 - o TRH (>C10-C16) of 80 µg/L;
 - o TRH (>C10-C16) less N (F2) of 80 µg/L; and

- o TRH (>C10-C34) (F3) of 380 µg/L.
- Location MW07:
 - o TRH (C10-C14) of 470 µg/;
 - o TRH (C15-C28) of 5,300 µg/L;
 - o TRH (C29-C36) of 810 µg/L
 - o TRH (>C10-C16) of 940 µg/L;
 - o TRH (>C10-C16) less N (F2) of 940 µg/L; and
 - o TRH (>C10-C34) (F3) of 5,700 µg/L.

13.4 Discussion of Results (Groundwater)

Based on the analytical results for major cations and anions and with reference to the Piper diagram presented in Figure 4, the ionic composition of the groundwater is dominated by the following:

- Sodium-chloride at locations MW05, SW1, SW2 and SW3;
- Calcium-bicarbonate at locations MW01, MW02, MW06 and MW08; and
- Calcium-magnesium-chloride at locations MW03, MW04 and MW07.

It is presumed that the prevailing ionic composition at the site would likely be sodium-chloride given the Bassendean sand geology. The dominance of calcium, bicarbonate and magnesium in groundwater wells located in the vicinity of the former bio-diesel facility may be attributed to imported limestone materials (evident as limestone gravel in fill) or in the abundance of concrete structures. No other obvious patterns or links relating to potential groundwater contamination could be deduced from the distribution of the wells in the piper plot.

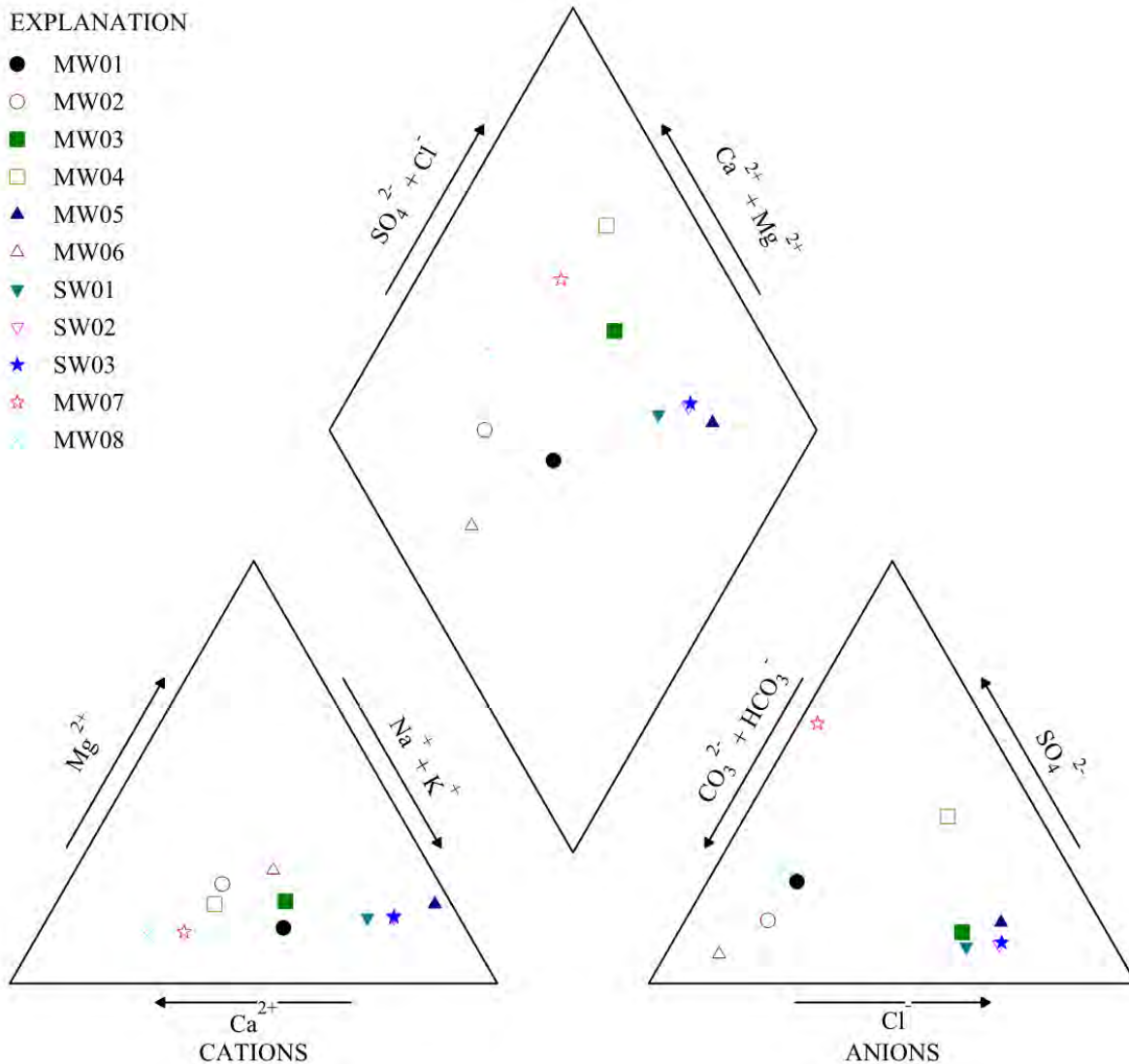


Figure 4: Piper Plot

Elevated nutrients (total nitrogen, NO_x, total phosphorus and Ammonia as N), dissolved zinc and PFOS were reported in excess of adopted freshwater guidelines at numerous well locations. Based on the well locations, the presence of elevated nutrients is likely to be associated with the former bio-diesel facility and in particular, the use and handling of vegetable and animal oils. The presence of low concentrations of PFAS and zinc are considered to be ubiquitous in urban environments and do not necessarily appear to be attributed directly to the former bio-diesel facility. In particular, the highest PFAS concentration (PFOS) was reported in MW05, which is hydraulically up-gradient. Notwithstanding the above, the reported concentrations of metals, nutrients and PFAS are unlikely to present a significant risk to the nearest freshwater receptor given the distance to the nearest down-gradient receptor (ie Preston River >1 km). Given the bio-diesel facility has ceased operations, nutrients in groundwater around the facility are anticipated to decrease over time.

With reference to ADWG 2025, the adopted NPUG criterion for Ammonia as N has been derived in respect to the protection of copper pipes and fittings and prevention of nuisance growths of microorganisms within such pipes. In this regard, the reported concentration of Ammonia as N in excess of the adopted NPUG is not considered to present an unacceptable health risk under the future commercial-industrial development.

Regarding the exceedances of short and long-term irrigation criterion for total nitrogen and total phosphorus, it is noted that these criteria have been derived to maintain crop yields, prevent bio-clogging or irrigation equipment and minimise off-site impacts. Under the current and future land use, abstraction of groundwater from the site and/or in surrounding industrial areas for the purposes of irrigating crops is considered unlikely to occur. Therefore, further consideration of these exceedances is not considered to be warranted. Furthermore, as noted previously, nutrients in groundwater around the facility are anticipated to decrease over time.

Detection of TRH above the laboratory LOR were reported in locations MW01, MW06 and MW07, with concentrations at MW07 being the highest. It is also noted that MW07 is located hydraulically down-gradient of the bulk liquids storage area. In order to provide a line of evidence to support that the detections are not likely to be associated with petroleum hydrocarbons, a silica gel clean-up was conducted by the laboratory. The reported concentrations of TRH with silica gel cleanup for all samples was reported below the LOR, suggesting that the TRH detections at MW01, MW06 and MW07 are likely biogenic sources (ie vegetable and animal oils). This is in broad agreement with the results of soil concentrations (ie all hydrocarbon concentrations below the LOR) and olfactory observations which do not observe obvious discolouration and/or odours at locations MW01, MW06 and MW07. A review by the laboratory also indicated that the detections were mostly associated with fatty acids. Whilst the results suggest that some release of product (ie vegetable/animal oil) to the environment has occurred (possibly during decommissioning), such biogenic products in groundwater are not considered to pose a risk to human health or the environment.

14. Data Quality Control Results

Field and laboratory QC procedures formed an integral part of the DSI. The QC procedures and results are provided in Appendix E. The QC results were generally found to meet the DQIs for this project. It is therefore considered that the data is sufficiently precise and accurate and that the results can be utilised for the investigation.

15. Updated Conceptual Site Model

The preliminary CSM in Section 9 has been revised in Table 9 based on the results of the soil and groundwater sampling. It should be noted that whilst no potentially complete source-pathway-receptor linkages were identified, S6: Flytipping has been retained and should be managed during future earthworks under an unexpected finds protocol.

Table 9: Updated Conceptual Site Model

Source	Exposure Pathway	Receptor	Risk Rating	Risk Management Action
S6: Flytipping	P2: Inhalation of dust/fibres	R1: Future construction and maintenance workers R2: Future site users	Low: Whilst obvious widespread PACM associated with flytipping was not observed as part of the walkover, the potential for localised undiscovered surface and subsurface PACM is considered possible.	Preparation of an unexpected finds protocol (UFP) to be implemented during earthworks. This is discussed further in Section 16.

16. Conclusions and Recommendations

Douglas has conducted a DSI at Lot 2009 Giorgi Road Picton to support local structure planning in the Preston Industrial Park. The objectives of the DSI were to:

- Identify potential sources of contamination and establish associated contaminants of potential concern (CoPC) at the site;
- Identify areas of potential contamination at the site;
- Identify potential human and ecological receptors that may be impacted by the CoPC;
- Identify potentially affected media (ie soil, groundwater, surface water, soil vapour);
- Investigate the nature and extent of contamination, if any, at the site;
- Investigate and report on the risk posed by the contamination status of the site to human health and environmental receptors under the proposed land use; and
- Provide recommendations for further detailed investigations, remediation or management, if required.

Based on the results of the DSI, a number of AoPCs were identified and subsequently investigated via a programme of soil sampling and analysis. Following investigation and based on the updated CSM (refer to Section 15), these AoPCs are considered to pose a low risk to human health and environmental receptors under the proposed commercial/industrial land use subject to the recommendations outlined below.

Douglas recommends that any residual liquid wastes (contained in tanks or accumulated in the bunds) should be removed and disposed appropriately to a licensed facility prior to completion of the remainder of demolition.

Given the occurrence of flytipping and in order to manage the potential to encounter undiscovered sources of surface and/or subsurface contamination, including asbestos, Douglas also recommends that an unexpected finds protocol (UFP) should be developed and implemented in the event that the site is developed following the structure planning process. In the event of an unexpected find, a suitably qualified contaminated land consultant should be engaged to inspect the find and provide advice on the appropriate course of action.

It is noted that the FOI request in relation to storage of dangerous goods is still pending. Whilst the publicly available information reviewed under Section 5.5 outlined the various chemicals stored on the site, the nature and extent of dangerous goods storage can only be confirmed following receipt of the dangerous goods licensing information. That said, the results of the investigation did not identify gross contamination and thus, the search is unlikely to change the findings of the investigation.

17. References

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PGV Environmental (November 2024) Preston Industrial Park North Precinct, Environmental Gap Analysis.

18. Limitations

Douglas Partners Pty Ltd (Douglas) has prepared this report for this project at Lot 2009 Giorgi Road, Picton, WA in line with Douglas' proposal dated 18 June 2025 and 29 August 2025 and acceptance received from Kelli Howell of DevelopmentWA dated 7 July 2025 and 29 August 2025. The work was carried out under the mutually agreed Engineering Panel Agreement 2023/01. This report is provided for the exclusive use of DevelopmentWA for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of Douglas, does so entirely at its own risk and without recourse to Douglas for any loss or damage. In preparing this report Douglas has necessarily relied upon information provided by the client and/or their agents.

The results provided in the report are indicative of the sub-surface conditions on the site only at the specific sampling and/or testing locations, and then only to the depths investigated and at the time the work was carried out. Sub-surface conditions can change abruptly due to variable geological processes and also as a result of human influences. Such changes may occur after Douglas' field testing has been completed.

Douglas' advice is based upon the conditions encountered during this investigation. The accuracy of the advice provided by Douglas in this report may be affected by undetected variations in ground conditions across the site between and beyond the sampling and/or testing locations. The advice may also be limited by budget constraints imposed by others or by site accessibility.

The assessment of atypical safety hazards arising from this advice is restricted to the environmental components set out in this report and based on known project conditions and stated design advice and assumptions. While some recommendations for safe controls may be provided, detailed 'safety in design' assessment is outside the current scope of this report and requires additional project data and assessment.

This report must be read in conjunction with all of the attached and should be kept in its entirety without separation of individual pages or sections. Douglas cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this report.

This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by Douglas. This is because this report has been written as advice and opinion rather than instructions for construction.

Appendix A

About this Report

Introduction

These notes have been provided to amplify Douglas' report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

Douglas' reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

Copyright

This report is the property of Douglas Partners Pty Ltd. The report may only be used for the purpose for which it was commissioned and in accordance with the Engagement Terms for the commission supplied at the time of proposal. Unauthorised use of this report in any form whatsoever is prohibited.

Borehole and Test Pit Logs

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open;
- A localised, perched water table may lead to an erroneous indication of the true water table;
- Water table levels will vary from time to time with seasons or recent weather

changes. They may not be the same at the time of construction as are indicated in the report; and

- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, Douglas will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However, Douglas cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency;
- Changes in policy or interpretations of policy by statutory authorities; or
- The actions of contractors responding to commercial pressures.

If these occur, Douglas will be pleased to assist with investigations or advice to resolve the matter.

About this Report

Site Anomalies

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, Douglas requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

Information for Contractual Purposes

Where information obtained from this report is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. Douglas would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Site Inspection

The company will always be pleased to provide engineering inspection services for geotechnical and environmental aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.

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Sampling and Testing

A record of samples retained, and field testing performed is usually shown on a Douglas Partners' log with samples appearing to the left of a depth scale, and selected field and laboratory testing (including results, where relevant) appearing to the right of the scale, as illustrated below:

SAMPLE			DEPTH (m)	TESTING	
SAMPLE REMARKS	TYPE	INTERVAL		TEST TYPE	RESULTS AND REMARKS
	SPT		1.0 1.45	SPT	4,9,11 N=20

Sampling

The type or intended purpose for which a sample was taken is indicated by the following abbreviation codes.

Sample Type	Code
Auger sample	A
Acid Sulfate sample	ASS
Bulk sample	B
Core sample	C
Disturbed sample	D
Environmental sample	ES
Driven Tube sample	DT
Gas sample	G
Piston sample	P
Sample from SPT test	SPT
Undisturbed tube sample	U ¹
Water sample	W
Material Sample	MT
Core sample for unconfined compressive strength testing	UCS

¹ – numeric suffixes indicate tube diameter/width in mm

The above codes only indicate that a sample was retained, and not that testing was scheduled or performed.

Field and Laboratory Testing

A record that field and laboratory testing was performed is indicated by the following abbreviation codes.

Test Type	Code
Pocket penetrometer (kPa)	PP
Photo ionisation detector (ppm)	PID
Standard Penetration Test x/y = x blows for y mm penetration HB = hammer bouncing HW = fell under weight of hammer	SPT
Shear vane (kPa)	V
Unconfined compressive strength, (MPa)	UCS
Point load test, (MPa), axial (A), diametric (D), irregular (I)	PLT(-)
Dynamic cone penetrometer, followed by blow count penetration increment in mm (cone tip, generally in accordance with AS1289.6.3.2)	DCP9/150
Perth sand penetrometer, followed by blow count penetration increment in mm (flat tip, generally in accordance with AS1289.6.3.3)	PSP/150
Dynamic probe super heavy, followed by blow count penetration increment in mm	DPSH/100

Groundwater Observations

	water seepage/inflow
	water seepage/outflow
	standing or observed water level
NFGWO	no free groundwater observed
OBS	observations obscured by drilling fluids

Drilling or Excavation Methods/Tools

The drilling/excavation methods used to perform the investigation may be shown either in a dedicated column down the left-hand edge of the log, or stated in the log footer. In some circumstances abbreviation codes may be used.

Method	Abbreviation Code
Direct Push	DP
Solid flight auger. Suffixes: /T = tungsten carbide tip, /V = v-shaped tip	AD ¹
Air Track	AT
Diatube	DT ¹
Hand auger	HA ¹
Hand tools (unspecified)	HAND
Existing exposure	X
Hollow flight auger	HSA ¹
HQ coring	HQ3
HMLC series coring	HMLC
NMLC series coring	NMLC
NQ coring	NQ3
PQ coring	PQ3
Predrilled	PD
Push tube	PT ¹
Ripping tyne/ripper	R
Rock roller	RR ¹
Rock breaker/hydraulic hammer	EH
Sonic drilling	SON ¹
Mud/blade bucket	MB ¹
Toothed bucket	TB ¹
Vibrocore	VC ¹
Vacuum excavation	VE
Wash bore (unspecified bit type)	WB ¹

¹ – numeric suffixes indicate tool diameter/width in mm

Introduction

All materials which are not considered to be “in-situ rock” are described in general accordance with the soil description model of AS 1726-2017 Part 6.1.3, and can be broken down into the following description structure:



The “classification” comprises a two character “group symbol” providing a general summary of dominant soil characteristics. The “name” summarises the particle sizes within the soil which most influence its behaviour. The detailed description presents more information about composition, condition, structure, and origin of the soil.

Classification, naming and description of soils require the relative proportion of particles of different sizes within the whole soil mixture to be considered.

Particle size designation and Behaviour Model

Solid particles within a soil are differentiated on the basis of size.

The engineering behaviour properties of a soil can subsequently be modelled to be either “fine grained” (also known as “cohesive” behaviour) or “coarse grained” (“non cohesive” behaviour), depending on the relative proportion of fine or coarse fractions in the soil mixture.

Particle Size Designation	Particle Size (mm)	Behaviour Model	
		Behaviour	Approximate Dry Mass
Boulder	>200	Excluded from particle behaviour model as “oversize”	
Cobble	63 - 200		
Gravel ¹	2.36 - 63	Coarse	>65%
Sand ¹	0.075 - 2.36		
Silt	0.002 - 0.075	Fine	>35%
Clay	<0.002		

¹ – refer grain size subdivision descriptions below

The behaviour model boundaries defined above are not precise, and the material behaviour should be assumed from the name given to the material (which considers the particle fraction which dominates the behaviour, refer “component proportions” below), rather than strict observance of the proportions of particle sizes. For example, if a material is named a “Sandy CLAY”, this is indicative that the material exhibits fine grained behaviour, even if the dry mass of coarse grained material may exceed 65%.

Component proportions

The relative proportion of the dry mass of each particle size fraction is assessed to be a “primary”, “secondary”, or “minor” component of the soil mixture, depending on its influence over the soil behaviour.

Component Proportion Designation	Definition ¹	Relative Proportion	
		In Fine Grained Soil	In Coarse Grained Soil
Primary	The component (particle size designation, refer above) which dominates the engineering behaviour of the soil	The clay/silt component with the greater proportion	The sand/gravel component with the greater proportion
Secondary	Any component which is not the primary, but is significant to the engineering properties of the soil	Any component with greater than 30% proportion	Any granular component with greater than 30%; or Any fine component with greater than 12%
Minor ²	Present in the soil, but not significant to its engineering properties	All other components	All other components

¹ As defined in AS1726-2017 6.1.4.4

² In the detailed material description, minor components are split into two further sub-categories. Refer “identification of minor components” below.

Composite Materials

In certain situations, a lithology description may describe more than one material, for example, collectively describing a layer of interbedded sand and clay. In such a scenario, the two materials would be described independently, with the names preceded or followed by a statement describing the arrangement by which the materials co-exist. For example, “INTERBEDDED Silty CLAY AND SAND”.

Classification

The soil classification comprises a two character group symbol. The first character identifies the primary component. The second character identifies either the grading or presence of fines in a coarse grained soil, or the plasticity in a fine grained soil. Refer AS1726-2017 6.1.6 for further clarification.

Soil Name

For most soils, the name is derived with the primary component included as the noun (in upper case), preceded by any secondary components stated in an adjective form. In this way, the soil name also describes the general composition and indicates the dominant behaviour of the material.

Component ¹	Prominence in Soil Name
Primary	Noun (eg "CLAY")
Secondary	Adjective modifier (eg "Sandy")
Minor	No influence

¹ – for determination of component proportions, refer component proportions on previous page

For materials which cannot be disaggregated, or which are not comprised of rock or mineral fragments, the names "ORGANIC MATTER" or "ARTIFICIAL MATERIAL" may be used, in accordance with AS1726-2017 Table 14.

Commercial or colloquial names are not used for the soil name where a component derived name is possible (for example "Gravelly SAND" rather than "CRACKER DUST").

Materials of "fill" or "topsoil" origin are generally assigned a name derived from the primary/secondary component (where appropriate). In log descriptions this is preceded by uppercase "FILL" or "TOPSOIL". Origin uncertainty is indicated in the description by the characters (?), with the degree of uncertainty described (using the terms "probably" or "possibly" in the origin column, or at the end of the description).

Identification of minor components

Minor components are identified in the soil description immediately following the soil name. The minor component fraction is usually preceded with a term indicating the relative proportion of the component.

Minor Component Proportion Term	Relative Proportion	
	In Fine Grained Soil	In Coarse Grained Soil
With	All fractions: 15-30%	Clay/silt: 5-12% sand/gravel: 15-30%
Trace	All fractions: 0-15%	Clay/silt: 0-5% sand/gravel: 0-15%

The terms "with" and "trace" generally apply only to gravel or fine particle fractions. Where cobbles/boulders are encountered in minor proportions (generally less than about 12%) the term "occasional" may be used. This term describes the sporadic distribution of the material within the confines of the investigation excavation only, and there may be considerable variation in proportion over a wider area which is difficult to factually characterise due to the relative size of the particles and the investigation methods.

Soil Composition

Plasticity

Descriptive Term	Laboratory liquid limit range	
	Silt	Clay
Non-plastic materials	Not applicable	Not applicable
Low plasticity	≤50	≤35
Medium plasticity	Not applicable	>35 and ≤50
High plasticity	>50	>50

Note, Plasticity descriptions generally describe the plasticity behaviour of the whole of the fine grained soil, not individual fine grained fractions.

Grain Size

Type	Particle size (mm)	
	Coarse	Fine
Gravel	19 - 63	6.7 - 19
	6.7 - 19	2.36 - 6.7
	2.36 - 6.7	0.6 - 2.36
Sand	0.6 - 2.36	0.21 - 0.6
	0.21 - 0.6	0.075 - 0.21
	0.075 - 0.21	

Grading

Grading Term	Particle size (mm)
Well	A good representation of all particle sizes
Poorly	An excess or deficiency of particular sizes within the specified range
Uniformly	Essentially of one size
Gap	A deficiency of a particular size or size range within the total range

Note, AS1726-2017 provides terminology for additional attributes not listed here.

Soil Condition

Moisture

The moisture condition of soils is assessed relative to the plastic limit for fine grained soils, while for coarse grained soils it is assessed based on the appearance and feel of the material. The moisture condition of a material is considered to be independent of stratigraphy (although commonly these are related), and this data is presented in its own column on logs.

Applicability	Term	Tactile Assessment	Abbreviation code
Fine	Dry of plastic limit	Hard and friable or powdery	w<PL
	Near plastic limit	Can be moulded	w=PL
	Wet of plastic limit	Water residue remains on hands when handling	w>PL
	Near liquid limit	"oozes" when agitated	w=LL
	Wet of liquid limit	"oozes"	w>LL
Coarse	Dry	Non-cohesive and free running	D
	Moist	Feels cool, darkened in colour, particles may stick together	M
	Wet	Feels cool, darkened in colour, particles may stick together, free water forms when handling	W

The abbreviation code **NDF**, meaning "not-assessable due to drilling fluid use" may also be used.

Note, observations relating to free ground water or drilling fluids are provided independent of soil moisture condition.

Consistency/Density/Compaction/Cementation/Extremely Weathered Material

These concepts give an indication of how the material may respond to applied forces (when considered in conjunction with other attributes of the soil). This behaviour can vary independent of the composition of the material, and on logs these are described in an independent column and are generally mutually exclusive (i.e it is inappropriate to describe both consistency and compaction at the same time). The method by which the behaviour is described depends on the behaviour model and other characteristics of the soil as follows:

- In fine grained soils, the "consistency" describes the ease with which the soil can be remoulded, and is generally correlated against the materials undrained shear strength;
- In granular materials, the relative density describes how tightly packed the particles are, and is generally correlated against the density index;
- In anthropogenically modified materials, the compaction of the material is described qualitatively;
- In cemented soils (both natural and anthropogenic), the cemented "strength" is described qualitatively, relative to the difficulty with which the material is disaggregated; and
- In soils of extremely weathered material origin, the engineering behaviour may be governed by relic rock features, and expected behaviour needs to be assessed based the overall material description.

Quantitative engineering performance of these materials may be determined by laboratory testing or estimated by correlated field tests (for example penetration or shear vane testing). In some cases, performance may be assessed by tactile or other subjective methods, in which case investigation logs will show the estimated value enclosed in round brackets, for example **(VS)**.

Consistency (fine grained soils)

Consistency Term	Tactile Assessment	Undrained Shear Strength (kPa)	Abbreviation Code
Very soft	Extrudes between fingers when squeezed	<12	VS
Soft	Mouldable with light finger pressure	>12 - ≤25	S
Firm	Mouldable with strong finger pressure	>25 - ≤50	F
Stiff	Cannot be moulded by fingers	>50 - ≤100	St
Very stiff	Indented by thumbnail	>100 - ≤200	VSt
Hard	Indented by thumbnail with difficulty	>200	H
Friable	Easily crumbled or broken into small pieces by hand	-	Fr

Relative Density (coarse grained soils)

Relative Density Term	Density Index	Abbreviation Code
Very loose	<15	VL
Loose	>15 - ≤35	L
Medium dense	>35 - ≤65	MD
Dense	>65 - ≤85	D
Very dense	>85	VD

Note, tactile assessment of relative density is difficult, and generally requires penetration testing, hence a tactile assessment guide is not provided.

Compaction (anthropogenically modified soil)

Compaction Term	Abbreviation Code
Well compacted	WC
Poorly compacted	PC
Moderately compacted	MC
Variably compacted	VC

Cementation (natural and anthropogenic)

Cementation Term	Abbreviation Code
Moderately cemented	MOD
Weakly cemented	WEK

Extremely Weathered Material

AS1726-2017 considers weathered material to be soil if the unconfined compressive strength is less than 0.6 MPa (i.e. less than very low strength rock). These materials may be identified as “extremely weathered material” in reports and by the abbreviation code **XWM** on log sheets. This identification is not correlated to any specific qualitative or quantitative behaviour, and the engineering properties of this material must therefore be assessed according to engineering principles with reference to any relic rock structure, fabric, or texture described in the description.

Soil Origin

Term	Description	Abbreviation Code
Residual	Derived from in-situ weathering of the underlying rock	RS
Extremely weathered material	Formed from in-situ weathering of geological formations. Has strength of less than ‘very low’ as per as1726 but retains the structure or fabric of the parent rock.	XWM
Alluvial	Deposited by streams and rivers	ALV
Fluvial	Deposited by channel fill and overbank (natural levee, crevasse splay or flood basin)	FLV
Estuarine	Deposited in coastal estuaries	EST
Marine	Deposited in a marine environment	MAR
Lacustrine	Deposited in freshwater lakes	LAC
Aeolian	Carried and deposited by wind	AEO
Colluvial	Soil and rock debris transported down slopes by gravity	COL
Slopewash	Thin layers of soil and rock debris gradually and slowly deposited by gravity and possibly water	SW
Topsoil	Mantle of surface soil, often with high levels of organic material	TOP
Fill	Any material which has been moved by man	FILL
Littoral	Deposited on the lake or seashore	LIT
Unidentifiable	Not able to be identified	UID

Cobbles and Boulders

The presence of particles considered to be “oversize” may be described using one of the following strategies:

- Oversize encountered in a minor proportion (when considered relative to the wider area) are noted in the soil description; or
- Where a significant proportion of oversize is encountered, the cobbles/boulders are described independent of the soil description, in a similar manner to composite soils (described above) but qualified with “MIXTURE OF”.

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Introduction to Terminology, Symbols and Abbreviations

Douglas Partners' reports, investigation logs, and other correspondence may use terminology which has quantitative or qualitative connotations. To remove ambiguity or uncertainty surrounding the use of such terms, the following sets of notes pages may be attached Douglas Partners' reports, depending on the work performed and conditions encountered:

- Soil Descriptions;
- Rock Descriptions; and
- Sampling, insitu testing, and drilling methodologies

In addition to these pages, the following notes generally apply to most documents.

Abbreviation Codes

Site conditions may also be presented in a number of different formats, such as investigation logs, field mapping, or as a written summary. In some of these formats textual or symbolic terminology may be presented using textual abbreviation codes or graphic symbols, and, where commonly used, these are listed alongside the terminology definition. For ease of identification in these note pages, textual codes are presented in these notes in the following style **XW**. Code usage conforms with the following guidelines:

- Textual codes are case insensitive, although herein they are generally presented in upper case; and
- Textual codes are contextual (i.e. the same or similar combinations of characters may be used in different contexts with different meanings (for example `PL` is used for plastic limit in the context of soil moisture condition, as well as in `PL(A)` for point load test result in the testing results column)).

Data Integrity Codes

Subsurface investigation data recorded by Douglas Partners is generally managed in a highly structured database environment, where records "span" between a top and bottom depth interval. Depth interval "gaps" between records are considered to introduce ambiguity, and, where appropriate, our practice guidelines may require contiguous data sets. Recording meaningful data is not always appropriate (for example assigning a "strength" to a concrete pavement) and the following codes may be used to maintain contiguity in such circumstances.

Term	Description	Abbreviation Code
Core loss	No core recovery	KL
Unknown	Information was not available to allow classification of the property. For example, when auguring in loose, saturated sand auger cuttings may not be returned.	UK
No data	Information required to allow classification of the property was not available. For example, if drilling is commenced from the base of a hole predrilled by others	ND
Not Applicable	Derivation of the properties not appropriate or beyond the scope of the investigation. For example, providing a description of the strength of a concrete pavement	NA

Graphic Symbols

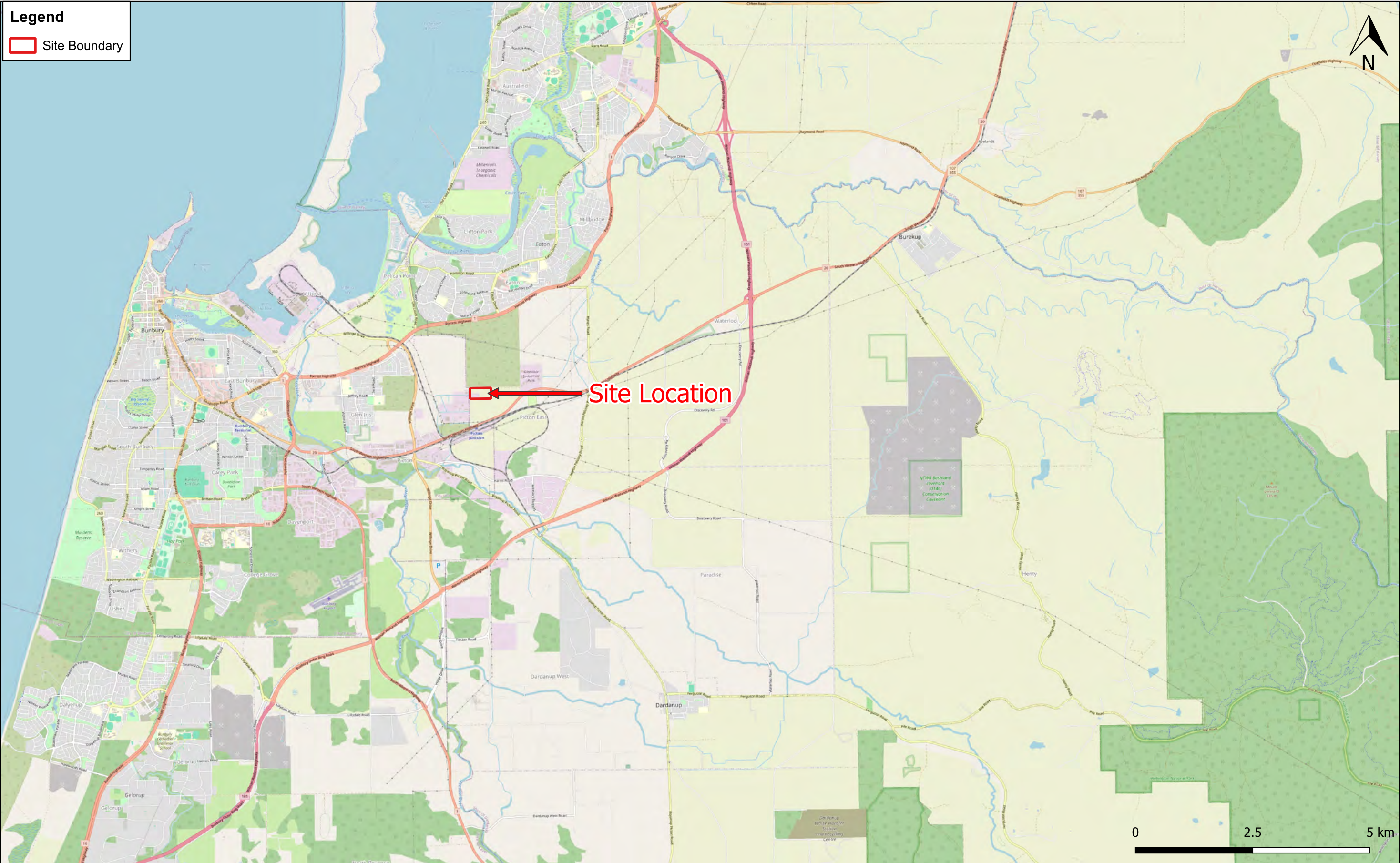
Douglas Partners' logs contain a "graphic" column which provides a pictorial representation of the basic composition of the material. The symbols used are directly representing the material name stated in the adjacent "Description of Strata" column, and as such no specific graphic symbology legend has been provided in these notes.

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Appendix B

Drawings 1 to 6

Photo Plates



Locality Plan
Preston Industrial Park, Detailed Site Investigation
Lot 2009 Giorgi Road, Picton

CLIENT: DevelopmentWA

PROJECT:	236293.02
Drawing No:	1
REV:	0
DATE:	17/8/2025



Legend

Site Boundary

	Aerial Photograph	PROJECT:	236293.02
	Preston Industrial Park, Detailed Site Investigation	Drawing No:	2
	Lot 2009 Giorgi Road, Picton	REV:	0
	CLIENT: DevelopmentWA	DATE:	17/8/2025

Legend

- Site Boundary
- Approximate Extent of Raised Area
- Bio Diesel Storage Tanks
- Glycerine Storage Tank
- Methanol Storage Tank
- Potassium Methoxide Storage Tank
- Sulfuric Acid Tank
- Tallow Day Tanks
- Approximate Locations of Metal Risers
- Existing Groundwater Monitoring Well



	Historical and Current Site Features		PROJECT:	236293.02
	Preston Industrial Park, Detailed Site Investigation		Drawing No:	3
	Lot 2009 Giorgi Road, Picton		REV:	0
	CLIENT:	DevelopmentWA	DATE:	21/8/2025

Legend

Site Boundary

AoPC 1 - Storage of Bulk Liquids

AoPC 2 - Tailings Pond and Water Body

AoPC 3 - Workshop

AoPC 4 - Boiler System

AoPC 5 - Uncontrolled Fill





	Test Pit and Soil Sampling Locations		PROJECT:	236293.02
	Preston Industrial Park, Detailed Site Investigation		Drawing No:	5
	Lot 2009 Giorgi Road, Picton		REV:	0
	CLIENT:	DevelopmentWA	DATE:	2/10/2025





Photo 1: Looking towards the metal shed and tanks in the southwestern portion of the site



Photo 2: Looking towards the western boundary of the site



Site Photographs

Detailed Site Investigation

Lot 2009 Giorgi Road, Picton, WA

CLIENT

PROJECT:

236293.02

PLATE No:

1

REV:

0

DevelopmentWA



Photo 3: Sulfuric acid tank noted in the southwestern portion of the site



Photo 4: Former bio-diesel storage tanks



Site Photographs

PROJECT: 236293.02

Detailed Site Investigation

PLATE No: 2

Lot 2009 Giorgi Road, Picton, WA

REV: 0

CLIENT

DevelopmentWA



Photo 5: Inside storage shed with IBCs



Photo 6: Lined tailings pond in the central portion of the site



Site Photographs

PROJECT:

236293.02

Detailed Site Investigation

PLATE No:

3

Lot 2009 Giorgi Road, Picton, WA

REV:

0

CLIENT

DevelopmentWA



Photo 7: Lined drain connecting tailings pond to the water body



Photo 8: Looking from the central portion of the site to the eastern portion of the site



Site Photographs

PROJECT:

236293.02

Detailed Site Investigation

PLATE No:

4

Lot 2009 Giorgi Road, Picton, WA

REV:

0

CLIENT

DevelopmentWA



Photo 9: Fly tipped car tyres in the central portion of the site



Photo 10: Raised area (possible fill) in the western portion of the site



Photo 11: Metal riser (possible groundwater monitoring well)



Site Photographs

PROJECT:

236293.02

Detailed Site Investigation

PLATE No:

6

Lot 2009 Giorgi Road, Picton, WA

REV:

0

CLIENT

DevelopmentWA

Appendix C

Historical Aerial Photographs

Certificate of Titles

Basic Summary of Records Response

Shire of Dardanup FOI



Historical Aerial Photograph - 1970
Preston Industrial Park, Preliminary Contamination Investigation
Lot 2009, Giorgi Road, Picton

CLIENT: DevelopmentWA

PROJECT:	236293.00
Drawing No:	1
REV:	0
DATE:	28/7/2025

Legend

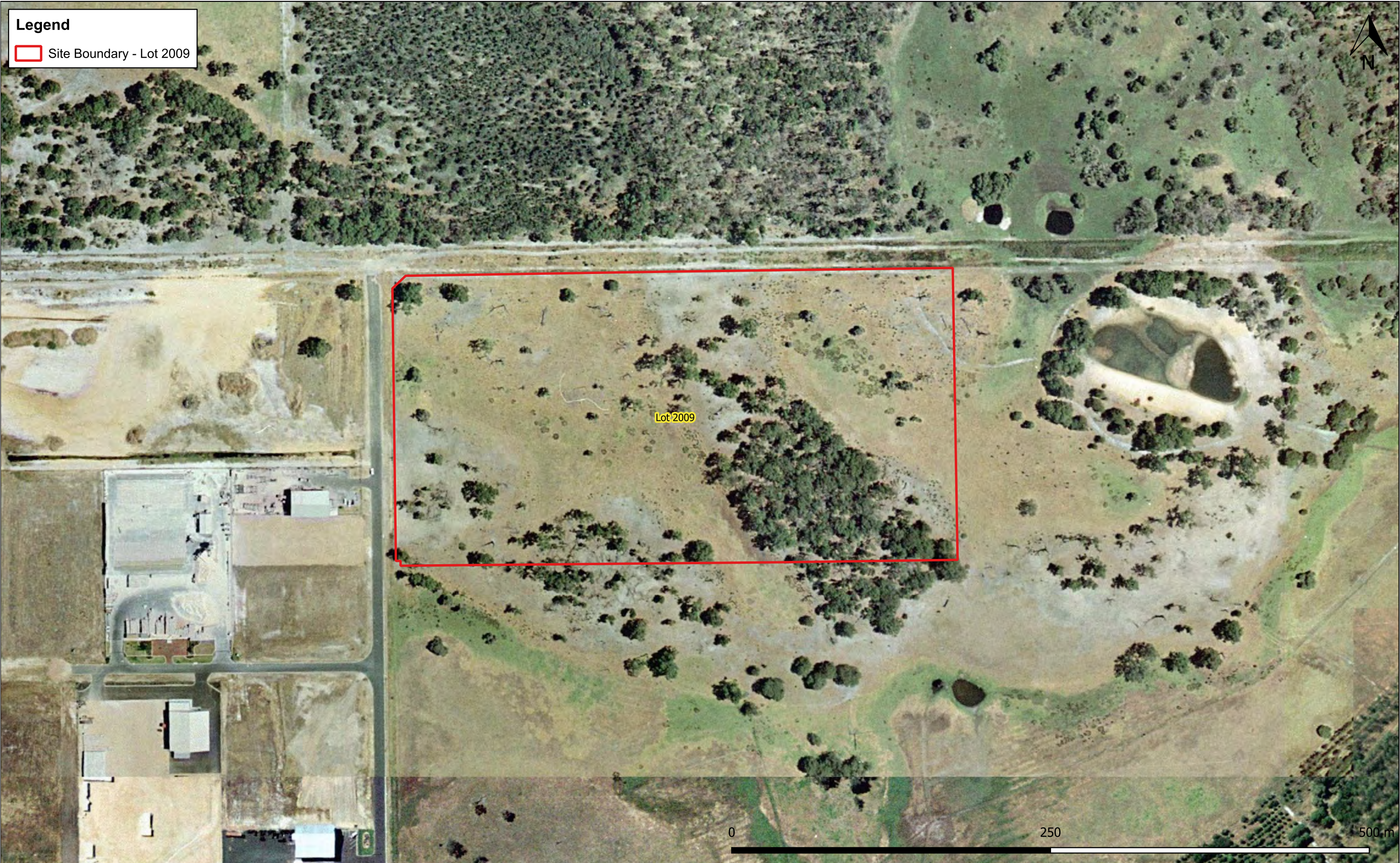
Site Boundary - Lot 2009



Historical Aerial Photograph - 1996
Preston Industrial Park, Preliminary Contamination Investigation
Lot 2009, Giorgi Road, Picton

CLIENT: DevelopmentWA

PROJECT:	236293.00
Drawing No:	2
REV:	0
DATE:	28/7/2025



Historical Aerial Photograph - 2001
Preston Industrial Park, Preliminary Contamination Investigation
Lot 2009, Giorgi Road, Picton

CLIENT: DevelopmentWA

PROJECT:	236293.00
Drawing No:	3
REV:	0
DATE:	28/7/2025



Historical Aerial Photograph - 2007
Preston Industrial Park, Preliminary Contamination Investigation
Lot 2009, Giorgio Road, Picton

CLIENT: DevelopmentWA

PROJECT:	236293.00
Drawing No:	4
REV:	0
DATE:	28/7/2025



Historical Aerial Photograph - 2015
Preston Industrial Park, Preliminary Contamination Investigation
Lot 2009, Giorgi Road, Picton

CLIENT: DevelopmentWA

PROJECT:	236293.00
Drawing No:	5
REV:	0
DATE:	28/7/2025



	Historical Aerial Photograph - 2018		PROJECT:	236293.00
	Preston Industrial Park, Preliminary Contamination Investigation		Drawing No:	6
	Lot 2009, Giorgi Road, Picton		REV:	0
	CLIENT:	DevelopmentWA	DATE:	28/7/2025



	Historical Aerial Photograph - 2022		PROJECT:	236293.00
	Preston Industrial Park, Preliminary Contamination Investigation		Drawing No:	7
	Lot 2009, Giorgi Road, Picton		REV:	0
	CLIENT:	DevelopmentWA	DATE:	28/7/2025



Historical Aerial Photograph - 2024
Preston Industrial Park, Preliminary Contamination Investigation
Lot 2009, Giorgi Road, Picton

CLIENT: DevelopmentWA

PROJECT:	236293.00
Drawing No:	8
REV:	0
DATE:	28/7/2025



Requestor Name: Mubashar Ahmed
 Company Name: Douglas Partners
 Our Reference: LG8-1036675-V7Q8
 Officers Name: Cher

Current Tenure	Lot 2009 Temple Road, Picton				
	Survey/Crown Allotment	Ownership/Primary Interst Holder	Document	Date Acquired	Previous Tenure
Current Certificate of Title 2593-990	Lot 2009 on Plan 43721	Konkera Pty Ltd	Transfer Q113568	26/08/2024	Cancelled Certificate of Title 2503-681
Cancelled Certificate of Title 2503-681	Lot 2008 on Deposited Plan 29618	South West Development Commission	Application I068700	9/04/2002	Cancelled Certificate of Title 2119-633
Cancelled Certificate of Title 2119-633	Lot 49 on Deposited Plan 232800	South West Development Commission	Application G630406	7/11/1997	Sketch Certificate of Title 2119-633
Sketch Certificate of Title 2119-633	portion of Collie Agricultural Area Lot 49	South West Development Commission	Application G630406	7/11/1997	Cancelled Certificate of Title 2065-201
Cancelled Certificate of Title 2065-201	portion of Collie Agricultural Area Lot 49	South West Development Commission	Application G050439	2/01/1996	Cancelled Certificate of Title 1788-635
Cancelled Certificate of Title 1788-635	portion of Collie Agricultural Area Lot 49	South West Development Commission	Transfer D655024	4/02/1988	Cancelled Certificate of Title 1056-643

Cancelled Certificate of Title 1056-643	Collie Agricultural Area Lot 49	Edward James Rafferty (farmer)	Transfer 10128/1937	28/11/1938	Cancelled Certificate of Title 545-63
Cancelled Certificate of Title 545-63	Collie Agricultural Area Lot 49	James Cockell (farmer)		29/02/1913	Cancelled Certificate of Title LG545-63
Cancelled Certificate of Title LG545-63	Collie Agricultural Area Lot 49	James Cockell (farmer)		19/02/1913	Crown Grant
END OF SEARCH					



Mubashar Ahmed
Douglas Partners Ltd
36 O'Malley Street
Osborne Park WA 6017

Your ref: 236293.00
Our ref: DMO 9511
Enquiries: Registrar
Phone: 1300 762 982
Fax: (08) 6364 7001
Email: info@dwer.wa.gov.au

Dear Sir/Madam

BASIC SUMMARY OF RECORDS REQUEST

Thank you for your Basic Summary of Records request for the site consisting of the following parcel(s) of land:

- LOT 2009 ON DEPOSITED PLAN 43721 as shown on certificate of title 2593/990, Picton East WA 6229

which Department of Water and Environmental Regulation (the department) received on 11/07/2025.

A search of the department's records of known and suspected contaminated sites was undertaken however, our records indicate that as of 24/07/2025 this site has not been reported to the department as a known or suspected contaminated site either prior to or after the commencement of the *Contaminated Sites Act 2003*.

For general enquiries, please contact the Registrar on 1300 762 982.

Yours sincerely

Penny Woodberry, Manager

CONTAMINATED SITES REGULATION
Delegated Officer under section 91
of the *Contaminated Sites Act 2003*

24/07/2025

Enc. Receipt Number RR046231

Liam Yates

From: [redacted]
Sent: Wednesday, 23 August 2017 1:59 PM
To: Records
Cc: [redacted]; Peter Knox; [redacted] BUNBURY Firestation stn318
Subject: 340083 - AR Fuels, Giorgi Road, Picton

Could You Please Forward to the CEO

Dear CEO

I would like to formally bring to your attention the above site which has been identified as high risk site which is currently unoccupied and appears to have been abandoned by the owners/tenants.

The site sits as one of DFES' high risk sites and as such is subject to annual inspections by local fire crews however because the site is unoccupied and secured local crews have not been able to access and assess the current risk since 2016. Information received and a visit by myself to the perimeter of the site suggests the risks associated with the site being occupied are still present however they are clearly not being managed. These risks include fuel (unknown quantities) still being potentially stored on site, gas cartridges which could still be full or pressurised, on site firefighting facilities not being maintained or tested and a range of other risks associated with a site like this.

The site is secured however could easily be accessed by intruders. There is a sign on the outer fence with a security company number but I have tried this number and been unable to get through.

The site sits within a bushfire prone area and therefore is at risk from any external fire entering the site. I understand there have been a number of bushfires in this area in the past.

I would like to ask for your assistance in gathering information relating to site including;

- Contact details for the owners/tenants
- Types of fuels/chemicals and quantities still being stored on site
- MSDS information relating to the fuels/chemicals on site
- What testing and maintenance is being carried out on firefighting systems such as the hydrant system.
- Any other information regarding the risks associated with the site that will assist fire crews attending an incident either on site or in the surrounding bushland.

I would also ask if we could adopt a joint approach to identifying how to manage this risk in the absence of the current owners.

The site is in a non residential area however there are a number of other businesses in the area which could be at risk and there is a definite risk to fire crews so any information that could be shared which would help mitigate this risk would be appreciated. Ultimately we would like to see the on site risks managed by the owners/tenants and what their future intentions are and this information shared with the local fire crews.

Thank you for your assistance and I look forward to hearing from you soon.

Regards, [redacted]

[redacted]
Built Environment Branch/Operations Capability
Department of Fire & Emergency Services | Lot 719 South Western Highway, Bunbury 6230
P: [redacted] | M: [redacted] | E: [redacted]
www.dfes.wa.gov.au



<https://www.dfes.wa.gov.au/safetyinformation/fire/fireinthehome/FireintheHomeFactsheets/DFES-Multi-Storey-Fire-Safety-Know Your Neighbours.pdf>

<https://www.dfes.wa.gov.au/safetyinformation/fire/fireinthehome/FireintheHomeFactsheets/DFES-Multi-Storey-Fire-Safety-Know Your Building.pdf>

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Liam Yates

From: [redacted]
Sent: Thursday, 7 September 2017 1:17 PM
To: [redacted]
Cc: Neil Nicholson; Erin Hutchins
Subject: RE: DFES query - Australian Renewable Fuels Picton Pty Ltd - Lot 2009 Giorgi Road, PICTON, WA 6229

Hi [redacted]

Thank you for the update and invite.

Please be aware Shire officers do not have suitable level of jurisdiction, qualification or technical expertise to assess the facilities at Lot 2009 Giorgi Road, Picton. As the premises is a prescribed premises licensed under the *Environmental Protection Act 1986*, it would be appropriate for a Department of Water and Environmental Regulation officer to attend such a meeting. They would likely have the necessary technical background and jurisdiction over the site. The Departments contact number is (08) 6364 7000.

In addition, the storage of dangerous chemicals at industrial sites is governed by the Department of Mines and Petroleum. The department should be able to provide input regarding any dangerous goods that may be stored on this site. The DoMP is contactable on T (08) 9222 3333.
We do appreciate DFES keeping us informed, however please accept our decline in attending the onsite meeting between yourself and [redacted]

Regards

[redacted]

SHIRE OF DARDANUP | 1 Council Drive | PO Box 7016 | Eaton WA 6232
p: 08 9724 0377 | m: 0488901300 | e: [redacted]



From: [redacted]
Sent: Thursday, 7 September 2017 11:24 AM
To: [redacted]
Cc: Neil Nicholson; Erin Hutchins
Subject: RE: DFES query - Australian Renewable Fuels Picton Pty Ltd - Lot 2009 Giorgi Road, PICTON, WA 6229

Hello [redacted]

I have managed to contact [redacted] who is currently administrating the AR Fuels in Picton. Apparently there is no fuels on site and the tanks have been purged and the gas bullets are being maintained on a regular basis.

Whilst its easy to take his word on this I have asked for some evidence that this is the case. I have also told him of our concerns re the firefighting systems and potential bushfire risk.

I have arranged to meet him on site next **Wednesday 13th at 1400**. Are you, Erin or Neil available to attend. I will send out calendar invites

Hopefully at the meeting we can find out the status of the site and what the future plans are. I believe they are looking for a tenant to take the site on. We can also take the opportunity to advice on their responsibilities. I don't want to take a fire crew up at this stage as I would like the initial meeting to be low key with just myself and Dardanup reps.

Let me know if this is ok with you.

Cheers, [redacted]

[redacted]
Built Environment Branch/Operations Capability
Department of Fire & Emergency Services | Lot 719 South Western Highway, Bunbury 6230
P: [redacted] | M: [redacted] | E: [redacted]
www.dfes.wa.gov.au



https://www.dfes.wa.gov.au/safetyinformation/fire/fireinthehome/FireintheHomeFactsheets/DFES-Multi-Storey-Fire-Safety-Know_Your_Neighbours.pdf

https://www.dfes.wa.gov.au/safetyinformation/fire/fireinthehome/FireintheHomeFactsheets/DFES-Multi-Storey-Fire-Safety-Know_Your_Building.pdf

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Government of Western Australia
Department of Fire & Emergency Services



From: [REDACTED]
Sent: Friday, 1 September 2017 2:41 PM
To: [REDACTED]
Cc: Neil Nicholson; Erin Hutchins
Subject: FW: DFES query - Australian Renewable Fuels Picton Pty Ltd - Lot 2009 Giorgi Road, PICTON, WA 6229

Hi [REDACTED]

I hope the information we gave you yesterday will be helpful, please find the following details as we discussed.

Our rates department have confirmed the current owners of Lot 2009 Giorgi Road as

[REDACTED]

The Department of Water, Environment and Regulation have confirmed that this premises was a "Prescribed Premises" (requiring an annual DER licence) under the Environmental Protection Act 1986.

Further to our recent conversation, the Shire of Dardanup recommends DFES contacts the Department of Water and Environmental Regulation for further information pertaining to this property including options for access.

Regards

[REDACTED]

SHIRE OF DARDANUP | 1 Council Drive | PO Box 7016 | Eaton WA 6232
p: 08 9724 0377 | m: 0488901300 | e: [REDACTED]



From: Neil Nicholson
Sent: Friday, 1 September 2017 2:00 PM
To: [REDACTED]
Subject: FW: DFES query - Australian Renewable Fuels Picton Pty Ltd - Lot 2009 Giorgi Road, PICTON, WA 6229

Please see DER's reply below



Neil Nicholson

Principal Enviromental Health Officer

SHIRE OF DARDANUP | 1 Council Drive | PO Box 7016 | Eaton WA 6232
p: 08 9724 0340 | m: 0427240092 | f: 08 9724 0091 | e: neil.nicholson@dardanup.wa.gov.au



From: [REDACTED]
Sent: Thursday, 31 August 2017 4:45 PM
To: Neil Nicholson
Subject: RE: DFES query - Australian Renewable Fuels Picton Pty Ltd - Lot 2009 Giorgi Road, PICTON, WA 6229

Thanks Neil,

I've forwarded your email to DWER Manager Licensing (Process Industries) [REDACTED] as the premises falls within the Process Sector.

I expect you will hear from her or one of her team members within the next few working days; however if not you can contact her on [REDACTED] or

[REDACTED]

Kind regards,

[REDACTED]

Department of Water and Environmental Regulation

Level 4, The Atrium, 168 St Georges Terrace, PERTH WA 6000
Locked Bag 33, Cloisters Square, PERTH WA 6850

T: [REDACTED]

E: [REDACTED] | www.dwer.wa.gov.au

From: Neil Nicholson [<mailto:neil.nicholson@dardanup.wa.gov.au>]

Sent: Thursday, 31 August 2017 3:52 PM

To: [REDACTED]
Cc: [REDACTED] Erin Hutchins
Subject: DFES query - Australian Renewable Fuels Picton Pty Ltd - Lot 2009 Giorgi Road, PICTON, WA 6229

Hello [REDACTED]

As per my phone call this afternoon:

The Department of Fire and Emergency Services (DFES) is enquiring to the Shire of Dardanup about the biodiesel plant at Lot 2009 Giorgi Road, Picton. The premises was under DER licence (**L8098/2002/4**) with the last licence issued in 2013 (licence attached). However, it would appear the premises is currently non-operational, and has been so for a few years now.

DFES want to know:

- What chemicals are currently stored on site?
- If there are still chemicals on site:
 - What type?
 - How much?
 - Where are they stored?
 - Conditions of storage?
- Will chemicals be stored indefinitely, or will there be some form of closure and remediation of the site (removal of chemicals, including wastewater ponds)?
- Is the water in the large pond safe to use for fire-fighting purposes?

They would like the above information to assess the site. Once assessed, they want to access the site to assess what is there.

It would appear Australian Renewable Fuels Picton Pty Ltd is still in existence and is still required to audit the site and submit an “Annual Audit Compliance Form” to DWER – the latest compliance audit form is dated “**25-7-17**” (please find form attached).

If you could confirm the current status of this site, the chemicals and quantities that may currently be present, and the DWER officer responsible for licencing this site (contact details), it will be greatly appreciated.

Image of the site:



I am directly contactable on T: (08) 9724 0340 or neiln@dardanup.wa.gov.au

Regards,

Neil Nicholson

Principal Enviromental Health Officer

SHIRE OF DARDANUP | 1 Council Drive | PO Box 7016 | Eaton WA 6232
p: 08 9724 0340 | m: 0427240092 | f: 08 9724 0091 | e: neil.nicholson@dardanup.wa.gov.au



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Liam Yates

From: [redacted]
Sent: Friday, 1 September 2017 2:41 PM
To: [redacted]
Cc: Neil Nicholson; Erin Hutchins
Subject: FW: DFES query - Australian Renewable Fuels Picton Pty Ltd - Lot 2009 Giorgi Road, PICTON, WA 6229

Hi [redacted]

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Further to our recent conversation, the Shire of Dardanup recommends DFES contacts the Department of Water and Environmental Regulation for further information pertaining to this property including options for access.

Regards

[redacted]

SHIRE OF DARDANUP | 1 Council Drive | PO Box 7016 | Eaton WA 6232
p: 08 9724 0377 | m: 0488901300 | e: [redacted]



From: Neil Nicholson
Sent: Friday, 1 September 2017 2:00 PM
To: [redacted]
Subject: FW: DFES query - Australian Renewable Fuels Picton Pty Ltd - Lot 2009 Giorgi Road, PICTON, WA 6229

Please see DER’s reply below



Neil Nicholson
Principal Enviromental Health Officer

SHIRE OF DARDANUP | 1 Council Drive | PO Box 7016 | Eaton WA 6232
p: 08 9724 0340 | m: 0427240092 | f: 08 9724 0091 | e: neil.nicholson@dardanup.wa.gov.au



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Sent: Thursday, 31 August 2017 4:45 PM
To: Neil Nicholson
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I expect you will hear from her or one of her team members within the next few working days; however if not you can contact her on [redacted] or [redacted]

Kind regards,
[redacted]
Industry Regulation, Licensing and Approvals

Department of Water and Environmental Regulation
Level 4, The Atrium, 168 St Georges Terrace, PERTH WA 6000

Locked Bag 33, Cloisters Square, PERTH WA 6850

T: [REDACTED]

E: [REDACTED] | www.dwer.wa.gov.au

From: Neil Nicholson [<mailto:neil.nicholson@dardanup.wa.gov.au>]

Sent: Thursday, 31 August 2017 3:52 PM

To: [REDACTED]

Cc: Peter Jackson; Erin Hutchins

Subject: DFES query - Australian Renewable Fuels Picton Pty Ltd - Lot 2009 Giorgi Road, PICTON, WA 6229

Hello [REDACTED]

As per my phone call this afternoon:

The Department of Fire and Emergency Services (DFES) is enquiring to the Shire of Dardanup about the biodiesel plant at Lot 2009 Giorgi Road, Picton. The premises was under DER licence (**L8098/2002/4**) with the last licence issued in 2013 (licence attached). However, it would appear the premises is currently non-operational, and has been so for a few years now.

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Image of the site:



I am directly contactable on T: (08) 9724 0340 or neiln@dardanup.wa.gov.au

Regards,

Neil Nicholson

Principal Enviromental Health Officer

SHIRE OF DARDANUP | 1 Council Drive | PO Box 7016 | Eaton WA 6232
p: 08 9724 0340 | m: 0427240092 | f: 08 9724 0091 | e: neil.nicholson@dardanup.wa.gov.au



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Liam Yates

From: [REDACTED]
Sent: Tuesday, 30 January 2024 10:00 AM
To: Records
Subject: HD24012 BA5 Form Submission for Demolition at Lot 2009 Giorgi Road, Picton East
Attachments: ARFP Lot 2009 Giorgi Rd, Picton Demolition Map 2024.01.15.pdf; ARFP Lot 2009 Giorgi Rd Picton BA5 Demolition Permit 2024.01.15 signed.pdf

⚠ CAUTION: This email originated from outside the Shire of Dardanup. Do NOT click links or open attachments unless you recognize the sender and know the content is safe. Do NOT enter any username or passwords and report any suspicious content.

You don't often get email from [REDACTED] [Learn why this is important](#)

Good morning,

Please find attached our submission of the BA5 Form – Application for Demolition Permit at the location of Lot 2009 Giorgi Road, Picton East located in the Shire of Dardanup, and corresponding map.

Could you please issue a reference number and confirm the fees payable for this application?

If you require any further information for this application, please do not hesitate to let me know. Thank you.

Kind Regards

[REDACTED]

Please note my office days are 9am – 3pm Monday, Tuesday and Thursday

T: 08 9792 6000
Web: www.harleydykstra.com.au



Albany Bunbury Busselton Denmark Forrestdale Perth

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Application for demolition permit

Building Act 2011, section 15, 16
Building Regulations 2012, regulation 4, 16

PERMIT AUTHORITY
USE ONLY

Reference number

Permit authority

SHIRE OF DARDANUP

1. Property this application relates to

Property street address (provide lot number where street number is not known)

Unit no	Street no	Level	Lot no 2009
Street name GIORGIO ROAD		Street type ROAD	Street suffix RD
Suburb PICKTON EAST		State WA	Postcode 6229
Volume 2593		Folio 990	

Certificate of title (if known)

Year of construction of oldest building to be demolished

2006

Local government area (if different from permit authority)

N/A.

2. Details of demolition work

Project name (if any)

HD24012 - Old AR Fuels site

Type of demolition

☒ Full demolition

☐ Partial demolition

☐ Relocation of a building from this site to another

Description of the demolition work

Demolition, removal and disposal off site redundant building, plant and equipment & associated miscellaneous scrap.

Building Code of Australia (BCA) class of the building(s) to be demolished

Main BCA class

Class 8 Biodiesel Facility

Secondary BCA class (for multi-purpose buildings)

N/A

Third BCA class (for multi-purpose buildings)

N/A.

Occupancy permit number of the building(s) (if known)

Not known.

Number of dwellings relocated FROM this site to another site

None

Floor area to be demolished (m²)

6,300sqm

Site (lot) area (m²)

10.0129ha

Number of dwellings to be demolished

One.

Estimated value of demolition work (including GST)

\$ 150,000.00

Number of storeys of the highest building (above ground)

One.

Number of basement storeys of the building (below ground)

None

3. Owner details

Where there are multiple owners, please attach a list with the names and signatures of each owner. If each of those owners requires a copy of the demolition permit, please also provide forwarding details for each owner.

Owner's name

Street address
(provide lot number
where street
number is not
known)

Unit no	Street no	Level	Lot no
Street name		Street type	Street suffix
Suburb	State	Postcode	Country (if not Australia)

OR

PO Box address

PO Box no			
Suburb	State	Postcode	Country (if not Australia)

Email address

Phone/fax

Owner's signature*

*If you are authorised to
application.

Email address	
Phone no	Fax
Owner's signature*	Date

Provide your written legal authorisation with your

4. Demolition contractor details

Demolition
contractor's name

Street address
(provide lot number
where street number
is not known)

J & P Deconstruction Pty Ltd			
Unit no	Street no	Level	Lot no
	2		
Street name		Street type	Street suffix
SHORT STREET		STREET	ST
Suburb	State	Postcode	Country (if not Australia)
PICTON	WA	6229	

OR

PO Box address

PO Box no			
Suburb	State	Postcode	Country (if not Australia)

Email address

Phone/fax

Demolition licence
number

adminassistant@jpgroup.com.au	
Phone no	Fax
(08) 9725 5050	(08) 9725 6083
Issued under the Work Health and Safety (General) Regulations 2022 (if applicable)	
WAD66.	

Demolition
contractor's
signature

Name (print)		
Signature		Date 19/01/2024

5. Applicant details

Who is the
applicant?
(Tick one box)

☐ Owner	☐ Demolition contractor	☒ Other
--------------------------------	--	---

If 'Other' was selected above, complete the following details:

Applicant's name

Harley Dykstra Pty Ltd

Street address
(provide lot number
where street number
is not known)

Unit no	Street no 21	Level	Lot no
Street name SPENCER STREET		Street type STREET	Street suffix ST
Suburb BUNBURY	State WA	Postcode 6230	Country (if not Australia)

OR

PO Box address

PO Box no PO BOX 778			
Suburb BUNBURY	State WA	Postcode 6231	Country (if not Australia)

Email address

bunbury@harleydykstra.com.au

Phone/fax

Phone no (08) 9792 6000	Fax
----------------------------	-----

6. Statement by applicant

I understand that a demolition permit cannot be granted unless:

1. All the prescribed information is provided with this application
2. In accordance with section 20 of the *Building Act 2011* and regulation 19 of the Building Regulations 2012:
 - all relevant prescribed authorities have been obtained and have been or are being complied with; and
 - all prescribed notifications have been given.

Provide evidence of compliance with approvals given.

3. All consents or court orders have been obtained if the demolition work may adversely affect land beyond the boundaries of the works land.

Does the proposed work adversely affect other land? ☐ Yes ☒ No

If yes, has consent or a court order been obtained? ☐ Yes ☐ No

Attach a copy of each consent (form BA20) or court order obtained.

Applicant's
signature

Name (print)		
Signature		Date 04/01/24





Health Conditions - Demolition

Building App. No : 23240255
Development : **Demolition – former bio-fuels plant**
Address : Lot 2009 Giogri Rd, Picton
Date : 6 Feb 2024
Internal reference No. : A9654

The development is to comply with the Contaminated Sites Act, and the Contaminated Sites Regulations 2006.

Contaminated Sites Regulations

As this site may be considered a 'Contaminated Site' under Contaminated Sites Act and Regulations. As such the applicant is recommended to:

1. Complete a 'Form 1 – Report a Known or Suspected Contaminated Site' and submit it to the DWER at info@dwer.wa.gov.au.

Link to Form 1:

www.wa.gov.au/government/publications/form-1-report-of-known-or-suspected-contaminated-site

Or

2. Contact the DWER's contaminated sites division on **1300 762 982** to confirm the status of the site, and what obligations / requirements may apply to the demolition activity.

If you have any queries regarding the above condition, please contact the Shire of Dardanup's Environmental Health services on (08) 9724 0340.

NEIL NICHOLSON

Principal Environmental Health Officer



Payer: HARLEY DYKSTRA PLANNING & SURVEY SOLUTIONS
PO BOX 778
BUNBURY WA 6230

TAX INVOICE / RECEIPT
ABN: 57 305 829 653

Receipt Number: 153475
Receipt Date : 31.01.24

Receipt Type	Detail	Amount
Building Fees	Applic No. 23240255	\$615.50
	\$205.50 Build Serv Levy - Build & Dem Permit	
	\$110.00 Demolition Permit Class 2-9	
	\$300.00 BCITF	

* GST Exclusive Charge		\$615.50	Total:		\$615.50
* GST:		\$0.00	Tendered:		\$615.50
Cash	Cheque	Other	Change Given:		\$0.00
\$0.00	\$0.00	\$615.50	Round Amount:		\$0.00



Health Conditions - Demolition

Building App. No : 23240255
Development : **Demolition – former bio-fuels plant**
Address : Lot 2009 Giogri Rd, Picton
Date : 6 Feb 2024
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1. Complete a 'Form 1 – Report a Known or Suspected Contaminated Site' and submit it to the DWER at info@dwer.wa.gov.au .

Link to Form 1:

www.wa.gov.au/government/publications/form-1-report-of-known-or-suspected-contaminated-site

Or

2. Contact the DWER's contaminated sites division on **1300 762 982** to confirm the status of the site, and what obligations / requirements may apply to the demolition activity.

If you have any queries regarding the above condition, please contact the Shire of Dardanup's Environmental Health services on (08) 9724 0340.

NEIL NICHOLSON

Principal Environmental Health Officer

Demolition permit

Building Act 2011, section 25
Building Regulations 2012, regulation 4, 22

Permit number
23240255

1. Demolition contractor details

Demolition
contractor's name

J & P DECONSTRUCTION PTY LTD

Street address
(provide lot number
where street number
is not known)

Unit no	Street no	Level	Lot no
Street name		Street type	Street suffix
Suburb PICTON	State WA	Postcode 6229	Country (if not Australia)

OR

PO Box address

PO Box no			
Suburb	State	Postcode	Country (if not Australia)

Demolition licence
number

Issued under the Work Health and Safety (General) Regulations 2022 (if applicable)
WAD66

2. Details of demolition work

Property street
address (provide lot
number where street
number is not known)

Unit no	Street no	Level	Lot no 2009
Street name GIORGI		Street type ROAD	Street suffix
Suburb PICTON		State WA	Postcode 6229

Demolition permit
application number

23240255

Nature of the
demolition work

Demolition, redundant buildings, associated structures, and plant as highlighted.

Full or partial
demolition

☐ Full ☒ Partial

Stage(s) of work

Details

3. Permit details

All demolition work permitted by this permit:

1. Must be carried out in accordance with the details set out in the demolition permit application.
2. Must be carried out in accordance with any conditions set out below:

Conditions

WorkSafe WA must be notified prior to class 1 demolition work via a "Notification of Demolition Work".

In line with Work Health and Safety Regulations 2022

The requirements for demolition work and notification of demolition work are contained within Part 4.6 of the Work Health and Safety (General) Regulations 2022.

Regulation 142F requires a person who wishes to do Class 1 demolition work or Class 2 demolition work in accordance with AS 2601 is to notify the regulator at least 5 working days before the work is intended to begin.

Regulation 142G requires a person who wishes to do Class 1 demolition work or Class 2 demolition work not in accordance with AS 2601 is to apply, at least 10 working days before the work is intended to begin, to the regulator for approval to do the work.

3. All non-bonded (friable) asbestos, of any amount, and all bonded (non-friable) asbestos over 10m² must be removed by an appropriate asbestos removal licence holder.
4. A permit granted to do one or more stages of demolition work does not automatically entitle a person to be granted a further demolition permit for any other stage of the building work.
5. This permit is valid for two years from the date of this permit **OR** valid until

Date
06/02/2026

Issuing officer

Name



Job title
Principal Building Surveyor

Date
06/02/2024

Permit authority

Shire of Dardanup



Notice of completion

Building Act 2011 section 33
Building Regulations 2012, regulation 4

PERMIT AUTHORITY
USE ONLY

BUILDER / DEMOLITION
CONTRACTOR USE

Reference number
23240255

Reference number

Permit authority Shire of Dardanup

1. Property this notice relates to

Property street
address (provide lot
number where street
number is not
known)

Unit no:	Street no:	Level:	Lot no: 2009
Street name: GIORGI		Street type: ROAD	Street suffix:
Suburb: PICTON		State:	Postcode: 6229

Permit number 23240255

2. Details

Completion details

☐ Building work	☐ Stage of building work
☐ Demolition work	☐ Stage of demolition work
Date of completion:	Final value of contract: \$

Swimming/spa pool
or safety barrier

Does this notice of completion relate to or include:
a swimming/spa pool or associated safety barrier? ☐ Yes ☐ No

Builder / demolition
contractor's name

--

Registration details
(if applicable)

Registration number / licence number / owner-builder approval number:

Email address

--

Phone/Mobile

Phone no:	Mobile No:
-----------	------------

Street address
(provide lot number
where street number
is not known)

Unit no:	Street no:	Level:	Lot no:
Street name:		Street type:	Street suffix:
Suburb:	State:	Postcode:	Country: (if not Australia)

OR

PO Box address

PO Box no:		Suburb:
State:	Postcode:	Country (if not Australia):

3. Notification

1. I am the builder/demolition contractor named on the permit.
2. The work, or the stage of work, for which the permit was granted, is completed.
3. I attach a copy of a certificate for each inspection or test mentioned on the building permit.

Builder / demolition
contractor's
signature

Signature:	Date:
-------------------	--------------

4. Inspections and tests completed (applies to building permits only)

Inspections completed		Evidence attached?
Dates and types of inspections (provide inspection certificates) <i>(Only if requested on conditions of the Building Permit)</i>	1.	☐ Yes ☐ No
	2.	☐ Yes ☐ No
	3.	☐ Yes ☐ No
	4.	☐ Yes ☐ No
	5.	☐ Yes ☐ No

Tests completed		Evidence attached?
Date and types of tests (provide test certificates) <i>(Only if requested on conditions of the Building Permit)</i>	1.	☐ Yes ☐ No
	2.	☐ Yes ☐ No
	3.	☐ Yes ☐ No
	4.	☐ Yes ☐ No
	5.	☐ Yes ☐ No

Please note:

1. The notice of completion must be given to the relevant permit authority within **SEVEN (7) DAYS** of completion of the work, or the stage of work, for which the permit was granted.
2. Failure to submit this notice of completion attracts a penalty of up to \$10,000.
3. The submission of this notice of completion does not authorise the occupancy of a Class 2 – Class 9 building for which an occupancy permit is required.



Notice of completion: requirements and consequences

This Industry Bulletin is intended to inform registered builders about the importance of giving a notice of completion (form BA7) to the permit authority within the prescribed period of time and to highlight the consequences of not doing so.

It is a requirement under section 33(1) of the Building Act 2011 (the Building Act) for the responsible person in relation to a building permit, to give a notice of completion to the relevant permit authority within seven days of completion of the works.

In addition to infringement notices of up to \$500 and penalties of up to \$10,000 under the Building Act, failing to give a notice of completion also exposes builders

to liability under the provisions of the Building Services (Complaint Resolution and Administration) Act 2011.

This Act allows any person adversely affected by the carrying out of a regulated building service to make a complaint to the Building Commissioner within six years of the work being completed.

The criteria for determining the date of the works being completed is prescribed in regulation 7 of the Building Services (Complaint Resolution and Administration) Regulations 2011. This regulation specifies that the date of completion (for the purposes of making a complaint) is the date the notice of completion is given to the permit authority.

Recently there have been several complaints made to the Building Commissioner about regulated building services for which notices of completion had not been given; not given within the seven day period specified or given several months after completion was achieved.

Builders should be aware that they leave themselves open for a complaint outside of the six year period if a notice of completion is not given on time or at all.

It is important that permit authorities accurately record the date the notice of completion was given.

Other relevant industry bulletins published by the Department of Mines, Industry Regulation and Safety include:

- ▶ Industry Bulletin 35 - Providing notices of completion for incidental structures
- ▶ Industry Bulletin 72 – Notice of Completion: inspections and tests
- ▶ Industry Bulletin 116 – Commerce Regulations Amendment (Infringement Notices) Regulations 2019

Disclaimer – The information contained in this fact sheet is provided as general information and a guide only. It should not be relied upon as legal advice or as an accurate statement of the relevant legislation provisions. If you are uncertain as to your legal obligations, you should obtain independent legal advice.

Liam Yates

From: [redacted]
Sent: Tuesday, 6 February 2024 4:43 PM
To: adminassistant@jpgroup.com.au
Cc: [redacted] bunbury@harleydykstra.com.au
Subject: Demolition Permit LOT 2009 GIORGI ROAD PICTON
Attachments: Demolition Permit 23240255.pdf

To the Demolition Contractor and cc Owner and Applicant

Please find attached for your records, a copy of the recently approved Building Permit and associated documents as described.

Regards

[redacted]
[redacted]



A: 1 Council Drive | PO Box 7016 | Eaton WA 6232
T: 08 9724 0377 | **M:** 0488 901 300 | **E:** [redacted]
W: www.dardanup.wa.gov.au



Notice of completion

Building Act 2011 section 33
Building Regulations 2012, regulation 4

PERMIT AUTHORITY
USE ONLY

BUILDER / DEMOLITION
CONTRACTOR USE

Reference number
23240255

Reference number

Permit authority

Shire of Dardanup

1. Property this notice relates to

Property street
address (provide lot
number where street
number is not
known)

Unit no:

Street no:

Level:

Lot no:
2009

Street name:
GIORGI

Street type:
ROAD

Street suffix:

Suburb:
PICTON

State:

Postcode:
6229

Permit number

23240255

2. Details

Completion details

☐ Building work

☐ Stage of building work

☒ Demolition work

☐ Stage of demolition work

Date of completion: 4/10/2024

Final value of contract: \$ 150,000.00

Swimming/spa pool
or safety barrier

Does this notice of completion relate to or include:

a swimming/spa pool or associated safety barrier?

☐ Yes

☒ No

Builder / demolition
contractor's name

J & P Deconstruction Pty Ltd

Registration details
(if applicable)

Registration number / licence number / owner-builder approval number: WAD66

Email address

adminassistant@jpgroup.com.au

Phone/Mobile

Phone no: 089725 5050

Mobile No:

Street address
(provide lot number
where street number
is not known)

Unit no:

Street no:

Level:

Lot no:

Street name:

Street type:

Street suffix:

Suburb:

State:

Postcode:

Country:
(if not Australia)

OR

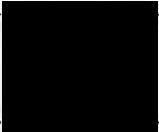
PO Box address

PO Box no: POBox 9010	Suburb: PICTON
State: WA	Postcode: 6229 Country (if not Australia):

3. Notification

1. I am the builder/demolition contractor named on the permit.
2. The work, or the stage of work, for which the permit was granted, is completed.
3. I attach a copy of a certificate for each inspection or test mentioned on the building permit.

Builder / demolition
contractor's
signature

Signature: 	Date: 14/10/2024
--	------------------

4. Inspections and tests completed (applies to building permits only)

Inspections completed		Evidence attached?
Dates and types of inspections (provide inspection certificates) <i>(Only if requested on conditions of the Building Permit)</i>	1.	☐ Yes ☐ No
	2.	☐ Yes ☐ No
	3.	☐ Yes ☐ No
	4.	☐ Yes ☐ No
	5.	☐ Yes ☐ No

Tests completed		Evidence attached?
Date and types of tests (provide test certificates) <i>(Only if requested on conditions of the Building Permit)</i>	1.	☐ Yes ☐ No
	2.	☐ Yes ☐ No
	3.	☐ Yes ☐ No
	4.	☐ Yes ☐ No
	5.	☐ Yes ☐ No

Please note:

1. The notice of completion must be given to the relevant permit authority within **SEVEN (7) DAYS** of completion of the work, or the stage of work, for which the permit was granted.
2. Failure to submit this notice of completion attracts a penalty of up to \$10,000.
3. The submission of this notice of completion does not authorise the occupancy of a Class 2 – Class 9 building for which an occupancy permit is required

Liam Yates

From: Eaton Reception Mailbox
Sent: Monday, 14 October 2024 3:25 PM
To: Records
Subject: FW: HD24012 - Signed BA7 Form Notice of Completion - Lot 2009 Giorgi Road, Picton Application 23240255
Attachments: Signed BA7 Form Notice of Completion.pdf

Celeste de Munck
Customer Service Officer - Governance



A: 1 Council Drive | PO Box 7016 | Eaton WA 6232
T: (08) 9724 0000 | **E:** Celeste.deMunck@dardanup.wa.gov.au
W: www.dardanup.wa.gov.au



From: [Redacted]
Sent: Monday, October 14, 2024 3:18 PM
To: Eaton Reception Mailbox <Reception@dardanup.wa.gov.au>; [Redacted]
Cc: adminassistant@jpgroup.com.au; [Redacted] <HarleyDykstra.com.au>
Subject: HD24012 - Signed BA7 Form Notice of Completion - Lot 2009 Giorgi Road, Picton Application 23240255

Some people who received this message don't often get email from [Redacted] [Learn why this is important](#)

⚠ CAUTION: This email originated from outside the Shire of Dardanup.
Do NOT click links or open attachments unless you recognize the sender and know the content is safe. Do NOT enter any username or passwords and report any suspicious content.

Good afternoon,

Regarding Building Application Number 23240255 and Shire of Dardanup Internal reference number A9654, please find attached signed BA7 Form Notice of Completion regarding the demolition now completed at Lot 2009 Giorgi Road in Picton.

Please do not hesitate to contact me if you have any questions.

Thank you,

Kind regards

MY OFFICE DAYS ARE 9AM-3PM MONDAY, TUESDAY & THURSDAY

(08) 9792 6000
 [Redacted]
 www.harleydykstra.com.au

This email and attachments contain confidential information intended solely for the recipient. If received in error, please notify us immediately and delete it. Any use, distribution, or copying of this email is prohibited. The data provided is accurate to our knowledge but we cannot guarantee its accuracy if from another source. Although we employ Anti-Virus Software, we advise testing attachments for viruses before opening them.



#8273

13-78428

Local Government (Miscellaneous Provisions) Act 1960, s. 374
Building Regulations 1989, reg. 10 (2)

BUILDING LICENCE APPLICATION

SHIRE OF
DARDANUP

Property where building to be built	Street Address	No.:	Street name: <u>GIORGI ROAD</u>
	Suburb: <u>PICTON EAST</u>		Postcode: <u>6229</u>
	Lot/Location No.: <u>49</u>		Is lot free of improvements?: <u>yes / no</u>

Property Owner(s) (attach separate page if more than 2)	Name: <u>Australian Renewable Fuels</u>		Phone: <u>9363 3500</u>
	Address: <u>PO Box 837 South Perth WA 6951</u>		
	Name:		Phone:
	Address:		

Details of work (tick box or boxes)	Type of building to be constructed:			
	☐ Single dwelling	☐ Patio	☐ Swimming pool	☐ Warehouse
	☐ Grouped dwelling	☐ Outbuilding	☐ Retaining wall	☐ Office
	☐ Pergola	☐ Factory	☐ Shop	
	☒ Other (specify) <u>Biodiesel facility (Admin building + warehouse)</u>			
	Estimated floor area of building (m ²):			
	Estimated value of construction (including the GST): \$ <u>7,300,000</u>			

Applicant (if applicant is not builder)	Name: <u>\$ 6,636,364 net GST</u>		
	Address:		
	Postal Address:		
	Phone (H):	(W):	(Mob):
	Fax:	Email:	
	Signature:	Date:	

Applicant (if applicant is builder or owner builder)	Name: <u>Leighton Contractors PTY LTD.</u>		
	Address: <u>1 ALTONA STREET West Perth</u>		
	Postal Address: <u>PO Box 1070 West Perth WA</u>		
	Phone (H):	(W): <u>9324 1166</u>	(Mob):
	Fax: <u>9324 6268</u> Email:		
	Applicant's registration number under the Builders' Registration Act 1939:		
	Contact Name:		
	Signature:		Date: <u>1/8/05</u>

OFFICE USE ONLY

Date Received: <u>08 10 05</u>	BUILDING Type of Work: <u>N</u>
Receiving Officer:	Type of Building: <u>10.57</u> Class: <u>8</u>
Information requested at:	Materials: Wall - Ext: <u>mtu</u> Int: <u>-</u>
Lodgement:	Roof: <u>M</u> Floor: <u>C/Fc</u>

DOCUMENTS LODGED	CLERICAL	Fees
3 sets of plans, elevation, sections & site plans	Comment: <u>+ 1316</u>	Total Area <u>2000</u> m ² @
2 sets of specifications	<u>+ 1354</u>	Building Fee <u>\$13,272.73</u>
Septic Tank Application	<u>+ 1356</u>	B.R.B. Levy <u>\$ 34.00</u>
Septic Tank Cheque	<u>+ 1351</u>	Photocopies \$
Owner/Builder Stat. Certificate	<u>+ 1317</u>	Other
Engineer's Certificate	<u>CHANGE OWNERSHIP</u>	B.C.I.T.F. Levy <u>\$13286.00</u>
W.A.W.A. Approval	<u>SW Development</u>	Building Total <u>\$26592.73</u>
W.A.F.B. Approval	<u>License</u>	Building Licence No. <u>2005060</u>
B.C.I.T.F. Form	Ownership Check:	Date Approved <u>06 OCT 2005</u>
Indemnity/Insurance	Termite Treatment:	
Energy Efficiency		

APPROVED: BUILDING SURVEYOR:

Registration Number: 2422 2005
SHIRE OF DARDANUP
Retention/Lodgement
Dept/ Officer:
File Number:

C.D.N.
50619
03

-2%

ASL PRINTERS PTY LTD - 341 9721 1599

Commercial
(North ward)
Picton
Loc 49/SW HWY

3/8/05

ENGINEERS SIGNATURES REQ

COMPLETE DETAILS ON VENTILATION & SLOW

EFFECTIVE SYSTEM APPROVED
Inspected - All OK

[Signature]

13-8-06 Peter Davis received call from [REDACTED]

J. F.E.S.A. said he was concerned with back up plan for water, said they intend pumping water from Dam. But Dam is dry? will do not issue final cert until this item is resolved. *[Signature]*

29.6.06 Sent call to [REDACTED] AIR FORCE -
Bomber

29-6-06 met with [REDACTED] SITE MANAGER - [REDACTED] CONSULTANT

RE FINAL TO RENEWABLE FUELS! DID NOT TOUR AROUND WITH AS ALL WAS CONTAINED IN INTERNAL AD. & ALL WAS AS PER PLAN! ALSO DID NOT HAVE TIME FOR INDUCTION COURSE REQ.

Told him I would issue FINAL CLASSIFICATION CERT when ALL WAS OK WITH F.E.S.A. AS I AM AWARE THEY HAVE A PROBLEM WITH TYPE OF ABOVE GROUND PIPING INSTALLED SEE LETTER DATED 8-6 & 24-3.06
WILL ISSUE CERT ONLY WHEN F.E.S.A. ARE HAPPY WITH FIRE PROTECTION FACILITY?

