**CBased Environmental Pty Limited**
**ABN 62 611 924 264**

**Calga Quarry**

# Environmental Monitoring

# Dust Deposition, Surface Water, Groundwater and Meteorological Data

**April 2022**

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Date: 20 May 2022

# Executive Summary

CBased Environmental is contracted by Hanson Quarry Products to conduct environmental monitoring at the Calga Sand Quarry.

The monitoring includes:

- Dust deposition;
- Surface water;
- Ground water and
- Meteorological data.

This report was prepared by CBased Environmental and includes the following results for April 2022:

- Dust deposition;
- Surface water quality;
- Ground water quality; and
- Meteorological parameters;

The April 2022 dust deposition results for insoluble solids showed:

- Increased levels when compared to March 2021 except for CD4 and CD5 which was slightly decreased.
- Rolling annual averages below the Air Quality Management Plan criteria of 3.7g/$m^2$.month.

Monthly surface water samples were collected at sites A, B, C1, C2, D and F. The samples that were collected were analysed for a monthly sampling event. Results show pH within the slightly acidic range, low electrical conductivity, low total dissolved solids and low total suspended solids. Oil and grease were not detected at sites B, C1, C2, D and F in April 2022.

The Calga Quarry weather station data recovery in April 2022 was approximately 100%. A summary of rainfall comparison is provided below.

| Location | Rainfall (mm) |
|---|---|
| Calga Quarry | 62.1mm |
| BOM Gosford* | 225.2mm |

***Notes:*** *NA = Not Available*
**Data sourced from Bureau of Meteorology (BOM) website: www.bom.gov.au*
*BOM stations report rainfall at 9am*
*Calga Quarry station reports rainfall at midnight.*

# 1.0 Sampling Programme

Hanson Calga Quarry conducts environmental monitoring in accordance with Development Consent, OEH (EPA) licence and Environmental Management Plans. CBased Environmental are contracted to undertake dust deposition gauge, surface water, groundwater and meteorological monitoring for the project. CBased Environmental commenced monitoring from the April 2006 monitoring period.

Dust deposition gauges are operated to the Australian Standard AS3580.10.1 "*Methods for sampling and analysis of ambient air method. Determination of particulates- deposited matter- gravimetric method*". Sampling is undertaken every 30 +/- 2 days and each gauge is analysed for insoluble solids and ash residue. The results are reported as g/m$^2$.month.

Six (6) dust deposition gauges are monitored as follows:

- CD1 – installed 1 May 2006. Gauges air quality impacts to the east of site operations;
- CD2c – located on a rehabilitated section of land between the extraction area and adjacent resident. Gauges air quality impacts to the north of site operations. Replaces former gauges CD2a and CD2b;
- CD3 – installed prior to May 2006. Gauges air quality impacts to the south of site operations;
- CD4 – installed 3 October 2006. Gauges air quality impacts to the south of site operations;
- CD5 – installed 14 December 2006. Gauges air quality impacts to the south of site operations; and
- CD6 installed 14 December 2006. Gauges air quality impacts to the south of the operations.

Dust gauge CD2a was discontinued at the start of August 2006 due to quarry operations "mining out" the site of the gauge. The replacement gauge, CD2b, was located in a position adjacent to the boundary between B. Kashouli and F. & J. Gazzana in conformance with the Air Quality Management Plan. CD2b was discontinued at the end of January 2010 due to contamination of the gauge by non-quarry related vehicle movements on a track adjacent to the gauge. CD2b was replacement by dust gauge CD2c.

Surface water is sampled in accordance with Australian Standards:

- AS5667.1 "*Guidance on the design of sample programs, sampling techniques and the preservation and handling of samples*";
- AS5667.6 "*Water quality sampling—guidance on sampling of rivers and streams*"; and
- AS5667.4 "*Water quality sampling—guidance on sampling from lakes, natural and man-made*".

Surface water monitoring sites include local streams and dams. Laboratory analysis includes pH, electrical conductivity, total suspended solids, total dissolved solids and total oil and grease. Monitoring is conducted monthly at Sites A and F (dams) and

when Sites B, C and D are flowing. Additional samples are collected when daily rainfall exceeds 50mm.

Groundwater is sampled in accordance with Australian Standards:

- AS5667.1 "*Guidance on the design of sample programs, sampling techniques and the preservation and handling of samples*"; and
- AS5667.11 "*Water quality sampling—guidance on sampling of ground waters*".

Groundwater monitoring sites are sampled bi-monthly for depth and water quality. Groundwater monitoring loggers continuously record water levels in a selection of bores.

Meteorological monitoring is conducted at the quarry and displayed on the site computer with a real-time display. Metrological parameters are measured according to Australian Standard AS3580.14 "*Methods for sampling and analysis of ambient air. Meteorological monitoring for ambient air quality monitoring applications*".

The weather station has the following sensor configuration:

- Air temperature;
- Humidity;
- Rainfall;
- Atmospheric pressure;
- Evaporation;
- Solar radiation;
- Wind speed; and
- Wind direction.

CBased Environmental continued to operate the monitoring equipment and utilise site collections at their existing locations.

The locations of monitoring points are provided in **Figure 1**.

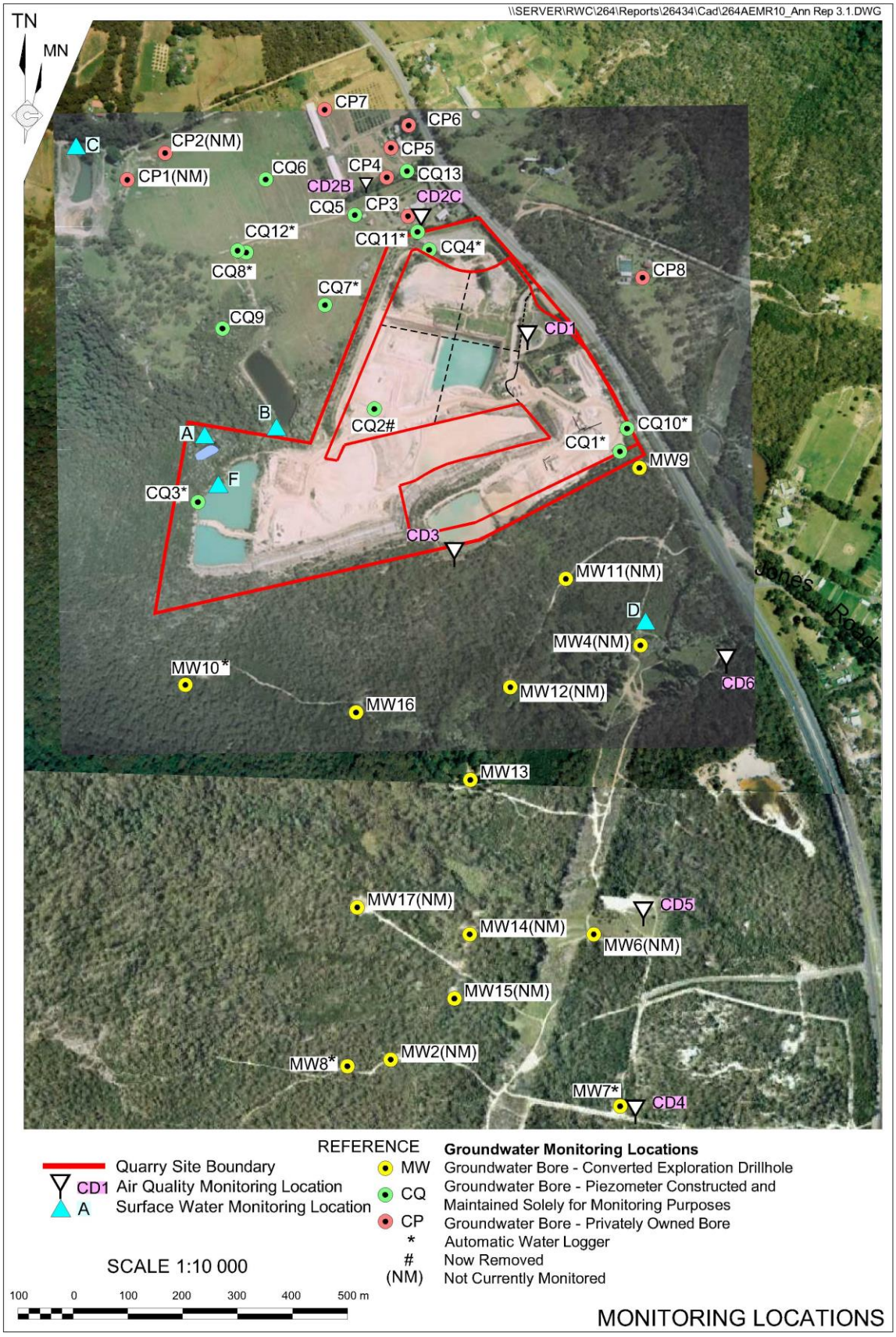



**Figure 1:** *Hanson Calga Quarry Environmental Monitoring Locations*

# 2.0 Results

## 2.1 Dust Deposition

The results for April 2022 and the project 12-month rolling average are provided **Table 1**.

