

## Report Number: 18908

Date Issued: 9/10/2025

Revision Number: 00

### Site/Job: Mackas Groundwater - Quarterly

Client: Macka's Sand Pty Ltd  
Address: 2684 Nelson Bay Road  
Salt Ash NSW 2318  
Contact: Bret Jenkins

The following groundwater sample(s) were received on 29/09/2025

Client Sample Reference	Date Sampled	Lab ID	Matrix	General Comments
SP1	29/09/2025	18908/1	Water	
SP2	29/09/2025	18908/2	Water	
SP3	29/09/2025	18908/3	Water	
SP4	29/09/2025	18908/4	Water	
SP5	29/09/2025	18908/5	Water	
BL158	29/09/2025	18908/6	Water	
Dup' (SP2)	29/09/2025	18908/7	Water	

The sample(s) have been tested as received and results relate specifically to the samples tested.  
The following reports are included:

- Test Report
- Sampling Report
- Chain of Custody (if available)

Authorised by:



Anthony Crane  
Laboratory Manager



Liane Peyra  
Technical Officer

Results have been approved and report finalised on 9/10/2025.



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### Results

Well Parameters	Method	Lab ID Sample Date Sample ID Units	18908/1 29/09/2025 SP1	18908/2 29/09/2025 SP2	18908/3 29/09/2025 SP3	18908/4 29/09/2025 SP4	18908/5 29/09/2025 SP5
Depth Reference Point		TORef	TOM	TOM	TOM	TOM	TOM
Depth to Water	AS5667.11	m(bTORef)	13.87	2.34	2.29	0.46	1.13
Depth to Water	AS5667.11	m(bgl)	13.60	1.98	2.08	-0.05	-0.10
Standing Water Level	AS5667.11	m(AHD)	3.63	4.06	3.92	1.29	3.01

Well Parameters	Method	Lab ID Sample Date Sample ID Units	18908/6 29/09/2025 BL158	18908/7 29/09/2025 Dup' (SP2)
Depth Reference Point		TORef	TOM	TOM
Depth to Water	AS5667.11	m(bTORef)	0.28	2.34
Depth to Water	AS5667.11	m(bgl)	0.03	1.98
Standing Water Level	AS5667.11	m(AHD)	3.88	

Field Analysis	Method	Lab ID Sample Date Sample ID Units	18908/1 29/09/2025 SP1	18908/2 29/09/2025 SP2	18908/3 29/09/2025 SP3	18908/4 29/09/2025 SP4	18908/5 29/09/2025 SP5
Temperature	Temp	°C	20.8	17.5	17.4	17.6	19.0
pH	APHA 4500-H B	pH Units	5.8	5.3	5.1	5.5	5.5
Electrical Conductivity	APHA 2510 B	µS/cm 25°C	113	113	236	213	119
Dissolved Oxygen	APHA 4500-O G	mg/L	6.5	1.5	1.4	1.3	1.4
Oxidation Reduction Potential <sub>#</sub>	APHA 2580 B	mV	157	28	65	28	15
Turbidity	APHA 2130 B	NTU	85	11	1.3	2.9	7.5

Field Analysis	Method	Lab ID Sample Date Sample ID Units	18908/6 29/09/2025 BL158	18908/7 29/09/2025 Dup' (SP2)
Temperature	Temp	°C	16.6	17.7
pH	APHA 4500-H B	pH Units	5.4	5.3
Electrical Conductivity	APHA 2510 B	µS/cm 25°C	349	113
Dissolved Oxygen	APHA 4500-O G	mg/L	1.3	1.5
Oxidation Reduction Potential <sub>#</sub>	APHA 2580 B	mV	63	27
Turbidity	APHA 2130 B	NTU	3.5	11

Metals - Dissolved	Method	Lab ID Sample Date Sample ID Units	18908/1 29/09/2025 SP1	18908/2 29/09/2025 SP2	18908/3 29/09/2025 SP3	18908/4 29/09/2025 SP4	18908/5 29/09/2025 SP5
Arsenic	EXT	mg/L	<0.001	<0.001	<0.001	<0.001	0.002
Chromium	EXT	mg/L	<0.001	0.002	0.002	0.001	<0.001
Cobalt	EXT	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Iron	EXT	mg/L	0.01	0.97	0.27	0.25	0.32
Manganese	EXT	mg/L	0.007	0.010	<0.005	0.006	0.008
Zinc	EXT	mg/L	0.074	0.028	0.034	0.021	0.031