21/8/06 *[Signature]*
Completed.



Shire of Dardanup

07/10/2005

Leighton Contractors Pty Ltd
PO BOX 1070
WEST PERTH WA 6005

Dear Sir / Madam

RE: BUILDING LICENCE NO: 2005060206
OWNER'S NAME: AUSTRALIAN RENEWABLE FUELS
PROPERTY ADDRESS: LOT SOUTH WEST HWY PICTON EAST

Plans submitted for the above building licence have been processed and are ready for collection from the cashier at front reception, Eaton Administration Centre, 1 Council Drive, Eaton between 8.30am to 4.00pm Monday to Friday.

This letter should be presented when collecting the building licence and conditions of approval.

The following charges apply to this licence:

Building Licence - Residential	\$	0
Building Licence - Industrial	\$	13272.86
Builders Registration Board Levy	\$	34.00
Building Construction Industry Training Fund Levy	\$	13286.00
Total		\$26592.86

You are advised that the licence is not valid until all outstanding fees have been paid. Any work carried out prior to obtaining the building licence is an offence under the Local Government Act.

It is recommended that you read all conditions of approval carefully before commencing work.

Yours faithfully

BUILDING SURVEYOR



Shire of Dardanup

Local Government (Miscellaneous Provisions) Act 1960, s. 374. Building Regulations 1989, reg. 13 (1) (d)

BUILDING LICENCE

LICENCE NO.:	2005060206	DATE:	07/10/2005
PROPERTY WHERE BUILDING TO BE BUILT WARD N STREET SOUTH WEST HWY SUBURB PICTON EAST LOT No. HOUSE No.		OWNER AUSTRALIAN RENEWABLE FUELS ADDRESS PO BOX 1070 WEST PERTH WA 6005 NAME OF APPLICANT LEIGHTON CONTRACTORS PTY LTD ADDRESS PO BOX 1070 WEST PERTH WA 6005 TYPE OF BUILDING BIODIESEL FACILITY BUILDING CLASS CLASS 8 WORK TYPE NEW MATERIALS : WALLS METAL WALL : ROOF METAL : FLOOR CONCRETE EST. VALUE \$7300000	
BLD AREA 2000m ² This is not a valid licence until the prescribed fees are paid. FEES: BUILDING \$ 0 BRB LEVY \$ 34.00 DEMOLITION \$ BCITF LEVY \$ 13286.00 S/TANK APP. \$ 0 TOTAL DUE : \$26592.86		The building work permitted by this licence: - Must be carried out in accordance with the approved plans, drawings and specifications submitted with the application for the Building Licence No. 2005060206; and - Must be carried out in accordance with the conditions set out on the approved plans; and - Subject to the provisions of the Building Code of Australia (as amended); and - If the building work permitted by this Licence is not substantially commenced within 12 months of the date of this Licence, the Licence will become void; and Note: WATER CORPORATION: The plans subject to this Licence are required to be submitted to the Water Corporation before work is commenced. The licensee / builder must produce this licence and the approved plans, drawings and specifications whenever requested by the building surveyor. PRODUCTION OF LICENCE & DRAWINGS: The licensee must produce this licence and the approved plans, drawings and specifications whenever requested by the building surveyor.	
Building Surveyor			



Shire of Dardanup

CONDITIONS OF APPROVAL

Building Licence No. 2005060206
Builder Name: Leighton Contractors Pty Ltd
Lot SOUTH WEST HWY PICTON EAST

1. 24 hours notice of all concrete pours is required.
2. Slab and footings design are approved subject to conformity with the site classification as determined by a structural engineer in accordance with AS 2870 1996.
3. Ground under slab & footings to be prepared in accordance with AS 2870 1996.
4. Building Disclaimer: The attached disclaimer forms a condition of this licence
5. Retaining sand fill sand fill shall be retained to prevent it from encroaching over boundaries and in particular to prevent it from encroaching onto the road reserve or into councils storm water drains and to prevent it causing a nuisance to neighbouring properties. The builder/permit holder shall clean any sand from the road reserve to the satisfaction of council before a final certificate is issued. Where sand enters councils storm water drains, these shall be cleaned by the builder/permit holder or at the builder/permit holders expense.
6. Protection of road reserve damage to kerbs, footpaths, cycleways and roadways is to be repaired by the builder to the satisfaction of the council. It is the builder/permit holders responsibility to notify the shire of dardanup of any damage to kerbs etc prior to commencement of works-patch up repairs will not be accepted.
7. Rubbish Containment: Builder/permit holder is responsible for containment of rubbish on site.
8. Engineering details: All engineering details to be complied with.
9. Completion Certificate: It is the builder/permit holders responsibility to arrange a final inspection with the building department. No person shall occupy this building until a certificate of completion has been issued.
10. Notation in red: All notations marked in red on the approved plans and specifications are to be complied with as well as any conditions on the licence itself.
11. Classification Certificate: No part of this building shall be occupied until a classification certificate has been issued.
12. Final Inspection Required
13. Water Authority: All W.A. water authority conditions to be complied with.
14. Timber or Particle board flooring sub-floor ventilation: Shall have a minimum clearance of 400mm between the natural ground level and the underside of the floor.
15. Planning Approval: All planning approval conditions form part of the conditions of this licence.

Note: As Council has no engineering plans submitted, Council requires a letter from the Site Engineer to state that all works are in accordance with the proposed structure.

Principal Building Surveyor
07/10/2005

**FORM 1. Certificate of Classification**

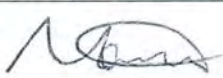
*Local Government (Miscellaneous Provisions) Act 1960, s,374C
Building Regulations 1989, reg 20(1)*

CERTIFICATION OF BUILDING CLASSIFICATION

Local Government:: SHIRE OF DARDANUP

Building	Address	No:	Street Name: GIORGI ROAD
		Suburb: PICTON EAST	Postcode: 6228
	Lot/Location No: LOT 2010 LOCATION CAA 49/3		

Classification	Storey or Portion of Building	Classification(s)
	BIODIESEL FACILITY	CLASS EIGHT (8)
	(All of building)	

Chief Executive Officer	Name: MARK CHESTER
	Signature:  Date: 21 st August 2006

BUILDING AND CONSTRUCTION INDUSTRY TRAINING FUND
AND LEVY COLLECTION ACT 1990

LEVY PAYMENT FORM

(see reverse (i))

479965

As the project owner in respect of construction work, I hereby declare that the following are the particulars of the work to which payment relates:-

Situation: Lot No: 49 House No:
 Street: GIORGIO ROAD
 Suburb/Town: PICTON EAST P/Code: 6229
 Council/City: SHIRE OF DARDANUP

Project Owner (builder's name if applicable) (see reverse (ii)): Leighton Contractors Pty Ltd.

Builders Registration Board No. RB 6047 Tick Box If Owner Builder ☐

Address: PO Box 1070 West Perth WA
 P/Code: 6872

Description of Construction Work (see reverse (iii)): Biodiesel Facility

SECTOR CLASSIFICATION (see reverse (iv))

Tick Appropriate Box

HOUSING ☐ COMMERCIAL ☒ ENGINEERING CONSTR. ☐

PAYMENT OF LEVY (see reverse (v)) (Only payable where estimated value of work exceeds \$20,000)

Expected Date of (A) Commencement: 8 08 2005 (see reverse (vi))
 (B) Completion: 31 01 2006

Value of Construction Work \$ 7,300,000 x 0.182%
 = LEVY PAYABLE (enclose cheque) \$ 13,286 (see reverse (viii))

ADJUSTMENT OF LEVY PAID (see reverse (vii))

Completion date of construction work: 31 01 2006 Previous Levy Form No.

Amount of Variation \$ x 0.182%
 = LEVY PAYABLE (enclose cheque) \$ (see reverse (viii))

Contact Person: [REDACTED] Phone:

Signature: [REDACTED] Date: 1 8 05

(See reverse for procedure when making payment)

BCITF OFFICE USE ONLY

LEVY PAID: \$
 Cheque No.
 Date
 Adjustment/Levy

BUILDING AND CONSTRUCTION INDUSTRY TRAINING FUND AND LEVY COLLECTION ACT 1990

- (i) THIS FORM IS TO BE USED FOR INITIAL LEVY PAYMENT AND FOR ADJUSTMENTS WHERE AN ADDITIONAL LEVY IS PAYABLE
- (ii) "Project owner" in respect of any construction work means -
- (a) the person who is required to hold a building licence in respect of that construction work;
 - (b) where the construction work is carried out by the State, or an agent or instrumentality of the State, the person or organisation designated in writing by the Minister to be the project owner or, if the State or an agent or instrumentality of the State has engaged another person or body, other than as an employee, to carry out or cause to be carried out all of the construction work, the person or body so engaged; or
 - (c) where paragraphs (a) and (b) do not apply -
 - (i) the person or body for whose direct benefit construction work exists upon its completion; or
 - (ii) if the person or body referred to in subparagraph (i) has engaged another person or body, other than as an employee, to carry out or cause to be carried out all of the construction work, the person or body so engaged.
- (iii) "Construction work" means all of the work carried out in the State (or as referred to in Section 5 of the BCITF Act 1990) -
- (a) that is included in the definition of "construction industry" in the *Construction Industry Portable Paid Long Service Leave Act 1985*; or
 - (b) that comes within the description of work in section 374 or 374A of the *Local Government Act 1960*, but does not include any work that is prescribed as excluded from this definition.
- (iv) "Sectors", in relation to the building and construction industry, means the following sectors of that industry -
- (a) the housing sector;
 - (b) the commercial sector;
 - (c) the engineering construction sector; and

For further details refer to Fund brochure.

- (v) Payment of Levy (where estimated cost of building or construction work exceeds \$20,000)
- Every project owner shall -
- (a) before commencing any construction work for which a building licence is required, pay to a collection agency or the Board, the levy in respect of that construction work based on the value of the construction work estimated (local government is required to sight evidence that the levy has been paid prior to issue of the building licence);
 - (b) before commencing any construction work for which a building licence is not required -
 - (i) notify the Board of the construction work and the value of the construction work estimated; and
 - (ii) pay to the Board the levy in respect of that construction work based on the value of that work as notified to the Board; and
 - (c) where, on the completion of construction work, the value of the construction work varies by an additional amount of \$25,000 or more (after adjustment has been made for inflation) from the value of that work as estimated for the purposes of paragraph (a) or (b), notify the Board of that variation.
- (vi) Construction work shall be regarded as commencing -
- (a) where construction work commences on site [refer local government requirement as per (v)(a)].
 - (b) if paragraph (a) does not apply -
 - (i) where the construction work is to be carried out under a contract executed before the Act comes into operation; and
 - (ii) the project owner, after this Act comes into operation, engages another person or body, other than as an employee, to carry out or cause to be carried out any part or stage of that work,
 when any of the construction work that the person or body is engaged to carry out or cause to be carried out commences on site.
 - (c) If paragraph (a), or (b) does not apply, when the construction work is commenced on site.
- Notwithstanding the above, a levy is not payable in relation to construction work for which a building licence had been issued before this Act came into operation.

Penalty for late payment

Where construction work is commenced before the project owner has paid the levy due in respect of that work, the project owner is liable to pay to the Board, by way of penalty, an amount calculated from the time the construction work commenced at a prescribed rate per annum on the unpaid levy.

- (vii) Adjustment of amount paid after completion of construction work (where variation increases the value of construction work)
- Where on the completion of construction work the Board is satisfied that the value of construction work varies by \$25,000 or more (after adjustment has been made for inflation) from the value of that work as estimated for the purposes of (vi) above, the project owner shall pay to the Board or to a collection agency, an amount equal to the extra amount that would have been payable if the estimated value of the construction work had been the actual value of that work, where the value of the construction work was under estimated.
- (Where variation reduces the value of construction work or the work is cancelled, Refund Claim Form (Form 2) is available)

(viii) LEVY CALCULATION FROM 1 FEBRUARY 2001

Note: Only payable on amounts exceeding \$20,000

- The new levy rate of 0.182% applies to construction commencing *on or after* the 1 February 2001 where the levy payment is paid *on or after* this date.
- Where a project commenced prior to the 1 February 2001 the levy rate remains at 0.2%.

PAYMENTS MAY BE MADE TO: (Provide all three copies when making payment)

- Local Government Offices
- Building and Construction Industry Training Fund
P.O. Box 746
WEMBLEY WA 6913
Phone: (08) 9381 3900 Fax: (08) 9388 8902

STREET ADDRESS

- 1st Floor
The Business Centre (Home Base)
55 Salvado Road
Subiaco Wa 6008



Shire of Dardanup

1 Council Drive, Eaton WA 6232
Phone: 97240095 Fax 97240092

Authority to Collect Building Licence And Accept Council Conditions of Issue

The Building Surveyor of the Shire of Dardanup

I, [REDACTED] Registered Building No. [REDACTED]
of [REDACTED]

Phone: [REDACTED] being the registered managing
and supervising builder of works constructed by:

Leighton Contractors Registered No. RB 6047
(Name of Company or Partnership)

of 1 Altona street West Perth

hereby authorise [REDACTED]

private address [REDACTED]

to collect the building licence and sign any Council conditions of issue
on my behalf regarding the proposed:

Biodiesel facility

to be erected at Lot No: 49 Street Name: GIORGI Road Picton

Signature [REDACTED] son

[REDACTED]
Registered Builder's Signature



SPECIFICATION
FOR THE
DESIGN, SUPPLY, MANUFACTURE AND
INSTALLATION
OF THE
ADMINISTRATION BUILDING
FOR
LEIGHTON CONTRACTORS
BIODIESEL FACILITY PICTON

SHIRE OF DARDANUP
THESE PLANS MUST BE REFERRED TO
THE WA FIRE BRIGADES BOARD FOR
THEIR INSPECTION AND COMMENTS.
Building Inspector: *[Signature]*

REVISION 1

DARDANUP SHIRE COUNCIL
APPROVED
SUBJECT TO COMPLIANCE WITH
BUILDING, HEALTH AND
TOWN PLANNING REGULATIONS
06 OCT 2005 2005060-206-
DATE: *[Signature]* LICENCE No. *[Signature]*
BUILDING SURVEYOR



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1. SCOPE OF WORK

The scope of work comprises the design, supply, manufacture, fabrication, surface treatment, packaging, transport and installation on site of the transportable building listed below, complete with air conditioners, fixtures, fittings and some basic furniture.

This specification does not detail every building element, however the scope includes all those elements and quality finishes normally provided for buildings of the type specified for use on mine sites.

1.1 Work Included

The work includes the supply and installation (unless noted otherwise) of the following building in accordance with drawing P-220-DA-001:

One 21.585 m x 8.45 m office building with concrete floors and gyprock internal lining, fully insulated, open office space, reverse cycle air conditioning, floor coverings, electrical and communications services, hot/cold and waste water services; plus a lunch room complete with water boiler, refrigerator and sink cupboard as shown on drawing P-220-DA-001.

Specifically the facility is to be designed to accommodate:

- 1 enclosed office (Manager);
- 4 open plan work stations;
- 1 conference room;
- Cleaners' store room;
- Reception area;
- IT communications room (Server Room);
- Stationary store room;
- Lunch room / canteen.
- Laboratory.
- Unisex Disabled Toilet.
- Unisex shower / locker room.
- Male & Female Toilets.
- First Aid Room.
- Control Room.

1.2 Temporary Facilities

The Contractor shall supply its own temporary facilities on Site, including office and crib rooms. Client will supply ablution facilities, potable water, power and sewerage disposal points to within 10 m from allocated compound location. Contractor shall arrange for its own transport, permits, tools, construction equipment, accommodation and messing requirements.



1.3 Work Excluded

The scope of work excludes the supply of the following:

1. Earthworks, concrete paths and paved areas.
2. Office furniture and equipment except where specifically called for.
3. Bench-top appliances.
4. Sewage disposal systems.
5. Connection to external services.

2. DESIGN REQUIREMENTS

2.1 General

Refer to Section 4 as a guide to the required standards of construction and quality of finishes. The methods of construction and the detail specifications are not mandatory. Unless otherwise noted, the buildings will have a steel chassis.

The building units may not be manufactured from sandwich panels or timber studwork. Materials and finishes must be capable of withstanding sustained use over a life in excess of 15 years.

The building shall be designed as permanent structure and suitable for its intended use at the project site. It shall also be designed in accordance with the latest editions of the relevant Australian Standards, the local and state government regulations and shall be manufactured from new materials of acceptable quality.

2.2 Fixtures, Fittings and Services

The building shall be supplied as complete operating unit with electrical services terminating at a junction box fitted with circuit breakers and pipe services projecting through the wall or floor in a location suitable for easy connection on site.

The following specific requirements shall apply to the design and supply of fixtures and fittings:

- Air conditioners shall be sized to suit the room and the activities of the occupants (where specified);
- 2 x 40mm PVC conduits shall be installed in the wall cavity in each room with a skirting duct from ceiling cavity to skirting duct.
- All telecom/data sockets shall be left unwired.
- Windows shall be fitted with insect screens;
- External office windows shall be fitted with vertical blinds for glare reduction;



PROJECT: BIODIESEL FACILITY PICTON

- External doors shall be in accordance with Section 4.2 and shall be fitted with glass inserts and robust industrial quality closers;
- Door locks shall be keyed alike as part of the plant-wide master key system;
- Floor coverings shall be vinyl, with welded joints and coved skirtings in wet areas (300mm coving), or industrial heavy duty carpet as specified,
- One emergency fluorescent light with battery backup shall be installed in all rooms used for routine operations;
- The laboratory sink shall be fabricated from polypropylene with two 450 x 450 x 350 mm deep central bowls and drainers on both sides;
- The laboratory benches and under bench shelves shall be acid resistant melamine finish, supported on steel frames. Tops and shelves shall be capable of supporting a 150kg point load without significant deflection.
- 150L electric water heater tank to be installed to provide hot water to canteen, unisex disabled toilet, shower / change / locker room, male toilet, female toilet, first aid room and laboratory.

With exception to what is specifically mentioned, the placement and number of fixtures and fittings are suggestions only – costs should include the necessary number and placement of fixtures and fittings.

3. DESIGN CRITERIA

3.1 Climate Conditions

Ambient temperatures:

Refer to Bureau of Meteorology Website (<http://www.bom.gov.au/>) for yearly maximum, minimum and average temperature extremes.

As a guide, the following indicative temperatures are provided:

Yearly Averages - Summer: 42°C maximum; 4°C minimum
Winter: 20°C maximum; 0.3°C minimum

Design Extremes - 50°C maximum; -3°C minimum.

4. STANDARDS AND CODES

4.1 General

All works shall conform to the requirements of the current and applicable Australian standards. Alternatively, where no Australian standard exists, work shall conform to the most current and applicable British Standards.



4.2 Specification

4.2.1 Scope

This Specification covers the design, manufacture and supply of transportable type buildings.

4.2.2 Reference Codes and Standards

AS 3000-2000
AS/ACIF S009, 2001

4.2.3 Details Requirements - Concrete Floor

Floor:	Precast concrete to design requirements	
Floor Covering	Non-Slip Vinyl	- wet area
	Vinyl/Carpet	- dry area (as specified)
Walls:	Frame	- Tenderer to advise.
External Cladding	Colorbond 0.42 mm sheeting (Olive Green T.B.C.).	
Internal Lining	Wet areas: Tenderer to advise.	
	Dry areas: Tenderer to advise.	
Insulation	Tenderer to advise.	
Roof:	Ceiling Lining - Tenderer to advise.	
Cladding	0.47 galvanised zincalume sheeting or 0.47 Colorbond Trimdek or equivalent as nominated.	
	Insulation - Tenderer to advise.	
Doors:	Hinged	Internal: 2040 mm x 820 mm prefinished hollow core with painted steel frames.
		External: 2000 mm x 800 mm face seal type Colorbond face and frame.
Sliding	Lockable glass with sliding lockable security screen.	
Windows:	Powder coated aluminium frames and trims, obscure glazing and permanent venting to ablution area windows.	
Electrical:	As per AS3000 – 2000	



PROJECT: BIODIESEL FACILITY PICTON

Plumbing: Water piping to be copper.

PVC waste pipes: 40 mm hand basins
50 mm for showers
100 mm for main soil waste

5. DRAWINGS

The following drawings are applicable:

P-220-DA-001 Administration Offices



RFQ-PICT-ADMIN Administration Building

PROJECT: BIODIESEL FACILITY PICTON

APPENDIX 1. SCHEDULE OF FIXTURES AND FITTINGS

Room	No of Dbl GPOS	No of RJ45 sockets (Telecom /Data)	Skirting Duct (3 tier)	Floor Covering	R/C Air Con	Furniture & Equipment
Reception	2	2	Y	Industrial heavy duty carpet	Y	None
Conference Room	2	2	Y	Industrial heavy duty carpet	Y	"Conference Room" door sign on both doors.
Stationary Store	-	-	N	Vinyl	N	"Stationary Store" door sign
Manager Room	2	2	Y	Industrial heavy duty carpet	Y	None
General Office Space	4	4	Y	Vinyl	Y	None
Open Office (adjacent to Manager)	2	2	Y	Vinyl	Y	None
Server Room	4	2	Y	Vinyl	Y	Additional R/C Air Conditioning to be provided in the Server Room. "Server Room" door sign.
Canteen	3	-	N	Vinyl	Y	Bench top c/w cabinet doors, shelf, sink, lazer urn, bar fridge "Canteen" door sign
Laboratory	4	2	Y	Non-slip vinyl (incl floor drain)	Y	Benches as shown on dwg and specified in Clause 2.2, skirting duct to be installed at bench level. "Laboratory" door sign
Unisex Disabled Facility	1	-	N	Non-slip vinyl (incl floor drain)	N	Lockable toilet cubicle c/w toilet bowl, toilet paper holder, clothes/hat hook on door, hand basin vanity c/w hot/cold taps and mirror above. All compliant with disabled access standards. "Unisex Disabled Facility" door sign

RFQ-PICT-ADMIN Administration Building



PROJECT: BIODIESEL FACILITY PICTON

Room	No of Dbl GPOs	No of RJ45 sockets (Telecom /Data)	Skirting Duct (3 tier)	Floor Covering	R/C Air Con	Furniture & Equipment
Shower/Change/Locker Room	1	-	N	Non-slip vinyl (incl floor drain)	N	Shower with lockable door c/w bench, towel hooks, shower curtain, soap holder and extractor fan. Hand basin vanity c/w hot/cold taps and mirror above. 10 full height lockers c/w bench. "Shower/Change/Locker Room" door sign
Male Toilet	-	-	N	Non-slip vinyl (incl floor drain)	N	Lockable toilet cubicle c/w toilet bowl, toilet paper holder, clothes/hat hook on door. Wall mounted single urinal. Hand basin vanity c/w hot/cold taps and mirror above. "Male Toilet" door sign
Female Toilet	-	-	N	Non-slip vinyl (incl floor drain)	N	Lockable toilet cubicle c/w toilet bowl, toilet paper holder, clothes/hat hook on door, hand basin vanity c/w hot/cold taps and mirror above. "Female Toilet" door sign
Store Room	-	-	N	Vinyl	N	400mm deep 370mm high fixed shelves full height along 3 walls.
Control Room	6	3	Y	Vinyl	Y	Bench as shown on drawing on 3 sides of room, to include 5 gromits evenly spaced. Fixed shelves at 370mm spacing full height of room. Skirting duct at floor level.
First Aid Room	1	1	Y	Vinyl	Y	Hand basin c/w hot/cold taps in vanity unit with shelf below and mirror above basin.

proteus

ENGINEERS

DARDANUP SHIRE COUNCIL
APPROVED

SUBJECT TO COMPLIANCE WITH
BUILDING, HEALTH AND
TOWN PLANNING REGULATIONS

06 OCT 2005

DATE

LICENCE No.

BUILDING SURVEYOR

2005060 206--

01-Sep-2005

Our Ref: 04332-L-001

Shire of Dardinup
1 Council Drive
Eaton WA 6232

Att: Peter Black

SHIRE OF DARDANUP

THESE PLANS MUST BE REFERRED TO
THE WA FIRE BRIGADES BOARD FOR
THEIR INSPECTION AND COMMENTS.

Building Inspector:

Dear Sir

RE: PICTON BIODIESEL FACILITY
Building Approval
Fire Protection Design

Fire protection on the site will be designed in accordance with AS1940-2004, Storage and Handling of Flammable and Combustible Liquids.

In summary fire protection will be provided in accordance with Section 11 of AS1940 and specifically for above ground tanks with aggregate capacity greater than 2000 m³, Clause 11.13.

Outcomes of applying the standard are summarised as;

- 1) Semi-fixed foam systems for the Methanol and Potassium Methoxide Storage tanks.
- 2) Fire hydrant ring main system with capacity to provide cooling water to heat effected tanks in the event of a fire plus provide water to the semi-fixed foam system and run three of the most hydraulically disadvantaged hydrants simultaneously.
- 3) Fire extinguishers and signage will be provided.

A fire service vendor will be engaged to provide ancillary items required by the standard including fire extinguishers, signage, foam mixing unit, foam, hoses, nozzles and cabinets if required.

Hope this is sufficient to allow approval to proceed.

Yours faithfully
PROTEUS ENGINEERS

LEAD MECHANICAL ENGINEER
DBS/RMS/RMS

PERTH

T: (61 8) 9481 3200
F: (61 8) 9481 2249

370 Murray Street
Perth WA 6000

PO Box 7537
Cloisters Square WA 6850

BUNBURY

T: (61 8) 9792 5633
F: (61 8) 9792 5644

19 Stirling Street
Bunbury WA 6230

PO Box 1045
Bunbury WA 6231

KALGOORLIE

T: (61 8) 9021 6555
F: (61 8) 9021 3722

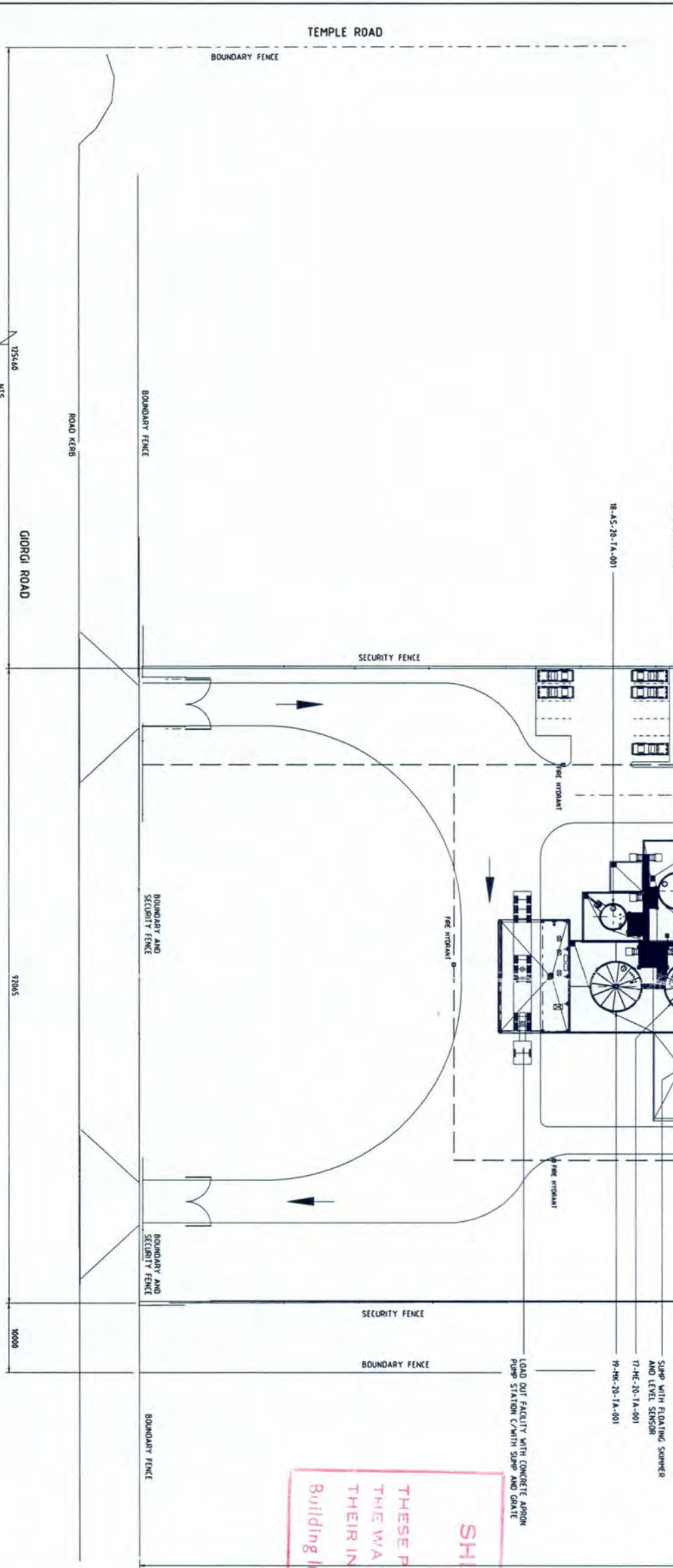
45 Brookman Street
Kalgoorlie WA 6430

W: www.proteuseng.com.au
E: proteus@proteuseng.com.au

Proteus Consultants Pty Ltd
ABN 75 731 449 224

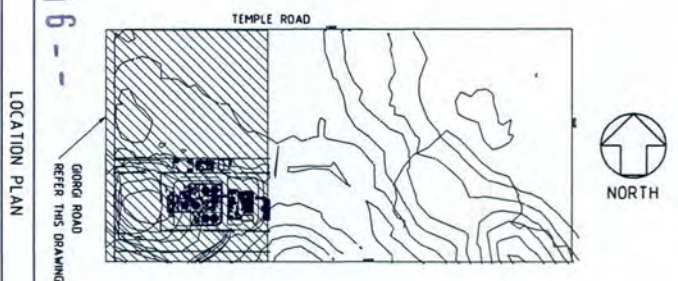
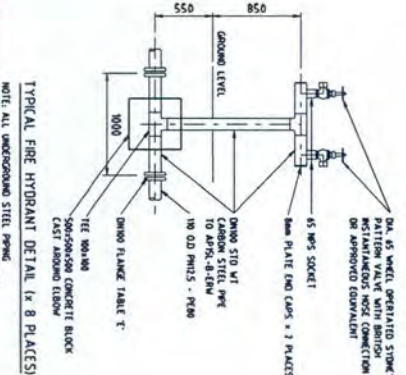


ITEM NUMBER	DESCRIPTION	DIMENSIONS
12-00-00-1A-001	TALLOW DAY TANK 27m³	7000 Ø x 66% HIGH
12-00-00-1A-002	TALLOW DAY TANK 27m³	7000 Ø x 66% HIGH
12-00-00-1A-003	SULPHURIC ACID TANK 33m³	3500 Ø x 319 HIGH
12-00-00-1A-004	POTASSIUM METHOXIDE STORAGE TANK 235m³	7000 Ø x 66% HIGH
12-00-00-1A-005	METHANOL STORAGE TANK 235m³	7000 Ø x 66% HIGH
12-00-00-1A-006	BIOFUEL DAY TANK 57m³	4250 Ø x 42% HIGH
12-00-00-1A-007	BIOFUEL DAY TANK 57m³	4250 Ø x 42% HIGH
12-00-00-1A-008	BIOFUEL DAY TANK 57m³	4250 Ø x 42% HIGH
12-00-00-1A-009	BIOFUEL DAY TANK 57m³	4250 Ø x 42% HIGH
12-00-00-1A-010	BIOFUEL DAY TANK 57m³	4250 Ø x 42% HIGH
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12-00-00-1A-030	BIOFUEL DAY TANK 57m³	4250 Ø x 42% HIGH
12-00-00-1A-031	BIOFUEL DAY TANK 57m³	4250 Ø x 42% HIGH
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12-00-00-1A-090	BIOFUEL DAY TANK 57m³	4250 Ø x 42% HIGH
12-00-00-1A-091	BIOFUEL DAY TANK 57m³	4250 Ø x 42% HIGH
12-00-00-1A-092	BIOFUEL DAY TANK 57m³	4250 Ø x 42% HIGH
12-00-00-1A-093	BIOFUEL DAY TANK 57m³	4250 Ø x 42% HIGH
12-00-00-1A-094	BIOFUEL DAY TANK 57m³	4250 Ø x 42% HIGH
12-00-00-1A-095	BIOFUEL DAY TANK 57m³	4250 Ø x 42% HIGH
12-00-00-1A-096	BIOFUEL DAY TANK 57m³	4250 Ø x 42% HIGH
12-00-00-1A-097	BIOFUEL DAY TANK 57m³	4250 Ø x 42% HIGH
12-00-00-1A-098	BIOFUEL DAY TANK 57m³	4250 Ø x 42% HIGH
12-00-00-1A-099	BIOFUEL DAY TANK 57m³	4250 Ø x 42% HIGH
12-00-00-1A-100	BIOFUEL DAY TANK 57m³	4250 Ø x 42% HIGH



DARDANUP SHIRE COUNCIL
APPROVED
SUBJECT TO COMPLIANCE WITH
BUILDING, HEALTH AND
TOWN PLANNING REGULATIONS
DATE: 20 OCT 2005
LICENCE: 2005 5 0 6 0
BUILDING SURVEYOR

SHIRE OF DARDANUP
THESE PLANS MUST BE REFERRED TO
THE W.A. FIRE BRIGADES BOARD FOR
THEIR INSPECTION AND COMMENTS.
Building Inspector: *[Signature]*



PROTEUS engineers

consulting engineers - project managers

ph (08) 9481 3200 • fax (08) 9481 224-9

email proteus@proteuseng.com.au

100 Years of Excellence

artuels

AUSTRALIAN RENEWABLE FUELS LIMITED

PROTEUS DRG No. 04332-DM-001

PICOTON BIOFUEL PLANT

PROPOSED SITE PLAN

SCALE 1:250

A0

P-220-DM-001

L

Leighton Contractors Pty Limited

1 Leighton Street

P.O. Box 979, Leighton, WA 6117

6111 988 911 447

6111 988 911 447

6111 988 911 447

PROTEUS DRG No. 04332-DM-001

PICOTON BIOFUEL PLANT

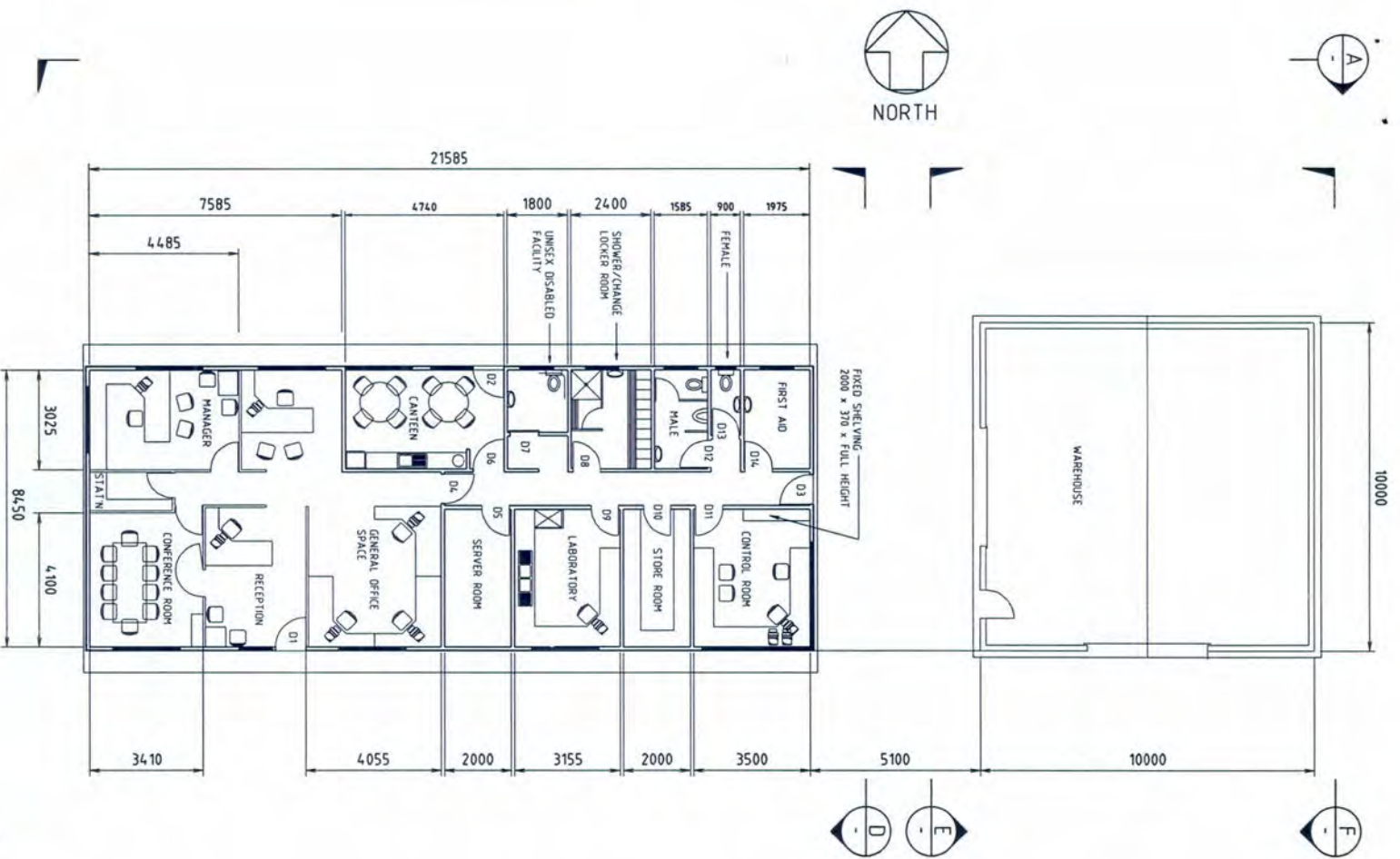
PROPOSED SITE PLAN

SCALE 1:250

A0

P-220-DM-001

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PLAN - ADMINISTRATION, LABORATORY AND WAREHOUSE/WORKSHOP

No	REV	BY	DATE	DESCRIPTION	CHK'D	APP'D
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CLIENT
Leighton Contractors Pty Limited
1. Alison Street
PO Box 8078
West Perth WA 6002
Australia
ABN: 600 801 427
Tel: (08) 9212 1066
Fax: (08) 9212 2429

proteus engineers
consulting engineers • project managers
ph (08) 9481 3200 • fax (08) 9481 2249
email: proteus@proteuseng.com.au
This drawing and its use is restricted to the project for which it was prepared. Any other use without the written approval of PROTEUS ENGINEERS is prohibited.
Proteus Engineering Pty Ltd ABN 60 177 437 Proteus 2007 Year ending 31 March 2008

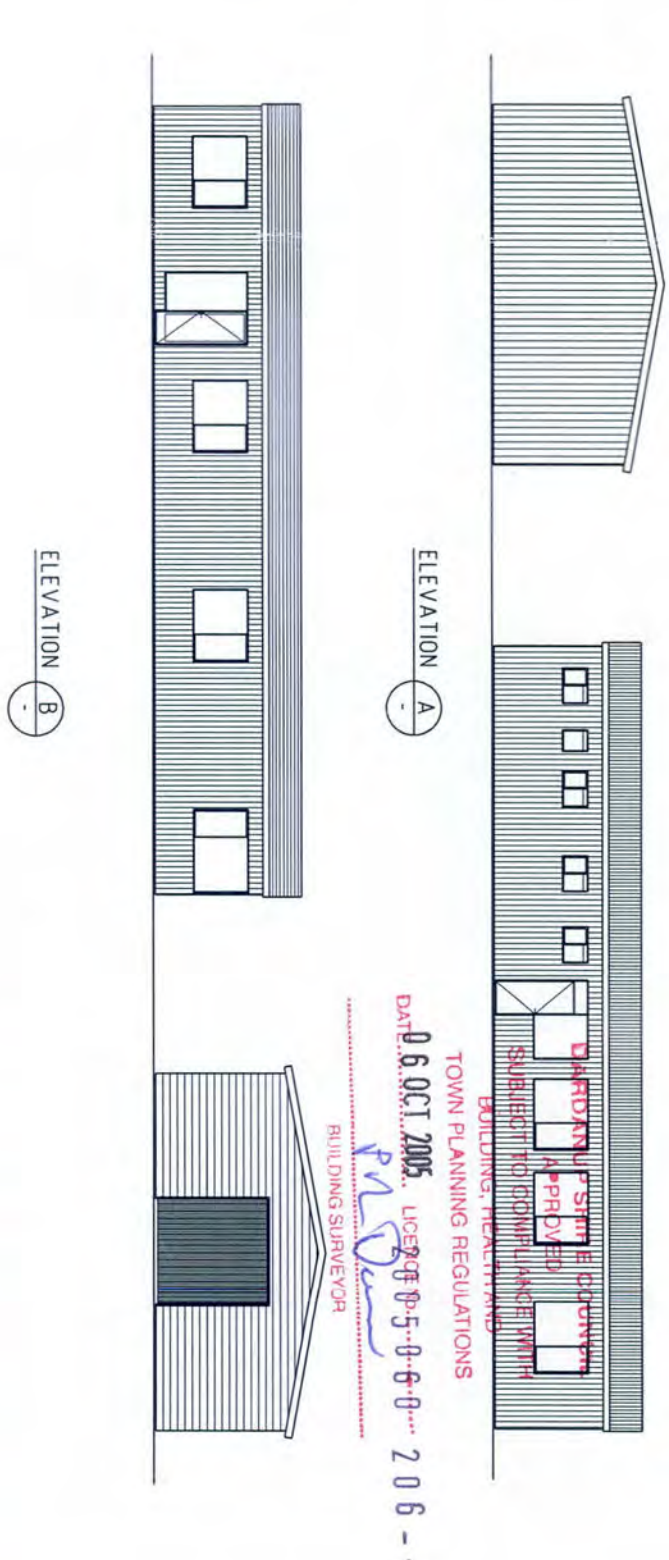
DRWING	BY	DATE
AB	AB	22.12.04
CHK'D		
DESIGN	JWS	22.12.04
CHK'D		
APP'D		

TITLE	SCALE	DRG. No.	REV.
PICTON BIODESEL PLANT ARCHITECTURAL BUILDING ARRANGEMENT	1:100	A1	P-220-DA-001
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artuels
AUSTRALIAN RENEWABLE
FUELS LIMITED
PROTEUS DRG No. 04332-DA-001

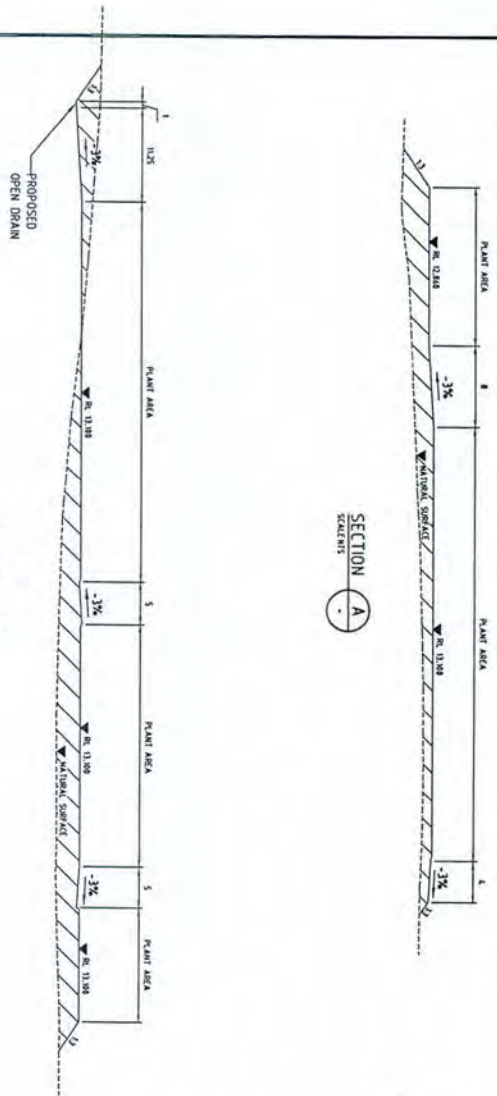
CLIENT APPROVAL
BY: _____ DATE: _____
Valid only when signed

SHIRE OF DARDANUP
THESE PLANS MUST BE REFERRED TO
THE WA FIRE BRIGADES BOARD FOR
THEIR INSPECTION AND COMMENTS.
Building Inspector: *MD*



SECTION A

SCALE 1:100



SECTION B

SCALE 1:100

POINT NO.	EASTING (m)	NORTHING (m)
P1	379938.522	6310255.784
P2	379942.420	6310260.877
P3	379981.854	6310261.240
P4	379985.393	6310257.791
P5	379985.720	6310226.278
P6	379978.299	6310218.700
P7	379938.902	6310219.287
P8	379938.902	6310219.287
P9	379938.902	6310219.287
P10	379938.902	6310219.287
P11	379938.902	6310219.287
P12	379938.902	6310219.287
P13	379938.902	6310219.287
P14	379938.902	6310219.287
P15	379938.902	6310219.287
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P18	379938.902	6310219.287
P19	379938.902	6310219.287
P20	379938.902	6310219.287
P21	379938.902	6310219.287
P22	379938.902	6310219.287
P23	379938.902	6310219.287
P24	379938.902	6310219.287

NOTE
ALL TREES TO BE
PROTECTED WHERE
POSSIBLE

NOTE
THE CONTRACTOR TO LAISE WITH THE
SUPERINTENDENT FOR AREAS WHERE
FILL CAN BE REMOVED FOR USE WITHIN
THIS EARTHWORKS AREA.
FILL MUST BE PLACED IN LAYERS OF
NO MORE THAN 300mm THICK AND
COMPACTED TO MINIMUM OF 95% MDD.

NOTE
CONTOURS IN ROAD AREAS
SHOWN ARE TOP OF
PAVEMENT LEVEL

NOTE: ALL DIMENSIONS SHOWN ON THIS DRAWING SHALL BE VIEWED BY CONTRACTOR
AND SHALL BE RESPONSIBLE FOR ANY DISCREPANCIES TO BE REPORTED TO THE
DESIGNER IMMEDIATELY.

PHG1.T-0.2
GORGIA ROAD

PPB1
PPB1.T-2.0

PHG1

PROTEUS DRG No. 04332-DC-001

artuels
AUSTRALIAN RENEWABLE
FUELS LIMITED

PICCON BIOREFINERY PLANT
BUCK EARTHWORKS PLAN

proteus engineers
Consulting Engineers & Project Managers
Ph (08) 9481 3700 - fax (08) 9481 3249
Email: proteus@proteus-engineers.com.au
The Proteus Group is a registered company in Australia
and is a member of the Australian Engineering Council
and the Australian Institute of Professional Engineers

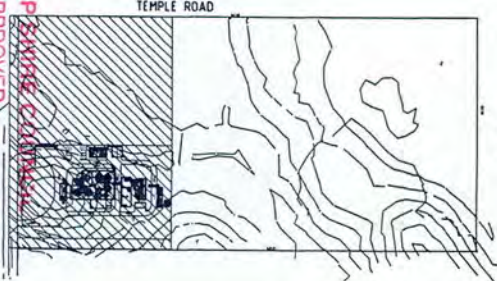
Leighton Contractors
Pty Limited
1 Leighton Drive
Port Hedland WA 6523
Australia
T 08 9481 3700
F 08 9481 3249

REV	BY	DATE	DESCRIPTION	CHKD	APPD
1	AM	20/01/2006	ISSUED FOR CONSTRUCTION	AM	2P
2	AM	20/01/2006	PRELIMINARY REVIEW	AM	2P
3	AM	20/01/2006	ISSUED FOR CONSTRUCTION	AM	2P

UNIONBROS 04332 GORGIA T-210-DC-001.dwg
5/13/08 AM 17/08/2005

DATE: 6 OCT 2006
LICENCE NO: 206

DARDANUP ENGINEERING
APPROVED
SUBJECT TO COMPLIANCE WITH THE
BUILDING, HEALTH AND
TOWN PLANNING ACT 1993



NOTES:
1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL COUNCIL AND THE STATE GOVERNMENT.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL COUNCIL AND THE STATE GOVERNMENT.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL COUNCIL AND THE STATE GOVERNMENT.
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11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL COUNCIL AND THE STATE GOVERNMENT.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL COUNCIL AND THE STATE GOVERNMENT.

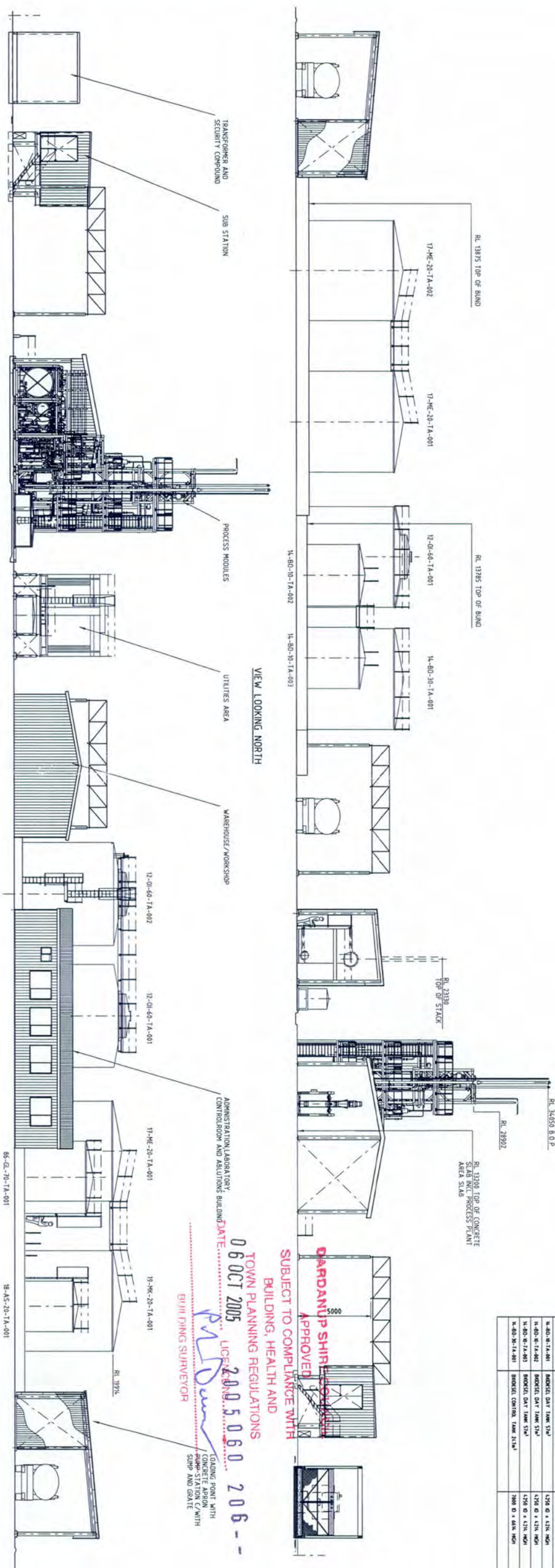
SHIRE OF DARDANUP
THESE PLANS MUST BE REFERRED TO
THE WA FIRE BRIGADES BOARD FOR
THEIR INSPECTION AND COMMENTS.
Building Inspector: *[Signature]*

SCALE 1:250

A0

P-220-DC-001

0

[illegible]

SUBJECT TO COMPLIANCE WITH
BUILDING, HEALTH AND
TOWN PLANNING REGULATIONS
06 OCT 2005
LICENCE NO. 2005060 206--
DATE

P. D. D.

LOADING POINT WITH
PUMP STATION & WITH
SUMP AND GRATE

QUALITY SUPERVISOR

SHIRE OF GLENELG

1. TOP OF SAND WALLS :
a) ALL TIE RODS AND ROCKETED SAND WALLS WITHIN 1.5M AND 2.0M SAND WALLS
b) ALL TIES (1200MM)

2. SANDWICH OF GUTTING, REINFORCED, AND POLYSTYRENE REINFORCED SAND WALLS
a) SANDWICH OF GUTTING, REINFORCED, AND POLYSTYRENE REINFORCED SAND WALLS
b) REINFORCED SAND WALLS WITHIN 1.5M AND 2.0M SAND WALLS
c) REINFORCED SAND WALLS

3. INDICATE LEVEL OF SANDS MODE OF ALL SAND WALLS @ R. 12000 T.O.L.

THESE PLANS MUST BE REFERRED TO
THE WA FIRE BRIGADES BOARD FOR
THEIR INSPECTION AND COMMENTS.

Building Inspector: *PA Deane*

NOTE :
CONCRETE LEVELS:



artuels
AUSTRALIAN RENEWABLE
FUELS LIMITED

PROTEUS DRG No. 04332-DM-002

TITLE
PICTON BIODIESEL PLANT
PROPOSED SITE ELEVATIONS

SCALE	DWG. NO.	REV.
1:100	P-220-DM-002	B
A0		

[illegible]

LEIGHTON



Leighton Contractors
Pty Limited

1 Alton Street
PO Box 4810
West Perth WA 6872
Australia

A.B.N. 006 811 647
Tel. (08) 9321 1066
Fax. (08) 9481 2156

proteus engineers
consulting engineers • project managers
ph (08) 9481 3200 • fax (08) 9481 2249
email proteus@proteuseng.com.au

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TITLE		P-220-DM-002	
PIONIC BIODESEL PLANT PROPOSED SITE ELEVATIONS		REV B	
DATE	BY	SCALE	1:100
2/12/24	AB	A0	
DATE	BY		
2/12/24	JMS		
DATE	BY		
	AMG		

9654

10-56964

Local Government (Miscellaneous Provisions) Act 1960, s. 374
Building Regulations 1989, reg. 10 (2)

BUILDING LICENCE APPLICATION

SHIRE OF
DARDANUP

Property where building to be built	Street Address	No.:	Street name:
	Suburb:		Postcode:
	Lot/Location No.:		Is lot free of improvements?:

Property Owner(s) (attach separate page if more than 2)	Name:		Phone:
	Address:		
	Name:		Phone:
	Address:		

Non Disclosure ☐ Tick Box

Details of work (tick box or boxes)	Type of building to be constructed:			
	☐ Single dwelling	☐ Patio	☐ Swimming pool	☐ Warehouse
	☐ Grouped dwelling	☐ Outbuilding	☐ Retaining wall	☐ Office
	☐ Pergola	☒ Factory	☐ Shop	☐ Shed
	☐ Other (specify)	☐ Garage	☐ Carport	
	Estimated floor area of building (m²):			
	Estimated value of construction (including the GST): \$			

Applicant (if applicant is not builder)	Name:		
	Address:		
	Postal Address:		
	Phone (H):	(W):	(Mob):
	Fax:	Email:	
	Signature:	Date:	

Applicant (if applicant is builder or owner builder) Area 10.0129. General Farming	Name:		
	Address:		
	Postal Address:		
	Phone (H):	(W):	(Mob):
	Fax:	Email:	
	Applicant's registration number under the Builders' Registration Act 1939:		
	Contact Name:		
	Signature:		
	Date:		

OFFICE USE ONLY	
Date Received	BUILDING Type of Work:
Receiving Officer	Type of Building:
Information requested at	Materials: Wall - Ext: Int:
Lodgement	Roof Frame: Roof Cover:
	Floor:

DOCUMENTS LODGED	CLERICAL	Fees
2 sets of plans, elevation, sections & site plans	Comment:	Total Area
2 sets of specifications		Building Fee
Septic Tank Application		B.R.B. Levy
Septic Tank Cheque		Photocopies
Owner/Builder Stat. Certificate		Other
Engineer's Certificate		B.C.I.T.F. Levy
Water Corp. Approval		Building Total
F.E.S.A. Report		Building Licence No.
B.C.I.T.F. Form		Date Approved
Indemnity/Insurance		
Energy Efficiency		

APPROVED: BUILDING SURVEYOR:

C.DND
50619
01

2% INDUSTRIAL

2009100284---

Asst. Manager - Tel 9721 1599

FACTORY
Giorgi Rd, Pictou

05 JAN 2010

OK with planning -

Contacted

[REDACTED]

"Builder" will come in to

see me ASAP. when he gets back from

BCITF where I EXIT SIGNS

holders -

R- fire hose reels - exit signs -

11-1-10. Builder came in to see me.

Told him I req exit signs above 2 personal doors

& 2 fire hose reels within 3 mtrs of exit doors.

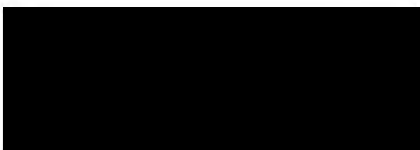
he agreed. will put on plans in red.

29-4-10 - FINAL OK - ISSUE CERTIFICATE OF CLASSIFICATION



Shire of Dardanup

12/01/2010



Dear Sir / Madam

BUILDING LICENCE NO: 2009100284
OWNER'S NAME: GIORGI 2009 PTY LTD
PROPERTY ADDRESS: LOT 2009 GIORGI ROAD PICTON

Plans submitted for the above building licence have been processed and are ready for collection from the cashier at front reception, Eaton Administration Centre, 1 Council Drive, Eaton between 8.30am to 4.00pm Monday to Friday.

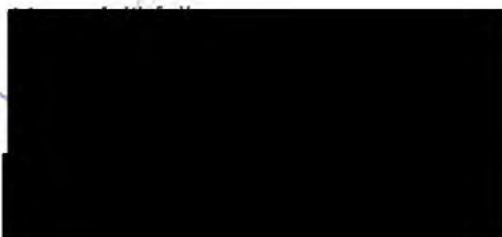
This letter should be presented when collecting the building licence and conditions of approval.

The following charges apply to this licence:

Building Licence - Residential	\$	0
Building Licence - Industrial	\$	390.91
Builders Registration Board Levy	\$	40.00
Building Construction Industry Training Fund Levy	\$	430.00
Demolition Fee	\$	0
Relocatable Building Bond	\$	0
Total	\$	\$860.91

You are advised that the licence is not valid until all outstanding fees have been paid. Any work carried out prior to obtaining the building licence is an offence under the Local Government Act.

It is recommended that you read all conditions of approval carefully before commencing work.





Shire of Dardanup

Local Government (Miscellaneous Provisions) Act 1960, s. 374. Building Regulations 1989, reg. 13 (1) (d)

BUILDING LICENCE

LICENCE NO.: 2009100284

DATE: 12/01/2010

PROPERTY WHERE BUILDING TO BE BUILT

WARD N
STREET GIORGI ROAD
SUBURB PICTON
LOT No. 2009
HOUSE No.

OWNER
ADDRESS

NAME OF APPLICANT
ADDRESS

TYPE OF BUILDING INDUSTRIAL BUILDING
BUILDING CLASS CLASS 8
WORK TYPE NEW
MATERIALS
: WALLS METAL WALL
: ROOF METAL
: FLOOR CONCRETE
EST. VALUE \$215000

BLD AREA 650m²

This is not a valid licence until the prescribed fees are paid.

FEES:

BUILDING \$ 390.91
BRB LEVY \$ 40.00
DEMOLITION \$
BCITF LEVY \$ 430.00
S/TANK APP. \$ 0

TOTAL DUE : \$860.91

The building work permitted by this licence:

- Must be carried out in accordance with the approved plans, drawings and specifications submitted with the application for the Building Licence No. 2009100284; and
- Must be carried out in accordance with the conditions set out on the approved plans; and
- Subject to the provisions of the Building Code of Australia (as amended); and
- If the building work permitted by this Licence is not substantially commenced within 12 months of the date of this Licence, the Licence will become void;

Note:

WATER CORPORATION: The plans subject to this Licence are required to be submitted to the Water Corporation before work is commenced.

The licensee / builder must produce this licence and the approved plans, drawings and specifications whenever requested by the building surveyor.

PRODUCTION OF LICENCE & DRAWINGS: The licensee must produce this licence and the approved plans, drawings and specifications whenever requested by the building surveyor.

Senior Building Surveyor



Shire of Dardanup

CONDITIONS OF APPROVAL

Building Licence No. 2009100284

Builder Name: [REDACTED]

Lot 2009 GIORGI ROAD PICTON

1. 24 hours notice of all concrete pours is required.
2. Ground under slab & footings to be prepared in accordance with AS 2870 1996 or as per engineer's detail.
3. Sand fill to be contained on site. The builder/permit holder shall clean any sand from the road reserve and Council's storm water drains to the satisfaction of Council before a final certificate is issued. Where sand enters Council's stormwater drains, these shall be cleaned by the builder/permit holder at the builder/permit holder's expense.
4. Protection of road reserve damage to kerbs, footpaths, cycleways and roadways is to be repaired by the builder to the satisfaction of Council. It is the builder/permit holder's responsibility to notify the Shire of Dardanup of any damage to kerbs etc prior to commencement of works. Patch up repairs will not be accepted.
5. Rubbish Containment: Builder/permit holder is responsible for containment of rubbish on site within lot boundaries.
6. Engineering details: All engineering details to be complied with.
7. Notation in red: All notations marked in red on the approved plans and specifications are to be complied with in conjunction with licence conditions.
8. Classification Certificate: No part of this building shall be occupied until a classification certificate has been issued.
9. Engineering details: All engineering details to be complied with.
10. All fire brigade conditions to be complied with.
11. Fire Hose: Reel fire hose reel to be installed where shown on plan and not more than 4 metres from a required exit, they shall be installed in accordance with AS 2441.



FORM 1



2009100284 - - -

**BUILDING AND CONSTRUCTION INDUSTRY TRAINING FUND
AND LEVY COLLECTION ACT 1990**

LEVY PAYMENT FORM**751017**

PLEASE ENSURE YOU HAVE READ AND UNDERSTOOD THE DEFINITIONS AND CONDITIONS ON THE REVERSE OF THIS FORM BEFORE YOU COMPLETE AND SUBMIT IT TO THE COLLECTION AGENT

As the project owner in respect of construction work, I hereby declare that the following are the particulars of the work to which payment of the levy relates:-

PROJECT ADDRESS/ SITE Lot No. 2009 House No.
Street GIORGIO ROAD

Suburb/Town PICTON Post Code

Shire/Council/City DARDANUP

PROJECT OWNER Name [REDACTED]

Builder/ Owner Address [REDACTED]

Builder/ Applicant Post Code [REDACTED]

Builder's Registration Board No. [REDACTED]

Description of construction work

COMMERCIAL WAREHOUSE

SECTOR CLASSIFICATION (tick appropriate box)

HOUSING ☐ COMMERCIAL ☒ ENGINEERING CONSTRUCTION ☐

PAYMENT OF LEVY (Only payable where estimated value of construction work exceeds \$20,000)

Expected date of: Commencement 1/01/10

Completion 1/03/10

Value of construction work (including GST) \$ 215,000 x 0.2%

LEVY PAYABLE = \$ 430.00

ADJUSTMENT OF LEVY PAID (Complete this section of the form only if the original estimated value of the project has varied by an amount exceeding \$25,000).

Revised completion date 1/1/10 Original Levy Form No. [REDACTED]

Amount of variation from original construction value (inc GST) \$ x 0.2%

ADJUSTMENT LEVY PAYABLE \$

The adjustment levy rate for projects which commenced prior to 1 January 2007 is 0.182%

Contact Name: [REDACTED] Phone: [REDACTED]

Signature:

NB: PLEASE ENSURE YOU HAVE COMPLETED ALL RELEVANT SECTIONS OF THIS FORM. FULL PAYMENT OF THE LEVY MUST ACCOMPANY SUBMISSION OF THIS FORM TO THE COLLECTION AGENT.

BUILDING AND CONSTRUCTION INDUSTRY TRAINING FUND AND LEVY COLLECTION ACT 1990

- (i) THIS FORM IS TO BE USED FOR INITIAL LEVY PAYMENT AND FOR ADJUSTMENTS WHERE AN ADDITIONAL LEVY IS PAYABLE.
- (ii) "Project owner" in respect of any construction work means –
- (a) the person who is required to hold a building licence in respect of that construction work;
 - (b) where the construction work is carried out by the State, or an agent or instrumentality of the State, the person or organisation designated in writing by the Minister to be the project owner or, if the State or an agent or instrumentality of the State has engaged another person or body, other than as an employee, to carry out or cause to be carried out all of the construction work, the person or body so engaged; or
 - (c) where paragraphs (a) and (b) do not apply –
 - (i) the person or body for whose direct benefit construction work exists upon its completion; or
 - (ii) if the person or body referred to in sub paragraph (i) has engaged another person or body, other than as an employee, to carry out or cause to be carried out all of the construction work, the person or body so engaged.
- (iii) "Construction work" means all of the work carried out in the State (or as referred to in Section 5 of the BCITF Act 1990) –
- (a) that is included in the definition of "construction industry" in the *Construction Industry Portable Paid Long Service Leave Act 1985*; or
 - (b) that comes within the description of work in section 374 or 374A of the *Local Government Act 1960*, but does not include any work that is prescribed as excluded from this definition.
- (iv) "Sectors", in relation to the building and construction industry, means the following sectors of that industry –
- (a) the housing sector;
 - (b) the commercial sector;
 - (c) the engineering construction sector, and
- For further details refer to Fund brochure.
- (v) Payment of Levy (where estimated cost of building or construction work exceeds \$20,000)
- Every project owner shall –
- (a) before commencing any construction work for which a building licence is required, pay to a collection agency or the Board, the levy in respect of that construction work based on the value of the construction work estimated (local government is required to sight evidence that the levy has been paid prior to issue of the building licence);
 - (b) before commencing any construction work for which a building licence is not required –
 - (i) notify the Board of the construction work and the value of the construction work estimated; and
 - (ii) pay to the Board the levy in respect of that construction work based on the value of that work as notified to the Board; and
 - (c) where, on the completion of construction work, the value of the construction work varies by an additional amount of \$25,000 or more (after adjustment has been made for inflation) from the value of that work as estimated for the purposes of paragraph (a) or (b), notify the Board of that variation.
- (vi) Construction work shall be regarded as commencing –
- (a) where construction work commences on site [refer local government requirement as per (v)(a)].
 - (b) if paragraph (a) does not apply –
 - (i) where the construction work is to be carried out under a contract executed before the Act comes in operation; and
 - (ii) the project owner, after this Act comes into operation, engages another person or body, other than as an employee, to carry out or cause to be carried out any part or stage of that work,when any of the construction work that the person or body is engaged to carry out or cause to be carried out commences on site.
 - (c) If paragraph (a), or (b) does not apply, when the construction work is commenced on site.
Notwithstanding the above, a levy is not payable in relation to construction work for which a building licence had been issued before this Act came into operation.
- Penalty for late payment*
- Where construction work is commenced before the project owner has paid the levy due in respect of that work, the project owner is liable to pay to the Board, by way of penalty, an amount calculated from the time the construction work commenced at a prescribed rate per annum on the unpaid levy.
- (vii) Adjustment of amount paid after completion of construction work (where variation increases the value of construction work)
- Where on the completion of construction work the Board is satisfied that the value of construction work varies by \$25,000 or more (after adjustment has been made for inflation) from the value of that work as estimated for the purposes of (vi) above, the project owner shall pay to the Board or to a collection agency, an amount equal to the extra amount that would have been payable if the estimated value of the construction work had been the actual value of that work, where the value of the construction work was under estimated.
- Where variation reduces the value of construction work or the work is cancelled, Refund Claim Form (Form 2) is available).
- (viii) LEVY CALCULATION FROM 1 JANUARY 2007
- Note: Levy payable on amounts exceeding \$20,000.
- The new levy rate of 0.2% applies to construction commencing on or after the 1 January 2007 where the levy payment is paid on or after this date.
 - Where a project commenced prior to the 1 January 2007 the levy rate remains at 0.182%.

PAYMENTS MAY BE MADE TO: (Provide all three copies when making payment)

- Local Government Offices
 - Building and Construction Industry Training Fund
P.O. Box 746
WEMBLEY WA 6913
Phone: (08) 9381 3900 Fax: (08) 9388 8902
- STREET ADDRESS:
1st Floor, The Business Centre (Home Base)
55 Salvado Road, Subiaco WA 6008



Our Ref: 340083/3

Your Ref:

Phone Enquiries: 9323 9814

Fax No: 9323 9319

Email:

FESA

Fire & Emergency Services
Authority of Western Australia

480 Hay Street
Perth Western Australia 6000
Postal Address
PO Box 91174 Perth WA 6001
Telephone (08) 9221 4500
Facsimile (08) 9221 7500
Email: fesa@fesa.wa.gov.au

13 February 2009

Chief Executive Officer
Shire of Dardanup
PO Box 7016
Eaton WA 6232

Dear Sir / Madam

Building Plans - Assessment by FESA

Site Name: BIODIESEL FACILITY
Project: PROPOSED SHED
Address: Lot 49
GIORGI ROAD
PICTON 6229

Occupancy Classification: 8
Type of Construction: C

Documents Assessed: Site and Floor plan



Plans of the above project have been submitted to the Fire and Emergency Services Authority of Western Australia (FESA), as required by Regulation 11(2) of the Building Regulations 1989.

The Built Environment Branch (BEB) of FESA has assessed the plans against the fire requirements of the Building Code of Australia (BCA 2008) **as they apply to FESA operational requirements**, and offers the following comments:

1. BCA E1.4 - Hose reels

Fire hose reels are to comply with Clause E1.4 (and AS 2441).

NOTE:

1.1) The nozzle end of a fully extended 36m hose with 4m straight jet of water spray fitted to a reel and laid to avoid any partitions or other physical barriers, must reach all parts of the floor, current indications upon drawings show the existing fire hose reel will not cover all parts of the total floor area.

1.2) Hose reels may be installed externally, internally within 4 metres of a required exit, or internally adjacent to a fire hydrant (other than one within a fire-isolated exit). They shall be positioned so that the hose will not need to pass through doorways fitted with fire or smoke doors, unless specifically permitted by Clause E1.4(c)(iv)(D) of the BCA.



BUILDING & CONSTRUCTION INDUSTRY TRAINING FUND

Levy Form Notification

Payment



Bill Code **18820**
Reference **800003580000350**

Total Payable \$ 400.00

Telephone and Internet Banking - BPAY

Call your bank or financial institution to make this payment from your cheque, savings, debit, credit card or transaction account. More info: www.bpay.com.au

Contact Details

Name
Phone
Email



Project Information

Levy Number **8000035**
Lot No **2009**
House No
Street **giorgi road**
Suburb **picton**
Post Code **6228**
City **Dardanup**

Owner Information

Name
Street
Suburb
Post Code
City
Builder Rego No



Project Details

Classification **Commercial**
Commence Date **04/01/10**
Completion Date **04/03/10**
Value **200000**
Levy Payable 400.00
Description **Construction of 648m2 Widspan shed**

Notice

If you have received this email in error or you wish to cancel please contact BCITF

Telephone +61 8 9381 3900
Fax +61 8 9388 8902
Email inquiries@bcitf.org
Mailing Address PO Box 746 WEMBLEY WA 6913



Our Ref: 340083\3

Your Ref:

Phone Enquiries: 9323 9814

Fax No: 9323 9319

Email:

FESA

Fire & Emergency Services
Authority of Western Australia

450 Hay Street
Perth Western Australia 6000
Postal Address:
PO Box 21174 Perth WA 6844
Telephone: (08) 9223 4941
Facsimile: (08) 9221 1933
Email: fesa@fesa.wa.gov.au

13 February 2009

Chief Executive Officer
Shire of Dardanup
PO Box 7016
Eaton WA 6232

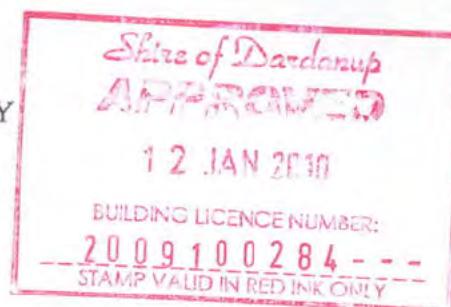
Dear Sir / Madam

Building Plans - Assessment by FESA

Site Name: BIODIESEL FACILITY
Project: PROPOSED SHED
Address: Lot 49
GIORGI ROAD
PICTON 6229

Occupancy Classification: 8
Type of Construction: C

Documents Assessed: Site and Floor plan



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BLACK CONSULTANTS

~ Structural & Civil ~

Chartered Professional Structural & Civil Engineer

Member The Institution
of Engineers Australia



Membership No. [REDACTED]

23 March, 2009

To whom it may concern

This certification is done in accordance with the purchaser of the building's advice that they have sought and obtained independent confirmation that the design criteria nominated below is appropriate for the site. Any approving authority should also confirm that the design criteria nominated below is appropriate for the site.

The structural design of the steel building (as detailed in drawing 90302, see index below) for Bioelectric Pty Ltd to be built at Giorgi Road PICTON WA Australia 6229 has been carried out by me using the Multiframe Structural Engineering Analysis Program.

The design has been done in accordance with the BCA, AS/NZS 4600, AS/NZS 1170:2002 (part 1 to 4), AS 4055, AS 1684, AS 4100, AS 2870 and AS 3600.

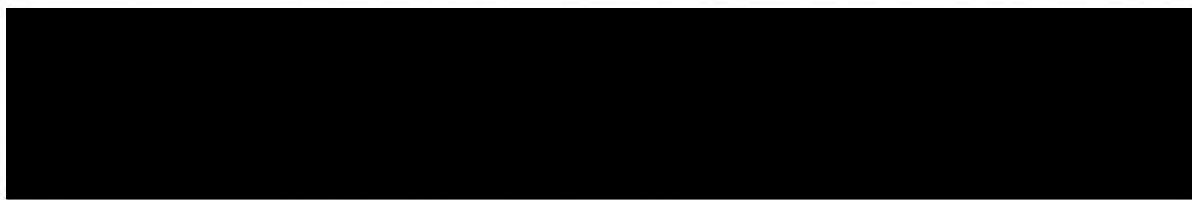
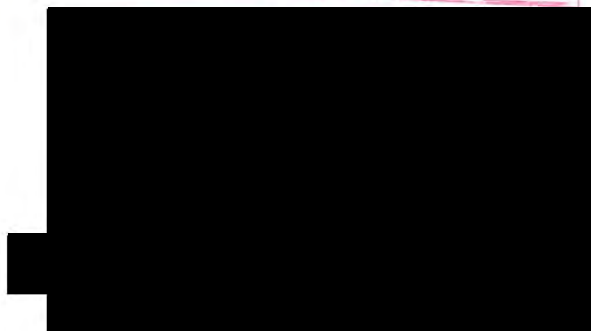
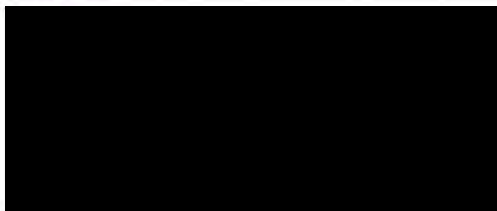
Design Criteria: Wind Region - A; Building Class - 8; Importance Level of 2; Terrain Category of 2.5; Topographic Factor of 1; No Shielding; Wind Directional Multiplier (Md) of 1.0; No allowance has been made for earthquake loading; No allowance has been made for snowload.

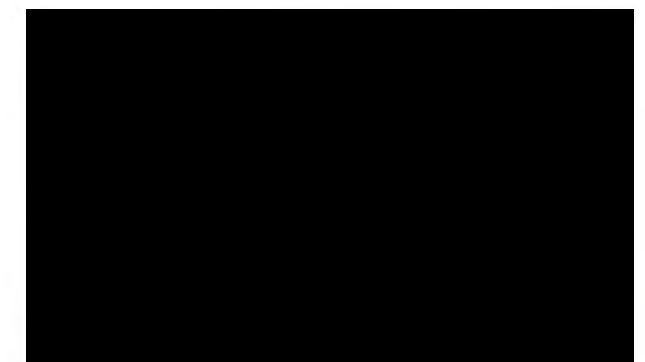
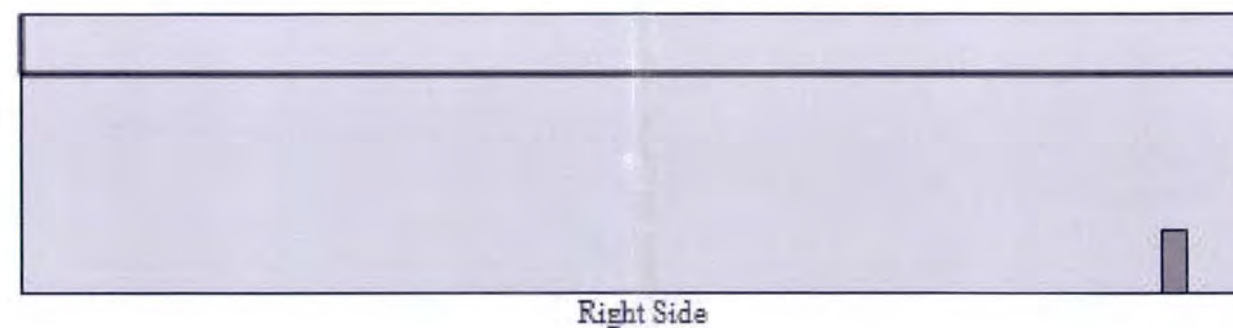
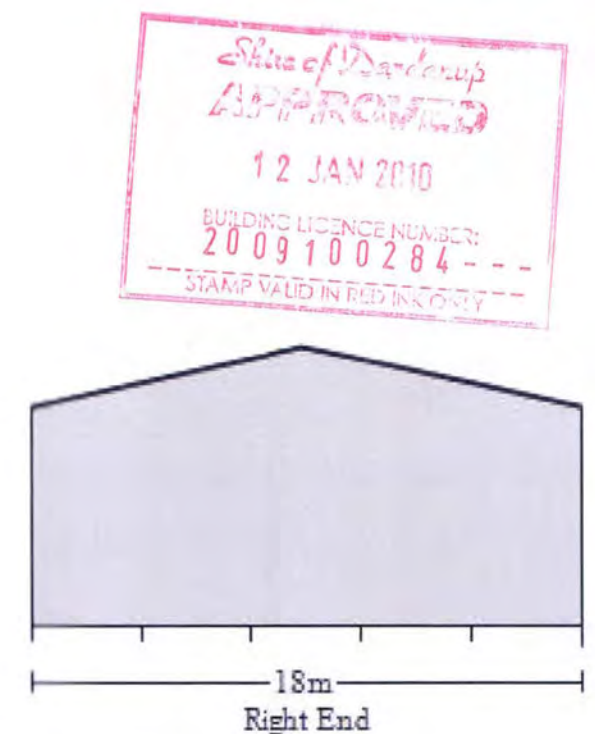
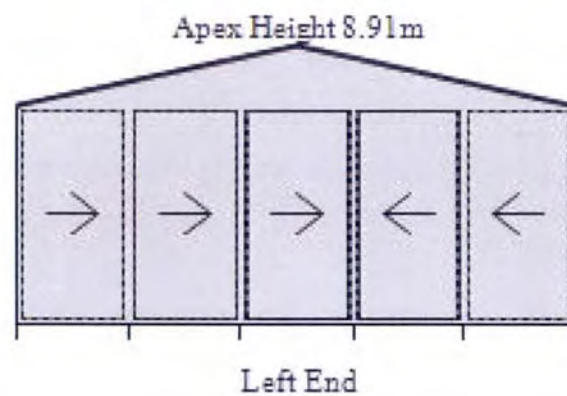
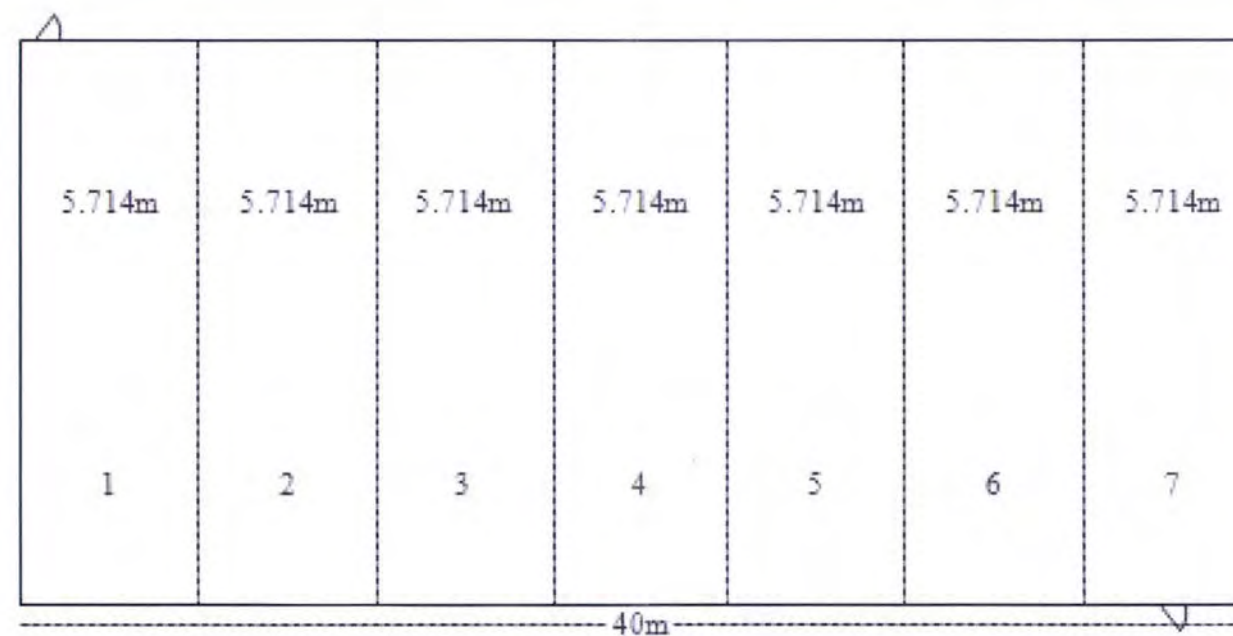
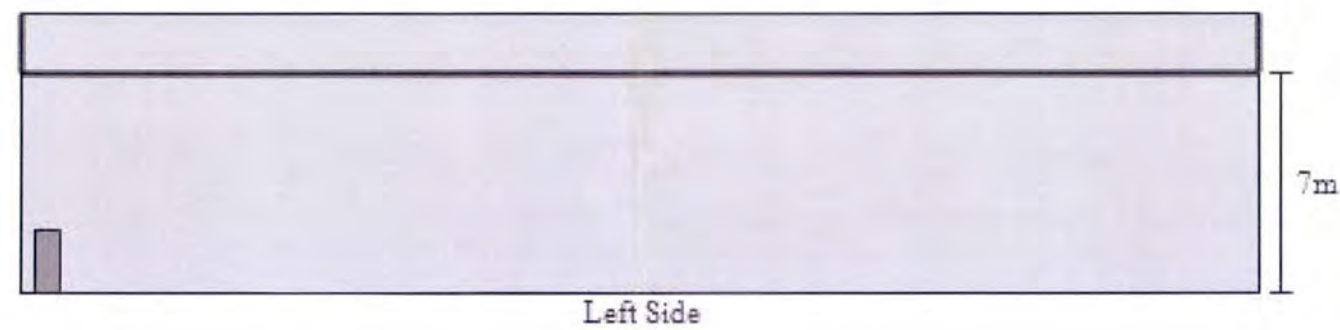
In accordance with AS1170.0-2002, Table 3.2, a superimposed roof action of 0.25 kPa has been considered for roof maintenance loads only, for a maximum area, as per Note 1 of 200 square metres. To obtain the "worst effect" this area of load has been apportioned to the entire roof as a uniformly distributed load action, and considered in each combination as set out in AS1170.0-2002.

Drawing Number	Description
Job 90302 - 2	Layout Plan
Job 90302 - 3	Specification Sheet
Job 90302 - 4	Bracing Plan
Job 90302 - 5	Footing / Slab Details
Job 90302 - 6	Slab Plan (class A or S)
Job 90302 - 7	Connection Details



Regards





Purchaser Name: Bioelectric Pty Ltd		Building Layout	Wide Span Sheds Steelx Pty Ltd Phone: (07) 5657 8888 Fax: (07) 5518 7614 Email: admin@sheds.com.au	[Redacted]
Site Address: Giorgi Road PICTON WA Australia 6229				
Drawing# Job 90302 - 2	Print Date: 23/03/09			
Date: 23/03/09				

Specification Sheet of Building for

Bioelectric Pty Ltd at Giorgi Road PICTON WA Australia 6229

Prepared by Steelx Pty Ltd on 23/3/2009

Design Criteria -

Building Class - 8 with an importance level of 2.

Wind Region - A; Terrain Category 2.5; No Shielding; Topographic factor of 1; Md 1.0.

Snow Load - No allowance has been made for snowload.

Earthquake Load - No allowance has been made for earthquake loading.

In accordance with AS1170.0-2002, Table 3.2, a superimposed roof action of 0.25 kPa has been considered for roof maintenance loads only, for a maximum area, as per Note 1 of 200 square metres. To obtain the "worst effect" this area of load has been apportioned to the entire roof as a uniformly distributed load action, and considered in each combination as set out in AS1170.0-2002.

Dimensions -

SPAN 18m. EAVES HEIGHT 7m. APEX HEIGHT 8.91m. ROOF SLOPE 12Deg.