Dust deposition charts for all dust gauge sites appear in **Figure 2** below. The field sheet, Chain of Custody documentation and laboratory analysis certificates are provided in **Appendix 1.**

**Table 1:** Dust Deposition Results: 4 April 2022 – 2 May 2022 (28 days)

| Site | Monthly Insoluble Solids | Monthly Ash Residue | Monthly Combustible Matter | Monthly Ash Residue/ Insoluble Solids % | Rolling Annual Average Insoluble Solids |
|---|---|---|---|---|---|
| CD1 | 2.5 | 0.8 | 1.7 | 32 | 2.0 |
| CD2c | 0.5 | 0.3 | 0.2 | 60 | 0.9 |
| CD3 | 1.5 | 0.5 | 1.0 | 33 | 1.5 |
| CD4 | 1.2 | 0.5 | 0.7 | 42 | 0.8 |
| CD5 | 0.7 | 0.3 | 0.4 | 43 | 0.7 |
| CD6 | 0.8 | 0.3 | 0.5 | 38 | 0.5 |

*Notes:*
*Units in g/m$^2$.month unless indicated*
*Insoluble solid results marked with an * indicate an excessively contaminated gauge. Contamination can include bird droppings, vegetation (such as plant matter, algae, pollen and seeds) and insects*
*Results in **bold** indicate insoluble solids levels above 3.7g/m$^2$.month; the Development Consent's annual average amenity criteria at residential locations*
*The current rolling annual average is calculated from May 2021 to April 2022*

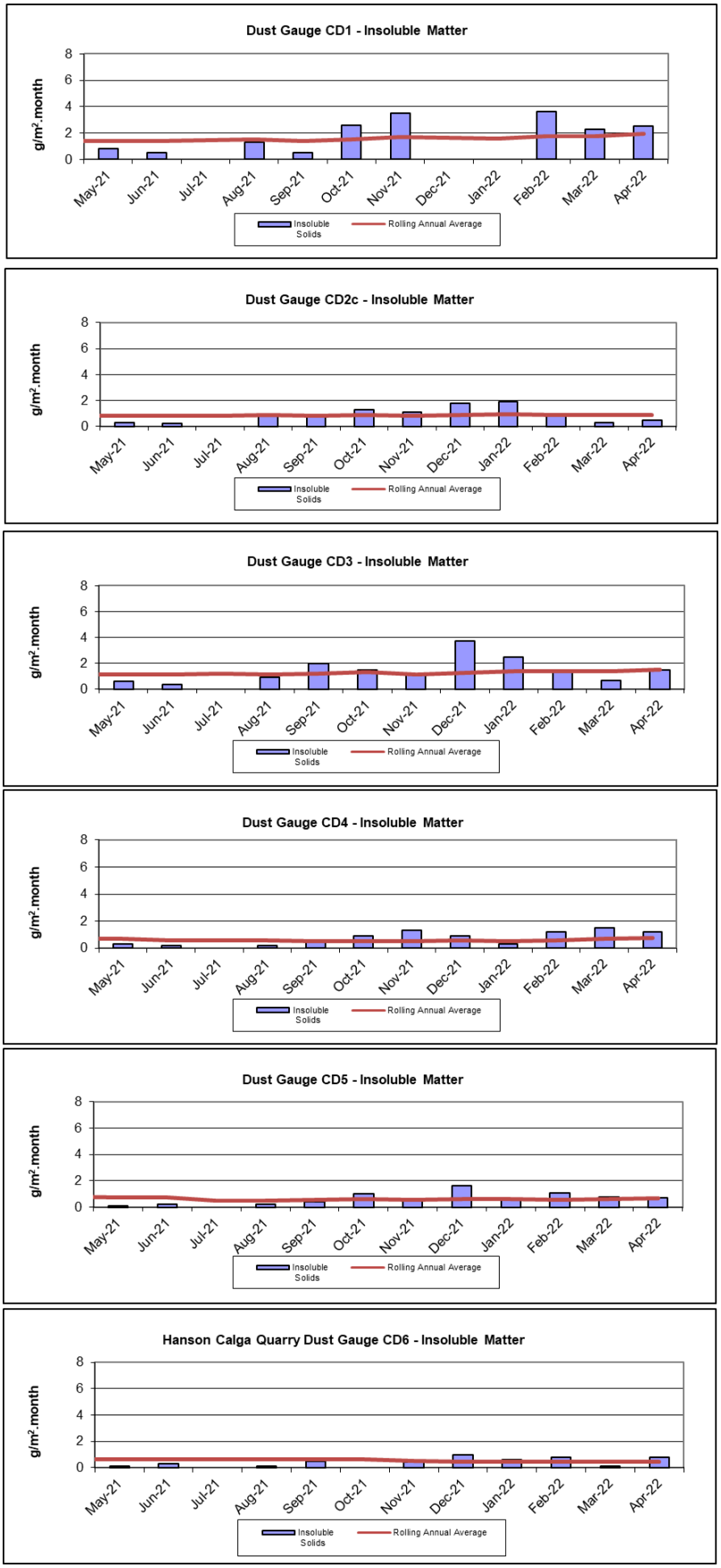



**Figure 2:** *Summary Monthly/Annual Dust Deposition Results for Insoluble Solids*

## 2.2 Surface Water (Monthly)

Monthly surface water monitoring was conducted on 4 April 2022 and results are provided in **Table 2**. The field sheet, chain of custody documentation and laboratory analysis certificates are provided in **Appendix 1.**

Samples were collected at sites A, B, C1, C2, D and F.

**Table 2:** Monthly Surface Water Monitoring Results – April 2022

| **Site** | **Observed Flow Rate*** (visual) | **Water Colour*** (visual) | **Turbidity*** (visual) | **pH** | **EC** (µS/cm) | **TDS** (mg/L) | **TSS** (mg/L) | **Oil and Grease** (mg/L) |
|---|---|---|---|---|---|---|---|---|
| A | Dam | Colourless | Clear | 6.05 | 52 | 45 | 17 | 6 |
| B | Dam | Brown | Slight | 6.58 | 83 | 91 | 15 | <5 |
| C1 | Dam | Brown | Slight | 6.49 | 75 | 74 | 20 | <5 |
| C2 | Steady | Colourless | Clear | 6.31 | 97 | 88 | 6 | <5 |
| D | Trickle | Colourless | Clear | 5.63 | 66 | 78 | 7 | <5 |
| F | Dam | Colourless | Clear | 5.5 | 55 | 37 | 50 | <5 |

** Indicates field measurements. All other results are laboratory analysed*
*EC = Electrical conductivity*
*TDS = Total dissolved solids*
*TSS = Total suspended solids*

### 2.2.1 Non-Routine Surface Water Sampling

No non-routine surface water sampling was completed in April 2022.

## 2.3 Groundwater (Bi-annual)

Groundwater was sampled on 4 and 5 April 2022. Data is displayed in **Table 3** and **Figures 3 – 6**. The field sheet, chain of custody documentation and laboratory analysis certificates are provided in Appendix 1.

Water quality tests for pH and electrical conductivity were conducted by CBased Environmental Pty Limited. For water quality purposes, water was purged from the bore until constant pH (+/- 0.1 pH units) and electrical conductivity (+/- 5%) was obtained between samples.