Metals - Dissolved	Method	Lab ID Sample Date Sample ID Units	18908/6 29/09/2025 BL158	18908/7 29/09/2025 Dup' (SP2)
Arsenic	EXT	mg/L	0.002	<0.001
Chromium	EXT	mg/L	0.003	0.003
Cobalt	EXT	mg/L	<0.001	<0.001
Iron	EXT	mg/L	1.4	0.96
Manganese	EXT	mg/L	0.030	0.010
Zinc	EXT	mg/L	0.041	0.032

TRH/BTEX	Method	Lab ID Sample Date Sample ID Units	18908/1 29/09/2025 SP1	18908/2 29/09/2025 SP2	18908/3 29/09/2025 SP3	18908/4 29/09/2025 SP4	18908/5 29/09/2025 SP5
Benzene	EXT	µg/L	<1	<1	<1	<1	<1
Toluene	EXT	µg/L	<1	<1	<1	<1	<1
Ethylbenzene	EXT	µg/L	<1	<1	<1	<1	<1
m+p-xylene	EXT	µg/L	<2	<2	<2	<2	<2
o-xylene	EXT	µg/L	<1	<1	<1	<1	<1
Total Xylenes	EXT	µg/L	<2	<2	<2	<2	<2
Sum of BTEX	EXT	µg/L	<2	<2	<2	<2	<2
Naphthalene	EXT	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
TRH C6 - C9	EXT	µg/L	<10	<10	<10	<10	<10
TRH C6 - C10	EXT	µg/L	<10	<10	<10	<10	<10
TRH C6 - C10 less BTEX (F1)	EXT	µg/L	<10	<10	<10	<10	<10
TRH C10 - C14	EXT	µg/L	<50	<50	<50	<50	<50
TRH C15 - C28	EXT	µg/L	<100	<100	<100	<100	<100
TRH C29 - C36	EXT	µg/L	110	<100	<100	<100	<100
TRH C10 - C36 (sum)	EXT	µg/L	110	<50	<50	<50	<50
TRH >C10 - C16	EXT	µg/L	<50	<50	<50	<50	<50
TRH >C16 - C34	EXT	µg/L	180	<100	<100	<100	<100
TRH >C34 - C40	EXT	µg/L	<100	<100	<100	<100	<100
TRH >C10 - C40 (sum)	EXT	µg/L	180	<50	<50	<50	<50
Silica Gel clean up	EXT	N/A	N/A	N/A	N/A	N/A	N/A



TRH/BTEX	Method	Lab ID Sample Date Sample ID Units	18908/6 29/09/2025 BL158	18908/7 29/09/2025 Dup' (SP2)
Benzene	EXT	µg/L	<1	<1
Toluene	EXT	µg/L	<1	<1
Ethylbenzene	EXT	µg/L	<1	<1
m+p-xylene	EXT	µg/L	<2	<2
o-xylene	EXT	µg/L	<1	<1
Total Xylenes	EXT	µg/L	<2	<2
Sum of BTEX	EXT	µg/L	<2	<2
Naphthalene	EXT	µg/L	<1.0	<1.0
TRH C6 - C9	EXT	µg/L	<10	<10
TRH C6 - C10	EXT	µg/L	<10	<10
TRH C6 - C10 less BTEX (F1)	EXT	µg/L	<10	<10
TRH C10 - C14	EXT	µg/L	<50	<50
TRH C15 - C28	EXT	µg/L	<100	<100
TRH C29 - C36	EXT	µg/L	<100	<100
TRH C10 - C36 (sum)	EXT	µg/L	<50	<50
TRH >C10 - C16	EXT	µg/L	<50	<50
TRH >C16 - C34	EXT	µg/L	<100	<100
TRH >C34 - C40	EXT	µg/L	<100	<100
TRH >C10 - C40 (sum)	EXT	µg/L	<50	<50
Silica Gel clean up	EXT	N/A	N/A	N/A

Date Tested	Method	Lab ID Sample Date Sample ID Units	18908/1 29/09/2025 SP1	18908/2 29/09/2025 SP2	18908/3 29/09/2025 SP3	18908/4 29/09/2025 SP4	18908/5 29/09/2025 SP5
<i>Date Tested - Field</i>	--	--	29/09/2025	29/09/2025	29/09/2025	29/09/2025	29/09/2025

Date Tested	Method	Lab ID Sample Date Sample ID Units	18908/6 29/09/2025 BL158	18908/7 29/09/2025 Dup' (SP2)
<i>Date Tested - Field</i>	--	--	29/09/2025	29/09/2025



## Report Comments:

Guideline applied - **SWMP Limits**.