OVERALL LENGTH 40m. Consisting of 7 Bays. FRAME SPACING all 5.71m

Materials -

END WALL RAFTER C30024

END WALL COLUMN C30024 fixed by M16x110 Dynabolt bolts embeded into concrete. Columns embeded into concrete 600mm.

MID PORTAL RAFTER C40030

MID PORTAL COLUMN C40030 fixed by M16x110 Dynabolt bolts embeded into concrete. Columns embeded into concrete 600mm.

END MULLION C30030 fixed by M16x110 Dynabolt. Columns embeded into concrete 600mm.

EAVE PURLIN C15012.

ROOF PURLIN TH120100. Max Spacing ~~1.55m~~ ^{N.B} 1.0m.

SIDE GIRT TH120100. Max Spacing ~~1.7m~~ 1.0m.

END GIRT TH64075. Max Spacing ~~1.7m~~ 1.0m.

ROOF CLADDING Colorbond Trimclad 0.47. Fixed by 12.45 x 45mm screw with neo washer (4 per full sheet per purlin)

WALL CLADDING Colorbond Trimclad 0.47. Fixed by HEX10.16X16 (4 per full sheet per girt)

KNEE BRACE C25019, 2.7m. APEX BRACE C25019, 8.658m.

Strap Bracing as per the attached plan. All cross bracing is to be fixed with 2 x 14.20 x 22 frame screws at each connection point (including any roof purlins and wall girts).

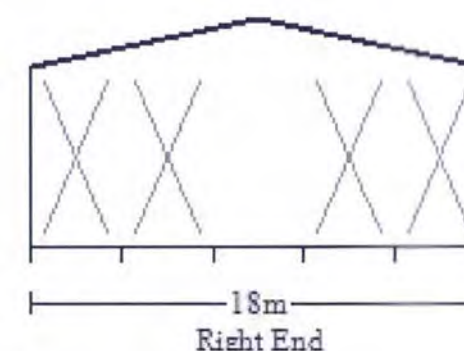
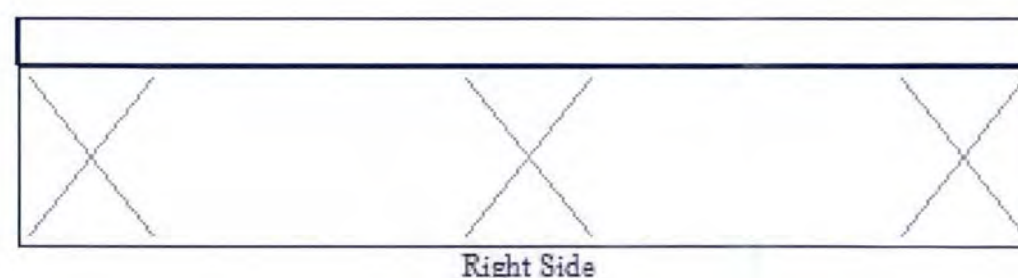
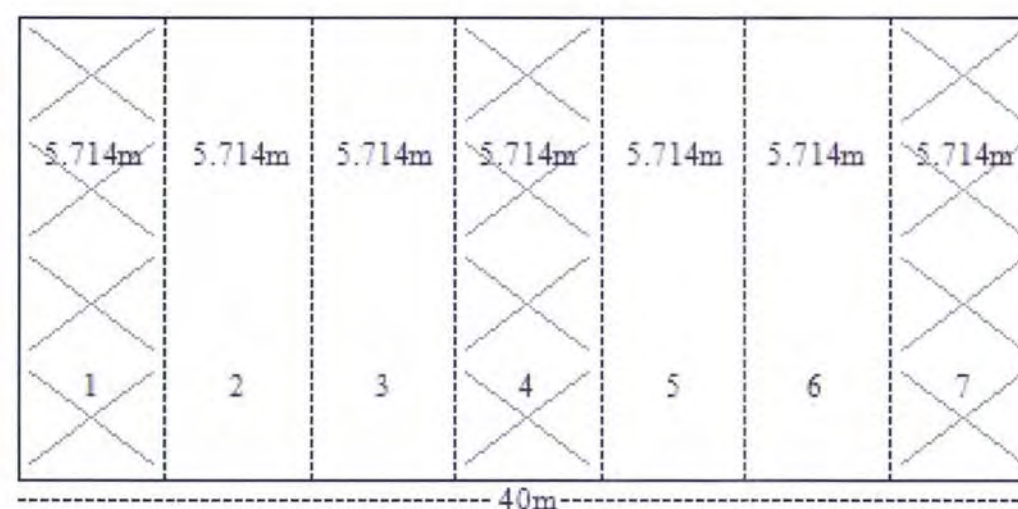
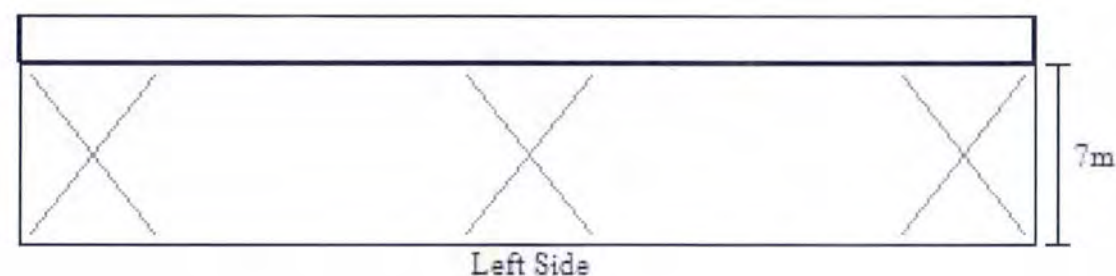
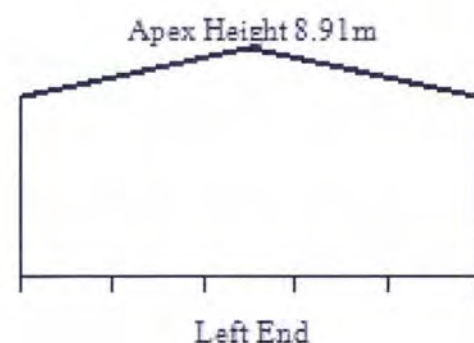
For bay spacing, door locations & other openings, refer to layout.

FOOTINGS:-

Refer to drawings attached.

Designs are only suitable for soil classification A, S or M and a minimum Safe Bearing Capacity of 100kPa.

For other soil types, refer to a registered engineer.



Notes

* All bracing strap to be 32mm x 1.6mm G300

* Where cross bracing is shown in a position that has some form of opening then, where possible place the cross brace in the nearest adjacent bay.

* Cross bracing is to be fixed tight and secured with 2 x 14.20 x 22 frame screws at each end and to each overlapping roof purlin or wall girt.

* All Columns and End Wall Mullions are fixed Column in Concrete.

* Strap fly bracing to be fixed to roof purlins and wall girts at a maximum 2.5m intervals on every intermediate portal. Fly bracing to be screwed with 2 x 14.20 x 22 Frame screws to every connection point (6 screws in total).

* End wall mullions to have fly bracing fitted to every available girt.

* No bracing is required on this building.

Where windows are placed in any bay where cross bracing is shown, then

- this can be replaced by moving the bracing to another bay OR
- due to the bracing provided by the window jambs, where space permits, bracing should be placed under and or over the window.

Purchaser Name: Bioleptic Pty Ltd

Site Address: Giorgi Road PICTON WA Australia 6229

Drawing # Job 90302 - 4

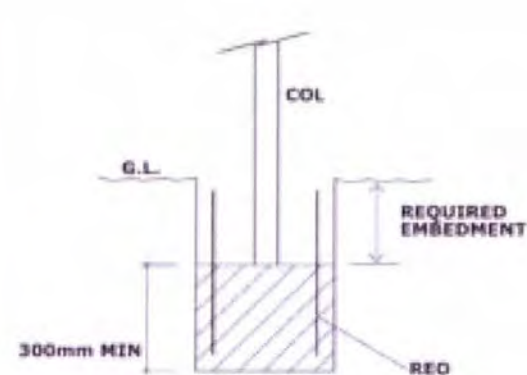
Print Date: 23/03/09

Bracing Plan

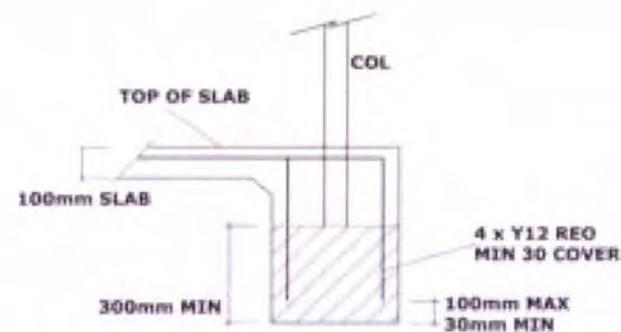
Wide Span Sheds

Steelx Pty Ltd
Phone: (07) 5657 8888
Fax: (07) 5518 7614
Email: admin@sheds.com.au

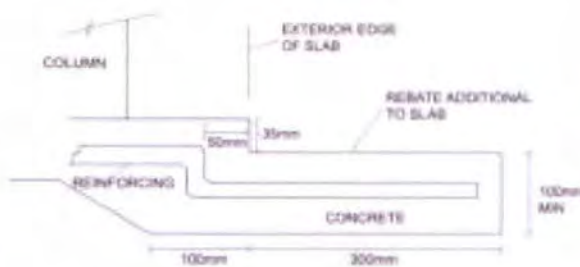
Date: 23/03/09



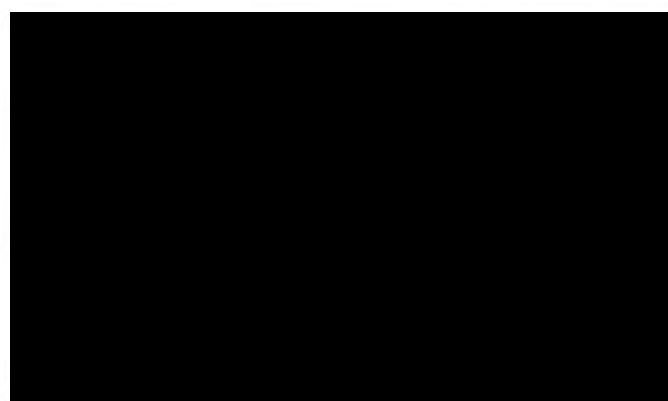
COLUMN IN CONCRETE
FOOTING ONLY



COLUMN IN CONCRETE
SLAB AND FOOTING



CONCRETE SLAB EXTENSION
FOR SLIDING DOORS



Purchaser Name: Bioelectric Pty Ltd

Site Address: Giorgi Road PICTON WA Australia 6229

Drawing# Job 90302 - 5

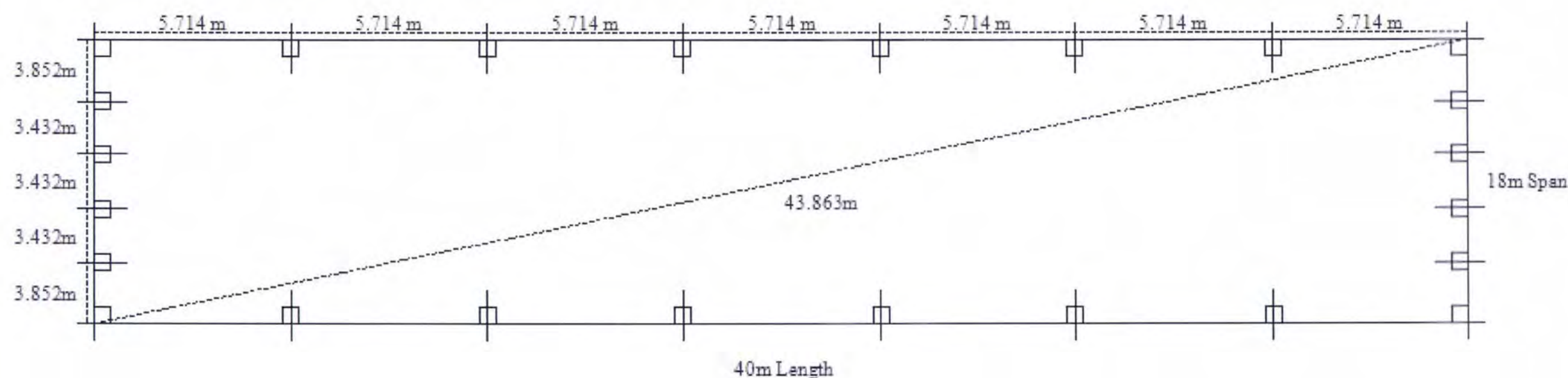
Print Date: 23/03/09

Footing/Slab Details

Page 1 of 1

Wide Span Sheds

Steelx Pty Ltd
Phone: (07) 5657 8888
Fax: (07) 5518 7614
Email: admin@sheds.com.au



Notes

- * Shed design has the columns embedded into the concrete 600mm. A minimum depth of 300mm needs to be placed in the first pour.
- * This measurement is from the top of the finished slab.
- * Slab design covers sites with a minimum of 100kPa safe bearing capacity.
- * Designs are in accordance with AS 3600.
- * Other than this, owner to provide slab and footing design details.
- * All concrete to be in accordance with AS 3600. Minimum 20 MPa, with 80mm slump.
- * Footings to have minimum of 4 x N12 deformed bar to within 100mm of base and protruding into the top footing a minimum of 550mm to give a minimum 75mm top cover and tied into slab reinforcing mesh.
- * Slabs should be cured for 7 days before commencing construction of the building.
- * Slab thickness to be minimum 100mm. Slab reinforcing mesh to be a minimum SL 72 with 50mm top cover. Waterproof PVC membrane to be placed under slab or min slab to be 150mm.
- * Footings under slab to be C30024, C40030, C30030 - 600 x 600 x 600 deep.
- * Second Pour Jointing
 1. Surface of first pour must be scabbled.
 2. All loose debris must be vacuumed from hole.
 3. Apply heavy coat of bondcrete or similar adhesive prior to second pour.
 4. Apply suitable protective coating to the embedded portion of the columns.
- * Construction joints need to be placed at a maximum spacing of 6.3m (in both the length and the span). Care should be taken to avoid construction joints intersecting where any fixing to the slab is to be made.
- * Sliding door extension NOT shown on plan. Refer to Slab Connection Details sheet, Layout and Construction Manual for size and location.
- * Where columns or end wall mullions have been removed, footings are not required.

Purchaser Name: Biolectric Pty Ltd

Site Address: Giorgi Road PICTON WA Australia 6229

Drawing # Job 90302 - 6

Print Date: 23/03/09

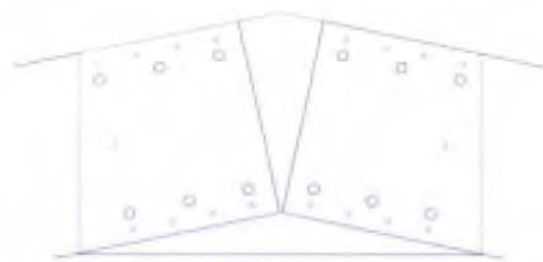
Slab & Footing Plan

(Use only if a Slab is being laid)

Not to Scale

Wide Span Sheds

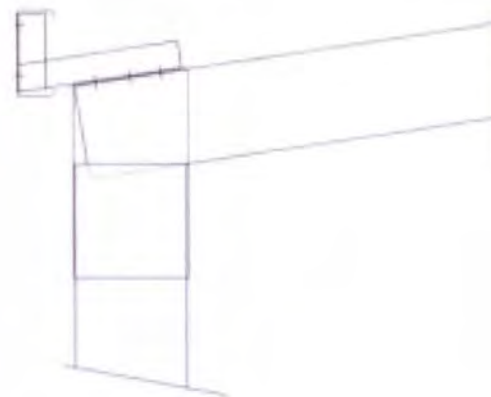
Steelx Pty Ltd
Phone: (07) 5657 8888
Fax: (07) 5518 7614
Email: admin@sheds.com.au



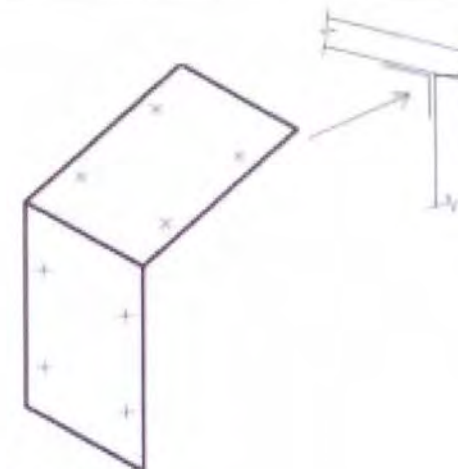
FIXING BOLTS - 12 x M16.30 (8.8)
FIXING SCREWS - 18 x 14.20 x 22
APEX PLATE - C400, 12 deg, Reg A



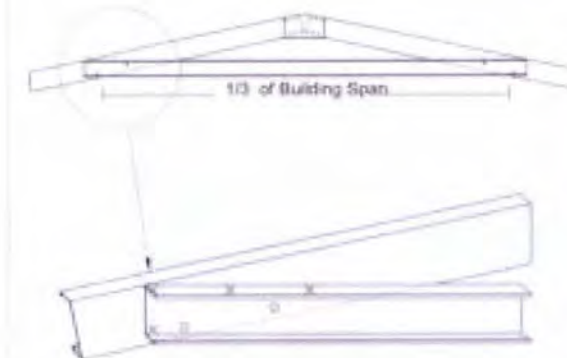
FIXING BOLTS - 8 x M16.30 (8.8)
FIXING SCREWS - 16 x 14.20 x 22
HAUNCH PLATE - C300 12deg Reg A+B



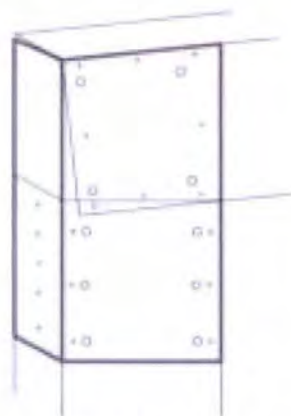
FIXING BOLTS - NIL
FIXING SCREWS - 6 x 14.20 x 22
FASCIA BRACKET TO RAFTER



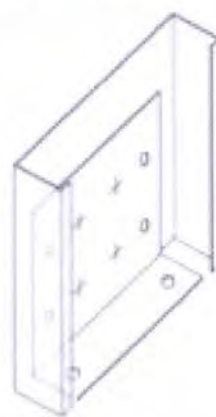
FIXING BOLTS - NIL
FIXING SCREWS - 8 x 14.20 x 22
INNER HAUNCH BRACKET - SINGLE



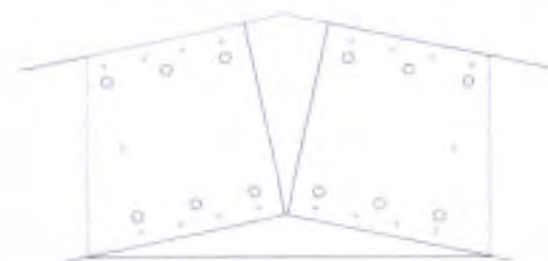
○ FIXING BOLTS - 4 x M16 x 30 (8.8)
× FIXING SCREWS - 8 x 14.20 x 22
APEX BRACE C250 WITH C400 RAFTER
LAP = Greater of 10% of span or 500 mm



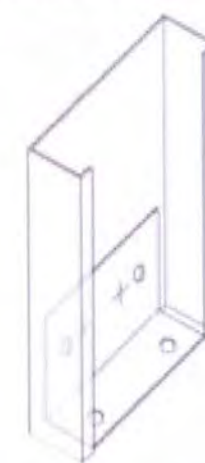
FIXING BOLTS - 10 x M16.40 (8.8)
FIXING SCREWS - 20 x 14.20 x 22
HAUNCH PLATE - C400 12deg Reg A+B



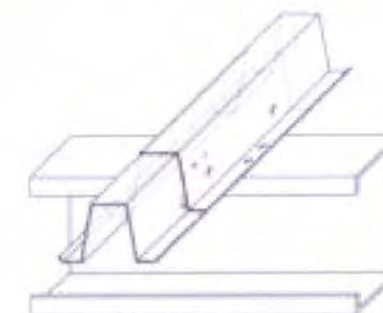
FIXING BOLTS - 4 x M16.30 (8.8)
FIXING SCREWS - 4 x 14.20 x 22
BASE PLATE - C400, SINGLE



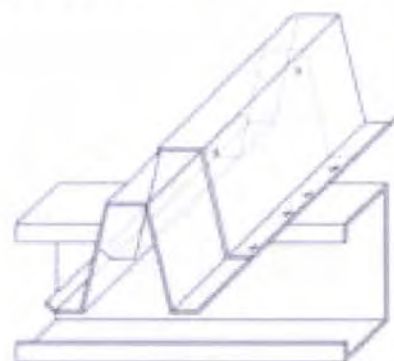
FIXING BOLTS - 12 x M16 x 30 (8.8)
FIXING SCREWS - 18 x 14.20 x 22
APEX PLATE - C300, 12 deg, Reg A



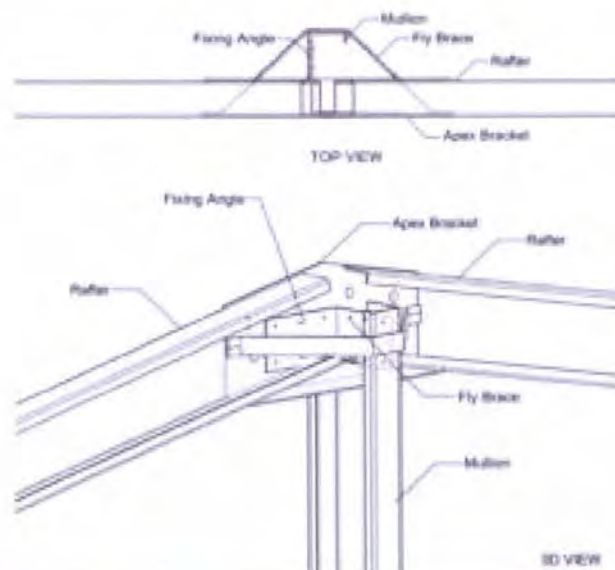
○ FIXING BOLTS - 2 x M16.30 (8.8)
× FIXING SCREWS - 2 x 14.20 x 22
BASE PLATE - C300, SINGLE



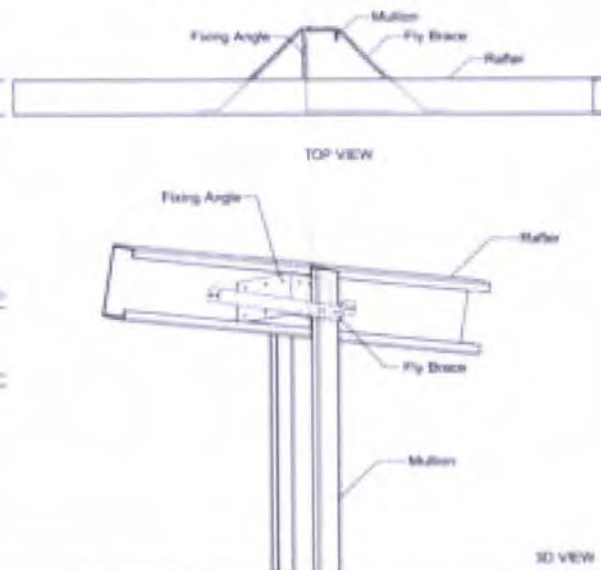
× FIXING SCREWS - 8 x 14.20 x 22
PURLIN/GRIT OVERLAP TOPHAT 64



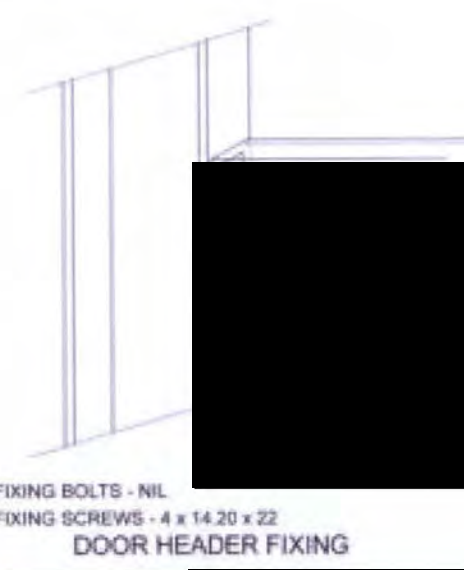
× FIXING SCREWS - 12 x 14.20 x 22
PURLIN/GRIT OVERLAP TOPHAT 120



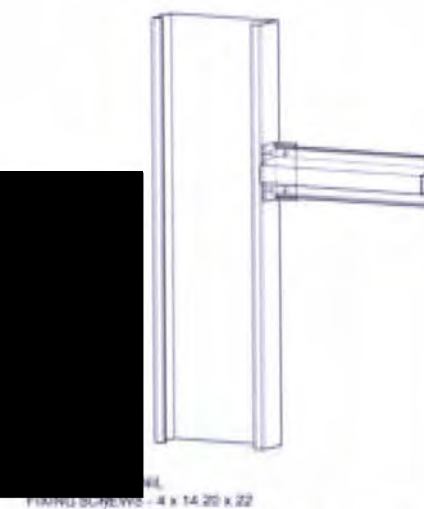
3D VIEW



3D VIEW



FIXING BOLTS - NIL
FIXING SCREWS - 4 x 14.20 x 22
DOOR HEADER FIXING



FIXING SCREWS - 4 x 14.20 x 22
GIRT FIXING TO MULLIONS - TOPHAT SECTION

Purchaser Name: Bioelectric Pty Ltd

Site Address: Giorgi Road PICTON WA Australia 6229

Drawing# Job 90302 - 7

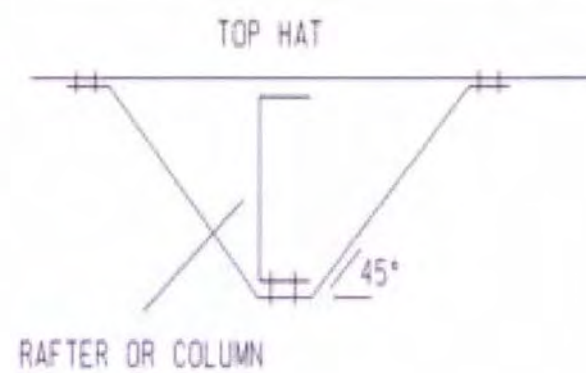
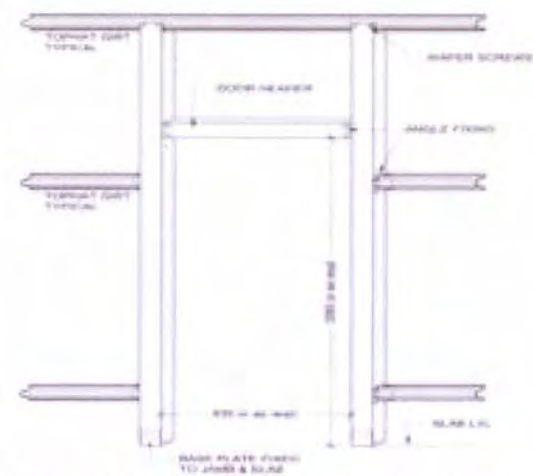
Print Date: 23/03/09

Connection Details

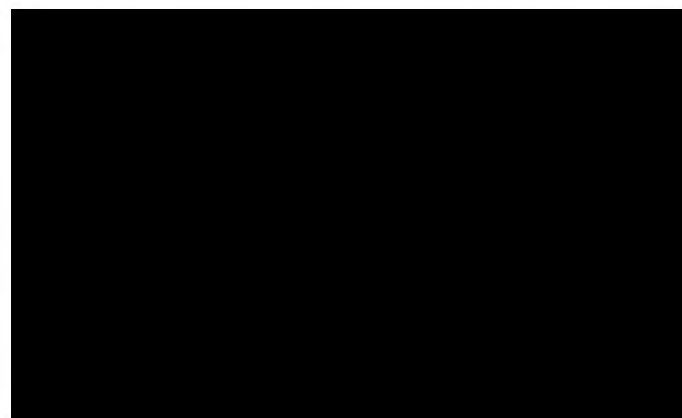
Page 1 of 2

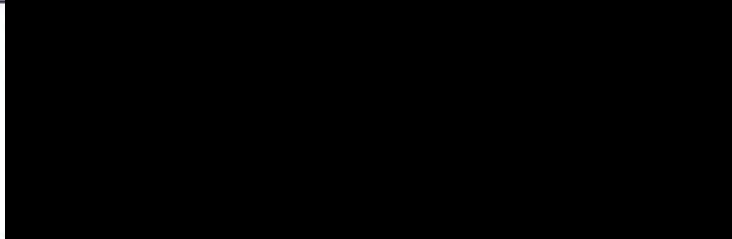
Wide Span Sheds

Steelx Pty Ltd
Phone: (07) 5657 8888
Fax: (07) 5518 7614
Email: admin@sheds.com.au



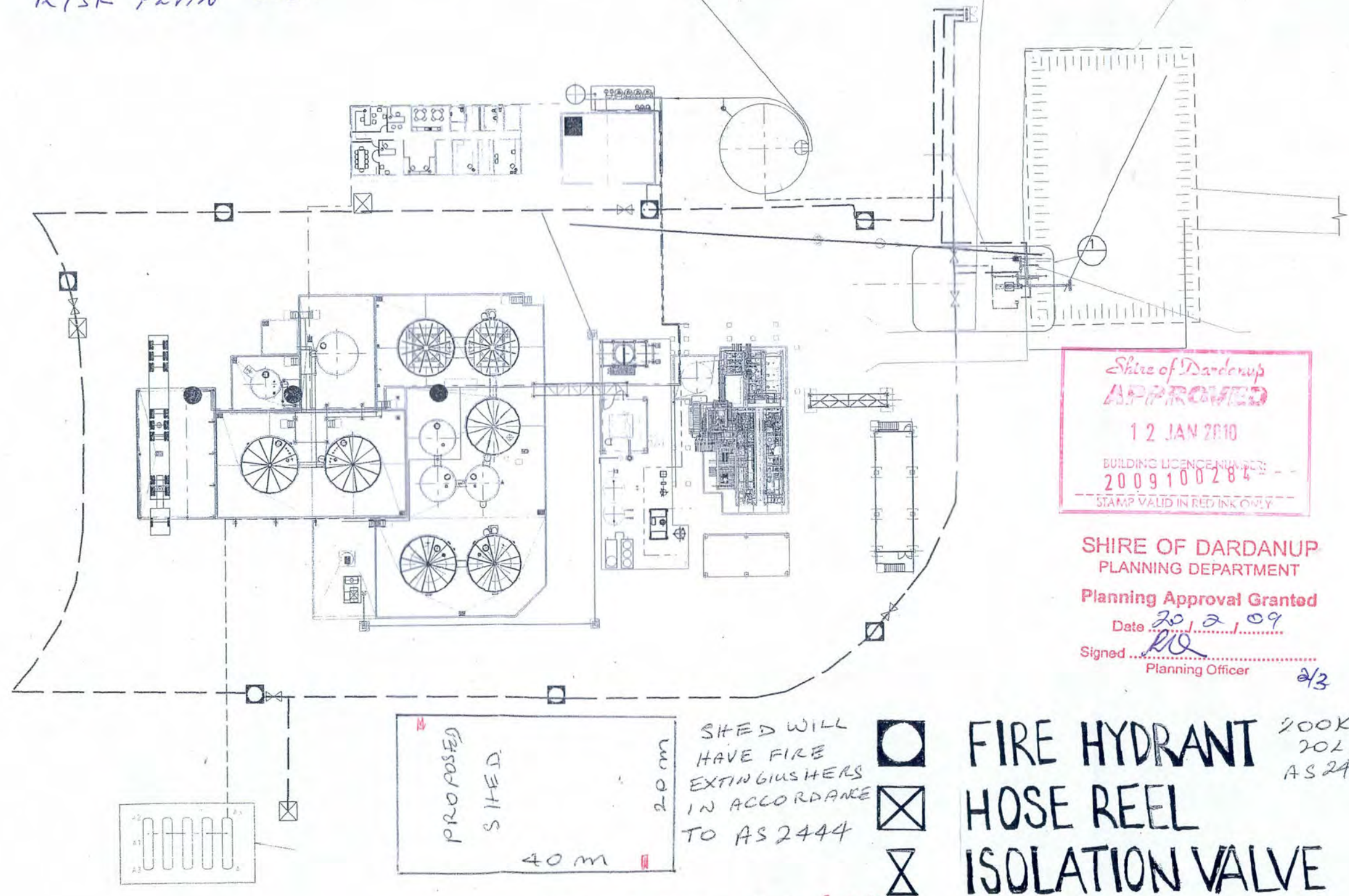
6 SCREWS - 14.20 x 22
FLY BRACING



Purchaser Name: Bioleptic Pty Ltd	Connection Details Page 2 of 2	Wide Span Sheds		
Site Address: Giorgi Road PICTON WA Australia 6229		Steelx Pty Ltd Phone: (07) 5657 8888 Fax: (07) 5518 7614 Email: admin@sheds.com.au		
Drawing# Job 90302 - 7		Print Date: 23/03/09		Date: 23/03/09



REF: TO A.R.F. PICTON SPECIAL
RISK PLAN 316.



Shire of Dardanup
APPROVED
12 JAN 2010
BUILDING LICENCE NUMBER:
2009100284
STAMP VALID IN RED INK ONLY

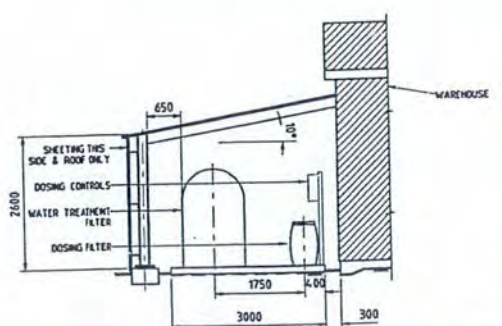
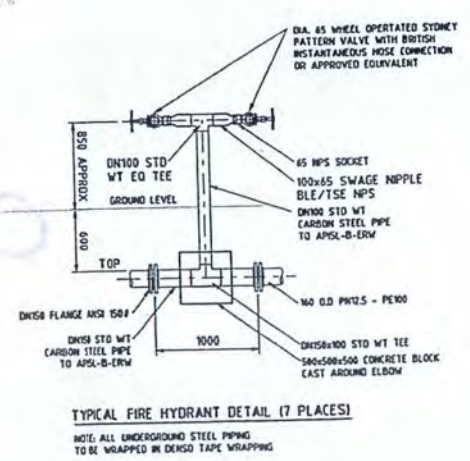
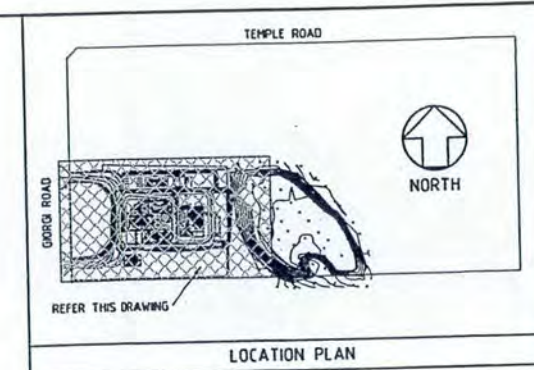
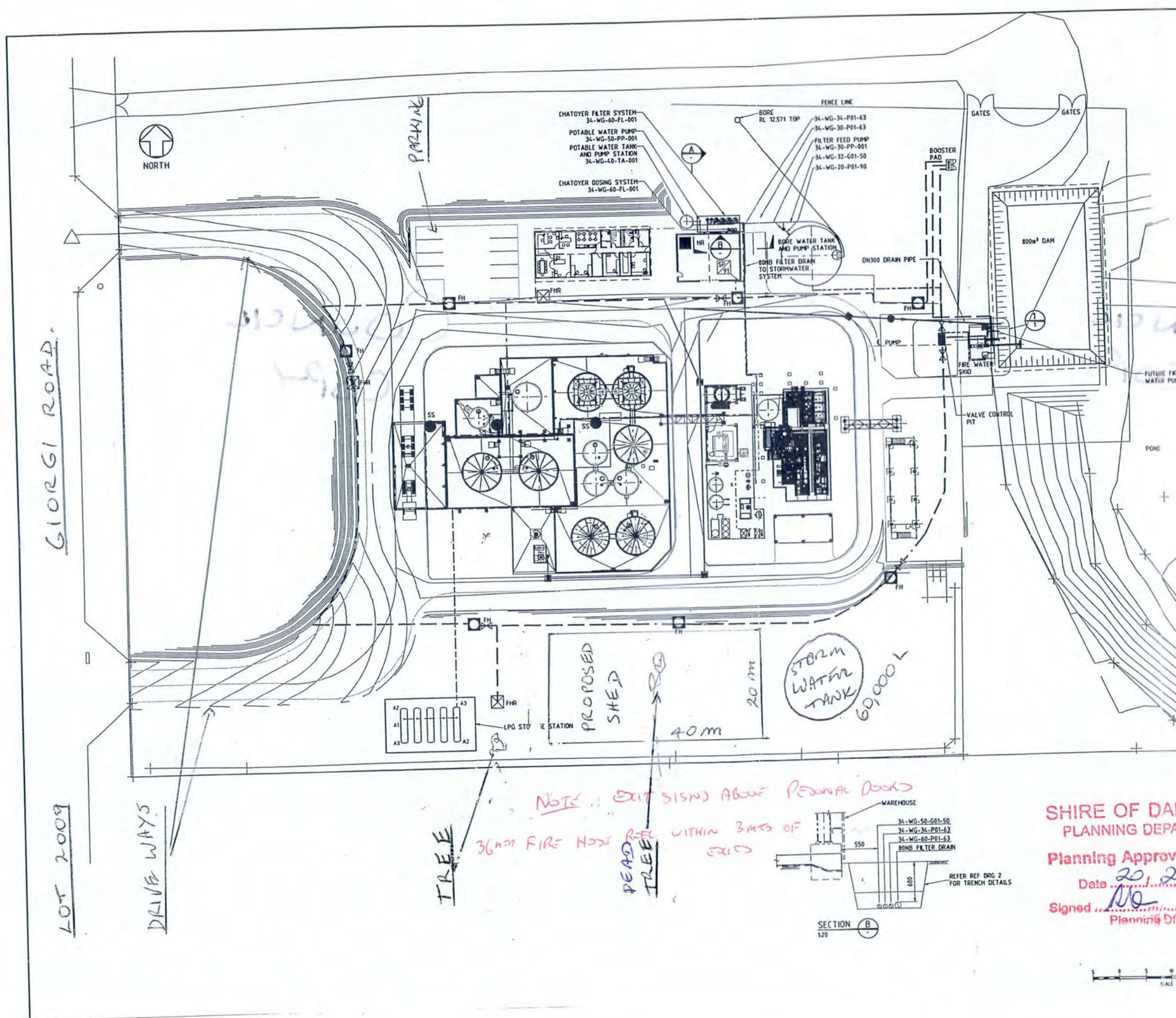
SHIRE OF DARDANUP
PLANNING DEPARTMENT
Planning Approval Granted
Date 20/2/09
Signed [Signature]
Planning Officer

2/3

200KPAD
20L BS
AS 2419.
FIRE HYDRANT
HOSE REEL
ISOLATION VALVE

ARRANGEMENT PLAN

NOTE: EXIT SIGNS ABOVE PERSONAL DOORS
36m Fire Hose Reel within 3m of exit doors



SECTION A
1:50

Shire of Dardanup APPROVED

LEGEND

- SS 1.0 DENOTES SAFETY SHOWER
- FH DENOTES FIRE HYDRANT
- FHR DENOTES FIRE HOSE REEL
- STAMP MUST BE IN RED INK ONLY

BUILDING LICENCE NUMBER:
2009100284

SHIRE OF DARDANUP
PLANNING DEPARTMENT

Planning Approval Granted

Date 20.2.09

Signed [Signature]
Planning Officer

CLIENT APPROVAL

BY: _____ DATE: _____

Valid only when signed

arfuels

AUSTRALIAN RENEWABLE FUELS LIMITED

PROTEUS DRG No. 04332-DX-001



NOTE: EXIT SIGNS ABOVE PEDNAR DOCK

36mm FIRE HOSE REEL WITHIN 3METS OF EXIT

DEAD TREE

Council
copy

Council
copy

**FINAL INSPECTION RECORD SHEET - CLASS 2-9****PROPERTY ADDRESS**

Lot 2009 GEORGE RD PICTON

Date of inspection

29-4-10

Time 11.00

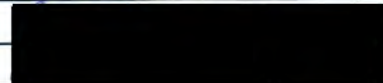
Building Licence No.

2009100284

Assessment No.

9654

Person/s Present

**COMPLIANCE****YES****NO****COMMENTS**

X Site identified

✓

X Ready for inspection

✓

X Layout, setbacks, fire separation (BCA C2)

✓

Disabled parking bays indicated

Dis' access, Ramp 1:14, Threshold <10mm

Storm water disposal Soak wells etc

Retaining walls constructed

X Fire Hydrants - > 500m²

✓

PRE EXISTING.

X Hose Reels - within 4m of exit doors

✓

Portable fire extinguishers (BCA E1)

Balustrades Stair construction

X Exit signs location & operational (BCA E4)

✓

Emergency Lighting (BCA E4.2)

Exit doors & direction of swing (BCA D2)

Exit may open in if < 200m²

X FESA Report Conditions met

✓

Smoke alarms installed (BCA E4)

Disabled Facilities. Unisex? (AS 1428.1)

Airlocks to WC. Male & Female (BCA F4)

Staff Toilet Facilities

Flumed vents & Exhaust fans (BCA F4)

WC doors removable or 1.2m to pan

Wet areas - sealed floors etc

Light and ventilation (BCA F4)

Additional building conditions met

Issue

CLASS 8

✓

APPEARS TO COMPLY

CERTIFICATE OF CLASSIFICATION

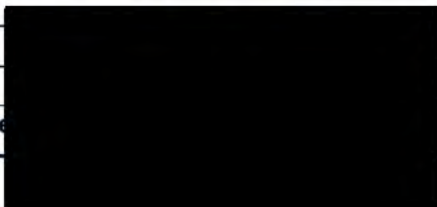
NOTES: (non compliant issues to follow up)

PARIS - CEO TO SIGN CERT 'OF CLASS'

MAIL OUT TO OWNER + CC EMAIL COPY TO BUILDER

SIGNED

Building Surveyor

**DATE**

29-4-10

COPY



FORM 1. Certificate of Classification

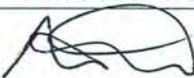
*Local Government (Miscellaneous Provisions) Act 1960, s,374C
Building Regulations 1989, reg 20(1)*

CERTIFICATION OF BUILDING CLASSIFICATION

Local Government:: SHIRE OF DARDANUP

Building	Address	No:	Street Name: GIORGI RD
		Suburb: PICTON	Postcode: 6228
	Lot: 2009		

Classification	Storey or Portion of Building	Classification(s)
	ALL OF BUILDING	Eight (8)

Chief Executive Officer	Name: MR MARK CHESTER
	Signature:  Date: 29/4/2010

Appendix D

DWER Operating Licence and Associated
Information

DWER FOI



Licence number	L8098/2002/5
Licence holder	Australian Renewable Fuels Picton Pty Ltd
ACN (if applicable)	108 170 270
Registered business address	Suite 23, 513 Hay St Subiaco WA 6008
DWER file number	DER2015/001581-1~8
Duration	31/05/2022 to 14/09/2029
Date of issue	25/05/2022
Premises details	Australian Renewable Fuels Picton Legal description - Lot 2009 on Plan 43721 Giorgi Road PICTON WESTERN AUSTRALIA 6229 As defined by the Premises map in Schedule 1 of this licence

Prescribed premises category description (Schedule 1, <i>Environmental Protection Regulations 1987</i>)	Assessed production / design capacity
Category 31 Chemical manufacturing: premises (other than premises within category 32) on which chemical products are manufactured by a chemical process.	40,000 tonnes per year

This licence is granted to the licence holder, subject to the attached conditions, on 25 May 2022, by:

**SENIOR INDUSTRY REGULATION OFFICER
INDUSTRY REGULATION**

an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

Licence history

Date	Reference number	Summary of changes
31/5/2006	L8098/2002/1	Licence issued
31/5/2007	L8098/2002/2	Licence renewed
31/05/2010	L8098/2002/3	Licence renewed
31/05/2013	L8098/2002/4	Licence renewed
29/4/2016	L8098/2002/4	Notice of amendment of licence expiry dates 29 April 2016 - amendment to licence expiry date
25/05/2022	L8098/2002/5	Licence renewed with 7 year duration

Interpretation

In this licence:

- the words 'including', 'includes' and 'include' in conditions mean "including but not limited to", and similar, as appropriate;
- where any word or phrase is given a defined meaning, any other part of speech or other grammatical form of that word or phrase has a corresponding meaning;
- where tables are used in a condition, each row in a table constitutes a separate condition;
- unless specified otherwise, any reference to a section of an Act refers to that section of the EP Act; and
- unless specified otherwise, all definitions are in accordance with the EP Act.

NOTE: This licence requires specific conditions to be met but does not provide any implied authorisation for other emissions, discharges, or activities not specified in this licence.

Licence conditions

The licence holder must ensure that the following conditions are complied with:

Emissions and discharges

Air emissions

- The Licence Holder shall, after six months of achieving stable, normal operation, provide to the CEO a plume dispersion model of NO_x emissions from the 2.75MW Thermic Industries W300 steam boiler stack using real sampling data under normal operating conditions.

Records and reporting

2. The Licence Holder must submit a detailed description of planned operations within the premises to the Department 6 months prior to recommencement of operations. The description must include the following information:
 - (a) Infrastructure and equipment details;
 - (b) Description of processes or operations;
 - (c) Production or design capacity details;
 - (d) Description of emission / discharge points;
 - (e) Locations of waste storage or disposal;
 - (f) Estimated operating period.
3. The licence holder must record the following information in relation to complaints received by the licence holder (whether received directly from a complainant or forwarded to them by the Department or another party) about any alleged emissions from the premises:
 - (a) the name and contact details of the complainant, (if provided);
 - (b) the time and date of the complaint;
 - (c) the complete details of the complaint and any other concerns or other issues raised; and
 - (d) the complete details and dates of any action taken by the licence holder to investigate or respond to any complaint.
4. The licence holder must:
 - (a) undertake an audit of their compliance with the conditions of this licence during the preceding annual period; and
 - (b) prepare and submit to the CEO by no later than 30 days after the end of that annual period an Annual Audit Compliance Report in the approved form.
5. The licence holder must maintain accurate and auditable books including the following records, information, reports, and data required by this licence:
 - (a) the calculation of fees payable in respect of this licence;
 - (b) monitoring programmes undertaken in accordance with condition 1 of this licence; and
 - (c) complaints received under condition 32 of this licence.
6. The books specified under condition 5 must:
 - (a) be legible;
 - (b) if amended, be amended in such a way that the original version(s) and any subsequent amendments remain legible and are capable of retrieval;
 - (c) be retained by the licence holder for the duration of the licence; and
 - (d) be available to be produced to an inspector or the CEO as required.

Definitions

In this licence, the terms in Table 1 have the meanings defined.

Table 1: Definitions

Term	Definition
ACN	Australian Company Number
Annual Audit Compliance Report (AACR)	means a report submitted in a format approved by the CEO (relevant guidelines and templates are available on the Department's website).
annual period	a 12 month period commencing from 1 July until 30 June of the immediately following year.
books	has the same meaning given to that term under the EP Act.
CEO	means Chief Executive Officer of the Department. "submit to / notify the CEO" (or similar), means either: Director General Department administering the <i>Environmental Protection Act 1986</i> Locked Bag 10 Joondalup DC WA 6919 or: info@dwer.wa.gov.au
Department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 3.
discharge	has the same meaning given to that term under the EP Act.
emission	has the same meaning given to that term under the EP Act.
EP Act	<i>Environmental Protection Act 1986</i> (WA)
EP Regulations	<i>Environmental Protection Regulations 1987</i> (WA)
licence	refers to this document, which evidences the grant of a licence by the CEO under section 57 of the EP Act, subject to the specified conditions contained within.
licence holder	refers to the occupier of the premises, being the person specified on the front of the licence as the person to whom this licence has been granted.
Normal operating conditions	(relative to stack emission sampling) means any operation of a particular process, excluding start up and shut down.
NO _x	means oxides of nitrogen
premises	refers to the premises to which this licence applies, as specified at the front of this licence and as shown on the premises map (Figure 1) in Schedule 1 to this licence.
prescribed premises	has the same meaning given to that term under the EP Act.
waste	has the same meaning given to that term under the EP Act.

END OF CONDITIONS

Schedule 1: Maps

Premises map

The boundary of the prescribed premises is shown in the map below (Figure 1).



Figure 1: Map of the boundary of the prescribed premises – Lot 2009 on Plan 43721 Giorgi Road, Picton



Application to renew a licence

Part V Division 3 of the *Environmental Protection Act 1986*

Licence Number	L8098/2002/5
Licence Holder	Australian Renewable Fuels Picton Pty Ltd
ACN	108 170 270
File Number	DER2015/001581-1~8
Premises	Australian Renewable Fuels Picton Legal description Lot 2009 on Plan 43721 Giorgi Road PICTON WESTERN AUSTRALIA 6229 As defined by the Premises map in Schedule 1 of the licence
Date of Report	25 May 2022
Decision	To grant a licence

Neville Welsh

**SENIOR INDUSTRY REGULATION OFFICER
INDUSTRY REGULATION**

An officer delegated by the CEO under section 20 of the *Environmental Protection Act 1986*

1. Decision summary

Under the regulatory framework the Delegated Officer decided to process the application to renew licence L8098/2002/5 without conducting a comprehensive risk assessment of emissions.

The licence is issued for a term up to 14 September 2029, consistent with the current term of the land lease with the registered proprietor and the *Guidance Statement on Licence Duration 2016*.

In renewing the licence the Delegated Officer has determined to:

- Update the format and appearance of the licence;
- Transfer existing regulatory controls and conditions to the new licence;
- Update conditions in accordance with current standards;
- Include conditions considered necessary for the effective administration of the licence (i.e. record keeping and reporting requirements);
- Revise numbering of conditions and references to attachments and update/clarify the definitions;
- In consideration of the timeframe since the last risk assessment (completed in 2006) and the outcomes of the Special Risk Premises Inspection in 2014 - a new condition (condition 2) has been set requiring the licence holder to report to the Department at least 6 months prior to recommencement of operations. Following this action from the licence holder the Department will then undertake a review of emissions risks which may result in a revision of premises risk ratings and regulatory controls.

As a result of the above, the Delegated Officer decided to grant Licence L8098/2002/5 subject to conditions set out in the attached licence.

The Department must be consulted in the event the Licence Holder wishes to construct/install infrastructure or equipment or amend operations.

2. Scope of assessment

2.1 Application summary

On 17 March 2022 Australian Renewable Fuels Picton Pty Ltd (licence holder) applied to renew licence L8098/2002/4, as the licence is due to expire on 30 May 2022. The licence was granted to the licence holder for the premises located at Lot 2009 on Plan 43721 Giorgi Road, Picton, Western Australia (Premises).

The licence relates to prescribed premises categories as described in Table 1.

Table 1: Premises category description and production / design capacity

Prescribed premises category description (Schedule 1, <i>Environmental Protection Regulations 1987</i>)	Production / design capacity
Category 31 Chemical manufacturing: premises (other than premises within category 32) on which chemical products are manufactured by a chemical process.	40,000 tonnes per year

The main activity occurring at the premises is processing of tallow and vegetable oils to produce biodiesel and two by products, i.e. raw glycerine and sulphate of potash fertiliser.

The licence holder explained the Premises has been in care and maintenance for approximately the last 6 years and is expected to remain unchanged.

3. Regulatory framework

The Delegated Officer has not conducted a comprehensive risk assessment of all emissions and discharges from the Premises that aligns with the Department of Water and Environmental Regulation's (Department) *Work Instruction: Regulatory Services, COVID-19 licensing position* October 2021.

In granting the licence, the Delegated Officer has considered and given due regard to the department's regulatory framework and relevant policy documents which are available at <https://dwer.wa.gov.au/regulatory-documents>.

4. Considerations for issuing a new licence

4.1 Legal occupancy

The licence holder has demonstrated legal occupancy of the Premises. The land is the subject of a lease held by the Licence Holder which is due to expire on 14 September 2029.

4.2 Prescribed premises category

The requested prescribed premises category and the corresponding maximum production/design capacity is consistent with the preceding licence category description and corresponding production/design capacity which was previously assessed.

4.3 Other approvals

4.3.1 Planning approval

The licence holder has informed the Department that it has planning approval for the activities on the Premises and that this approval is current.

The Delegated Officer has considered advice from the Shire of Dardanup, noting that planning approvals have been granted for works in relation to the premises, however that further approval/s may or will be required for any works not covered by an existing planning approval.

4.3.2 Dangerous goods site licence

The licence holder holds a dangerous goods site licence relevant to the premises, issued by the Department of Mines, Industry Regulation and Safety (DMIRS), which is due to expire 24 January 2027.

4.4 Compliance and enforcement actions

There have been no complaints or non-compliance incidents relevant to the Premises and identified by the Department within the last 9 years. There have been no enforcement actions taken against the licence holder in the last 9 years.

4.5 Special risk premises inspections

The Delegated Officer notes Special Risk Premises Inspections (SRPI) were undertaken at the Premises in 2010, 2012, 2013 and 2014. The latest SRPI report dated 11 March 2014 attributed the premises with an environmental high risk rating in relation to volumes of fuel/chemicals transported or stored on site.

The Delegated Officer has considered the potential risk of emissions and discharges associated

with the Premises in the setting of the Licence conditions should operation recommence.

5. Summary of changes to the licence conditions

Section 62 of the *Environmental Protection Act 1986* (EP Act) provides the legal power to attach conditions to licences. Most licences are issued with conditions as per *Guidance Statement – Setting Conditions* (October 2015) to prevent, control, abate or mitigate pollution or environmental harm as a result of the emissions and/or discharges from the premises in question.

Error! Reference source not found. summarizes the changes from the expiring licence into the new licence including changes made to licence conditions where required and the rationale for changes made.

Table 2: Licence conditions changes, description, and rationale

Current condition / table	New condition / table (if relevant)	Description and rationale
Definitions	Definitions Table 1	Existing definitions updated as required and in accordance with current standards. Additional terms added in accordance with the department's licence template.
Emissions to air Condition 1	Condition 1	Replaced the term "licensee and Director" with "licence holder and CEO". The existing licence condition remains on the new licence.
N/A	Condition 2, 3, 5 & 6	New records and reporting conditions in accordance with current standards. Rationale provided in section 1 of this decision report.
Reporting conditions Condition 2	Condition 4	Condition updated in accordance with current standards for Annual Audit Compliance Report (AACR). Condition 4 requires submission of the AACR on the approved form available from the department's website.
Attachment 1 Plan of premises	Schedule 1	Attachment 1 updated to Schedule 1. No changes to premises boundary map.
Attachment 2 AACR form	Removed	Deleted outdated AACR form.

6. Consultation

The Delegated Officer undertook the consultation for the application to renew the licence as per Table 3.

Table 3: Consultation

Consultation method	Summary of comments received	Delegated Officer's response									
Application advertised on the department's website on 21 April 2022	No submissions received	Noted									
Local Government Authority (Shire of Dardanup) advised of application on 31 March 2022 and 8 April 2022	Submissions from the Shire of Dardanup were received on 1 April 2022 and 26 April 2022. A summary of comments received are provided below. <i>The Shire has no objection to the renewal based on the following observations:</i> <i>The facility is in caretakers mode and no new works or uses are proposed as part of this licence renewal;</i> <i>The following approvals have been granted for works and use at this facility:</i> <table border="1"> <tr> <td>P03/07</td><td>Granted in January 2007 and letter dated 1 May 2007.</td><td>Extension to fuel and power generation plant - shed and blending structure</td></tr> <tr> <td>P07/09</td><td>Granted 20-02-2009</td><td>Shed for expansion of bio-diesel processing</td></tr> <tr> <td>P60/11</td><td>Granted 16 November 2011</td><td>Pretreatment plant upgrade</td></tr> </table> <i>Any new infrastructure, equipment or plant proposed would need development approval from the Shire of Dardanup.</i> <i>Please also note that a compliance audit has not been completed and any works which had previously been approved but not constructed within the relevant timeframe may require further consideration and approval prior to the works being commenced.</i>	P03/07	Granted in January 2007 and letter dated 1 May 2007.	Extension to fuel and power generation plant - shed and blending structure	P07/09	Granted 20-02-2009	Shed for expansion of bio-diesel processing	P60/11	Granted 16 November 2011	Pretreatment plant upgrade	The Delegated Officer has considered advice from the Shire of Dardanup, noting that planning approvals have been granted for works in relation to the premises, however that further approval/s may or will be required for any works not covered by an existing approval. The Delegated Officer notes the Department must be consulted in the event the Licence Holder wishes to construct/install infrastructure or equipment or amend operations and therefore has imposed a new condition requiring 6 months notification prior to operations recommencing. This should allow sufficient time for all approvals to be obtained prior to operations commencing.
P03/07	Granted in January 2007 and letter dated 1 May 2007.	Extension to fuel and power generation plant - shed and blending structure									
P07/09	Granted 20-02-2009	Shed for expansion of bio-diesel processing									
P60/11	Granted 16 November 2011	Pretreatment plant upgrade									

Consultation method	Summary of comments received	Delegated Officer's response
Applicant was provided with the draft licence and draft decision report on 3 May 2022	Comments were received from the applicant on 13 May 2022 as follows: <i>Draft licence & renewal have been reviewed & we have no further comments to make.</i> <i>Please proceed with renewal as proposed.</i>	Noted.



Department of
Environment

ENVIRONMENTAL ASSESSMENT REPORT

For

AUSTRALIAN RENEWABLE FUELS PICTON PTY LTD

May 2006



GLOSSARY OF TERMS/ ACRONYMS

ARF	Australian Renewable Fuels Pty Ltd
AS	Australian Standards
ASTM	American Society for Testing Materials Standards
bar	unit of pressure measured by a barometer
CEN	European Committee for Standardisation
cfm	cubic feet per minute
CO	Carbon Monoxide
CO ₂	Carbon Dioxide
Decantation	a process for the separation of mixtures, carefully pouring a solution from a container, leaving the precipitate (sediments) in the bottom
DoCEP	Department of Consumer and Employment Protection
DoE	Department of Environment
DMA	Decision Making Authority
Ester	a product of the reaction of an acid (usually organic) and an alcohol
Esterification	a chemical reaction in which two chemicals (typically an alcohol and an acid) form an ester as the reaction product
FAME	Fatty Acid Methyl Ester
FFA	Free Fatty Acid
Inert	not readily reactive with other elements; in a stable state
kg	kilograms
kL	kilolitres
KOH	Potassium Hydroxide
L _{A max}	an assigned level which, measured as a L _{A Slow} value, is not to be exceeded at any time, pursuant to the EP (Noise) Regulations 1997
L _{A Slow}	the reading in decibels (dB) obtained using the “A” frequency-weighting characteristic and the “S” time-weighting characteristic as specified in AS1259.1-1990 with sound level measuring equipment that complies with the requirements of Schedule 4, pursuant to the EP (Noise) Regulations 1997
mm	millimetres
MW	megawatt (1 megawatt equals 1,000,000 watts)

NEPM	National Environmental Protection Measure
LGA	Local Government Authority
LPG	Liquefied Petroleum Gas
RIWI	Rights in Water and Irrigation Act 1914
SO ₂	Sulphur Dioxide
Tallow	rendered beef or mutton fat, which was originally suet
Transesterification	the process of exchanging the alkoxy group of an ester compound by another alcohol
Triglyceride	containing 7-13% glycerine

LICENCE NUMBER: 8098/1
LICENCE FILE NUMBER: L15/02
APPLICATION DATE: 13/03/06
EXPIRY DATE: To be announced

PREMISES DETAILS

OCCUPIER

Australian Renewable Fuels Picton Pty Ltd
ARFuels PO Box Picton
PICTON WA 6229
ABN: 72 108 170 270

PREMISES

Australian Renewable Fuels Picton Pty Ltd
Lot 2009 on Plan 43721
Giorgi Road
PICTON WA 6229

PRESCRIBED PREMISES CATEGORY

Table 1. Prescribed Premises Category from Schedule 1 of the *Environmental Protection Regulations 1987*

Category number	Description	Production or Design Capacity	Nominated Rate of Throughput	Throughput Classification*
31	Chemical Manufacturing	(maximum plant capacity) 40,000 tonnes per year	(actual/ current) 40,000 tonnes per year	100 tonnes or more per year

* From Schedule 4 of the *Environmental Protection Regulations 1987*

This Environmental Assessment Report (EAR) has been drafted for the purposes of detailing information on the management and mitigation of emissions and discharges from the prescribed premises. The objective of the EAR is to provide a risk assessment of emissions and discharges, and information on the management of other activities occurring onsite that are not related to the control of emissions and discharges from the prescribed premises activity. It is important to note that the licence/ works approval is not a mechanism to regulate those activities that occur onsite that are not related to the prescribed premises activity.

Basis of Assessment

Category 31 is described as: -

“Chemical Manufacturing: premises (other than premises within category 32) on which chemical products are manufactured by a chemical process:”

ARF Limited will utilise a chemical process called ‘transesterification’, whereby a diesel-equivalent fuel is derived from a biological, triglyceride source (i.e. tallow and vegetable oils). Transesterification turns oils into esters (i.e. the combustible biodiesel), and separates the esters from the glycerine. The denser glycerine sinks to the bottom of the process vessel while the biodiesel floats on top, facilitating separation.

ARF Limited has a feedstock (tallow) supply agreement with Gardner Smith, Australia’s market leader for the delivery and storage of fats. This material will be processed to produce biodiesel and two by-products (co-products) in the form of raw glycerine and sulphate of potash fertiliser (in paste form). The operation will produce 44.4 million litres of finished product (i.e. biodiesel) per annum, including 4,000 tonnes of raw glycerine and 1,200 tonnes of sulphate of potash per annum as by-products.

1.0 BACKGROUND

1.1 GENERAL COMPANY DESCRIPTION

Australian Renewable Fuels Pty Ltd (ARF) is a 100% owned subsidiary of American parent company Amadeus Energy Limited. Founded in 2001, ARF has entered into an agreement with a European technology provider to allow the company to hold technology licences for the production of a commercially renewable alternative to petroleum diesel (marketed as “biodiesel” in Europe and the USA). ARF is currently developing two major biodiesel plants within Australia, one in Largs Bay, South Australia and the other in Picton, Western Australia. The Largs Bay plant environmental assessment is complete and a licence has been issued. The environmental performance of this plant could be considered similar to the Picton plant.

In January 2002, the company proposed to construct a plant facility enabling the production of fatty acid methyl ester (FAME – or biodiesel) in the north west corner of Lot 49, Giorgi Road, Picton, Western Australia. The technology to be used is the proven Energea process, currently operating in Austria. ARF has an exclusivity agreement with Energea for the use of the technology in the Australian region, including manufacturing rights.

The site has been assessed under Part V of the *Environmental Protection Act 1986* (EP Act). A works approval was issued for construction of the site on 9 April 2002, subject to conditions. A Qualitative Risk Assessment was submitted to the DoE on 1 July 2002 by Combined Team Services.



Completion of the facility was delayed for an extended period of time due to inappropriate commercial conditions, and subsequent media speculation (in August 2003) fuelled debate that the company had shelved its' project in Picton. However, this was not the case and the expiring works approval was re-issued on 18 July 2005 for a period of one year. A compliance certificate for construction of the facility was submitted and approved by the DoE on 3 March 2006, authorising the commencement of commissioning. An "Application for Licence" was submitted to the Department on 13 March 2006. The above-mentioned documents will be assessed under Part V of the EP Act, with this report detailing the assessment.

1.2 BUSINESS PURPOSE

ARF will provide the first plant in Australia for the production of a commercially renewable, direct alternative to petroleum diesel at Largs Bay, South Australia. The second plant, of identical design, will be commissioned at Picton, Western Australia. Initial production capacity at the Picton facility is estimated to be 45 million litres of biodiesel per annum, with intent to sell into both the established European market and the emerging Australian market.

ARF's vision is to become "the pre-eminent biodiesel producer by managing a planned rollout of biodiesel plants within Australia". The company has an exclusive five-year contract with Godiver, a European trading house, allowing the option to sell up to 120,000 tonnes per annum of biodiesel (about 135 million litres). The Godiver contract will provide ARF with some security of sales from commencement of production. However, once production has commenced, ARF plans to quickly develop the Australian biodiesel market.

The Australian and New Zealand Standard Industrial Classification for this site is:

Division C – Manufacturing

Subdivision 25 – Petroleum, Coal, Chemical and Associated Product Manufacturing

254 – Other Chemical Manufacturing

1.2 LOCATION OF PREMISES

ARF's Picton site is located on Giorgi Road, bordering the City of Bunbury, in the Shire of Dardanup, South West of Western Australia (see Appendix A).

The legal land description of the original site issued in the first works approval was the "north west corner of AA Lot 49 fronting Giorgi Road, Picton, Western Australia". The proponent has since sub-divided this area of land, including a re-zoning by the Shire of Dardanup, pursuant to the local planning scheme. The legal land description of the property is currently Lot 2009 on Plan 43721.

The facility is located in the Enterprise Park industrial area (a general industrial zoned development area) on the outskirts of Bunbury. Enterprise Park is approximately 50%

tenanted, with two petroleum storage facilities, a heavy haulage and earthmoving contractor, a limestone brick manufacturing facility and several other service facilities already established, which attract considerable vehicular traffic to the area. The nearest residential neighbours are approximately 1.5 kilometres distant from the facility.

There is a large area of undeveloped farmland along the northern boundary of the property that has been zoned within the Preston Industrial Park (eg. Lots 4, 42 – 45 on Plan 232805). These lots have been zoned ‘light industrial’, pursuant to the City of Bunbury town planning scheme.

The property is not in a Public Drinking Water Source Area (PDWS) and no Environmental Protection Policies apply in the area.

1.3 PLANT AND PROCESS DESCRIPTION

The Picton plant is quite small by fuel production facility standards. The process facilities and storage occupy less than one hectare, and the processes involved are similar to those at an edible oil factory. Within the process plant the maximum pressure is less than 10 bar, the maximum temperature less than 80 degrees Celsius and most process pipelines are in the range 25 to 50mm in diameter. The overall process is carried out within completely sealed reactors, and all tank storage is under an inert (nitrogen) gas atmosphere.

To be marketed commercially as fuel biodiesel must meet the ASTM Standard Specification for Biodiesel Fuel (B100) Blend Stock for Distillate Fuels (D6751-02). The production process will be based on the esterification and transesterification of recycled vegetable oils and animal fats (tallow), to produce fatty acid methyl esters (“FAME”) – a renewable alternative to diesel fuel. It will also produce raw glycerine and sulphate of potash fertiliser as by-products. The chemistry of the proposed process is well known and overseas technologies utilising this chemistry are proven within the industry, having been in use for more than ten years.

The Picton and Largs Bay plants will be direct copies of a plant presently in operation at Zisterdorf, Austria. With the Largs Bay plant now commissioned, its initial operating performance will act as a test case for the Picton plant, allowing lessons learnt to be applied to the Picton plant.

1.3.1 Process Overview

The biodiesel process is called transesterification. Alcohol (typically methanol because of low-cost simplicity of the chemical process) is used to react with vegetable or animal oil in the presence of a caustic catalyst (sulphuric acid, H_2SO_4). The caustic catalyst causes the methanol to react with the oil forming glycerine and crude biodiesel. Approximately 90% of the input oil is converted into combustible biodiesel fuel. The products are then processed further (“chemically washed”) to remove excess methanol and unreacted catalyst, which



will be reused. The main byproduct/ co-product of the process is glycerine, which will be re-used as a fuel for the process.

100% of the tallow input is converted to biodiesel and glycerine. The introduction of reagents (i.e. methanol and sodium hydroxide) causes the production of sulphate of potash - in affect, 105% output is achieved in relation to tallow input.

1.4 REGULATORY CONTEXT

1.4.1 Part V Environmental Protection Act 1986, Environmental Management

This facility has been assessed as a “prescribed premises” Category number 31: Chemical manufacturing, under Schedule 1 of the *Environmental Protection Regulations 1987*. Works approval number 3596 was issued by the DoE on 9 April 2002 for the construction of the ARF Plant, and renewed on 18 July 2005 for a period of one year. Construction is currently in the final stages, and before operation can take place a licence must be issued, which this environmental assessment is the precursor to.

1.4.2 Department of Consumer and Employment Protection

The storage, handling and containment of chemicals stored on site is regulated by the Department of Consumer and Employment Protection (DoCEP) under the *Explosives and Dangerous Goods Act 1961*. ARF currently hold a “Dangerous Goods Storage Licence” (DGS020403), which expires on 24 January 2007.

2.0 PRIMARY IMPACTS FROM EMISSIONS

SUBMISSIONS RECEIVED DURING 21 DAY PUBLIC COMMENT PERIOD

The Application for Licence details for this facility were advertised in the West Australian newspaper on 27 March 2006, as a means of advising stakeholders and to seek public comments. No submissions were received.

ARF Limited consulted two businesses in closest proximity to the facility on the proposed operation. Green Recycling and Leschenault Excavations Pty Ltd were consulted on 28 February and 3 March 2006, respectively. Both expressed interest and support of the proposed operations with no objections, with both offering future support and cooperation. The Shire of Dardanup and Bunbury City Council were consulted on 1 and 2 March 2006, respectively. Both expressed full support and approval.

3.0 EMISSIONS AND DISCHARGES ASSESSMENT

The DoE considers that conditions should focus on regulating emissions and discharges of significance. Where appropriate, emissions and discharges that are not significant should be managed and regulated by other legislative tools or management mechanisms.

3.1 AIR EMISSIONS

The operational process is designed to produce negligible air emissions, however discharge of the following two substances from the process have been assessed:

- Oxides of nitrogen from the 1MW gas powered steam boiler; and
- Methanol in non-condensable discharge from plant vacuum machines and plant upsets.

Oxides of nitrogen from the 1MW boiler: The project has a 1MW boiler that will be fuelled by natural gas (LPG). As a product of in-complete combustion of fuel, low concentrations of NO_x will be produced and present within the flue gas. ARF also propose to utilise glycerine co-product to supplement LPG as a boiler fuel during production – this may produce unknown concentrations of NO_x due to inefficient volatilisation of compounds.

Process steam will be produced from the boiler continuously as the plant will operate 24 hours a day, 7 days a week. The boiler will operate on an unattended basis and no management of emissions has been outlined. No predicted NO_x emissions have been supplied for the Picton plant, however the Largs Bay (identical design but larger boiler capacity of 3MW) plant has predicted by modelling using AUSPLUME the maximum ground level concentration of nitrogen dioxide (NO₂) in the immediate vicinity of the plant to be 0.0227 mg/m³ (1 hour average). Standards for nitrogen dioxide in Western Australia are contained in the NEPM for Ambient Air Quality (NEPC 1998), shown in table 2.

Table 2. Nitrogen dioxide standards in the NEPM for Ambient Air Quality.

Nitrogen dioxide concentration	Averaging time	Maximum allowable exceedences
0.12 ppm (≈ 0.246 mg/m ³)	1 hour	1 day per year
0.03 ppm (≈ 0.062 mg/m ³)	1 year	none

The predicted ground level concentration of NO₂ for Largs Bay is well below the concentration outlined in the NEPM for Ambient Air Quality. However, the Picton plant will be using glycerine as a fuel, which may produce different concentrations. The boiler specifications under both LPG and glycerine fuel scenarios, supplied by the manufacturer (Thermic Industries) are shown in table 3.

Table 3. Manufacturer specifications for predicted flue gas emissions from a 1MW Thermic Industries W300 steam boiler, per fuel type.

Substance	Boiler Fuel (concentration of emission per hour)	
	Glycerine	LPG
O ₂	3%	5.2%
CO ₂	18%	9.5%
H ₂ O	13%	-
CO	<50 ppm	<50 ppm
NO _x	<30 ppm	<30 ppm
SO _x	Not detectable	Not detectable

Table 3 indicates double the NEPM concentration of NO_x from both fuel types when measured at the source. However, it is necessary to gather 'real' ground level modelling data for the use of glycerine as a fuel, in order to compare with the NEPM standards (outlined in table 3). This will be addressed through the imposition of licence conditions, requiring the installation of a stack monitoring port on the boiler. After the plant has achieved a stable operation status, the abovementioned sampling port will be used to produce a spatial NO_x model in order to justify a low/ minimal likelihood of environmental impact from the use of glycerine as a boiler fuel.

Methanol emissions (normal operations) Methanol is used widely throughout the process to react with the vegetable oil and tallow, forming glycerine and crude biodiesel. During normal operations the plant vacuum machines and the process drains will discharge methanol to two dedicated stacks.

No predicted methanol emissions have been supplied for the Picton plant, however the manufacturers of the biodiesel plant (Energea) have advised that plant methanol losses for the identical Largs Bay plant are:

- 5kg/hr (1.3889g/sec) from the vacuum units under normal operating conditions; and
- 2.5kg/hr (0.6944g/sec) from a separate drain vent (north vent)

There are no standards for methanol vapour in Western Australia, however guideline concentrations for South Australia are contained in the SA EPA guideline document 386/03, as shown in table 4.

Table 4. Methanol standards in the SA EPA guideline for Ambient Air Quality.

Reason for classification	Averaging time	Design criteria (mg/m ³)
Odour	3-minute	5.5
Toxicity	3-minute	8.7

The predicted ground level concentration of NO₂ for Largs Bay is well below the concentration outlined in the NEPM for Ambient Air Quality.

Methanol emissions (emergency release) There exists a slight possibility of failure of a rupture disc (see “over pressure protection vent emissions” section). Depending on the part of the plant where such a failure occurs, the pressure release would discharge via the enclosed drain to a 10m³ tank and then to an 18.5m drain stack. Upon failure of a rupture disc, the plant will automatically shut down. The maximum time of discharge from the drain relief stack would be 10 seconds.

The results from a model of the normal methanol emissions combined with the emergency release emissions of the Largs Bay plant indicate a maximum ground level concentration of 3.81 mg/m³ methanol (3 minute average) about 300 m from the plant. This is below the SA EPA 386/03 design ground level concentration of 5.5 mg/m³.

Over pressure protection emissions Four stacks at an elevation of 18.5m from the plant function as release vents to prevent overpressurisation. The function and composition of these vents are presented in table 5.

Table 5. Composition and function of the four vents from the process.

Vent location	Composition	Function	Flow Rate (kg/hr)	Duration (sec)	Release (kg)	Temp (°C)
North	Nitrogen-dry	Purge from biodiesel plant	2	Continuous	2kg/hr	8
2	Methanol vapour	Over pressure protection device	2389	2	1.327	67
3	Water vapour; trace methanol	Over pressure protection device	158	2	0.088	113
South	Nitrogen - dry	Over pressure protection device	1	2	0.001	17

Vents 2, 3 and South are over-pressure protection devices that operate as a second line of defence against the failure of the normal process control instrumentation. The North vent operates as a continuous purge of nitrogen at concentrations well below natural ambient concentrations. Table 5 illustrates the composition of each vent and the quantity to be released, if the device were to be activated.

3.1.1 Air Emissions Risk Assessment

From the limited data provided, the concentration of NO_x from the Largs Bay plant boiler (LPG fuel source) indicate a low environmental significance in comparison to the NEPM guideline concentrations for NO_x in Western Australia. However, the potential use of

glycerine as an alternate boiler fuel and the lack of NO_x modelling data from the Picton plant and real monitoring data from any similar plant mean that a conservative approach should be taken. This may include a plume dispersion model for NO_x emissions from the boiler during normal operations, for comparison with the standards outlined in the NEPM for Ambient Air Quality.

Standard air emission limits and targets for non-organic compounds in Western Australia are limited. The air quality guidelines for methanol in South Australia can be used as a guide/ comparison against advised emissions from the Picton plant. The results from modelling using AUSPLUME for the normal methanol emissions combined with the emergency release emissions from the Largs Bay plant indicate average ground level concentrations to be well within the South Australian EPA guidelines. Based on this information, methanol at the Picton plant is considered to be of low environmental significance. Should a problem arise at the Largs Bay plant or the Picton plant, this conclusion may be reviewed.

Over-pressure protection vents 2, 3 and South are not active during normal operations, therefore are of no risk. There are no standards or guidelines in Australia for nitrogen emissions, however Dr Peter Rye (Senior Environmental Officer – Air Quality Management Branch) advised (personal comment) that the rate of continuous purge from the North vent (2kg/hr) is well below natural ambient air concentrations and is highly insignificant.

In general, there will be no venting of greenhouse gas emissions from biodiesel storage tanks, as the biodiesel will be stored under a positive pressure. There are no smoke emissions from normal operations.

3.1.2 Recommended Strategy for Managing Air Emissions

Initial monitoring of NO_x emissions from the boiler stack will be required in order to validate that emissions are of low significance. As there has been no air emission modelling for predicted ground level NO_x concentrations from the boiler, licence conditions will require the installation of a sampling port on the boiler, allowing a plume dispersion model to be created after achieving stable operations. Methanol emissions under normal operating conditions are of low significance and do not require reference in the licence.

3.2 ODOUR EMISSIONS

The plant has been designed to reduce odour during unloading of unprocessed tallow, through the use of an enclosed pipe system and sealed process vessels. A vapour space tank will be connected to the delivery tanker by a sealed pipe during tanker discharge and any air/ vapour displaced from the tank during filling will be captured in the tanker. Liquip AP1555 couplers and vapour couplers are to be used.



No odour problems are expected during re-loading as the smell of the processed biodiesel product itself, resembles that of the input used to create it (eg. canola oil input would result in the finished product resembling a “fish ’n chip” smell).

3.3 NOISE EMISSIONS

The site is required to operate in accordance with the *Environmental Protection (Noise) Regulations 1997*, which the company has as one of their stated objectives. Energea Biodiesel Technology advise limits of noise from the plant of a maximum 87 dB(A) at 1 metre from high pressure pumps and centrifuges. This level of noise is within the $L_{A \max}$ assigned level of 90 dB for ‘industrial and utility premises’ under the EP (Noise) Regulations 1997.

3.4 LIGHT EMISSIONS

The design of lighting at the facility will be based on the Australian Standard for the control of obtrusive outdoor lighting (AS 4282-1997). The nearest residential property (i.e. farmhouse) is approximately 1.5 km distant from the facility; therefore the risk is insignificant.

3.5 DISCHARGE TO WATER

Direct discharge to waterways, wetlands or groundwater does not apply to this site.

3.6 DISCHARGE TO LAND

Stormwater The operational area of the site will be contained and there will be no direct discharge to land other than controlled diversion of uncontaminated storm water. Stormwater runoff is estimated to average 8,500 kL per annum.

The stormwater drains on the premises are separate from the drains for process plant spillage and liquids storage area wastes. All uncontaminated stormwater will be directed to a lined infiltration pond before overflowing to an on site wetland basin.

Wastewater Limited wastewater will be produced from the process as most of the “washing” water will be recycled (separation of lipids and esters during transesterification stages) while a portion remains in the raw glycerine. It is not intended that any process water be discharged, however a sump will be provided to catch any unforeseen spillage, which will be neutralised before discharge, if necessary.

There is the potential for a relatively low quantity (< 3,000 kL/yr) of liquid discharged from the process through washdown water, which will be directed through a gross pollutant trap and an oil-water separator (see below). Spillage within the truck loading/ unloading area is returned to the process.



Oily Water The discharge of all process waters will be directed to an oil-water separator, where oil is filtered and transported off site by a licensed oil recycler (Wren Oil). Filtered water will be diverted to the dedicated infiltration wetland basin. No detergents are used in washdown water.

Other potential discharges The process utilises KOH (Potassium Hydroxide) Bulka Bags that are washed after use, with all contaminated water returned to the process, presenting a very low risk of contamination.

3.6.1 Discharge to Land Risk Assessment

The production facility has been designed so that all stormwater run off and filtered/ treated process water will initially collect in the lined pond before discharge into the dedicated infiltration wetland basin that has the capacity to hold 1 in 100 year storm level for 72 hour duration. This pond will act as a contingency, in the event of a major contamination or spillage from the process area. The design of the plant presents minimal risk of contamination to ground and stormwater during normal operations.

Stormwater and associated wastewater that collects in the bunded areas, including oily process water, will be directed to the oil-water separator before discharge to the lined pond, to eliminate any risk of contamination.

3.6.2 Recommended Strategy for Managing Discharge to Land

The issue of discharge to land does not require regulation, as this does not occur from normal operations.

3.7 SOLID/ LIQUID WASTE DISCHARGES

There are no solid or liquid wastes produced from the process. The only wastes associated with this site are related to human and office waste.

3.7.1 Solid/ Liquid Waste Discharges Risk Assessment

Human wastes will be managed by Icon-Septech Turbojet wastewater treatment. This system utilises biological processes to produce crystal clear water from wastewater. For more information, visit www.icon-septech.com.au. Office waste will be recycled and all non-recyclables will be disposed of offsite.

3.7.2 Recommended Strategy for Managing Solid/ Liquid Waste

The issue of solid/ liquid waste does not require regulation, as the environmental impact is insignificant.

3.8 FUEL STORAGE

The ARF facility requires bulk storage of the following raw materials and products:

Table 6. Storage of Reagents and Products at Giorgi Road, Picton

Reagent	Description	Quantity (tonnes)	HG Class
Lipids	Animal and Vegetable Fats & Oils in liquid state. Held in two 600m ³ totally enclosed tanks with an inert atmosphere	1200	
Potassium Hydroxide (KOH)	Flake form (1 tonne Bulka Bags)	70	HG Corrosive
Methanol (CH ₃ OH)	Liquid form, held in totally enclosed vessel with inert atmosphere	100	HG Flammable
Sulphuric Acid (H ₂ SO ₄)	Liquid form, 98% concentrate	60	HG Corrosive
Natural Gas	Reticulated around the property using Alinta Gas mains supply		
Hot water/ saturated steam	Produced from on-site 1MW capacity, unmanned, gas fired boiler		
Nitrogen Manpacks	Liquid Nitrogen in 12 bottle manpacks		
Biodiesel	C2 Class combustible, held in totally enclosed tank with an inert atmosphere	1200	
Raw Glycerine	Semi-solid gel form	120	
Potassium Sulphate (K ₂ SO ₄)	Semi-solid paste	70	

3.8.1 Fuel Storage Risk Assessment

Due to the nature of the stored chemicals, there is the potential for off-site risks such as:

- spillage or leakage from a container being transported to/ from the site;
- spillage or leakage from a container or pressurised pipeline on site;
- fire or explosion on site; and
- power failure.

A dangerous goods licence covers all reagents/ chemicals utilised in the process. The facility will comply with DoCEP's requirements for storage and handling of Dangerous Goods. The on site storage of chemicals will present a negligible risk.

3.8.2 Recommended Strategy for Managing Fuel/ Chemicals

The issue of fuel/chemical storage does not require regulation, as the environmental impact is better managed under DoCEP's Dangerous Goods Act.

4.0 ENVIRONMENTAL RISK ASSESSMENT

Using the preceding information and the environmental risk assessment table given in Appendix B, an overall risk assessment can be summarised as outlined in table 7.

Table 7. *Risk Assessment / Management Response Summary Table for Licence.*

Risk factor	Likelihood	Ecological Impact Consequence	Community / Human Impact Consequence	Management Response	Perceived community risk
Gaseous emissions	D not likely	III moderate or small impact	IV small	Y licence conditions (monitoring)	Low
Dust emissions	D not likely	V no impact	V very small	Z Nil	Low
Odour emissions	D not likely	V no impact	V very small	Z Nil	Low
Noise emissions	D not likely	IV little impact	V very small	Z Regs	Low
Light emissions	D not likely	V no impact	V very small	Z Nil	Low
Surface Water discharges	D not likely	III small	IV small	Z Nil	Low
Ground Water discharges	D not likely	III small	IV small	Z Nil	Low
Solid Wastes	D not likely	IV little impact	IV small	Z Nil	Low

Note 1. For “perceived community risk”, a subjective low, medium or high rating is given. This is not directly used in calculating the management response level, but will affect the final detail (eg licence condition wording) within that management response level.

Note 2. The terminology, likelihood, ecological and human impact consequences rating, and the recommended management response, were determined using the “Environmental Risk Assessment” process given in Appendix C. This combines a “likelihood” rating with the highest of either an “Ecological Impact Consequence” or a “Community /Human Impact Consequence” to compile a reduction matrix, which contains the recommended management response. This process was run for each of the above risk factors.

Note 3. The community risk assessment is based on complaint history, but also reflects informal direct and indirect comments and concerns received by the Department and experience at other mineral sands operations using the number and types of complaints as indicators.

IMPORTANT NOTE: The impact risk assessment relates to the risk of impact off the licensed premises, that is, it assesses what is likely to cross the lease boundary. It does not relate to on-site worker health and welfare issues.