**Table 3:** Groundwater Quality Data

| Site | Bore | Type | Depth to Water April 2006 | Depth to Water (this report) | pH (this report) | Electrical Conductivity (this report) |
|---|---|---|---|---|---|---|
| **CQ3** | Voutos | * Monitor | 10.53 | 10.50 | 5.93 | 94.4 |
| **CQ4** | Voutos | * Monitor | 8.78 | 10.46 | 4.37 | 116.8 |
| **CQ5** | Gazzana | Dip only | 8.69 | 5.33 | 4.00 | 213.3 |
| **CQ7** | Gazzana | * Monitor | 6.89 | 5.42 | 4.22 | 134.1 |
| **CQ8** | Gazzana | * Monitor | 11.03 | 5.30 | Bore blocked | |
| **CQ10** | Voutos | * Monitor | NI | 24.40 | 4.23 | 122.9 |
| **CQ11S** | Gazzana | * Monitor | NI | 10.70 | 5.73 | 141.5 |
| **CQ11D** | Gazzana | * Monitor | NI | 11.88 | 5.22 | 133.4 |
| **CQ12** | Gazzana | * Monitor | NI | 3.27 | 4.06 | 144.5 |
| **CQ13** | Kashouli | * Monitor | NI | 11.91 | 4.22 | 122.7 |
| **CP4** | Kashouli | Domestic | 13.63 | 1.42 | 4.86 | 152.6 |
| **CP5** | Kashouli | Domestic | 16.61 | 4.56 | 5.98 | 84.7 |
| **CP6** | Kashouli | Domestic | 16.27 | 7.28 | 4.32 | 121.1 |
| **CP7** | Kashouli | Production | 8.56 | 0.77 | 5.72 | 123.5 |
| **CP8** | Rozmanec | Domestic | 22.17 | 19.65 | 4.18 | 90.2 |
| **CP13** | W P White | Domestic | NI | 11.47 | 4.45 | 112.1 |
| **CP15** | 32 Polins Road, Calga | Domestic | NI | 1.62 | 5.78 | 130.1 |
| **MW7** | Rocla Bore | * Monitor | 15.76 | 11.17 | 5.82 | 36.7 |
| **MW8** | Rocla Bore | * Monitor | 9.82 | 5.75 | 4.57 | 51.5 |
| **MW9** | Rocla Bore | * Monitor | 22.44 | 23.02 | 4.31 | 67.4 |
| **MW10** | Rocla Bore | * Monitor | 15.41 | No access | | |
| **MW13** | Rocla Bore | Dip only | NI | 7.48 | 4.35 | 81.1 |
| **MW16** | Rocla Bore | Dip only | NI | No access | | |
| **MW17** | Rocla Bore | Dip only | NI | 9.88 | 4.75 | 93.9 |

***Notes:***
*Water level measured from top of bore case (TOC) to water*
*pH measured in pH units / electrical conductivity measured in µS/cm*
*Blank cells = no data available*
** = Logger Installed*
*NI = Bores installed after April 2006. April 2006 was the first set of measurements taken by CBased Environmental Pty Limited*
*Yellow shading indicates increase to groundwater depth (water moved away from surface) since last sampling event*
*Green shading indicates decrease to groundwater depth (water moved towards surface) since last sampling event*
*Pink shading indicates stable groundwater depth (+/- 0.01m) since last sampling event*