Results in **bold** indicate an exceedance of the applied guideline.

When considering the pass or fail of tests the measurement of uncertainty of each parameter must be considered.

<https://www.vgt.com.au/measurement-uncertainty>

Field Analysis conducted onsite at Mackas Quarry

EXT : tests by Envirolab NATA Acc 2901 Report No. 391971

[NT]: Not tested

# Where present, indicates NATA accreditation does not cover the performance of this service.

## Sampling Report Number: 18908

Date Issued: 9/10/2025

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Sampling Conditions: Fine, 21 - 22 °C

Lab ID	Client Sample Reference	Licence/ Reference	Sampler	Date Sampled	Method of Sampling	Pre-treatment / Preservation
18908/1	SP1	13218-1 12108-5	T & D.Walker	29/09/2025 1:49 PM	AS5667.11, Bail	AS5667.1
18908/2	SP2	13218-2	T & D.Walker	29/09/2025 2:51 PM	AS5667.11, Pump	AS5667.1
18908/3	SP3	13218-3	T & D.Walker	29/09/2025 2:19 PM	AS5667.11, Pump	AS5667.1
18908/4	SP4	13218-4	T & D.Walker	29/09/2025 3:23 PM	AS5667.11, Bail	AS5667.1
18908/5	SP5	13218-5	T & D.Walker	29/09/2025 4:10 PM	AS5667.11, Pump	AS5667.1
18908/6	BL158	13218-6	T & D.Walker	29/09/2025 11:53 AM	AS5667.11, Bail	AS5667.1
18908/7	Dup' (SP2)	13218-2	T & D.Walker	29/09/2025 3:01 PM	AS5667.11, Pump	AS5667.1

Lab ID	Client Sample Reference	Sampling Observations
18908/1	SP1	Slightly turbid, tannins. No vehicle access for pump.
18908/2	SP2	Tannins
18908/3	SP3	Clear
18908/4	SP4	Clear, pvc sleeve diameter too narrow for pump
18908/5	SP5	Tannins
18908/6	BL158	Tannins, sulphurous odour, minor suspended sediment. Groundwater table above ground level & surrounding borehole.
18908/7	Dup' (SP2)	Tannins

Sampling procedures have been approved and report finalised on 9/10/2025.

Where method is "unknown" sampling procedures are not endorsed

## Well Parameters:

Client: Macka's Sand Pty Ltd

Site/Job: Mackas Groundwater - Quarterly

Well ID	GPS-Easting	GPS-Northing	Reference Point	Reference point AHD (m)*	Depth to Screen (m)
SP1	399203	6369958	TOM	17.5	
SP2	398820	6370293	TOM	6.4	
SP3	399479	6370391	TOM	6.21	
SP4	398888	6370671	TOM	1.75	
SP5	395995	6368256	TOM	4.145	
BL158	397998	6368323	TOM	4.16	
Dup' (SP2)	398820	6370293	TOM	6.4	

Well ID	Date Well Measured	Reference Point Height to GL (m)	Depth to Bottom (m)	Recharge Rate	Approximate Volume (L)
SP1	18/03/2024	0.27	18.78	Fast	7.7
SP2	18/03/2024	0.36	8.85	Medium	12.2
SP3	18/03/2024	0.21	7.66	Fast	9
SP4	7/06/2024	0.51	4.47	Fast	7.2
SP5	18/03/2024	1.23	5.58	Fast	8.0
BL158	18/03/2024	0.25	37.30	Fast	72
Dup' (SP2)	18/03/2024	0.36	8.85	Medium	12.2

Note: NATA accreditation does not cover information provided in this section

\*Reference Point AHD may differ from survey data provided due to the differences in where field measurements taken from when compared to surveyed point (TOC/TOM/GL).