4.1 Recommended Strategy for Managing Risks

In summary, the renewable fuels facility to be constructed will present negligible risk to personnel, property or the environment. The facility is a copy of tried and tested facilities elsewhere in the world, where no adverse outcomes have been experienced.

5.0 GENERAL SUMMARY AND COMMENTS

ARF Limited is constructing a renewable fuels facility in Picton, Western Australia – the first of its kind in this state. The processing facility, the ARF Plant, requires licensing as it meets the prescribed activity requirements for Category 31 under the *Environmental Protection Regulations 1987*.

All emissions from the facility have been assessed as being insignificant or are suitably managed through design and operational parameters. This premises has been classified as “low priority” in accordance with the DoE’s Licensing Priority management Framework and as such, will be issued for a period of five years.

The plant’s only major emission (air emissions from the boiler) has been assessed as being of low environmental risk. Nonetheless, a conservative approach, including lack of experience with this process in Australia, dictates some initial reference in the licence. This could relate to monitoring and modelling of NO_x emissions once the plant is operational.

OFFICER PREPARING REPORT

HARTNUP, Daniel

Natural Resource Management Officer
South West Regional Office
Department of Environment
08 9726 4156

19 May 2006

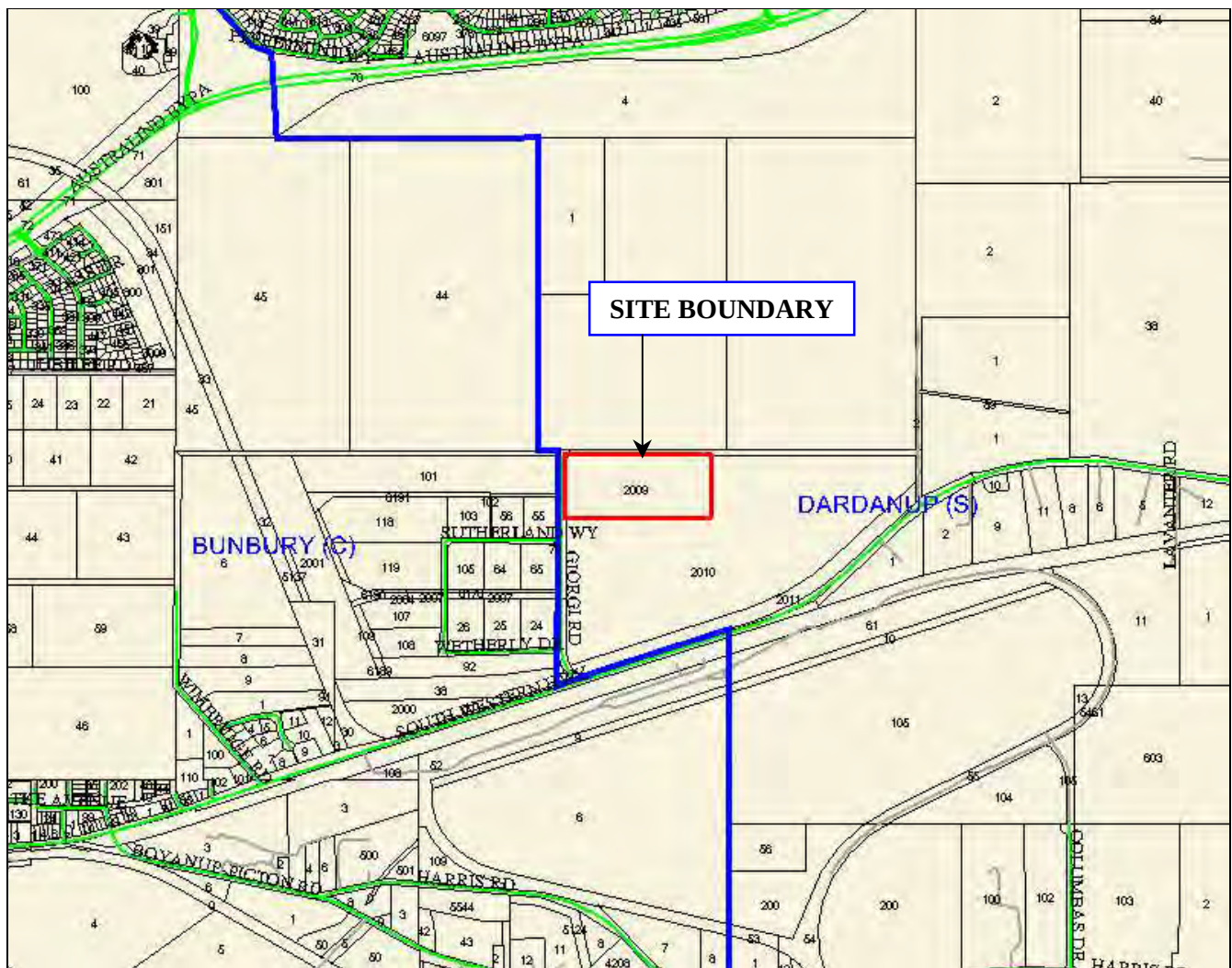
ENDORSEMENT

Regional Manager
South West Regional Office
Department of Environment
08 9726 4100

19 May 2006

APPENDIX A – Site Location

Figure 1. Site location of ARF Limited, Giorgi Road, Picton.

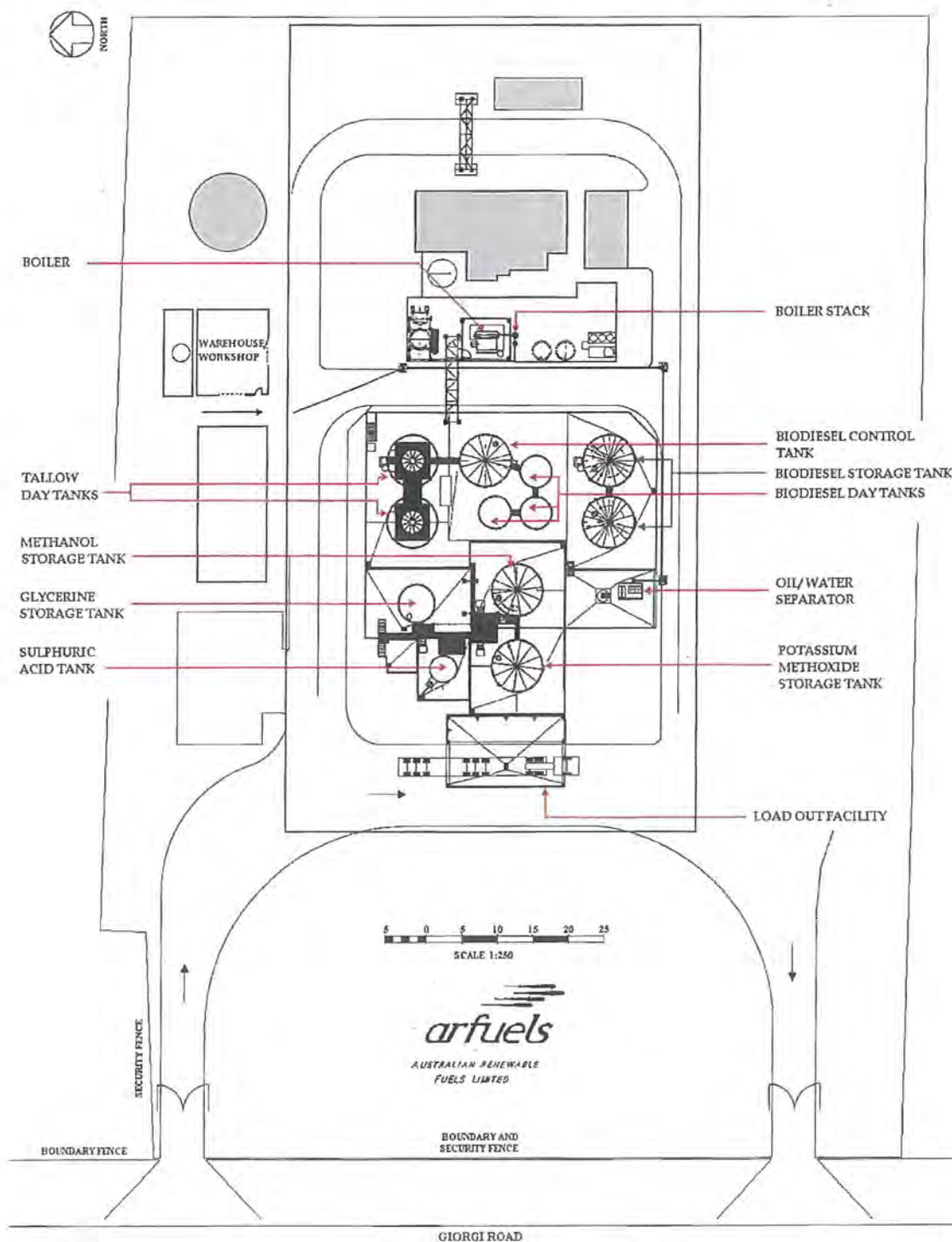


APPENDIX A – Site Diagram

Figure 2. Site diagram of ARF Limited, Giorgi Road, Picton.

APPENDIX A – Site Diagram

Figure 2. Site diagram of ARF Limited, Giorgi Road, Picton.





APPENDIX B - Environmental Risk Assessment Table

Risk Table 1: *Likelihood*

Category	Likelihood
A	Repeated (>once per year), continuous
B	intermittent (once in 1 to 10 years)
C	Rarely (once in 10 to 100 years)
D	Not likely to reoccur (once off)
E	Not previously occurred, unforeseen

Risk Table 2: *Ecological Impact Consequence*

Category	Impact	Examples / pointers
I	Major/large impact or long duration	large fish kill on Augustus River Large scale destruction of flora/fauna discovery of cluster of birth deformities
II	serious or significant impact large area	causing \$10,000 damage/death of an endangered species complete obliteration of wetland/ direct spill into watercourse toxic air cloud leaves site
III	moderate or small impact or short duration or small area	> 1 Ha of vegetation suffers leaf burn small process/caustic spill into off site forest
IV	little or unknown impact	< 1 Ha of vegetation exhibits leaf burn non-toxic dust leaving Premises Process/caustic spill contained on Premises
V	no impact	Odour/ gaseous emissions on flora

Risk Table 3: *Community/Human Impact Consequence*

Category	Impact	Examples / pointers
I	Major/large	Public health symptom concern causing evacuation person suffering acute symptoms requiring hospitalisation discovery of cluster of birth deformities
II	serious or significant	Many residents report same symptoms over extended period causing \$10,000 damage stay inside direction, DMAC initiation
III	moderate	More than 2 residents report same symptoms over short term unreasonable impact on amenity (cant stay outdoors) noise wakes more than 2 persons from sleep.
IV	small	Noise/odour wakes 1/2 persons from sleep.
V	very small or none	Noise/ odour event reported long afterwards member of public diagnosed with Multiple Chemical Sensitivity

Risk Table 4: *Environmental Risk Reduction Priority Matrix*

Consequence	Likelihood				
	A	B	C	D	E
I	w	w	w	x	z
II	w	x	x	y	z
III	x	x	y	z	z
IV	y	y	z	z	z
V	y	y	z	z	z

Risk Table 5: *Priority Matrix Action Descriptors*

Descriptor	Action	Examples / pointers
w	licence condition	setting limits and EMP - short timeframes
x	licence condition	setting targets and EMP - longer timeframes
y	licence condition	monitoring/reporting, EIP
z	EIP, other management mechanisms	

DMAC = District Emergency Management Committee
 EMP = Environmental Management Plan
 EIP = Environmental Improvement Plan

**1. Instrument details**

Instrument No	L8098/2002/4
Name of Instrument Holder	[REDACTED]
Name of Premises	[REDACTED]
Premises Address	[REDACTED]

2. Inspection details

Lead Inspector	[REDACTED]
Support Inspector	[REDACTED]
Licensee Representative(s)	[REDACTED]
Date and Time of Inspection	Wednesday 28 November 2018 (4pm)

3. Inspection Scope

In response to an inspection by DFES (15 September 2017) that identified corrosion evident around the base of the bunded biodiesel storage tank.

Above report submitted to PRU for information only. It is noted that the company went into receivership in 2016 and the premises is still closed and in caretaker mode (administrator – [REDACTED])

The last inspection of the site was on 11 March 2014 and the site was inspected by Pollution Response as well as DER Licensing officer [REDACTED] with the only potential concern was within the bio-diesel storage tank bund. An area of corrosion was visible inside the bund where a historical spill had occurred and corroded the cement surface. No leaks or cracks were leading out of the bund however this was raised as a potential issue if a major leak was to occur from the tank.

It is noted that the company went into administration in January 2016 and is still in care and maintenance mode.

3.1 Compliance History Summary *(insert detail on compliance history – complaints, incidents, previous non-compliances, s.72/N1 notifications)*

ICMS 24443 – Submitted 2010/11 AER after the due date

3.2 AER Review Summary *(insert detail on any AER trends, relevant information)*

Licence does not have condition requiring the submission of an AER.

3.3. AACR Review Summary *(insert detail on declared non-compliances from the AACR)*

An AACR was received 19 September 2018 (submitted by [REDACTED] - [REDACTED])

No no-compliance was reported.

AACR received after the due date (31 July 2018).



4. Premises and activities description

The site stores chemicals including methanol, methanolic potassium methoxide, sulphuric acid and potassium hydroxide. The chemicals are all used in the process of producing bio-diesel.

The site contains storage tanks, appropriate concrete sealed ground cover and concrete bunding around the chemical tanks.

Drainage onsite is sealed with concrete and contained to the site. A sluice gate is also installed for the release of stormwater to a plastic lined onsite dam.

The biodiesel process is called transesterification. Alcohol (typically methanol because of low-cost simplicity of the chemical process) is used to react with vegetable or animal oil in the presence of a caustic catalyst (sulphuric acid, H₂SO₄). The caustic catalyst causes the methanol to react with the oil forming glycerine and crude biodiesel.

Approximately 90% of the input oil is converted into combustible biodiesel fuel. The products are then processed further ("chemically washed") to remove excess methanol and unreacted catalyst, which will be reused. The main by product / co-product of the process is glycerine, which will be re-used as a fuel for the process.

Company went into administration in January 2016. Site still in care and maintenance.

5. Prescribed premises categories

Category	Category : 31 – Chemical manufacturing
Approved production/design capacity	40,000 tonnes per year
Established production	Premises did not operate during 2017 – currently still in caretaker mode
Assessment	As above

6. Regulatory Controls

Licence L8098/2002/4

Condition #	Condition	Assessment
1	The Licensee shall, after six months of achieving stable, normal operation, provide to the Director a plume dispersion model of NOX emissions from the 2.75MW Thermic Industries W300 steam boiler stack using real sampling data under normal operating conditions.	Information provided on 13/04/2006 (Ref: A104872). NB - Company went into administration in January 2016. Site still in care and maintenance.
2	The licensee shall by 31 July in each year, provide to the Director an Annual Audit Compliance Report in the form in Attachment 2 to this licence, signed and certified in the manner required by Section C of the form, indicating the extent to which the licensee has complied with the conditions of this licence, and any previous licence issued under Part V of the Act for the premises, during the period beginning 1 July in the previous year and ending on 30 June in that year.	Source document confirmed that an AACR was submitted by [REDACTED] - [REDACTED] on 19 September 2018 (after the due date). No no-compliance was reported. NB - Recommend no further action due to late submission of AACR.



Legislation – EP Act/Unauthorised Discharge Regulations		
Regulation #	Section	Assessment/Details
3(1)	A person who, in the course of or in connection with a business or a commercial activity, causes or allows a material listed in Schedule 1 to be discharged into the environment commits an offence.	Noting concerns by DWER and DFAS regarding corrosion within bund of the biodiesel bulk storage tank, Officers inspected bund area (Ref: Photograph 1). [REDACTED] stated all bulk tanks on site had been emptied and showed inspection plates that were not secure to tank. Officers observed no evidence of spillage into bunded area or an unauthorised discharge.



7. Unregulated Environmental Risks

Emission type	Wastewater	Activity	
Pathway		Receptor and impacts	
Description			Assessment
Emission type	Gaseous and particulate emissions	Activity	
Pathway		Receptor and impacts	
Description			Assessment
Emission type	Odour	Activity	
Pathway		Receptor and impacts	
Controls			Assessment
Emission type	Noise	Activity	
Pathway		Receptor and impacts	
Description			Assessment
Emission type	Dust	Activity	
Pathway		Receptor and impacts	
Description			Assessment
Emission type	Waste and leachate	Activity	
Pathway		Receptor and impacts	
Description			Assessment

**7. Unregulated Environmental Risks**

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8. Identified Issues

Instrument	Condition/Section	Issue	Corrective Actions



DWER Document References	
Licence File	DER2015/001581-1
Inspection Report	DWERDT115734
EFR Number	N/A
ICMS Number	N/A
Instrument Recommendation	N/A
Breach Management Plan	N/A

10. Review and Approval			
Drafted by	[REDACTED]	Date:	12 December 2018
Reviewed by	[REDACTED]	Date:	18 December 2018
Approved by	[REDACTED]	Date:	21 December 2018



Attachment 1: Photographs



Photograph 1: Biodiesel Storage tank (bund area)

Photograph 2:



Government of **Western Australia**
Department of **Environment and Conservation**

Your ref: L8098/2002/3
Our ref: SWB1893-03
Enquiries: [REDACTED]
Phone: (08) [REDACTED]
Email: [REDACTED]@dec.wa.gov.au



Dear Sir/Madam,

Environmental Protection Act 1986

Licence: L8098/2002/3

Premises: [REDACTED]

I refer to a recent compliance inspection conducted on 27 March 2012 by Department of Environment and Conservation (DEC) Officers, [REDACTED] and [REDACTED] and your site representative, [REDACTED]. The purpose of the compliance inspection was to assess the above premises for compliance with the *Environmental Protection Act 1986 (the Act)* licence L8098/2002/3 and subsidiary legislation.

As discussed with you, the inspection identified both compliance and non compliance with the inspection criteria. The results with respect to non compliances are detailed below;

Non-Compliance

1. It was identified that you had failed to comply with condition 2 in that you failed to provide to the Director an annual audit compliance report for the period 1 July 2010 to 31 June 2011. This was required to be submitted prior to 31 July 2011.

COMPLIANCE ACTION – The annual audit compliance report for the period 1 July 2010 to 31 June 2011 was received on 11 April 2012.

No further action will be taken at this time in regards to this non compliance. Please note, the next annual audit compliance report is required to be provided to DEC by 31 July 2012.

If you require further information relating to the above, please contact [REDACTED] on (08) [REDACTED] or [REDACTED] (08) [REDACTED]

Yours sincerely,



South West Region
14 May 2012



Government of Western Australia
Department of Environment and Conservation

Your ref:
Our ref: L8098/2002/3
Enquiries: [REDACTED]
Phone: 08 [REDACTED]
Fax: 08 9725 4351
Email: [REDACTED]@dec.wa.gov.au



Dear [REDACTED]

Department of Environment & Conservation (DEC) conduct an Industry Regulation Compliance Program each year.

I wish to inform you that as part of the South West Region Industry Regulation Compliance Inspection program for March 2012, we will be inspecting L8098 – [REDACTED] Biodiesel Plant on Thursday, 22 March 2012.

The lead inspection officer will telephone you prior to this inspection date to confirm actual arrival time at your premises.

Should you wish to discuss these arrangements please contact [REDACTED] on [REDACTED]

Yours sincerely



[REDACTED] Industry Regulation
South West Region

24 FEB 2012



Government of Western Australia
Department of Environment Regulation

Your ref: L8098/2002/4
Our ref: SWB1863-03
Enquiries: South West Region
Phone: (08) 9725 4300
Fax: (08) 9725 4351
Email: SWIRAdmin@dec.wa.gov.au

[REDACTED]

Dear Sir/Madam,

Environmental Protection Act 1986

Licence: L8098/2002/4

Premises: [REDACTED]

I refer to a recent compliance inspection conducted on 10 December 2013 by Department of Environment Regulation (DER) Officers, [REDACTED] and [REDACTED] and site representative [REDACTED]

The purpose of the compliance inspection was to assess the above premises for compliance with the *Environmental Protection Act 1986 (the Act)* licence L8098/2002/4 and subsidiary legislation.

Please find attached a copy of the inspection report.

Please ensure you note the not determined item identified in section "D" of the report and you should comply with the actions for compliance in section "E" of the report as stated.

Please provide the DER with a response to this inspection report by **31 January 2014**, addressed to:

South West Region
Department of Environment Regulation
P.O. Box 1693
BUNBURY WA 6231
Email: SWIRAdmin@der.wa.gov.au

The response shall document all actions specified in the attached report.

If you require further information relating to the above, please contact [REDACTED] on (08) [REDACTED]

Yours sincerely

[REDACTED] - INDUSTRY REGULATION
SOUTH WEST REGION
[DATE]



Government of Western Australia
Department of Environment Regulation

COMPLIANCE INSPECTION CHECKLIST & REPORT

A Introduction

Premises Details			
Licence / Registration Holder:			
Licence / Registration No.:	L8098/2002/4		
ACN No.:			
Premises Name:			
Premises Address:			
Auditee Representative/s:			
Approved Categories:	31 - Chemical manufacturing		
DER Resourcing			
Lead Officer (DER):		Support Officer/s (DER):	
Date & Time of Inspection:	10 December 2013 at 9:00am		
Facility Summary			
_____ Picton site is located on _____ bordering the City of Bunbury, in the Shire of Dardanup, South West of Western Australia. The facility is located in the Enterprise Park industrial area (a general industrial zoned development area) on the outskirts of Bunbury. _____ will utilise a chemical process called 'transesterification', whereby a diesel-equivalent fuel is derived from a biological, triglyceride source (i.e. tallow and vegetable oils). Transesterification turns oils into esters (i.e. the combustible biodiesel), and separates the esters from the glycerine. The denser glycerine sinks to the bottom of the process vessel while the biodiesel floats on top, facilitating separation. Current operation is intermittent, with final products predominately exported, with local markets growing. Approximately 2ML of biodiesel was produced in 2012/13, with the site capable of storing 1ML.			

GENERAL INFORMATION ABOUT THE PREMISES

General Criteria		
Item	Criteria	Comment
1	Is the DER Licence for the reporting period valid?	Yes - expires 30 May 2018
2	Activities undertaken / planned that need to be registered with the DER?	No
3	Are there any Environmental Management Systems in place?	Yes - site specific EMS in place
4	Are Independent environmental audits conducted?	Yes - independent audits of the EMS are conducted annually
5	Is there an Internal incident reporting system?	Yes - hardcopy forms are entered online on CAR (Corrective Action Request)
6	Is there an Internal complaint reporting system?	Yes - hardcopy forms are entered online on CAR (Corrective Action Request)
7	Is there a documented maintenance procedure?	Yes - maintenance scheduled and as required
8	Has there been a Discharge of Waste to be reported to the DER under S72?	No
9	Has there been any alteration to the premises, process or inputs/outputs?	Yes - The licensee has notified DER that an adjacent property has been bought for increased storage capacity.

B Key Findings

Key: C = Compliant, NC = Non-Compliant, ND = Not Determined, NA = Not Applicable

Licence Conditions (LC)			
LC #	Criteria (state licence condition)	Assess't (C, NC, ND, NA)	Explanation of result
1	EMISSION TO AIR The Licensee shall, after six months of achieving stable, normal operation, provide to the Director a plume dispersion model of NOX emissions from the 2.75MW Thermic Industries W300 steam boiler stack using real sampling data under normal operating conditions.	ND	The licensee stated that the site has not achieved six months of continuous and stable operation. Supporting documentation of operating duration was not sighted at the time of inspection. The licensee indicated that stable operation is achieved after approximately two weeks of operation. While this condition has not been triggered yet, the licensee stated that NO _x emission sampling will be conducted every six months, beginning as soon as possible. Sampling and plume dispersion modeling will be performed by [REDACTED] who currently conduct 5-weekly emission sampling of the W300 steam boiler.
2	REPORTING CONDITIONS The licensee shall by 31 July in each year, provide to the Director an Annual Audit Compliance Report in the form in Attachment 2 to this licence, signed and certified in the manner required by Section C of the form, indicating the extent to which the licensee has complied with the conditions of this licence, and any previous licence issued under Part V of the Act for the premises, during the period beginning 1 July in the previous year and ending on 30 June in that year.	C	The licensee submitted an Annual Audit Compliance Report for reporting period 1 July 2012 to 30 June 2013, which was received by DER on 8 July 2013, within the correct timeframe. It was signed and completed correctly, with no non-compliances noted.

C General Observations

Dangerous goods storage	The licensee stated that DMP audits the premises annually for DG licence compliance. Officers observed all contaminants suitable contained at the time of inspection. Spill kits were sighted in the loading area, where a blind sump contained any potential spills. The site Dangerous Goods plant risk assessment, Document Ref: 2011120, was sighted at the time of inspection. The waste oil storage area was observed to have a floor gradient whereby spills are collected within a sump.
-------------------------	--

D Non-Compliances & Not Determined

The following conditions could not be determined:

Condition #	Reason for not determined
1	It was expected by DER that six months of stable, normal operation would have occurred a number of years ago. Notwithstanding this, it appears the licensee has acknowledged that stable operation occurs after approximately two weeks of operation. Evidence to indicate that the site has not achieved six months of continuous and stable operation was not provided at the time of inspection. The spirit and intent of the condition is to provide a plume dispersion model of NOX emissions from the 2.75MW Thermic Industries W300 steam boiler stack. This has not yet been achieved.

E Actions that should be taken to achieve Compliance

1. That the Licensing Officer notes the findings of this report.
2. That the Licensee notes the findings of the inspection discussed in this report and addresses the following to achieve compliance with conditions of licence L8098/2002/4:

Condition #	In order to determine compliance, the Licensee should:
1	Provide to DER, by 31 January 2014, operating data, including, but not limited to: • average daily production quantity • periods of operation, from 2009 to present, and associated production during those periods of operation <u>OR</u> In accordance with the intent of the condition, provide DER, by 1 March 2014, a plume dispersion model of NOX emissions from the 2.75MW Thermic Industries W300 steam boiler stack.

3. That the Regional Licensing Officer engage with DER Inspection and Compliance Section Officer [REDACTED] should any further follow up action be required.

Report Review & Approval

Licence Amendments Required? No

Current Risk Priority Rating: Medium

Report Prepared by: ICS [REDACTED]	Date: 16 December 2013
Reviewed by: ICS [REDACTED]	Date: 17 December 2013
Approved by: ICS LCO/SEO [REDACTED]	Date: 7 January 2014

Industry Regulation Compliance Branch
Attachment 1 – Photographs



Government of Western Australia
Department of Environment Regulation

Attachment 1 – Photographs

Licence: L8098/2002/4

Premises Audited: [REDACTED]

Inspectors: [REDACTED] and [REDACTED]

Date: 10 December 2013

Industry Regulation Compliance Branch
Attachment 1 – Photographs



Government of Western Australia
Department of Environment Regulation



Photograph 1 – Methoxide tank



Photograph 2 – Loading area



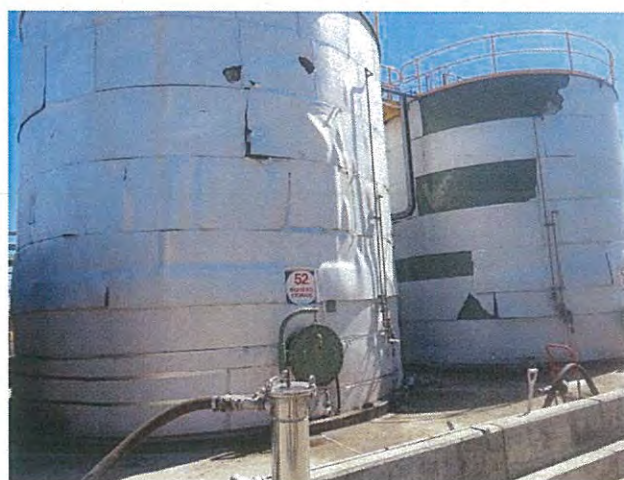
Photograph 3 – Waste oil sump



Photograph 4 – Spill kits



Photograph 5 – Blind sump in loading area



Photograph 6 – Biodiesel storage tanks



Government of Western Australia
Department of Environment Regulation

FILE NOTE

FROM: [REDACTED]

DATE: 8 May 2014

ICMS NO: N/A

SUBJECT: Compliance Inspection closure

- - Support Officer's notes not available
- Report yet to be sent to licensee as at 8/5/14
 - actions allocated to Licensing Officer

○

[REDACTED]

From: [REDACTED]
Sent: Tuesday, 8 April 2014 10:08 AM
To: [REDACTED]
Subject: RE: DER Inspection follow-up
Attachments: SKMBT_C20313121107260.pdf

Hi [REDACTED]

I have not received any correspondence from DER since the inspection, but I did forward the NOX test result to [REDACTED] on the 11/12/13 attached results.

Regards

[REDACTED]

[REDACTED]

[REDACTED] T [REDACTED] F [REDACTED]

[REDACTED]

This correspondence is for the named person's use only. It may contain confidential or legally privileged information or both. No confidentiality or privilege is waived or lost by any mistransmission. If you receive this correspondence in error, please immediately delete it from your system and notify the sender. You must not disclose, copy or rely on any part of this correspondence if you are not the intended recipient. Any opinions expressed in this message are those of the individual sender, except where the sender expressly, and with authority, states them to be the opinions of [REDACTED] or one of its subsidiaries.

From: [REDACTED]@DER.wa.gov.au]
Sent: Monday, 7 April 2014 3:00 PM
To: [REDACTED]
Subject: DER Inspection follow-up

[REDACTED]

I'm just going through some of my previous inspections and was wondering if any correspondence had been received by yourself from DER or submitted to DER regarding the inspection conducted on 10 December 2013. Documentation was required relating to Condition 1 of your licence, whereby the following action was required:

Provide to DER, by **31 January 2014**, operating data, including, but not limited to:

- average daily production quantity
- periods of operation, from 2009 to present, and associated production during those periods of operation

OR

In accordance with the intent of the condition, provide DER, by **1 March 2014**, a plume dispersion model of NOX emissions from the 2.75MW Thermic Industries W300 steam boiler stack.

Any help you provide would be much appreciated.

Regards,

[REDACTED]

Compliance Officer | Industry Regulation Compliance Branch

Department of Environment Regulation

The Atrium, L7/168 St George's Terrace, Perth WA 6000

Ph: (08) [REDACTED]

Mob: [REDACTED]

Email [REDACTED]@der.wa.gov.au



Government of Western Australia
Department of Environment Regulation

Message protected by MailGuard: e-mail anti-virus, anti-spam and content filtering.

<http://www.mailguard.com.au>

[Report this message as spam](#)

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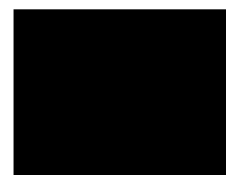
Time: 07:34:55 PM
Date: 12/11/13

Fuel
PROP

O ₂	3.5 %
CO	0 ppm
Eff	85.5 %
CO ₂	11.5 %
T-Stk	182 °C
T-Air	23.4 °C
EA	18.3 %
CO(O)	0 ppm
NO	*** ppm
NO ₂	*** ppm
NO _x	*** ppm
SO ₂	*** ppm
NO(O)	*** ppm
NO ₂ (O)	*** ppm
NO _x (O)	*** ppm
SO ₂ (O)	*** ppm

Comments: LOW FIRE

.....
.....
.....



Time: 07:36:17 PM
Date: 12/11/13

Fuel
PROP

O ₂	7.2 %
CO	0 ppm
Eff	81.3 %
CO ₂	9.1 %
T-Stk	237 °C
T-Air	23.6 °C
EA	47.5 %
CO(O)	0 ppm
NO	*** ppm
NO ₂	*** ppm
NO _x	*** ppm
SO ₂	*** ppm
NO(O)	*** ppm
NO ₂ (O)	*** ppm
NO _x (O)	*** ppm
SO ₂ (O)	*** ppm

Comments: HIGH FIRE

**Industry Regulation Compliance Branch
Attachment 1 – Photographs**



Government of **Western Australia**
Department of **Environment Regulation**

Attachment 1 – Photographs

Licence: L8098/2002/4

Premises Audited: [REDACTED]

Inspectors [REDACTED]

Date: 10 December 2013

Industry Regulation Compliance Branch
Attachment 1 – Photographs



Government of Western Australia
Department of Environment Regulation



Photograph 1 – Methoxide tank



Photograph 2 – Loading area



Photograph 3 – Waste oil sump



Photograph 4 – Spill kits



Photograph 5 – Blind sump in loading area



Photograph 6 – Biodiesel storage tanks



Government of **Western Australia**
Department of **Environment Regulation**

COMPLIANCE INSPECTION CHECKLIST & REPORT

A Introduction

Premises Details	
Licence / Registration Holder:	[REDACTED]
Licence / Registration No.:	L8098/2002/4
ACN No.:	[REDACTED]
Premises Name:	[REDACTED]
Premises Address:	[REDACTED]
Auditee Representative/s:	[REDACTED]
Approved Categories:	31 - Chemical manufacturing
DER Resourcing	
Lead Officer (DER):	[REDACTED] Support Officer/s (DER) [REDACTED]
Date & Time of Inspection:	10 December 2013 at 9:00am
Facility Summary	
[REDACTED] Picton site is located on [REDACTED], bordering the City of Bunbury, in the Shire of Dardanup, South West of Western Australia. The facility is located in the Enterprise Park industrial area (a general industrial zoned development area) on the outskirts of Bunbury. [REDACTED] will utilise a chemical process called 'transesterification', whereby a diesel-equivalent fuel is derived from a biological, triglyceride source (i.e. tallow and vegetable oils). Transesterification turns oils into esters (i.e. the combustible biodiesel), and separates the esters from the glycerine. The denser glycerine sinks to the bottom of the process vessel while the biodiesel floats on top, facilitating separation. Current operation is intermittent, with final products predominately exported, with local markets growing. Approximately 2ML of biodiesel was produced in 2012/13, with the site capable of storing 1ML.	

GENERAL INFORMATION ABOUT THE PREMISES

General Criteria		
Item	Criteria	Comment
1	Is the DER Licence for the reporting period valid?	Yes - expires 30 May 2018
2	Activities undertaken / planned that need to be registered with the DER?	No
3	Are there any Environmental Management Systems in place?	Yes - site specific EMS in place
4	Are Independent environmental audits conducted?	Yes - independent audits of the EMS are conducted annually
5	Is there an Internal incident reporting system?	Yes - hardcopy forms are entered online on CAR (Corrective Action Request)
6	Is there an Internal complaint reporting system?	Yes - hardcopy forms are entered online on CAR (Corrective Action Request)
7	Is there a documented maintenance procedure?	Yes - maintenance scheduled and as required
8	Has there been a Discharge of Waste to be reported to the DER under S72?	No
9	Has there been any alteration to the premises, process or inputs/outputs?	Yes - The licensee has notified DER that an adjacent property has been bought for increased storage capacity.

B Key Findings

Key: C = Compliant, NC = Non-Compliant, ND = Not Determined, NA = Not Applicable

Licence Conditions (LC)			
LC #	Criteria (state licence condition)	Assess't (C, NC, ND, NA)	Explanation of result
1	EMISSION TO AIR The Licensee shall, after six months of achieving stable, normal operation, provide to the Director a plume dispersion model of NOX emissions from the 2.75MW Thermic Industries W300 steam boiler stack using real sampling data under normal operating conditions.	ND	The licensee stated that the site has not achieved six months of continuous and stable operation. Supporting documentation of operating duration was not sighted at the time of inspection. The licensee indicated that stable operation is achieved after approximately two weeks of operation. While this condition has not been triggered yet, the licensee stated that NO _x emission sampling will be conducted every six months, beginning as soon as possible. Sampling and plume dispersion modeling will be performed by [REDACTED], who currently conduct 5-weekly emission sampling of the W300 steam boiler.
2	REPORTING CONDITIONS The licensee shall by 31 July in each year, provide to the Director an Annual Audit Compliance Report in the form in Attachment 2 to this licence, signed and certified in the manner required by Section C of the form, indicating the extent to which the licensee has complied with the conditions of this licence, and any previous licence issued under Part V of the Act for the premises, during the period beginning 1 July in the previous year and ending on 30 June in that year.	C	The licensee submitted an Annual Audit Compliance Report for reporting period 1 July 2012 to 30 June 2013, which was received by DER on 8 July 2013, within the correct timeframe. It was signed and completed correctly, with no non-compliances noted.

C General Observations

Dangerous goods storage	The licensee stated that DMP audits the premises annually for DG licence compliance. Officers observed all contaminants suitable contained at the time of inspection. Spill kits were sighted in the loading area, where a blind sump contained any potential spills. The site Dangerous Goods plant risk assessment, Document Ref: 2011120, was sighted at the time of inspection. The waste oil storage area was observed to have a floor gradient whereby spills are collected within a sump.
-------------------------	--

D Non-Compliances & Not Determined

The following conditions could not be determined:

Condition #	Reason for not determined
1	It was expected by DER that six months of stable, normal operation would have occurred a number of years ago. Notwithstanding this, it appears the licensee has acknowledged that stable operation occurs after approximately two weeks of operation. Evidence to indicate that the site has not achieved six months of continuous and stable operation was not provided at the time of inspection. The spirit and intent of the condition is to provide a plume dispersion model of NOX emissions from the 2.75MW Thermic Industries W300 steam boiler stack. This has not yet been achieved.

E Actions that should be taken to achieve Compliance

1. That the Licensing Officer notes the findings of this report.
2. That the Licensee notes the findings of the inspection discussed in this report and addresses the following to achieve compliance with conditions of licence L8098/2002/4:

Condition #	In order to determine compliance, the Licensee should:
1	Provide to DER, by 31 January 2014, operating data, including, but not limited to: • average daily production quantity • periods of operation, from 2009 to present, and associated production during those periods of operation <u>OR</u> In accordance with the intent of the condition, provide DER, by 1 March 2014, a plume dispersion model of NOX emissions from the 2.75MW Thermic Industries W300 steam boiler stack.

3. That the Regional Licensing Officer engage with DER Inspection and Compliance Section Officer [REDACTED] should any further follow up action be required.

Report Review & Approval

Licence Amendments Required? No

Current Risk Priority Rating: Medium

Report Prepared by: ICS [REDACTED]	Date: 16 December 2013
Reviewed by: ICS [REDACTED]	Date: 17 December 2013
Approved by: ICS LCO/SEO [REDACTED]	Date: 7 January 2014



Government of Western Australia
Department of Water and Environmental Regulation

Your ref: L8098/2002/4
Our ref: DWERDT115736
Enquiries: [REDACTED]
Phone: (08) [REDACTED]
Email: [REDACTED]@dwer.wa.gov.au

To:

And:

Dear Sir/Madam

Environmental Protection Act 1986

Licence: L8098/2002/4

Premises: [REDACTED]

I refer to the inspection conducted on 28 November 2018 by Department of Water and Environmental Regulation (DWER) officer [REDACTED] and [REDACTED] and site representative [REDACTED].

The purpose of the inspection was to assess the regulatory controls in place to manage and mitigate environmental impacts.

Please be advised that no material issues were identified at the time of inspection.

DWER now considers the inspection closed.

If you require further information relating to the above please contact [REDACTED] on (08) [REDACTED] or [REDACTED]@dwer.wa.gov.au.

Yours sincerely

[REDACTED]
[REDACTED] ENVIRONMENTAL COMPLIANCE

20 December 2018



Government of Western Australia
Department of Water and Environmental Regulation

Your ref: L8098/2002/4
Our ref:
Enquiries: [REDACTED]
Phone: (08) [REDACTED]
Email: [REDACTED]@dwer.wa.gov.au

To: [REDACTED]

And: [REDACTED]

Dear Sir/Madam

Environmental Protection Act 1986

Licence: L8098/2002/4

Premises: [REDACTED]

I refer to the inspection conducted on 28 November 2018 by Department of Water and Environmental Regulation (DWER) officer [REDACTED] and [REDACTED] and site representative [REDACTED].

The purpose of the inspection was to assess the regulatory controls in place to manage and mitigate environmental impacts.

Please be advised that no material issues were identified at the time of inspection.

DWER now considers the inspection closed.



Government of Western Australia
Department of Water and Environmental Regulation



If you require further information relating to the above please contact [REDACTED] on (08) [REDACTED] or [REDACTED]@dwer.wa.gov.au.

Yours sincerely

[REDACTED] ENVIRONMENTAL COMPLIANCE

XX December 2018

Incident Report (IR)

ICMS Number: 18857

Complaints File Number: _____

COMPLAINANT DETAILS

Name	Physical Address	Contact Details	NFB (Y/N)
			Y

INCIDENT DETAILS

PRIORITY: Priority 3 (Response within 7 days) DUE DATE: 26-JUL-2010 00:00

Receiving Officer	Report Medium	Date/Time	A/H
	Phone	19-JUL-2010 11:12	No

Incident Type: Complaint

Alleged Source of Emission	
Organisation:	Lic/Reg File No:
Address:	Suburb:
LGA:	PC:
Contact Name:	Post:
Phone:	Fax:

Description of incident	19-JUL-2010 11:13
A has left a message on the Contaminated Sites Hotline (could have left it on Friday). says "they're pumping something out the back, and there's dead birds. Pretty disgraceful".	

Category:	Emission	Sub-category: Unauthorised Discharge
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INCIDENT FOLLOWUP

Emission Source Confirmed: :No (-22-OCT-2010)	Incident Confirmed: No (-22-OCT-2010)
Comment: System comment - As incident is not confirmed, source confirmed is set to NO	Comment: and inspected the site following incident and could not substantiate the complaint nor find any dead birds.

Referred to other agency	Date Referred
--------------------------	---------------

Actions taken:			
Officer	Date of Investigation	Action Undertaken	Officer Comment
	19-JUL-2010	Priority	Priority set to 'Priority 3 (Response within 7 days)'.
	19-JUL-2010	Re-allocated	Re-allocated to Investigating Officer.
	19-JUL-2010	Status	Status set to 'Received'.
	30-JUL-2010	Status	Status set to 'Under Investigation'.
	22-OCT-2010	Incident / Complaint / Compliance Activity Confirmed	Complaint confirmed set to 'No'.
	22-OCT-2010	Source Confirmed	Source confirmed set to 'No'.
	22-NOV-2010	Site Inspection	and inspected the site following the incident and could not substantiate the complaint nor find any dead birds. The company was also quizzed on their activities and denied pumping any solution to the rear pond
	22-OCT-2013	Closed	Closed by ','.

ADVICE TO COMPLAINANTS

Name	Method	Date
------	--------	------

Manager Sign Off:



Date: 22/10/2013

Appendix E

Data Quality Objectives

1. Data quality objectives

The DSI has been devised broadly in accordance with the seven-step data quality objectives (DQO) process which is provided in Appendix B, Schedule B2 of NEPC *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013)* [NEPM] (NEPC, 2013).

Table 1: Data quality objectives

Step	Summary
1: State the problem	The objective of the investigation is to inform of potential contamination issues and to support local structure planning in the Preston Industrial Park. A preliminary conceptual site model (CSM) has been prepared (Section 9.0) for the proposed development. The project team consist of experienced environmental engineers and scientists working in the roles of Project Principal, Project Reviewer, Project Manager and field staff.
2: Identify the decisions / goal of the study	The site history has identified possible contaminating previous uses which are identified in the CSM (Section 9.0). The CSM identifies the associated contaminants of potential concern (CoPC) and the likely impacted media. The site assessment criteria (SAC) for each of the CoPC are detailed in Appendix G and H. The decision is to establish whether or not the results fall below the SAC or whether or not the 95% upper confidence limit of the arithmetic mean of the sample population falls below the SAC. On this basis, an assessment of the site's suitability from a contamination perspective will be derived and a decision made on whether (or not) further assessment and / or remediation will be required.
3: Identify the information inputs	Inputs will be the analytical results for the CoPC and media (identified in the CSM, Section 9.0) from NATA accredited laboratories and methods, where possible. The SAC for each of the CoPC are detailed in Appendix G and H. Field results and observations such as photoionisation detector (PID) and asbestos sieve results and observations of building debris, ash, odours, staining etc will be used to inform sample selection for laboratory analysis.
4: Define the study boundaries	The lateral boundaries of the investigation area are shown on Drawing 2, Appendix B. The vertical boundaries are to the extent of contamination impact as determined from the site history assessment and site observations. The assessment is limited to the timeframe over which the field works were undertaken.
5: Develop the analytical approach (or decision rule)	The decision rule is to compare all analytical results with the SAC (Appendix G and H, based on NEPC (2013)). Where guideline values are absent, other sources of guideline values accepted by NEPC (2013) shall be adopted where available and warranted.

Step	Summary
	Where a sample result exceeds the adopted criterion, a further qualitative site-specific assessment will be made as to the risk posed by the presence of that contaminant(s). Initial comparisons will be with individual results then, where appropriate, summary statistics (including mean, standard deviation and 95% upper confidence limit (UCL) of the arithmetic mean (95% UCL)) to further assess potential risks posed by the site contamination. Quality control results are to be assessed according to their relative percent difference (RPD) values. For field duplicates, triplicates and laboratory results, RPD values should generally be below 30%; for field blanks and rinsates, results should be at or less than the limits of reporting (NEPC, 2013). The field and laboratory quality assurance assessment is included in Appendix I.
6: Specify the performance or acceptance criteria	Baseline condition: Contaminants at the site and/or statistical analysis of data (in line with NEPC (2013)) exceed the human health and environmental SAC and pose a potentially unacceptable risk to receptors (null hypothesis). Alternative condition: Contaminants at the site and statistical analysis of data (in line with NEPC (2013)) comply with the human health and environmental SAC and therefore, do not pose a potentially unacceptable risk to receptors (alternative hypothesis). Unless conclusive information from the collected data is sufficient to reject the null hypothesis, it will be assumed that the baseline condition is true. Uncertainty that may exist due to the above potential decision errors shall be mitigated as follows: - As well as a primary screening exercise, the use of the 95% UCL as per NEPC (2013) may be applied, i.e. 95% is the defined confidence level associated with the UCL on the geometric mean for contaminant data. The resultant 95% UCL shall subsequently be screened against the corresponding SAC. - The statistical assessment will only be able to be applied to certain data-sets, such as those obtained via systematic sampling. Identification of areas for targeted sampling will be via professional judgement and errors will not be able to have a probability assigned to them. - Interpreting results with reference to the CSM, field observations and known data gaps.
7: Optimise the design for obtaining data	As the purpose of the investigation is to assess the contamination status of the site, the sampling program is reliant on professional judgement to identify and sample the potentially affected areas. Further details regarding the sampling plan are in Section 10.

2. References

NEPC. (2013). *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM]*. Australian Government Publishing Services Canberra: National Environment Protection Council.

Appendix F

Field Work Results (Test Pit Logs and Groundwater Monitoring Well Construction)

Groundwater Monitoring Well Survey (BCE)

Calibration Certificates (PID and YSi)

TEST PIT LOG

CLIENT: DevelopmentWA

PROJECT: Proposed Industrial Park

LOCATION: Lot 2009 Giorgi Road, Picton, WA

SURFACE LEVEL: 12.8 AHD

COORDINATE: E:379897.6, N:6310266.2

DATUM/GRID: MGA2020 Zone 50

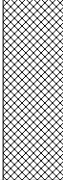
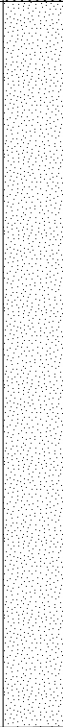
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP01

PROJECT No: 236293.02

DATE: 22/09/25

SHEET: 1 of 1

CONDITIONS ENCOUNTERED														SAMPLE			TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(%)	CONSIS. ⁽¹⁾	DENSITY. ⁽¹⁾	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS				
22/09/25 No free groundwater observed		0.30	FILL / SAND (SP-SM) with silt: brown; fine to medium; with rootlets.		FILL			D	PFAS	ES		0.10						
			SAND (SP) trace silt: orange; fine to medium.					M		ES		0.90 1.00						
Test Pit discontinued at 1.50m depth. Limit of Investigation.																		
					</													

PLANT: 8T Excavator

METHOD: 450mm toothed bucket

REMARKS: The location and elevation at each test location was recorded by Douglas using a differential global positioning system (dGPS) with variable accuracy depending on satellite coverage.

OPERATOR: BCP - Wayne

LOGGED: MA

Refer to explanatory notes for symbol and abbreviation definitions



TEST PIT LOG

CLIENT: DevelopmentWA

PROJECT: Proposed Industrial Park

LOCATION: Lot 2009 Giorgi Road, Picton, WA

SURFACE LEVEL: 13.8 AHD

COORDINATE: E:379911.9, N:6310247.8

DATUM/GRID: MGA2020 Zone 50

DIP/AZIMUTH: 90°/---°

LOCATION ID: TP02

PROJECT No: 236293.02

DATE: 22/09/25

SHEET: 1 of 1

CONDITIONS ENCOUNTERED														SAMPLE			TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(%)	CONSIS. ^(%)	DENSITY. ^(%)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS				
22/09/25 No free groundwater observed		0.20	FILL / SAND (SP-SM) with silt: brown; fine to medium; with rootlets.		FILL			D	PFAS	ES		0.10						
		SAND (SP) trace silt: orange; fine to medium.	M					0.90				1.00						
Test Pit discontinued at 1.50m depth. Limit of Investigation.																		
		12																
		2																

NOTES: ^(%)Soil origin is "probable" unless otherwise stated. ^(%)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: °Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 8T Excavator

OPERATOR: BCP - Wayne

LOGGED: MA

METHOD: 450mm toothed bucket

REMARKS: The location and elevation at each test location was recorded by Douglas using a differential global positioning system (dGPS) with variable accuracy depending on satellite coverage.

Refer to explanatory notes for symbol and abbreviation definitions

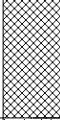
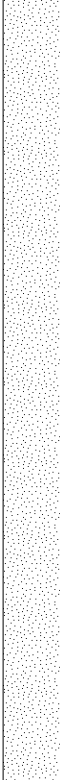


TEST PIT LOG

CLIENT: DevelopmentWA
PROJECT: Proposed Industrial Park
LOCATION: Lot 2009 Giorgi Road, Picton, WA

SURFACE LEVEL: 13.3 AHD
COORDINATE: E:379907.0, N:6310215.9
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP03
PROJECT No: 236293.02
DATE: 22/09/25
SHEET: 1 of 1

CONDITIONS ENCOUNTERED														SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(®)	CONSIS. (†)	DENSITY. (†)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS					
22/09/25 No free groundwater observed	13	0.20	FILL / SAND (SP-SM) with silt: brown; fine to medium.		FILL			D	PFAS	ES		0.10							
			SAND (SP) trace silt: orange; fine to medium.					M			ES		0.90 1.00						
		1																	
		12																	
		2																	
		11																	
Test Pit discontinued at 1.50m depth. Limit of Investigation.																			
NOTES: ®Soil origin is "probable" unless otherwise stated. †Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.																			

PLANT: 8T Excavator

OPERATOR: BCP - Wayne

LOGGED: MA

METHOD: 450mm toothed bucket

REMARKS: The location and elevation at each test location was recorded by Douglas using a differential global positioning system (dGPS) with variable accuracy depending on satellite coverage.

Refer to explanatory notes for symbol and abbreviation definitions

TEST PIT LOG

CLIENT: DevelopmentWA
PROJECT: Proposed Industrial Park
LOCATION: Lot 2009 Giorgi Road, Picton, WA

SURFACE LEVEL: 12.5 AHD
COORDINATE: E:379985.0, N:6310287.3
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP04
PROJECT No: 236293.02
DATE: 23/09/25
SHEET: 1 of 1

CONDITIONS ENCOUNTERED						SAMPLE			TESTING AND REMARKS												
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(%)	CONSIS. (°)	DENSITY. (°)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS							
23/09/25 No free groundwater observed	12		FILL / SAND (SP-SM) with silt: brown; fine to medium.		FILL			D	PFAS	ES		0.10									
		0.50	Silty SAND (SM): orange; fine to medium; coffee rock, cemented.												PFAS	ES		0.40			
		0.80	SAND (SP) trace silt: grey; fine to medium.																		
		1																			

PLANT: 8T Excavator

OPERATOR: BCP - Wayne

LOGGED: MA

METHOD: 450mm toothed bucket

REMARKS: The location and elevation at each test location was recorded by Douglas using a differential global positioning system (dGPS) with variable accuracy depending on satellite coverage.

Refer to explanatory notes for symbol and abbreviation definitions

TEST PIT LOG

CLIENT: DevelopmentWA
PROJECT: Proposed Industrial Park
LOCATION: Lot 2009 Giorgi Road, Picton, WA

SURFACE LEVEL: 12.3 AHD
COORDINATE: E:380000.3, N:6310274.8
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP05
PROJECT No: 236293.02
DATE: 23/09/25
SHEET: 1 of 1

CONDITIONS ENCOUNTERED										SAMPLE			TESTING AND REMARKS						
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(%)	CONSIS. ^(*)	DENSITY, (t)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS					
Free groundwater observed 23/09/25	12	0.50	FILL / Silty SAND (SP-SM): pale yellow; fine to medium.		FILL			D	PFAS	ES	0.10								
			FILL / SAND (SP-SM) with silt: grey; fine to medium.		FILL				PFAS	ES					0.40				
		1.50	SAND (SP) trace silt: grey; fine to medium.																
			2												M		ES	1.70	1.80
Test Pit discontinued at 2.50m depth. Limit of Investigation.																			

NOTES: [®]Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 8T Excavator	OPERATOR: BCP - Wayne	LOGGED: MA
METHOD: 450mm toothed bucket		
REMARKS: The location and elevation at each test location was recorded by Douglas using a differential global positioning system (dGPS) with variable accuracy depending on satellite coverage.		

Refer to explanatory notes for symbol and abbreviation definitions

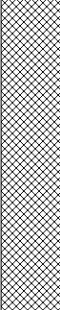
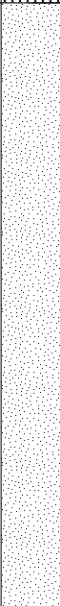


TEST PIT LOG

CLIENT: DevelopmentWA
PROJECT: Proposed Industrial Park
LOCATION: Lot 2009 Giorgi Road, Picton, WA

SURFACE LEVEL: 12.5 AHD
COORDINATE: E:379955.9, N:6310263.1
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP06
PROJECT No: 236293.02
DATE: 22/09/25
SHEET: 1 of 1

CONDITIONS ENCOUNTERED							SAMPLE			TESTING AND REMARKS							
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(%)	CONSIS. (%)	DENSITY, (g/cm³)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS				
2309/25 Frame groundwater observed!	12	FILL / SAND (SP-SM) with silt: brown; fine to medium.		FILL			D	PFAS	ES	{	0.10						
											PFAS			ES	{	0.40	
																	0.50
	1.00	SAND (SP) trace silt: grey; fine to medium.								M						{	1
11										{	1.60						
													1.70				
2		Test Pit discontinued at 2.00m depth. Limit of Investigation.															

NOTES: ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 8T Excavator

OPERATOR: BCP - Wayne

LOGGED: MA

METHOD: 450mm toothed bucket

REMARKS: The location and elevation at each test location was recorded by Douglas using a differential global positioning system (dGPS) with variable accuracy depending on satellite coverage.

Refer to explanatory notes for symbol and abbreviation definitions



TEST PIT LOG

CLIENT: DevelopmentWA
PROJECT: Proposed Industrial Park
LOCATION: Lot 2009 Giorgi Road, Picton, WA

SURFACE LEVEL: 12.6 AHD
COORDINATE: E:379940.6, N:6310249.8
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP07
PROJECT No: 236293.02
DATE: 22/09/25
SHEET: 1 of 1

CONDITIONS ENCOUNTERED													SAMPLE			TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(%)	CONSIS. ^(*)	DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS			
			FILL / SAND (SP-SM) with silt: brown; fine to medium.							PFAS	ES	0.10					
					FILL			D									
										PFAS	ES	0.40					
												0.50					
	12	0.60	SAND (SP) trace silt: orange; fine to medium.														
		1						M				1					

PLANT: 8T Excavator

OPERATOR: BCP - Wayne

LOGGED: MA

METHOD: 450mm toothed bucket

REMARKS: The location and elevation at each test location was recorded by Douglas using a differential global positioning system (dGPS) with variable accuracy depending on satellite coverage.

Refer to explanatory notes for symbol and abbreviation definitions



TEST PIT LOG

CLIENT: DevelopmentWA

PROJECT: Proposed Industrial Park

LOCATION: Lot 2009 Giorgi Road, Picton, WA

SURFACE LEVEL: 12.5 AHD

COORDINATE: E:379950.7, N:6310227.2

DATUM/GRID: MGA2020 Zone 50

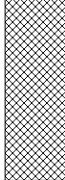
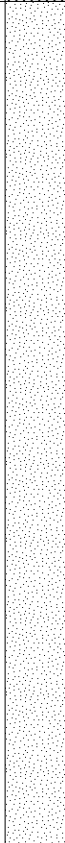
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP08

PROJECT No: 236293.02

DATE: 22/09/25

SHEET: 1 of 1

CONDITIONS ENCOUNTERED														SAMPLE			TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(%)	CONSIS. ^(%)	DENSITY. ^(%)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS				
			FILL / SAND (SP-SM) with silt with gravel: brown; fine to medium; limestone gravel.		FILL			D	PFAS	ES		0.10						
		0.30	SAND (SP) trace silt: orange; fine to medium.					M				1						
		1.70	SAND (SM): dark brown; fine to medium; coffee rock, cemented.					NA		ES		1.70						
			Test Pit discontinued at 1.80m depth. Terminated due to refusal.									1.80						
		2																

Free groundwater observed

22/09/25

NOTES: ^(%)Soil origin is "probable" unless otherwise stated. ^(%)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 8T Excavator

OPERATOR: BCP - Wayne

LOGGED: MA

METHOD: 450mm toothed bucket

REMARKS: The location and elevation at each test location was recorded by Douglas using a differential global positioning system (dGPS) with variable accuracy depending on satellite coverage.

Refer to explanatory notes for symbol and abbreviation definitions



TEST PIT LOG

CLIENT: DevelopmentWA
PROJECT: Proposed Industrial Park
LOCATION: Lot 2009 Giorgi Road, Picton, WA

SURFACE LEVEL: 12.3 AHD
COORDINATE: E:379974.7, N:6310211.8
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP09
PROJECT No: 236293.02
DATE: 22/09/25
SHEET: 1 of 1

CONDITIONS ENCOUNTERED														SAMPLE				TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(%)	CONSIS. ^(*)	DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS					
▼ Free groundwater observed 22/09/25	12	0.30	FILL / SAND (SP-SM) with silt with gravel: brown; fine to medium; limestone gravel.		FILL			D	PFAS	ES		0.10							
		0.40																	
		0.50																	
		1.00	FILL / SAND (SP-SM) with silt with gravel: dark grey; fine to medium; limestone gravel.		FILL				1										
		1.00	SAND (SP) trace silt: grey; fine to medium.									M							
1.60																			
		1.70																	
		2	Test Pit discontinued at 1.80m depth. Limit of Investigation.																
		10																	

NOTES: ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: *Soil origin is "probable" unless otherwise stated. *Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 8T Excavator

OPERATOR: BCP - Wayne

LOGGED: MA

METHOD: 450mm toothed bucket

REMARKS: The location and elevation at each test location was recorded by Douglas using a differential global positioning system (dGPS) with variable accuracy depending on satellite coverage.

Refer to explanatory notes for symbol and abbreviation definitions

TEST PIT LOG

CLIENT: DevelopmentWA
PROJECT: Proposed Industrial Park
LOCATION: Lot 2009 Giorgi Road, Picton, WA

SURFACE LEVEL: 12.2 AHD
COORDINATE: E:379982.9, N:6310263.0
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP10
PROJECT No: 236293.02
DATE: 23/09/25
SHEET: 1 of 1

CONDITIONS ENCOUNTERED										SAMPLE			TESTING AND REMARKS					
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(%)	CONSIS. ⁽¹⁾	DENSITY. ⁽²⁾	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS				
	12		FILL / SAND (SP-SM) with silt: brown; fine to medium.		FILL			D	PFAS	ES		0.10						
									PFAS	ES		0.40						
										ES		0.50						
	1.00		SAND (SP) trace silt: grey; fine to medium.					M				1						
	11																	

PLANT: 8T Excavator

OPERATOR: BCP - Wayne

LOGGED: MA

METHOD: 450mm toothed bucket

REMARKS: The location and elevation at each test location was recorded by Douglas using a differential global positioning system (dGPS) with variable accuracy depending on satellite coverage.

Refer to explanatory notes for symbol and abbreviation definitions

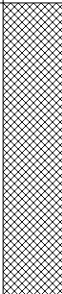
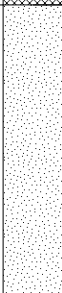


TEST PIT LOG

CLIENT: DevelopmentWA
PROJECT: Proposed Industrial Park
LOCATION: Lot 2009 Giorgi Road, Picton, WA

SURFACE LEVEL: 12.5 AHD
COORDINATE: E:379986.6, N:6310236.0
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP11
PROJECT No: 236293.02
DATE: 23/09/25
SHEET: 1 of 1

CONDITIONS ENCOUNTERED										SAMPLE			TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(%)	CONSIS. ⁽¹⁾	DENSITY. ⁽²⁾	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
23/09/25 No free groundwater observed	12		FILL / SAND (SP-SM) with silt: brown; fine to medium.		FILL			D	PFAS	ES	0.10	0.40	0.50	
		PFAS	ES											
				1.00	SAND (SP) trace silt: grey; fine to medium.					M			1	

PLANT: 8T Excavator

OPERATOR: BCP - Wayne

LOGGED: MA

METHOD: 450mm toothed bucket

REMARKS: The location and elevation at each test location was recorded by Douglas using a differential global positioning system (dGPS) with variable accuracy depending on satellite coverage.

Refer to explanatory notes for symbol and abbreviation definitions

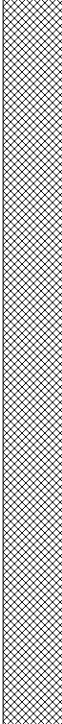
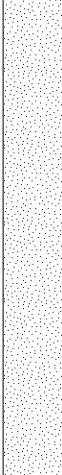


TEST PIT LOG

CLIENT: DevelopmentWA
PROJECT: Proposed Industrial Park
LOCATION: Lot 2009 Giorgi Road, Picton, WA

SURFACE LEVEL: 12.6 AHD
COORDINATE: E:379997.9, N:6310255.5
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP12
PROJECT No: 236293.02
DATE: 23/09/25
SHEET: 1 of 1

CONDITIONS ENCOUNTERED														SAMPLE			TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(%)	CONSIS. (°)	DENSITY. (°)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS				
	12		FILL / SAND (SP-SM) with silt with gravel: brown; fine to medium; limestone gravel.		FILL			D	PFAS	ES		0.10						
												0.40						
												0.50						
	1											1						
	1.20		SAND (SP) trace silt: grey; fine to medium.					M										
	11																	
Free groundwater observed 23/09/25	2		Test Pit discontinued at 2.00m depth. Limit of Investigation.															
NOTES: °Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.																		

PLANT: 8T Excavator

OPERATOR: BCP - Wayne

LOGGED: MA

METHOD: 450mm toothed bucket

REMARKS: The location and elevation at each test location was recorded by Douglas using a differential global positioning system (dGPS) with variable accuracy depending on satellite coverage.

Refer to explanatory notes for symbol and abbreviation definitions



TEST PIT LOG

CLIENT: DevelopmentWA
PROJECT: Proposed Industrial Park
LOCATION: Lot 2009 Giorgi Road, Picton, WA

SURFACE LEVEL: 12.5 AHD
COORDINATE: E:380017.9, N:6310254.6
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP13
PROJECT No: 236293.02
DATE: 22/09/25
SHEET: 1 of 1

CONDITIONS ENCOUNTERED													SAMPLE				TESTING AND REMARKS			
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(%)	CONSIS. ^(*)	DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS						
22/09/25 No free groundwater observed	12		FILL / SAND (SP-SM) with silt: brown; fine to medium.		FILL			D	PFAS	ES		0.10								
										0.40										
										0.50										
	0.90		SAND (SP) trace silt: orange; fine to medium.					M				1								
	11																			
	2		Test Pit discontinued at 2.00m depth. Limit of Investigation.							ES		1.80								
												1.90								

NOTES: ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: °Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 8T Excavator

OPERATOR: BCP - Wayne

LOGGED: MA

METHOD: 450mm toothed bucket

REMARKS: The location and elevation at each test location was recorded by Douglas using a differential global positioning system (dGPS) with variable accuracy depending on satellite coverage.

Refer to explanatory notes for symbol and abbreviation definitions



TEST PIT LOG

CLIENT: DevelopmentWA
PROJECT: Proposed Industrial Park
LOCATION: Lot 2009 Giorgi Road, Picton, WA

SURFACE LEVEL: 12.6 AHD
COORDINATE: E:380004.4, N:6310224.2
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP14
PROJECT No: 236293.02
DATE: 22/09/25
SHEET: 1 of 1

CONDITIONS ENCOUNTERED										SAMPLE			TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(%)	CONSIS. (°)	DENSITY. (°)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
Free groundwater observed 22/09/25		0.05	ASPHALT; 50mm thickness.											
			FILL / SAND (SP-SM) with silt with gravel: pale brown; fine to medium; limestone gravel.							PFAS	ES		0.10	
					FILL									
		0.60	FILL / SAND (SP-SM) with silt with gravel: grey; fine to medium; limestone gravel.					D						
					FILL									

NOTES: °Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 8T Excavator

OPERATOR: BCP - Wayne

LOGGED: MA

METHOD: 450mm toothed bucket

REMARKS: The location and elevation at each test location was recorded by Douglas using a differential global positioning system (dGPS) with variable accuracy depending on satellite coverage.

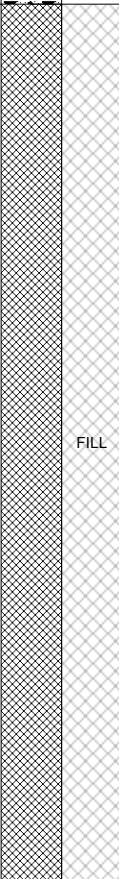
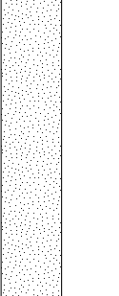
Refer to explanatory notes for symbol and abbreviation definitions

TEST PIT LOG

CLIENT: DevelopmentWA
PROJECT: Proposed Industrial Park
LOCATION: Lot 2009 Giorgi Road, Picton, WA

SURFACE LEVEL: 12.4 AHD
COORDINATE: E:380021.3, N:6310228.1
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP15
PROJECT No: 236293.02
DATE: 22/09/25
SHEET: 1 of 1

CONDITIONS ENCOUNTERED														SAMPLE			TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(%)	CONSIS. ^(*)	DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS				
Free groundwater observed 22/09/25		0.05	ASPHALT; 50mm thickness.							PFAS	ES							
			FILL / SAND (SP-SM) with silt with gravel: brown; fine to medium; limestone gravel.		FILL			D					0.10					
		1.2								PFAS	ES		0.40					
													0.50					
		1											1					
		1.1																
		1.50	SAND (SP) trace silt: grey; fine to medium.					M										
		2									ES		1.90					
													2.00					
			Test Pit discontinued at 2.00m depth. Limit of Investigation.															
		10																

NOTES: ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 8T Excavator

OPERATOR: BCP - Wayne

LOGGED: MA

METHOD: 450mm toothed bucket

REMARKS: The location and elevation at each test location was recorded by Douglas using a differential global positioning system (dGPS) with variable accuracy depending on satellite coverage.

Refer to explanatory notes for symbol and abbreviation definitions

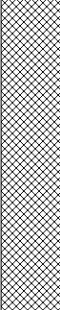
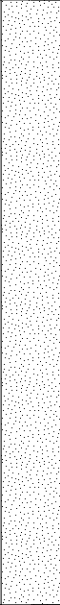


TEST PIT LOG

CLIENT: DevelopmentWA
PROJECT: Proposed Industrial Park
LOCATION: Lot 2009 Giorgi Road, Picton, WA

SURFACE LEVEL: 12.5 AHD
COORDINATE: E:380010.6, N:6310285.1
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: TP16
PROJECT No: 236293.02
DATE: 23/09/25
SHEET: 1 of 1

CONDITIONS ENCOUNTERED														SAMPLE			TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(%)	CONSIS. ⁽¹⁾	DENSITY. ⁽²⁾	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS				
			FILL / SAND (SP-SM) with silt with gravel: pale yellow; fine to medium; limestone gravel.		FILL			D	PFAS	ES		0.10						
	12																	
		1.00	SAND (SP) trace silt: grey to dark grey; fine to medium.					M				1						
	11																	

PLANT: 8T Excavator

OPERATOR: BCP - Wayne

LOGGED: MA

METHOD: 450mm toothed bucket

REMARKS: The location and elevation at each test location was recorded by Douglas using a differential global positioning system (dGPS) with variable accuracy depending on satellite coverage.



Refer to explanatory notes for symbol and abbreviation definitions

TEST PIT LOG

CLIENT: DevelopmentWA

PROJECT: Proposed Industrial Park

LOCATION: Lot 2009 Giorgi Road, Picton, WA

SURFACE LEVEL: 11.4 AHD

COORDINATE: E:380029.7, N:6310342.6

DATUM/GRID: MGA2020 Zone 50

DIP/AZIMUTH: 90°/---°

LOCATION ID: TP17

PROJECT No: 236293.02

DATE: 23/09/25

SHEET: 1 of 1

CONDITIONS ENCOUNTERED														SAMPLE			TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(®)	CONSIS. (†)	DENSITY. (†)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS				
		0.20	TOPSOIL / Silty SAND (SP-SM): brown; fine to medium; with rootlets.		TOP			D										
			SAND (SP) trace silt: grey; fine to medium.			NA		M		ES		0.50 0.60						
		1	Test Pit discontinued at 1.00m depth. Limit of Investigation.															
		10																
		2																
		9																

NOTES: [®]Soil origin is "probable" unless otherwise stated. [†]Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: 8T Excavator

METHOD: 450mm toothed bucket

REMARKS: The location and elevation at each test location was recorded by Douglas using a differential global positioning system (dGPS) with variable accuracy depending on satellite coverage.

OPERATOR: BCP - Wayne

LOGGED: MA

BOREHOLE LOG

CLIENT: DevelopmentWA
PROJECT: Proposed Industrial Park
LOCATION: Lot 2009 Giorgi Road, Picton, WA

SURFACE LEVEL: 13.0 AHD
COORDINATE: E:380034.1, N:6310193.6
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: MW01
PROJECT No: 236293.02
DATE: 12/09/25
SHEET: 1 of 1

CONDITIONS ENCOUNTERED							SAMPLE			TESTING AND REMARKS											
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(#)	CONSIS. ^(*) DENSITY, ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE						
Free groundwater observed 19/09/25	12	0.30	FILL / SAND (SP-SM) with silt with gravel: pale yellow to orange; fine to medium; limestone gravel.		FILL	NA	D		ES	0.10				 Backfill - Spoil	 50mm Plain PVC						
		M																			
	1	0.80	SAND (SP) trace silt: brown; fine to medium.				M		ES	0.90 1.00											
		1.70	SAND (SP) trace silt: grey; fine to medium.				M		ES	1.50 1.60											
	11	2	SAND (SP) trace silt: orange; fine to medium.				W		ES	1.90 2.00											
		3.00	SAND (SP) trace silt: grey; fine to medium.				W		ES	2.90 3.00											
	9	3.30	SAND (SP) trace silt: brown; fine to medium.				W														
		4																			
	Borehole discontinued at 4.50m depth. Limit of Investigation..																				

NOTES: ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: °Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Push Probe Rig
METHOD: Direct push tube
REMARKS: Well completed with a monument cover. The location was surveyed by an accredited surveyor.

OPERATOR: DPP - Aaron

LOGGED: MA
CASING: Uncased

BOREHOLE LOG

CLIENT: DevelopmentWA
PROJECT: Proposed Industrial Park
LOCATION: Lot 2009 Giorgi Road, Picton, WA

SURFACE LEVEL: 12.2 AHD
COORDINATE: E:380063.8, N:6310301.7
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: MW02
PROJECT No: 236293.02
DATE: 12/09/25
SHEET: 1 of 1

CONDITIONS ENCOUNTERED										SAMPLE			TESTING AND REMARKS							
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(%)	CONSIS. (%)	DENSITY (g/cm³)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE					
Free groundwater observed 19/09/25	12	FILL / SAND (SP-SM) with silt: brown; fine to medium.		FILL	NA		D		ES	0.10										
	0.50	FILL / SAND (SP-SM) with silt with gravel: pale yellow; fine to medium; limestone gravel.		FILL			M													
	1.00	SAND (SP) trace silt: grey; fine to medium.					W		ES	0.90 1.00										
	1.50						W		ES	1.40 1.50										
	1.90	SAND (SP) trace silt: dark brown; fine to medium; coffee rock, cemented.							ES	1.90 2.00										
	2	SAND (SP) trace silt: grey; fine to medium.																		
	3			W												3				
	4																4			
	Borehole discontinued at 4.50m depth. Limit of Investigation. .																			

NOTES: %Soil origin is "probable" unless otherwise stated. %Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: °Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Push Probe Rig
METHOD: Direct push tube
REMARKS: Well completed with a monument cover. The location was surveyed by an accredited surveyor.

OPERATOR: DPP - Aaron

LOGGED: MA
CASING: Uncased

Refer to explanatory notes for symbol and abbreviation definitions

BOREHOLE LOG

CLIENT: DevelopmentWA
PROJECT: Proposed Industrial Park
LOCATION: Lot 2009 Giorgi Road, Picton, WA

SURFACE LEVEL: 12.8 AHD
COORDINATE: E:379986.0, N:6310292.5
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: MW03
PROJECT No: 236293.02
DATE: 12/09/25
SHEET: 1 of 1

CONDITIONS ENCOUNTERED										SAMPLE			TESTING AND REMARKS			
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(#)	CONSIS. ^(*)	DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE
Free groundwater observed 19/09/25	12	0.80	FILL / SAND (SP-SM) with silt: brown; fine to medium.		FILL	NA		D		ES	0.10					
		1	SAND (SP) trace silt: brown; fine to medium.													
		11						W		ES	1.50 1.60					
		2	SAND (SP): dark brown; fine to medium; coffee rock, cemented.													
		10						W		ES	2.40 2.50					
		3.00	SAND (SP) trace silt: grey; fine to medium.													
8	Borehole discontinued at 4.50m depth. Limit of Investigation. .															

NOTES: ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Push Probe Rig
METHOD: Direct Push Tube
REMARKS: Well completed with a monument cover. The location was surveyed by an accredited surveyor.

OPERATOR: DPP - Aaron

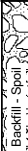
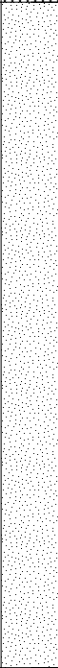
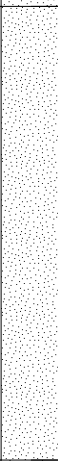
LOGGED: MA
CASING: Uncased

BOREHOLE LOG

CLIENT: DevelopmentWA
PROJECT: Proposed Industrial Park
LOCATION: Lot 2009 Giorgi Road, Picton, WA

SURFACE LEVEL: 13.0 AHD
COORDINATE: E:379944.6, N:6310273.2
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: MW04
PROJECT No: 236293.02
DATE: 12/09/25
SHEET: 1 of 1

CONDITIONS ENCOUNTERED										SAMPLE			TESTING AND REMARKS			
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(%)	CONSIS. ^(*)	DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE
			FILL / SAND (SP-SM) with silt with gravel: pale yellow; fine to medium; limestone gravel.		FILL			D		ES	0.10				          	 
	0.50	SAND (SP) with silt: grey; fine to medium.					M		ES	1.40 1.50	1					
	1.0															
	1.40								ES	1.90 2.00	2					
	1.50															
	1.90								ES	2.40 2.50						
	2.00															
	2.40															
	2.50															
	2.70	SAND (SP): dark brown; fine to medium; coffee rock, cemented.						W		ES	2.90 3.00					
	3.00	SAND (SP) trace silt: grey; fine to medium.						W				4				
	4.0															
			Borehole discontinued at 4.50m depth. Limit of Investigation. .													

NOTES: ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: *Soil origin is "probable" unless otherwise stated. *Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Push Probe Rig
METHOD: Direct push tube
REMARKS: Well completed with a monument cover. The location was surveyed by an accredited surveyor.

OPERATOR: DPP - Aaron

LOGGED: MA
CASING: Uncased

Refer to explanatory notes for symbol and abbreviation definitions

BOREHOLE LOG

CLIENT: DevelopmentWA
PROJECT: Proposed Industrial Park
LOCATION: Lot 2009 Giorgi Road, Picton, WA

SURFACE LEVEL: 13.0 AHD
COORDINATE: E:379932.4, N:6310236.1
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: MW06
PROJECT No: 236293.02
DATE: 12/09/25
SHEET: 1 of 1

CONDITIONS ENCOUNTERED										SAMPLE		TESTING AND REMARKS				
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(%)	CONSIS. ^(*)	DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE
Free groundwater observed 19/09/25	12	0.20	FILL / SAND (SP-SM) with silt with gravel: pale yellow; fine to medium; limestone gravel.		FILL			D		ES	0.10	1				
			SAND (SP) trace silt: pale yellow; fine to medium.													
	11	2				NA		M		ES	1.50 1.60	2				
	10	3.00	SAND (SP) trace silt: grey; fine to medium.					W		ES	2.40 2.50	3				
	9	4										4				
Borehole discontinued at 4.50m depth. Limit of Investigation. .																

NOTES: ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: °Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Push Probe Rig
METHOD: Direct push tube
REMARKS: Well completed with a flush mounted gatic cover. The location was surveyed by an accredited surveyor.

OPERATOR: DPP - Aaron

LOGGED: MA
CASING: Uncased

Refer to explanatory notes for symbol and abbreviation definitions

BOREHOLE LOG

CLIENT: DevelopmentWA
PROJECT: Proposed Industrial Park
LOCATION: Lot 2009 Giorgi Road, Picton, WA

SURFACE LEVEL: 12.8 AHD
COORDINATE: E:379942.1, N:6310212.5
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: MW07
PROJECT No: 236293.02
DATE: 16/10/25
SHEET: 1 of 1

CONDITIONS ENCOUNTERED										SAMPLE			TESTING AND REMARKS			
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(%)	CONSIS. (°)	DENSITY. (°)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE	
	0.40	FILL / SAND (SP-SM) with silt: yellow; fine to medium; with limestone gravel.		FILL			D									
	1.2	SAND (SP) trace silt: orange; fine to medium.									1					
	11						M									
	2										2					
	10															
	3.00	SAND (SP) trace silt: grey; fine to medium.									3					
	9						W									
	4										4					
	8	Borehole discontinued at 4.50m depth. Limit of Investigation. .														

23/10/25

▼

Backfill - Spoil

Bentonite

Gravel

50mm Machine Slotted PVC

50mm Plain PVC

NOTES: °Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: °Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Push Probe Rig

OPERATOR: DPP - Alec

LOGGED: MA

METHOD: Direct push tube

CASING: Uncased

REMARKS: The location and elevation at each test location was recorded by Douglas using a differential global positioning system (dGPS) with variable accuracy depending on satellite coverage.

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: DevelopmentWA
PROJECT: Proposed Industrial Park
LOCATION: Lot 2009 Giorgi Road, Picton, WA

SURFACE LEVEL: 13.1 AHD
COORDINATE: E:379986.8, N:6310218.8
DATUM/GRID: MGA2020 Zone 50
DIP/AZIMUTH: 90°/---°

LOCATION ID: MW08
PROJECT No: 236293.02
DATE: 16/10/25
SHEET: 1 of 1

CONDITIONS ENCOUNTERED															SAMPLE			TESTING AND REMARKS		
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN(#)	CONSIS. (°)	DENSITY. (°)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE				
	13		FILL / SAND (SP-SM) with silt: grey; fine to medium; with limestone gravel.		FILL			D												
	0.80		SAND (SP) trace silt; fine to medium.									1								
	12	1																		

NOTES: °Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Push Probe Rig

OPERATOR: DPP - Alec

LOGGED: MA

METHOD: Direct push

CASING: Uncased

REMARKS: The location and elevation at each test location was recorded by Douglas using a differential global positioning system (dGPS) with variable accuracy depending on satellite coverage.

Refer to explanatory notes for symbol and abbreviation definitions



BCE Surveying Pty Ltd

A.C.N. 088 348 136 / A.B.N. 93 088 348 136

ALL CORRESPONDENCE TO : PO BOX 2448 BUNBURY WA 6231

EMAIL: admin@bcesurveying.com.au

WEBSITE : www.bcesurveying.com.au

MONITORING WELL LOCATION SHEET

Date : 19/09/2025

Our Job No. : E5989

Location: Giorgi Road, Picton, WA

Surveyor : Teverai Nhete

Bore No. : MW01

E : 380034.099

N : 6310193.637

RL Top outer casing : 13.718

RL Top inner PVC Pipe: 13.459

RL Natural surface : 12.995

Horizontal Datum : MGA 2020

Vertical Datum : AHD

Method of Establishment : RTK GPS, 3rd order Digital level

Expected Horizontal Accuracy : 0.03m

Expected Vertical Accuracy : 0.001m



Location Plot:



Survey Control Point 1

BYN29

E : 379672.41

N : 6310407.341

RL : 17.235

Type of Mark : SSM

Survey Control Point 2

BYS 9

E : 378383.627

N : 6308971.505

RL : 8.744

Type of Mark : SSM

Checked/Approved By : DM

Date : 19/09/2025



PERTH
Suite 9, 7 Kintail Road,
APPLECROSS WA 6153

BUNBURY
24 Molloy Street,
BUNBURY WA 6230

SYDNEY
3, 720 Old Princes Hwy
SUTHERLAND NSW 2232

LICENSED, ENGINEERING & MINING SURVEYING CONSULTANTS



BCE Surveying Pty Ltd

A.C.N. 088 348 136 / A.B.N. 93 088 348 136

ALL CORRESPONDENCE TO : PO BOX 2448 BUNBURY WA 6231

EMAIL: admin@bcesurveying.com.au

WEBSITE : www.bcesurveying.com.au

MONITORING WELL LOCATION SHEET

Date : 19/09/2025

Our Job No. : E5989

Location: Giorgi Road, Picton, WA

Surveyor : Teverai Nhete

Bore No. : MW02

E : 380063.758

N : 6310301.673

RL Top outer casing : 12.969

RL Top inner PVC Pipe: 12.846

RL Natural surface : 12.166

Horizontal Datum : MGA 2020

Vertical Datum : AHD

Method of Establishment : RTK GPS, 3rd order Digital level

Expected Horizontal Accuracy : 0.03m

Expected Vertical Accuracy : 0.001m



Location Plot:



Survey Control Point 1

BYN29

E : 379672.41

N : 6310407.341

RL : 17.235

Type of Mark : SSM

Survey Control Point 2

BYS 9

E : 378383.627

N : 6308971.505

RL : 8.744

Type of Mark : SSM

Checked/Approved By : DM

Date : 19/09/2025



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ALL CORRESPONDENCE TO : PO BOX 2448 BUNBURY WA 6231

EMAIL: admin@bcesurveying.com.au

WEBSITE : www.bcesurveying.com.au

MONITORING WELL LOCATION SHEET

Date : 19/09/2025

Our Job No. : E5989

Location: Giorgi Road, Picton, WA

Surveyor : Teverai Nhete

Bore No. : MW03

E : 379985.954

N : 6310292.502

RL Top outer casing : 13.557

RL Top inner PVC Pipe: 13.42

RL Natural surface : 12.755

Horizontal Datum : MGA 2020

Vertical Datum : AHD

Method of Establishment : RTK GPS, 3rd order Digital level

Expected Horizontal Accuracy : 0.03m

Expected Vertical Accuracy : 0.001m



Location Plot:



Survey Control Point 1

BYN29

E : 379672.41

N : 6310407.341

RL : 17.235

Type of Mark : SSM

Survey Control Point 2

BYS 9

E : 378383.627

N : 6308971.505

RL : 8.744

Type of Mark : SSM

Checked/Approved By : DM

Date : 19/09/2025



PERTH
Suite 9, 7 Kintail Road,
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SUTHERLAND NSW 2232

LICENSED, ENGINEERING & MINING SURVEYING CONSULTANTS



BCE Surveying Pty Ltd

A.C.N. 088 348 136 / A.B.N. 93 088 348 136

ALL CORRESPONDENCE TO : PO BOX 2448 BUNBURY WA 6231

EMAIL: admin@bcesurveying.com.au

WEBSITE : www.bcesurveying.com.au

MONITORING WELL LOCATION SHEET

Date : 19/09/2025

Our Job No. : E5989

Location: Giorgi Road, Picton, WA

Surveyor : Teverai Nhete

Bore No. : MW04

E : 379944.552

N : 6310273.169

RL Top outer casing : 13.752

RL Top inner PVC Pipe: 13.619

RL Natural surface : 12.986

Horizontal Datum : MGA 2020

Vertical Datum : AHD

Method of Establishment : RTK GPS, 3rd order Digital level

Expected Horizontal Accuracy : 0.03m

Expected Vertical Accuracy : 0.001m



Location Plot:



Survey Control Point 1

BYN29

E : 379672.41

N : 6310407.341

RL : 17.235

Type of Mark : SSM

Survey Control Point 2

BYS 9

E : 378383.627

N : 6308971.505

RL : 8.744

Type of Mark : SSM

Checked/Approved By : DM

Date : 19/09/2025



PERTH
Suite 9, 7 Kintail Road,
APPLECROSS WA 6153

BUNBURY
24 Molloy Street,
BUNBURY WA 6230

SYDNEY
3, 720 Old Princes Hwy
SUTHERLAND NSW 2232

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MONITORING WELL LOCATION SHEET

Date : 19/09/2025

Our Job No. : E5989

Location: Giorgi Road, Picton, WA

Surveyor : Teverai Nhete

Bore No. : MW05

E : 379907.641

N : 6310404.288

RL Top outer casing : 13.132

RL Top inner PVC Pipe: 13.006

RL Natural surface : 12.442



Horizontal Datum : MGA 2020

Vertical Datum : AHD

Method of Establishment : RTK GPS, 3rd order Digital level

Expected Horizontal Accuracy : 0.03m

Expected Vertical Accuracy : 0.001m

Location Plot:



Survey Control Point 1

BYN29

E : 379672.41

N : 6310407.341

RL : 17.235

Type of Mark : SSM

Survey Control Point 2

BYS 9

E : 378383.627

N : 6308971.505

RL : 8.744

Type of Mark : SSM

Checked/Approved By : DM

Date : 19/09/2025



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MONITORING WELL LOCATION SHEET

Date : 19/09/2025

Our Job No. : E5989

Location: Giorgi Road, Picton, WA

Surveyor : Teverai Nhete

Bore No. : MW06

E : 379932.384

N : 6310236.093

RL Top outer casing : 13.001

RL Top inner PVC Pipe: 12.884

RL Natural surface : 13.000



Horizontal Datum : MGA 2020

Vertical Datum : AHD

Method of Establishment : RTK GPS, 3rd order Digital level

Expected Horizontal Accuracy : 0.03m

Expected Vertical Accuracy : 0.001m

Location Plot:



Survey Control Point 1

BYN29

E : 379672.41

N : 6310407.341

RL : 17.235

Type of Mark : SSM

Survey Control Point 2

BYS 9

E : 378383.627

N : 6308971.505

RL : 8.744

Type of Mark : SSM

Checked/Approved By : DM

Date : 19/09/2025



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LICENSED, ENGINEERING & MINING SURVEYING CONSULTANTS



ABN 90 614 506 286
Environmental Test Solutions Pty Ltd
Unit 3/30 Paramount Drive, Wangara WA 6065
Tel : (08) 9344 7831
Email : sales@envts.com.au
Web : www.environmentaltestsolutions.com.au

Certificate of Calibration

Certificate number: 17
Date: 1/09/2025
Instrument description: Portable Volatile Organic Compound Monitor
Model: MiniRae Lite PID PGM 7350
Serial Number : 595-000866

Item	Test	Pass	Comments
Battery	Condition	✓	
	Charger	✓	
	Auto Shutdown	✓	Unit shuts down below 4.2v as required
Keypad	Operational	✓	
Display	Screen	✓	
Alarm Mode		✓	Auto Reset
Alarm Type		✓	Buzzer and Light
Pump	Operational	✓	
	Flow	✓	>400ml/min
Sensor	PID Lamp 10.6eV	✓	
Alarm levels			
	Low	✓	50 ppm (50 000 ppb)
	High	✓	100 ppm (100 000 ppb)
Firmware	Version	✓	1.25A
Monitor	Operation Mode	✓	Hygiene
Data Logger	Operational	✓	
Download	Operational	✓	

Sensor	Calibration Span Gas	Concentration	Cylinder Number	CF	Zero	Span
VOC	Isobutylene	100 ppm	WO253106-40	1	0.0 ppm	100.0 ppm

Calibrated By: Lachlan Andrews

This instrument is calibrated to the manufacturers specifications as found in the user manual P/N: 059-4026-000 REV A
This document certifies the calibration of the instrument to the specifications above.