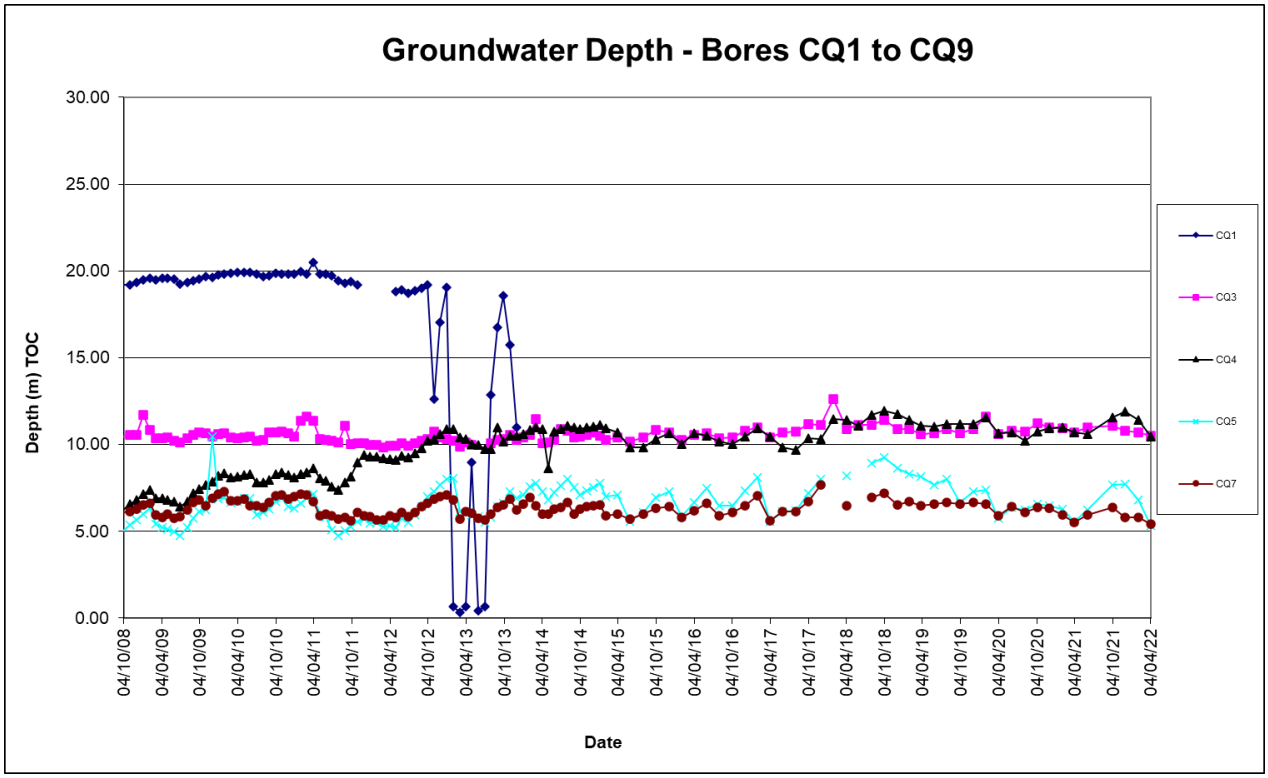



**Figure 3:** *Groundwater Depth – Bores CQ1 to CQ9*

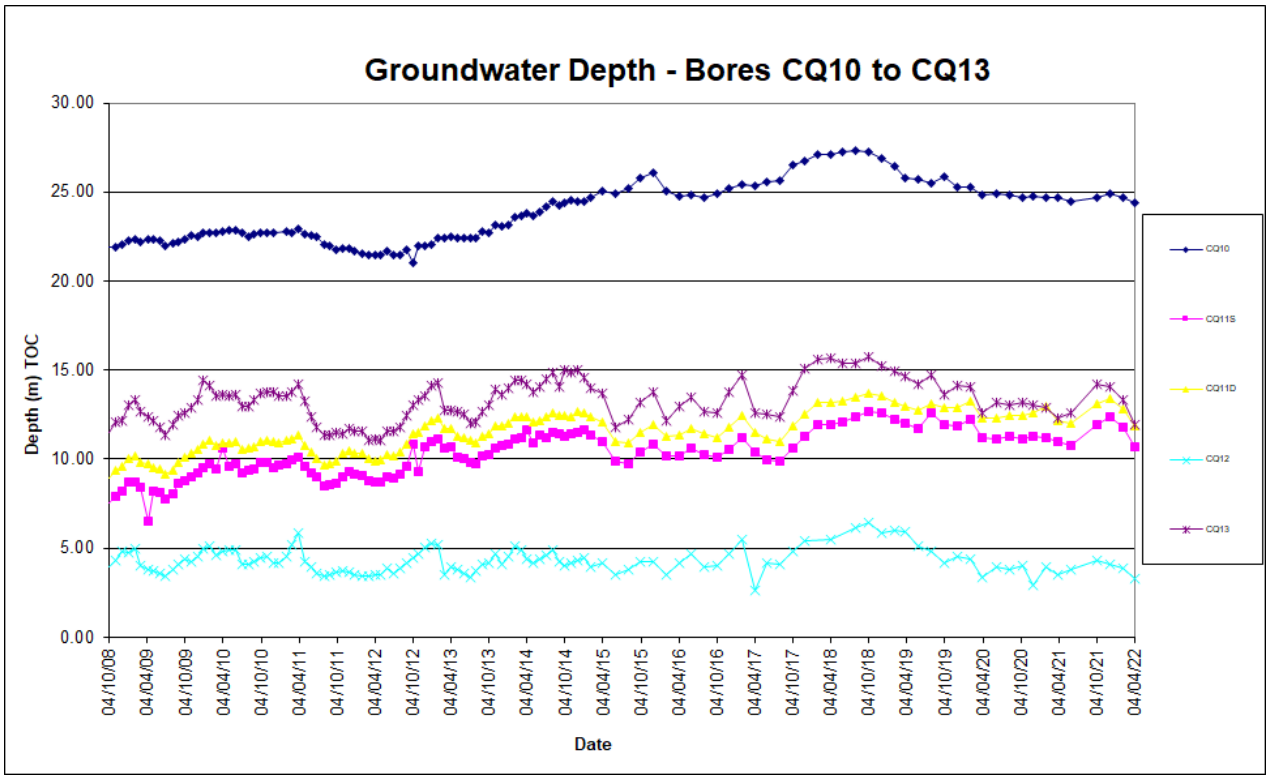



**Figure 4:** *Groundwater Depth – Bores CQ10 to CQ13*

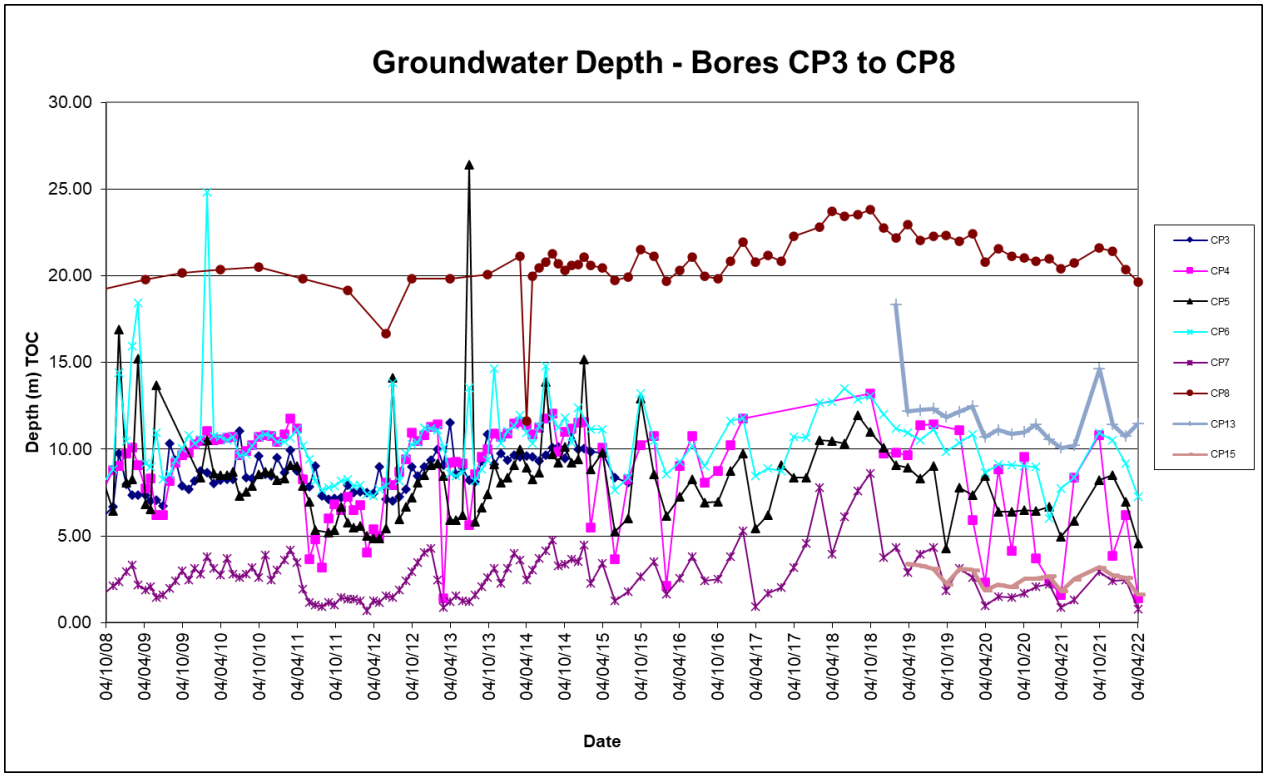



**Figure 5:** *Groundwater Depth – Bores CP3 to CP8*

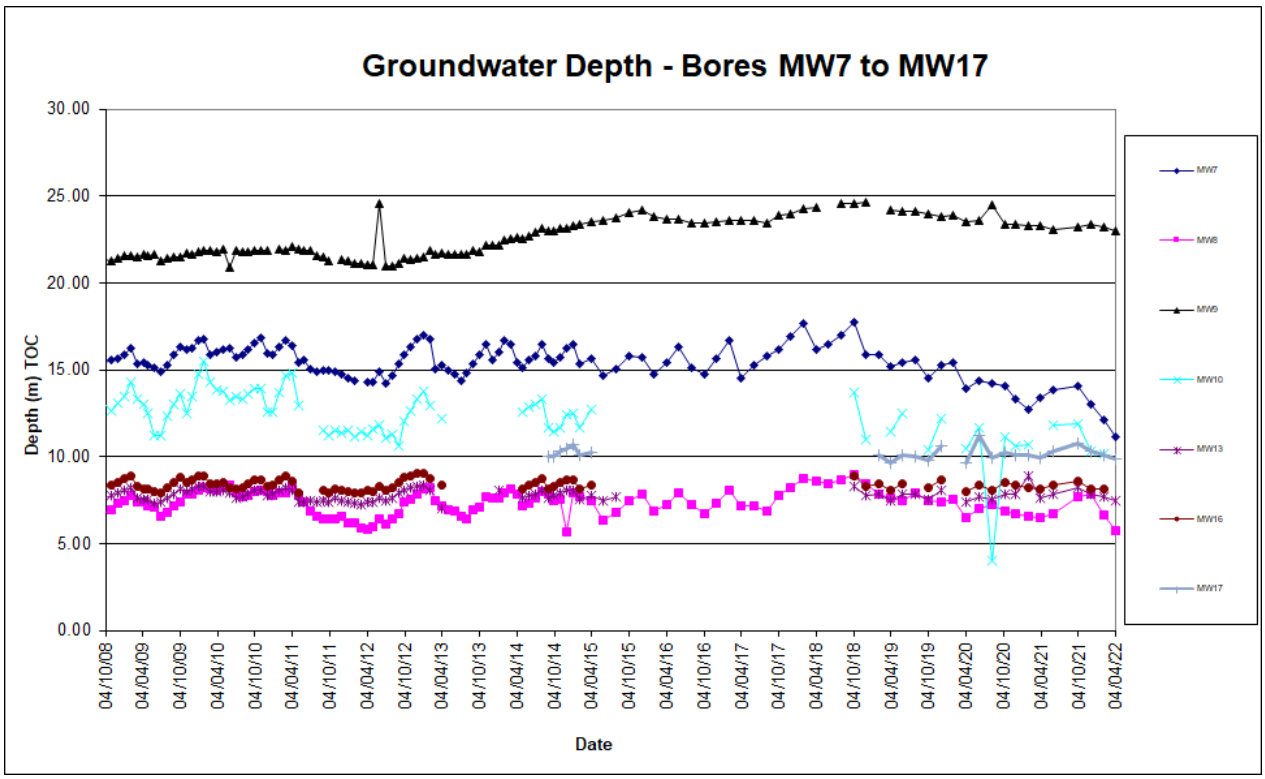



**Figure 6:** *Groundwater Depth – Bores MW7 to MW17*

## 2.3 Meteorological Data

The Calga Quarry weather station data recovery for April 2022 was approximately 100%.

The weather station data follows and includes:

- Monthly rainfall comparison between quarry data and BOM data. Refer to **Table 4**;
- Monthly data summary. Refer to **Table 5**;
- Weather charts of air temperature, humidity, heat index and wind chill, atmospheric pressure, solar radiation, evapotranspiration, rain, wind speed and data reception. Refer to **Figures 7 - 9**; and
- Wind rose (frequency distribution diagram of wind speed and direction). Refer to **Figure 10**.

A summary of rainfall comparison is provided in **Table 4**.

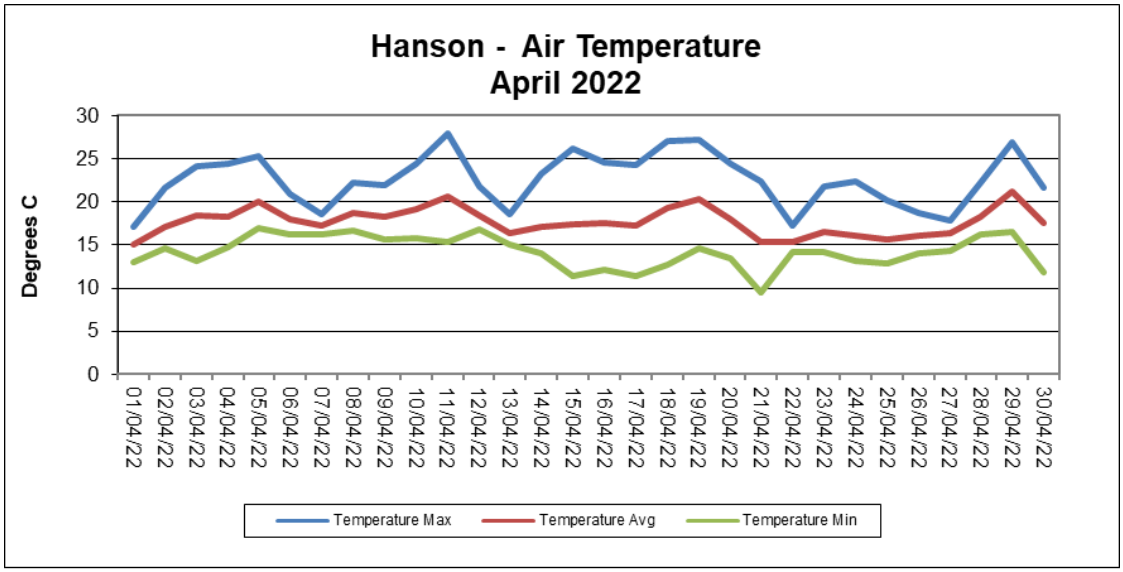
**Table 4:** Comparison of Local Rainfall – April 2022