ABN 90 614 506 286
Environmental Test Solutions Pty Ltd
Unit 3/30 Paramount Drive, Wangara WA 6065
Tel : (08) 9344 7831
Email : sales@envts.com.au
Web : www.environmentaltestsolutions.com.au

Certificate of Calibration

Certificate: 18
Date: 10/09/2025
Instrument Description: YSI Professional Plus Water Quality Instrument
Model: YSI Professional Quatro
Serial Number : 24B104811
Probe Serial Number: 14E100174
Owner: Environmental Test Solutions

ITEM	TEST	PASS / FAIL	COMMENTS
Battery	Condition	✓	
	Auto Power Off	✓	
Keypad	Operational	✓	
	Screen	✓	
Unit and Display	Seals and Orings	✓	
	Condition	✓	
Connections	Condition	✓	
	Condition	✓	
Sensors	Temperature	✓	°C
	pH	✓	pH
	Redox or ORP	✓	mV
	Electrical Conductivity	✓	µs/cm
	Dissolved Oxygen	✓	DO %
Software Version	Current Version	✓	0.0.83

PARAMETER	STANDARD	REFERENCE NUMBER	CALIBRATION POINTS	INSTRUMENT READINGS	TEMPERATURE READING	PASS/FAIL ±5 %
Conductivity	1413 µs/cm at 25°C	434771	1413	1395	21.1	✓
pH	7.00	HC17382477	7.00	6.60	21.0	✓
	4.00	HC17239975	4.00	4.00	21.1	✓
	10.00	HC15167200	10.00	10.20	21.1	✓
ORP (mV)	Zobell A and Zobell B	25/2403	248.1	265.9	8.0	✓
Dissolved Oxygen	100% Air Saturation		100%	101%	19.8	✓

NOTES

This instrument is calibrated to the manufacturers specifications as found in the user manual. 606962-01 ProQuatro User Manual RevC
This document certifies the calibration of the instrument to the specifications above.

Technician Name: Lachlan Andrews

Completed: 10/09/2025



ABN 90 614 506 286
Environmental Test Solutions Pty Ltd
Unit 3/30 Paramount Drive, Wangara WA 6065
Tel : (08) 9344 7831
Email : sales@envts.com.au
Web : www.environmentaltestsolutions.com.au

Certificate of Calibration

Certificate: 25
Date: 16/10/2025
Instrument Description: YSI Professional Water Quality Instrument
Model: YSI Professional Quatro
Serial Number : 24B104810
Probe Serial Number: 15A100248
Owner: ETS

ITEM	TEST	PASS / FAIL	COMMENTS
Battery	Condition	✓	
	Auto Power Off	✓	
Keypad	Operational	✓	
Unit and Display	Screen	✓	
	Seals and Orings	✓	
Connections	Condition	✓	
Cable	Condition	✓	
Sensors	Temperature	✓	°C
	pH	✓	pH
	Redox or ORP	✓	mV
	Electrical Conductivity	✓	µs/cm
	Dissolved Oxygen	✓	DO %
Software Version	Current Version	✓	0.0.83

PARAMETER	STANDARD	REFERENCE NUMBER	CALIBRATION POINTS	INSTRUMENT READINGS	TEMPERATURE READING	PASS/FAIL ±5 %
Temperature (°C)					21.4	✓
Conductivity	1413 µs/cm at 25°C	446945	1413	1450	21.4	✓
pH	7.00	HC17382477	7.00	7.04	21.4	✓
	4.00	HC17239975	4.00	3.92	21.4	✓
	10.00	433236	10.00	9.95	21.4	✓
ORP (mV)	Zobell A and Zobell B	25/2305	246.2	243.9	9.4	✓
Dissolved Oxygen	100% Air Saturation		100%	99%	21.2	✓

NOTES

This instrument is calibrated to the manufacturers specifications as found in the user manual, 606962-01 ProQuatro User Manual RevC
This document certifies the calibration of the instrument to the specifications above.

Technician Name: Clive WilliamsCompleted: 16/10/2025

Appendix G

Table G-1: Summary of Soil Analytical Results

EIL Calculation Sheets

95% UCL Calculation Sheet

Laboratory Reports and Chain of Custody Forms

[illegible]

150	Bold cells indicate result greater than Laboratory Limit of Reporting (LOR) but below SAC
170	Bold + yellow highlighted cells indicate exceedance of adopted ecological assessment criteria.
170	Bold + red highlighted cells indicate exceedance of adopted human health assessment criteria.

[illegible]

- 1- Health Investigation Levels (NEPM - Schedule B1, 2013) - HIL D: Commercial and Industrial
- 2- Health Screening Levels (NEPM - Schedule B1, 2013) - HSL D: Commercial and Industrial
- 3- Ecological Investigation Levels (NEPM - Schedule B1, 2013) - Commercial and Industrial
- 4- Ecological Screening Levels (NEPM - Schedule B1, 2013) - Commercial and Industrial
- 5- Management Limits (NEPM - Schedule B1, 2013) - Coarse.
- 6- HEPA, PFAS NEMP 3.0 - Soil criteria for investigation – human health based guidance values (HIL D)
- 7- HEPA, PFAS NEMP 3.0 - Soil criteria for investigation – ecological based guidance values for direct exposure and [indirect exposure]

150	Bold cells indicate result greater than Laboratory Limit of Reporting (LOR) but below SAC
170	Bold + yellow highlighted cells indicate exceedance of adopted ecological assessment criteria.
170	Bold + red highlighted cells indicate exceedance of adopted human health assessment criteria.

Inputs
Select contaminant from list below
Cu
Below needed to calculate fresh and aged ACLs
Enter cation exchange capacity (silver thiourea method) (values from 0 to 100 cmolc/kg dwt)
0.15
Enter soil pH (calcium chloride method) (values from 1 to 14)
6.4
Enter organic carbon content (%OC) (values from 0 to 50%)
0.05
Below needed to calculate fresh and aged ABCs
Measured background concentration (mg/kg). Leave blank if no measured value
or for fresh ABCs only
Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration
or for aged ABCs only
Enter State (or closest State)
SA
Enter traffic volume (high or low)
low

Outputs		
Land use	Cu soil-specific EILs	
	(mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	#NUM!	20
Urban residential and open public spaces	#NUM!	20
Commercial and industrial	#NUM!	20

Inputs	
Select contaminant from list below	
Ni	
Below needed to calculate fresh and aged ACLs	
Enter cation exchange capacity (silver thiourea method) (values from 0 to 100 cmolc/kg dwt)	
0.15	
Below needed to calculate fresh and aged ABCs	
Measured background concentration (mg/kg). Leave blank if no measured value	
or for fresh ABCs only	
Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration	
or for aged ABCs only	
Enter State (or closest State)	
SA	
Enter traffic volume (high or low)	
low	

Outputs		
Land use	Ni soil-specific EILs	
	(mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	#NUM!	6
Urban residential and open public spaces	#NUM!	6
Commercial and industrial	#NUM!	6

Inputs	
Select contaminant from list below	
Cr_III	
Below needed to calculate fresh and aged ACLs	
Enter % clay (values from 0 to 100%)	
10	
Below needed to calculate fresh and aged ABCs	
Measured background concentration (mg/kg). Leave blank if no measured value	
or for fresh ABCs only	
Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration	
or for aged ABCs only	
Enter State (or closest State)	
SA	
Enter traffic volume (high or low)	
low	

Outputs		
Land use	Cr III soil-specific EILs	
	(mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	#NUM!	140
Urban residential and open public spaces	#NUM!	410
Commercial and industrial	#NUM!	680

Inputs	
Select contaminant from list below	
Zn	
Below needed to calculate fresh and aged ACLs	
Enter cation exchange capacity (silver thiourea method) (values from 0 to 100 cmolc/kg dwt)	
0.15	
Enter soil pH (calcium chloride method) (values from 1 to 14)	
6.4	
Below needed to calculate fresh and aged ABCs	
Measured background concentration (mg/kg). Leave blank if no measured value	
or for fresh ABCs only	
Enter iron content (aqua regia method) (values from 0 to 50%) to obtain estimate of background concentration	
or for aged ABCs only	
Enter State (or closest State)	
SA	
Enter traffic volume (high or low)	
low	

Outputs		
Land use	Zn soil-specific EILs	
	(mg contaminant/kg dry soil)	
	Fresh	Aged
National parks and areas of high conservation value	#NUM!	60
Urban residential and open public spaces	#NUM!	70
Commercial and industrial	#NUM!	80

	A	B	C	D	E	F	G	H	I	J	K	L
1	UCL Statistics for Uncensored Full Data Sets											
2												
3	User Selected Options											
4	Date/Time of Computation			ProUCL 5.2 11/11/2025 1:00:53 PM								
5	From File			WorkSheet.xls								
6	Full Precision			OFF								
7	Confidence Coefficient			95%								
8	Number of Bootstrap Operations			2000								
9												
10												
11	zinc											
12												
13	General Statistics											
14	Total Number of Observations				33		Number of Distinct Observations				20	
15							Number of Missing Observations				0	
16	Minimum				1		Mean				8.558	
17	Maximum				130		Median				2	
18	SD				22.64		Std. Error of Mean				3.941	
19	Coefficient of Variation				2.645		Skewness				5.133	
20												
21	Normal GOF Test											
22	Shapiro Wilk Test Statistic				0.355		Shapiro Wilk GOF Test					
23	1% Shapiro Wilk Critical Value				0.906		Data Not Normal at 1% Significance Level					
24	Lilliefors Test Statistic				0.369		Lilliefors GOF Test					
25	1% Lilliefors Critical Value				0.177		Data Not Normal at 1% Significance Level					
26	Data Not Normal at 1% Significance Level											
27												
28	Assuming Normal Distribution											
29	95% Normal UCL						95% UCLs (Adjusted for Skewness)					
30	95% Student's-t UCL				15.23		95% Adjusted-CLT UCL (Chen-1995)				18.8	
31							95% Modified-t UCL (Johnson-1978)				15.82	
32												
33	Gamma GOF Test											
34	A-D Test Statistic				3.315		Anderson-Darling Gamma GOF Test					
35	5% A-D Critical Value				0.804		Data Not Gamma Distributed at 5% Significance Level					
36	K-S Test Statistic				0.232		Kolmogorov-Smirnov Gamma GOF Test					
37	5% K-S Critical Value				0.161		Data Not Gamma Distributed at 5% Significance Level					
38	Data Not Gamma Distributed at 5% Significance Level											
39												
40	Gamma Statistics											
41	k hat (MLE)				0.574		k star (bias corrected MLE)				0.542	
42	Theta hat (MLE)				14.91		Theta star (bias corrected MLE)				15.79	
43	nu hat (MLE)				37.88		nu star (bias corrected)				35.77	
44	MLE Mean (bias corrected)				8.558		MLE Sd (bias corrected)				11.62	
45							Approximate Chi Square Value (0.05)				23.08	
46	Adjusted Level of Significance				0.0419		Adjusted Chi Square Value				22.56	
47												
48	Assuming Gamma Distribution											
49	95% Approximate Gamma UCL				13.26		95% Adjusted Gamma UCL				13.57	
50												
51	Lognormal GOF Test											
52	Shapiro Wilk Test Statistic				0.83		Shapiro Wilk Lognormal GOF Test					
53	10% Shapiro Wilk Critical Value				0.942		Data Not Lognormal at 10% Significance Level					
54	Lilliefors Test Statistic				0.196		Lilliefors Lognormal GOF Test					
55	10% Lilliefors Critical Value				0.139		Data Not Lognormal at 10% Significance Level					

	A	B	C	D	E	F	G	H	I	J	K	L
56	Data Not Lognormal at 10% Significance Level											
57												
58	Lognormal Statistics											
59	Minimum of Logged Data				0		Mean of logged Data				1.063	
60	Maximum of Logged Data				4.868		SD of logged Data				1.244	
61												
62	Assuming Lognormal Distribution											
63	95% H-UCL				11.5		90% Chebyshev (MVUE) UCL				10.81	
64	95% Chebyshev (MVUE) UCL				12.97		97.5% Chebyshev (MVUE) UCL				15.97	
65	99% Chebyshev (MVUE) UCL				21.86							
66												
67	Nonparametric Distribution Free UCL Statistics											
68	Data do not follow a Discernible Distribution											
69												
70	Nonparametric Distribution Free UCLs											
71	95% CLT UCL				15.04		95% BCA Bootstrap UCL				20.48	
72	95% Standard Bootstrap UCL				14.85		95% Bootstrap-t UCL				31.84	
73	95% Hall's Bootstrap UCL				37.47		95% Percentile Bootstrap UCL				15.73	
74	90% Chebyshev(Mean, Sd) UCL				20.38		95% Chebyshev(Mean, Sd) UCL				25.74	
75	97.5% Chebyshev(Mean, Sd) UCL				33.17		99% Chebyshev(Mean, Sd) UCL				47.77	
76												
77	Suggested UCL to Use											
78	95% Student's-t UCL				15.23							
79												
80	The calculated UCLs are based on assumptions that the data were collected in a random and unbiased manner.											
81	Please verify the data were collected from random locations.											
82	If the data were collected using judgmental or other non-random methods,											
83	then contact a statistician to correctly calculate UCLs.											
84												
85	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
86	Recommendations are based upon data size, data distribution, and skewness using results from simulation studies.											
87	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
88												

Sample Receipt Advice PGI1813

Client Details

Client	Douglas Partners Pty Ltd (Perth)
Attention	Rob Shapland

Sample Login Details

Your Reference	236293.02 - Picton
Envirolab Reference	PGI1813
Date Sample Received	24/09/2025
Date Instructions Received	24/09/2025
Date Final Results Expected	07/10/2025

Sample Condition

Samples received in appropriate condition for analysis	See Comments
Number of Samples	37 Soil, 4 Water
Turnaround Time	7 Days
Temperatures / Cooling Methods	11.0°C On Ice

Additional Info

Sample storage - waters are routinely disposed at approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Where no sampling date has been supplied for some or all samples, the date of sample receipt has been used as the associated sampling date. The sampling dates are used to assess compliance to recommended Technical Holding Times.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default).

Please direct any queries to:

Heram Halim

Phone 08 9317 2505
Email hhalim@mpl.com.au

Meredith Conroy

Phone 08 9317 2505
Email mconroy@mpl.com.au

Analysis underway, details on the following page

Sample Receipt Advice PGI1813

Analysis Grid

The • indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

	Combination 3	CEC	PFAS-Short	VTRH&MBTEXN	BTEX TS	TOC by Combustion	pH	Moisture	1:5 Soil:Water Extraction
PGI1813-01 Soil 22/09/2025 TP01 0.0m-0.1m	•		•					•	
PGI1813-02 Soil 22/09/2025 TP02 0.0m-0.1m	•		•					•	
PGI1813-03 Soil 22/09/2025 TP03 0.0m-0.1m	•		•					•	
PGI1813-04 Soil 23/09/2025 TP04 0.0m-0.1m	•		•					•	
PGI1813-05 Soil 23/09/2025 TP04 0.4m-0.5m	•		•					•	
PGI1813-06 Soil 23/09/2025 TP05 0.4m-0.5m	•		•					•	
PGI1813-07 Soil 23/09/2025 TP06 0.0m-0.1m	•		•					•	
PGI1813-08 Soil 23/09/2025 TP06 0.4m-0.5m	•		•					•	
PGI1813-09 Soil 23/09/2025 TP06 1.6m-1.7m	•							•	
PGI1813-10 Soil 23/09/2025 TP07 0.0m-0.1m	•		•					•	
PGI1813-11 Soil 23/09/2025 TP07 0.4m-0.5m	•		•					•	
PGI1813-12 Soil 23/09/2025 TP07 1.7m-1.8m	•							•	
PGI1813-13 Soil 22/09/2025 TP08 0.0m-0.1m	•		•					•	
PGI1813-14 Soil 22/09/2025 TP08 0.4m-0.5m	•		•					•	
PGI1813-15 Soil 22/09/2025 TP08 1.7m-1.8m	•							•	
PGI1813-16 Soil 22/09/2025 TP09 0.0m-0.1m	•		•					•	

Sample Receipt Advice PGI1813

Analysis Grid (Cont.)

	Combination 3	CEC	PFAS-Short	VTRH&MBTEXN	BTEX TS	TOC by Combustion	pH	Moisture	1:5 Soil:Water Extraction
PGI1813-17 Soil 22/09/2025 TP09 0.4m-0.5m	•		•					•	
PGI1813-18 Soil 23/09/2025 TP10 0.0m-0.1m	•		•					•	
PGI1813-19 Soil 23/09/2025 TP10 0.4m-0.5m	•		•					•	
PGI1813-20 Soil 23/09/2025 TP11 0.0m-0.1m	•		•					•	
PGI1813-21 Soil 23/09/2025 TP11 0.4m-0.5m	•		•					•	
PGI1813-22 Soil 23/09/2025 TP11 1.7m-1.8m	•							•	
PGI1813-23 Soil 23/09/2025 TP12 0.0m-0.1m	•		•					•	
PGI1813-24 Soil 23/09/2025 TP12 0.4m-0.5m	•		•					•	
PGI1813-25 Soil 23/09/2025 TP13 0.0m-0.1m	•		•					•	
PGI1813-26 Soil 23/09/2025 TP13 0.4m-0.5m	•		•					•	
PGI1813-27 Soil 22/09/2025 TP14 0.0m-0.1m	•		•					•	
PGI1813-28 Soil 22/09/2025 TP14 0.4m-0.5m	•		•					•	
PGI1813-29 Soil 22/09/2025 TP14 1.9m-2m	•							•	
PGI1813-30 Soil 22/09/2025 TP15 0.0m-0.1m	•		•					•	
PGI1813-31 Soil 22/09/2025 TP15 0.4m-0.5m	•		•					•	
PGI1813-32 Soil 23/09/2025 TP16 0.0m-0.1m	•		•					•	

Sample Receipt Advice PGI1813

Analysis Grid (Cont.)

	Combination 3	CEC	PFAS-Short	VTRH&MBTEXN	BTEX TS	TOC by Combustion	pH	Moisture	1:5 Soil:Water Extraction
PGI1813-33 Soil 23/09/2025 TP17 0.5m-0.6m		•				•	•		•
PGI1813-34 Soil 22/09/2025 Dup 1	•		•					•	
PGI1813-35 Soil 22/09/2025 Dup 2	•		•					•	
PGI1813-36 Soil 22/09/2025 Dup 3			•					•	
PGI1813-37 Water 22/09/2025 TS1					•				
PGI1813-38 Water 22/09/2025 TS2					•				
PGI1813-39 Water 22/09/2025 TB1				•					
PGI1813-40 Water 22/09/2025 TB2				•					
PGI1813-41 Soil 22/09/2025 TP05 0.0m-0.1m	•		•					•	

Suite Details

Suite Name	Suite Analyses
Combination 3 Soil	vTRH&MBTEXN, sTRH, PAH, As, Cd, Cr, Cu, Hg, Ni, Pb, Zn
CEC Soil	CEC, Exchangeable Cations
PFAS-Short Soil	PFAS - ISTD (Short), PFAS-Short

Certificate of Analysis PGI1813

Client Details

Client	Douglas Partners Pty Ltd (Perth)
Contact	Rob Shapland
Address	36 O'Malley St, OSBORNE PARK, WA, 6017

Sample Details

Your Reference	236293.02 - Picton
Number of Samples	37 Soil, 4 Water
Date Samples Received	24/09/2025
Date Instructions Received	24/09/2025

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for soils and on an as received basis for other matrices.

Report Details

Date Final Results Expected	03/10/2025
Date of Issue	07/10/2025

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Authorisation Details

Results Approved By	Hien Luong, Chemist - FAS Joshua Williams, Senior R&D Chemist Lien Tang, Assistant Operations Manager Lucas Yij, Inorganics Team Leader Michael Mowle, Development Chemist - Inorganics and Metals Stacey Hawkins, ASS/AMD Supervisor
Laboratory Manager	Michael Kubiak

Certificate of Analysis PGI1813

Samples in this Report

Envirolab ID	Sample ID	Depth	Matrix	Date Sampled	Date Received
PGI1813-01	TP01	0.00-0.10	Soil	22/09/2025	24/09/2025
PGI1813-02	TP02	0.00-0.10	Soil	22/09/2025	24/09/2025
PGI1813-03	TP03	0.00-0.10	Soil	22/09/2025	24/09/2025
PGI1813-04	TP04	0.00-0.10	Soil	23/09/2025	24/09/2025
PGI1813-05	TP04	0.40-0.50	Soil	23/09/2025	24/09/2025
PGI1813-06	TP05	0.40-0.50	Soil	23/09/2025	24/09/2025
PGI1813-07	TP06	0.00-0.10	Soil	23/09/2025	24/09/2025
PGI1813-08	TP06	0.40-0.50	Soil	23/09/2025	24/09/2025
PGI1813-09	TP06	1.60-1.70	Soil	23/09/2025	24/09/2025
PGI1813-10	TP07	0.00-0.10	Soil	23/09/2025	24/09/2025
PGI1813-11	TP07	0.40-0.50	Soil	23/09/2025	24/09/2025
PGI1813-12	TP07	1.70-1.80	Soil	23/09/2025	24/09/2025
PGI1813-13	TP08	0.00-0.10	Soil	22/09/2025	24/09/2025
PGI1813-14	TP08	0.40-0.50	Soil	22/09/2025	24/09/2025
PGI1813-15	TP08	1.70-1.80	Soil	22/09/2025	24/09/2025
PGI1813-16	TP09	0.00-0.10	Soil	22/09/2025	24/09/2025
PGI1813-17	TP09	0.40-0.50	Soil	22/09/2025	24/09/2025
PGI1813-18	TP10	0.00-0.10	Soil	23/09/2025	24/09/2025
PGI1813-19	TP10	0.40-0.50	Soil	23/09/2025	24/09/2025
PGI1813-20	TP11	0.00-0.10	Soil	23/09/2025	24/09/2025
PGI1813-21	TP11	0.40-0.50	Soil	23/09/2025	24/09/2025
PGI1813-22	TP11	1.70-1.80	Soil	23/09/2025	24/09/2025
PGI1813-23	TP12	0.00-0.10	Soil	23/09/2025	24/09/2025
PGI1813-24	TP12	0.40-0.50	Soil	23/09/2025	24/09/2025
PGI1813-25	TP13	0.00-0.10	Soil	23/09/2025	24/09/2025
PGI1813-26	TP13	0.40-0.50	Soil	23/09/2025	24/09/2025
PGI1813-27	TP14	0.00-0.10	Soil	22/09/2025	24/09/2025
PGI1813-28	TP14	0.40-0.50	Soil	22/09/2025	24/09/2025
PGI1813-29	TP14	1.90-2.00	Soil	22/09/2025	24/09/2025
PGI1813-30	TP15	0.00-0.10	Soil	22/09/2025	24/09/2025
PGI1813-31	TP15	0.40-0.50	Soil	22/09/2025	24/09/2025
PGI1813-32	TP16	0.00-0.10	Soil	23/09/2025	24/09/2025
PGI1813-33	TP17	0.50-0.60	Soil	23/09/2025	24/09/2025
PGI1813-34	Dup 1		Soil	22/09/2025	24/09/2025
PGI1813-35	Dup 2		Soil	22/09/2025	24/09/2025

Certificate of Analysis PGI1813

Samples in this Report

Envirolab ID	Sample ID	Depth	Matrix	Date Sampled	Date Received
PGI1813-36	Dup 3		Soil	22/09/2025	24/09/2025
PGI1813-37	TS1		Water	22/09/2025	24/09/2025
PGI1813-38	TS2		Water	22/09/2025	24/09/2025
PGI1813-39	TB1		Water	22/09/2025	24/09/2025
PGI1813-40	TB2		Water	22/09/2025	24/09/2025
PGI1813-41	TP05	0.00-0.10	Soil	22/09/2025	24/09/2025

Certificate of Analysis PGI1813

Volatile TRH and BTEX (Soil)

Envirolab ID	Units	PQL	PGI1813-01	PGI1813-02	PGI1813-03	PGI1813-04	PGI1813-05
Your Reference			TP01	TP02	TP03	TP04	TP04
Date Sampled			22/09/2025	22/09/2025	22/09/2025	23/09/2025	23/09/2025
Depth			0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10	0.40-0.50
TRH C6-C9	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 less BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25
Methyl tert butyl ether (MTBE)	mg/kg	0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Benzene	mg/kg	0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Toluene	mg/kg	0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Ethylbenzene	mg/kg	1.0	<1.0	<1.0	<1.0	<1.0	<1.0
meta+para Xylene	mg/kg	2.0	<2.0	<2.0	<2.0	<2.0	<2.0
ortho-Xylene	mg/kg	1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total +ve Xylenes	mg/kg	1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Naphthalene (value used in F2 calc)	mg/kg	1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total +ve BTEX	mg/kg	0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Surrogate aaa-Trifluorotoluene	%		114	120	119	122	115

Envirolab ID	Units	PQL	PGI1813-06	PGI1813-07	PGI1813-08	PGI1813-09	PGI1813-10
Your Reference			TP05	TP06	TP06	TP06	TP07
Date Sampled			23/09/2025	23/09/2025	23/09/2025	23/09/2025	23/09/2025
Depth			0.40-0.50	0.00-0.10	0.40-0.50	1.60-1.70	0.00-0.10
TRH C6-C9	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 less BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25
Methyl tert butyl ether (MTBE)	mg/kg	0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Benzene	mg/kg	0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Toluene	mg/kg	0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Ethylbenzene	mg/kg	1.0	<1.0	<1.0	<1.0	<1.0	<1.0
meta+para Xylene	mg/kg	2.0	<2.0	<2.0	<2.0	<2.0	<2.0
ortho-Xylene	mg/kg	1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total +ve Xylenes	mg/kg	1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Naphthalene (value used in F2 calc)	mg/kg	1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total +ve BTEX	mg/kg	0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Surrogate aaa-Trifluorotoluene	%		116	120	116	118	120

Envirolab ID	Units	PQL	PGI1813-11	PGI1813-12	PGI1813-13	PGI1813-14	PGI1813-15
Your Reference			TP07	TP07	TP08	TP08	TP08
Date Sampled			23/09/2025	23/09/2025	22/09/2025	22/09/2025	22/09/2025
Depth			0.40-0.50	1.70-1.80	0.00-0.10	0.40-0.50	1.70-1.80
TRH C6-C9	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 less BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25
Methyl tert butyl ether (MTBE)	mg/kg	0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Benzene	mg/kg	0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Toluene	mg/kg	0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Ethylbenzene	mg/kg	1.0	<1.0	<1.0	<1.0	<1.0	<1.0
meta+para Xylene	mg/kg	2.0	<2.0	<2.0	<2.0	<2.0	<2.0
ortho-Xylene	mg/kg	1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total +ve Xylenes	mg/kg	1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Naphthalene (value used in F2 calc)	mg/kg	1.0	<1.0	<1.0	<1.0	<1.0	<1.0

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Volatile TRH and BTEX (Soil)

Envirolab ID	Units	PQL	PGI1813-11	PGI1813-12	PGI1813-13	PGI1813-14	PGI1813-15
Your Reference			TP07	TP07	TP08	TP08	TP08
Date Sampled			23/09/2025	23/09/2025	22/09/2025	22/09/2025	22/09/2025
Depth			0.40-0.50	1.70-1.80	0.00-0.10	0.40-0.50	1.70-1.80

Total +ve BTEX	mg/kg	0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Surrogate aaa-Trifluorotoluene	%		120	118	117	121	113

Envirolab ID	Units	PQL	PGI1813-16	PGI1813-17	PGI1813-18	PGI1813-19	PGI1813-20
Your Reference			TP09	TP09	TP10	TP10	TP11
Date Sampled			22/09/2025	22/09/2025	23/09/2025	23/09/2025	23/09/2025
Depth			0.00-0.10	0.40-0.50	0.00-0.10	0.40-0.50	0.00-0.10

TRH C6-C9	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 less BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25
Methyl tert butyl ether (MTBE)	mg/kg	0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Benzene	mg/kg	0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Toluene	mg/kg	0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Ethylbenzene	mg/kg	1.0	<1.0	<1.0	<1.0	<1.0	<1.0
meta+para Xylene	mg/kg	2.0	<2.0	<2.0	<2.0	<2.0	<2.0
ortho-Xylene	mg/kg	1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total +ve Xylenes	mg/kg	1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Naphthalene (value used in F2 calc)	mg/kg	1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total +ve BTEX	mg/kg	0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Surrogate aaa-Trifluorotoluene	%		121	120	114	117	113

Envirolab ID	Units	PQL	PGI1813-21	PGI1813-22	PGI1813-23	PGI1813-24	PGI1813-25
Your Reference			TP11	TP11	TP12	TP12	TP13
Date Sampled			23/09/2025	23/09/2025	23/09/2025	23/09/2025	23/09/2025
Depth			0.40-0.50	1.70-1.80	0.00-0.10	0.40-0.50	0.00-0.10

TRH C6-C9	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 less BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25
Methyl tert butyl ether (MTBE)	mg/kg	0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Benzene	mg/kg	0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Toluene	mg/kg	0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Ethylbenzene	mg/kg	1.0	<1.0	<1.0	<1.0	<1.0	<1.0
meta+para Xylene	mg/kg	2.0	<2.0	<2.0	<2.0	<2.0	<2.0
ortho-Xylene	mg/kg	1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total +ve Xylenes	mg/kg	1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Naphthalene (value used in F2 calc)	mg/kg	1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total +ve BTEX	mg/kg	0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Surrogate aaa-Trifluorotoluene	%		122	109	129	110	118

Envirolab ID	Units	PQL	PGI1813-26	PGI1813-27	PGI1813-28	PGI1813-29	PGI1813-30
Your Reference			TP13	TP14	TP14	TP14	TP15
Date Sampled			23/09/2025	22/09/2025	22/09/2025	22/09/2025	22/09/2025
Depth			0.40-0.50	0.00-0.10	0.40-0.50	1.90-2.00	0.00-0.10

TRH C6-C9	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 less BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25
Methyl tert butyl ether (MTBE)	mg/kg	0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Benzene	mg/kg	0.20	<0.20	<0.20	<0.20	<0.20	<0.20

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Volatile TRH and BTEX (Soil)

Envirolab ID Your Reference Date Sampled Depth	Units	PQL	PGI1813-26 TP13 23/09/2025 0.40-0.50	PGI1813-27 TP14 22/09/2025 0.00-0.10	PGI1813-28 TP14 22/09/2025 0.40-0.50	PGI1813-29 TP14 22/09/2025 1.90-2.00	PGI1813-30 TP15 22/09/2025 0.00-0.10
Toluene	mg/kg	0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Ethylbenzene	mg/kg	1.0	<1.0	<1.0	<1.0	<1.0	<1.0
meta+para Xylene	mg/kg	2.0	<2.0	<2.0	<2.0	<2.0	<2.0
ortho-Xylene	mg/kg	1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total +ve Xylenes	mg/kg	1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Naphthalene (value used in F2 calc)	mg/kg	1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total +ve BTEX	mg/kg	0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Surrogate aaa-Trifluorotoluene	%		114	122	124	110	111

Envirolab ID Your Reference Date Sampled Depth	Units	PQL	PGI1813-31 TP15 22/09/2025 0.40-0.50	PGI1813-32 TP16 23/09/2025 0.00-0.10	PGI1813-34 Dup 1 22/09/2025	PGI1813-35 Dup 2 22/09/2025	PGI1813-41 TP05 22/09/2025 0.00-0.10
TRH C6-C9	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10	mg/kg	25	<25	<25	<25	<25	<25
TRH C6-C10 less BTEX (F1)	mg/kg	25	<25	<25	<25	<25	<25
Methyl tert butyl ether (MTBE)	mg/kg	0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Benzene	mg/kg	0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Toluene	mg/kg	0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Ethylbenzene	mg/kg	1.0	<1.0	<1.0	<1.0	<1.0	<1.0
meta+para Xylene	mg/kg	2.0	<2.0	<2.0	<2.0	<2.0	<2.0
ortho-Xylene	mg/kg	1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total +ve Xylenes	mg/kg	1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Naphthalene (value used in F2 calc)	mg/kg	1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Total +ve BTEX	mg/kg	0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Surrogate aaa-Trifluorotoluene	%		118	118	116	114	117

Certificate of Analysis PGI1813

Volatile TRH and BTEX (Water)

Envirolab ID Your Reference Date Sampled	Units	PQL	PGI1813-39 TB1 22/09/2025	PGI1813-40 TB2 22/09/2025
TRH C6-C9	µg/L	10	<10	<10
TRH C6-C10	µg/L	10	<10	<10
TRH C6-C10 less BTEX (F1)	µg/L	10	<10	<10
Methyl tert butyl ether (MTBE)	µg/L	1.0	<1.0	<1.0
Benzene	µg/L	1.0	<1.0	<1.0
Toluene	µg/L	1.0	<1.0	<1.0
Ethylbenzene	µg/L	1.0	<1.0	<1.0
meta+para Xylene	µg/L	2.0	<2.0	<2.0
ortho-Xylene	µg/L	1.0	<1.0	<1.0
Total +ve Xylenes	µg/L	1.0	<1.0	<1.0
Naphthalene (value used in F2 calc)	µg/L	1.0	<1.0	<1.0
Total +ve BTEX	µg/L	1.0	<1.0	<1.0
Surrogate Dibromofluoromethane	%		100	98.0
Surrogate Toluene-D8	%		102	98.9
Surrogate 4-Bromofluorobenzene	%		98.1	96.4

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BTEX Trip Spike (Water)

Envirolab ID	Units	PQL	PGI1813-37	PGI1813-38
Your Reference			TS1	TS2
Date Sampled			22/09/2025	22/09/2025
Benzene	%		86.6	82.0
Toluene	%		113	113
Ethylbenzene	%		90.2	78.8
meta+para Xylene	%		82.4	77.6
ortho-Xylene	%		90.5	84.3
<i>Surrogate Dibromofluoromethane</i>	%		<i>111</i>	<i>114</i>
<i>Surrogate Toluene-D8</i>	%		<i>109</i>	<i>109</i>
<i>Surrogate 4-Bromofluorobenzene</i>	%		<i>95.9</i>	<i>97.8</i>

Certificate of Analysis PGI1813

Semi-volatile TRH (Soil)

Envirolab ID Your Reference Date Sampled Depth	Units	PQL	PGI1813-01 TP01 22/09/2025 0.00-0.10	PGI1813-02 TP02 22/09/2025 0.00-0.10	PGI1813-03 TP03 22/09/2025 0.00-0.10	PGI1813-04 TP04 23/09/2025 0.00-0.10	PGI1813-05 TP04 23/09/2025 0.40-0.50
TRH C10-C14	mg/kg	50	<50	<50	<50	<50	<50
TRH C15-C28	mg/kg	100	<100	<100	<100	<100	<100
TRH C29-C36	mg/kg	100	<100	<100	<100	<100	<100
Total +ve TRH C10-C36	mg/kg	50	<50	<50	<50	<50	<50
TRH >C10-C16	mg/kg	50	<50	<50	<50	<50	<50
TRH >C10-C16 less Naphthalene F2	mg/kg	50	<50	<50	<50	<50	<50
TRH >C16-C34 (F3)	mg/kg	100	<100	<100	<100	<100	<100
TRH >C34-C40 (F4)	mg/kg	100	<100	<100	<100	<100	<100
Total +ve TRH >C10-C40	mg/kg	50	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%		87.5	86.4	85.6	88.6	84.8

Envirolab ID Your Reference Date Sampled Depth	Units	PQL	PGI1813-06 TP05 23/09/2025 0.40-0.50	PGI1813-07 TP06 23/09/2025 0.00-0.10	PGI1813-08 TP06 23/09/2025 0.40-0.50	PGI1813-09 TP06 23/09/2025 1.60-1.70	PGI1813-10 TP07 23/09/2025 0.00-0.10
TRH C10-C14	mg/kg	50	<50	<50	<50	<50	<50
TRH C15-C28	mg/kg	100	<100	<100	<100	<100	<100
TRH C29-C36	mg/kg	100	<100	<100	<100	<100	<100
Total +ve TRH C10-C36	mg/kg	50	<50	<50	<50	<50	<50
TRH >C10-C16	mg/kg	50	<50	<50	<50	<50	<50
TRH >C10-C16 less Naphthalene F2	mg/kg	50	<50	<50	<50	<50	<50
TRH >C16-C34 (F3)	mg/kg	100	<100	<100	<100	<100	<100
TRH >C34-C40 (F4)	mg/kg	100	<100	<100	<100	<100	<100
Total +ve TRH >C10-C40	mg/kg	50	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%		84.7	83.8	87.5	88.0	89.4

Envirolab ID Your Reference Date Sampled Depth	Units	PQL	PGI1813-11 TP07 23/09/2025 0.40-0.50	PGI1813-12 TP07 23/09/2025 1.70-1.80	PGI1813-13 TP08 22/09/2025 0.00-0.10	PGI1813-14 TP08 22/09/2025 0.40-0.50	PGI1813-15 TP08 22/09/2025 1.70-1.80
TRH C10-C14	mg/kg	50	<50	<50	<50	<50	<50
TRH C15-C28	mg/kg	100	<100	<100	<100	<100	<100
TRH C29-C36	mg/kg	100	<100	<100	<100	<100	<100
Total +ve TRH C10-C36	mg/kg	50	<50	<50	<50	<50	<50
TRH >C10-C16	mg/kg	50	<50	<50	<50	<50	<50
TRH >C10-C16 less Naphthalene F2	mg/kg	50	<50	<50	<50	<50	<50
TRH >C16-C34 (F3)	mg/kg	100	<100	<100	<100	<100	<100
TRH >C34-C40 (F4)	mg/kg	100	<100	<100	<100	<100	<100
Total +ve TRH >C10-C40	mg/kg	50	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%		87.4	86.7	86.9	86.6	87.4

Envirolab ID Your Reference Date Sampled Depth	Units	PQL	PGI1813-16 TP09 22/09/2025 0.00-0.10	PGI1813-17 TP09 22/09/2025 0.40-0.50	PGI1813-18 TP10 23/09/2025 0.00-0.10	PGI1813-19 TP10 23/09/2025 0.40-0.50	PGI1813-20 TP11 23/09/2025 0.00-0.10
TRH C10-C14	mg/kg	50	<50	<50	<50	<50	<50

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Semi-volatile TRH (Soil)

Envirolab ID Your Reference Date Sampled Depth	Units	PQL	PGI1813-16 TP09 22/09/2025 0.00-0.10	PGI1813-17 TP09 22/09/2025 0.40-0.50	PGI1813-18 TP10 23/09/2025 0.00-0.10	PGI1813-19 TP10 23/09/2025 0.40-0.50	PGI1813-20 TP11 23/09/2025 0.00-0.10
TRH C15-C28	mg/kg	100	<100	<100	<100	<100	<100
TRH C29-C36	mg/kg	100	<100	<100	<100	<100	<100
Total +ve TRH C10-C36	mg/kg	50	<50	<50	<50	<50	<50
TRH >C10-C16	mg/kg	50	<50	<50	<50	<50	<50
TRH >C10-C16 less Naphthalene F2	mg/kg	50	<50	<50	<50	<50	<50
TRH >C16-C34 (F3)	mg/kg	100	<100	<100	<100	<100	<100
TRH >C34-C40 (F4)	mg/kg	100	<100	<100	<100	<100	<100
Total +ve TRH >C10-C40	mg/kg	50	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%		86.0	85.9	87.7	87.6	88.4

Envirolab ID Your Reference Date Sampled Depth	Units	PQL	PGI1813-21 TP11 23/09/2025 0.40-0.50	PGI1813-22 TP11 23/09/2025 1.70-1.80	PGI1813-23 TP12 23/09/2025 0.00-0.10	PGI1813-24 TP12 23/09/2025 0.40-0.50	PGI1813-25 TP13 23/09/2025 0.00-0.10
TRH C10-C14	mg/kg	50	<50	<50	<50	<50	<50
TRH C15-C28	mg/kg	100	<100	<100	<100	<100	<100
TRH C29-C36	mg/kg	100	<100	<100	<100	<100	<100
Total +ve TRH C10-C36	mg/kg	50	<50	<50	<50	<50	<50
TRH >C10-C16	mg/kg	50	<50	<50	<50	<50	<50
TRH >C10-C16 less Naphthalene F2	mg/kg	50	<50	<50	<50	<50	<50
TRH >C16-C34 (F3)	mg/kg	100	<100	<100	<100	<100	<100
TRH >C34-C40 (F4)	mg/kg	100	<100	<100	<100	<100	<100
Total +ve TRH >C10-C40	mg/kg	50	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%		94.4	94.7	94.7	96.3	95.1

Envirolab ID Your Reference Date Sampled Depth	Units	PQL	PGI1813-26 TP13 23/09/2025 0.40-0.50	PGI1813-27 TP14 22/09/2025 0.00-0.10	PGI1813-28 TP14 22/09/2025 0.40-0.50	PGI1813-29 TP14 22/09/2025 1.90-2.00	PGI1813-30 TP15 22/09/2025 0.00-0.10
TRH C10-C14	mg/kg	50	<50	<50	<50	<50	<50
TRH C15-C28	mg/kg	100	<100	<100	<100	<100	<100
TRH C29-C36	mg/kg	100	<100	<100	<100	<100	<100
Total +ve TRH C10-C36	mg/kg	50	<50	<50	<50	<50	<50
TRH >C10-C16	mg/kg	50	<50	<50	<50	<50	<50
TRH >C10-C16 less Naphthalene F2	mg/kg	50	<50	<50	<50	<50	<50
TRH >C16-C34 (F3)	mg/kg	100	<100	<100	<100	<100	<100
TRH >C34-C40 (F4)	mg/kg	100	<100	<100	<100	<100	<100
Total +ve TRH >C10-C40	mg/kg	50	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%		97.8	97.4	95.4	98.0	97.5

Envirolab ID Your Reference Date Sampled Depth	Units	PQL	PGI1813-31 TP15 22/09/2025 0.40-0.50	PGI1813-32 TP16 23/09/2025 0.00-0.10	PGI1813-34 Dup 1 22/09/2025	PGI1813-35 Dup 2 22/09/2025	PGI1813-41 TP05 22/09/2025 0.00-0.10
TRH C10-C14	mg/kg	50	<50	<50	<50	<50	<50
TRH C15-C28	mg/kg	100	<100	<100	<100	<100	<100

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Semi-volatile TRH (Soil)

Envirolab ID Your Reference Date Sampled Depth	Units	PQL	PGI1813-31 TP15 22/09/2025 0.40-0.50	PGI1813-32 TP16 23/09/2025 0.00-0.10	PGI1813-34 Dup 1 22/09/2025	PGI1813-35 Dup 2 22/09/2025	PGI1813-41 TP05 22/09/2025 0.00-0.10
TRH C29-C36	mg/kg	100	<100	<100	<100	<100	<100
Total +ve TRH C10-C36	mg/kg	50	<50	<50	<50	<50	<50
TRH >C10-C16	mg/kg	50	<50	<50	<50	<50	<50
TRH >C10-C16 less Naphthalene F2	mg/kg	50	<50	<50	<50	<50	<50
TRH >C16-C34 (F3)	mg/kg	100	<100	<100	<100	<100	<100
TRH >C34-C40 (F4)	mg/kg	100	<100	<100	<100	<100	<100
Total +ve TRH >C10-C40	mg/kg	50	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%		95.0	97.2	96.8	95.1	93.6

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Polycyclic Aromatic Hydrocarbons (Soil)

Envirolab ID Your Reference Date Sampled Depth	Units	PQL	PGI1813-01 TP01 22/09/2025 0.00-0.10	PGI1813-02 TP02 22/09/2025 0.00-0.10	PGI1813-03 TP03 22/09/2025 0.00-0.10	PGI1813-04 TP04 23/09/2025 0.00-0.10	PGI1813-05 TP04 23/09/2025 0.40-0.50
Naphthalene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Acenaphthylene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Acenaphthene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Fluorene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Phenanthrene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Anthracene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Fluoranthene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Pyrene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo(a)anthracene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Chrysene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo(b,j,k)fluoranthene	mg/kg	0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Benzo(a)pyrene	mg/kg	0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Indeno(1,2,3-c,d)pyrene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Dibenzo(a,h)anthracene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo(g,h,i)perylene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total +ve PAH	mg/kg	0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(a)pyrene TEQ calc zero	mg/kg	0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Benzo(a)pyrene TEQ calc Half	mg/kg	0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Benzo(a)pyrene TEQ calc PQL	mg/kg	0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Surrogate p-Terphenyl-D14	%		97.8	90.4	88.1	93.3	88.8

Envirolab ID Your Reference Date Sampled Depth	Units	PQL	PGI1813-06 TP05 23/09/2025 0.40-0.50	PGI1813-07 TP06 23/09/2025 0.00-0.10	PGI1813-08 TP06 23/09/2025 0.40-0.50	PGI1813-09 TP06 23/09/2025 1.60-1.70	PGI1813-10 TP07 23/09/2025 0.00-0.10
Naphthalene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Acenaphthylene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Acenaphthene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Fluorene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Phenanthrene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Anthracene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Fluoranthene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Pyrene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo(a)anthracene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Chrysene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo(b,j,k)fluoranthene	mg/kg	0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Benzo(a)pyrene	mg/kg	0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Indeno(1,2,3-c,d)pyrene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Dibenzo(a,h)anthracene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo(g,h,i)perylene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total +ve PAH	mg/kg	0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(a)pyrene TEQ calc zero	mg/kg	0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Benzo(a)pyrene TEQ calc Half	mg/kg	0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Benzo(a)pyrene TEQ calc PQL	mg/kg	0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Surrogate p-Terphenyl-D14	%		88.9	89.8	94.5	92.2	99.2

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Polycyclic Aromatic Hydrocarbons (Soil)

Envirolab ID Your Reference Date Sampled Depth	Units	PQL	PGI1813-11 TP07 23/09/2025 0.40-0.50	PGI1813-12 TP07 23/09/2025 1.70-1.80	PGI1813-13 TP08 22/09/2025 0.00-0.10	PGI1813-14 TP08 22/09/2025 0.40-0.50	PGI1813-15 TP08 22/09/2025 1.70-1.80
Naphthalene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Acenaphthylene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Acenaphthene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Fluorene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Phenanthrene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Anthracene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Fluoranthene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Pyrene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo(a)anthracene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Chrysene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo(b,j,k)fluoranthene	mg/kg	0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Benzo(a)pyrene	mg/kg	0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Indeno(1,2,3-c,d)pyrene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Dibenzo(a,h)anthracene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo(g,h,i)perylene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total +ve PAH	mg/kg	0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(a)pyrene TEQ calc zero	mg/kg	0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Benzo(a)pyrene TEQ calc Half	mg/kg	0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Benzo(a)pyrene TEQ calc PQL	mg/kg	0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Surrogate p-Terphenyl-D14	%		91.3	94.0	89.9	91.6	93.4

Envirolab ID Your Reference Date Sampled Depth	Units	PQL	PGI1813-16 TP09 22/09/2025 0.00-0.10	PGI1813-17 TP09 22/09/2025 0.40-0.50	PGI1813-18 TP10 23/09/2025 0.00-0.10	PGI1813-19 TP10 23/09/2025 0.40-0.50	PGI1813-20 TP11 23/09/2025 0.00-0.10
Naphthalene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Acenaphthylene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Acenaphthene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Fluorene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Phenanthrene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Anthracene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Fluoranthene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Pyrene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo(a)anthracene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Chrysene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo(b,j,k)fluoranthene	mg/kg	0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Benzo(a)pyrene	mg/kg	0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Indeno(1,2,3-c,d)pyrene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Dibenzo(a,h)anthracene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo(g,h,i)perylene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total +ve PAH	mg/kg	0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(a)pyrene TEQ calc zero	mg/kg	0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Benzo(a)pyrene TEQ calc Half	mg/kg	0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Benzo(a)pyrene TEQ calc PQL	mg/kg	0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Surrogate p-Terphenyl-D14	%		92.8	89.5	93.5	89.5	88.0

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Polycyclic Aromatic Hydrocarbons (Soil)

Envirolab ID Your Reference Date Sampled Depth	Units	PQL	PGI1813-21 TP11 23/09/2025 0.40-0.50	PGI1813-22 TP11 23/09/2025 1.70-1.80	PGI1813-23 TP12 23/09/2025 0.00-0.10	PGI1813-24 TP12 23/09/2025 0.40-0.50	PGI1813-25 TP13 23/09/2025 0.00-0.10
Naphthalene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Acenaphthylene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Acenaphthene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Fluorene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Phenanthrene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Anthracene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Fluoranthene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Pyrene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo(a)anthracene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Chrysene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo(b,j,k)fluoranthene	mg/kg	0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Benzo(a)pyrene	mg/kg	0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Indeno(1,2,3-c,d)pyrene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Dibenzo(a,h)anthracene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo(g,h,i)perylene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total +ve PAH	mg/kg	0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(a)pyrene TEQ calc zero	mg/kg	0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Benzo(a)pyrene TEQ calc Half	mg/kg	0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Benzo(a)pyrene TEQ calc PQL	mg/kg	0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Surrogate p-Terphenyl-D14	%		86.8	87.4	86.7	86.2	87.1

Envirolab ID Your Reference Date Sampled Depth	Units	PQL	PGI1813-26 TP13 23/09/2025 0.40-0.50	PGI1813-27 TP14 22/09/2025 0.00-0.10	PGI1813-28 TP14 22/09/2025 0.40-0.50	PGI1813-29 TP14 22/09/2025 1.90-2.00	PGI1813-30 TP15 22/09/2025 0.00-0.10
Naphthalene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Acenaphthylene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Acenaphthene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Fluorene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Phenanthrene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Anthracene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Fluoranthene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Pyrene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo(a)anthracene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Chrysene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo(b,j,k)fluoranthene	mg/kg	0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Benzo(a)pyrene	mg/kg	0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Indeno(1,2,3-c,d)pyrene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Dibenzo(a,h)anthracene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo(g,h,i)perylene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total +ve PAH	mg/kg	0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(a)pyrene TEQ calc zero	mg/kg	0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Benzo(a)pyrene TEQ calc Half	mg/kg	0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Benzo(a)pyrene TEQ calc PQL	mg/kg	0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Surrogate p-Terphenyl-D14	%		87.6	87.9	88.1	88.1	86.1

Certificate of Analysis PGI1813

Polycyclic Aromatic Hydrocarbons (Soil)

Envirolab ID Your Reference Date Sampled Depth	Units	PQL	PGI1813-31 TP15 22/09/2025 0.40-0.50	PGI1813-32 TP16 23/09/2025 0.00-0.10	PGI1813-34 Dup 1 22/09/2025	PGI1813-35 Dup 2 22/09/2025	PGI1813-41 TP05 22/09/2025 0.00-0.10
Naphthalene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Acenaphthylene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Acenaphthene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Fluorene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Phenanthrene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Anthracene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Fluoranthene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Pyrene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo(a)anthracene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Chrysene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo(b,j,k)fluoranthene	mg/kg	0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Benzo(a)pyrene	mg/kg	0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Indeno(1,2,3-c,d)pyrene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Dibenzo(a,h)anthracene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo(g,h,i)perylene	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total +ve PAH	mg/kg	0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(a)pyrene TEQ calc zero	mg/kg	0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Benzo(a)pyrene TEQ calc Half	mg/kg	0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Benzo(a)pyrene TEQ calc PQL	mg/kg	0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Surrogate p-Terphenyl-D14	%		88.7	88.8	86.8	84.1	86.1

Certificate of Analysis PGI1813

Acid Extractable Metals (Soil)

Envirolab ID Your Reference Date Sampled Depth	Units	PQL	PGI1813-01 TP01 22/09/2025 0.00-0.10	PGI1813-02 TP02 22/09/2025 0.00-0.10	PGI1813-03 TP03 22/09/2025 0.00-0.10	PGI1813-04 TP04 23/09/2025 0.00-0.10	PGI1813-05 TP04 23/09/2025 0.40-0.50
Arsenic	mg/kg	4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Cadmium	mg/kg	0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Chromium	mg/kg	1.0	<1.0	1.2	1.3	2.4	<1.0
Copper	mg/kg	1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Mercury	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Nickel	mg/kg	1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Lead	mg/kg	1.0	1.3	1.8	2.0	1.3	<1.0
Zinc	mg/kg	1.0	5.9	15	10	1.3	<1.0

Envirolab ID Your Reference Date Sampled Depth	Units	PQL	PGI1813-06 TP05 23/09/2025 0.40-0.50	PGI1813-07 TP06 23/09/2025 0.00-0.10	PGI1813-08 TP06 23/09/2025 0.40-0.50	PGI1813-09 TP06 23/09/2025 1.60-1.70	PGI1813-10 TP07 23/09/2025 0.00-0.10
Arsenic	mg/kg	4.0	<4.0	<4.0	<4.0	<4.0	5.9
Cadmium	mg/kg	0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Chromium	mg/kg	1.0	<1.0	2.7	<1.0	<1.0	6.1
Copper	mg/kg	1.0	<1.0	2.0	<1.0	<1.0	<1.0
Mercury	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Nickel	mg/kg	1.0	<1.0	<1.0	<1.0	<1.0	1.3
Lead	mg/kg	1.0	<1.0	2.1	<1.0	1.0	1.3
Zinc	mg/kg	1.0	<1.0	20	<1.0	<1.0	26

Envirolab ID Your Reference Date Sampled Depth	Units	PQL	PGI1813-11 TP07 23/09/2025 0.40-0.50	PGI1813-12 TP07 23/09/2025 1.70-1.80	PGI1813-13 TP08 22/09/2025 0.00-0.10	PGI1813-14 TP08 22/09/2025 0.40-0.50	PGI1813-15 TP08 22/09/2025 1.70-1.80
Arsenic	mg/kg	4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Cadmium	mg/kg	0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Chromium	mg/kg	1.0	1.5	3.4	<1.0	2.6	5.8
Copper	mg/kg	1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Mercury	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Nickel	mg/kg	1.0	<1.0	1.1	<1.0	<1.0	<1.0
Lead	mg/kg	1.0	1.1	2.3	1.5	1.3	2.6
Zinc	mg/kg	1.0	2.0	4.0	2.3	<1.0	1.1

Envirolab ID Your Reference Date Sampled Depth	Units	PQL	PGI1813-16 TP09 22/09/2025 0.00-0.10	PGI1813-17 TP09 22/09/2025 0.40-0.50	PGI1813-18 TP10 23/09/2025 0.00-0.10	PGI1813-19 TP10 23/09/2025 0.40-0.50	PGI1813-20 TP11 23/09/2025 0.00-0.10
Arsenic	mg/kg	4.0	<4.0	<4.0	<4.0	<4.0	5.1
Cadmium	mg/kg	0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Chromium	mg/kg	1.0	1.7	1.1	2.2	<1.0	5.5
Copper	mg/kg	1.0	<1.0	<1.0	6.0	<1.0	<1.0
Mercury	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Nickel	mg/kg	1.0	<1.0	<1.0	1.1	<1.0	<1.0
Lead	mg/kg	1.0	1.2	1.3	2.6	1.1	1.2
Zinc	mg/kg	1.0	2.5	<1.0	130	<1.0	1.6

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Acid Extractable Metals (Soil)

Envirolab ID Your Reference Date Sampled Depth	Units	PQL	PGI1813-21 TP11 23/09/2025 0.40-0.50	PGI1813-22 TP11 23/09/2025 1.70-1.80	PGI1813-23 TP12 23/09/2025 0.00-0.10	PGI1813-24 TP12 23/09/2025 0.40-0.50	PGI1813-25 TP13 23/09/2025 0.00-0.10
Arsenic	mg/kg	4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Cadmium	mg/kg	0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Chromium	mg/kg	1.0	<1.0	<1.0	<1.0	<1.0	4.0
Copper	mg/kg	1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Mercury	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Nickel	mg/kg	1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Lead	mg/kg	1.0	1.2	1.0	1.3	<1.0	1.9
Zinc	mg/kg	1.0	<1.0	<1.0	12	5.5	13

Envirolab ID Your Reference Date Sampled Depth	Units	PQL	PGI1813-26 TP13 23/09/2025 0.40-0.50	PGI1813-27 TP14 22/09/2025 0.00-0.10	PGI1813-28 TP14 22/09/2025 0.40-0.50	PGI1813-29 TP14 22/09/2025 1.90-2.00	PGI1813-30 TP15 22/09/2025 0.00-0.10
Arsenic	mg/kg	4.0	<4.0	<4.0	<4.0	<4.0	4.9
Cadmium	mg/kg	0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Chromium	mg/kg	1.0	3.1	30	<1.0	<1.0	6.0
Copper	mg/kg	1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Mercury	mg/kg	0.10	<0.10	0.46	<0.10	<0.10	<0.10
Nickel	mg/kg	1.0	<1.0	1.1	<1.0	<1.0	<1.0
Lead	mg/kg	1.0	2.3	5.3	1.4	<1.0	1.4
Zinc	mg/kg	1.0	2.0	3.3	7.5	<1.0	1.3

Envirolab ID Your Reference Date Sampled Depth	Units	PQL	PGI1813-31 TP15 22/09/2025 0.40-0.50	PGI1813-32 TP16 23/09/2025 0.00-0.10	PGI1813-34 Dup 1 22/09/2025	PGI1813-35 Dup 2 22/09/2025	PGI1813-41 TP05 22/09/2025 0.00-0.10
Arsenic	mg/kg	4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Cadmium	mg/kg	0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Chromium	mg/kg	1.0	<1.0	2.3	<1.0	<1.0	2.4
Copper	mg/kg	1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Mercury	mg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Nickel	mg/kg	1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Lead	mg/kg	1.0	1.4	1.5	<1.0	<1.0	1.4
Zinc	mg/kg	1.0	<1.0	3.8	<1.0	<1.0	1.3

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Exchangeable Cations (Soil)

Envirolab ID	Units	PQL	PGI1813-33
Your Reference			TP17
Date Sampled			23/09/2025
Depth			0.50-0.60
Calcium	meq/100g	0.10	<0.10
Potassium	meq/100g	0.10	<0.10
Magnesium	meq/100g	0.10	<0.10
Sodium	meq/100g	0.10	<0.10
Cation Exchange Capacity (CEC)	meq/100g	0.10	0.15

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Inorganics - Carbon, Nitrogen and Sulfur Species (Soil)

Envirolab ID	Units	PQL	PGI1813-33
Your Reference			TP17
Date Sampled			23/09/2025
Depth			0.50-0.60
Total Organic Carbon	%	0.010	0.051

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Inorganics - General Physical Parameters (Soil)

Envirolab ID	Units	PQL	PGI1813-33
Your Reference			TP17
Date Sampled			23/09/2025
Depth			0.50-0.60
pH	pH units		6.4

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Inorganics - Moisture (Soil)

Envirolab ID	Units	PQL	PGI1813-01	PGI1813-02	PGI1813-03	PGI1813-04	PGI1813-05
Your Reference			TP01	TP02	TP03	TP04	TP04
Date Sampled			22/09/2025	22/09/2025	22/09/2025	23/09/2025	23/09/2025
Depth			0.00-0.10	0.00-0.10	0.00-0.10	0.00-0.10	0.40-0.50
Moisture	%	0.10	4.8	2.2	4.4	4.8	4.1

Envirolab ID	Units	PQL	PGI1813-06	PGI1813-07	PGI1813-08	PGI1813-09	PGI1813-10
Your Reference			TP05	TP06	TP06	TP06	TP07
Date Sampled			23/09/2025	23/09/2025	23/09/2025	23/09/2025	23/09/2025
Depth			0.40-0.50	0.00-0.10	0.40-0.50	1.60-1.70	0.00-0.10
Moisture	%	0.10	4.1	4.6	4.1	14	7.4

Envirolab ID	Units	PQL	PGI1813-11	PGI1813-12	PGI1813-13	PGI1813-14	PGI1813-15
Your Reference			TP07	TP07	TP08	TP08	TP08
Date Sampled			23/09/2025	23/09/2025	22/09/2025	22/09/2025	22/09/2025
Depth			0.40-0.50	1.70-1.80	0.00-0.10	0.40-0.50	1.70-1.80
Moisture	%	0.10	3.6	7.3	4.0	3.6	11

Envirolab ID	Units	PQL	PGI1813-16	PGI1813-17	PGI1813-18	PGI1813-19	PGI1813-20
Your Reference			TP09	TP09	TP10	TP10	TP11
Date Sampled			22/09/2025	22/09/2025	23/09/2025	23/09/2025	23/09/2025
Depth			0.00-0.10	0.40-0.50	0.00-0.10	0.40-0.50	0.00-0.10
Moisture	%	0.10	4.8	4.2	4.6	4.5	7.5

Envirolab ID	Units	PQL	PGI1813-21	PGI1813-22	PGI1813-23	PGI1813-24	PGI1813-25
Your Reference			TP11	TP11	TP12	TP12	TP13
Date Sampled			23/09/2025	23/09/2025	23/09/2025	23/09/2025	23/09/2025
Depth			0.40-0.50	1.70-1.80	0.00-0.10	0.40-0.50	0.00-0.10
Moisture	%	0.10	4.9	10	4.1	5.9	5.0

Envirolab ID	Units	PQL	PGI1813-26	PGI1813-27	PGI1813-28	PGI1813-29	PGI1813-30
Your Reference			TP13	TP14	TP14	TP14	TP15
Date Sampled			23/09/2025	22/09/2025	22/09/2025	22/09/2025	22/09/2025
Depth			0.40-0.50	0.00-0.10	0.40-0.50	1.90-2.00	0.00-0.10
Moisture	%	0.10	5.4	5.8	5.1	11	8.2

Envirolab ID	Units	PQL	PGI1813-31	PGI1813-32	PGI1813-34	PGI1813-35	PGI1813-36
Your Reference			TP15	TP16	Dup 1	Dup 2	Dup 3
Date Sampled			22/09/2025	23/09/2025	22/09/2025	22/09/2025	22/09/2025
Depth			0.40-0.50	0.00-0.10			
Moisture	%	0.10	5.3	2.1	2.4	7.8	4.5

Envirolab ID	Units	PQL	PGI1813-41				
Your Reference			TP05				
Date Sampled			22/09/2025				
Depth			0.00-0.10				
Moisture	%	0.10	4.1				

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PFAS Short List (Soil)

Envirolab ID Your Reference Date Sampled Depth	Units	PQL	PGI1813-01 TP01 22/09/2025 0.00-0.10	PGI1813-02 TP02 22/09/2025 0.00-0.10	PGI1813-03 TP03 22/09/2025 0.00-0.10	PGI1813-04 TP04 23/09/2025 0.00-0.10	PGI1813-05 TP04 23/09/2025 0.40-0.50
Perfluorobutanesulfonic acid (PFBS)	µg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Perfluorohexanesulfonic acid (PFHxS)	µg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Perfluorooctanesulfonic acid (PFOS)	µg/kg	0.10	0.51	<0.10	<0.10	0.43	0.51
Perfluorooctanoic acid (PFOA)	µg/kg	0.10	0.13	<0.10	<0.10	0.11	0.10
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/kg	0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Total +ve PFHxS+PFOS	µg/kg	0.10	0.51	<0.10	<0.10	0.43	0.51
Total +ve PFOA+PFOS	µg/kg	0.10	0.64	<0.10	<0.10	0.54	0.61
Total +ve PFAS	µg/kg	0.10	0.64	<0.10	<0.10	0.54	0.61
Surrogate 13C8 PFOS	%		101	92.8	92.7	107	104
Surrogate 13C2 PFOA	%		114	122	107	98.7	90.0
Extraction Internal Standard 13C3 PFBS	%		81.0	79.4	88.0	102	82.8
Extraction Internal Standard 18O2 PFHxS	%		80.4	85.7	84.5	81.3	77.5
Extraction Internal Standard 13C4 PFOS	%		80.2	103	90.2	93.6	86.6
Extraction Internal Standard 13C4 PFOA	%		88.2	83.0	93.1	98.7	97.8
Extraction Internal Standard 13C2 6:2FTS	%		89.3	95.1	89.3	85.8	90.5
Extraction Internal Standard 13C2 8:2FTS	%		92.0	94.1	97.6	80.5	82.0

Envirolab ID Your Reference Date Sampled Depth	Units	PQL	PGI1813-06 TP05 23/09/2025 0.40-0.50	PGI1813-07 TP06 23/09/2025 0.00-0.10	PGI1813-08 TP06 23/09/2025 0.40-0.50	PGI1813-10 TP07 23/09/2025 0.00-0.10	PGI1813-11 TP07 23/09/2025 0.40-0.50
Perfluorobutanesulfonic acid (PFBS)	µg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Perfluorohexanesulfonic acid (PFHxS)	µg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Perfluorooctanesulfonic acid (PFOS)	µg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Perfluorooctanoic acid (PFOA)	µg/kg	0.10	0.13	<0.10	<0.10	<0.10	<0.10
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/kg	0.10	5.3	<0.10	<0.10	<0.10	<0.10
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/kg	0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Total +ve PFHxS+PFOS	µg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total +ve PFOA+PFOS	µg/kg	0.10	0.13	<0.10	<0.10	<0.10	<0.10
Total +ve PFAS	µg/kg	0.10	5.4	<0.10	<0.10	<0.10	<0.10
Surrogate 13C8 PFOS	%		108	104	101	93.1	83.0
Surrogate 13C2 PFOA	%		107	92.7	116	100	113
Extraction Internal Standard 13C3 PFBS	%		86.2	86.0	90.0	82.0	96.4
Extraction Internal Standard 18O2 PFHxS	%		84.9	86.1	83.0	80.6	80.8
Extraction Internal Standard 13C4 PFOS	%		98.3	89.5	87.3	87.5	98.7
Extraction Internal Standard 13C4 PFOA	%		91.6	89.7	91.4	85.0	92.6
Extraction Internal Standard 13C2 6:2FTS	%		84.0	87.3	97.4	84.0	93.4
Extraction Internal Standard 13C2 8:2FTS	%		86.1	94.8	81.1	83.7	99.6

Envirolab ID Your Reference Date Sampled Depth	Units	PQL	PGI1813-13 TP08 22/09/2025 0.00-0.10	PGI1813-14 TP08 22/09/2025 0.40-0.50	PGI1813-16 TP09 22/09/2025 0.00-0.10	PGI1813-17 TP09 22/09/2025 0.40-0.50	PGI1813-18 TP10 23/09/2025 0.00-0.10
Perfluorobutanesulfonic acid (PFBS)	µg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Perfluorohexanesulfonic acid (PFHxS)	µg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Perfluorooctanesulfonic acid (PFOS)	µg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10

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Certificate of Analysis PGI1813

PFAS Short List (Soil)

Envirolab ID	Units	PQL	PGI1813-13	PGI1813-14	PGI1813-16	PGI1813-17	PGI1813-18
Your Reference			TP08	TP08	TP09	TP09	TP10
Date Sampled			22/09/2025	22/09/2025	22/09/2025	22/09/2025	23/09/2025
Depth			0.00-0.10	0.40-0.50	0.00-0.10	0.40-0.50	0.00-0.10
Perfluorooctanoic acid (PFOA)	µg/kg	0.10	0.33	1.0	<0.10	<0.10	<0.10
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/kg	0.10	0.18	1.5	<0.10	<0.10	<0.10
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/kg	0.20	9.4	6.9	<0.20	<0.20	<0.20
Total +ve PFHxS+PFOS	µg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total +ve PFOA+PFOS	µg/kg	0.10	0.33	1.0	<0.10	<0.10	<0.10
Total +ve PFAS	µg/kg	0.10	9.9	9.4	<0.10	<0.10	<0.10
Surrogate 13C8 PFOS	%		89.6	110	98.5	86.4	91.4
Surrogate 13C2 PFOA	%		109	94.3	124	98.1	104
Extraction Internal Standard 13C3 PFBS	%		79.5	75.6	87.3	86.3	82.0
Extraction Internal Standard 18O2 PFHxS	%		83.7	79.3	81.0	76.0	83.4
Extraction Internal Standard 13C4 PFOS	%		92.5	87.1	83.8	86.0	93.5
Extraction Internal Standard 13C4 PFOA	%		90.4	94.4	87.1	102	97.0
Extraction Internal Standard 13C2 6:2FTS	%		90.0	86.9	87.4	97.8	87.2
Extraction Internal Standard 13C2 8:2FTS	%		88.8	75.5	77.3	102	91.4

Envirolab ID	Units	PQL	PGI1813-19	PGI1813-20	PGI1813-21	PGI1813-23	PGI1813-24
Your Reference			TP10	TP11	TP11	TP12	TP12
Date Sampled			23/09/2025	23/09/2025	23/09/2025	23/09/2025	23/09/2025
Depth			0.40-0.50	0.00-0.10	0.40-0.50	0.00-0.10	0.40-0.50
Perfluorobutanesulfonic acid (PFBS)	µg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Perfluorohexanesulfonic acid (PFHxS)	µg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Perfluorooctanesulfonic acid (PFOS)	µg/kg	0.10	<0.10	<0.10	<0.10	<0.10	0.38
Perfluorooctanoic acid (PFOA)	µg/kg	0.10	<0.10	<0.10	<0.10	<0.10	0.13
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/kg	0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Total +ve PFHxS+PFOS	µg/kg	0.10	<0.10	<0.10	<0.10	<0.10	0.38
Total +ve PFOA+PFOS	µg/kg	0.10	<0.10	<0.10	<0.10	<0.10	0.51
Total +ve PFAS	µg/kg	0.10	<0.10	<0.10	<0.10	<0.10	0.51
Surrogate 13C8 PFOS	%		112	94.9	87.7	112	90.4
Surrogate 13C2 PFOA	%		108	107	132	103	108
Extraction Internal Standard 13C3 PFBS	%		80.9	74.8	82.4	80.3	81.0
Extraction Internal Standard 18O2 PFHxS	%		88.9	75.3	74.4	79.9	77.6
Extraction Internal Standard 13C4 PFOS	%		79.3	80.2	99.3	81.7	101
Extraction Internal Standard 13C4 PFOA	%		90.3	93.9	81.9	82.7	82.6
Extraction Internal Standard 13C2 6:2FTS	%		97.4	79.5	93.8	91.5	94.4
Extraction Internal Standard 13C2 8:2FTS	%		84.9	98.2	101	102	95.7

Envirolab ID	Units	PQL	PGI1813-25	PGI1813-26	PGI1813-27	PGI1813-28	PGI1813-30
Your Reference			TP13	TP13	TP14	TP14	TP15
Date Sampled			23/09/2025	23/09/2025	22/09/2025	22/09/2025	22/09/2025
Depth			0.00-0.10	0.40-0.50	0.00-0.10	0.40-0.50	0.00-0.10
Perfluorobutanesulfonic acid (PFBS)	µg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Perfluorohexanesulfonic acid (PFHxS)	µg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Perfluorooctanesulfonic acid (PFOS)	µg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Perfluorooctanoic acid (PFOA)	µg/kg	0.10	0.14	<0.10	<0.10	<0.10	<0.10
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/kg	0.20	<0.20	<0.20	<0.20	<0.20	<0.20

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PFAS Short List (Soil)

Envirolab ID Your Reference Date Sampled Depth	Units	PQL	PGI1813-25 TP13 23/09/2025 0.00-0.10	PGI1813-26 TP13 23/09/2025 0.40-0.50	PGI1813-27 TP14 22/09/2025 0.00-0.10	PGI1813-28 TP14 22/09/2025 0.40-0.50	PGI1813-30 TP15 22/09/2025 0.00-0.10
Total +ve PFHxS+PFOS	µg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total +ve PFOA+PFOS	µg/kg	0.10	0.14	<0.10	<0.10	<0.10	<0.10
Total +ve PFAS	µg/kg	0.10	0.14	<0.10	<0.10	<0.10	<0.10
Surrogate 13C8 PFOS	%		95.2	97.4	97.2	91.0	107
Surrogate 13C2 PFOA	%		113	120	115	120	111
Extraction Internal Standard 13C3 PFBS	%		94.6	83.4	76.4	82.2	80.0
Extraction Internal Standard 18O2 PFHxS	%		84.0	76.2	80.0	85.6	83.2
Extraction Internal Standard 13C4 PFOS	%		87.4	81.0	101	93.0	82.4
Extraction Internal Standard 13C4 PFOA	%		78.0	72.8	78.3	85.4	82.2
Extraction Internal Standard 13C2 6:2FTS	%		101	98.9	88.8	83.2	85.8
Extraction Internal Standard 13C2 8:2FTS	%		90.6	120	94.3	94.4	94.8

Envirolab ID Your Reference Date Sampled Depth	Units	PQL	PGI1813-31 TP15 22/09/2025 0.40-0.50	PGI1813-32 TP16 23/09/2025 0.00-0.10	PGI1813-34 Dup 1 22/09/2025	PGI1813-35 Dup 2 22/09/2025	PGI1813-36 Dup 3 22/09/2025
Perfluorobutanesulfonic acid (PFBS)	µg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Perfluorohexanesulfonic acid (PFHxS)	µg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Perfluorooctanesulfonic acid (PFOS)	µg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Perfluorooctanoic acid (PFOA)	µg/kg	0.10	<0.10	<0.10	0.28	<0.10	<0.10
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/kg	0.10	<0.10	<0.10	0.18	<0.10	<0.10
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/kg	0.20	<0.20	<0.20	14	<0.20	<0.20
Total +ve PFHxS+PFOS	µg/kg	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total +ve PFOA+PFOS	µg/kg	0.10	<0.10	<0.10	0.28	<0.10	<0.10
Total +ve PFAS	µg/kg	0.10	<0.10	<0.10	14	<0.10	<0.10
Surrogate 13C8 PFOS	%		105	97.9	97.7	90.8	95.8
Surrogate 13C2 PFOA	%		115	118	105	128	101
Extraction Internal Standard 13C3 PFBS	%		82.6	75.8	86.3	82.3	81.3
Extraction Internal Standard 18O2 PFHxS	%		70.1	73.5	81.9	77.0	79.5
Extraction Internal Standard 13C4 PFOS	%		84.3	96.3	81.3	95.3	86.1
Extraction Internal Standard 13C4 PFOA	%		81.1	77.9	83.0	69.1	81.3
Extraction Internal Standard 13C2 6:2FTS	%		93.4	92.0	96.9	87.6	81.4
Extraction Internal Standard 13C2 8:2FTS	%		90.6	91.4	85.5	86.0	86.9

Envirolab ID Your Reference Date Sampled Depth	Units	PQL	PGI1813-41 TP05 22/09/2025 0.00-0.10
Perfluorobutanesulfonic acid (PFBS)	µg/kg	0.10	<0.10
Perfluorohexanesulfonic acid (PFHxS)	µg/kg	0.10	<0.10
Perfluorooctanesulfonic acid (PFOS)	µg/kg	0.10	<0.10
Perfluorooctanoic acid (PFOA)	µg/kg	0.10	0.74
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/kg	0.10	9.4
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/kg	0.20	1.5
Total +ve PFHxS+PFOS	µg/kg	0.10	<0.10
Total +ve PFOA+PFOS	µg/kg	0.10	0.74
Total +ve PFAS	µg/kg	0.10	12

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PFAS Short List (Soil)

Envirolab ID	Units	PQL	PGI1813-41
Your Reference			TP05
Date Sampled			22/09/2025
Depth			0.00-0.10
Surrogate 13C8 PFOS	%		88.6
Surrogate 13C2 PFOA	%		96.1
Extraction Internal Standard 13C3 PFBS	%		84.8
Extraction Internal Standard 18O2 PFHxS	%		82.0
Extraction Internal Standard 13C4 PFOS	%		93.3
Extraction Internal Standard 13C4 PFOA	%		82.6
Extraction Internal Standard 13C2 6:2FTS	%		85.0
Extraction Internal Standard 13C2 8:2FTS	%		97.8

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Method Summary

Method ID	Methodology Summary
INORG-001	pH - Measured using pH meter and electrode. Please note that the results for water analyses are indicative only, as analysis can be completed outside of the recommended holding times. Solids are reported from a 1:5 water extract unless otherwise specified. Alternatively, pH is determined in a 1:5 extract using 0.01M calcium chloride or a solid is extracted at a ratio of 1:2.5 (AS1289.4.3.1), pH is measured in the extract.
INORG-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
INORG-137	Determination of Total Nitrogen, Sulphur and Total Carbon in solids, rock, plant material and vegetation via combustion and NDIR.
METALS-020	Determination of various metals by ICP-OES. Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.
METALS-020_008A	Determination of exchangeable cations and cation exchange capacity in soils using 1M Ammonium Chloride exchange and ICP-OES analytical finish.
METALS-021	Determination of Mercury by Cold Vapour AAS.
ORG-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
ORG-022_PAH	Determination of semi-volatile organic compounds (SVOCs) by GC-MS. Water samples are extracted by LLE and solids using DCM/Acetone/Methanol. For PAHs:- Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. 1. 'TEQ PQL' values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'TEQ zero' values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'TEQ half PQL' values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, for Total +ve calculations, the PQL is reflective of the lowest individual PQL and therefore, for example, "Total +ve PAHs" is simply a sum of the positive individual PAHs.
ORG-023	Determination of volatile organic compounds (VOCs) by P&T-GC-MS. Water samples are analysed directly by purge and trap GC-MS. Soils are extracted with Methanol, diluted and analysed by purge and trap GC-MS.
ORG-023_F1_TOT	Determination of volatile organic compounds (VOCs) by P&T-GC-MS. Water samples are analysed directly by purge and trap GC-MS. Solids are extracted with Methanol, diluted and analysed by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.
ORG-029	Soil/solid and sorbent samples are extracted with basified Methanol. Waters and soil/sorbent extracts are directly injected and/or concentrated/extracted using SPE. TCLP/ASLP leachates are centrifuged, the supernatant is then analysed (including amendment with solvent) - as per the option in AS4439.3. Analysis is undertaken with LC-MS/MS. PFAS results include the sum of branched and linear isomers where applicable. Please note that PFAS results are corrected for Extracted Internal Standards (QSM terminology), which are mass labelled analytes added prior to sample preparation to assess matrix effects and verify processing of the sample. PFAS analytes without a commercially available mass labelled analogue are corrected vs a closely eluting mass labelled PFAS compound. Surrogates are also reported, in this context they are mass labelled PFAS compounds added prior to extraction but are used as monitoring compounds only (not used for result correction). Envicarb (or similar) is used discretionally to remove interfering matrix components. Please contact the laboratory if estimates of Measurement Uncertainty are required as per WA DER.

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Result Definitions

Identifier	Description
NR	Not reported
NEPM	National Environment Protection Measure
NS	Not specified
LCS	Laboratory Control Sample
RPD	Relative Percent Difference
>	Greater than
<	Less than
PQL	Practical Quantitation Limit
INS	Insufficient sample for this test
NA	Test not required
NT	Not tested
DOL	Samples rejected due to particulate overload (air filters only)
RFD	Samples rejected due to filter damage (air filters only)
RUD	Samples rejected due to uneven deposition (air filters only)
##	Indicates a laboratory acceptance criteria outlier, for further details, see Result Comments and/or QC Comments

Quality Control Definitions

Blank

This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, and is determined by processing solvents and reagents in exactly the same manner as for samples.

Surrogate Spike

Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

LCS (Laboratory Control Sample)

This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Matrix Spike

A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

Duplicate

This is the complete duplicate analysis of a sample from the process batch. The sample selected should be one where the analyte concentration is easily measurable.

Certificate of Analysis PGI1813

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria. Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction. Spikes for Physical and Aggregate Tests are not applicable. For VOCs in water samples, three vials are required for duplicate or spike analysis.

General Acceptance Criteria (GAC) - Analyte specific criteria applies for some analytes and is reflected in QC recovery tables.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% - see ELN-P05 QAQC tables for details (available on request); <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase. Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was typically insufficient in order to satisfy laboratory QA/QC protocols.

Miscellaneous Information

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached. We have taken the sampling date as being the date received at the laboratory.

Two significant figures are reported for the majority of tests and with a high degree of confidence, for results <10*PQL, the second significant figure may be in doubt i.e. has a relatively high degree of uncertainty and is provided for information only.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS where sediment/solids are included by default.

Urine Analysis - The BEI values listed are taken from the 2022 edition of *TLVs and BEIs Threshold Limits by ACGIH*.

Air volumes are typically provided by customers (often as flow rate(s) and sampling time(s) and/or simply volume(s) sampled or exposure times (determines 'volume' passive badges are exposed to)). Hence in such circumstances the volume measurement is inevitably not covered by Envirolab's NATA accreditation. An exception may occur where Envirolab Newcastle does the sampling where accreditation exists for certain types of sampling and hence volume determination(s). Note air volumes are often used to determine concentrations for dust and/or analyses on filters, sorbents and in impingers. For canister sampling, the air volume is covered by Envirolab's NATA accreditation.

Data Quality Assessment Summary PGI1813

Client Details

Client	Douglas Partners Pty Ltd (Perth)
Your Reference	236293.02 - Picton
Date Issued	07/10/2025

Recommended Holding Time Compliance

No recommended holding time exceedances

Quality Control and QC Frequency

QC Type	Compliant	Details
Blank	Yes	No Outliers
LCS	No	LCS Outliers Exist - See detailed list below
Duplicates	No	Duplicate Outliers Exist - See detailed list below
Matrix Spike	No	Matrix Spike Outliers Exist - See detailed list below
Surrogates / Extracted Internal Standards	Yes	No Outliers
QC Frequency	No	QC Frequency Outliers Exist - See detailed list below

Surrogates/Extracted Internal Standards, Duplicates and/or Matrix Spikes are not always relevant/applicable to certain analyses and matrices. Therefore, said QC measures are deemed compliant in these situations by default. See Laboratory Acceptance Criteria for more information

Data Quality Assessment Summary PGI1813

Recommended Holding Time Compliance

Analysis	Sample Number(s)	Date Sampled	Date Extracted	Date Analysed	Compliant
vTRH&MBTEXN Soil	13-17, 27-31, 34-35, 41	22/09/2025	26/09/2025	01/10/2025	Yes
	1-3	22/09/2025	26/09/2025	30/09/2025	Yes
	10-12, 18-26, 32	23/09/2025	26/09/2025	01/10/2025	Yes
	4-9	23/09/2025	26/09/2025	30/09/2025	Yes
vTRH&MBTEXN Water	39-40	22/09/2025	26/09/2025	27/09/2025	Yes
BTEX TS Water	37-38	22/09/2025	02/10/2025	02/10/2025	Yes
sTRH Soil	1-3, 13-17, 27-31, 34-35, 41	22/09/2025	26/09/2025	27/09/2025	Yes
	4-12, 18-26, 32	23/09/2025	26/09/2025	27/09/2025	Yes
PAH Soil	1-3, 13-17, 27-31, 34-35, 41	22/09/2025	26/09/2025	28/09/2025	Yes
	4-12, 18-26, 32	23/09/2025	26/09/2025	28/09/2025	Yes
Metals Soil	1-3, 13-17, 27-31, 34-35, 41	22/09/2025	26/09/2025	30/09/2025	Yes
	4-12, 18-26, 32	23/09/2025	26/09/2025	30/09/2025	Yes
Metals-Hg Soil	1-3, 13-17, 27-31, 34-35, 41	22/09/2025	26/09/2025	01/10/2025	Yes
	4-12, 18-26, 32	23/09/2025	26/09/2025	01/10/2025	Yes
CEC Soil	33	23/09/2025	26/09/2025	02/10/2025	Yes
Exchangeable Cations Soil	33	23/09/2025	26/09/2025	02/10/2025	Yes
TOC by Combustion Soil	33	23/09/2025	26/09/2025	07/10/2025	Yes
pH Soil	33	26/09/2025	26/09/2025	01/10/2025	Yes
Moisture Soil	36	22/09/2025	26/09/2025	02/10/2025	Yes
	1-3, 13-17, 27-31, 34-35, 41	22/09/2025	26/09/2025	30/09/2025	Yes
	4-12, 18-26, 32	23/09/2025	26/09/2025	30/09/2025	Yes
PFAS - ISTD (Short) Soil	1-3	22/09/2025	26/09/2025	02/10/2025	Yes
	13-14, 16-17, 27-28, 30-31, 34-36, 41	22/09/2025	26/09/2025	03/10/2025	Yes
	4-8	23/09/2025	26/09/2025	02/10/2025	Yes
	10-11, 18-21, 23-26, 32	23/09/2025	26/09/2025	03/10/2025	Yes
PFAS-Short Soil	1-3	22/09/2025	26/09/2025	02/10/2025	Yes
	13-14, 16-17, 27-28, 30-31, 34-36, 41	22/09/2025	26/09/2025	03/10/2025	Yes
	4-8	23/09/2025	26/09/2025	02/10/2025	Yes
	10-11, 18-21, 23-26, 32	23/09/2025	26/09/2025	03/10/2025	Yes

Outliers: Laboratory Control Samples

ORG-020 | Semi-volatile TRH (Soil) | Batch BGI4728

Sample ID	Analyte	% Limits	% Recovery
BGI4728-BS1	o-Terphenyl	60 - 140	##[2]

Data Quality Assessment Summary PGI1813

Outliers: Duplicates

METALS-020 | Acid Extractable Metals (Soil) | Batch BGI4722

Sample ID	Duplicate ID	Analyte	% Limits	RPD
PGI1813-28	DUP4	Zinc	40.00	44.0[4]

Outliers: Matrix Spike

ORG-020 | Semi-volatile TRH (Soil) | Batch BGI4728

Sample ID	Analyte	% Limits	% Recovery
PGI1813-02	o-Terphenyl	60 - 140	##[2]
PGI1813-02	TRH >C34-C40 (F4)	60 - 140	##[1]
PGI1813-02	TRH C29-C36	60 - 140	##[1]

Outliers: QC Frequency

ORG-023_F1_TOT | Volatile TRH and BTEX (Water) | Batch BGI4815

Analysis	QC Type	Expected	Reported
vTRH&MBTEXN	Duplicate	2	0
	Matrix Spike	1	0

Quality Control PGI1813

ORG-023_F1_TOT|Volatile TRH and BTEX (Soil) | Batch BGI4726

Analyte	Units	PQL	Blank	DUP1 PGI1813-01 Samp QC RPD %	DUP2 PGI1813-11 Samp QC RPD %	LCS %	Spike % PGI1813-02
TRH C6-C9	mg/kg	25	<25	<25 <25 [NA]	<25 <25 [NA]	102	111
TRH C6-C10	mg/kg	25	<25	<25 <25 [NA]	<25 <25 [NA]	108	118
Methyl tert butyl ether (MTBE)	mg/kg	0.50	<0.50	<0.50 <0.50 [NA]	<0.50 <0.50 [NA]	[NA]	[NA]
Benzene	mg/kg	0.20	<0.20	<0.20 <0.20 [NA]	<0.20 <0.20 [NA]	102	103
Toluene	mg/kg	0.50	<0.50	<0.50 <0.50 [NA]	<0.50 <0.50 [NA]	107	108
Ethylbenzene	mg/kg	1.0	<1.0	<1.0 <1.0 [NA]	<1.0 <1.0 [NA]	105	105
meta+para Xylene	mg/kg	2.0	<2.0	<2.0 <2.0 [NA]	<2.0 <2.0 [NA]	102	103
ortho-Xylene	mg/kg	1.0	<1.0	<1.0 <1.0 [NA]	<1.0 <1.0 [NA]	105	106
Naphthalene (value used in F2 calc)	mg/kg	1.0	<1.0	<1.0 <1.0 [NA]	<1.0 <1.0 [NA]	[NA]	[NA]
Surrogate aaa-Trifluorotoluene	%		122	114 / 107	120 / 120	113	115

ORG-023_F1_TOT|Volatile TRH and BTEX (Soil) | Batch BGI4727

Analyte	Units	PQL	Blank	DUP1 PGI1813-21 Samp QC RPD %	DUP2 PGI1813-28 Samp QC RPD %	LCS %	Spike % PGI1813-22
TRH C6-C9	mg/kg	25	<25	<25 <25 [NA]	<25 <25 [NA]	105	96.7
TRH C6-C10	mg/kg	25	<25	<25 <25 [NA]	<25 <25 [NA]	113	104
Methyl tert butyl ether (MTBE)	mg/kg	0.50	<0.50	<0.50 <0.50 [NA]	<0.50 <0.50 [NA]	[NA]	[NA]
Benzene	mg/kg	0.20	<0.20	<0.20 <0.20 [NA]	<0.20 <0.20 [NA]	109	98.1
Toluene	mg/kg	0.50	<0.50	<0.50 <0.50 [NA]	<0.50 <0.50 [NA]	116	106
Ethylbenzene	mg/kg	1.0	<1.0	<1.0 <1.0 [NA]	<1.0 <1.0 [NA]	107	98.4
meta+para Xylene	mg/kg	2.0	<2.0	<2.0 <2.0 [NA]	<2.0 <2.0 [NA]	105	96.7
ortho-Xylene	mg/kg	1.0	<1.0	<1.0 <1.0 [NA]	<1.0 <1.0 [NA]	109	100
Naphthalene (value used in F2 calc)	mg/kg	1.0	<1.0	<1.0 <1.0 [NA]	<1.0 <1.0 [NA]	[NA]	[NA]
Surrogate aaa-Trifluorotoluene	%		122	122 / 124	124 / 122	113	107

ORG-023_F1_TOT|Volatile TRH and BTEX (Water) | Batch BGI4815

Analyte	Units	PQL	Blank	LCS %
TRH C6-C9	µg/L	10	<10	92.6
TRH C6-C10	µg/L	10	<10	102
Methyl tert butyl ether (MTBE)	µg/L	1.0	<1.0	[NA]
Benzene	µg/L	1.0	<1.0	106
Toluene	µg/L	1.0	<1.0	108
Ethylbenzene	µg/L	1.0	<1.0	101
meta+para Xylene	µg/L	2.0	<2.0	99.4
ortho-Xylene	µg/L	1.0	<1.0	102
Naphthalene (value used in F2 calc)	µg/L	1.0	<1.0	[NA]
Surrogate Dibromofluoromethane	%		99.9	96.2
Surrogate Toluene-D8	%		104	97.8
Surrogate 4-Bromofluorobenzene	%		96.5	98.8

ORG-020|Semi-volatile TRH (Soil) | Batch BGI4728

Analyte	Units	PQL	Blank	DUP1 PGI1813-01 Samp QC RPD %	DUP2 PGI1813-11 Samp QC RPD %	LCS %	Spike % PGI1813-02
TRH C10-C14	mg/kg	50	<50	<50 <50 [NA]	<50 <50 [NA]	102	93.5
TRH C15-C28	mg/kg	100	<100	<100 <100 [NA] [3]	<100 <100 [NA]	92.0	89.2
TRH C29-C36	mg/kg	100	<100	<100 <100 [NA] [3]	<100 <100 [NA]	86.9	##[1]
TRH >C10-C16	mg/kg	50	<50	<50 <50 [NA]	<50 <50 [NA]	105	98.2
TRH >C16-C34 (F3)	mg/kg	100	<100	<100 <100 [NA]	<100 <100 [NA]	90.8	88.0
TRH >C34-C40 (F4)	mg/kg	100	<100	<100 <100 [NA] [3]	<100 <100 [NA]	96.1	##[1]
Surrogate o-Terphenyl	%		92.6	87.5 / 85.3	87.4 / 86.3	##[2]	##[2]

Quality Control PGI1813

ORG-020 | Semi-volatile TRH (Soil) | Batch BGI4734

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				PGI1813-21	PGI1813-28		PGI1813-22
				Samp QC RPD %	Samp QC RPD %		
TRH C10-C14	mg/kg	50	<50	<50 <50 [NA]	<50 <50 [NA]	101	96.3
TRH C15-C28	mg/kg	100	<100	<100 <100 [NA]	<100 <100 [NA]	103	102
TRH C29-C36	mg/kg	100	<100	<100 <100 [NA] [3]	<100 <100 [NA]	103	110
TRH >C10-C16	mg/kg	50	<50	<50 <50 [NA]	<50 <50 [NA]	107	104
TRH >C16-C34 (F3)	mg/kg	100	<100	<100 <100 [NA]	<100 <100 [NA]	103	102
TRH >C34-C40 (F4)	mg/kg	100	<100	<100 <100 [NA]	<100 <100 [NA]	101	108
Surrogate o-Terphenyl	%		97.7	94.4 / 97.0	95.4 / 97.3	98.8	98.9

ORG-022_PAH | Polycyclic Aromatic Hydrocarbons (Soil) | Batch BGI4728

Analyte	Units	PQL	Blank	DUP1		DUP2		LCS %	Spike %
				PGI1813-01		PGI1813-11			
				Samp	QC RPD %	Samp	QC RPD %		
Naphthalene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	92.4	92.8		
Acenaphthylene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	[NA]	[NA]		
Acenaphthene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	92.9	92.9		
Fluorene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	94.0	94.6		
Phenanthrene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	98.1	99.6		
Anthracene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	[NA]	[NA]		
Fluoranthene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	96.9	98.3		
Pyrene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	99.3	101		
Benzo(a)anthracene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	[NA]	[NA]		
Chrysene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	93.1	93.3		
Benzo(b,j,k)fluoranthene	mg/kg	0.20	<0.20	<0.20 <0.20 [NA]	<0.20 <0.20 [NA]	[NA]	[NA]		
Benzo(a)pyrene	mg/kg	0.050	<0.050	<0.050 <0.050 [NA]	<0.050 <0.050 [NA]	92.8	93.8		
Indeno(1,2,3-c,d)pyrene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	[NA]	[NA]		
Dibenzo(a,h)anthracene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	[NA]	[NA]		
Benzo(g,h,i)perylene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	[NA]	[NA]		
Surrogate p-Terphenyl-D14	%		93.3	97.8 / 89.3		91.3 / 96.7		87.8	90.3

ORG-022_PAH | Polycyclic Aromatic Hydrocarbons (Soil) | Batch BGI4734

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				PGI1813-21	PGI1813-28		
				Samp QC RPD %	Samp QC RPD %		
Naphthalene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	90.6	87.3
Acenaphthylene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	[NA]	[NA]
Acenaphthene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	90.2	88.0
Fluorene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	91.5	88.6
Phenanthrene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	96.2	92.9
Anthracene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	[NA]	[NA]
Fluoranthene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	93.6	89.6
Pyrene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	96.1	93.1
Benzo(a)anthracene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	[NA]	[NA]
Chrysene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	92.3	88.5
Benzo(b,j,k)fluoranthene	mg/kg	0.20	<0.20	<0.20 <0.20 [NA]	<0.20 <0.20 [NA]	[NA]	[NA]
Benzo(a)pyrene	mg/kg	0.050	<0.050	<0.050 <0.050 [NA]	<0.050 <0.050 [NA]	90.8	87.4
Indeno(1,2,3-c,d)pyrene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	[NA]	[NA]
Dibenzo(a,h)anthracene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	[NA]	[NA]
Benzo(g,h,i)perylene	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	[NA]	[NA]
Surrogate p-Terphenyl-D14	%		87.9	86.8 / 86.9	88.1 / 87.5	85.2	84.6

Quality Control PGI1813

METALS-020 | Acid Extractable Metals (Soil) | Batch BGI4722

Analyte	Units	PQL	Blank	DUP1 PGI1813-21 Samp QC RPD %	DUP2 PGI1813-21 Samp QC RPD %	LCS %	Spike % PGI1813-22
Arsenic	mg/kg	4.0	<4.0	<4.0 <4.0 [NA]	<4.0 <4.0 [NA]	93.3	86.2
Cadmium	mg/kg	0.40	<0.40	<0.40 <0.40 [NA]	<0.40 <0.40 [NA]	95.9	100
Chromium	mg/kg	1.0	<1.0	<1.0 <1.0 [NA]	<1.0 <1.0 [NA]	95.2	101
Copper	mg/kg	1.0	<1.0	<1.0 <1.0 [NA]	<1.0 <1.0 [NA]	94.0	99.4
Lead	mg/kg	1.0	<1.0	1.17 1.23 [NA]	1.17 1.06 [NA]	93.3	101
Mercury	mg/kg	0.10	<0.10	<0.10 <0.10 [NA] [3]	<0.10 <0.10 [NA]	[NA]	106
Nickel	mg/kg	1.0	<1.0	<1.0 <1.0 [NA]	<1.0 <1.0 [NA]	95.1	101
Zinc	mg/kg	1.0	<1.0	<1.0 <1.0 [NA]	<1.0 <1.0 [NA]	98.1	102

Analyte	Units	PQL	Blank	DUP3 PGI1813-28 Samp QC RPD %	DUP4 PGI1813-28 Samp QC RPD %	LCS %	
Arsenic	mg/kg	4		<4.0 <4.0 [NA]	<4.0 <4.0 [NA]	[NA]	
Cadmium	mg/kg	0.4		<0.40 <0.40 [NA]	<0.40 <0.40 [NA]	[NA]	
Chromium	mg/kg	1		<1.0 <1.0 [NA]	<1.0 <1.0 [NA]	[NA]	
Copper	mg/kg	1		<1.0 <1.0 [NA]	<1.0 <1.0 [NA]	[NA]	
Lead	mg/kg	1		1.41 1.33 [NA]	1.41 1.38 [NA]	[NA]	
Mercury	mg/kg	0.1		<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	[NA]	
Nickel	mg/kg	1		<1.0 <1.0 [NA]	<1.0 <1.0 [NA]	[NA]	
Zinc	mg/kg	1		7.55 7.09 6.28	7.55 11.8 44.0 [4]	[NA]	

METALS-020 | Acid Extractable Metals (Soil) | Batch BGI4736

Analyte	Units	PQL	Blank	DUP1 PGI1813-01 Samp QC RPD %	DUP2 PGI1813-01 Samp QC RPD %	LCS %	Spike % PGI1813-02
Arsenic	mg/kg	4.0	<4.0	<4.0 <4.0 [NA]	<4.0 <4.0 [NA]	92.4	90.2
Cadmium	mg/kg	0.40	<0.40	<0.40 <0.40 [NA]	<0.40 <0.40 [NA]	94.5	97.7
Chromium	mg/kg	1.0	<1.0	<1.0 1.10 [NA] [3]	<1.0 <1.0 [NA]	94.5	100
Copper	mg/kg	1.0	<1.0	<1.0 <1.0 [NA]	<1.0 <1.0 [NA]	92.9	99.9
Lead	mg/kg	1.0	<1.0	1.28 <1.0 [NA] [3]	1.28 <1.0 [NA] [3]	92.1	99.0
Mercury	mg/kg	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	[NA]	89.6
Nickel	mg/kg	1.0	<1.0	<1.0 <1.0 [NA]	<1.0 <1.0 [NA]	94.3	100
Zinc	mg/kg	1.0	<1.0	5.93 4.71 23.0	5.93 3.28 [NA] [4]	96.3	100

Analyte	Units	PQL	Blank	DUP3 PGI1813-11 Samp QC RPD %	DUP4 PGI1813-11 Samp QC RPD %	LCS %	
Arsenic	mg/kg	4		<4.0 <4.0 [NA]	<4.0 <4.0 [NA]	[NA]	
Cadmium	mg/kg	0.4		<0.40 <0.40 [NA]	<0.40 <0.40 [NA]	[NA]	
Chromium	mg/kg	1		1.46 1.47 [NA]	1.46 1.59 [NA]	[NA]	
Copper	mg/kg	1		<1.0 <1.0 [NA]	<1.0 <1.0 [NA]	[NA]	
Lead	mg/kg	1		1.09 <1.0 [NA] [3]	1.09 1.11 [NA]	[NA]	
Mercury	mg/kg	0.1		<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	[NA]	
Nickel	mg/kg	1		<1.0 <1.0 [NA]	<1.0 <1.0 [NA]	[NA]	
Zinc	mg/kg	1		1.99 1.50 [NA]	1.99 2.16 [NA]	[NA]	

METALS-020_008A | Exchangeable Cations (Soil) | Batch BGI4720

Analyte	Units	PQL	Blank	DUP1 PGI1813-33 Samp QC RPD %	LCS %	Spike % PGI1813-33
Calcium	meq/100g	0.10	<0.10	<0.10 0.100 [NA] [3]	106	115
Potassium	meq/100g	0.10	<0.10	<0.10 <0.10 [NA]	97.2	105
Magnesium	meq/100g	0.10	<0.10	<0.10 <0.10 [NA]	104	114
Sodium	meq/100g	0.10	<0.10	<0.10 <0.10 [NA]	102	112
Cation Exchange Capacity (CEC)	meq/100g	0.10	<0.10		[NA]	[NA]

Quality Control PGI1813

INORG-137 | Inorganics - Carbon, Nitrogen and Sulfur Species (Soil) | Batch BGI4820

Analyte	Units	PQL	Blank	DUP1 PGI1813-33 Samp QC RPD %	LCS %
Total Organic Carbon	%	0.010	<0.010	0.0510 0.0530 3.85	93.2

INORG-001 | Inorganics - General Physical Parameters (Soil) | Batch BGI4785

Analyte	Units	PQL	Blank	DUP1 BGI4785-DUP1# Samp QC RPD %	DUP2 BGI4785-DUP2# Samp QC RPD %	LCS %
pH	pH units		6.0	9.1 9.1 0.00	9.2 9.2 0.217	102

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-008 | Inorganics - Moisture (Soil) | Batch BGI4723

Analyte	Units	PQL	Blank	DUP1 PGI1813-01 Samp QC RPD %	DUP2 PGI1813-11 Samp QC RPD %	LCS %
Moisture	%	0.1		4.79 4.14 14.6	3.60 3.56 1.12	[NA]

INORG-008 | Inorganics - Moisture (Soil) | Batch BGI4724

Analyte	Units	PQL	Blank	DUP1 PGI1813-21 Samp QC RPD %	DUP2 PGI1813-29 Samp QC RPD %	LCS %
Moisture	%	0.1		4.91 5.09 3.60	10.9 10.8 1.01	[NA]

ORG-029 | PFAS Short List (Soil) | Batch BGI4729

Analyte	Units	PQL	Blank	DUP1 PGI1813-01 Samp QC RPD %	DUP2 PGI1813-13 Samp QC RPD %	LCS %	Spike % PGI1813-02
Perfluorobutanesulfonic acid (PFBS)	µg/kg	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	93.1	95.3
Perfluorohexanesulfonic acid (PFHxS)	µg/kg	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	107	127
Perfluorooctanesulfonic acid (PFOS)	µg/kg	0.10	<0.10	0.509 0.373 [NA]	<0.10 <0.10 [NA]	104	93.6
Perfluorooctanoic acid (PFOA)	µg/kg	0.10	<0.10	0.134 0.132 [NA]	0.331 0.317 [NA]	93.3	90.2
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/kg	0.10	<0.10	<0.10 <0.10 [NA]	0.180 0.149 [NA]	91.0	105
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/kg	0.20	<0.20	<0.20 <0.20 [NA]	9.36 9.49 1.45	87.2	84.5
Surrogate 13C8 PFOS	%		96.9	101 93.0	89.6 88.9	106	83.0
Surrogate 13C2 PFOA	%		106	114 109	109 101	94.5	111
Extraction Internal Standard 13C3 PFBS	%		80.3	81.0 84.0 3.62	79.5 84.3 5.83	[NA]	[NA]
Extraction Internal Standard 18O2 PFHxS	%		79.5	80.4 84.6 5.10	83.7 82.4 1.55	[NA]	[NA]
Extraction Internal Standard 13C4 PFOS	%		90.6	80.2 98.5 20.5	92.5 94.4 2.02	[NA]	[NA]
Extraction Internal Standard 13C4 PFOA	%		92.9	88.2 94.4 6.75	90.4 84.6 6.58	[NA]	[NA]
Extraction Internal Standard 13C2 6:2FTS	%		98.0	89.3 93.5 4.62	90.0 96.7 7.20	[NA]	[NA]
Extraction Internal Standard 13C2 8:2FTS	%		87.3	92.0 90.9 1.29	88.8 76.5 14.8	[NA]	[NA]

Quality Control PGI1813

ORG-029 | PFAS Short List (Soil) | Batch BGI4730

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				PGI1813-25 Samp QC RPD %	PGI1813-31 Samp QC RPD %		
Perfluorobutanesulfonic acid (PFBS)	µg/kg	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	126	106
Perfluorohexanesulfonic acid (PFHxS)	µg/kg	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	120	137
Perfluorooctanesulfonic acid (PFOS)	µg/kg	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	105	110
Perfluorooctanoic acid (PFOA)	µg/kg	0.10	<0.10	0.139 0.108 [NA]	<0.10 <0.10 [NA]	110	111
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/kg	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	80.2	102
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/kg	0.20	<0.20	<0.20 <0.20 [NA]	<0.20 <0.20 [NA]	81.2	96.6
Surrogate 13C8 PFOS	%		95.3	95.2 97.1	105 97.8	90.7	103
Surrogate 13C2 PFOA	%		105	113 121	115 107	112	112
Extraction Internal Standard 13C3 PFBS	%		80.7	94.6 91.9 2.93	82.6 77.1 6.90	[NA]	[NA]
Extraction Internal Standard 18O2 PFHxS	%		81.9	84.0 78.1 7.22	70.1 79.1 12.2	[NA]	[NA]
Extraction Internal Standard 13C4 PFOS	%		98.9	87.4 92.6 5.75	84.3 92.0 8.69	[NA]	[NA]
Extraction Internal Standard 13C4 PFOA	%		91.5	78.0 75.0 3.82	81.1 81.1 0.0370	[NA]	[NA]
Extraction Internal Standard 13C2 6:2FTS	%		92.6	101 101 0.129	93.4 89.9 3.86	[NA]	[NA]
Extraction Internal Standard 13C2 8:2FTS	%		84.7	90.6 101 11.2	90.6 94.2 3.81	[NA]	[NA]

QC Comments

Identifier	Description
[1]	Spike recovery is not applicable due to the relatively high analyte background in the sample (>3* spike level). However, the LCS recovery is within acceptance criteria.
[2]	Surrogate recovery is outside routine acceptance criteria (60-140%) as a result of the high concentration of analyte(s) in the sample.
[3]	Duplicate %RPD may be flagged as an outlier to routine laboratory acceptance, however, where one or both results are <10*PQL, the RPD acceptance criteria increases exponentially.
[4]	The laboratory duplicate RPD acceptance criteria has been exceeded. Suspected sample non-homogeneity. 3 sets of data have been provided to help demonstrate the degree of non-homogeneity within the sample as well as assessing the analytical precision.

CHAIN OF CUSTODY DESPATCH SHEET

Project No: 236293.02		Suburb: Picton		To: MPL	
Project Manager: Rob Shapland		Order Number: PE252244		Sampler: MA	
Email: rob.shapland@douglaspartners.com.au				Attn: Michael	
Turnaround time: ☒ Standard ☐ 72 hour ☐ 48 hour ☐ 24 hour ☐ Same day				Lab phone Lab email	
Prior Storage: ☒ Fridge ☐ Freezer ☐ Esky ☐ Shelf				Do samples contain 'potential' HBM? ☐ No ☐ Yes If YES, then handle, transport and store in accordance with FPM HAZID)	

Lab ID	Sample ID			Date Sampled	Sample Type	Container Type	Analytes										Notes/ Preservation/ Additional Requirements
	Location / Other ID	Depth From	Depth To		S - soil W - water M - Material	G - glass P - plastic	Combo 3	PFAS (short suite)	pH	CEC	TOC	V-TRH					
1	TP01	0	0.1	22/9/25	S	G/P	X	X									
2	TP02	0	0.1	22/9/25	S	G/P	X	X									
3	TP03	0	0.1	22/9/25	S	G/P	X	X									
4	TP04	0	0.1	23/9/25	S	G/P	X	X	AS PER								
5	TP04	0.4	0.5	23/9/25	S	G/P	X	X	- DEPTHS ON JAL								
6	TP05	0.4	0.5	23/9/25	S	G/P	X	X									
7	TP06	0	0.1	23/9/25	S	G/P	X	X									
8	TP06	0.4	0.5	23/9/25	S	G/P	X	X									
9	TP06	1.6	1.7	23/9/25	S	G/P	X										
10	TP07	0	0.1	23/9/25	S	G/P	X	X									
11	TP07	0.4	0.5	23/9/25	S	G/P	X	X									
12	TP07	1.7	1.8	23/9/25	S	G/P	X										
13	TP08	0	0.1	22/9/25	S	G/P	X	X									
14	TP08	0.4	0.5	22/9/25	S	G/P	X	X									
15	TP08	1.7	1.8	22/9/25	S	G/P	X										
16	TP09	0	0.1	22/9/25	S	G/P	X	X									
17	TP09	0.4	0.5	22/9/25	S	G/P	X	X									
18	TP10	0	0.1	23/9/25	S	G/P	X	X									
19	TP10	0.4	0.5	23/9/25	S	G/P	X	X									

fmp Laboratory
ENVIROLAB CHECKUP
 Job No. - PG-1813
 Date Rec - 24 SEP 2025
 Time Rec - 16:40
 Rec By - SM
 TAT Req - SAME 1/2/3/STD
 Temp - cool / ambient 11
 Cooling - Ice / Ice pack / None
 Security Seal - Yes / No

20	TP11	0	0.1	23/9/25	S	G/P	X	X										
21	TP11	0.4	0.5	23/9/25	S	G/P	X	X										
22	TP11	1.7	1.8	23/9/25	S	G/P	X											
23	TP12	0	0.1	23/9/25	S	G/P	X	X										
24	TP12	0.4	0.5	23/9/25	S	G/P	X	X										
25	TP13	0	0.1	23/9/25	S	G/P	X	X										
26	TP13	0.4	0.5	23/9/25	S	G/P	X	X										
27	TP14	0	0.1	22/9/25	S	G/P	X	X										
28	TP14	0.4	0.5	22/9/25	S	G/P	X	X										
29	TP14	1.9	2	22/9/25	S	G/P	X											
30	TP15	0	0.1	22/9/25	S	G/P	X	X										
31	TP15	0.4	0.5	22/9/25	S	G/P	X	X										
32	TP16	0	0.1	23/9/25	S	G/P	X	X										
33	TP17	0.5	0.6	23/9/25	S	G/P			X	X	X							
34	Dup1			22/9/25	S	G/P	X	X										
35	Dup2			22/9/25	S	G/P	X	X										
36	Dup3			22/9/25	S	G/P		X										
37	Dup4			23/9/25	S	G/P	X											Send to ARL/Eurofins
38	Dup5			23/9/25	S	G/P	X											Send to ARL/Eurofins
39	TS1				S	G							X					
40	TS2				S	G							X					
41	TB1				S	G							X					
42	TB2				S	G							X					

Metals to analyse:

Number of samples in container:

Transported to laboratory by:

Send results to: Douglas Partners Pty Ltd

Address:

Phone:

Relinquished by: Mubashar Ahmed

Date: 25/9/25

Signed:

LAB RECEIPT

Lab Ref. No:

Received by:

Date & Time: 24 SEP 2025 1640

Signed:

PURCHASE ORDER

Date

24-Sep-24

PO No.

PE252244

Vendor/ Subcontractor:

MPL

Contact Name: Sample Receipt

Deliver To:

Douglas Partners Pty Ltd

Requisitioner: RS

This order covers the supply of goods, materials or services shown here, subject to the terms and conditions of the purchase order.

PO number or **Project number** and **Requisitioner** should always be quoted in your invoice.

To ensure prompt payment, please attach this PO to your invoice and **email** it directly to

accounts.payable.invoices@douglaspartners.com.au in PDF format.

Item	Description	Quantity	Unit Price	Total	Project No. & G/L Code
	Soil samples as per CoC				512
					236293.02

Comments or Special Instructions

SUBTOTAL

GST/TAX

SHIPPING/
OTHER

TOTAL

Brisbane (07) 32737 8900 · Cairns (07) 4055 1550 · Canberra (02) 6260 2788 · Central Coast (02) 4351 1422 · Coffs Harbour (02) 6650 3200 · Darwin (08) 8948 6800 · Geelong (03) 5221 0711 · Gold Coast (07) 5568 8900 · Macarthur (02) 4647 0075 · Melbourne (03) 9683 3500 · Newcastle (02) 4960 9600 · North-West Sydney (02) 4666 0450 · Perth (08) 9204 3511 · Port Macquarie (02) 6581 5992 · Sunshine Coast (07) 5351 0400 · Sydney (02) 9809 0666 · Townsville (07) 4779 9866 · Wollongong (02) 4271 1836

Registered Address: 96 Hermitage Road, West Ryde NSW 2114 · PO Box 472, West Ryde NSW 1685

**TERMS &
CONDITIONS**

1. The vendor is required to email their invoices to accounts.payable.invoices@douglaspartners.com.au on the day following dispatch to the Purchaser of the goods ordered.
2. No deviation may be made by the Vendor in any respect from any drawings or specifications furnished by the Purchaser without the Purchaser's consent in writing. If any drawings or specifications do not fully cover any materials or manufacturing process necessary to execute the order, the Vendor must obtain the Purchaser's instructions in writing before purchasing any such materials or applying any process.
3. The order will be deemed to have been accepted unless the Vendor notifies the Purchaser to the contrary in writing within seven days after the order is received by the Seller.
4. The Purchaser reserves the right to negotiate, as necessary, to amend its delivery schedules at any time.
5. All goods covered by the order whether paid or not, will be subject to inspection by the Purchaser within a reasonable time after delivery and if such goods/materials do not conform to the requirements of the order the Purchaser may either reject the goods or any of them or retain the whole or any of them, reserving the right to compensation for the Vendor's breach. All goods not rejected will be deemed to have been warranted by the Vendor to be in accordance in all respect with any drawings and or specification and/or instructions furnished by the Purchaser to the Vendor.
6. The order may be cancelled by the Purchaser in the event of the Vendor at any time failing or being unable to comply with any of the terms, conditions or warranties contained therein. Insolvency on the part of either party gives the other party the right of cancellation.
7. In the case of unforeseen contingency causing stoppage or delay in production the Purchaser reserves the right at its option to suspend, modify or cancel the order.
8. On the cancellation of the order all goods/materials comprised or mentioned thereon, whether wholly or partly manufactured, then in the possession of the Vendor, must be delivered by and at the cost of the Vendor to such person or persons as the Purchaser directs.
9. All tools, jigs, gauges and other equipment and all the drawings, blue prints and specifications and other papers supplied without charge by the Vendor to the Purchaser and all and any such items as above which has been purchased or manufactured by the Vendor and for which the Purchaser has paid or is liable to pay the full value thereof, will be the property of the Purchaser and must not be used otherwise than for the manufacture of goods for the Purchaser.
10. The Vendor will have no rights or claim to the drawings, data, designs, or ideas furnished to it from the Purchaser. The Vendor will preserve the drawings and data in good order and condition, will not copy or reproduce them or any substantial portion without authority in writing from the Purchaser and will return them to the Purchaser when requested.
11. All tools, jigs, gauges, and other equipment, whether supplied by the Purchaser to the Vendor or manufactured by the Vendor and paid for by the Purchaser, that are lost, partly damaged, or destroyed while in the possession of the Vendor must be replaced free of charge to the Purchaser and to the entire satisfaction of the Purchaser.
12. Should the Purchaser supply materials to the Vendor it will be the Vendor's responsibility to replace any material that is lost, partly damaged, or destroyed whilst in their possession.
13. It will be the responsibility of the Vendor to ensure that all tooling supplied by the Purchaser will produce parts strictly in accordance with the drawings of such components.
14. Waiver by the Purchaser of any specific default by the Vendor or failure by the Purchaser to cancel the order or any part thereof when right of cancellation arises will not constitute waiver by the Purchaser of any rights of the Purchaser under any terms and conditions of the order arising through any further or subsequent default by the Vendor whether giving rise to a right of cancellation or a claim for damages.
15. This order is not assignable by the Vendor.
16. The Vendor must take all reasonable steps to identify, assess and address risk of Modern Slavery practices in its operations and the supply chains used in the provision of the goods, materials or services described in the order. 'Modern Slavery' has the same meaning as it has in the Modern Slavery Act 2018 (Cth)
17. If the Vendor becomes aware of Modern Slavery practices in its operations or the supply chains used in the provision of the goods or services described in the order, the Vendor must as soon as reasonably practicable, take all reasonable action to remediate or remove those practices, including where relevant, the practices of other entities in its supply chain.

Project No: 236293.02		Suburb: Picton		To: MPL											
Project Manager: Rob Shapland		Order Number: PE252244		Lab address											
Email: rob.shapland@douglaspartners.com.au		Sampler: MA		Attn: Michael											
Turnaround time: ☒ Standard ☐ 72 hour ☐ 48 hour ☐ 24 hour ☐ Same day		Lab phone Lab email													
Prior Storage: ☒ Fridge ☐ Freezer ☐ Esky ☐ No		Do samples contain 'potential' HBM? ☐ No ☐ Yes YES, then handle, transport and store in accordance with FPM HAZID)													
Lab ID	Sample ID		Date Sampled	Sample Type	Container Type	Analytes					Notes/ Preservation/ Additional Requirements				
	Location / Other ID	Depth From				Depth To	Combo 3	PFAS (short suite)	PH	CEC		TOC	V-TRH		
	TP01	0	0.1	22/9/25	S	G/P	X	X							
	TP02	0	0.1	22/9/25	S	G/P	X	X							
	TP03	0	0.1	22/9/25	S	G/P	X	X							
	TP04	0	0.1	23/9/25	S	G/P	X	X							
	TP04	0	0.1	23/9/25	S	G/P	X	X							
	TP05	0.4	0.5	23/9/25	S	G/P	X	X							
	TP06	0	0.1	23/9/25	S	G/P	X	X							
	TP06	0.4	0.5	23/9/25	S	G/P	X	X							
	TP06	1.6	1.7	23/9/25	S	G/P	X	X							
	TP07	0	0.1	23/9/25	S	G/P	X	X							
	TP07	0.4	0.5	23/9/25	S	G/P	X	X							
	TP07	1.7	1.8	23/9/25	S	G/P	X	X							
	TP08	0	0.1	22/9/25	S	G/P	X	X							
	TP08	0.4	0.5	22/9/25	S	G/P	X	X							
	TP08	1.7	1.8	22/9/25	S	G/P	X	X							
	TP09	0	0.1	22/9/25	S	G/P	X	X							
	TP09	0.4	0.5	22/9/25	S	G/P	X	X							
	TP10	0	0.1	23/9/25	S	G/P	X	X							
	TP10	0.4	0.5	23/9/25	S	G/P	X	X							

**EnviroLab**
Laboratories

Job No. -
Date Rec - 24 SEP 2025
Time Rec - 16:00
Rec By - SM
TAT Req - SAME 1/2/3/STD
Temp - cool / ambient 11
Cooling (Ice) Ice pack / None
Security Seal - Yes (No)

CHAIN OF CUSTODY DESPATCH SHEET

[illegible]

Eurofins ARL Pty Ltd

ABN: 91 05 0159 898

Perth
 46-48 Banksia Road
 Welshpool
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 NATA# 2377
 Site# 2370 & 2554

Eurofins Environment Testing Australia Pty Ltd

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 NATA# 1261
 Site# 20794 & 2780

Newcastle
 1/2 Frost Drive
 Mayfield West
 NSW 2304
 +61 2 4968 8448
 NATA# 1261
 Site# 25079

Sample Receipt Advice

Company name:	Douglas Partners Pty Ltd
Contact name:	Rob Shapland
Project name:	PICTON
Project ID:	236293.02
Turnaround time:	5 Day
Date/Time received	Sep 25, 2025 2:00 PM
Eurofins reference	1272983

Sample Information

- ✓ A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- ✓ All samples have been received as described on the above COC.
- ✓ COC has been completed correctly.
- ✓ Attempt to chill was evident.
- ✓ Appropriately preserved sample containers have been used.
- ✓ All samples were received in good condition.
- ✓ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
- ✓ Appropriate sample containers have been used.
- N/A Sample containers for volatile analysis received with zero headspace.
- ✗ Split sample sent to requested external lab.
- ✗ Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

Notes

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Natalie Hill on phone : or by email: Natalie.Hill@eurofinsanz.com

Results will be delivered electronically via email to Rob Shapland - rob.shapland@douglaspartners.com.au.

Note: A copy of these results will also be delivered to the general Douglas Partners Pty Ltd email address.



Eurofins ARL Pty Ltd

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NATA# 1261
Site# 20794 & 2780

Newcastle

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Mayfield West
NSW 2304
+61 2 4968 8448
NATA# 1261
Site# 25079

web: www.eurofins.com.au
email: EnviroSales@eurofinsanz.com

Company Name: Douglas Partners Pty Ltd
Address: 36 O'Malley Street
Osborne Park
WA 6017
Project Name: PICTON
Project ID: 236293.02

Order No.: PE252244
Report #: 1272983
Phone: 08 9204 3511
Fax:

Received: Sep 25, 2025 2:00 PM
Due: Oct 3, 2025
Priority: 5 Day
Contact Name: Rob Shapland

Eurofins Analytical Services Manager : Natalie Hill

Sample Detail						Moisture Set	Eurofins Suite B7
						X	X
Perth Laboratory - NATA # 2377 Site # 2370 & 2554							
External Laboratory							
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID		
1	Dup 4	Sep 23, 2025		Soil	L25-Se0080846	X	X
2	Dup 5	Sep 23, 2025		Soil	L25-Se0080847	X	X
Test Counts						2	2

Douglas Partners Pty Ltd
36 O'Malley Street
Osborne Park
WA 6017



NATA Accredited
Accreditation Number 2377
Site Number 2370 & 2554

Accredited for compliance with ISO/IEC 17025 – Testing
NATA is a signatory to the ILAC Mutual Recognition
Arrangement for the mutual recognition of the
equivalence of testing, medical testing, calibration,
inspection, proficiency testing scheme providers and
reference materials producers reports and certificates.

Attention: Rob Shapland

Report 1272983-S
Project name PICTON
Project ID 236293.02
Received Date Sep 25, 2025

Client Sample ID			Dup 4	Dup 5
Sample Matrix			Soil	Soil
Eurofins Sample No.			L25-Se0080846	L25-Se0080847
Date Sampled			Sep 23, 2025	Sep 23, 2025
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				
TRH C6-C9	20	mg/kg	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50
BTEX				
Benzene	0.1	mg/kg	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	56	62
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5
TRH >C10-C16 less Naphthalene (F2)* ^{N01}	50	mg/kg	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20
Polycyclic Aromatic Hydrocarbons				
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5

Client Sample ID			Dup 4	Dup 5
Sample Matrix			Soil	Soil
Eurofins Sample No.			L25-Se0080846	L25-Se0080847
Date Sampled			Sep 23, 2025	Sep 23, 2025
Test/Reference	LOR	Unit		
Polycyclic Aromatic Hydrocarbons				
Naphthalene	0.5	mg/kg	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	142	123
p-Terphenyl-d14 (surr.)	1	%	99	79
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				
TRH >C10-C16	50	mg/kg	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100
Metals M8				
Arsenic	2	mg/kg	< 2	< 2
Cadmium	0.1	mg/kg	< 0.1	< 0.1
Chromium	1	mg/kg	1.6	2.7
Copper	1	mg/kg	1.2	< 1
Lead	1	mg/kg	1.2	1.8
Mercury	0.02	mg/kg	< 0.02	< 0.02
Nickel	1	mg/kg	< 1	< 1
Zinc	5	mg/kg	18	< 5
% Moisture	1	%	4.6	3.8

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Welshpool	Sep 27, 2025	14 Days
BTEX - Method: LTM-ORG-2010 TRH C6-C40	Welshpool	Sep 27, 2025	14 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Welshpool	Sep 27, 2025	14 Days
Polycyclic Aromatic Hydrocarbons - Method: LTM-ORG-2130 PAH and Phenols in Soil and Water	Welshpool	Sep 27, 2025	14 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Welshpool	Sep 27, 2025	14 Days
Metals M8 - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Welshpool	Sep 27, 2025	28 Days
% Moisture - Method: ARL135 Moisture in Solids	Welshpool	Sep 25, 2025	14 Days

**Eurofins ARL Pty Ltd**

ABN: 91 05 0159 898

Perth
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NATA# 2377
Site# 2370 & 2554**Eurofins Environment Testing Australia Pty Ltd**

ABN: 50 005 085 521

Melbourne
6 Monterey Road
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VIC 3175
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NATA# 1261
Site# 1254**Geelong**
19/8 Lewalan Street
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NATA# 1261
Site# 25403**Sydney**
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NATA# 1261
Site# 18217**Canberra**
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NATA# 1261
Site# 25466**Brisbane**
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NATA# 1261
Site# 20794 & 2780**Newcastle**
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NATA# 1261
Site# 25079

web: www.eurofins.com.au

email: EnviroSales@eurofinsanz.com

Company Name: Douglas Partners Pty Ltd
Address: 36 O'Malley Street
Osborne Park
WA 6017**Project Name:** PICTON
Project ID: 236293.02**Order No.:** PE252244
Report #: 1272983
Phone: 08 9204 3511
Fax:**Received:** Sep 25, 2025 2:00 PM
Due: Oct 3, 2025
Priority: 5 Day
Contact Name: Rob Shapland**Eurofins Analytical Services Manager : Natalie Hill**

Sample Detail

Moisture Set

Eurofins Suite B7

Perth Laboratory - NATA # 2377 Site # 2370 & 2554

External Laboratory

No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID		
1	Dup 4	Sep 23, 2025		Soil	L25-Se0080846	X	X
2	Dup 5	Sep 23, 2025		Soil	L25-Se0080847	X	X
Test Counts						2	2

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follow guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013. They are included in this QC report where applicable. Additional QC data may be available on request.
2. Unless otherwise stated, all soil/sediment/solid results are reported on a dry weight basis.
3. Unless otherwise stated, all biota/food results are reported on a wet weight basis on the edible portion.
4. For CEC results where the sample's origin is unknown or environmentally contaminated, the results should be used advisedly.
5. Actual LORs are matrix dependent. Quoted LORs may be raised where sample extracts are diluted due to interferences.
6. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds where annotated.
7. SVOC analysis on waters is performed on homogenised, unfiltered samples unless noted otherwise.
8. Samples were analysed on an 'as received' basis.
9. Information identified in this report with **blue** colour indicates data provided by customers that may have an impact on the results.
10. This report replaces any interim results previously issued.

Holding Times

Please refer to the 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours before sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and despite any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the sampling date; therefore, compliance with these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether, the holding time is seven days; however, for all other VOCs, such as BTEX or C6-10 TRH, the holding time is 14 days.

Units

mg/kg: milligrams per kilogram	mg/L: milligrams per litre	ppm: parts per million
µg/L: micrograms per litre	ppb: parts per billion	%: Percentage
org/100 mL: Organisms per 100 millilitres	NTU: Nephelometric Turbidity Units	MPN/100 mL: Most Probable Number of organisms per 100 millilitres
CFU: Colony Forming Unit	Colour: Pt-Co Units (CU)	

Terms

APHA	American Public Health Association
CEC	Cation Exchange Capacity
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples, these are performed on laboratory-certified clean sands and in the case of water samples, these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a similar compound to the analyte target is reported as percentage recovery. See below for acceptance criteria.
TBTO	Tributyltin oxide (<i>bis</i> -tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however, free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 6.0
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should only be used as a guide and may be different when site-specific Sampling Analysis and Quality Plan (SAQP) have been implemented.

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is ≤30%; however, the following acceptance guidelines are equally applicable:

Results <10 times the LOR:	No Limit
Results between 10-20 times the LOR:	RPD must lie between 0-50%
Results >20 times the LOR:	RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range, not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%, VOC recoveries 50 – 150%

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, where no positive PFAS results have been reported or reviewed, and no data was affected.

QC Data General Comments

1. Where a result is reported as less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown are not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery, the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results, a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data; thus, it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total*	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g,h,i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a,h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Metals M8							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.1			0.1	Pass	
Chromium	mg/kg	< 1			1	Pass	
Copper	mg/kg	< 1			1	Pass	
Lead	mg/kg	< 1			1	Pass	
Mercury	mg/kg	< 0.02			0.02	Pass	
Nickel	mg/kg	< 1			1	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							

Test				Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Total Recoverable Hydrocarbons - 1999 NEPM Fractions										
TRH C6-C9				%	102			70-130	Pass	
TRH C10-C14				%	124			70-130	Pass	
LCS - % Recovery										
BTEX										
Benzene				%	114			70-130	Pass	
Toluene				%	107			70-130	Pass	
Ethylbenzene				%	100			70-130	Pass	
m&p-Xylenes				%	101			70-130	Pass	
o-Xylene				%	104			70-130	Pass	
Xylenes - Total*				%	102			70-130	Pass	
LCS - % Recovery										
Total Recoverable Hydrocarbons - 2013 NEPM Fractions										
Naphthalene				%	98			70-130	Pass	
TRH C6-C10				%	99			70-130	Pass	
LCS - % Recovery										
Polycyclic Aromatic Hydrocarbons										
Acenaphthene				%	95			70-130	Pass	
Acenaphthylene				%	92			70-130	Pass	
Anthracene				%	97			70-130	Pass	
Benz(a)anthracene				%	109			70-130	Pass	
Benzo(a)pyrene				%	112			70-130	Pass	
Benzo(b&j)fluoranthene				%	104			70-130	Pass	
Benzo(g.h.i)perylene				%	105			70-130	Pass	
Benzo(k)fluoranthene				%	81			70-130	Pass	
Chrysene				%	79			70-130	Pass	
Dibenz(a.h)anthracene				%	83			70-130	Pass	
Fluoranthene				%	117			70-130	Pass	
Fluorene				%	116			70-130	Pass	
Indeno(1.2.3-cd)pyrene				%	113			70-130	Pass	
Naphthalene				%	100			70-130	Pass	
Phenanthrene				%	102			70-130	Pass	
Pyrene				%	86			70-130	Pass	
LCS - % Recovery										
Total Recoverable Hydrocarbons - 2013 NEPM Fractions										
TRH >C10-C16				%	115			70-130	Pass	
LCS - % Recovery										
Metals M8										
Arsenic				%	95			80-120	Pass	
Cadmium				%	107			80-120	Pass	
Chromium				%	102			80-120	Pass	
Copper				%	100			80-120	Pass	
Lead				%	104			80-120	Pass	
Mercury				%	97			80-120	Pass	
Nickel				%	101			80-120	Pass	
Zinc				%	111			80-120	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code	
Spike - % Recovery										
Total Recoverable Hydrocarbons - 1999 NEPM Fractions					Result 1					
TRH C6-C9	L25-Se0046247	NCP	%	111			70-130	Pass		
TRH C10-C14	L25-Se0076187	NCP	%	96			70-130	Pass		
Spike - % Recovery										
BTEX					Result 1					
Benzene	L25-Se0046247	NCP	%	102			70-130	Pass		

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Toluene	L25-Se0046247	NCP	%	98			70-130	Pass	
Ethylbenzene	L25-Se0046247	NCP	%	99			70-130	Pass	
m&p-Xylenes	L25-Se0046247	NCP	%	113			70-130	Pass	
o-Xylene	L25-Se0046247	NCP	%	97			70-130	Pass	
Xylenes - Total*	L25-Se0046247	NCP	%	108			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	L25-Se0046247	NCP	%	82			70-130	Pass	
TRH C6-C10	L25-Se0046247	NCP	%	114			70-130	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	L25-Se0066423	NCP	%	88			70-130	Pass	
Acenaphthylene	L25-Se0066423	NCP	%	88			70-130	Pass	
Anthracene	L25-Se0066423	NCP	%	91			70-130	Pass	
Benz(a)anthracene	L25-Se0066423	NCP	%	93			70-130	Pass	
Benzo(a)pyrene	L25-Se0066423	NCP	%	98			70-130	Pass	
Benzo(b&j)fluoranthene	L25-Se0066423	NCP	%	89			70-130	Pass	
Benzo(g,h,i)perylene	L25-Se0066423	NCP	%	100			70-130	Pass	
Benzo(k)fluoranthene	L25-Se0066423	NCP	%	111			70-130	Pass	
Chrysene	L25-Se0066423	NCP	%	91			70-130	Pass	
Dibenz(a,h)anthracene	L25-Se0066423	NCP	%	85			70-130	Pass	
Fluoranthene	L25-Se0066423	NCP	%	95			70-130	Pass	
Fluorene	L25-Se0066423	NCP	%	98			70-130	Pass	
Indeno(1,2,3-cd)pyrene	L25-Se0066423	NCP	%	92			70-130	Pass	
Naphthalene	L25-Se0066423	NCP	%	84			70-130	Pass	
Phenanthrene	L25-Se0066423	NCP	%	104			70-130	Pass	
Pyrene	L25-Se0066423	NCP	%	79			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	L25-Se0076187	NCP	%	97			70-130	Pass	
Spike - % Recovery									
Metals M8				Result 1					
Arsenic	L25-Se0085403	NCP	%	99			75-125	Pass	
Cadmium	L25-Se0085403	NCP	%	102			75-125	Pass	
Chromium	L25-Se0085403	NCP	%	93			75-125	Pass	
Copper	L25-Se0085403	NCP	%	88			75-125	Pass	
Lead	L25-Se0085403	NCP	%	97			75-125	Pass	
Mercury	L25-Se0085403	NCP	%	96			75-125	Pass	
Nickel	L25-Se0085403	NCP	%	92			75-125	Pass	
Zinc	L25-Se0085403	NCP	%	96			75-125	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	L25-Se0080682	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	L25-Se0067817	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	L25-Se0067817	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	L25-Se0067817	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	L25-Se0080682	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	L25-Se0080682	NCP	mg/kg	0.3	0.2	6.0	30%	Pass	
Ethylbenzene	L25-Se0080682	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	L25-Se0080682	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	L25-Se0080682	NCP	mg/kg	0.5	0.5	1.0	30%	Pass	
Xylenes - Total*	L25-Se0080682	NCP	mg/kg	0.5	0.5	1.0	30%	Pass	

Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
Naphthalene	L25-Se0080682	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
TRH C6-C10	L25-Se0080682	NCP	mg/kg	< 20	< 20	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
TRH >C10-C16	L25-Se0067817	NCP	mg/kg	< 50	< 50	<1	30%	Pass
TRH >C16-C34	L25-Se0067817	NCP	mg/kg	< 100	< 100	<1	30%	Pass
TRH >C34-C40	L25-Se0067817	NCP	mg/kg	< 100	< 100	<1	30%	Pass
Duplicate								
Metals M8				Result 1	Result 2	RPD		
Arsenic	L25-Se0085050	NCP	mg/kg	< 2	< 2	<1	30%	Pass
Cadmium	L25-Se0085050	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Chromium	L25-Se0085050	NCP	mg/kg	380	350	8.0	30%	Pass
Copper	L25-Se0085050	NCP	mg/kg	16	16	2.0	30%	Pass
Lead	L25-Se0085050	NCP	mg/kg	9.6	9.2	4.0	30%	Pass
Nickel	L25-Se0085050	NCP	mg/kg	200	190	7.0	30%	Pass
Zinc	L25-Se0085050	NCP	mg/kg	7.5	7.3	2.0	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
% Moisture	L25-Se0080056	NCP	%	7.2	6.9	5.0	30%	Pass

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	N/A
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

Authorised by:

Natalie Hill	Analytical Services Manager
Sean Sangster	Senior Analyst-Metal
Douglas Todd	Senior Analyst-Sample Properties
Patrick Patfield	Senior Analyst-Volatile
Douglas Todd	Senior Analyst-Organic
Patrick Patfield	Senior Analyst-Organic



Kim Rodgers
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request

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Appendix H

Table H-1: Summary of Groundwater Analytical Results

Laboratory Reports and Chain of Custody Forms

Analyte Group / Analyte	Unit	PQL	Adopted GILs						MW01	MW02	MW03	MW04	MW05	MW06	MW07	MW08	SW1	SW2	SW3
			PW ^{IR}	HSL - D ⁽¹⁾	hpQC ^{IR}	ST ^{IR}	LTL ^{IR}	19/9/2025											
Ionic Balance																			
Calcium - Dissolved	mg/L	0.5	-	-	-	-	-	21	25	14	47	1.6	24	110	97	26	21	21	
Potassium - Dissolved	mg/L	0.5	-	-	-	-	-	29	2.5	3.9	5.4	2.4	14	55	6.7	30	30	30	
Magnesium - Dissolved	mg/L	0.5	-	-	-	-	-	4.5	9	4.9	11	5.3	12	32	14	15	15	15	
Sodium - Dissolved	mg/L	0.5	-	-	180	-	-	15	8	20	33	40	26	190	34	89	100	100	
Bicarbonate HCO3 as CaCO3	mg/L	5	-	-	-	-	-	97	100	24	25	24	24	120	24	100	100	100	
Carbonate CO32- as CaCO3	mg/L	5	-	-	-	-	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
Hydroxide OH- as CaCO3	mg/L	5	-	-	-	-	-	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
Total Alkalinity as CaCO3	mg/L	5	-	-	-	-	-	87	100	24	25	24	260	190	200	120	110	100	
Chloride	mg/L	1	-	-	250	-	-	18	16	39	45	63	21	13	30	150	200	190	
Sulphate	mg/L	1	-	-	250	-	-	32	19	11	58	19	18	280	77	29	37	37	
Ionic Balance	%	-	-	-	-	-	-	-2.4	-3.4	-2.4	-1.5	-5.9	-9.5	-2.4	6.3	-2.3	-3.9	-2.9	
Hardness as CaCO3	mg/L	3	-	-	-	-	-	70	95	54	160	26	180	340	280	120	110	120	
Nutrients																			
Total Nitrogen	mg/L	0.1	12	-	-	25	5	1.3 ^{FW}	2.7 ^{FW}	6.2 ^{FW,LTI}	29 ^{FW, STL, LTI}	0.87	1.8 ^{FW}	6.5 ^{FW,LTI}	1.4 ^{FW}	2.4 ^{FW}	1.8 ^{FW}	1.8 ^{FW}	
Nitrite as N	mg/L	0.005	-	-	913	-	-	0.024	0.055	0.081	0.026	0.024	0.16	<0.0050	0.014	0.073	<0.050	0.05	
Nitrite as NO2 (calculated)	mg/L	0.005	-	-	30	-	-	0.078	0.18	0.27	0.085	0.079	0.52	0.46	<0.020	0.24	<0.20	<0.20	
Nitrate as N	mg/L	0.005	-	-	113	-	-	0.73	1.3	5.2	28	<0.0050	0.35	1.8	0.035	0.077	<0.05	<0.05	
Nitrate as NO3 (calculated)	mg/L	0.005	-	-	500	-	-	3.2	6	23	120	<0.020	1.6	8	0.16	0.34	<0.20	<0.20	
Ammonia as N	mg/L	0.005	0.08	-	0.5	-	-	0.18 ^{FW}	0.26 ^{FW}	0.11 ^{FW}	<0.0005	0.27 ^{FW}	0.1 ^{FW}	3.1 ^{FW,NFUC}	0.62 ^{FW,NFUC}	0.47 ^{FW}	0.017	0.037	
Total Kjeldahl Nitrogen	mg/L	0.1	-	-	-	-	-	0.55	1.3	0.97	1.5	0.87	1.3	5	1.4	2.3	1.8	1.8	
NOX as N	mg/L	0.005	0.15	-	-	-	-	0.76 ^{FW}	1.4 ^{FW}	5.2 ^{FW}	28 ^{FW}	<0.0050	0.51 ^{FW}	2 ^{FW}	0.04	0.15	<0.050	<0.050	
Phosphate as P	mg/L	0.005	0.04	-	-	-	-	<0.0050	0.0083	0.023	0.03	0.023	0.0075	<0.0050	0.05	0.05	0.021	0.022	
Total Phosphorus	mg/L	0.005	0.065	-	-	0.8	0.05	<0.050	<0.050	0.062 ^{LTI}	0.07 ^{FW,LTI}	<0.050	0.065 ^{LTI}	0.17 ^{FW,LTI}	0.13 ^{FW,LTI}	0.075 ^{FW}	0.074 ^{FW}	0.074 ^{FW}	
Dissolved Metals																			
Arsenic-Dissolved	µg/L	1	13	-	100	2000	100	<1.0	1.1	<1.0	<1.0	2.9	5.8	4.9	<1.0	<1.0	<1.0	<1.0	

- Where high reliability criteria were not provided for either Fresh or Marine, the lowest of fresh and marine waters low reliability criteria were adopted.

Sample Receipt Advice PGI1509

Client Details

Client	Douglas Partners Pty Ltd (Perth)
Attention	Rob Shapland

Sample Login Details

Your Reference	236293.02 - Picton
Envirolab Reference	PGI1509
Date Sample Received	19/09/2025
Date Instructions Received	22/09/2025
Date Final Results Expected	03/10/2025

Sample Condition

Samples received in appropriate condition for analysis	See Comments
Number of Samples	12 Water
Turnaround Time	8 Days
Temperatures / Cooling Methods	20.0°C On Ice

Additional Info

Sample storage - waters are routinely disposed at approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Where no sampling date has been supplied for some or all samples, the date of sample receipt has been used as the associated sampling date. The sampling dates are used to assess compliance to recommended Technical Holding Times.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default).

Please direct any queries to:

Heram Halim

Phone 08 9317 2505
Email hhalim@mpl.com.au

Meredith Conroy

Phone 08 9317 2505
Email mconroy@mpl.com.au

Analysis underway, details on the following page

Sample Receipt Advice PGI1509

Comments

General Comment Preserved 40ml vials for samples MW05, MW06 and Dup1 contain headspace - analytical results may be affected.

Analysis Grid

The • indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

	Combination 3 (D)	Ion Balance	Nutrient Suite	PFAS - Short (TR)	VOC Suite	vTRH&MBTEXN	BTEX TS	Alcohols
PGI1509-01 Water 19/09/2025 MW01	•	•	•	•	•			•
PGI1509-02 Water 19/09/2025 MW02	•	•	•	•	•			•
PGI1509-03 Water 19/09/2025 MW03	•	•	•	•	•			•
PGI1509-04 Water 19/09/2025 MW04	•	•	•	•	•			•
PGI1509-05 Water 19/09/2025 MW05	•	•	•	•	•			•
PGI1509-06 Water 19/09/2025 MW06	•	•	•	•	•			•
PGI1509-07 Water 19/09/2025 SW01	•	•	•	•	•			•
PGI1509-08 Water 19/09/2025 SW02	•	•	•	•	•			•
PGI1509-09 Water 19/09/2025 SW03	•	•	•	•	•			•
PGI1509-10 Water 19/09/2025 Dup1	•			•				
PGI1509-11 Water 19/09/2025 TB1						•		
PGI1509-12 Water 19/09/2025 TS1							•	

Sample Receipt Advice PGI1509

Suite Details

Suite Name	Suite Analyses
Combination 3 (D) Water	vTRH&MBTEXN, sTRH, PAH, As - Dissolved (LL), Cd - Dissolved (LL), Cr - Dissolved (LL), Cu - Dissolved (LL), Hg - Dissolved, Ni - Dissolved (LL), Pb - Dissolved (LL), Zn - Dissolved (LL)
Ion Balance Water	Alkalinity Suite, Cations - Dissolved, Chloride, Ion Balance, Sulfate
Nutrient Suite Water	P - Total, Nitrogen - Ammonia, Nitrogen - Nitrate, Nitrogen - Nitrite, Nitrogen - NOx, Nitrogen - Total N, Organic Nitrogen, Phosphate as P, TKN as N calc
PFAS - Short (TR) Water	PFAS - TR ISTD (Short), PFAS-Short TR
VOC Suite Water	Fumigants, VOC - MAH, Halogenated Aliphatics, Halogenated Aromatics, Other VOC, VOC - Surrogates

Work Amendment Advice PGI1509

Client Details

Client	Douglas Partners Pty Ltd (Perth)
Attention	Rob Shapland

Sample Login Details

Your Reference	236293.02 - Picton
Envirolab Reference	PGI1509
Date Sample Received	19/09/2025
Date Instructions Received	01/10/2025
Date Final Results Expected	09/10/2025

Sample Condition

Samples received in appropriate condition for analysis	See Comments
Number of Samples	12 Water
Turnaround Time	5 Days
Temperatures / Cooling Methods	20.0°C On Ice

Additional Info

Sample storage - waters are routinely disposed at approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Where no sampling date has been supplied for some or all samples, the date of sample receipt has been used as the associated sampling date. The sampling dates are used to assess compliance to recommended Technical Holding Times.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default).

Please direct any queries to:

Heram Halim

Phone 08 9317 2505
Email hhalim@mpl.com.au

Meredith Conroy

Phone 08 9317 2505
Email mconroy@mpl.com.au

Analysis underway, details on the following page

Work Amendment Advice PGI1509

Comments

General Comment

Preserved 40ml vials for samples MW05, MW06 and Dup1 contain headspace - analytical results may be affected.

Analysis Grid

The • indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

	Combination 3 (D)	Ion Balance	Nutrient Suite	PFAS - Short (TR)	VOC Suite	vTRH&MBTEXN	BTEX TS	sTRH Silica Gel Cleanup step	Alcohols
PGI1509-01 Water 19/09/2025 MW01	•	•	•	•	•			•	•
PGI1509-02 Water 19/09/2025 MW02	•	•	•	•	•				•
PGI1509-03 Water 19/09/2025 MW03	•	•	•	•	•				•
PGI1509-04 Water 19/09/2025 MW04	•	•	•	•	•				•
PGI1509-05 Water 19/09/2025 MW05	•	•	•	•	•				•
PGI1509-06 Water 19/09/2025 MW06	•	•	•	•	•			•	•
PGI1509-07 Water 19/09/2025 SW01	•	•	•	•	•				•
PGI1509-08 Water 19/09/2025 SW02	•	•	•	•	•				•
PGI1509-09 Water 19/09/2025 SW03	•	•	•	•	•			•	•
PGI1509-10 Water 19/09/2025 Dup1	•			•					
PGI1509-11 Water 19/09/2025 TB1						•			
PGI1509-12 Water 19/09/2025 TS1							•		

Work Amendment Advice PGI1509

Suite Details

Suite Name	Suite Analyses
Combination 3 (D) Water	vTRH&MBTEXN, sTRH, PAH, As - Dissolved (LL), Cd - Dissolved (LL), Cr - Dissolved (LL), Cu - Dissolved (LL), Hg - Dissolved, Ni - Dissolved (LL), Pb - Dissolved (LL), Zn - Dissolved (LL)
Ion Balance Water	Alkalinity Suite, Cations - Dissolved, Chloride, Ion Balance, Sulfate
Nutrient Suite Water	P - Total, Nitrogen - Ammonia, Nitrogen - Nitrate, Nitrogen - Nitrite, Nitrogen - NOx, Nitrogen - Total N, Organic Nitrogen, Phosphate as P, TKN as N calc
PFAS - Short (TR) Water	PFAS - TR ISTD (Short), PFAS-Short TR
VOC Suite Water	Fumigants, VOC - MAH, Halogenated Aliphatics, Halogenated Aromatics, Other VOC, VOC - Surrogates

Work Order Amendment History

Revision	Reason for Amendment
R-01	Additional analysis requested - 1.10.2025.

Certificate of Analysis PGI1509

Client Details

Client	Douglas Partners Pty Ltd (Perth)
Contact	Rob Shapland
Address	36 O'Malley St, OSBORNE PARK, WA, 6017

Sample Details

Your Reference	236293.02 - Picton
Number of Samples	12 Water
Date Samples Received	19/09/2025
Date Instructions Received	01/10/2025

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for soils and on an as received basis for other matrices.

Report Details

Date Final Results Expected	09/10/2025
Date of Reissue	07/10/2025 - This report supercedes previous report, see amendment history for details

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Authorisation Details

Results Approved By	Hien Luong, Chemist - FAS Lien Tang, Assistant Operations Manager Michael Mowle, Development Chemist - Inorganics and Metals Sean McAlary, Senior Chemist Travis Carey, Organics Supervisor Varsha Ho Wing, Inorganics and Metals Supervisor
Laboratory Manager	Michael Kubiak

Certificate of Analysis PGI1509

Report Amendment History

Revision	Reason for Amendment
R-01	Additional analysis requested - 1.10.2025.

Certificate of Analysis PGI1509

Samples in this Report

Envirolab ID	Sample ID	Matrix	Date Sampled	Date Received
PGI1509-01	MW01	Water	19/09/2025	22/09/2025
PGI1509-02	MW02	Water	19/09/2025	22/09/2025
PGI1509-03	MW03	Water	19/09/2025	22/09/2025
PGI1509-04	MW04	Water	19/09/2025	22/09/2025
PGI1509-05	MW05	Water	19/09/2025	22/09/2025
PGI1509-06	MW06	Water	19/09/2025	22/09/2025
PGI1509-07	SW01	Water	19/09/2025	22/09/2025
PGI1509-08	SW02	Water	19/09/2025	22/09/2025
PGI1509-09	SW03	Water	19/09/2025	22/09/2025
PGI1509-10	Dup1	Water	19/09/2025	22/09/2025
PGI1509-11	TB1	Water	19/09/2025	22/09/2025
PGI1509-12	TS1	Water	19/09/2025	22/09/2025

Sample Comments

General Comment Preserved 40ml vials for samples MW05, MW06 and Dup1 contain headspace - analytical results may be affected.

Certificate of Analysis PGI1509

Volatile Organic Compounds - Fumigants (Water)

Envirolab ID Your Reference Date Sampled	Units	PQL	PGI1509-01 MW01 19/09/2025	PGI1509-02 MW02 19/09/2025	PGI1509-03 MW03 19/09/2025	PGI1509-04 MW04 19/09/2025	PGI1509-05 MW05 19/09/2025
2,2-Dichloropropane	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]
1,2-Dichloropropane	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]
cis-1,3-Dichloropropene	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]
trans-1,3-Dichloropropene	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]
1,2-Dibromoethane	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]

Envirolab ID Your Reference Date Sampled	Units	PQL	PGI1509-06 MW06 19/09/2025	PGI1509-07 SW01 19/09/2025	PGI1509-08 SW02 19/09/2025	PGI1509-09 SW03 19/09/2025
2,2-Dichloropropane	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]
1,2-Dichloropropane	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]
cis-1,3-Dichloropropene	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]
trans-1,3-Dichloropropene	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]
1,2-Dibromoethane	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]

Certificate of Analysis PGI1509

Volatile Organic Compounds - MAH (Water)

Envirolab ID Your Reference Date Sampled	Units	PQL	PGI1509-01 MW01 19/09/2025	PGI1509-02 MW02 19/09/2025	PGI1509-03 MW03 19/09/2025	PGI1509-04 MW04 19/09/2025	PGI1509-05 MW05 19/09/2025
Benzene	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]
Toluene	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]
Ethylbenzene	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]
meta+para Xylene	µg/L	2.0	<10 [4]	<4.0 [4]	<2.0	<2.0	<10 [4]
Styrene	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]
ortho-Xylene	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]
Isopropylbenzene	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]
n-Propylbenzene	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]
1,3,5-Trimethylbenzene	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]
tert-Butylbenzene	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]
1,2,4-Trimethylbenzene	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]
sec-Butylbenzene	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]
4-Isopropyltoluene	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]
n-Butyl benzene	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]

Envirolab ID Your Reference Date Sampled	Units	PQL	PGI1509-06 MW06 19/09/2025	PGI1509-07 SW01 19/09/2025	PGI1509-08 SW02 19/09/2025	PGI1509-09 SW03 19/09/2025
Benzene	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]
Toluene	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]
Ethylbenzene	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]
meta+para Xylene	µg/L	2.0	<20 [4]	<10 [4]	<10 [4]	<10 [4]
Styrene	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]
ortho-Xylene	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]
Isopropylbenzene	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]
n-Propylbenzene	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]
1,3,5-Trimethylbenzene	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]
tert-Butylbenzene	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]
1,2,4-Trimethylbenzene	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]
sec-Butylbenzene	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]
4-Isopropyltoluene	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]
n-Butyl benzene	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]

Certificate of Analysis PGI1509

Volatile Organic Compounds - Halogenated Aliphatics (Water)

Envirolab ID Your Reference Date Sampled	Units	PQL	PGI1509-01 MW01 19/09/2025	PGI1509-02 MW02 19/09/2025	PGI1509-03 MW03 19/09/2025	PGI1509-04 MW04 19/09/2025	PGI1509-05 MW05 19/09/2025
Dichlorodifluoromethane (Freon-12)	µg/L	10	<50 [4]	<20 [4]	<10	<10	<50 [4]
Chloromethane	µg/L	10	<50 [4]	<20 [4]	<10	<10	<50 [4]
Vinyl chloride	µg/L	10	<50 [4]	<20 [4]	<10	<10	<50 [4]
Bromomethane	µg/L	10	<50 [4]	<20 [4]	<10	<10	<50 [4]
Chloroethane	µg/L	10	<50 [4]	<20 [4]	<10	<10	<50 [4]
Trichlorofluoromethane (Freon-11)	µg/L	10	<50 [4]	<20 [4]	<10	<10	<50 [4]
1,1-Dichloroethene	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]
trans-1,2-Dichloroethene	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]
1,1-Dichloroethane	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]
cis-1,2-Dichloroethene	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]
Bromochloromethane	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]
Chloroform	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]
1,1,1-Trichloroethane	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]
1,1-Dichloropropene	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]
Carbon Tetrachloride	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]
1,2-Dichloroethane	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]
Trichloroethene	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]
Dibromomethane	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]
Bromodichloromethane	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]
1,1,2-Trichloroethane	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]
1,3-Dichloropropane	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]
Tetrachloroethene	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]
Dibromochloromethane	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]
1,1,1,2-Tetrachloroethane	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]
Bromoform	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]
1,1,2,2-Tetrachloroethane	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]
1,2,3-Trichloropropane	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]
1,2-Dibromo-3-chloropropane	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]
Hexachlorobutadiene	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]
Envirolab ID Your Reference Date Sampled	Units	PQL	PGI1509-06 MW06 19/09/2025	PGI1509-07 SW01 19/09/2025	PGI1509-08 SW02 19/09/2025	PGI1509-09 SW03 19/09/2025	
Dichlorodifluoromethane (Freon-12)	µg/L	10	<100 [4]	<50 [4]	<50 [4]	<50 [4]	
Chloromethane	µg/L	10	<100 [4]	<50 [4]	<50 [4]	<50 [4]	
Vinyl chloride	µg/L	10	<100 [4]	<50 [4]	<50 [4]	<50 [4]	
Bromomethane	µg/L	10	<100 [4]	<50 [4]	<50 [4]	<50 [4]	
Chloroethane	µg/L	10	<100 [4]	<50 [4]	<50 [4]	<50 [4]	
Trichlorofluoromethane (Freon-11)	µg/L	10	<100 [4]	<50 [4]	<50 [4]	<50 [4]	
1,1-Dichloroethene	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]	
trans-1,2-Dichloroethene	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]	
1,1-Dichloroethane	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]	
cis-1,2-Dichloroethene	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]	
Bromochloromethane	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]	
Chloroform	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]	
1,1,1-Trichloroethane	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]	

Certificate of Analysis PGI1509

Volatile Organic Compounds - Halogenated Aliphatics (Water)

Envirolab ID Your Reference Date Sampled	Units	PQL	PGI1509-06 MW06 19/09/2025	PGI1509-07 SW01 19/09/2025	PGI1509-08 SW02 19/09/2025	PGI1509-09 SW03 19/09/2025
1,1-Dichloropropene	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]
Carbon Tetrachloride	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]
1,2-Dichloroethane	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]
Trichloroethene	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]
Dibromomethane	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]
Bromodichloromethane	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]
1,1,2-Trichloroethane	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]
1,3-Dichloropropane	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]
Tetrachloroethene	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]
Dibromochloromethane	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]
1,1,1,2-Tetrachloroethane	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]
Bromoform	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]
1,1,2,2-Tetrachloroethane	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]
1,2,3-Trichloropropane	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]
1,2-Dibromo-3-chloropropane	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]
Hexachlorobutadiene	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]

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Volatile Organic Compounds - Halogenated Aromatics (Water)

Envirolab ID Your Reference Date Sampled	Units	PQL	PGI1509-01 MW01 19/09/2025	PGI1509-02 MW02 19/09/2025	PGI1509-03 MW03 19/09/2025	PGI1509-04 MW04 19/09/2025	PGI1509-05 MW05 19/09/2025
Chlorobenzene	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]
Bromobenzene	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]
2-Chlorotoluene	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]
4-Chlorotoluene	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]
1,3-Dichlorobenzene	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]
1,4-Dichlorobenzene	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]
1,2-Dichlorobenzene	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]
1,2,4-Trichlorobenzene	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]
1,2,3-Trichlorobenzene	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]

Envirolab ID Your Reference Date Sampled	Units	PQL	PGI1509-06 MW06 19/09/2025	PGI1509-07 SW01 19/09/2025	PGI1509-08 SW02 19/09/2025	PGI1509-09 SW03 19/09/2025
Chlorobenzene	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]
Bromobenzene	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]
2-Chlorotoluene	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]
4-Chlorotoluene	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]
1,3-Dichlorobenzene	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]
1,4-Dichlorobenzene	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]
1,2-Dichlorobenzene	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]
1,2,4-Trichlorobenzene	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]
1,2,3-Trichlorobenzene	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]

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Volatile Organic Compounds - Other VOCs (Water)

Envirolab ID	Units	PQL	PGI1509-01	PGI1509-02	PGI1509-03	PGI1509-04	PGI1509-05
Your Reference			MW01	MW02	MW03	MW04	MW05
Date Sampled			19/09/2025	19/09/2025	19/09/2025	19/09/2025	19/09/2025
Cyclohexane	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]

Envirolab ID	Units	PQL	PGI1509-06	PGI1509-07	PGI1509-08	PGI1509-09
Your Reference			MW06	SW01	SW02	SW03
Date Sampled			19/09/2025	19/09/2025	19/09/2025	19/09/2025
Cyclohexane	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]

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Volatile Organic Compounds - Surrogates (Water)

Envirolab ID	Units	PQL	PGI1509-01	PGI1509-02	PGI1509-03	PGI1509-04	PGI1509-05
Your Reference			MW01	MW02	MW03	MW04	MW05
Date Sampled			19/09/2025	19/09/2025	19/09/2025	19/09/2025	19/09/2025
Surrogate Dibromofluoromethane	%		97.3	96.7	97.4	98.4	98.1
Surrogate Toluene-D8	%		100	101	101	99.5	102
Surrogate 4-Bromofluorobenzene	%		90.5	89.2	91.4	91.1	89.8

Envirolab ID	Units	PQL	PGI1509-06	PGI1509-07	PGI1509-08	PGI1509-09
Your Reference			MW06	SW01	SW02	SW03
Date Sampled			19/09/2025	19/09/2025	19/09/2025	19/09/2025
Surrogate Dibromofluoromethane	%		97.7	97.0	97.7	97.4
Surrogate Toluene-D8	%		102	101	99.9	102
Surrogate 4-Bromofluorobenzene	%		90.1	88.6	87.7	90.5

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Volatile TRH and BTEX (Water)

Envirolab ID Your Reference Date Sampled	Units	PQL	PGI1509-01 MW01 19/09/2025	PGI1509-02 MW02 19/09/2025	PGI1509-03 MW03 19/09/2025	PGI1509-04 MW04 19/09/2025	PGI1509-05 MW05 19/09/2025
TRH C6-C9	µg/L	10	<50 [4]	<20 [4]	<10	<10	<50 [4]
TRH C6-C10	µg/L	10	<50 [4]	<20 [4]	<10	<10	<50 [4]
TRH C6-C10 less BTEX (F1)	µg/L	10	<50	<20	<10	<10	<50
Methyl tert butyl ether (MTBE)	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]
Benzene	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]
Toluene	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]
Ethylbenzene	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]
meta+para Xylene	µg/L	2.0	<10 [4]	<4.0 [4]	<2.0	<2.0	<10 [4]
ortho-Xylene	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]
Total +ve Xylenes	µg/L	1.0	<5.0	<2.0	<1.0	<1.0	<5.0
Naphthalene (value used in F2 calc)	µg/L	1.0	<5.0 [4]	<2.0 [4]	<1.0	<1.0	<5.0 [4]
Total +ve BTEX	µg/L	1.0	<5.0	<2.0	<1.0	<1.0	<5.0
Surrogate Dibromofluoromethane	%		97.3	96.7	97.4	98.4	98.1
Surrogate Toluene-D8	%		100	101	101	99.5	102
Surrogate 4-Bromofluorobenzene	%		90.5	89.2	91.4	91.1	89.8

Envirolab ID Your Reference Date Sampled	Units	PQL	PGI1509-06 MW06 19/09/2025	PGI1509-07 SW01 19/09/2025	PGI1509-08 SW02 19/09/2025	PGI1509-09 SW03 19/09/2025	PGI1509-10 Dup1 19/09/2025
TRH C6-C9	µg/L	10	<100 [4]	<50 [4]	<50 [4]	<50 [4]	<10
TRH C6-C10	µg/L	10	<100 [4]	<50 [4]	<50 [4]	<50 [4]	<10
TRH C6-C10 less BTEX (F1)	µg/L	10	<100	<50	<50	<50	<10
Methyl tert butyl ether (MTBE)	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]	<1.0
Benzene	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]	<1.0
Toluene	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]	<1.0
Ethylbenzene	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]	<1.0
meta+para Xylene	µg/L	2.0	<20 [4]	<10 [4]	<10 [4]	<10 [4]	<2.0
ortho-Xylene	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]	<1.0
Total +ve Xylenes	µg/L	1.0	<10	<5.0	<5.0	<5.0	<1.0
Naphthalene (value used in F2 calc)	µg/L	1.0	<10 [4]	<5.0 [4]	<5.0 [4]	<5.0 [4]	<1.0
Total +ve BTEX	µg/L	1.0	<10	<5.0	<5.0	<5.0	<1.0
Surrogate Dibromofluoromethane	%		97.7	97.0	97.7	97.4	96.8
Surrogate Toluene-D8	%		102	101	99.9	102	101
Surrogate 4-Bromofluorobenzene	%		90.1	88.6	87.7	90.5	89.9

Envirolab ID Your Reference Date Sampled	Units	PQL	PGI1509-11 TB1 19/09/2025
TRH C6-C9	µg/L	10	<10
TRH C6-C10	µg/L	10	<10
TRH C6-C10 less BTEX (F1)	µg/L	10	<10
Methyl tert butyl ether (MTBE)	µg/L	1.0	<1.0
Benzene	µg/L	1.0	<1.0
Toluene	µg/L	1.0	<1.0
Ethylbenzene	µg/L	1.0	<1.0
meta+para Xylene	µg/L	2.0	<2.0
ortho-Xylene	µg/L	1.0	<1.0

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Volatile TRH and BTEX (Water)

Envirolab ID	Units	PQL	PGI1509-11
Your Reference			TB1
Date Sampled			19/09/2025
Total +ve Xylenes	µg/L	1.0	<1.0
Naphthalene (value used in F2 calc)	µg/L	1.0	<1.0
Total +ve BTEX	µg/L	1.0	<1.0
Surrogate Dibromofluoromethane	%		101
Surrogate Toluene-D8	%		101
Surrogate 4-Bromofluorobenzene	%		90.0

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BTEX Trip Spike (Water)

Envirolab ID	Units	PQL	PGI1509-12
Your Reference			TS1
Date Sampled			19/09/2025
Benzene	%		88.9
Toluene	%		88.1
Ethylbenzene	%		85.5
meta+para Xylene	%		84.8
ortho-Xylene	%		82.8
Surrogate Dibromofluoromethane	%		118
Surrogate Toluene-D8	%		116
Surrogate 4-Bromofluorobenzene	%		97.5

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Semi-volatile TRH (Water)

Envirolab ID Your Reference Date Sampled	Units	PQL	PGI1509-01 MW01 19/09/2025	PGI1509-02 MW02 19/09/2025	PGI1509-03 MW03 19/09/2025	PGI1509-04 MW04 19/09/2025	PGI1509-05 MW05 19/09/2025
TRH C10-C14	µg/L	50	<50	<50	<50	<50	<50
TRH C15-C28	µg/L	100	140	<100	<100	<100	<100
TRH C29-C36	µg/L	100	<100	<100	<100	<100	<100
Total +ve TRH C10-C36	µg/L	50	140	<50	<50	<50	<50
TRH >C10-C16	µg/L	50	58	<50	<50	<50	<50
TRH >C10-C16 less Naphthalene F2	µg/L	50	58	<50	<50	<50	<50
TRH >C16-C34 (F3)	µg/L	100	130	<100	<100	<100	<100
TRH >C34-C40 (F4)	µg/L	100	<100	<100	<100	<100	<100
Total +ve TRH >C10-C40	µg/L	50	190	<50	<50	<50	<50
Surrogate o-Terphenyl	%		100	78.8	88.5	98.0	85.9

Envirolab ID Your Reference Date Sampled	Units	PQL	PGI1509-06 MW06 19/09/2025	PGI1509-07 SW01 19/09/2025	PGI1509-08 SW02 19/09/2025	PGI1509-09 SW03 19/09/2025	PGI1509-10 Dup1 19/09/2025
TRH C10-C14	µg/L	50	62	<50	<50	<50	<50
TRH C15-C28	µg/L	100	390	<100	<100	110	<100
TRH C29-C36	µg/L	100	<100	<100	<100	<100	<100
Total +ve TRH C10-C36	µg/L	50	450	<50	<50	110	<50
TRH >C10-C16	µg/L	50	80	<50	<50	<50	<50
TRH >C10-C16 less Naphthalene F2	µg/L	50	80	<50	<50	<50	<50
TRH >C16-C34 (F3)	µg/L	100	380	<100	<100	140	<100
TRH >C34-C40 (F4)	µg/L	100	<100	<100	<100	<100	<100
Total +ve TRH >C10-C40	µg/L	50	460	<50	<50	140	<50
Surrogate o-Terphenyl	%		91.9	93.2	89.2	89.5	97.2

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Semi-volatile TRH with Silica Gel Cleanup (Water)