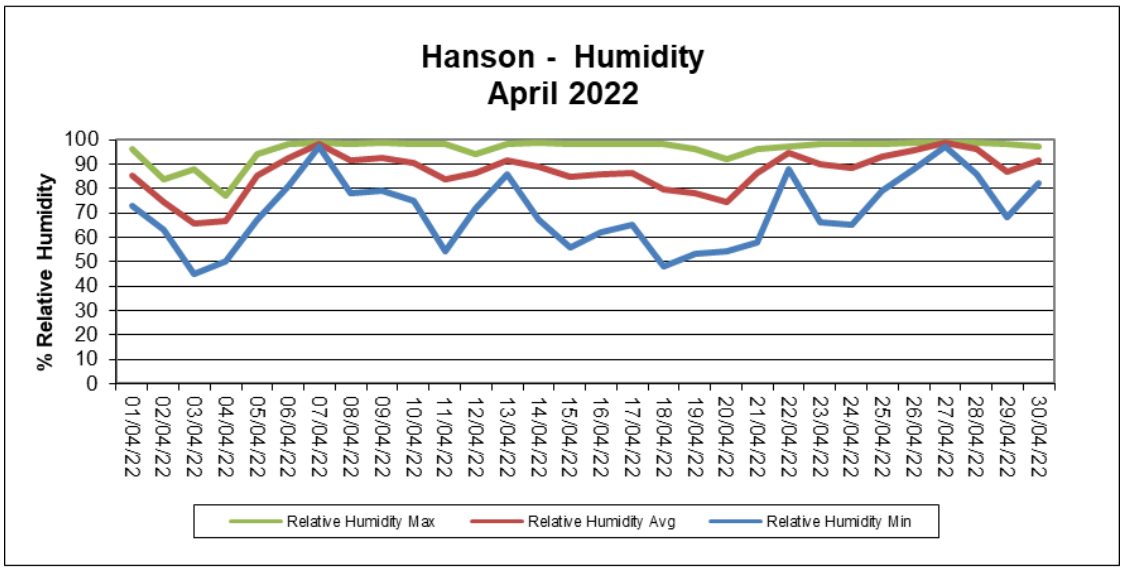
| Location | Rainfall (mm) |
|---|---|
| Calga Quarry | 62.1mm |
| BOM Gosford* | 225.2mm |

***Notes:*** *NA = Not Available*
**Data sourced from Bureau of Meteorology (BOM) website: www.bom.gov.au*
*BOM stations report rainfall at 9am*
*Calga Quarry station reports rainfall at midnight.*