Envirolab ID Your Reference Date Sampled	Units	PQL	PGI1509-01 MW01 19/09/2025	PGI1509-06 MW06 19/09/2025	PGI1509-09 SW03 19/09/2025
TRH (Silica) C10-C14	µg/L	50	<50	<50	<50
TRH (Silica) C15-C28	µg/L	100	<100	<100	<100
TRH (Silica) C29-C36	µg/L	100	<100	<100	<100
Total +ve TRH C10-C36	µg/L	50	<50	<50	<50
TRH (Silica) >C10-C16	µg/L	50	<50	<50	<50
TRH (Silica) >C16-C34	µg/L	100	<100	<100	<100
TRH (Silica) >C34-C40	µg/L	100	<100	<100	<100
Total +ve TRH >C10-C40	µg/L	50	<50	<50	<50
Surrogate o-Terphenyl	%		90.4	74.4	75.5

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Polycyclic Aromatic Hydrocarbons (Water)

Envirolab ID Your Reference Date Sampled	Units	PQL	PGI1509-01 MW01 19/09/2025	PGI1509-02 MW02 19/09/2025	PGI1509-03 MW03 19/09/2025	PGI1509-04 MW04 19/09/2025	PGI1509-05 MW05 19/09/2025
Naphthalene	µg/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Acenaphthylene	µg/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Acenaphthene	µg/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Fluorene	µg/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Phenanthrene	µg/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Anthracene	µg/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Fluoranthene	µg/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Pyrene	µg/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo(a)anthracene	µg/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Chrysene	µg/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo(b,j,k)fluoranthene	µg/L	0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Benzo(a)pyrene	µg/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Indeno(1,2,3-c,d)pyrene	µg/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Dibenzo(a,h)anthracene	µg/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo(g,h,i)perylene	µg/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total +ve PAH	µg/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Surrogate p-Terphenyl-D14	%		101	74.5	85.9	96.1	79.8

Envirolab ID Your Reference Date Sampled	Units	PQL	PGI1509-06 MW06 19/09/2025	PGI1509-07 SW01 19/09/2025	PGI1509-08 SW02 19/09/2025	PGI1509-09 SW03 19/09/2025	PGI1509-10 Dup1 19/09/2025
Naphthalene	µg/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Acenaphthylene	µg/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Acenaphthene	µg/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Fluorene	µg/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Phenanthrene	µg/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Anthracene	µg/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Fluoranthene	µg/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Pyrene	µg/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo(a)anthracene	µg/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Chrysene	µg/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo(b,j,k)fluoranthene	µg/L	0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Benzo(a)pyrene	µg/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Indeno(1,2,3-c,d)pyrene	µg/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Dibenzo(a,h)anthracene	µg/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo(g,h,i)perylene	µg/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Total +ve PAH	µg/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Surrogate p-Terphenyl-D14	%		84.5	85.3	80.2	87.5	88.0

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Alcohols (Water)

Envirolab ID Your Reference Date Sampled	Units	PQL	PGI1509-01 MW01 19/09/2025	PGI1509-02 MW02 19/09/2025	PGI1509-03 MW03 19/09/2025	PGI1509-04 MW04 19/09/2025	PGI1509-05 MW05 19/09/2025
Methanol	µg/L	200	<200	<200	<200	<200	<200
Ethanol	µg/L	50	<50	<50	<50	<50	<50
Isopropyl Alcohol	µg/L	50	<50	<50	<50	<50	<50
Propyl Alcohol	µg/L	50	<50	<50	<50	<50	<50
Isobutyl Alcohol	µg/L	50	<50	<50	<50	<50	<50
Butanol	µg/L	50	<50	<50	<50	<50	<50
Surrogate 1-Octanol*	%		104	106	106	110	94.7

Envirolab ID Your Reference Date Sampled	Units	PQL	PGI1509-06 MW06 19/09/2025	PGI1509-07 SW01 19/09/2025	PGI1509-08 SW02 19/09/2025	PGI1509-09 SW03 19/09/2025
Methanol	µg/L	200	<200	<200	<200	<200
Ethanol	µg/L	50	<50	<50	<50	<50
Isopropyl Alcohol	µg/L	50	<50	<50	<50	<50
Propyl Alcohol	µg/L	50	<50	<50	<50	<50
Isobutyl Alcohol	µg/L	50	<50	<50	<50	<50
Butanol	µg/L	50	<50	<50	<50	<50
Surrogate 1-Octanol*	%		110	109	111	116

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Acid Extractable Metals (Water)

Envirolab ID	Units	PQL	PGI1509-01	PGI1509-02	PGI1509-03	PGI1509-04	PGI1509-05
Your Reference			MW01	MW02	MW03	MW04	MW05
Date Sampled			19/09/2025	19/09/2025	19/09/2025	19/09/2025	19/09/2025
Phosphorus	mg/L	0.050	<0.050	<0.050	0.062	0.070	<0.050

Envirolab ID	Units	PQL	PGI1509-06	PGI1509-07	PGI1509-08	PGI1509-09
Your Reference			MW06	SW01	SW02	SW03
Date Sampled			19/09/2025	19/09/2025	19/09/2025	19/09/2025
Phosphorus	mg/L	0.050	0.075	0.13	0.075	0.074

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Dissolved Low Level Metals (Water)

Envirolab ID Your Reference Date Sampled	Units	PQL	PGI1509-01 MW01 19/09/2025	PGI1509-02 MW02 19/09/2025	PGI1509-03 MW03 19/09/2025	PGI1509-04 MW04 19/09/2025	PGI1509-05 MW05 19/09/2025
Arsenic	µg/L	1.0	<1.0	1.1	<1.0	<1.0	2.9
Cadmium	µg/L	0.10	<0.10	<0.10	0.12	<0.10	<0.10
Chromium	µg/L	1.0	1.5	2.3	1.6	<1.0	1.4
Copper	µg/L	1.0	<1.0	<1.0	5.4	3.1	<1.0
Mercury	µg/L	0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Nickel	µg/L	1.0	1.8	1.2	5.5	2.0	<1.0
Lead	µg/L	1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Zinc	µg/L	1.0	1.1	1.2	47	6.3	<1.0

Envirolab ID Your Reference Date Sampled	Units	PQL	PGI1509-06 MW06 19/09/2025	PGI1509-07 SW01 19/09/2025	PGI1509-08 SW02 19/09/2025	PGI1509-09 SW03 19/09/2025	PGI1509-10 Dup1 19/09/2025
Arsenic	µg/L	1.0	5.8	<1.0	<1.0	<1.0	<1.0
Cadmium	µg/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Chromium	µg/L	1.0	1.7	1.2	1.1	1.1	<1.0
Copper	µg/L	1.0	<1.0	<1.0	<1.0	<1.0	3.1
Mercury	µg/L	0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Nickel	µg/L	1.0	1.5	<1.0	<1.0	<1.0	2.0
Lead	µg/L	1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Zinc	µg/L	1.0	<1.0	14	6.5	6.1	6.2

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Inorganics - Ionic Balance and Indexes (Water)

Envirolab ID Your Reference Date Sampled	Units	PQL	PGI1509-01 MW01 19/09/2025	PGI1509-02 MW02 19/09/2025	PGI1509-03 MW03 19/09/2025	PGI1509-04 MW04 19/09/2025	PGI1509-05 MW05 19/09/2025
Bicarbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	87	100	24	25	24
Carbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Hydroxide OH- as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Total Alkalinity as CaCO3	mg/L as CaCO3	5.0	87	100	24	25	24
Chloride	mg/L	1.0	18	16	39	45	63
Sulfate	mg/L	1.0	32	19	11	58	19
Calcium	mg/L	0.50	21	25	14	47	1.6
Magnesium	mg/L	0.50	4.5	8.0	4.9	11	5.3
Potassium	mg/L	0.50	29	2.5	3.9	5.4	2.4
Sodium	mg/L	0.50	15	19	20	33	40
Hardness (calc) equivalent CaCO3	mg/L	3.0	70	95	54	160	26
Ionic Balance	%		-2.4	-3.4	-2.4	-1.5	-5.9
Total Anions	mg/L	7.0	140	140	74	130	110
Anions as meq	meq/L	0.59	2.6	2.5	1.7	2.9	2.5
Total Cations	mg/L	2.0	69	55	43	97	50
Cations as meq	meq/L	0.10	2.8	2.8	2.1	4.9	2.3

Envirolab ID Your Reference Date Sampled	Units	PQL	PGI1509-06 MW06 19/09/2025	PGI1509-07 SW01 19/09/2025	PGI1509-08 SW02 19/09/2025	PGI1509-09 SW03 19/09/2025
Bicarbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	260	120	110	100
Carbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0	<5.0	<5.0
Hydroxide OH- as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0	<5.0	<5.0
Total Alkalinity as CaCO3	mg/L as CaCO3	5.0	260	120	110	100
Chloride	mg/L	1.0	21	150	200	190
Sulfate	mg/L	1.0	18	29	37	37
Calcium	mg/L	0.50	54	26	21	21
Magnesium	mg/L	0.50	12	13	15	15
Potassium	mg/L	0.50	14	25	30	30
Sodium	mg/L	0.50	26	89	110	110
Hardness (calc) equivalent CaCO3	mg/L	3.0	180	120	110	120
Ionic Balance	%		-9.5	-2.3	-3.9	-2.9
Total Anions	mg/L	7.0	300	300	340	330
Anions as meq	meq/L	0.59	5.3	6.8	8.1	7.9
Total Cations	mg/L	2.0	110	150	180	180
Cations as meq	meq/L	0.10	5.2	6.9	8.0	8.0

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Inorganics - Nutrients (Water)

Envirolab ID Your Reference Date Sampled	Units	PQL	PGI1509-01 MW01 19/09/2025	PGI1509-02 MW02 19/09/2025	PGI1509-03 MW03 19/09/2025	PGI1509-04 MW04 19/09/2025	PGI1509-05 MW05 19/09/2025
Ammonia as N	mg/L	0.0050	0.18	0.26	0.11	<0.0050	0.27
Nitrate as N	mg/L	0.0050	0.73	1.3	5.2	28	<0.0050
Nitrate as NO3 by calculation	mg/L	0.020	3.2	6.0	23	120	<0.020
Nitrite as N	mg/L	0.0050	0.024	0.055	0.081	0.026	0.024
Nitrite as NO2 by calculation	mg/L	0.020	0.078	0.18	0.27	0.085	0.079
NOx as N	mg/L	0.0050	0.76	1.4	5.2	28	<0.0050
TKN as N by calculation	mg/L	0.10	0.55	1.3	0.97	1.5	0.87
Organic Nitrogen by calc.	mg/L	0.10	0.36	1.0	0.86	1.5	0.60
Total Nitrogen	mg/L	0.10	1.3	2.7	6.2	29	0.87
Phosphate as P	mg/L	0.0050	<0.0050	0.0083	0.023	0.030	0.023

Envirolab ID Your Reference Date Sampled	Units	PQL	PGI1509-06 MW06 19/09/2025	PGI1509-07 SW01 19/09/2025	PGI1509-08 SW02 19/09/2025	PGI1509-09 SW03 19/09/2025
Ammonia as N	mg/L	0.0050	0.10	0.47	0.017	0.037
Nitrate as N	mg/L	0.0050	0.35	0.077	<0.050 [5]	<0.050 [5]
Nitrate as NO3 by calculation	mg/L	0.020	1.6	0.34	<0.20 [5]	<0.20 [5]
Nitrite as N	mg/L	0.0050	0.16	0.073	<0.050 [5]	0.050
Nitrite as NO2 by calculation	mg/L	0.020	0.52	0.24	<0.20 [5]	<0.20 [5]
NOx as N	mg/L	0.0050	0.51	0.15	<0.050 [5]	<0.050 [5]
TKN as N by calculation	mg/L	0.10	1.3	2.3	1.8	1.8
Organic Nitrogen by calc.	mg/L	0.10	1.2	1.8	1.8	1.8
Total Nitrogen	mg/L	0.10	1.8	2.4	1.8	1.8
Phosphate as P	mg/L	0.0050	0.0075	0.050	0.021	0.022

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PFAS Short List - Trace Level (Water) - Analysed By Envirolab Services Sydney

Envirolab ID Your Reference Date Sampled	Units	PQL	PGI1509-01 MW01 19/09/2025	PGI1509-02 MW02 19/09/2025	PGI1509-03 MW03 19/09/2025	PGI1509-04 MW04 19/09/2025	PGI1509-05 MW05 19/09/2025
Perfluorobutanesulfonic acid (PFBS)	µg/L	0.00040	0.0079	0.00042	0.0024	0.00054	0.0077
Perfluorohexanesulfonic acid (PFHxS)	µg/L	0.00020	<0.00020	<0.00020	0.00044	<0.00020	0.037
Perfluorooctanesulfonic acid (PFOS)	µg/L	0.00020	<0.00020	<0.00020	0.00057	0.00033	0.011
Perfluorooctanoic acid (PFOA)	µg/L	0.00020	0.0011	0.00033	0.011	0.0083	0.094
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/L	0.00040	0.0022	0.010	0.0092	0.0028	<0.00040
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
<i>Surrogate 13C8 PFOS</i>	%		<i>98.2</i>	<i>94.2</i>	<i>97.0</i>	<i>93.4</i>	<i>95.2</i>
<i>Surrogate 13C2 PFOA</i>	%		<i>105</i>	<i>110</i>	<i>111</i>	<i>113</i>	<i>124</i>
Total +ve PFHxS+PFOS	µg/L	0.00020	<0.00020	<0.00020	0.0010	0.00033	0.048
Total +ve PFOA+PFOS	µg/L	0.00020	0.0011	0.00033	0.012	0.0086	0.10
Total +ve PFAS	µg/L	0.00020	0.011	0.011	0.024	0.012	0.15
<i>Extraction Internal Standard 13C3 PFBS</i>	%		<i>64.0</i>	<i>64.0</i>	<i>68.0</i>	<i>68.0</i>	<i>61.0</i>
<i>Extraction Internal Standard 18O2 PFHxS</i>	%		<i>97.0</i>	<i>103</i>	<i>113</i>	<i>113</i>	<i>97.0</i>
<i>Extraction Internal Standard 13C4 PFOS</i>	%		<i>48.0 [3]</i>	<i>59.0</i>	<i>72.0</i>	<i>80.0</i>	<i>62.0</i>
<i>Extraction Internal Standard 13C4 PFOA</i>	%		<i>86.0</i>	<i>109</i>	<i>114</i>	<i>116</i>	<i>98.0</i>
<i>Extraction Internal Standard 13C2 6:2FTS</i>	%		<i>175 [3]</i>	<i>174 [3]</i>	<i>184 [3]</i>	<i>193 [3]</i>	<i>133</i>
<i>Extraction Internal Standard 13C2 8:2FTS</i>	%		<i>## [3]</i>	<i>## [3]</i>	<i>## [3]</i>	<i>## [3]</i>	<i>199 [3]</i>

Envirolab ID Your Reference Date Sampled	Units	PQL	PGI1509-06 MW06 19/09/2025	PGI1509-07 SW01 19/09/2025	PGI1509-08 SW02 19/09/2025	PGI1509-09 SW03 19/09/2025	PGI1509-10 Dup1 19/09/2025
Perfluorobutanesulfonic acid (PFBS)	µg/L	0.00040	<0.00040	0.00070	0.00076	0.00092	0.00047
Perfluorohexanesulfonic acid (PFHxS)	µg/L	0.00020	0.00057	<0.00020	<0.00020	<0.00020	<0.00020
Perfluorooctanesulfonic acid (PFOS)	µg/L	0.00020	<0.00040	<0.00020	<0.00020	<0.00020	<0.00020
Perfluorooctanoic acid (PFOA)	µg/L	0.00020	0.0035	0.012	0.0084	0.0089	0.0081
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/L	0.00040	0.0053	0.0017	<0.00040	0.00045	0.0012
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
<i>Surrogate 13C8 PFOS</i>	%		<i>98.6</i>	<i>93.4</i>	<i>94.3</i>	<i>96.4</i>	<i>90.8</i>
<i>Surrogate 13C2 PFOA</i>	%		<i>116</i>	<i>114</i>	<i>112</i>	<i>111</i>	<i>122</i>
Total +ve PFHxS+PFOS	µg/L	0.00020	0.00057	<0.00020	<0.00020	<0.00020	<0.00020
Total +ve PFOA+PFOS	µg/L	0.00020	0.0035	0.012	0.0084	0.0089	0.0081
Total +ve PFAS	µg/L	0.00020	0.0094	0.014	0.0092	0.010	0.0098
<i>Extraction Internal Standard 13C3 PFBS</i>	%		<i>60.0</i>	<i>62.0</i>	<i>67.0</i>	<i>63.0</i>	<i>71.0</i>
<i>Extraction Internal Standard 18O2 PFHxS</i>	%		<i>78.0</i>	<i>93.0</i>	<i>95.0</i>	<i>91.0</i>	<i>117</i>
<i>Extraction Internal Standard 13C4 PFOS</i>	%		<i>36.0 [3]</i>	<i>50.0</i>	<i>54.0</i>	<i>50.0</i>	<i>77.0</i>
<i>Extraction Internal Standard 13C4 PFOA</i>	%		<i>60.0</i>	<i>92.0</i>	<i>96.0</i>	<i>90.0</i>	<i>120</i>
<i>Extraction Internal Standard 13C2 6:2FTS</i>	%		<i>125</i>	<i>157 [3]</i>	<i>147</i>	<i>139</i>	<i>170 [3]</i>
<i>Extraction Internal Standard 13C2 8:2FTS</i>	%		<i>## [3]</i>	<i>## [3]</i>	<i>184 [3]</i>	<i>185 [3]</i>	<i>## [3]</i>

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Result Comments

Identifier	Description
[3]	For PFAS Extracted Internal Standards denoted with ## or being outside the 50-150% acceptance range, the respective target analyte results may be unaffected, in other circumstances the PQL has been raised to accommodate the outlier(s).
[4]	PQL(s) has/have been raised as the sample(s) was/were foamy and therefore required dilution.
[5]	PQL(s) has/have been raised due to matrix interference.

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Method Summary

Method ID	Methodology Summary
Calc	Calculation
Calc - ION	Calculation
Calc - TKN	TKN determined by calculation (Total Nitrogen - NOx).
INORG-006	Alkalinity - determined titrimetrically based on APHA latest edition 2320-B. Solids reported from a 1:5 water extract unless otherwise specified. Total Carbon Dioxide - determined by calculation in accordance with APHA latest edition, 4500-CO2 D.
INORG-040	The concentrations of the major ions (mg/L) are converted to milliequivalents and summed. The ionic balance should be within +/- 15% i.e. total anions = total cations +/-15%.
INORG-055	Nitrate/Nitrite/NOx/TKN - determined colourimetrically. Waters samples are filtered on receipt prior to analysis. Soils/solids are analysed following a water extraction.
INORG-057	Ammonia - determined colourimetrically. Water samples are filtered on receipt prior to analysis. Soils and OHS media are analysed following a water extraction. Alternatively, Ammonia can be extracted from soil using 1M KCl.
INORG-060	Phosphate - determined colourimetrically using APHA latest edition 4500 P E. Water samples are filtered on receipt prior to analysis. Soils are analysed from a water extract.
INORG-081	Anions determined by Ion Chromatography. Waters samples are filtered on receipt prior to analysis. Solids are analysed from a water extract. Alternatively determined by colourimetry/turbidity using Discrete Analyser.
INORG-127	Total Nitrogen by high temperature catalytic combustion with chemiluminescence detection. Organic Carbon forms (inorganic, organic, total) determined using a TOC/NDIR analyser via combustion. Dissolved forms require filtering prior to determination.
METALS-020	Determination of various metals by ICP-OES. Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.
METALS-021	Determination of Mercury by Cold Vapour AAS.
METALS-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.
ORG-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
ORG-020_SILICA_G EL	Soil/solid/biota samples are extracted with solvent and waters by LLE and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40). Analysis for TRHs conducted after Silica Gel clean-up.
ORG-022_PAH	Determination of semi-volatile organic compounds (SVOCs) by GC-MS. Water samples are extracted by LLE and solids using DCM/Acetone/Methanol. For PAHs:- Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. 1. 'TEQ PQL' values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'TEQ zero' values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'TEQ half PQL' values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, for Total +ve calculations, the PQL is reflective of the lowest individual PQL and therefore, for example, "Total +ve PAHs" is simply a sum of the positive individual PAHs.
ORG-023	Determination of volatile organic compounds (VOCs) by P&T-GC-MS. Water samples are analysed directly by purge and trap GC-MS. Soils are extracted with Methanol, diluted and analysed by purge and trap GC-MS.
ORG-023_F1_TOT	Determination of volatile organic compounds (VOCs) by P&T-GC-MS. Water samples are analysed directly by purge and trap GC-MS. Solids are extracted with Methanol, diluted and analysed by purge and trap GC-MS. F1 = (C6-C10)-BTX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.
ORG-026_SVOC_VO C_GCMSMS	Determination of organic analytes by HS-GC-MS-MS. Water samples are sub-sampled and generally analysed directly by headspace GC-MS-MS. Soils are extracted with solvent, diluted where necessary and analysed by headspace GC-MS-MS.

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Method Summary

Method ID	Methodology Summary
ORG-029	Soil/solid and sorbent samples are extracted with basified Methanol. Waters and soil/sorbent extracts are directly injected and/or concentrated/extracted using SPE. TCLP/ASLP leachates are centrifuged, the supernatant is then analysed (including amendment with solvent) - as per the option in AS4439.3. Analysis is undertaken with LC-MSMS. PFAS results include the sum of branched and linear isomers where applicable. Please note that PFAS results are corrected for Extracted Internal Standards (QSM terminology), which are mass labelled analytes added prior to sample preparation to assess matrix effects and verify processing of the sample. PFAS analytes without a commercially available mass labelled analogue are corrected vs a closely eluting mass labelled PFAS compound. Surrogates are also reported, in this context they are mass labelled PFAS compounds added prior to extraction but are used as monitoring compounds only (not used for result correction). Envicarb (or similar) is used discretionally to remove interfering matrix components. Please contact the laboratory if estimates of Measurement Uncertainty are required as per WA DER.

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Result Definitions

Identifier	Description
NR	Not reported
NEPM	National Environment Protection Measure
NS	Not specified
LCS	Laboratory Control Sample
RPD	Relative Percent Difference
>	Greater than
<	Less than
PQL	Practical Quantitation Limit
INS	Insufficient sample for this test
NA	Test not required
NT	Not tested
DOL	Samples rejected due to particulate overload (air filters only)
RFD	Samples rejected due to filter damage (air filters only)
RUD	Samples rejected due to uneven deposition (air filters only)
##	Indicates a laboratory acceptance criteria outlier, for further details, see Result Comments and/or QC Comments

Quality Control Definitions

Blank

This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, and is determined by processing solvents and reagents in exactly the same manner as for samples.

Surrogate Spike

Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

LCS (Laboratory Control Sample)

This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Matrix Spike

A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

Duplicate

This is the complete duplicate analysis of a sample from the process batch. The sample selected should be one where the analyte concentration is easily measurable.

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Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria. Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction. Spikes for Physical and Aggregate Tests are not applicable. For VOCs in water samples, three vials are required for duplicate or spike analysis.

General Acceptance Criteria (GAC) - Analyte specific criteria applies for some analytes and is reflected in QC recovery tables.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% - see ELN-P05 QAQC tables for details (available on request); <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase. Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was typically insufficient in order to satisfy laboratory QA/QC protocols.

Miscellaneous Information

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached. We have taken the sampling date as being the date received at the laboratory.

Two significant figures are reported for the majority of tests and with a high degree of confidence, for results <10*PQL, the second significant figure may be in doubt i.e. has a relatively high degree of uncertainty and is provided for information only.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS where sediment/solids are included by default.

Urine Analysis - The BEI values listed are taken from the 2022 edition of *TLVs and BEIs Threshold Limits by ACGIH*.

Air volumes are typically provided by customers (often as flow rate(s) and sampling time(s) and/or simply volume(s) sampled or exposure times (determines 'volume' passive badges are exposed to)). Hence in such circumstances the volume measurement is inevitably not covered by Envirolab's NATA accreditation. An exception may occur where Envirolab Newcastle does the sampling where accreditation exists for certain types of sampling and hence volume determination(s). Note air volumes are often used to determine concentrations for dust and/or analyses on filters, sorbents and in impingers. For canister sampling, the air volume is covered by Envirolab's NATA accreditation.

Data Quality Assessment Summary PGI1509

Client Details

Client	Douglas Partners Pty Ltd (Perth)
Your Reference	236293.02 - Picton
Date Issued	07/10/2025

Recommended Holding Time Compliance

Recommended holding time exceedances exist - See detailed list below

Quality Control and QC Frequency

QC Type	Compliant	Details
Blank	Yes	No Outliers
LCS	Yes	No Outliers
Duplicates	Yes	No Outliers
Matrix Spike	No	Matrix Spike Outliers Exist - See detailed list below
Surrogates / Extracted Internal Standards	No	Surrogates / Extracted ISTD Outliers Exist - See detailed list below
QC Frequency	No	QC Frequency Outliers Exist - See detailed list below

Surrogates/Extracted Internal Standards, Duplicates and/or Matrix Spikes are not always relevant/applicable to certain analyses and matrices. Therefore, said QC measures are deemed compliant in these situations by default. See Laboratory Acceptance Criteria for more information

Data Quality Assessment Summary PGI1509

Recommended Holding Time Compliance

Analysis	Sample Number(s)	Date Sampled	Date Extracted	Date Analysed	Compliant
Fumigants Water	1, 3-9	19/09/2025	24/09/2025	24/09/2025	Yes
	2	19/09/2025	24/09/2025	25/09/2025	Yes
VOC - MAH Water	1, 3-9	19/09/2025	24/09/2025	24/09/2025	Yes
	2	19/09/2025	24/09/2025	25/09/2025	Yes
Halogenated Aliphatics Water	1, 3-9	19/09/2025	24/09/2025	24/09/2025	Yes
	2	19/09/2025	24/09/2025	25/09/2025	Yes
Halogenated Aromatics Water	1, 3-9	19/09/2025	24/09/2025	24/09/2025	Yes
	2	19/09/2025	24/09/2025	25/09/2025	Yes
Other VOC Water	1, 3-9	19/09/2025	24/09/2025	24/09/2025	Yes
	2	19/09/2025	24/09/2025	25/09/2025	Yes
VOC - Surrogates Water	1, 3-9	19/09/2025	24/09/2025	24/09/2025	Yes
	2	19/09/2025	24/09/2025	25/09/2025	Yes
vTRH&MBTEXN Water	1, 3-11	19/09/2025	24/09/2025	24/09/2025	Yes
	2	19/09/2025	24/09/2025	25/09/2025	Yes
BTEX TS Water	12	19/09/2025	24/09/2025	24/09/2025	Yes
sTRH Water	1-10	19/09/2025	24/09/2025	25/09/2025	Yes
sTRH Silica Gel Cleanup step Water	1, 6, 9	19/09/2025	03/10/2025	07/10/2025	Yes
PAH Water	1-10	19/09/2025	24/09/2025	25/09/2025	Yes
Alcohols Water	1-9	19/09/2025	23/09/2025	23/09/2025	Yes
Total Phosphorus Water	1-9	19/09/2025	24/09/2025	26/09/2025	Yes
Dissolved Metals (LL) Water	1-9	19/09/2025	24/09/2025	24/09/2025	Yes
	10	19/09/2025	25/09/2025	25/09/2025	Yes
Dissolved Metals (LL)-Hg Water	1-10	19/09/2025	24/09/2025	26/09/2025	Yes
Alkalinity Suite Water	1-9	19/09/2025	22/09/2025	23/09/2025	Yes
Chloride Water	1-9	19/09/2025	22/09/2025	23/09/2025	Yes
Dissolved Cations Water	1-9	19/09/2025	24/09/2025	24/09/2025	Yes
Ion Balance Water	1-9	19/09/2025	24/09/2025	24/09/2025	Yes
	1-9	19/09/2025	26/09/2025	30/09/2025	Yes
Sulfate Water	1-9	19/09/2025	22/09/2025	23/09/2025	Yes
Nitrogen - Ammonia Water	1-9	19/09/2025	23/09/2025	24/09/2025	Yes
Nitrogen - Nitrate Water	1-9	19/09/2025	23/09/2025	24/09/2025	Yes
Nitrogen - Nitrite Water	1-9	19/09/2025	23/09/2025	24/09/2025	No
Nitrogen - NOx Water	1-9	19/09/2025	23/09/2025	24/09/2025	Yes
Nitrogen - Total N Water	1-9	19/09/2025	26/09/2025	27/09/2025	Yes
Phosphate as P Water	1-6, 8-9	19/09/2025	23/09/2025	24/09/2025	No
	7	19/09/2025	23/09/2025	25/09/2025	No
TKN as N calc Water	1-9	19/09/2025	30/09/2025	30/09/2025	Yes
PFAS - TR ISTD (Short) Water	1-10	19/09/2025	26/09/2025	26/09/2025	Yes
PFAS-Short TR Water	1-10	19/09/2025	26/09/2025	26/09/2025	Yes

Your Reference:

236293.02 - Picton

Revision: R-01

Certificate of Analysis Generated: 07/10/2025 10:49

Data Quality Assessment Summary PGI1509

Outliers: Matrix Spike

INORG-057 | Inorganics - Nutrients (Water) | Batch BGI4183

Sample ID	Analyte	% Limits	% Recovery
BGI4183-MS1#	Ammonia as N	70 - 130	##[2]

METALS-020 | Inorganics - Ionic Balance and Indexes (Water) | Batch BGI4237

Sample ID	Analyte	% Limits	% Recovery
BGI4237-MS1#	Sodium	70 - 130	##[1]

Outliers: Surrogate / Extracted Internal Standards

ORG-029 | PFAS Short List - Trace Level (Matrix) | Batch BGI4809

Sample ID	Analyte	% Limits	% Recovery
PGI1509-01	Extraction Internal Standard 13C2 8:2FTS	50 - 150	## [3]
	Extraction Internal Standard 13C4 PFOS	50 - 150	48.0 [3]
	Extraction Internal Standard 13C2 6:2FTS	50 - 150	175 [3]
PGI1509-02	Extraction Internal Standard 13C2 6:2FTS	50 - 150	174 [3]
	Extraction Internal Standard 13C2 8:2FTS	50 - 150	## [3]
PGI1509-03	Extraction Internal Standard 13C2 6:2FTS	50 - 150	184 [3]
	Extraction Internal Standard 13C2 8:2FTS	50 - 150	## [3]
PGI1509-04	Extraction Internal Standard 13C2 8:2FTS	50 - 150	## [3]
	Extraction Internal Standard 13C2 6:2FTS	50 - 150	193 [3]
PGI1509-05	Extraction Internal Standard 13C2 8:2FTS	50 - 150	199 [3]
PGI1509-06	Extraction Internal Standard 13C2 8:2FTS	50 - 150	## [3]
	Extraction Internal Standard 13C4 PFOS	50 - 150	36.0 [3]
PGI1509-07	Extraction Internal Standard 13C2 6:2FTS	50 - 150	157 [3]
	Extraction Internal Standard 13C2 8:2FTS	50 - 150	## [3]
PGI1509-08	Extraction Internal Standard 13C2 8:2FTS	50 - 150	184 [3]
PGI1509-09	Extraction Internal Standard 13C2 8:2FTS	50 - 150	185 [3]
PGI1509-10	Extraction Internal Standard 13C2 8:2FTS	50 - 150	## [3]
	Extraction Internal Standard 13C2 6:2FTS	50 - 150	170 [3]

Data Quality Assessment Summary PGI1509

Outliers: QC Frequency

ORG-023 | Volatile Organic Compounds - Fumigants (Water) | Batch BGI4346

Analysis	QC Type	Expected	Reported
Fumigants	Duplicate	2	0
	Matrix Spike	1	0
Halogenated Aliphatics	Duplicate	2	0
	Matrix Spike	1	0
Halogenated Aromatics	Duplicate	2	0
	Matrix Spike	1	0
Other VOC	Duplicate	2	0
	Matrix Spike	1	0

ORG-023_F1_TOT | Volatile Organic Compounds - MAH (Water) | Batch BGI4346

Analysis	QC Type	Expected	Reported
VOC - MAH	Duplicate	2	0
	Matrix Spike	1	0
vTRH&MBTEXN	Duplicate	2	0
	Matrix Spike	1	0

ORG-029 | PFAS Short List - Trace Level (Water) | Batch BGI4809

Analysis	QC Type	Expected	Reported
PFAS - TR ISTD (Short)	Duplicate	2	0
	Matrix Spike	1	0
PFAS-Short TR	Duplicate	2	0
	Matrix Spike	1	0

Quality Control PGI1509

ORG-023 | Volatile Organic Compounds - Fumigants (Water) | Batch BGI4346

Analyte	Units	PQL	Blank	LCS %
2,2-Dichloropropane	µg/L	1.0	<1.0	[NA]
1,2-Dichloropropane	µg/L	1.0	<1.0	87.1
cis-1,3-Dichloropropene	µg/L	1.0	<1.0	87.3
trans-1,3-Dichloropropene	µg/L	1.0	<1.0	87.2
1,2-Dibromoethane	µg/L	1.0	<1.0	89.2

ORG-023_F1_TOT | Volatile Organic Compounds - MAH (Water) | Batch BGI4346

Analyte	Units	PQL	Blank	LCS %
Benzene	µg/L	1.0	<1.0	93.2
Toluene	µg/L	1.0	<1.0	96.5
Ethylbenzene	µg/L	1.0	<1.0	92.9
meta+para Xylene	µg/L	2.0	<2.0	92.1
Styrene	µg/L	1.0	<1.0	[NA]
ortho-Xylene	µg/L	1.0	<1.0	93.0
Isopropylbenzene	µg/L	1.0	<1.0	[NA]
n-Propylbenzene	µg/L	1.0	<1.0	[NA]
1,3,5-Trimethylbenzene	µg/L	1.0	<1.0	[NA]
tert-Butylbenzene	µg/L	1.0	<1.0	[NA]
1,2,4-Trimethylbenzene	µg/L	1.0	<1.0	[NA]
sec-Butylbenzene	µg/L	1.0	<1.0	[NA]
4-Isopropyltoluene	µg/L	1.0	<1.0	[NA]
n-Butyl benzene	µg/L	1.0	<1.0	[NA]

ORG-023 | Volatile Organic Compounds - Halogenated Aliphatics (Water) | Batch BGI4346

Analyte	Units	PQL	Blank	LCS %
Dichlorodifluoromethane (Freon-12)	µg/L	10	<10	[NA]
Chloromethane	µg/L	10	<10	[NA]
Vinyl chloride	µg/L	10	<10	[NA]
Bromomethane	µg/L	10	<10	[NA]
Chloroethane	µg/L	10	<10	[NA]
Trichlorofluoromethane (Freon-11)	µg/L	10	<10	[NA]
1,1-Dichloroethene	µg/L	1.0	<1.0	[NA]
trans-1,2-Dichloroethene	µg/L	1.0	<1.0	[NA]
1,1-Dichloroethane	µg/L	1.0	<1.0	87.4
cis-1,2-Dichloroethene	µg/L	1.0	<1.0	[NA]
Bromochloromethane	µg/L	1.0	<1.0	[NA]
Chloroform	µg/L	1.0	<1.0	86.1
1,1,1-Trichloroethane	µg/L	1.0	<1.0	86.2
1,1-Dichloropropene	µg/L	1.0	<1.0	[NA]
Carbon Tetrachloride	µg/L	1.0	<1.0	[NA]
1,2-Dichloroethane	µg/L	1.0	<1.0	83.0
Trichloroethene	µg/L	1.0	<1.0	94.2
Dibromomethane	µg/L	1.0	<1.0	[NA]
Bromodichloromethane	µg/L	1.0	<1.0	87.2
1,1,2-Trichloroethane	µg/L	1.0	<1.0	[NA]
1,3-Dichloropropane	µg/L	1.0	<1.0	[NA]
Tetrachloroethene	µg/L	1.0	<1.0	104
Dibromochloromethane	µg/L	1.0	<1.0	91.8
1,1,1,2-Tetrachloroethane	µg/L	1.0	<1.0	[NA]
Bromoform	µg/L	1.0	<1.0	106
1,1,2,2-Tetrachloroethane	µg/L	1.0	<1.0	[NA]
1,2,3-Trichloropropane	µg/L	1.0	<1.0	[NA]

Quality Control PGI1509

ORG-023 | Volatile Organic Compounds - Halogenated Aliphatics (Water) | Batch BGI4346

Analyte	Units	PQL	Blank	LCS %
1,2-Dibromo-3-chloropropane	µg/L	1.0	<1.0	[NA]
Hexachlorobutadiene	µg/L	1.0	<1.0	[NA]

ORG-023 | Volatile Organic Compounds - Halogenated Aromatics (Water) | Batch BGI4346

Analyte	Units	PQL	Blank	LCS %
Chlorobenzene	µg/L	1.0	<1.0	[NA]
Bromobenzene	µg/L	1.0	<1.0	[NA]
2-Chlorotoluene	µg/L	1.0	<1.0	[NA]
4-Chlorotoluene	µg/L	1.0	<1.0	[NA]
1,3-Dichlorobenzene	µg/L	1.0	<1.0	[NA]
1,4-Dichlorobenzene	µg/L	1.0	<1.0	94.4
1,2-Dichlorobenzene	µg/L	1.0	<1.0	[NA]
1,2,4-Trichlorobenzene	µg/L	1.0	<1.0	102
1,2,3-Trichlorobenzene	µg/L	1.0	<1.0	[NA]

ORG-023 | Volatile Organic Compounds - Other VOCs (Water) | Batch BGI4346

Analyte	Units	PQL	Blank	LCS %
Cyclohexane	µg/L	1.0	<1.0	84.4

ORG-023 | Volatile Organic Compounds - Surrogates (Water) | Batch BGI4346

Analyte	Units	PQL	Blank	LCS %
Surrogate Dibromofluoromethane	%		98.5	96.0
Surrogate Toluene-D8	%		102	96.3
Surrogate 4-Bromofluorobenzene	%		90.1	92.2

Analyte	Units	PQL	Blank	LCS %
Surrogate Dibromofluoromethane	%			93.8
Surrogate Toluene-D8	%			95.2
Surrogate 4-Bromofluorobenzene	%			92.3

ORG-023_F1_TOT | Volatile TRH and BTEX (Water) | Batch BGI4346

Analyte	Units	PQL	Blank	LCS %
TRH C6-C9	µg/L	10	<10	87.5
TRH C6-C10	µg/L	10	<10	94.0
Methyl tert butyl ether (MTBE)	µg/L	1.0	<1.0	[NA]
Benzene	µg/L	1.0	<1.0	99.1
Toluene	µg/L	1.0	<1.0	102
Ethylbenzene	µg/L	1.0	<1.0	94.5
meta+para Xylene	µg/L	2.0	<2.0	91.0
ortho-Xylene	µg/L	1.0	<1.0	92.4
Naphthalene (value used in F2 calc)	µg/L	1.0	<1.0	[NA]
Surrogate Dibromofluoromethane	%		98.5	96.0
Surrogate Toluene-D8	%		102	96.3
Surrogate 4-Bromofluorobenzene	%		90.1	92.2

Quality Control PGI1509

ORG-020 | Semi-volatile TRH (Water) | Batch BGI4265

Analyte	Units	PQL	Blank	DUP1 PGI1509-01 Samp QC RPD %	DUP2 PGI1509-02 Samp QC RPD %	LCS %	Spike % PGI1509-03
TRH C10-C14	µg/L	50	<50	<50 <50 [NA]	<50 <50 [NA]	110	93.1
TRH C15-C28	µg/L	100	<100	141 112 [NA]	<100 <100 [NA]	112	98.5
TRH C29-C36	µg/L	100	<100	<100 <100 [NA] [6]	<100 <100 [NA] [6]	121	113
TRH >C10-C16	µg/L	50	<50	58.3 <50 [NA]	<50 <50 [NA]	118	102
TRH >C16-C34 (F3)	µg/L	100	<100	135 105 [NA]	<100 <100 [NA]	112	98.5
TRH >C34-C40 (F4)	µg/L	100	<100	<100 <100 [NA]	<100 <100 [NA] [6]	108	103
Surrogate o-Terphenyl	%		95.2	100 / 96.1	78.8 / 90.3	99.7	86.7

ORG-020_SILICA_GEL | Semi-volatile TRH with Silica Gel Cleanup (Water) | Batch BGJ0543

Analyte	Units	PQL	Blank	DUP1 BGJ0543-DUP1# Samp QC RPD %	LCS %
TRH (Silica) C10-C14	µg/L	50	<50	<50 <50 [NA]	106
TRH (Silica) C15-C28	µg/L	100	<100	<100 <100 [NA]	109
TRH (Silica) C29-C36	µg/L	100	<100	<100 <100 [NA]	111
TRH (Silica) >C10-C16	µg/L	50	<50	<50 <50 [NA]	110
TRH (Silica) >C16-C34	µg/L	100	<100	<100 <100 [NA]	108
TRH (Silica) >C34-C40	µg/L	100	<100	<100 <100 [NA]	120
Surrogate o-Terphenyl	%		88.2	56.9 / 63.7	98.9

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

ORG-022_PAH | Polycyclic Aromatic Hydrocarbons (Water) | Batch BGI4265

Analyte	Units	PQL	Blank	DUP1 PGI1509-01 Samp QC RPD %	DUP2 PGI1509-02 Samp QC RPD %	LCS %	Spike % PGI1509-04
Naphthalene	µg/L	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	94.4	95.8
Acenaphthylene	µg/L	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	[NA]	[NA]
Acenaphthene	µg/L	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	94.5	96.0
Fluorene	µg/L	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	97.3	100
Phenanthrene	µg/L	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	99.5	101
Anthracene	µg/L	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	[NA]	[NA]
Fluoranthene	µg/L	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	93.0	94.2
Pyrene	µg/L	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	93.6	95.6
Benzo(a)anthracene	µg/L	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	[NA]	[NA]
Chrysene	µg/L	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	93.8	97.8
Benzo(b,j,k)fluoranthene	µg/L	0.20	<0.20	<0.20 <0.20 [NA]	<0.20 <0.20 [NA]	[NA]	[NA]
Benzo(a)pyrene	µg/L	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	86.8	83.7
Indeno(1,2,3-c,d)pyrene	µg/L	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	[NA]	[NA]
Dibenzo(a,h)anthracene	µg/L	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	[NA]	[NA]
Benzo(g,h,i)perylene	µg/L	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	[NA]	[NA]
Surrogate p-Terphenyl-D14	%		92.9	101 / 89.5	74.5 / 80.2	80.8	82.0

ORG-026_SVOC_VOC_GCMSMS | Alcohols (Water) | Batch BGI4136

Analyte	Units	PQL	Blank	DUP1 PGI1509-01 Samp QC RPD %	LCS %	Spike % PGI1509-02
Methanol	µg/L	200	<200	<200 <200 [NA]	126	95.0
Ethanol	µg/L	50	<50	<50 <50 [NA]	104	95.0
Isopropyl Alcohol	µg/L	50	<50	<50 <50 [NA]	75.9	108
Propyl Alcohol	µg/L	50	<50	<50 <50 [NA]	87.9	102
Isobutyl Alcohol	µg/L	50	<50	<50 <50 [NA]	97.1	97.5
Butanol	µg/L	50	<50	<50 <50 [NA]	114	94.9
Surrogate 1-Octanol	%		93.6	104 / 106	107	107

Quality Control PGI1509

METALS-020 | Acid Extractable Metals (Water) | Batch BGI4250

Analyte	Units	PQL	Blank	DUP1 BGI4250-DUP1# Samp QC RPD %	DUP2 BGI4250-DUP2# Samp QC RPD %	LCS %	Spike % BGI4250-MS1#
Phosphorus	mg/L	0.050	<0.050	0.638 0.629 1.39	<0.050 <0.050 [NA]	103	100

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-020 | Acid Extractable Metals (Water) | Batch BGI4251

Analyte	Units	PQL	Blank	DUP1 PGI1509-07 Samp QC RPD %	DUP2 BGI4251-DUP2# Samp QC RPD %	LCS %	Spike % PGI1509-05
Phosphorus	mg/L	0.050	<0.050	0.133 0.130 [NA]	<0.050 <0.050 [NA]	102	96.9

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-022 | Dissolved Low Level Metals (Water) | Batch BGI4234

Analyte	Units	PQL	Blank	DUP1 BGI4234-DUP1# Samp QC RPD %	DUP2 PGI1509-01 Samp QC RPD %	LCS %	Spike % BGI4234-MS1#
Arsenic	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	<1.0 <1.0 [NA]	101	102
Cadmium	µg/L	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	103	102
Chromium	µg/L	1.0	<1.0	4.73 4.69 [NA]	1.51 1.53 [NA]	101	99.8
Copper	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	<1.0 <1.0 [NA]	99.2	97.3
Lead	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	<1.0 <1.0 [NA]	94.4	90.0
Nickel	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	1.84 1.81 [NA]	100	96.4
Zinc	µg/L	1.0	<1.0	2.13 2.05 [NA]	1.06 1.90 [NA] [7]	106	99.0

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-021 | Dissolved Low Level Metals (Water) | Batch BGI4256

Analyte	Units	PQL	Blank	DUP1 BGI4256-DUP1# Samp QC RPD %	DUP2 BGI4256-DUP2# Samp QC RPD %	LCS %	Spike % BGI4256-MS1#
Mercury	µg/L	0.050	<0.050	<0.050 <0.050 [NA]	<0.050 <0.050 [NA]	105	103

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-021 | Dissolved Low Level Metals (Water) | Batch BGI4257

Analyte	Units	PQL	Blank	DUP1 PGI1509-10 Samp QC RPD %	DUP2 BGI4257-DUP2# Samp QC RPD %	LCS %	Spike % BGI4257-MS1#
Mercury	µg/L	0.050	<0.050	<0.050 <0.050 [NA]	<0.050 <0.050 [NA]	105	104

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-022 | Dissolved Low Level Metals (Water) | Batch BGI4454

Analyte	Units	PQL	Blank	DUP1 PGI1509-10 Samp QC RPD %	DUP2 BGI4454-DUP2# Samp QC RPD %	LCS %	Spike % BGI4454-MS1#
Arsenic	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	<1.0 <1.0 [NA]	100	104
Cadmium	µg/L	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	99.8	103
Chromium	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	<1.0 <1.0 [NA]	99.1	103
Copper	µg/L	1.0	<1.0	3.07 3.02 [NA]	<1.0 <1.0 [NA]	97.0	98.5
Lead	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	<1.0 <1.0 [NA]	97.2	96.9
Nickel	µg/L	1.0	<1.0	1.98 2.00 [NA]	<1.0 <1.0 [NA]	97.9	99.5
Zinc	µg/L	1.0	<1.0	6.16 6.20 0.696	<1.0 <1.0 [NA]	97.2	91.2

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control PGI1509

INORG-081 | Inorganics - Ionic Balance and Indexes (Water) | Batch BGI3966

Analyte	Units	PQL	Blank	DUP1 PGI1509-01 Samp QC RPD %	DUP2 BGI3966-DUP2# Samp QC RPD %	LCS %	Spike % PGI1509-02
Chloride	mg/L	1.0	<1.0	17.6 17.5 0.624	875 866 0.977	92.8	107
Sulfate	mg/L	1.0	<1.0	32.5 32.4 0.268	1370 1370 0.526	94.2	112

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-006 | Inorganics - Ionic Balance and Indexes (Water) | Batch BGI3990

Analyte	Units	PQL	Blank	DUP1 BGI3990-DUP1# Samp QC RPD %	DUP2 PGI1509-09 Samp QC RPD %	LCS %
Bicarbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	560 557 0.483	105 113 7.17	[NA]
Carbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0 <5.0 [NA]	<5.0 <5.0 [NA]	[NA]
Hydroxide OH- as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0 <5.0 [NA]	<5.0 <5.0 [NA]	[NA]
Total Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	560 557 0.483	105 113 7.17	107

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-020 | Inorganics - Ionic Balance and Indexes (Water) | Batch BGI4237

Analyte	Units	PQL	Blank	DUP1 BGI4237-DUP1# Samp QC RPD %	DUP2 PGI1509-01 Samp QC RPD %	LCS %	Spike % BGI4237-MS1#
Calcium	mg/L	0.50	<0.50	15.2 15.4 0.954	20.6 20.3 1.13	97.8	93.4
Magnesium	mg/L	0.50	<0.50	24.8 25.1 1.38	4.52 4.52 0.0841	114	75.1
Potassium	mg/L	0.50	<0.50	17.3 17.3 0.318	28.9 28.8 0.156	117	82.1
Sodium	mg/L	0.50	<0.50	252 253 0.293	14.7 14.5 1.56	106	##[1]
Hardness (calc) equivalent CaCO3	mg/L	3.0	<3.0	140 142 1.26	69.9 69.4 0.802	[NA]	[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-057 | Inorganics - Nutrients (Water) | Batch BGI4183

Analyte	Units	PQL	Blank	DUP1 BGI4183-DUP1# Samp QC RPD %	DUP2 BGI4183-DUP2# Samp QC RPD %	LCS %	Spike % BGI4183-MS1#
Ammonia as N	mg/L	0.0050	<0.0050	0.0684 0.0655 4.23	0.330 0.341 3.20	95.7	##[2]
Nitrate as N	mg/L	0.0050	<0.0050	0.159 0.159 0.264	0.0365 0.0359 1.49	103	128
Nitrate as NO3 by calculation	mg/L	0.020	<0.020			[NA]	[NA]
Nitrite as N	mg/L	0.0050	<0.0050	0.0216 0.0213 [NA]	0.00950 0.0126 [NA] [7]	[NA]	[NA]
Nitrite as NO2 by calculation	mg/L	0.020	<0.020			[NA]	[NA]
NOx as N	mg/L	0.0050	<0.0050	0.180 0.180 0.0554	0.0460 0.0486 5.48	103	124
Phosphate as P	mg/L	0.0050	<0.0050	<0.0050 <0.0050 [NA]	0.00790 0.00704 [NA]	118	85.8

Analyte	Units	PQL	Blank	LCS %	Spike % BGI4183-MS2#
Nitrite as N	mg/L	0.005		105	85.0

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-127 | Inorganics - Nutrients (Water) | Batch BGI4813

Analyte	Units	PQL	Blank	DUP1 PGI1509-01 Samp QC RPD %	DUP2 BGI4813-DUP2# Samp QC RPD %	LCS %	Spike % PGI1509-02
Total Nitrogen	mg/L	0.10	<0.10	1.30 1.25 3.99	18.7 18.5 1.09	102	82.3

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control PGI1509

ORG-029 | PFAS Short List - Trace Level (Water) | Batch BGI4809

Analyte	Units	PQL	Blank	LCS %
Perfluorobutanesulfonic acid (PFBS)	µg/L	0.00040	<0.00040	104
Perfluorohexanesulfonic acid (PFHxS)	µg/L	0.00020	<0.00020	92.5
Perfluorooctanesulfonic acid (PFOS)	µg/L	0.00020	<0.00020	93.8
Perfluorooctanoic acid (PFOA)	µg/L	0.00020	<0.00020	92.6
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/L	0.00040	<0.00040	106
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.00040	<0.00040	92.9
Surrogate 13C8 PFOS	%		95.4	95.1
Surrogate 13C2 PFOA	%		107	114
Extraction Internal Standard 13C3 PFBS	%		84.0	[NA]
Extraction Internal Standard 18O2 PFHxS	%		105	[NA]
Extraction Internal Standard 13C4 PFOS	%		98.0	[NA]
Extraction Internal Standard 13C4 PFOA	%		102	[NA]
Extraction Internal Standard 13C2 6:2FTS	%		134	[NA]
Extraction Internal Standard 13C2 8:2FTS	%		124	[NA]

QC Comments

Identifier	Description
[1]	Spike recovery is not applicable due to the relatively high analyte background in the sample (>3* spike level). However, the LCS recovery is within acceptance criteria.
[2]	Spike recovery is outside routine acceptance criteria (70-130%), this may be due to suspected non-homogeneity and/or matrix interference effects. However, an acceptable recovery was achieved for the LCS.
[6]	The result(s) is/are an estimated value(s) as the analyte(s) was/were detected at a level above the linear calibration range(s).
[7]	Duplicate %RPD may be flagged as an outlier to routine laboratory acceptance, however, where one or both results are <10*PQL, the RPD acceptance criteria increases exponentially.

CHAIN OF CUSTODY DESPATCH SHEET

Project No: 236293.02	Suburb: Picton	To: MPL
Project Manager: RS	Order Number: PE252236	Sampler: MA
Email: rob.shapland@douglaspartners.com.au		Attn: Saample Receipt
Turnaround time: ☒ Standard ☐ 72 hour ☐ 48 hour ☐ 24 hour ☐ Same day		Lab email:

Prior Storage: ☐ Fridge ☐ Freezer ☒ Esky ☐ Shelf

Lab ID	Sample ID			Date Sampled	Sample Type	Container Type	Analytes										Notes/ Preservation/ Additional Requirements
	Location / Other ID	Depth From	Depth To		S - soil W - water M - Material	G - glass P - plastic	Combo 3	VOC	Nutrient Suite	methanol	** PFAS (short suite)	Anions and Cations	V-TRH				
1	MW01			19/9/25	W	G/P	X	X	X	X	X	X					**PFAS - trace
2	MW02			19/9/25	W	G/P	X	X	X	X	X	X					
3	MW03			19/9/25	W	G/P	X	X	X	X	X	X					
4	MW04			19/9/25	W	G/P	X	X	X	X	X	X					
5	MW05			19/9/25	W	G/P	X	X	X	X	X	X					
6	MW06			19/9/25	W	G/P	X	X	X	X	X	X					
7	SW01			19/9/25	W	G/P	X	X	X	X	X	X					
8	SW02			19/9/25	W	G/P	X	X	X	X	X	X					
9	SW03			19/9/25	W	G/P	X	X	X	X	X	X					
10	Dup1			19/9/25	W	G/P	X				X						
11	Dup2			19/9/25	W	G/P	X				X						Dup 2 Send to ARL/Eurofins
12	TB1			19/9/25	W	G/P						*	*				
13	TS1			19/9/25	W	G/P						*	*				




Job No. - PGI1509
 Date Rec - 19 SEP 2025
 Time Rec - 1755
 Rec By - SN
 TAT Reg - SAME 1/2/3 (STD)
 Temp Rec - ambient 20
 Cooling - Ice Ice pack / None
 Security Seal - Yes (No)

Metals to analyse: As, Cd, Cr, Cu, Ni, Hg, Pb, Zn		LAB RECEIPT	
Number of samples in container:	Transported to laboratory by:	Lab Ref. No:	
Send results to: Douglas Partners Pty Ltd	Phone:	Received by: Sally	
Address:	Date:	Date & Time: 19 SEP 2025	
Relinquished by:	Signed:	Signed:	

Sally Harbrow

To: Rob Shapland
Cc: Sample Receipt WA
Subject: RE: Douglas Partners samples received

From: Rob Shapland <rob.shapland@douglaspartners.com.au>
Sent: Monday, 22 September 2025 11:10 AM
To: Sally Harbrow <SHarbrow@mpl.com.au>
Cc: Sample Receipt WA <SampleReceiptWA@mpl.com.au>
Subject: RE: Douglas Partners samples received

CAUTION: This email originated from outside of the organisation. Do not act on instructions, click links or open attachments unless you recognise the sender and know the content is authentic and safe.

Hi Sally,

v-TRH please – wrong box ticked

Rob Shapland | Environmental Chemist / Senior Associate

☎ 08 9204 3511 📞 +61 412 448 485 📧 Rob.Shapland@douglaspartners.com.au

🌐 www.douglaspartners.com.au 📍 36 O'Malley Street, Osborne Park,
WA 6017 | Whadjuk Country



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From: Sally Harbrow <SHarbrow@mpl.com.au>
Sent: Monday, September 22, 2025 10:52 AM
To: Rob Shapland <rob.shapland@douglaspartners.com.au>
Cc: Sample Receipt WA <SampleReceiptWA@mpl.com.au>
Subject: Douglas Partners samples received

Good morning Rob,

Could you please confirm what analysis is required for samples TB1 and TS1? Both have been ticked for anions and cations however we have received vTRH vials for both of these samples.

Thank you!

Kind Regards,

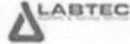
Sally Harbrow | Client Services Officer | MPL Laboratories

Great Science. Great Service.

7-11 Catalano Road Canning Vale WA 6155
T 08 9317 2505
E SHarbrow@mpl.com.au | W www.mpl.com.au



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 Please consider the environment before printing this email.

Samples will be analysed per our T&C's.

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PGI1509 additional analysis

Genevieve Massam

From: Rob Shapland <Rob.Shapland@douglaspartners.com.au>
Sent: Wednesday, 1 October 2025 3:50 PM
To: Genevieve Massam
Cc: Sample Receipt WA; Mubashar Ahmed
Subject: Additional Analysis + Chromatograms (Work order PGI1509)
Attachments: PE252260.pdf; PGI1509_COC_01.PDF

Follow Up Flag: Follow up
Flag Status: Flagged

CAUTION: This email originated from outside of the organisation. Do not act on instructions, click links or open attachments unless you recognise the sender and know the content is authentic and safe.

Hi Gen,

Please find attached a PO to conduct silica gel clean up on the following samples held under work order PGI1509:

- MW01 #1
- MW06 #6
- SW03 #9

Can you also forward chromatograms for the above samples.

Kind regards,

Rob Shapland | Environmental Chemist / Senior Associate

☎ 08 9204 3511 📞 +61 412 448 485 📧 Rob.Shapland@douglaspartners.com.au

🌐 www.douglaspartners.com.au 📍 36 O'Malley Street, Osborne Park,
WA 6017 | Whadjuk Country



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GROUND
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Douglas Partners Pty Ltd
ABN 75 053 980 117
www.douglaspartners.com.au

PURCHASE ORDER

Date

01-Oct-25

PO No.

PE252260

Vendor/ Subcontractor:

MPL

Contact Name: Gen

Deliver To:

Douglas Partners Pty Ltd

Requisitioner:

This order covers the supply of goods, materials or services shown here, subject to the terms and conditions of the purchase order.

PO number or **Project number** and **Requisitioner** should always be quoted in your invoice.

To ensure prompt payment, please attach this PO to your invoice and **email** it directly to

accounts.payable.invoices@douglaspartners.com.au in PDF format.

Item	Description	Quantity	Unit Price	Total	Project No. & G/L Code
	Silica gel Cleanup	3			512
					236293.02

Comments or Special Instructions

SUBTOTAL

GST/TAX

SHIPPING/
OTHER

TOTAL

Brisbane (07) 32737 8900 · Cairns (07) 4055 1550 · Canberra (02) 6260 2788 · Central Coast (02) 4351 1422 · Coffs Harbour (02) 6650 3200 · Darwin (08) 8948 6800 · Geelong (03) 5221 0711 · Gold Coast (07) 5568 8900 · Macarthur (02) 4647 0075 · Melbourne (03) 9683 3500 · Newcastle (02) 4960 9600 · North-West Sydney (02) 4666 0450 · Perth (08) 9204 3511 · Port Macquarie (02) 6581 5992 · Sunshine Coast (07) 5351 0400 · Sydney (02) 9809 0666 · Townsville (07) 4779 9866 · Wollongong (02) 4271 1836

Registered Address: 96 Hermitage Road, West Ryde NSW 2114 · PO Box 472, West Ryde NSW 1685

Sample Receipt Advice PGJ1608

Client Details

Client	Douglas Partners Pty Ltd (Perth)
Attention	Rob Shapland

Sample Login Details

Your Reference	236293.02 - Picton
Envirolab Reference	PGJ1608
Date Sample Received	23/10/2025
Date Instructions Received	23/10/2025
Date Final Results Expected	05/11/2025

Sample Condition

Samples received in appropriate condition for analysis	See Comments
Number of Samples	5 Water
Turnaround Time	8 Days
Temperatures / Cooling Methods	4.0°C On Ice

Additional Info

Sample storage - waters are routinely disposed at approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Where no sampling date has been supplied for some or all samples, the date of sample receipt has been used as the associated sampling date. The sampling dates are used to assess compliance to recommended Technical Holding Times.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable

Samples will be analysed per our T&C's.

Please direct any queries to:

Heram Halim

Phone 08 9317 2505
Email hhalim@mpl.com.au

Meredith Conroy

Phone 08 9317 2505
Email mconroy@mpl.com.au

Analysis underway, details on the following page

Sample Receipt Advice PGJ1608

Analysis Grid

The • indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

	Combination 3 (D)	Ion Balance	Nutrient Suite	PFAS - Short (TR)	VOC Suite	vTRH&MBTEXN	BTEX TS	Alcohols
PGJ1608-01 Water 23/10/2025 MW07	•	•	•	•	•			•
PGJ1608-02 Water 23/10/2025 MW08	•	•	•	•	•			•
PGJ1608-03 Water 23/10/2025 Dup1	•			•				
PGJ1608-04 Water 23/10/2025 TB1						•		
PGJ1608-05 Water 23/10/2025 TS1							•	

Suite Details

Suite Name	Suite Analyses
Combination 3 (D) Water	vTRH&MBTEXN, sTRH, PAH, As - Dissolved (LL), Cd - Dissolved (LL), Cr - Dissolved (LL), Cu - Dissolved (LL), Hg - Dissolved, Ni - Dissolved (LL), Pb - Dissolved (LL), Zn - Dissolved (LL)
Ion Balance Water	Alkalinity Suite, Cations - Dissolved, Chloride, Ion Balance, Sulfate
Nutrient Suite Water	P - Total, Nitrogen - Ammonia, Nitrogen - Nitrate, Nitrogen - Nitrite, Nitrogen - NOx, Nitrogen - Total N, Organic Nitrogen, Phosphate as P, TKN as N calc
PFAS - Short (TR) Water	PFAS - TR ISTD (Short), PFAS-Short TR
VOC Suite Water	Fumigants, VOC - MAH, Halogenated Aliphatics, Halogenated Aromatics, Other VOC, VOC - Surrogates

Work Amendment Advice PGJ1608

Client Details

Client	Douglas Partners Pty Ltd (Perth)
Attention	Rob Shapland

Sample Login Details

Your Reference	236293.02 - Picton
Envirolab Reference	PGJ1608
Date Sample Received	23/10/2025
Date Instructions Received	04/11/2025
Date Final Results Expected	05/11/2025

Sample Condition

Samples received in appropriate condition for analysis	See Comments
Number of Samples	5 Water
Turnaround Time	1 Day
Temperatures / Cooling Methods	4.0°C On Ice

Additional Info

Sample storage - waters are routinely disposed at approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Where no sampling date has been supplied for some or all samples, the date of sample receipt has been used as the associated sampling date. The sampling dates are used to assess compliance to recommended Technical Holding Times.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable

Samples will be analysed per our T&C's.

Please direct any queries to:

Heram Halim

Meredith Conroy

Phone 08 9317 2505
Email hhalim@mpl.com.au

Phone 08 9317 2505
Email mconroy@mpl.com.au

Analysis underway, details on the following page

Work Amendment Advice PGJ1608

Analysis Grid

The • indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

	Combination 3 (D)	Ion Balance	Nutrient Suite	PFAS - Short (TR)	VOC Suite	vTRH&MBTEXN	BTEX TS	sTRH Silica Gel Cleanup step	Alcohols
PGJ1608-01 Water 23/10/2025 MW07	•	•	•	•	•			•	•
PGJ1608-02 Water 23/10/2025 MW08	•	•	•	•	•				•
PGJ1608-03 Water 23/10/2025 Dup1	•			•					
PGJ1608-04 Water 23/10/2025 TB1						•			
PGJ1608-05 Water 23/10/2025 TS1							•		

Suite Details

Suite Name	Suite Analyses
Combination 3 (D) Water	vTRH&MBTEXN, sTRH, PAH, As - Dissolved (LL), Cd - Dissolved (LL), Cr - Dissolved (LL), Cu - Dissolved (LL), Hg - Dissolved, Ni - Dissolved (LL), Pb - Dissolved (LL), Zn - Dissolved (LL)
Ion Balance Water	Alkalinity Suite, Cations - Dissolved, Chloride, Ion Balance, Sulfate
Nutrient Suite Water	P - Total, Nitrogen - Ammonia, Nitrogen - Nitrate, Nitrogen - Nitrite, Nitrogen - NOx, Nitrogen - Total N, Organic Nitrogen, Phosphate as P, TKN as N calc
PFAS - Short (TR) Water	PFAS - TR ISTD (Short), PFAS-Short TR
VOC Suite Water	Fumigants, VOC - MAH, Halogenated Aliphatics, Halogenated Aromatics, Other VOC, VOC - Surrogates

Work Order Amendment History

Revision	Reason for Amendment
R-01	Additional analysis requested 4.11.25

Certificate of Analysis PGJ1608

Client Details

Client	Douglas Partners Pty Ltd (Perth)
Contact	Rob Shapland
Address	36 O'Malley St, OSBORNE PARK, WA, 6017

Sample Details

Your Reference	236293.02 - Picton
Number of Samples	5 Water
Date Samples Received	23/10/2025
Date Instructions Received	04/11/2025

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for soils and on an as received basis for other matrices.

Report Details

Date Final Results Expected	05/11/2025
Date of Reissue	05/11/2025 - This report supercedes previous report, see amendment history for details

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Authorisation Details

Results Approved By	Hien Luong, Chemist - FAS Lien Tang, Assistant Operations Manager Lucas Yij, Inorganics Team Leader Michael Mowle, Development Chemist - Inorganics and Metals Sean McAlary, Senior Chemist Travis Carey, Organics Supervisor Varsha Ho Wing, Inorganics and Metals Supervisor
Laboratory Manager	Michael Kubiak

Certificate of Analysis PGJ1608

Report Amendment History

Revision	Reason for Amendment
R-01	Additional analysis requested 4.11.25

Certificate of Analysis PGJ1608

Samples in this Report

Envirolab ID	Sample ID	Matrix	Date Sampled	Date Received
PGJ1608-01	MW07	Water	23/10/2025	04/11/2025
PGJ1608-02	MW08	Water	23/10/2025	04/11/2025
PGJ1608-03	Dup1	Water	23/10/2025	04/11/2025
PGJ1608-04	TB1	Water	23/10/2025	04/11/2025
PGJ1608-05	TS1	Water	23/10/2025	04/11/2025

Certificate of Analysis PGJ1608

Volatile Organic Compounds - Fumigants (Water)

Envirolab ID Your Reference Date Sampled	Units	PQL	PGJ1608-01 MW07 23/10/2025	PGJ1608-02 MW08 23/10/2025
2,2-Dichloropropane	µg/L	1.0	<5.0 [7]	<2.0 [7]
1,2-Dichloropropane	µg/L	1.0	<5.0 [7]	<2.0 [7]
cis-1,3-Dichloropropene	µg/L	1.0	<5.0 [7]	<2.0 [7]
trans-1,3-Dichloropropene	µg/L	1.0	<5.0 [7]	<2.0 [7]
1,2-Dibromoethane	µg/L	1.0	<5.0 [7]	<2.0 [7]

Certificate of Analysis PGJ1608

Volatile Organic Compounds - MAH (Water)

Envirolab ID Your Reference Date Sampled	Units	PQL	PGJ1608-01 MW07 23/10/2025	PGJ1608-02 MW08 23/10/2025
Benzene	µg/L	1.0	<5.0 [7]	<2.0 [7]
Toluene	µg/L	1.0	<5.0 [7]	<2.0 [7]
Ethylbenzene	µg/L	1.0	<5.0 [7]	<2.0 [7]
meta+para Xylene	µg/L	2.0	<10 [7]	<4.0 [7]
Styrene	µg/L	1.0	<5.0 [7]	<2.0 [7]
ortho-Xylene	µg/L	1.0	<5.0 [7]	<2.0 [7]
Isopropylbenzene	µg/L	1.0	<5.0 [7]	<2.0 [7]
n-Propylbenzene	µg/L	1.0	<5.0 [7]	<2.0 [7]
1,3,5-Trimethylbenzene	µg/L	1.0	<5.0 [7]	<2.0 [7]
tert-Butylbenzene	µg/L	1.0	<5.0 [7]	<2.0 [7]
1,2,4-Trimethylbenzene	µg/L	1.0	<5.0 [7]	<2.0 [7]
sec-Butylbenzene	µg/L	1.0	<5.0 [7]	<2.0 [7]
4-Isopropyltoluene	µg/L	1.0	<5.0 [7]	<2.0 [7]
n-Butyl benzene	µg/L	1.0	<5.0 [7]	<2.0 [7]

Certificate of Analysis PGJ1608

Volatile Organic Compounds - Halogenated Aliphatics (Water)

Envirolab ID Your Reference Date Sampled	Units	PQL	PGJ1608-01 MW07 23/10/2025	PGJ1608-02 MW08 23/10/2025
Dichlorodifluoromethane (Freon-12)	µg/L	10	<50 [7]	<20 [7]
Chloromethane	µg/L	10	<50 [7]	<20 [7]
Vinyl chloride	µg/L	10	<50 [7]	<20 [7]
Bromomethane	µg/L	10	<50 [7]	<20 [7]
Chloroethane	µg/L	10	<50 [7]	<20 [7]
Trichlorofluoromethane (Freon-11)	µg/L	10	<50 [7]	<20 [7]
1,1-Dichloroethene	µg/L	1.0	<5.0 [7]	<2.0 [7]
trans-1,2-Dichloroethene	µg/L	1.0	<5.0 [7]	<2.0 [7]
1,1-Dichloroethane	µg/L	1.0	<5.0 [7]	<2.0 [7]
cis-1,2-Dichloroethene	µg/L	1.0	<5.0 [7]	<2.0 [7]
Bromochloromethane	µg/L	1.0	<5.0 [7]	<2.0 [7]
Chloroform	µg/L	1.0	<5.0 [7]	<2.0 [7]
1,1,1-Trichloroethane	µg/L	1.0	<5.0 [7]	<2.0 [7]
1,1-Dichloropropene	µg/L	1.0	<5.0 [7]	<2.0 [7]
Carbon Tetrachloride	µg/L	1.0	<5.0 [7]	<2.0 [7]
1,2-Dichloroethane	µg/L	1.0	<5.0 [7]	<2.0 [7]
Trichloroethene	µg/L	1.0	<5.0 [7]	<2.0 [7]
Dibromomethane	µg/L	1.0	<5.0 [7]	<2.0 [7]
Bromodichloromethane	µg/L	1.0	<5.0 [7]	<2.0 [7]
1,1,2-Trichloroethane	µg/L	1.0	<5.0 [7]	<2.0 [7]
1,3-Dichloropropane	µg/L	1.0	<5.0 [7]	<2.0 [7]
Tetrachloroethene	µg/L	1.0	<5.0 [7]	<2.0 [7]
Dibromochloromethane	µg/L	1.0	<5.0 [7]	<2.0 [7]
1,1,1,2-Tetrachloroethane	µg/L	1.0	<5.0 [7]	<2.0 [7]
Bromoform	µg/L	1.0	<5.0 [7]	<2.0 [7]
1,1,2,2-Tetrachloroethane	µg/L	1.0	<5.0 [7]	<2.0 [7]
1,2,3-Trichloropropane	µg/L	1.0	<5.0 [7]	<2.0 [7]
1,2-Dibromo-3-chloropropane	µg/L	1.0	<5.0 [7]	<2.0 [7]
Hexachlorobutadiene	µg/L	1.0	<5.0 [7]	<2.0 [7]

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Volatile Organic Compounds - Halogenated Aromatics (Water)

Envirolab ID Your Reference Date Sampled	Units	PQL	PGJ1608-01 MW07 23/10/2025	PGJ1608-02 MW08 23/10/2025
Chlorobenzene	µg/L	1.0	<5.0 [7]	<2.0 [7]
Bromobenzene	µg/L	1.0	<5.0 [7]	<2.0 [7]
2-Chlorotoluene	µg/L	1.0	<5.0 [7]	<2.0 [7]
4-Chlorotoluene	µg/L	1.0	<5.0 [7]	<2.0 [7]
1,3-Dichlorobenzene	µg/L	1.0	<5.0 [7]	<2.0 [7]
1,4-Dichlorobenzene	µg/L	1.0	<5.0 [7]	<2.0 [7]
1,2-Dichlorobenzene	µg/L	1.0	<5.0 [7]	<2.0 [7]
1,2,4-Trichlorobenzene	µg/L	1.0	<5.0 [7]	<2.0 [7]
1,2,3-Trichlorobenzene	µg/L	1.0	<5.0 [7]	<2.0 [7]

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Volatile Organic Compounds - Other VOCs (Water)

Envirolab ID	Units	PQL	PGJ1608-01	PGJ1608-02
Your Reference			MW07	MW08
Date Sampled			23/10/2025	23/10/2025
Cyclohexane	µg/L	1.0	<5.0 [7]	<2.0 [7]

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Volatile Organic Compounds - Surrogates (Water)

Envirolab ID	Units	PQL	PGJ1608-01	PGJ1608-02
Your Reference			MW07	MW08
Date Sampled			23/10/2025	23/10/2025
Surrogate Dibromofluoromethane	%		107	107
Surrogate Toluene-D8	%		102	102
Surrogate 4-Bromofluorobenzene	%		100	101

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Volatile TRH and BTEX (Water)

Envirolab ID Your Reference Date Sampled	Units	PQL	PGJ1608-01 MW07 23/10/2025	PGJ1608-02 MW08 23/10/2025	PGJ1608-03 Dup1 23/10/2025	PGJ1608-04 TB1 23/10/2025
TRH C6-C9	µg/L	10	<50 [7]	<20 [7]	<20 [7]	<10
TRH C6-C10	µg/L	10	<50 [7]	<20 [7]	<20 [7]	<10
TRH C6-C10 less BTEX (F1)	µg/L	10	<50	<20	<20	<10
Methyl tert butyl ether (MTBE)	µg/L	1.0	<5.0 [7]	<2.0 [7]	<2.0 [7]	<1.0
Benzene	µg/L	1.0	<5.0 [7]	<2.0 [7]	<2.0 [7]	<1.0
Toluene	µg/L	1.0	<5.0 [7]	<2.0 [7]	<2.0 [7]	<1.0
Ethylbenzene	µg/L	1.0	<5.0 [7]	<2.0 [7]	<2.0 [7]	<1.0
meta+para Xylene	µg/L	2.0	<10 [7]	<4.0 [7]	<4.0 [7]	<2.0
ortho-Xylene	µg/L	1.0	<5.0 [7]	<2.0 [7]	<2.0 [7]	<1.0
Total +ve Xylenes	µg/L	1.0	<5.0	<2.0	<2.0	<1.0
Naphthalene (value used in F2 calc)	µg/L	1.0	<5.0 [7]	<2.0 [7]	<2.0 [7]	<1.0
Total +ve BTEX	µg/L	1.0	<5.0	<2.0	<2.0	<1.0
Surrogate Dibromofluoromethane	%		107	107	106	110
Surrogate Toluene-D8	%		102	102	102	100
Surrogate 4-Bromofluorobenzene	%		100	101	101	99.4

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BTEX Trip Spike (Water)

Envirolab ID	Units	PQL	PGJ1608-05
Your Reference			TS1
Date Sampled			23/10/2025
Benzene	%		87.6
Toluene	%		87.1
Ethylbenzene	%		84.8
meta+para Xylene	%		84.2
ortho-Xylene	%		85.5
<i>Surrogate Dibromofluoromethane</i>	%		<i>120</i>
<i>Surrogate Toluene-D8</i>	%		<i>114</i>
<i>Surrogate 4-Bromofluorobenzene</i>	%		<i>96.3</i>

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Semi-volatile TRH (Water)

Envirolab ID Your Reference Date Sampled	Units	PQL	PGJ1608-01 MW07 23/10/2025	PGJ1608-02 MW08 23/10/2025	PGJ1608-03 Dup1 23/10/2025
TRH C10-C14	µg/L	50	470	<50	<50
TRH C15-C28	µg/L	100	5300	<100	<100
TRH C29-C36	µg/L	100	810	<100	<100
Total +ve TRH C10-C36	µg/L	50	6600	<50	<50
TRH >C10-C16	µg/L	50	940	<50	<50
TRH >C10-C16 less Naphthalene F2	µg/L	50	940	<50	<50
TRH >C16-C34 (F3)	µg/L	100	5700	<100	<100
TRH >C34-C40 (F4)	µg/L	100	<100	<100	<100
Total +ve TRH >C10-C40	µg/L	50	6600	<50	<50
Surrogate o-Terphenyl	%		70.9	86.1	75.5

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Semi-volatile TRH with Silica Gel Cleanup (Water)

Envirolab ID Your Reference Date Sampled	Units	PQL	PGJ1608-01 MW07 23/10/2025
TRH (Silica) C10-C14	µg/L	50	<50
TRH (Silica) C15-C28	µg/L	100	<100
TRH (Silica) C29-C36	µg/L	100	<100
Total +ve TRH C10-C36	µg/L	50	<50
TRH (Silica) >C10-C16	µg/L	50	<50
TRH (Silica) >C16-C34	µg/L	100	<100
TRH (Silica) >C34-C40	µg/L	100	<100
Total +ve TRH >C10-C40	µg/L	50	<50
Surrogate o-Terphenyl	%		60.4

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Polycyclic Aromatic Hydrocarbons (Water)

Envirolab ID Your Reference Date Sampled	Units	PQL	PGJ1608-01 MW07 23/10/2025	PGJ1608-02 MW08 23/10/2025	PGJ1608-03 Dup1 23/10/2025
Naphthalene	µg/L	0.10	<0.10	<0.10	<0.10
Acenaphthylene	µg/L	0.10	<0.10	<0.10	<0.10
Acenaphthene	µg/L	0.10	<0.10	<0.10	<0.10
Fluorene	µg/L	0.10	<0.10	<0.10	<0.10
Phenanthrene	µg/L	0.10	<0.10	<0.10	<0.10
Anthracene	µg/L	0.10	<0.10	<0.10	<0.10
Fluoranthene	µg/L	0.10	<0.10	<0.10	<0.10
Pyrene	µg/L	0.10	<0.10	<0.10	<0.10
Benzo(a)anthracene	µg/L	0.10	<0.10	<0.10	<0.10
Chrysene	µg/L	0.10	<0.10	<0.10	<0.10
Benzo(b,j,k)fluoranthene	µg/L	0.20	<0.20	<0.20	<0.20
Benzo(a)pyrene	µg/L	0.10	<0.10	<0.10	<0.10
Indeno(1,2,3-c,d)pyrene	µg/L	0.10	<0.10	<0.10	<0.10
Dibenzo(a,h)anthracene	µg/L	0.10	<0.10	<0.10	<0.10
Benzo(g,h,i)perylene	µg/L	0.10	<0.10	<0.10	<0.10
Total +ve PAH	µg/L	0.10	<0.10	<0.10	<0.10
Surrogate <i>p</i> -Terphenyl-D14	%		74.2	113	103

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Alcohols (Water)

Envirolab ID Your Reference Date Sampled	Units	PQL	PGJ1608-01 MW07 23/10/2025	PGJ1608-02 MW08 23/10/2025
Methanol	µg/L	200	<200	<200
Ethanol	µg/L	50	<50	<50
Isopropyl Alcohol	µg/L	50	<50	<50
Propyl Alcohol	µg/L	50	<50	<50
Isobutyl Alcohol	µg/L	50	<50	<50
Butanol	µg/L	50	<50	<50
Surrogate 1-Octanol*	%		97.1	101

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Acid Extractable Metals (Water)

Envirolab ID	Units	PQL	PGJ1608-01	PGJ1608-02
Your Reference			MW07	MW08
Date Sampled			23/10/2025	23/10/2025
Phosphorus	mg/L	0.050	0.065	0.17

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Dissolved Low Level Metals (Water)

Envirolab ID Your Reference Date Sampled	Units	PQL	PGJ1608-01 MW07 23/10/2025	PGJ1608-02 MW08 23/10/2025	PGJ1608-03 Dup1 23/10/2025
Arsenic	µg/L	1.0	4.9	<1.0	<1.0
Cadmium	µg/L	0.10	<0.10	<0.10	<0.10
Chromium	µg/L	1.0	1.0	<1.0	1.4
Copper	µg/L	1.0	<1.0	<1.0	<1.0
Mercury	µg/L	0.050	<0.050	<0.050	<0.050
Nickel	µg/L	1.0	2.5	2.1	2.2
Lead	µg/L	1.0	<1.0	<1.0	<1.0
Zinc	µg/L	1.0	1.8	2.1	2.0

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Inorganics - Ionic Balance and Indexes (Water)

Envirolab ID Your Reference Date Sampled	Units	PQL	PGJ1608-01 MW07 23/10/2025	PGJ1608-02 MW08 23/10/2025
Bicarbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	190	200
Carbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0
Hydroxide OH- as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0
Total Alkalinity as CaCO3	mg/L as CaCO3	5.0	190	200
Chloride	mg/L	1.0	13	30
Sulfate	mg/L	1.0	280	77
Calcium	mg/L	0.50	110	97
Magnesium	mg/L	0.50	14	10
Potassium	mg/L	0.50	55	6.7
Sodium	mg/L	0.50	32	34
Hardness (calc) equivalent CaCO3	mg/L	3.0	340	280
Ionic Balance	%		-2.4	6.3
Total Anions	mg/L	7.0	490	310
Anions as meq	meq/L	0.59	9.4	5.7
Total Cations	mg/L	2.0	210	150
Cations as meq	meq/L	0.10	9.6	7.3

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Inorganics - Nutrients (Water)

Envirolab ID Your Reference Date Sampled	Units	PQL	PGJ1608-01 MW07 23/10/2025	PGJ1608-02 MW08 23/10/2025
Ammonia as N	mg/L	0.0050	3.1	0.62
Nitrate as N	mg/L	0.0050	1.8	0.035
Nitrate as NO3 by calculation	mg/L	0.020	8.0	0.16
Nitrite as N	mg/L	0.0050	0.14	<0.0050
Nitrite as NO2 by calculation	mg/L	0.020	0.46	<0.020
NOx as N	mg/L	0.0050	2.0	0.040
TKN as N by calculation	mg/L	0.10	4.5	1.4
Organic Nitrogen by calc.	mg/L	0.10	1.4	0.74
Total Nitrogen	mg/L	0.10	6.5	1.4
Phosphate as P	mg/L	0.0050	<0.0050	<0.0050

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PFAS Short List - Trace Level (Water) - Analysed By Envirolab Services Sydney

Envirolab ID Your Reference Date Sampled	Units	PQL	PGJ1608-01 MW07 23/10/2025	PGJ1608-02 MW08 23/10/2025	PGJ1608-03 Dup1 23/10/2025
Perfluorobutanesulfonic acid (PFBS)	µg/L	0.00040	<0.010	0.0075	0.0065
Perfluorohexanesulfonic acid (PFHxS)	µg/L	0.00020	<0.010	0.00047	0.00047
Perfluorooctanesulfonic acid (PFOS)	µg/L	0.00020	<0.010	0.00027	0.00030
Perfluorooctanoic acid (PFOA)	µg/L	0.00020	0.054	0.0012	0.0011
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/L	0.00040	0.031	0.0024	0.0025
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.00040	<0.020	<0.00040	<0.00040
<i>Surrogate 13C8 PFOS</i>	%		<i>102</i>	<i>96.2</i>	<i>95.6</i>
<i>Surrogate 13C2 PFOA</i>	%		<i>69.2</i>	<i>67.7</i>	<i>66.5</i>
Total +ve PFHxS+PFOS	µg/L	0.00020	<0.010	0.00074	0.00077
Total +ve PFOA+PFOS	µg/L	0.00020	0.054	0.0015	0.0014
Total +ve PFAS	µg/L	0.00020	0.085	0.012	0.011
<i>Extraction Internal Standard 13C3 PFBS</i>	%		<i>75.0</i>	<i>41.0 [6]</i>	<i>43.0 [6]</i>
<i>Extraction Internal Standard 18O2 PFHxS</i>	%		<i>76.0</i>	<i>53.0</i>	<i>51.0</i>
<i>Extraction Internal Standard 13C4 PFOS</i>	%		<i>78.0</i>	<i>114</i>	<i>111</i>
<i>Extraction Internal Standard 13C4 PFOA</i>	%		<i>123</i>	<i>103</i>	<i>107</i>
<i>Extraction Internal Standard 13C2 6:2FTS</i>	%		<i>137</i>	<i>93.0</i>	<i>92.0</i>
<i>Extraction Internal Standard 13C2 8:2FTS</i>	%		<i>119</i>	<i>104</i>	<i>98.0</i>

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Result Comments

Identifier	Description
[6]	For PFAS Extracted Internal Standards denoted with ## or being outside the 50-150% acceptance range, the respective target analyte results may be unaffected, in other circumstances the PQL has been raised to accommodate the outlier(s).
[7]	PQL(s) has/have been raised as the sample(s) was/were foamy and therefore required dilution.

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Method Summary

Method ID	Methodology Summary
Calc	Calculation
Calc - ION	Calculation
Calc - TKN	TKN determined by calculation (Total Nitrogen - NOx).
INORG-006	Alkalinity - determined titrimetrically based on APHA latest edition 2320-B. Solids reported from a 1:5 water extract unless otherwise specified. Total Carbon Dioxide - determined by calculation in accordance with APHA latest edition, 4500-CO2 D.
INORG-040	The concentrations of the major ions (mg/L) are converted to milliequivalents and summed. The ionic balance should be within +/- 15% i.e. total anions = total cations +/-15%.
INORG-055	Nitrate/Nitrite/NOx/TKN - determined colourimetrically. Waters samples are filtered on receipt prior to analysis. Soils/solids are analysed following a water extraction.
INORG-057	Ammonia - determined colourimetrically. Water samples are filtered on receipt prior to analysis. Soils and OHS media are analysed following a water extraction. Alternatively, Ammonia can be extracted from soil using 1M KCl.
INORG-060	Phosphate - determined colourimetrically using APHA latest edition 4500 P E. Water samples are filtered on receipt prior to analysis. Soils are analysed from a water extract.
INORG-081	Anions determined by Ion Chromatography. Waters samples are filtered on receipt prior to analysis. Solids are analysed from a water extract. Alternatively determined by colourimetry/turbidity using Discrete Analyser.
INORG-127	Total Nitrogen by high temperature catalytic combustion with chemiluminescence detection. Organic Carbon forms (inorganic, organic, total) determined using a TOC/NDIR analyser via combustion. Dissolved forms require filtering prior to determination.
METALS-020	Determination of various metals by ICP-OES. Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.
METALS-021	Determination of Mercury by Cold Vapour AAS.
METALS-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Where salts (oxides, chlorides etc.) are calculated from the element concentration stoichiometrically there is no guarantee that the salt form is completely soluble in the acids used in the preparation.
ORG-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
ORG-020_SILICA_G EL	Soil/solid/biota samples are extracted with solvent and waters by LLE and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40). Analysis for TRHs conducted after Silica Gel clean-up.
ORG-022_PAH	Determination of semi-volatile organic compounds (SVOCs) by GC-MS. Water samples are extracted by LLE and solids using DCM/Acetone/Methanol. For PAHs:- Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. 1. 'TEQ PQL' values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'TEQ zero' values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'TEQ half PQL' values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, for Total +ve calculations, the PQL is reflective of the lowest individual PQL and therefore, for example, "Total +ve PAHs" is simply a sum of the positive individual PAHs.
ORG-023	Determination of volatile organic compounds (VOCs) by P&T-GC-MS. Water samples are analysed directly by purge and trap GC-MS. Soils are extracted with Methanol, diluted and analysed by purge and trap GC-MS.
ORG-023_F1_TOT	Determination of volatile organic compounds (VOCs) by P&T-GC-MS. Water samples are analysed directly by purge and trap GC-MS. Solids are extracted with Methanol, diluted and analysed by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.
ORG-026_SVOC_VO C_GCMSMS	Determination of organic analytes by HS-GC-MS-MS. Water samples are sub-sampled and generally analysed directly by headspace GC-MS-MS. Soils are extracted with solvent, diluted where necessary and analysed by headspace GC-MS-MS.

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Method Summary

Method ID	Methodology Summary
ORG-029	Soil/solid and sorbent samples are extracted with basified Methanol. Waters and soil/sorbent extracts are directly injected and/or concentrated/extracted using SPE. TCLP/ASLP leachates are centrifuged, the supernatant is then analysed (including amendment with solvent) - as per the option in AS4439.3. Analysis is undertaken with LC-MSMS. PFAS results include the sum of branched and linear isomers where applicable. Please note that PFAS results are corrected for Extracted Internal Standards (QSM terminology), which are mass labelled analytes added prior to sample preparation to assess matrix effects and verify processing of the sample. PFAS analytes without a commercially available mass labelled analogue are corrected vs a closely eluting mass labelled PFAS compound. Surrogates are also reported, in this context they are mass labelled PFAS compounds added prior to extraction but are used as monitoring compounds only (not used for result correction). Envicarb (or similar) is used discretionally to remove interfering matrix components. Please contact the laboratory if estimates of Measurement Uncertainty are required as per WA DER.

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Result Definitions

Identifier	Description
NR	Not reported
NEPM	National Environment Protection Measure
NS	Not specified
LCS	Laboratory Control Sample
RPD	Relative Percent Difference
>	Greater than
<	Less than
PQL	Practical Quantitation Limit
INS	Insufficient sample for this test
NA	Test not required
NT	Not tested
DOL	Samples rejected due to particulate overload (air filters only)
RFD	Samples rejected due to filter damage (air filters only)
RUD	Samples rejected due to uneven deposition (air filters only)
##	Indicates a laboratory acceptance criteria outlier, for further details, see Result Comments and/or QC Comments

Quality Control Definitions

Blank

This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, and is determined by processing solvents and reagents in exactly the same manner as for samples.

Surrogate Spike

Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

LCS (Laboratory Control Sample)

This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Matrix Spike

A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

Duplicate

This is the complete duplicate analysis of a sample from the process batch. The sample selected should be one where the analyte concentration is easily measurable.

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Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria. Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction. Spikes for Physical and Aggregate Tests are not applicable. For VOCs in water samples, three vials are required for duplicate or spike analysis.

General Acceptance Criteria (GAC) - Analyte specific criteria applies for some analytes and is reflected in QC recovery tables.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% - see ELN-P05 QAQC tables for details (available on request); <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase. Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was typically insufficient in order to satisfy laboratory QA/QC protocols.

Miscellaneous Information

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached. We have taken the sampling date as being the date received at the laboratory.

Two significant figures are reported for the majority of tests and with a high degree of confidence, for results <10*PQL, the second significant figure may be in doubt i.e. has a relatively high degree of uncertainty and is provided for information only.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS where sediment/solids are included by default.

Urine Analysis - The BEI values listed are taken from the 2022 edition of *TLVs and BEIs Threshold Limits by ACGIH*.

Air volumes are typically provided by customers (often as flow rate(s) and sampling time(s) and/or simply volume(s) sampled or exposure times (determines 'volume' passive badges are exposed to)). Hence in such circumstances the volume measurement is inevitably not covered by Envirolab's NATA accreditation. An exception may occur where Envirolab Newcastle does the sampling where accreditation exists for certain types of sampling and hence volume determination(s). Note air volumes are often used to determine concentrations for dust and/or analyses on filters, sorbents and in impingers. For canister sampling, the air volume is covered by Envirolab's NATA accreditation.

Data Quality Assessment Summary PGJ1608

Client Details

Client	Douglas Partners Pty Ltd (Perth)
Your Reference	236293.02 - Picton
Date Issued	05/11/2025

Recommended Holding Time Compliance

Recommended holding time exceedances exist - See detailed list below

Quality Control and QC Frequency

QC Type	Compliant	Details
Blank	Yes	No Outliers
LCS	No	LCS Outliers Exist - See detailed list below
Duplicates	No	Duplicate Outliers Exist - See detailed list below
Matrix Spike	No	Matrix Spike Outliers Exist - See detailed list below
Surrogates / Extracted Internal Standards	No	Surrogates / Extracted ISTD Outliers Exist - See detailed list below
QC Frequency	No	QC Frequency Outliers Exist - See detailed list below

Surrogates/Extracted Internal Standards, Duplicates and/or Matrix Spikes are not always relevant/applicable to certain analyses and matrices. Therefore, said QC measures are deemed compliant in these situations by default. See Laboratory Acceptance Criteria for more information

Data Quality Assessment Summary PGJ1608

Recommended Holding Time Compliance

Analysis	Sample Number(s)	Date Sampled	Date Extracted	Date Analysed	Compliant
Fumigants Water	1-2	23/10/2025	24/10/2025	26/10/2025	Yes
VOC - MAH Water	1-2	23/10/2025	24/10/2025	26/10/2025	Yes
Halogenated Aliphatics Water	1-2	23/10/2025	24/10/2025	26/10/2025	Yes
Halogenated Aromatics Water	1-2	23/10/2025	24/10/2025	26/10/2025	Yes
Other VOC Water	1-2	23/10/2025	24/10/2025	26/10/2025	Yes
VOC - Surrogates Water	1-2	23/10/2025	24/10/2025	26/10/2025	Yes
vTRH&MBTEXN Water	1-4	23/10/2025	24/10/2025	26/10/2025	Yes
BTEX TS Water	5	23/10/2025	29/10/2025	30/10/2025	Yes
sTRH Water	1-3	23/10/2025	28/10/2025	28/10/2025	Yes
sTRH Silica Gel Cleanup step Water	1	23/10/2025	04/11/2025	04/11/2025	Yes
PAH Water	1-3	23/10/2025	28/10/2025	29/10/2025	Yes
Alcohols Water	1-2	23/10/2025	28/10/2025	29/10/2025	Yes
Total Phosphorus Water	1-2	23/10/2025	27/10/2025	29/10/2025	Yes
Dissolved Metals (LL) Water	1-2	23/10/2025	27/10/2025	28/10/2025	Yes
	3	23/10/2025	28/10/2025	28/10/2025	Yes
Dissolved Metals (LL)-Hg Water	1-3	23/10/2025	28/10/2025	29/10/2025	Yes
Alkalinity Suite Water	1-2	23/10/2025	24/10/2025	27/10/2025	Yes
Chloride Water	1-2	23/10/2025	24/10/2025	28/10/2025	Yes
Dissolved Cations Water	1-2	23/10/2025	27/10/2025	27/10/2025	Yes
Ion Balance Water	1-2	23/10/2025	27/10/2025	03/11/2025	Yes
	1-2	23/10/2025	27/10/2025	28/10/2025	Yes
Sulfate Water	1-2	23/10/2025	24/10/2025	28/10/2025	Yes
Nitrogen - Ammonia Water	1-2	23/10/2025	27/10/2025	27/10/2025	Yes
Nitrogen - Nitrate Water	1-2	23/10/2025	27/10/2025	27/10/2025	Yes
Nitrogen - Nitrite Water	1-2	23/10/2025	27/10/2025	27/10/2025	No
Nitrogen - NOx Water	1-2	23/10/2025	27/10/2025	27/10/2025	Yes
Nitrogen - Total N Water	1-2	23/10/2025	27/10/2025	28/10/2025	Yes
Phosphate as P Water	1-2	23/10/2025	27/10/2025	27/10/2025	No
TKN as N calc Water	1-2	23/10/2025	27/10/2025	03/11/2025	Yes
PFAS - TR ISTD (Short) Water	1-3	23/10/2025	03/11/2025	03/11/2025	Yes
PFAS-Short TR Water	1-3	23/10/2025	03/11/2025	03/11/2025	Yes

Data Quality Assessment Summary PGJ1608

Outliers: Laboratory Control Samples

ORG-020 | Semi-volatile TRH (Water) | Batch BGJ4569

Sample ID	Analyte	% Limits	% Recovery
BGJ4569-BS1	o-Terphenyl	60 - 140	##[5]

ORG-020_SILICA_GEL | Semi-volatile TRH with Silica Gel Cleanup (Water) | Batch BGK0399

Sample ID	Analyte	% Limits	% Recovery
BGK0399-BS1	o-Terphenyl	60 - 140	##[5]

Outliers: Duplicates

METALS-022 | Dissolved Low Level Metals (Water) | Batch BGJ4283

Sample ID	Duplicate ID	Analyte	% Limits	RPD
BGJ4283-DUP1#	DUP1	Zinc	20.00	200

Outliers: Matrix Spike

INORG-060 | Inorganics - Nutrients (Water) | Batch BGJ4394

Sample ID	Analyte	% Limits	% Recovery
BGJ4394-MS1#	Phosphate as P	70 - 130	##[2]

ORG-020 | Semi-volatile TRH (Water) | Batch BGJ4569

Sample ID	Analyte	% Limits	% Recovery
BGJ4569-MS1#	o-Terphenyl	60 - 140	##[5]
BGJ4569-MS1#	TRH >C10-C16	60 - 140	##[1]
BGJ4569-MS1#	TRH >C34-C40 (F4)	60 - 140	##[1]
BGJ4569-MS1#	TRH C10-C14	60 - 140	##[1]

ORG-023_F1_TOT | Volatile Organic Compounds - MAH (Water) | Batch BGJ4198

Sample ID	Analyte	% Limits	% Recovery
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ORG-023_F1_TOT | Volatile TRH and BTEX (Water) | Batch BGJ4198

Sample ID	Analyte	% Limits	% Recovery
BGJ4198-MS1#	meta+para Xylene	60 - 140	##[3]

Data Quality Assessment Summary PGJ1608

Outliers: Surrogate / Extracted Internal Standards

ORG-029 | PFAS Short List - Trace Level (Matrix) | Batch BGK0247

Sample ID	Analyte	% Limits	% Recovery
PGJ1608-02	Extraction Internal Standard 13C3 PFBS	50 - 150	41.0 [6]
PGJ1608-03	Extraction Internal Standard 13C3 PFBS	50 - 150	43.0 [6]

Outliers: QC Frequency

ORG-020_SILICA_GEL | Semi-volatile TRH with Silica Gel Cleanup (Water) | Batch BGK0399

Analysis	QC Type	Expected	Reported
sTRH Silica Gel Cleanup step	Duplicate	1	0

ORG-029 | PFAS Short List - Trace Level (Water) | Batch BGK0247

Analysis	QC Type	Expected	Reported
PFAS - TR ISTD (Short)	Duplicate	1	0
	Matrix Spike	1	0
PFAS-Short TR	Duplicate	1	0
	Matrix Spike	1	0

Quality Control PGJ1608

ORG-023 | Volatile Organic Compounds - Fumigants (Water) | Batch BGJ4198

Analyte	Units	PQL	Blank	DUP1	LCS %	Spike %
				BGJ4198-DUP1#		
				Samp QC RPD %		
2,2-Dichloropropane	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	[NA]	[NA]
1,2-Dichloropropane	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	88.0	93.7
cis-1,3-Dichloropropene	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	89.7	88.1
trans-1,3-Dichloropropene	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	88.4	88.9
1,2-Dibromoethane	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	101	105

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

ORG-023_F1_TOT | Volatile Organic Compounds - MAH (Water) | Batch BGJ4198

Analyte	Units	PQL	Blank	DUP1	LCS %	Spike %
				BGJ4198-DUP1#		
				Samp QC RPD %		
Benzene	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	84.0	86.8
Toluene	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	88.0	84.5
Ethylbenzene	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	93.1	90.6
meta+para Xylene	µg/L	2.0	<2.0	<2.0 <2.0 [NA]	87.0	##[3]
Styrene	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	[NA]	[NA]
ortho-Xylene	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	97.4	64.0
Isopropylbenzene	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	[NA]	[NA]
n-Propylbenzene	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	[NA]	[NA]
1,3,5-Trimethylbenzene	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	[NA]	[NA]
tert-Butylbenzene	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	[NA]	[NA]
1,2,4-Trimethylbenzene	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	[NA]	[NA]
sec-Butylbenzene	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	[NA]	[NA]
4-Isopropyltoluene	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	[NA]	[NA]
n-Butyl benzene	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	[NA]	[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control PGJ1608

ORG-023 | Volatile Organic Compounds - Halogenated Aliphatics (Water) | Batch BGJ4198

Analyte	Units	PQL	Blank	DUP1	LCS %	Spike %
				BGJ4198-DUP1# Samp QC RPD %		
Dichlorodifluoromethane (Freon-12)	µg/L	10	<10	<10 <10 [NA]	[NA]	[NA]
Chloromethane	µg/L	10	<10	<10 <10 [NA]	[NA]	[NA]
Vinyl chloride	µg/L	10	<10	<10 <10 [NA]	[NA]	[NA]
Bromomethane	µg/L	10	<10	<10 <10 [NA]	[NA]	[NA]
Chloroethane	µg/L	10	<10	<10 <10 [NA]	[NA]	[NA]
Trichlorofluoromethane (Freon-11)	µg/L	10	<10	<10 <10 [NA]	[NA]	[NA]
1,1-Dichloroethene	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	[NA]	[NA]
trans-1,2-Dichloroethene	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	[NA]	[NA]
1,1-Dichloroethane	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	104	109
cis-1,2-Dichloroethene	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	[NA]	[NA]
Bromochloromethane	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	[NA]	[NA]
Chloroform	µg/L	1.0	<1.0	<2.0 <2.0 [NA] [8]	108	102
1,1,1-Trichloroethane	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	103	106
1,1-Dichloropropene	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	[NA]	[NA]
Carbon Tetrachloride	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	[NA]	[NA]
1,2-Dichloroethane	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	105	109
Trichloroethene	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	101	105
Dibromomethane	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	[NA]	[NA]
Bromodichloromethane	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	106	114
1,1,2-Trichloroethane	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	[NA]	[NA]
1,3-Dichloropropane	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	[NA]	[NA]
Tetrachloroethene	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	99.6	101
Dibromochloromethane	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	105	112
1,1,1,2-Tetrachloroethane	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	[NA]	[NA]
Bromoform	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	102	113
1,1,2,2-Tetrachloroethane	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	[NA]	[NA]
1,2,3-Trichloropropane	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	[NA]	[NA]
1,2-Dibromo-3-chloropropane	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	[NA]	[NA]
Hexachlorobutadiene	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	[NA]	[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

ORG-023 | Volatile Organic Compounds - Halogenated Aromatics (Water) | Batch BGJ4198

Analyte	Units	PQL	Blank	DUP1	LCS %	Spike %
				BGJ4198-DUP1# Samp QC RPD %		
Chlorobenzene	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	[NA]	[NA]
Bromobenzene	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	[NA]	[NA]
2-Chlorotoluene	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	[NA]	[NA]
4-Chlorotoluene	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	[NA]	[NA]
1,3-Dichlorobenzene	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	[NA]	[NA]
1,4-Dichlorobenzene	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	95.6	97.2
1,2-Dichlorobenzene	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	[NA]	[NA]
1,2,4-Trichlorobenzene	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	93.3	98.7
1,2,3-Trichlorobenzene	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	[NA]	[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

ORG-023 | Volatile Organic Compounds - Other VOCs (Water) | Batch BGJ4198

Analyte	Units	PQL	Blank	DUP1	LCS %	Spike %
				BGJ4198-DUP1# Samp QC RPD %		
Cyclohexane	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	102	98.9

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control PGJ1608

ORG-023 | Volatile Organic Compounds - Surrogates (Water) | Batch BGJ4198

Analyte	Units	PQL	Blank	DUP1	LCS %	Spike %
				BGJ4198-DUP1#		
				Samp QC RPD %		
Surrogate Dibromofluoromethane	%		107	106 107	113	111
Surrogate Toluene-D8	%		102	101 101	111	109
Surrogate 4-Bromofluorobenzene	%		100	99.6 97.6	99.4	100

Analyte	Units	PQL	Blank				LCS %	Spike %
								BGJ4198-MS2#
Surrogate Dibromofluoromethane	%						100	101
Surrogate Toluene-D8	%						101	102
Surrogate 4-Bromofluorobenzene	%						98.9	97.5

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

ORG-023_F1_TOT | Volatile TRH and BTEX (Water) | Batch BGJ4198

Analyte	Units	PQL	Blank	DUP1	LCS %	Spike %
				BGJ4198-DUP1# Samp QC RPD %		
TRH C6-C9	µg/L	10	<10	<10 <10 [NA]	81.6	64.1
TRH C6-C10	µg/L	10	<10	<10 <10 [NA]	85.8	72.0
Methyl tert butyl ether (MTBE)	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	[NA]	[NA]
Benzene	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	101	97.9
Toluene	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	99.3	89.3
Ethylbenzene	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	95.4	92.6
meta+para Xylene	µg/L	2.0	<2.0	<2.0 <2.0 [NA]	92.8	##[3]
ortho-Xylene	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	102	63.3
Naphthalene (value used in F2 calc)	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	[NA]	[NA]
Surrogate Dibromofluoromethane	%		107	106 / 107	113	111
Surrogate Toluene-D8	%		102	101 / 101	111	109
Surrogate 4-Bromofluorobenzene	%		100	99.6 / 97.6	99.4	100

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

ORG-020 | Semi-volatile TRH (Water) | Batch BGJ4569

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGJ4569-DUP1# Samp QC RPD %	BGJ4569-DUP2# Samp QC RPD %		
TRH C10-C14	µg/L	50	<50	<50 <50 [NA]	<50 <50 [NA]	96.4	##[1]
TRH C15-C28	µg/L	100	<100	<100 <100 [NA]	102 <100 [NA]	99.5	76.6
TRH C29-C36	µg/L	100	<100	<100 <100 [NA] [9]	209 222 [NA]	120	86.0
TRH >C10-C16	µg/L	50	<50	<50 <50 [NA]	<50 <50 [NA]	103	##[1]
TRH >C16-C34 (F3)	µg/L	100	<100	<100 <100 [NA]	247 244 [NA]	102	78.5
TRH >C34-C40 (F4)	µg/L	100	<100	<100 <100 [NA] [9]	155 <100 [NA]	103	##[1]
Surrogate o-Terphenyl	%		90.3	68.4 / 74.6	58.2 / 59.9 [4]	## [5]	##[5]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

ORG-020_SILICA_GEL | Semi-volatile TRH with Silica Gel Cleanup (Water) | Batch BGK0399

Analyte	Units	PQL	Blank	LCS %
TRH (Silica) C10-C14	µg/L	50	<50	101
TRH (Silica) C15-C28	µg/L	100	<100	109
TRH (Silica) C29-C36	µg/L	100	<100	115
TRH (Silica) >C10-C16	µg/L	50	<50	111
TRH (Silica) >C16-C34	µg/L	100	<100	108
TRH (Silica) >C34-C40	µg/L	100	<100	115
Surrogate o-Terphenyl	%		107	## [5]

Batch QC Comments: [10]

Quality Control PGJ1608

ORG-022_PAH | Polycyclic Aromatic Hydrocarbons (Water) | Batch BGJ4569

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGJ4569-DUP1#	BGJ4569-DUP2#		
				Samp QC RPD %	Samp QC RPD %		
Naphthalene	µg/L	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	83.4	72.9
Acenaphthylene	µg/L	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	[NA]	[NA]
Acenaphthene	µg/L	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	87.6	100
Fluorene	µg/L	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	89.3	89.8
Phenanthrene	µg/L	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	96.5	104
Anthracene	µg/L	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	[NA]	[NA]
Fluoranthene	µg/L	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	102	101
Pyrene	µg/L	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	104	106
Benzo(a)anthracene	µg/L	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	[NA]	[NA]
Chrysene	µg/L	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	97.6	97.5
Benzo(b,j,k)fluoranthene	µg/L	0.20	<0.20	<0.20 <0.20 [NA]	<0.20 <0.20 [NA]	[NA]	[NA]
Benzo(a)pyrene	µg/L	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	86.1	89.7
Indeno(1,2,3-c,d)pyrene	µg/L	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	[NA]	[NA]
Dibenzo(a,h)anthracene	µg/L	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	[NA]	[NA]
Benzo(g,h,i)perylene	µg/L	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	[NA]	[NA]
Surrogate p-Terphenyl-D14	%		94.0	105 / 88.7	64.9 / 63.0	89.0	99.6

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

ORG-026_SVOC_VOC_GCMSMS | Alcohols (Water) | Batch BGJ4292

Analyte	Units	PQL	Blank	DUP1	LCS %	Spike %
				BGJ4292-DUP1#		
				Samp QC RPD %		
Methanol	µg/L	200	<200	<200 <200 [NA]	97.2	111
Ethanol	µg/L	50	<50	<50 <50 [NA]	83.9	96.1
Isopropyl Alcohol	µg/L	50	<50	<50 <50 [NA]	100	108
Propyl Alcohol	µg/L	50	<50	<50 <50 [NA]	99.9	110
Isobutyl Alcohol	µg/L	50	<50	<50 <50 [NA]	111	99.0
Butanol	µg/L	50	<50	<50 <50 [NA]	107	104
Surrogate 1-Octanol	%		96.0	81.6 / 78.6	92.1	96.8

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-020 | Acid Extractable Metals (Water) | Batch BGJ4304

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGJ4304-DUP1#	BGJ4304-DUP2#		
				Samp QC RPD %	Samp QC RPD %		
Phosphorus	mg/L	0.050	<0.050	<0.050 <0.050 [NA]	7.74 7.67 0.841	92.8	98.1

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-022 | Dissolved Low Level Metals (Water) | Batch BGJ4283

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGJ4283-DUP1#	BGJ4283-DUP2#		
				Samp QC RPD %	Samp QC RPD %		
Arsenic	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	<1.0 <1.0 [NA]	100	102
Cadmium	µg/L	0.10	<0.10	<0.10 <0.10 [NA]	<0.10 <0.10 [NA]	104	101
Chromium	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	<1.0 <1.0 [NA]	101	98.8
Copper	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	41.8 42.4 1.38	101	100
Lead	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	<1.0 <1.0 [NA]	101	98.5
Nickel	µg/L	1.0	<1.0	<1.0 <1.0 [NA]	1.13 1.10 [NA]	100	96.1
Zinc	µg/L	1.0	<1.0	<1.0 12.8 200	9.39 9.74 3.63	103	98.7

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control PGJ1608

METALS-022 | Dissolved Low Level Metals (Water) | Batch BGJ4527

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGJ4527-DUP1#	BGJ4527-DUP2#		
				Samp QC RPD %	Samp QC RPD %		
Arsenic	µg/L	1.0	<1.0	<2.0 <2.0 [NA]	<1.0 <1.0 [NA]	100	92.8
Cadmium	µg/L	0.10	<0.10	<0.20 <0.20 [NA]	<0.10 <0.10 [NA]	104	95.8
Chromium	µg/L	1.0	<1.0	<2.0 <2.0 [NA]	<1.0 <1.0 [NA]	99.1	94.6
Copper	µg/L	1.0	<1.0	<2.0 <2.0 [NA] [9]	<1.0 <1.0 [NA]	99.5	88.3
Lead	µg/L	1.0	<1.0	<2.0 <2.0 [NA]	<1.0 <1.0 [NA]	98.8	91.9
Nickel	µg/L	1.0	<1.0	<2.0 <2.0 [NA] [9]	<1.0 <1.0 [NA]	99.1	90.0
Zinc	µg/L	1.0	<1.0	<2.0 <2.0 [NA]	11.7 12.1 3.23	102	86.5

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-021 | Dissolved Low Level Metals (Water) | Batch BGJ4546

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGJ4546-DUP1#	BGJ4546-DUP2#		
				Samp QC RPD %	Samp QC RPD %		
Mercury	µg/L	0.050	<0.050	<0.050 <0.050 [NA]	<0.050 <0.050 [NA]	106	105

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-081 | Inorganics - Ionic Balance and Indexes (Water) | Batch BGJ4199

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGJ4199-DUP1#	BGJ4199-DUP2#		
				Samp QC RPD %	Samp QC RPD %		
Chloride	mg/L	1.0	<1.0	172 172 0.0620	1040 1030 0.0553	102	96.5
Sulfate	mg/L	1.0	<1.0	11.9 11.8 0.907	262 262 0.0118	98.6	104

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-006 | Inorganics - Ionic Balance and Indexes (Water) | Batch BGJ4204

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGJ4204-DUP1#	BGJ4204-DUP2#		
				Samp QC RPD %	Samp QC RPD %		
Bicarbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	12.0 11.4 [NA]	107 108 0.836	[NA]	
Carbonate Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0 <5.0 [NA]	<5.0 <5.0 [NA]	[NA]	
Hydroxide OH- as CaCO3	mg/L as CaCO3	5.0	<5.0	<5.0 <5.0 [NA]	<5.0 <5.0 [NA]	[NA]	
Total Alkalinity as CaCO3	mg/L as CaCO3	5.0	<5.0	12.0 11.4 [NA]	107 108 0.836	101	

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

METALS-020 | Inorganics - Ionic Balance and Indexes (Water) | Batch BGJ4285

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGJ4285-DUP1#	BGJ4285-DUP2#		
				Samp QC RPD %	Samp QC RPD %		
Calcium	mg/L	0.50	<0.50	15.3 15.4 0.871	0.890 0.896 [NA]	101	108
Magnesium	mg/L	0.50	<0.50	17.5 17.5 0.0457	2.47 2.49 [NA]	99.0	100
Potassium	mg/L	0.50	<0.50	5.90 5.90 0.00169	1.44 1.45 [NA]	98.8	98.9
Sodium	mg/L	0.50	<0.50	48.9 49.2 0.591	21.4 21.6 1.17	92.5	108
Hardness (calc) equivalent CaCO3	mg/L	3.0	<3.0	110 111 0.273	12.4 12.5 [NA]	[NA]	[NA]

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

INORG-127 | Inorganics - Nutrients (Water) | Batch BGJ4384

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGJ4384-DUP1#	BGJ4384-DUP2#		
				Samp QC RPD %	Samp QC RPD %		
Total Nitrogen	mg/L	0.10	<0.10	59.3 54.5 8.30	12.0 13.1 8.47	107	108

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

Quality Control PGJ1608

INORG-057 | Inorganics - Nutrients (Water) | Batch BGJ4394

Analyte	Units	PQL	Blank	DUP1	DUP2	LCS %	Spike %
				BGJ4394-DUP1#	BGJ4394-DUP2#		
				Samp QC RPD %	Samp QC RPD %		
Ammonia as N	mg/L	0.0050	<0.0050	<0.0050 <0.0050 [NA]	<0.0050 <0.0050 [NA]	102	94.0
Nitrate as N	mg/L	0.0050	<0.0050	<0.0050 <0.0050 [NA]	0.300 0.307 2.11	107	111
Nitrate as NO3 by calculation	mg/L	0.020	<0.020			[NA]	[NA]
Nitrite as N	mg/L	0.0050	<0.0050	<0.0050 <0.0050 [NA]	<0.0050 <0.0050 [NA]	[NA]	[NA]
Nitrite as NO2 by calculation	mg/L	0.020	<0.020			[NA]	[NA]
NOx as N	mg/L	0.0050	<0.0050	<0.0050 <0.0050 [NA]	0.300 0.307 2.11	107	111
Phosphate as P	mg/L	0.0050	<0.0050	0.965 0.969 0.398	0.0126 0.0125 [NA]	119	# #[2]

Analyte	Units	PQL	Blank	LCS %	Spike %
Nitrite as N	mg/L	0.005		97.7	105

The QC reported was not specifically part of this workorder but formed part of the QC process batch.

ORG-029 | PFAS Short List - Trace Level (Water) | Batch BGK0247

Analyte	Units	PQL	Blank	LCS %
Perfluorobutanesulfonic acid (PFBS)	µg/L	0.00040	<0.00040	111
Perfluorohexanesulfonic acid (PFHxS)	µg/L	0.00020	<0.00020	90.7
Perfluorooctanesulfonic acid (PFOS)	µg/L	0.00020	<0.00020	93.8
Perfluorooctanoic acid (PFOA)	µg/L	0.00020	<0.00020	96.1
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/L	0.00040	<0.00040	108
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.00040	<0.00040	87.8
Surrogate 13C8 PFOS	%		105	98.2
Surrogate 13C2 PFOA	%		93.3	91.4
Extraction Internal Standard 13C3 PFBS	%		85.0	[NA]
Extraction Internal Standard 18O2 PFHxS	%		92.0	[NA]
Extraction Internal Standard 13C4 PFOS	%		82.0	[NA]
Extraction Internal Standard 13C4 PFOA	%		103	[NA]
Extraction Internal Standard 13C2 6:2FTS	%		119	[NA]
Extraction Internal Standard 13C2 8:2FTS	%		130	[NA]

QC Comments

Identifier	Description
[1]	Spike recovery is not applicable due to the relatively high analyte background in the sample (>3* spike level). However, the LCS recovery is within acceptance criteria.
[2]	Spike recovery is outside routine acceptance criteria (70-130%), this may be due to suspected non-homogeneity and/or matrix interference effects. However, an acceptable recovery was achieved for the LCS.
[3]	Spike recovery is outside routine acceptance criteria (60-140%). Where recoveries of <20% and >200% are attributable to matrix interference effects, there will be a high uncertainty associated with the parent result.
[4]	Surrogate recovery was low due to sample(s) emulsifying during liquid liquid extraction.
[5]	Surrogate recovery is outside routine acceptance criteria (60-140%) as a result of the high concentration of analyte(s) in the sample.
[8]	PQL(s) has/have been raised due to matrix interference.
[9]	Duplicate %RPD may be flagged as an outlier to routine laboratory acceptance, however, where one or both results are <10*PQL, the RPD acceptance criteria increases exponentially.
[10]	Unable to perform all QC according to our internal guidelines due to the limited amount of sample(s) available for testing.

Project No: 236293.02						Suburb: Picton							To: MPL										
Project Manager: RS						Order Number: PE252300							Sampler: MA										
Email: rob.shapland@douglaspartners.com.au														Attn: Saample Receipt									
Turnaround time:						☒ Standard ☐ 72 hour ☐ 48 hour ☐ 24 hour ☐ Same day										Lab email							
Prior Storage:						☐ Fridge ☐ Freezer ☒ Esky ☐ Shelf										Do samples contain 'potential' HBM? ☒ No ☐ Yes (if YES, then handle, transport and store in accordance with FPM HAZID)							
Lab ID	Sample ID			Date Sampled	Sample Type	Container Type	Analytes										Notes/ Preservation/ Additional Requirements						
	Location / Other ID	Depth From	Depth To		S - soil W - water M - Material	G - glass P - plastic	Combo 3	VOC	Nutrient Suite	methanol	** PFAS (short suite)	Anions and Cations	v-TRH										
1	MW07			23/10/25	W	G/P	X	X	X	X	X	X					**PFAS - trace						
2	MW08			23/10/25	W	G/P	X	X	X	X	X	X											
3	Dup1			23/10/25	W	G/P	X				X												
4	TB1			23/10/25	W	G/P							X										
5	TS1			23/10/25	W	G/P							X										
Metals to analyse: As, Cd, Cr, Cu, Ni, Hg, Pb, Zn						LAB RECEIPT																	
Number of samples in container:						Transported to laboratory by:																	
Send results to: Douglas Partners Pty Ltd						Lab Ref. No: PGF1608																	
Address:						Received by: mpe g m																	
Relinquished by:						Date & Time: 23 OCT 2025 16:30																	
						Signed:																	

Genevieve Massam

Additional analysis PGJ1608 TAT approved by TC

From: Rob Shapland <rob.shapland@douglaspartners.com.au>
Sent: Tuesday, 4 November 2025 12:56 PM
To: Genevieve Massam
Cc: Mubashar Ahmed; Sample Receipt WA
Subject: FW: Sample results for PGJ1608, your reference 236293.02 - Picton - Additional Analysis
Attachments: PGJ1608_1 COA_general 11 04 2025 1249.pdf; P074025_1 INV_general 11 04 2025 1249.PDF; PGJ1608.ENVIROLAB_EXCEL.xlsx; PGJ1608_2 ESDAT 11 04 2025 1249.zip; PGJ1608_COC_01.PDF

Follow Up Flag: Follow up
Flag Status: Flagged

CAUTION: This email originated from outside of the organisation. Do not act on instructions, click links or open attachments unless you recognise the sender and know the content is authentic and safe.

Hi Gen,

Can you please forward the chromatogram from MW07? #1

Can you please also arrange a silica gel clean-up on 24 hr turnaround for MW07?

Rob Shapland | Environmental Chemist / Senior Associate

☎ 08 9204 3511 📞 +61 412 448 485 📧 Rob.Shapland@douglaspartners.com.au

🌐 www.douglaspartners.com.au 📍 36 O'Malley Street, Osborne Park, WA 6017 | Whadjuk Country



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From: MPL Results <mplresults@envirolab.com.au>
Sent: Tuesday, 4 November 2025 12:42 PM
To: Rob Shapland <rob.shapland@douglaspartners.com.au>
Subject: Sample results for PGJ1608, your reference 236293.02 - Picton

Report Details

Please refer to the attached for:
A copy of the COC/paperwork received from you
A copy of the Certificate of Analysis
An excel or .csv file containing the results
A copy of the Invoice

Please note that a hard copy will not be posted

Report formats may have changed recently, please contact us if there are any concerns

To view our information on uncertainty guidelines click [here](#).
To obtain a copy of our Electronic COC for digital sample submissions,
click [here](#)

How did we do?
The Envirolab Group would love to hear your feedback.
Please submit [here](#)

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T: 1300 424 344

E: mplresults@envirolab.com.au | W: envirolab.com.au



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Laboratories

LABTEC
Scientific & Technical Services

Project No: 236293.02		Suburb: Picton		To: MPL			
Project Manager: RS		Order Number: PE252236		Sampler: MA			
Email: rob.shapland@douglaspartners.com.au							
Turnaround time: ☒ Standard ☐ 72 hour ☐ 48 hour ☐ 24 hour		Same day					
Prior Storage: ☐ Fridge ☐ Freezer ☒ Esky		Do samples contain 'potential' HBM? ☒ No ☐ Yes (if YES, then handle, transport and store in accordance with FPM HAZID)					
Lab ID	Sample ID		Date Sampled	Sample Type	Container Type	Analytes	Notes/ Preservation/ Additional Requirements
	Location / Other ID	Depth From					
MW01			19/9/25	W - Soil	P - plastic	VOC	 Lab No. - Date Rec - Time Rec - Rec By - IAT Req - SAME 1/2/3/STD Temp - ambient Cooling Ice pack / None Security - Yes/No
MW02			19/9/25	W	G/P	Combo 3	
MW03			19/9/25	W	G/P	Combo 3	
MW04			19/9/25	W	G/P	Combo 3	
MW05			19/9/25	W	G/P	Combo 3	
MW06			19/9/25	W	G/P	Combo 3	
SW01			19/9/25	W	G/P	Combo 3	
SW02			19/9/25	W	G/P	Combo 3	
SW03			19/9/25	W	G/P	Combo 3	
Dup1			19/9/25	W	G/P	Combo 3	
Dup2			19/9/25	W	G/P	Combo 3	 Date/Time: 1250 21-9-25 Courier / Drop Off Attempt to Chill: Y/N / NA Temperature: 8°C Signature: JS
TB1			19/9/25	W	G/P	Combo 3	
TS1			19/9/25	W	G/P	Combo 3	
Metals to analyse: As, Cd, Cr, Cu, Ni, Hg, Pb, Zn							LAB RECEIPT Lab Ref. No: Received by: Date & Time: Signed:
Number of samples in container:							
Send results to: Douglas Partners Pty Ltd							
Address:							
Relinquished by:							Signed:

1271319

Eurofins ARL Pty Ltd

ABN: 91 05 0159 898

Perth
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 +61 8 6253 4444
 NATA# 2377
 Site# 2370 & 2554

Eurofins Environment Testing Australia Pty Ltd

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 NSW 2304
 +61 2 4968 8448
 NATA# 1261
 Site# 25079

Sample Receipt Advice

Company name:	Douglas Partners Pty Ltd
Contact name:	Rob Shapland
Project name:	PICTON
Project ID:	236293.02
Turnaround time:	5 Day
Date/Time received	Sep 22, 2025 12:50 PM
Eurofins reference	1271319

Sample Information

- ✓ A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- ✓ All samples have been received as described on the above COC.
- ✓ COC has been completed correctly.
- ✓ Attempt to chill was evident.
- ✓ Appropriately preserved sample containers have been used.
- ✓ All samples were received in good condition.
- ✓ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
- ✓ Appropriate sample containers have been used.
- ✓ Sample containers for volatile analysis received with zero headspace.
- ✗ Split sample sent to requested external lab.
- ✗ Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

Notes

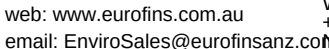
Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Natalie Hill on phone : or by email: Natalie.Hill@eurofinsanz.com

Results will be delivered electronically via email to Rob Shapland - rob.shapland@douglaspartners.com.au.

Note: A copy of these results will also be delivered to the general Douglas Partners Pty Ltd email address.



ABN: 91 05 0159 898

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MATA# 2377
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NATA# 1261	NATA# 1261
Site# 1254	Site# 25403

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NATA# 1261
Site# 25079

Company Name: Douglas Partners Pty Ltd
Address: 36 O'Malley Street
Osborne Park
WA 6017

Project Name: PICTON
Project ID: 236293.02

Order No.: PE252236
Report #: 1271319
Phone: 08 9204 3511
Fax:

Received: Sep 22, 2025 12:50 PM
Due: Sep 30, 2025
Priority: 5 Day
Contact Name: Rob Shapland

Eurofins Analytical Services Manager : Natalie Hill

Sample Detail						Metals M8	Eurofins Suite B4	Per- and Polyfluoroalkyl Substances (PFASs)
Perth Laboratory - NATA # 2377 Site # 2370 & 2554						X	X	X
External Laboratory								
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID			
1	Dup2	Sep 19, 2025		Water	L25-Se0068924	X	X	X
Test Counts						1	1	1

Douglas Partners Pty Ltd
36 O'Malley Street
Osborne Park
WA 6017



NATA Accredited
Accreditation Number 2377
Site Number 2370 & 2554

Accredited for compliance with ISO/IEC 17025 – Testing
NATA is a signatory to the ILAC Mutual Recognition
Arrangement for the mutual recognition of the
equivalence of testing, medical testing, calibration,
inspection, proficiency testing scheme providers and
reference materials producers reports and certificates.

Attention: Rob Shapland

Report 1271319-W

Project name PICTON

Project ID 236293.02

Received Date Sep 22, 2025

Client Sample ID			Dup2
Sample Matrix			Water
Eurofins Sample No.			L25-Se0068924
Date Sampled			Sep 19, 2025
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons - 1999 NEPM Fractions			
TRH C6-C9	0.02	mg/L	< 0.02
TRH C10-C14	0.02	mg/L	< 0.02
TRH C15-C28	0.04	mg/L	< 0.04
TRH C29-C36	0.04	mg/L	< 0.04
TRH C10-C36 (Total)	0.04	mg/L	< 0.04
BTEX			
Benzene	0.001	mg/L	< 0.001
Toluene	0.001	mg/L	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002
o-Xylene	0.001	mg/L	< 0.001
Xylenes - Total*	0.003	mg/L	< 0.003
4-Bromofluorobenzene (surr.)	1	%	82
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene ^{N02}	0.001	mg/L	< 0.001
TRH >C10-C16 less Naphthalene (F2)* ^{N01}	0.02	mg/L	< 0.02
TRH C6-C10	0.02	mg/L	< 0.02
TRH C6-C10 less BTEX (F1) ^{N04}	0.02	mg/L	< 0.02
Polycyclic Aromatic Hydrocarbons			
Benzo(a)pyrene TEQ (lower bound) *	0.001	mg/L	< 0.001
Acenaphthene	0.001	mg/L	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001
Anthracene	0.001	mg/L	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001
Benzo(b&j)fluoranthene ^{N07}	0.001	mg/L	< 0.001
Benzo(g,h,i)perylene	0.001	mg/L	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001
Chrysene	0.001	mg/L	< 0.001
Dibenz(a,h)anthracene	0.001	mg/L	< 0.001
Fluoranthene	0.001	mg/L	< 0.001
Fluorene	0.001	mg/L	< 0.001
Indeno(1,2,3-cd)pyrene	0.001	mg/L	< 0.001
Naphthalene	0.001	mg/L	< 0.001
Phenanthrene	0.001	mg/L	< 0.001

Client Sample ID			Dup2
Sample Matrix			Water
Eurofins Sample No.			L25-Se0068924
Date Sampled			Sep 19, 2025
Test/Reference	LOR	Unit	
Polycyclic Aromatic Hydrocarbons			
Pyrene	0.001	mg/L	< 0.001
Total PAH*	0.001	mg/L	< 0.001
2-Fluorobiphenyl (surr.)	1	%	68
p-Terphenyl-d14 (surr.)	1	%	76
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
TRH >C10-C16	0.02	mg/L	< 0.02
TRH >C16-C34	0.05	mg/L	< 0.05
TRH >C34-C40	0.05	mg/L	< 0.05
TRH >C10-C40 (total)*	0.05	mg/L	< 0.05
Metals M8			
Arsenic	0.001	mg/L	< 0.001
Cadmium	0.0001	mg/L	< 0.0001
Chromium	0.001	mg/L	0.001
Copper	0.001	mg/L	0.003
Lead	0.001	mg/L	< 0.001
Mercury	0.0001	mg/L	< 0.0001
Nickel	0.001	mg/L	0.003
Zinc	0.005	mg/L	0.005
Perfluoroalkyl carboxylic acids (PFCAs)			
Perfluorobutanoic acid (PFBA) ^{N11}	0.05	ug/L	< 0.05
Perfluoropentanoic acid (PFPeA) ^{N11}	0.01	ug/L	< 0.01
Perfluorohexanoic acid (PFHxA) ^{N11}	0.01	ug/L	< 0.01
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.05	ug/L	< 0.05
Perfluorooctanoic acid (PFOA) ^{N11}	0.01	ug/L	^{N09} 0.01
Perfluorononanoic acid (PFNA) ^{N11}	0.01	ug/L	< 0.01
Perfluorodecanoic acid (PFDA) ^{N11}	0.01	ug/L	< 0.01
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.01	ug/L	< 0.01
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.01	ug/L	< 0.01
Perfluorotridecanoic acid (PFTeDA) ^{N15}	0.01	ug/L	< 0.01
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.01	ug/L	< 0.01
13C4-PFBA (surr.)	1	%	53
13C5-PFPeA (surr.)	1	%	75
13C5-PFHxA (surr.)	1	%	77
13C4-PFHpA (surr.)	1	%	74
13C8-PFOA (surr.)	1	%	68
13C5-PFNA (surr.)	1	%	75
13C6-PFDA (surr.)	1	%	68
13C2-PFUnDA (surr.)	1	%	67
13C2-PFDoDA (surr.)	1	%	57
13C2-PFTeDA (surr.)	1	%	^J 44
Perfluoroalkyl sulfonamido substances			
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.05	ug/L	< 0.05
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.05	ug/L	< 0.05
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.05	ug/L	< 0.05
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.05	ug/L	< 0.05
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.05	ug/L	< 0.05

Client Sample ID			Dup2
Sample Matrix			Water
Eurofins Sample No.			L25-Se0068924
Date Sampled			Sep 19, 2025
Test/Reference	LOR	Unit	
Perfluoroalkyl sulfonamido substances			
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.05	ug/L	< 0.05
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.05	ug/L	< 0.05
13C8-FOSA (surr.)	1	%	56
D3-N-MeFOSA (surr.)	1	%	^J -18
D5-N-EtFOSA (surr.)	1	%	^J -15
D7-N-MeFOSE (surr.)	1	%	^J -25
D9-N-EtFOSE (surr.)	1	%	^J -22
D5-N-EtFOSAA (surr.)	1	%	65
D3-N-MeFOSAA (surr.)	1	%	61
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.01	ug/L	< 0.01
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	0.05	ug/L	< 0.05
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.01	ug/L	< 0.01
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.01	ug/L	< 0.01
13C2-4:2 FTSA (surr.)	1	%	80
13C2-6:2 FTSA (surr.)	1	%	76
13C2-8:2 FTSA (surr.)	1	%	72
13C2-10:2 FTSA (surr.)	1	%	56
Perfluoroalkyl sulfonic acids (PFASs)			
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.01	ug/L	< 0.01
Perfluorononanesulfonic acid (PFNS)* ^{N15}	0.01	ug/L	< 0.01
Perfluoropropanesulfonic acid (PFPrS)* ^{N15}	0.01	ug/L	< 0.01
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.01	ug/L	< 0.01
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.01	ug/L	< 0.01
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.01	ug/L	< 0.01
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.01	ug/L	< 0.01
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.01	ug/L	< 0.01
13C3-PFBS (surr.)	1	%	79
18O2-PFHxS (surr.)	1	%	74
13C8-PFOS (surr.)	1	%	68
PFASs Summations			
Sum (PFHxS + PFOS)*	0.01	ug/L	< 0.01
Sum of PFASs (n=30)*	0.1	ug/L	< 0.1
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	0.01
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	0.01
Sum of WA DWER PFAS (n=10)*	0.05	ug/L	< 0.05

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Welshpool	Sep 23, 2025	7 Days
BTEX - Method: LTM-ORG-2010 TRH C6-C40	Welshpool	Sep 23, 2025	14 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Welshpool	Sep 23, 2025	7 Days
Polycyclic Aromatic Hydrocarbons - Method: LTM-ORG-2130 PAH and Phenols in Soil and Water	Welshpool	Sep 23, 2025	7 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Welshpool	Sep 23, 2025	7 Days
Metals M8 - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Welshpool	Sep 23, 2025	28 Days
Perfluoroalkyl carboxylic acids (PFCAs) - Method: Method ARL0510_ARL0511 PFAS in aqueous & solid samples by LC-MS/MS	Welshpool	Sep 23, 2025	28 Days
Perfluoroalkyl sulfonamido substances - Method: Method ARL0510_ARL0511 PFAS in aqueous & solid samples by LC-MS/MS	Welshpool	Sep 23, 2025	28 Days
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs) - Method: Method ARL0510_ARL0511 PFAS in aqueous & solid samples by LC-MS/MS	Welshpool	Sep 23, 2025	28 Days
Perfluoroalkyl sulfonic acids (PFSAs) - Method: Method ARL0510_ARL0511 PFAS in aqueous & solid samples by LC-MS/MS	Welshpool	Sep 23, 2025	28 Days



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Company Name:	Douglas Partners Pty Ltd	Order No.:	PE252236	Received:	Sep 22, 2025 12:50 PM
Address:	36 O'Malley Street Osborne Park WA 6017	Report #:	1271319	Due:	Sep 30, 2025
Project Name:	PICTON	Phone:	08 9204 3511	Priority:	5 Day
Project ID:	236293.02	Fax:		Contact Name:	Rob Shapland
Eurofins Analytical Services Manager : Natalie Hill					

Sample Detail						Metals M8	Eurofins Suite B4	Per- and Polyfluoroalkyl Substances (PFASs)
						X	X	X
Perth Laboratory - NATA # 2377 Site # 2370 & 2554								
External Laboratory								
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID			
1	Dup2	Sep 19, 2025		Water	L25-Se0068924	X	X	X
Test Counts						1	1	1

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follow guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013. They are included in this QC report where applicable. Additional QC data may be available on request.
2. Unless otherwise stated, all soil/sediment/solid results are reported on a dry weight basis.
3. Unless otherwise stated, all biota/food results are reported on a wet weight basis on the edible portion.
4. For CEC results where the sample's origin is unknown or environmentally contaminated, the results should be used advisedly.
5. Actual LORs are matrix dependent. Quoted LORs may be raised where sample extracts are diluted due to interferences.
6. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds where annotated.
7. SVOC analysis on waters is performed on homogenised, unfiltered samples unless noted otherwise.
8. Samples were analysed on an 'as received' basis.
9. Information identified in this report with **blue** colour indicates data provided by customers that may have an impact on the results.
10. This report replaces any interim results previously issued.

Holding Times

Please refer to the 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours before sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and despite any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the sampling date; therefore, compliance with these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether, the holding time is seven days; however, for all other VOCs, such as BTEX or C6-10 TRH, the holding time is 14 days.

Units

mg/kg: milligrams per kilogram	mg/L: milligrams per litre	ppm: parts per million
µg/L: micrograms per litre	ppb: parts per billion	%: Percentage
org/100 mL: Organisms per 100 millilitres	NTU: Nephelometric Turbidity Units	MPN/100 mL: Most Probable Number of organisms per 100 millilitres
CFU: Colony Forming Unit	Colour: Pt-Co Units (CU)	

Terms

APHA	American Public Health Association
CEC	Cation Exchange Capacity
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples, these are performed on laboratory-certified clean sands and in the case of water samples, these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a similar compound to the analyte target is reported as percentage recovery. See below for acceptance criteria.
TBTO	Tributyltin oxide (<i>bis</i> -tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however, free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 6.0
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should only be used as a guide and may be different when site-specific Sampling Analysis and Quality Plan (SAQP) have been implemented.

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is ≤30%; however, the following acceptance guidelines are equally applicable:

Results <10 times the LOR:	No Limit
Results between 10-20 times the LOR:	RPD must lie between 0-50%
Results >20 times the LOR:	RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range, not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%, VOC recoveries 50 – 150%

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, where no positive PFAS results have been reported or reviewed, and no data was affected.

QC Data General Comments

1. Where a result is reported as less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown are not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery, the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results, a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data; thus, it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
TRH C10-C14	mg/L	< 0.02			0.02	Pass	
TRH C15-C28	mg/L	< 0.04			0.04	Pass	
TRH C29-C36	mg/L	< 0.04			0.04	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total*	mg/L	< 0.003			0.003	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.001			0.001	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/L	< 0.001			0.001	Pass	
Acenaphthylene	mg/L	< 0.001			0.001	Pass	
Anthracene	mg/L	< 0.001			0.001	Pass	
Benz(a)anthracene	mg/L	< 0.001			0.001	Pass	
Benzo(a)pyrene	mg/L	< 0.001			0.001	Pass	
Benzo(b&j)fluoranthene	mg/L	< 0.001			0.001	Pass	
Benzo(g,h,i)perylene	mg/L	< 0.001			0.001	Pass	
Benzo(k)fluoranthene	mg/L	< 0.001			0.001	Pass	
Chrysene	mg/L	< 0.001			0.001	Pass	
Dibenz(a,h)anthracene	mg/L	< 0.001			0.001	Pass	
Fluoranthene	mg/L	< 0.001			0.001	Pass	
Fluorene	mg/L	< 0.001			0.001	Pass	
Indeno(1,2,3-cd)pyrene	mg/L	< 0.001			0.001	Pass	
Naphthalene	mg/L	< 0.001			0.001	Pass	
Phenanthrene	mg/L	< 0.001			0.001	Pass	
Pyrene	mg/L	< 0.001			0.001	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	mg/L	< 0.02			0.02	Pass	
TRH >C16-C34	mg/L	< 0.05			0.05	Pass	
TRH >C34-C40	mg/L	< 0.05			0.05	Pass	
Method Blank							
Metals M8							
Arsenic	mg/L	< 0.001			0.001	Pass	
Cadmium	mg/L	< 0.0001			0.0001	Pass	
Chromium	mg/L	< 0.001			0.001	Pass	
Copper	mg/L	< 0.001			0.001	Pass	
Lead	mg/L	< 0.001			0.001	Pass	
Mercury	mg/L	< 0.0001			0.0001	Pass	
Nickel	mg/L	< 0.001			0.001	Pass	
Zinc	mg/L	< 0.005			0.005	Pass	
Method Blank							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.05			0.05	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.01			0.01	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.01			0.01	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.05			0.05	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.01			0.01	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.01			0.01	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.01			0.01	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.01			0.01	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.01			0.01	Pass	
Perfluorotridecanoic acid (PFTrDA)	ug/L	< 0.01			0.01	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.01			0.01	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.05			0.05	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.05			0.05	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.05			0.05	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/L	< 0.05			0.05	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/L	< 0.05			0.05	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.05			0.05	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.05			0.05	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.01			0.01	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.05			0.05	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.01			0.01	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.01			0.01	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.01			0.01	Pass	
Perfluorononanesulfonic acid (PFNS)*	ug/L	< 0.01			0.01	Pass	
Perfluoropropanesulfonic acid (PFPrS)*	ug/L	< 0.01			0.01	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.01			0.01	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.01			0.01	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.01			0.01	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.01			0.01	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.01			0.01	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	%	96			70-130	Pass	
TRH C10-C14	%	118			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	89			70-130	Pass	
Toluene	%	93			70-130	Pass	
Ethylbenzene	%	96			70-130	Pass	
m&p-Xylenes	%	94			70-130	Pass	
o-Xylene	%	94			70-130	Pass	
Xylenes - Total*	%	94			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	80			70-130	Pass	
TRH C6-C10	%	94			70-130	Pass	
LCS - % Recovery							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	97			70-130	Pass	
Acenaphthylene	%	84			70-130	Pass	
Anthracene	%	90			70-130	Pass	
Benz(a)anthracene	%	87			70-130	Pass	
Benzo(a)pyrene	%	106			70-130	Pass	
Benzo(b&j)fluoranthene	%	106			70-130	Pass	
Benzo(k)fluoranthene	%	111			70-130	Pass	
Chrysene	%	118			70-130	Pass	
Dibenz(a,h)anthracene	%	86			70-130	Pass	
Fluoranthene	%	110			70-130	Pass	
Fluorene	%	110			70-130	Pass	
Indeno(1.2.3-cd)pyrene	%	94			70-130	Pass	
Naphthalene	%	92			70-130	Pass	
Phenanthrene	%	105			70-130	Pass	
Pyrene	%	127			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	%	121			70-130	Pass	
LCS - % Recovery							
Metals M8							
Arsenic	%	106			80-120	Pass	
Cadmium	%	101			80-120	Pass	
Chromium	%	108			80-120	Pass	
Copper	%	99			80-120	Pass	
Lead	%	103			80-120	Pass	
Mercury	%	109			80-120	Pass	
Nickel	%	108			80-120	Pass	
Zinc	%	106			80-120	Pass	
LCS - % Recovery							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	%	91			50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	86			50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	106			50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	99			50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	98			50-150	Pass	
Perfluorononanoic acid (PFNA)	%	99			50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	107			50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	114			50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	102			50-150	Pass	
Perfluorotridecanoic acid (PFTriDA)	%	98			50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	113			50-150	Pass	
LCS - % Recovery							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	%	118			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	90			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	85			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	88			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	82			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	101			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	119			50-150	Pass	
LCS - % Recovery							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	91			50-150	Pass	

Test				Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)				%	104			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)				%	103			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)				%	106			50-150	Pass	
LCS - % Recovery										
Perfluoroalkyl sulfonic acids (PFSAs)										
Perfluorobutanesulfonic acid (PFBS)				%	96			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)*				%	90			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)*				%	82			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)				%	82			50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)				%	95			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)				%	102			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)				%	105			50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)				%	93			50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1				Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery										
Total Recoverable Hydrocarbons - 1999 NEPM Fractions					Result 1					
TRH C6-C9	L25-Se0072008	NCP	%	98				70-130	Pass	
TRH C10-C14	L25-Se0063170	NCP	%	99				70-130	Pass	
Spike - % Recovery										
BTEX					Result 1					
Benzene	L25-Se0072008	NCP	%	97				70-130	Pass	
Toluene	L25-Se0072008	NCP	%	96				70-130	Pass	
Ethylbenzene	L25-Se0072008	NCP	%	97				70-130	Pass	
m&p-Xylenes	L25-Se0072008	NCP	%	95				70-130	Pass	
o-Xylene	L25-Se0072008	NCP	%	95				70-130	Pass	
Xylenes - Total*	L25-Se0072008	NCP	%	95				70-130	Pass	
Spike - % Recovery										
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					Result 1					
TRH C6-C10	L25-Se0072008	NCP	%	96				70-130	Pass	
Spike - % Recovery										
Polycyclic Aromatic Hydrocarbons					Result 1					
Acenaphthene	L25-Se0063170	NCP	%	97				70-130	Pass	
Acenaphthylene	L25-Se0063170	NCP	%	89				70-130	Pass	
Anthracene	L25-Se0063170	NCP	%	97				70-130	Pass	
Benz(a)anthracene	L25-Se0063170	NCP	%	90				70-130	Pass	
Benzo(a)pyrene	L25-Se0063170	NCP	%	113				70-130	Pass	
Benzo(b&j)fluoranthene	L25-Se0063170	NCP	%	111				70-130	Pass	
Benzo(g,h,i)perylene	L25-Se0063170	NCP	%	91				70-130	Pass	
Chrysene	L25-Se0063170	NCP	%	104				70-130	Pass	
Dibenz(a,h)anthracene	L25-Se0063170	NCP	%	117				70-130	Pass	
Naphthalene	L25-Se0063170	NCP	%	100				70-130	Pass	
Phenanthrene	L25-Se0063170	NCP	%	115				70-130	Pass	
Spike - % Recovery										
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					Result 1					
TRH >C10-C16	L25-Se0063170	NCP	%	101				70-130	Pass	
Spike - % Recovery										
Metals M8					Result 1					
Mercury	L25-Se0071924	NCP	%	83				75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1	Result 2	RPD	Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	L25-Se0066276	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH C10-C14	L25-Se0068924	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH C15-C28	L25-Se0068924	CP	mg/L	< 0.04	< 0.04	<1	30%	Pass	
TRH C29-C36	L25-Se0068924	CP	mg/L	< 0.04	< 0.04	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	L25-Se0066276	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Toluene	L25-Se0066276	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Ethylbenzene	L25-Se0066276	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
m&p-Xylenes	L25-Se0066276	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass	
o-Xylene	L25-Se0066276	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total*	L25-Se0066276	NCP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	L25-Se0066276	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
TRH C6-C10	L25-Se0066276	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
TRH >C10-C16	L25-Se0068924	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass	
TRH >C16-C34	L25-Se0068924	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH >C34-C40	L25-Se0068924	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
Duplicate									
Metals M8				Result 1	Result 2	RPD			
Arsenic	L25-Se0071925	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium	L25-Se0071925	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Chromium	L25-Se0070406	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Copper	L25-Se0071925	NCP	mg/L	0.008	0.008	1.0	30%	Pass	
Lead	L25-Se0071925	NCP	mg/L	0.003	0.003	2.0	30%	Pass	
Mercury	L25-Se0071925	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass	
Nickel	L25-Se0070406	NCP	mg/L	0.002	0.002	10	30%	Pass	
Zinc	L25-Se0071925	NCP	mg/L	0.024	0.025	2.0	30%	Pass	
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	L25-Se0070398	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	L25-Se0070398	NCP	ug/L	0.03	0.03	2.0	30%	Pass	
Perfluorohexanoic acid (PFHxA)	L25-Se0070398	NCP	ug/L	0.03	0.03	2.0	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	L25-Se0070398	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	L25-Se0070398	NCP	ug/L	0.01	0.01	5.0	30%	Pass	
Perfluorononanoic acid (PFNA)	L25-Se0070398	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	L25-Se0070398	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	L25-Se0070398	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	L25-Se0070398	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorotridecanoic acid (PFTTrDA)	L25-Se0070398	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	L25-Se0070398	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass	

Duplicate								
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD		
Perfluorooctane sulfonamide (FOSA)	L25-Se0070398	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	L25-Se0070398	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	L25-Se0070398	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	L25-Se0070398	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	L25-Se0070398	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	L25-Se0070398	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	L25-Se0070398	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
Duplicate								
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)				Result 1	Result 2	RPD		
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	L25-Se0070398	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	L25-Se0070398	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	L25-Se0070398	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	L25-Se0070398	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFSA)				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	L25-Se0070398	NCP	ug/L	0.03	0.03	2.0	30%	Pass
Perfluorononanesulfonic acid (PFNS)*	L25-Se0070398	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)*	L25-Se0070398	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	L25-Se0070398	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	L25-Se0070398	NCP	ug/L	0.02	0.02	1.0	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	L25-Se0070398	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	L25-Se0070398	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	L25-Se0070398	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
J-	If the percent recoveries were less than the lower control limit, qualify detects for the analyte in associated samples as estimated with a negative bias J-.
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
N09	Quantification of linear and branched isomers has been conducted as a single total response using the relative response factor for the corresponding linear/branched standard.
N11	Isotope dilution is used for calibration of each native compound for which an exact labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds.
N15	Where the native PFAS compound does not have labelled analogue then the quantification is made using the Extracted Internal Standard Analyte with the closest retention time to the analyte and no recovery correction has been made (Internal Standard Quantitation).

Authorised by:

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Douglas Todd	Senior Analyst-Metal
Douglas Todd	Senior Analyst-Volatile
Patrick Patfield	Senior Analyst-Organic
Patrick Patfield	Senior Analyst-PFAS



Kim Rodgers
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request

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Appendix I

Data Quality Assurance and Quality Control

1. Field and laboratory data quality assurance and quality control

The field and laboratory data quality assurance and quality control (QA/QC) procedures and results are summarised in the following Table 1. Reference should be made to the field work methodology and the laboratory results / certificates of analysis for further details. The relative percentage difference (RPD) results, along with the other field QC samples are included at the end of this appendix.

Table 1: Field and laboratory quality control

Item	Evaluation / acceptance criteria	Compliance
Analytical laboratories used	NATA accreditation	C
Holding times	Various based on type of analysis	PC
Intra-laboratory replicates	5% - 10% of primary samples; <30% RPD	PC
Inter-laboratory replicates	5% - 10% of primary samples; <30% RPD	PC
Trip spikes	1 per sampling event; 60-140% recovery	C
Trip blanks	1 per sampling event; <PQL	C
Laboratory / reagent blanks	1 per batch; <PQL	C
Laboratory duplicate	1 per lab batch; as laboratory certificate	C
Matrix spikes	1 per lab batch; 70-130% recovery (inorganics); 60-140% recovery (organics)	C
Surrogate spikes	All organics analysis; 70-130% recovery (inorganics); 60-140% recovery (organics)	C
Control samples	1 per lab batch; 70-130% recovery (inorganics); 60-140% recovery (organics)	C
Standard operating procedures (SOP)	Adopting SOP for all aspects of the sampling field work	C

Notes:

C = compliance; PC = partial compliance; NC = non-compliance

The RPD results were all within the acceptable range, with the exception of those indicated in Tables I-1 and I-2 (results in bold). The exceedances are not, however, considered to be of concern given that:

- The actual differences in the concentrations of the replicate pairs where RPD exceedances occurred were typically low;
- The replicate pairs were collected from fill soils which by its nature are heterogeneous;

- Replicates, rather than homogenised duplicates, were used to minimise risk of volatile loss, hence greater analytical variability between replicate pairs can be expected;
- The majority of RPD results from a replicate pair were within the acceptable limits; and
- All other QA/QC parameters met the data quality indicators.

In summary, the QC data is determined to be of sufficient quality to be considered acceptable for the assessment.

2. Data quality indicators

The reliability of field procedures and analytical results was assessed against the following data quality indicators (DQI) as outlined in NEPC *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013)* [NEPM] (NEPC, 2013):

- Completeness: a measure of the amount of usable data from a data collection activity;
- Comparability: the confidence (qualitative) that data may be considered to be equivalent for each sampling and analytical event;
- Representativeness: the confidence (qualitative) of data representativeness of media present on-site;
- Precision: a measure of variability or reproducibility of data; and
- Accuracy: a measure of closeness of the data to the 'true' value.

The results of the assessment are summarised in Table 2.

Table 2: Data quality indicators

Data quality indicator	Method(s) of achievement
Completeness	Systematic and selected target locations sampled.
	Preparation of borehole logs, sample location plan and chain of custody records.
	Preparation of field groundwater sampling sheets.
	Laboratory sample receipt information received confirming receipt of samples intact and appropriateness of the chain of custody.
	Samples analysed for contaminants of potential concern (CoPC) identified in the conceptual site model (CSM).
	Completion of chain of custody documentation.
	NATA accredited laboratory results certificates provided by the laboratory.
	Satisfactory frequency and results for field and laboratory quality control (QC) samples as discussed in Section 1.

Data quality indicator	Method(s) of achievement
Comparability	Using appropriate techniques for sample recovery, storage and transportation, which were the same for the duration of the project.
	Experienced sampler(s) used.
	Use of NATA registered laboratories, with test methods the same or similar between laboratories.
	Satisfactory results for field and laboratory QC samples.
Representativeness	Target media sampled.
	Sample numbers recovered and analysed are considered to be representative of the target media and complying with DQO.
	Samples were extracted and analysed within holding times.
	Samples were analysed in accordance with the chain of custody.
Precision	Field staff followed standard operating procedures.
	Acceptable RPD between original samples and replicates.
	Satisfactory results for all other field and laboratory QC samples.
Accuracy	Field staff followed standard operating procedures.
	Satisfactory results for all field and laboratory QC samples.

Based on the above, it is considered that the DQI have generally been complied with.

3. Conclusion

Based on the results of the field QA and field and laboratory QC, and evaluation against the DQI it is concluded that the field and laboratory test data obtained are reliable and useable for this assessment.

4. References

NEPC. (2013). *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM]*. Australian Government Publishing Services Canberra: National Environment Protection Council.

Table I-1: Quality Control Results (Soils)

Analyte Group / Analyte	Unit	LOR	TP12	Dup1 (intra)	RPD (%)	TP11	Dup2 (intra)	RPD (%)	TP15	Dup3 (intra)	RPD (%)	TP13	Dup4 (inter)	RPD (%)	TP16	Dup5 (inter)	RPD (%)	TS1	TB1	TS2	TB2		
			0.4-0.5			0 -0.1			0 - 0.1			0 - 0.1	0 - 0.1		0 - 0.1								
			23/9/25	23/9/25	23/9/25	23/9/25	23/9/25	23/9/25	23/9/25	23/9/25	23/9/25	23/9/25	23/9/25	22/9/25	22/9/25	22/9/25		22/9/25	22/9/25	23/9/25	23/9/25	23/9/25	23/9/25
Metals / metalloids																							
Arsenic	mg/kg	4	<4.0	<4.0	0	5.1	<4.0	24	-	-	-	<4.0	<2.0	N/A	<4.0	<2.0	N/A	-	-	-	-		
Cadmium	mg/kg	0.4	<0.40	<0.40	0	<0.40	<0.40	0	-	-	-	<0.40	<0.1	N/A	<0.40	<0.1	N/A	-	-	-	-		
Chromium	mg/kg	1	<1.0	<1.0	0	5.5	<1.0	138	-	-	-	4.0	1.6	86	2.3	2.7	16	-	-	-	-		
Copper	mg/kg	1	<1.0	<1.0	0	<1.0	<1.0	0	-	-	-	<1.0	1.2	18	<1.0	<1.0	0	-	-	-	-		
Mercury	mg/kg	0.1	<0.10	<0.10	0	<0.10	<0.10	0	-	-	-	<0.10	<0.02	N/A	<0.10	<0.02	N/A	-	-	-	-		
Nickel	mg/kg	1	<1.0	<1.0	0	<1.0	<1.0	0	-	-	-	<1.0	<1.0	0	<1.0	<1.0	0	-	-	-	-		
Lead	mg/kg	1	<1.0	<1.0	0	1.2	<1.0	18	-	-	-	1.9	1.2	45	1.5	1.8	18	-	-	-	-		
Zinc	mg/kg	1	5.5	<1.0	138	1.6	<1.0	46	-	-	-	13.0	18	32	3.8	<5	27	-	-	-	-		
Total Recoverable Hydrocarbons																							
TRH C6 - C9	mg/kg	25	<25	<25	0	<25	<25	0	-	-	-	<25	<20	N/A	<25	<20	N/A	-	<10	-	<10		
TRH C6 - C10	mg/kg	25	<25	<25	0	<25	<25	0	-	-	-	<25	<20	N/A	<25	<20	N/A	-	<10	-	<10		
TRH C6-C10 less BTEX (F1)	mg/kg	25	<25	<25	0	<25	<25	0	-	-	-	<25	<20	N/A	<25	<20	N/A	-	<10	-	<10		
TRH C10 - C14	mg/kg	50	<50	<50	0	<50	<50	0	-	-	-	<50	<20	N/A	<50	<20	N/A	-	-	-	-		
TRH C15 - C28	mg/kg	100	<100	<100	0	<100	<100	0	-	-	-	<100	<50	N/A	<100	<50	N/A	-	-	-	-		
TRH C29 - C36	mg/kg	100	<100	<100	0	<100	<100	0	-	-	-	<100	<50	N/A	<100	<50	N/A	-	-	-	-		
TRH >C10 - C16	mg/kg	50	<50	<50	0	<50	<50	0	-	-	-	<50	<50	0	<50	<50	0	-	-	-	-		
TRH >C10-C16 less N (F2)	mg/kg	50	<50	<50	0	<50	<50	0	-	-	-	<50	<50	0	<50	<50	0	-	-	-	-		
TRH >C16 - C34	mg/kg	100	<100	<100	0	<100	<100	0	-	-	-	<100	<100	0	<100	<100	0	-	-	-	-		
TRH >C34 - C40	mg/kg	100	<100	<100	0	<100	<100	0	-	-	-	<100	<100	0	<100	<100	0	-	-	-	-		
Monocyclic Aromatic Hydrocarbons																							
MTBE	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	-	-	-	<0.5	-		<0.5	-		-	<1.0	-	<1.0		
Benzene	mg/kg	0.2	<0.2	<0.2	0	<0.2	<0.2	0	-	-	-	<0.2	<0.1	N/A	<0.2	<0.1	N/A	86.6	<1.0	82	<1.0		
Toluene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	-	-	-	<0.5	<0.1	N/A	<0.5	<0.1	N/A	113	<1.0	113	<1.0		
Ethylbenzene	mg/kg	1	<1	<1	0	<1	<1	0	-	-	-	<1	<0.1	N/A	<1	<0.1	N/A	90.2	<1.0	78.8	<1.0		
m+p-xylene	mg/kg	2	<2	<2	0	<2	<2	0	-	-	-	<2	<0.2	N/A	<2	<0.2	N/A	82.4	<2.0	77.6	<2.0		
o-xylene	mg/kg	1	<1	<1	0	<1	<1	0	-	-	-	<1	<0.1	N/A	<1	<0.1	N/A	90.5	<1.0	84.3	<1.0		
Naphthalene	mg/kg	1	<1	<1	0	<1	<1	0	-	-	-	<1	<0.5	N/A	<1	<0.5	N/A	-	<1.0	-	<1.0		
Polycyclic Aromatic Hydrocarbons																							
Naphthalene	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	-	-	-	<0.1	<0.5	0	<0.1	<0.1	0	-	-	-	-		
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	-	-	-	<0.1	<0.5	0	<0.1	<0.1	0	-	-	-	-		
Acenaphthene	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	-	-	-	<0.1	<0.5	0	<0.1	<0.1	0	-	-	-	-		
Fluorene	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	-	-	-	<0.1	<0.5	0	<0.1	<0.1	0	-	-	-	-		
Phenanthrene	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	-	-	-	<0.1	<0.5	0	<0.1	<0.1	0	-	-	-	-		
Anthracene	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	-	-	-	<0.1	<0.5	0	<0.1	<0.1	0	-	-	-	-		
Fluoranthene	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	-	-	-	<0.1	<0.5	0	<0.1	<0.1	0	-	-	-	-		
Pyrene	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	-	-	-	<0.1	<0.5	0	<0.1	<0.1	0	-	-	-	-		
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	-	-	-	<0.1	<0.5	0	<0.1	<0.1	0	-	-	-	-		
Chrysene	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	-	-	-	<0.1	<0.5	0	<0.1	<0.1	0	-	-	-	-		
Benzo(b,j+k)fluoranthene	mg/kg	0.2	<0.2	<0.2	0	<0.2	<0.2	0	-	-	-	<0.2	<0.5	0	<0.2	<0.2	0	-	-	-	-		
Benzo(a)pyrene	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	-	-	-	<0.05	<0.5	0	<0.05	<0.05	0	-	-	-	-		
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	-	-	-	<0.1	<0.5	0	<0.1	<0.1	0	-	-	-	-		
Dibenzo(a,h)anthracene	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	-	-	-	<0.1	<0.5	0	<0.1	<0.1	0	-	-	-	-		
Benzo(g,h,i)perylene	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	-	-	-	<0.1	<0.5	0	<0.1	<0.1	0	-	-	-	-		
Benzo(a)pyrene TEQ calc (zero)	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	-	-	-	<0.5	<0.5	0	<0.5	<0.5	0	-	-	-	-		
Benzo(a)pyrene TEQ calc(half)	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	-	-	-	<0.5	<0.5	0	<0.5	<0.5	0	-	-	-	-		
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	-	-	-	<0.5	0.6	N/A	<0.5	0.6	N/A	-	-	-	-		
Total Positive PAHs	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	-	-	-	<0.05	1.2	N/A	<0.05	1.2	N/A	-	-	-	-		
Per- and Poly-fluoronated Alkyl Substances (Short Suite)																							
Perfluorobutanesulfonic acid (PFBS)	µg/kg	0.1	<0.10	<0.10	0	<0.10	<0.10	0	<0.10	<0.10	0	<0.10	<0.10	0	<0.10	<0.10	0	-	-	-	-		
Perfluorohexanesulfonic acid (PFHxS)	µg/kg	0.1	<0.10	<0.10	0	<0.10	<0.10	0	<0.10	<0.10	0	<0.10	<0.10	0	<0.10	<0.10	0	-	-	-	-		
Perfluorooctanesulfonic acid (PFOS)	µg/kg	0.1	0.38	<0.10	117	<0.10	<0.10	0	<0.10	<0.10	0	<0.10	<0.10	0	<0.10	<0.10	0	-	-	-	-		
Perfluorooctanoic acid (PFOA)	µg/kg	0.1	0.13	0.28	73	<0.10	<0.10	0	<0.10	<0.10	0	0.14	<0.10	33	<0.10	<0.10	0	-	-	-	-		
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/kg	0.1	<0.10	0.18	57	<0.10	<0.10	0	<0.10	<0.10	0	<0.10	<0.10	0	<0.10	<0.10	0	-	-	-	-		
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/kg	0.2	<0.20	14	194	<0.20	<0.20	0	<0.20	<0.20	0	<0.20	<0.20	0	<0.20	<0.20	0	-	-	-	-		
Total +ve PFHxS+PFOS	µg/kg	0.1	0.38	<0.10	117	<0.10	<0.10	0	<0.10	<0.10	0	<0.10	<0.10	0	<0.10	<0.10	0	-	-	-	-		
Total +ve PFOA+PFOS	µg/kg	0.1	0.51	0.28	58	<0.10	<0.10	0	<0.10.														

Notes:

150	Bold cells indicate a non zero result
170	Bold + yellow highlighted cells indicate exceedance of adopted RPD values.

Table I-2: Summary of Quality Control Results

Analyte Group / Analyte	Unit	PQL	MW04	Dupl (intra)	RPD (%)	MW04	Dup 2 (inter)	RPD (%)	MW08	Dupl (intra)	RPD (%)	TS1	TB1	TB1	TS1
			19/09/2025	19/9/2025		19/09/2025	19/9/2025		23/10/2025	23/10/2025		19/09/2025	19/09/2025	23/10/2025	23/10/2025
Dissolved Metals															
Arsenic-Dissolved	µg/L	1	<1.0	<1.0	0	<1.0	<1	0	<1.0	<1.0	0.0	-	-	-	-
Cadmium-Dissolved	µg/L	0.1	<0.10	<0.10	0	<0.10	<0.1	0	<0.10	<0.10	0	-	-	-	-
Chromium-Dissolved	µg/L	1	<1.0	<1.0	0	<1.0	1	0	<1.0	1.4	33	-	-	-	-
Copper-Dissolved	µg/L	1	31	31	0	31	3	3	<1.0	<1.0	0	-	-	-	-
Mercury-Dissolved	µg/L	0.05	<0.050	<0.050	0	<0.050	<0.1	0	<0.050	<0.050	0	-	-	-	-
Nickel-Dissolved	µg/L	1	2	2	0	2	3	40	21	2.2	5	-	-	-	-
Lead-Dissolved	µg/L	1	<1.0	<1.0	0	<1.0	<1	0	<1.0	<1.0	0	-	-	-	-
Zinc-Dissolved	µg/L	1	6.3	6.1	3	6.3	5.0	23	21	2.0	5	-	-	-	-
Total Recoverable Hydrocarbons															
TRH C6 - C9	µg/L	10	<10	<10	0	<10	<20	N/A	<20	<20	0	<10	-	<10	-
TRH C6 - C10	µg/L	10	<10	<10	0	<10	<20	N/A	<20	<20	0	<10	-	<10	-
TRH C6-C10 less BTEX (F1)	µg/L	10	<10	<10	0	<10	<20	N/A	<20	<20	0	<10	-	<10	-
TRH C10 - C14	µg/L	50	<50	<50	0	<50	<20	N/A	<50	<50	0	-	-	-	-
TRH C15 - C28	µg/L	100	<100	<100	0	<100	<40	N/A	<100	<100	0	-	-	-	-
TRH C29 - C36	µg/L	100	<100	<100	0	<100	<40	N/A	<100	<100	0	-	-	-	-
TRH <C10 - C16	µg/L	50	<50	<50	0	<50	<20	N/A	<50	<50	0	-	-	-	-
TRH >C10-C16 less N (F2)	µg/L	50	<50	<50	0	<50	<20	N/A	<50	<50	0	-	-	-	-
TRH >C16 - C34	µg/L	100	<100	<100	0	<100	<50	N/A	<100	<100	0	-	-	-	-
TRH >C34 - C40	µg/L	100	<100	<100	0	<100	<50	N/A	<100	<100	0	-	-	-	-
Monocyclic Aromatic Hydrocarbons															
MTBE	µg/L	1	<1.0	<1.0	0	<1.0	-		<2.0	<2.0	0	<1.0		<1.0	
Benzene	µg/L	1	<1.0	<1.0	0	<1.0	<1	0	<2.0	<2.0	0	<1.0	88.9%	<1.0	87.6%
Toluene	µg/L	1	<1.0	<1.0	0	<1.0	<1	0	<2.0	<2.0	0	<1.0	88.1%	<1.0	87.1%
Ethylbenzene	µg/L	1	<1.0	<1.0	0	<1.0	<1	0	<2.0	<2.0	0	<1.0	85.5%	<1.0	84.8%
m+p-xylene	µg/L	2	<2.0	<2.0	0	<2.0	<2	0	<4.0	<4.0	0	<2.0	84.8%	<2.0	84.2%
o-xylene	µg/L	1	<1.0	<1.0	0	<1.0	<1	0	<2.0	<2.0	0	<1.0	82.8%	<1.0	85.5%
Naphthalene	µg/L	1	<1.0	<1.0	0	<1.0	-		<2.0	<2.0	0	<1.0		<1.0	
Polycyclic Aromatic Hydrocarbons															
Naphthalene	µg/L	0.1	<0.10	<0.10	0	<0.10	<1	0	<0.10	<0.10	0	-	-	-	-
Acenaphthylene	µg/L	0.1	<0.10	<0.10	0	<0.10	<1	0	<0.10	<0.10	0	-	-	-	-
Acenaphthene	µg/L	0.1	<0.10	<0.10	0	<0.10	<1	0	<0.10	<0.10	0	-	-	-	-
Fluorene	µg/L	0.1	<0.10	<0.10	0	<0.10	<1	0	<0.10	<0.10	0	-	-	-	-
Phenanthrene	µg/L	0.1	<0.10	<0.10	0	<0.10	<1	0	<0.10	<0.10	0	-	-	-	-
Anthracene	µg/L	0.1	<0.10	<0.10	0	<0.10	<1	0	<0.10	<0.10	0	-	-	-	-
Fluoranthene	µg/L	0.1	<0.10	<0.10	0	<0.10	<1	0	<0.10	<0.10	0	-	-	-	-
Pyrene	µg/L	0.1	<0.10	<0.10	0	<0.10	<1	0	<0.10	<0.10	0	-	-	-	-
Benzo(a)anthracene	µg/L	0.1	<0.10	<0.10	0	<0.10	<1	0	<0.10	<0.10	0	-	-	-	-
Chrysene	µg/L	0.1	<0.10	<0.10	0	<0.10	<1	0	<0.10	<0.10	0	-	-	-	-
Benzo(b,j,k)fluoranthene	µg/L	0.2	<0.20	<0.20	0	<0.20	<1	0	<0.20	<0.20	0	-	-	-	-
Benzo(a)pyrene	µg/L	0.1	<0.10	<0.10	0	<0.10	<1	0	<0.10	<0.10	0	-	-	-	-
Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.10	<0.10	0	<0.10	<1	0	<0.10	<0.10	0	-	-	-	-
Dibenzo(a,h)anthracene	µg/L	0.1	<0.10	<0.10	0	<0.10	<1	0	<0.10	<0.10	0	-	-	-	-
Benzo(g,h,i)perylene	µg/L	0.1	<0.10	<0.10	0	<0.10	<1	0	<0.10	<0.10	0	-	-	-	-
Total +ve PAHs	µg/L	0.1	<0.10	<0.10	0	<0.10	<1	0	<0.10	<0.10	0	-	-	-	-
Per-and poly fluoroalkyl substances (PFAS)															
Perfluorobutanesulfonic acid (PFBS)	µg/L	0.0004	0.00054	0.00047	14	0.00054	<0.001	N/A	0.0075	0.0065	14	-	-	-	-
Perfluorohexanesulfonic acid (PFHxS)	µg/L	0.0002	<0.00020	<0.00020	0	<0.00020	<0.01	N/A	0.00047	0.00047	0	-	-	-	-
Perfluorooctanesulfonic acid (PFOS)	µg/L	0.0002	0.00033	<0.00020	0	0.00033	<0.01	N/A	0.00027	0.0003	11	-	-	-	-
Perfluorooctanoic acid (PFOA)	µg/L	0.0002	0.0083	0.0081	2	0.0083	0.01	19	0.0012	0.0011	9	-	-	-	-
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/L	0.0004	0.0028	0.0012	80	0.0028	<0.05	N/A	0.0024	0.0025	4	-	-	-	-
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.0004	<0.00040	<0.00040	0	<0.00040	<0.02	N/A	<0.00040	<0.00040	0	-	-	-	-
Total +ve PFHxS+PFOS	µg/L	0.0002	0.00033	<0.00020	49	0.00033	<0.01	N/A	0.00074	0.00077	4	-	-	-	-
Total +ve PFOA+PFOS	µg/L	0.0002	0.0086	0.0081	6	0.0086	0.01	15	0.0015	0.0014	7	-	-	-	-
Total +ve PFAS	µg/L	0.0002	0.012	0.0098	20	0.012	0.01	18	0.012	0.011	9	-	-	-	-

Notes:

150	Bold cells indicate a non zero result
176	Bold + yellow highlighted cells indicate exceedance of adopted RPD values.

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