**Table 5:** Summary of Monthly Meteorological Data – April 2022

| Date | Temperature Min | Temperature Avg | Temperature Max | Relative Humidity Min | Relative Humidity Avg | Relative Humidity Max | Rain | Evapotranspiration | Wind Speed Min | Wind Speed Avg | Wind Speed Max | Wind Chill Min | Heat Index Max | Atmospheric Pressure Min | Atmospheric Pressure Avg | Atmospheric Pressure Max | Solar Radiation Min | Solar Radiation Avg | Solar Radiation Max | Data Min | Data Avg | Data Max |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1/04/2022** | 13.0 | 15.0 | 17.1 | 73.0 | 85.3 | 96.0 | 0.8 | 1.8 | 4.0 | 5.2 | 14.8 | 10.3 | 17.2 | 1010.9 | 1012.3 | 1014.0 | 0.0 | 72.6 | 433.0 | 54.9 | 76.5 | 90.2 |
| **2/04/2022** | 14.6 | 17.1 | 21.6 | 63.0 | 74.3 | 84.0 | 0.0 | 3.8 | 0.9 | 3.8 | 12.1 | 11.7 | 21.4 | 1008.2 | 1009.8 | 1011.3 | 0.0 | 172.5 | 868.0 | 50.2 | 71.1 | 82.3 |
| **3/04/2022** | 13.1 | 18.5 | 24.2 | 45.0 | 65.5 | 88.0 | 0.0 | 3.9 | 0.4 | 2.4 | 10.3 | 12.9 | 23.9 | 1007.4 | 1009.2 | 1010.9 | 0.0 | 180.5 | 826.0 | 63.4 | 73.0 | 86.4 |
| **4/04/2022** | 14.8 | 18.2 | 24.4 | 50.0 | 66.8 | 77.0 | 0.0 | 1.7 | 0.0 | 2.2 | 8.5 | 14.8 | 24.3 | 1009.1 | 1010.2 | 1011.3 | 0.0 | 217.6 | 800.0 | 49.8 | 68.9 | 81.1 |
| **5/04/2022** | 17.0 | 20.0 | 25.3 | 67.0 | 85.1 | 94.0 | 0.0 | 0.5 | 0.0 | 1.1 | 7.6 | 17.1 | 25.7 | 1010.7 | 1012.6 | 1013.8 | 0.0 | 60.7 | 435.0 | 60.9 | 79.3 | 89.9 |
| **6/04/2022** | 16.3 | 17.9 | 20.9 | 81.0 | 92.4 | 98.0 | 0.8 | 1.7 | 0.0 | 1.2 | 8.0 | 16.3 | 21.7 | 1012.1 | 1014.0 | 1015.6 | 0.0 | 100.7 | 694.0 | 46.1 | 74.6 | 94.3 |
| **7/04/2022** | 16.3 | 17.2 | 18.5 | 97.0 | 98.1 | 99.0 | 81.4 | 0.4 | 0.0 | 1.9 | 10.7 | 15.0 | 19.6 | 1013.9 | 1016.3 | 1018.7 | 0.0 | 33.8 | 191.0 | 48.3 | 69.7 | 79.8 |
| **8/04/2022** | 16.7 | 18.7 | 22.2 | 78.0 | 91.4 | 98.0 | 14.2 | 2.1 | 0.0 | 2.4 | 8.9 | 16.7 | 23.1 | 1017.1 | 1018.6 | 1020.2 | 0.0 | 121.1 | 931.0 | 46.7 | 69.8 | 88.0 |
| **9/04/2022** | 15.6 | 18.2 | 21.9 | 79.0 | 92.7 | 99.0 | 2.6 | 1.8 | 0.0 | 1.2 | 8.9 | 15.6 | 22.8 | 1018.1 | 1019.4 | 1021.5 | 0.0 | 106.7 | 658.0 | 56.8 | 70.5 | 82.0 |
| **10/04/2022** | 15.8 | 19.1 | 24.4 | 75.0 | 90.5 | 98.0 | 0.0 | 2.0 | 0.0 | 0.8 | 5.8 | 15.9 | 25.5 | 1014.3 | 1016.7 | 1018.8 | 0.0 | 132.8 | 887.0 | 64.7 | 76.7 | 86.1 |
| **11/04/2022** | 15.3 | 20.6 | 27.9 | 54.0 | 84.0 | 98.0 | 0.0 | 3.4 | 0.0 | 1.1 | 6.7 | 15.4 | 28.7 | 1011.5 | 1014.1 | 1016.2 | 0.0 | 200.9 | 757.0 | 35.6 | 70.3 | 92.4 |
| **12/04/2022** | 16.8 | 18.4 | 21.8 | 72.0 | 86.1 | 94.0 | 0.8 | 1.9 | 0.0 | 1.4 | 6.7 | 16.8 | 22.2 | 1015.3 | 1016.9 | 1018.5 | 0.0 | 109.2 | 696.0 | 53.3 | 74.3 | 94.0 |
| **13/04/2022** | 15.1 | 16.3 | 18.6 | 86.0 | 91.7 | 98.0 | 7.2 | 1.6 | 0.0 | 1.3 | 7.6 | 15.2 | 18.9 | 1016.7 | 1019.2 | 1021.9 | 0.0 | 97.7 | 531.0 | 43.5 | 74.8 | 92.7 |
| **14/04/2022** | 14.1 | 17.2 | 23.2 | 67.0 | 89.2 | 99.0 | 0.2 | 2.3 | 0.0 | 0.9 | 6.7 | 14.2 | 23.7 | 1020.3 | 1021.8 | 1023.5 | 0.0 | 143.5 | 781.0 | 53.0 | 74.8 | 90.5 |
| **15/04/2022** | 11.4 | 17.4 | 26.2 | 56.0 | 84.9 | 98.0 | 0.2 | 3.4 | 0.0 | 1.1 | 6.3 | 11.4 | 26.4 | 1017.1 | 1019.4 | 1022.0 | 0.0 | 214.8 | 884.0 | 70.3 | 85.4 | 95.6 |
| **16/04/2022** | 12.2 | 17.5 | 24.6 | 62.0 | 85.6 | 98.0 | 0.0 | 2.3 | 0.0 | 0.7 | 5.4 | 12.4 | 25.1 | 1016.1 | 1017.4 | 1018.8 | 0.0 | 147.6 | 769.0 | 76.0 | 85.8 | 93.1 |
| **17/04/2022** | 11.4 | 17.3 | 24.3 | 65.0 | 86.6 | 98.0 | 0.2 | 2.8 | 0.0 | 1.3 | 7.2 | 11.4 | 24.6 | 1014.1 | 1016.3 | 1018.6 | 0.0 | 173.8 | 852.0 | 71.6 | 85.5 | 97.5 |
| **18/04/2022** | 12.7 | 19.4 | 27.1 | 48.0 | 79.6 | 98.0 | 0.0 | 3.2 | 0.0 | 1.1 | 5.8 | 12.7 | 27.1 | 1012.2 | 1014.3 | 1016.1 | 0.0 | 185.3 | 740.0 | 66.2 | 84.0 | 98.7 |
| **19/04/2022** | 14.6 | 20.3 | 27.2 | 53.0 | 78.1 | 96.0 | 7.6 | 3.6 | 0.0 | 2.0 | 18.3 | 14.1 | 27.6 | 1006.1 | 1010.4 | 1013.7 | 0.0 | 193.6 | 801.0 | 71.3 | 81.9 | 91.8 |
| **20/04/2022** | 13.5 | 18.0 | 24.4 | 54.0 | 74.7 | 92.0 | 0.0 | 3.5 | 0.0 | 2.2 | 13.9 | 13.2 | 24.4 | 1005.9 | 1011.5 | 1016.3 | 0.0 | 192.4 | 721.0 | 57.7 | 76.1 | 89.3 |
| **21/04/2022** | 9.5 | 15.3 | 22.3 | 58.0 | 86.4 | 96.0 | 6.4 | 2.3 | 0.0 | 1.2 | 7.6 | 9.6 | 22.2 | 1016.4 | 1020.1 | 1023.7 | 0.0 | 156.9 | 786.0 | 73.2 | 87.8 | 97.8 |
| **22/04/2022** | 14.2 | 15.4 | 17.3 | 88.0 | 94.5 | 97.0 | 3.6 | 0.9 | 0.0 | 0.8 | 6.3 | 14.3 | 17.6 | 1023.5 | 1026.0 | 1027.8 | 0.0 | 70.7 | 379.0 | 62.5 | 83.0 | 97.8 |
| **23/04/2022** | 14.2 | 16.5 | 21.8 | 66.0 | 89.8 | 98.0 | 0.6 | 2.1 | 0.0 | 0.9 | 6.7 | 13.8 | 21.7 | 1025.7 | 1027.1 | 1028.6 | 0.0 | 142.4 | 734.0 | 72.6 | 84.6 | 100.0 |
| **24/04/2022** | 13.1 | 16.1 | 22.3 | 65.0 | 88.3 | 98.0 | 4.4 | 2.3 | 0.0 | 0.8 | 7.2 | 13.1 | 22.3 | 1025.4 | 1027.3 | 1029.5 | 0.0 | 151.4 | 740.0 | 82.3 | 92.6 | 100.0 |
| **25/04/2022** | 12.8 | 15.7 | 20.2 | 79.0 | 93.1 | 98.0 | 5.4 | 1.1 | 0.0 | 0.4 | 4.0 | 12.8 | 20.8 | 1021.5 | 1024.1 | 1026.4 | 0.0 | 78.4 | 449.0 | 79.5 | 94.1 | 100.0 |
| **26/04/2022** | 14.1 | 16.0 | 18.7 | 88.0 | 95.7 | 99.0 | 0.8 | 0.8 | 0.0 | 0.4 | 4.5 | 14.1 | 19.3 | 1016.6 | 1019.0 | 1021.5 | 0.0 | 61.3 | 259.0 | 63.4 | 84.4 | 99.4 |
| **27/04/2022** | 14.3 | 16.3 | 17.8 | 97.0 | 98.5 | 99.0 | 2.2 | 0.6 | 0.0 | 0.1 | 2.7 | 14.3 | 18.8 | 1014.6 | 1016.0 | 1018.0 | 0.0 | 39.7 | 164.0 | 49.2 | 74.2 | 89.6 |
| **28/04/2022** | 16.3 | 18.2 | 22.2 | 86.0 | 96.3 | 99.0 | 4.6 | 1.0 | 0.0 | 0.4 | 6.3 | 16.3 | 23.2 | 1014.7 | 1016.0 | 1017.6 | 0.0 | 71.9 | 415.0 | 46.7 | 73.7 | 94.0 |
| **29/04/2022** | 16.5 | 21.2 | 26.9 | 68.0 | 86.9 | 98.0 | 0.0 | 2.8 | 0.0 | 1.1 | 7.2 | 16.5 | 28.6 | 1014.3 | 1016.5 | 1018.7 | 0.0 | 162.1 | 677.0 | 63.7 | 78.3 | 91.2 |
| **30/04/2022** | 11.9 | 17.6 | 21.7 | 82.0 | 91.7 | 97.0 | 5.2 | 0.7 | 0.0 | 1.5 | 12.5 | 11.9 | 22.6 | 1011.1 | 1014.3 | 1018.7 | 0.0 | 28.6 | 131.0 | 55.2 | 71.0 | 83.6 |
| | | | | | | | | | | | | | | | | | | | | | | |
| **Monthly** | 9.5 | 17.7 | 27.9 | 45 | 87 | 99 | 149.2 | 62.1 | 0.0 | 1.4 | 18.3 | 9.6 | 28.7 | 1005.9 | 1016.9 | 1029.5 | 0.0 | 127.4 | 931.0 | 35.6 | 78.2 | 100.0 |
| **Unit** | *Degrees Celcius ($^oC$)* | | | *Percentage Relative Humidity* | | | *mm* | *mm* | *Metres per second (m/s)* | | | $^oC$ | $^oC$ | *Hector Pascals (hPa)* | | | *Watts per square metre ($W/m^2$)* | | | *Percentage (%)* | | |



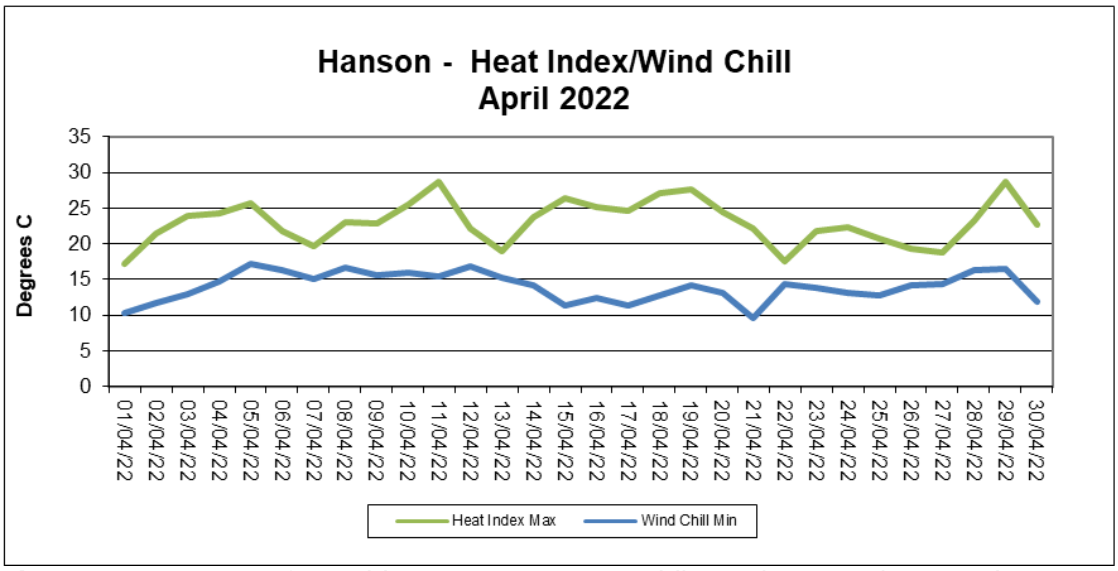
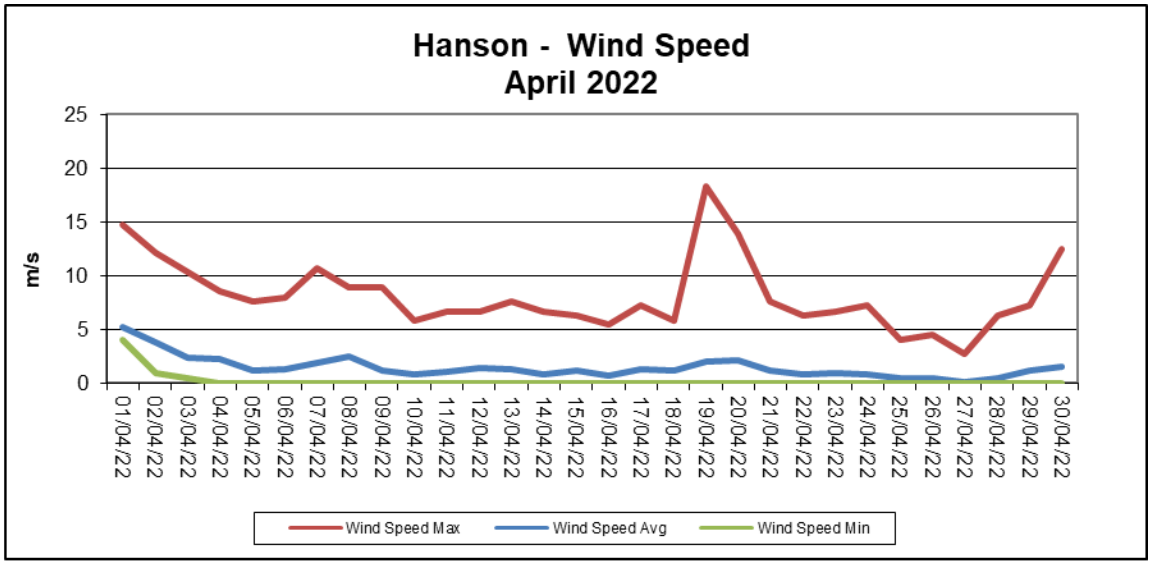
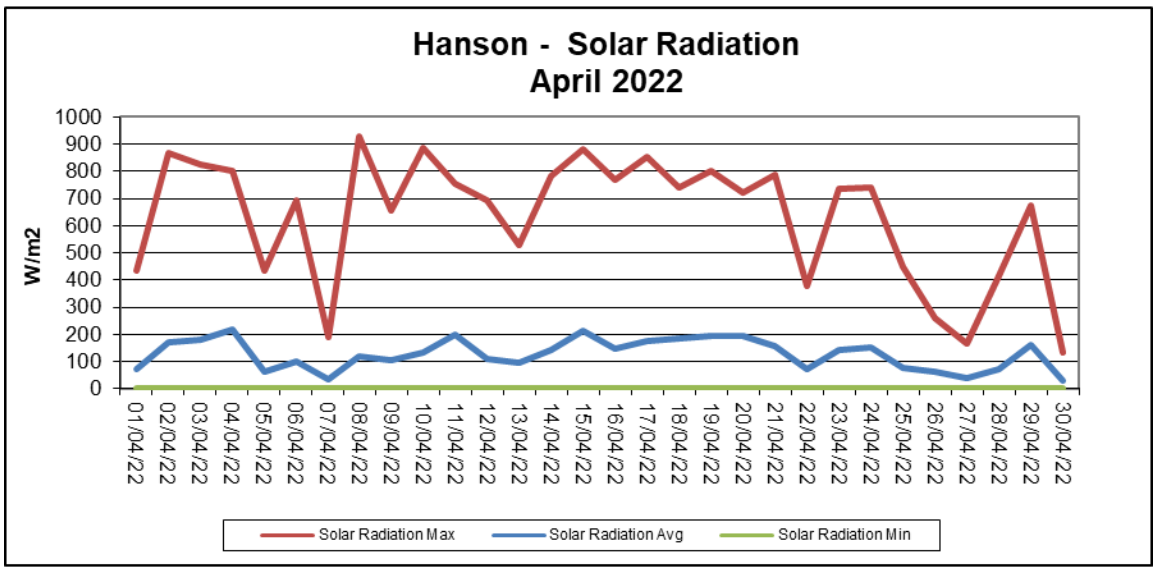




**Figure 7:** *Summary of Monthly Temperature, Humidity and Heat Index Results*



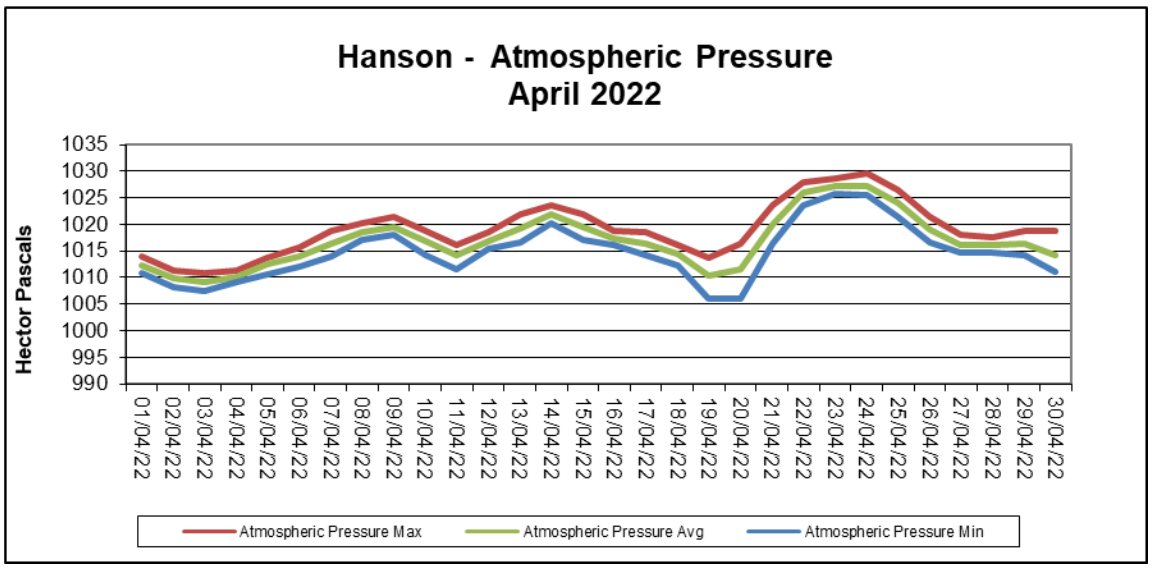




**Figure 8:** *Summary of Monthly Wind Speed, Solar Radiation and Atmospheric Pressure Results*

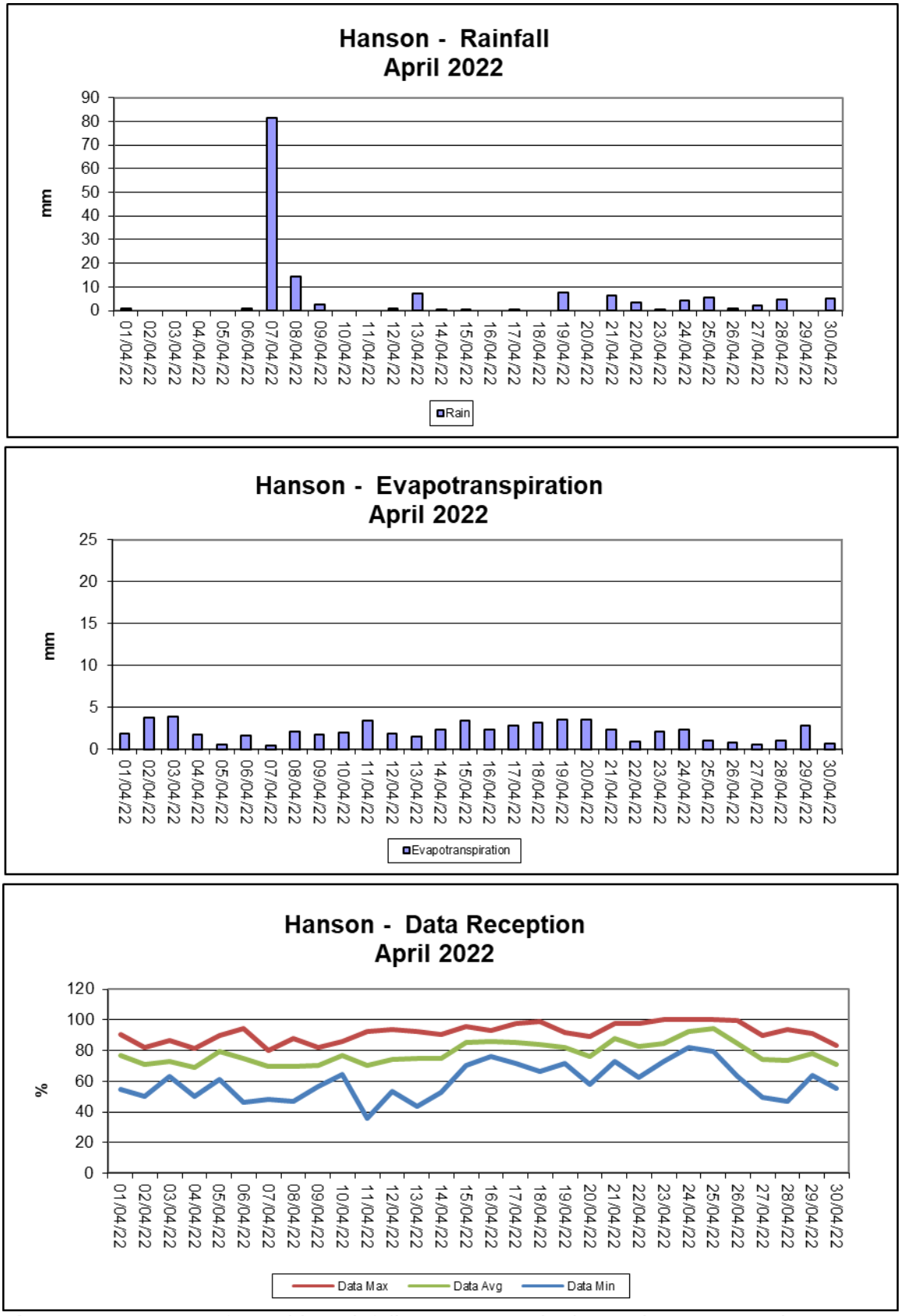



**Figure 9:** *Summary of Monthly Rainfall, Evapotranspiration and Data Reception Results*

Frequency plot of the average wind speed and average direction over each 15-minute sampling period. Wind is considered to be calm when at less than a 15-minute average of 1m/s.

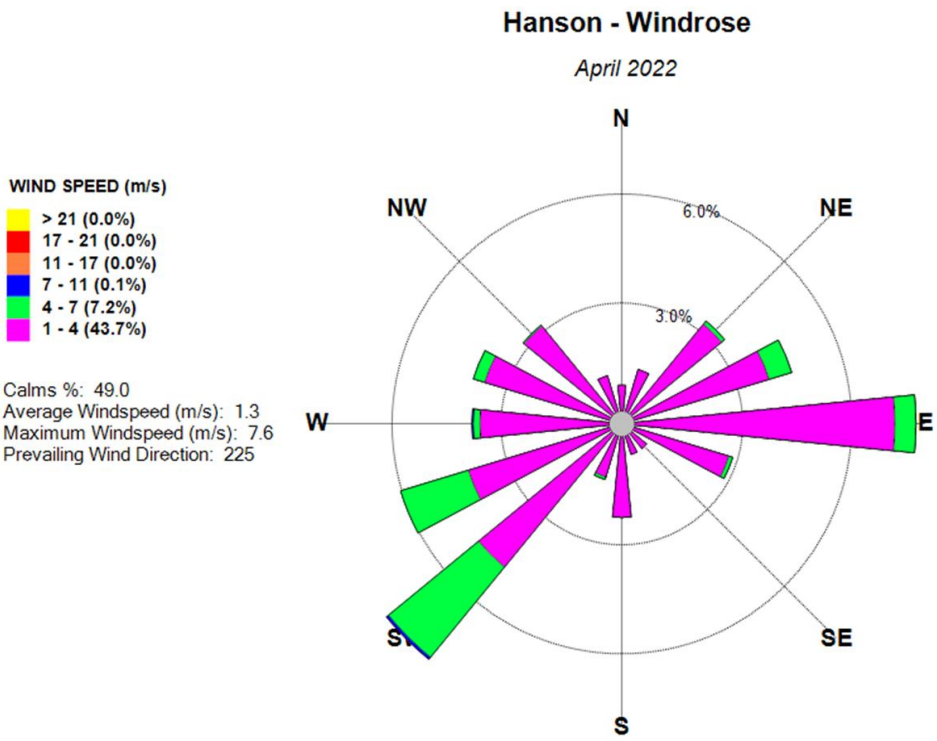



**Figure 10:** *Monthly Windrose Plot – April 2022*

The predominant wind for April 2022 was from the south-west with most frequent, strongest winds, also from the south-west. The maximum wind speed was 18.3 m/s from the west-north-west.

# Appendix 1

Field Sheets

Chain of Custody Documentation

Laboratory Analysis Certificates

## DEPOSITIONAL DUST MONITORING

Client: ..... **Hanson Calga Quarry** .....

Date Installed: 4·4·22

Date Collected: 2·5·22

Sampled By: Leesa + Steve

| Site | Time Collected | Water Level (mL) | Insoluble Material (✓ = slight, ✓✓ = mod etc) | | | | Water Turbidity | Water Colour | Stand Level (Y/N) | Funnel Level (Y/N) | New Funnel Diameter (mm) | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Insects | Bird droppings | Vegetation | Dust | | | | | | |
| CD1 | 8·10 | 1999 | ✓ | | ✓✓✓ | ✓ | C (S) T | C O Bn (Gn) Gy | Y | Y | | TREES |
| CD2C | 8·40 | 1999 | ✓ | | | ✓ | (C) S T | (C) O Bn Gn Gy | | | | TREES |
| CD3 | 7·45 | 1999 | | | ✓✓ | ✓ | (C) S T | (C) O Bn Gn Gy | Y | Y | | TREES |
| CD4 | 8·35 | 1999 | | | ✓✓ | ✓ | (C) S T | (C) O Bn Gn Gy | Y | Y | | |
| CD5 | 8·10 | 1999 | ✓ | | | ✓ | (C) S T | (C) O Bn Gn Gy | Y | Y | | FEATHERS |
| CD6 | 8·20 | 1999 | | | | ✓ | (C) S T | (C) O Bn Gn Gy | Y | Y | | |

Turbidity: C=Clear, S= Slight, T=Turbid (CIRCLE)

Colour: C=Colourless, O=Orange, Bn=Brown, Gn=Green, Gy = Grey (CIRCLE)

**Report broken funnels and replacement diameters**

Signed: _____

# CHAIN OF CUSTODY DOCUMENTATION

**Australian Laboratory Services Pty Ltd**

CLIENT: CBased Environmental Pty Ltd

POSTAL ADDRESS: 47 Boomerang St CESSNOCK NSW 2325

SEND REPORT TO: monitoringresults@cbased.com.au

SEND INVOICE TO: accounts@cbased.com.au, renae.mikka@cbased.com.au

DATA NEEDED BY: 7 working days

REPORT NEEDED BY: 7 working days

PROJECT ID: Hanson Calga Dusts

QUOTE NO.: SYBQ 403-18

P.O. NO.:

COMMENTS/SPECIAL HANDLING/STORAGE OR DIPOSAL:

FOR LAB USE ONLY
COOLER SEAL
Yes ..... No .....
Broken ..... Intact ....
COOLER TEMP: 17.7°C deg.C

Total unless specified

LABORATORY BATCH NO.:

SAMPLERS: Leesa + Steve

PHONE: 0265713334 E-MAIL: monitoringresults@cbased.com.au

REPORT FORMAT: HARD: Yes FAX: DISK: BULLETIN BOARD: E-MAIL: Yes

QC LEVEL: QCS1: QCS2: QCS3: Yes QCS4:

ANALYSIS REQUIRED

| SAMPLE DATA | | | | CONTAINER DATA | | Insoluable Solids | Ash Residue | Combustable Matte | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID | MATRIX | DATE ON | DATE OFF | TYPE & PRESERVATIVE | NO. | | | | |
| CD1 | Dust | 4.4.22 | 2.5.22 | | | x | x | x | |
| CD2c | Dust | " | " | | | x | x | x | |
| CD3 | Dust | " | " | | | x | x | x | |
| CD4 | Dust | " | " | | | x | x | x | |
| CD5 | Dust | " | " | | | x | x | x | |
| CD6 | Dust | " | " | | | x | x | x | |

RELINQUISHED BY:

NAME: S.MORRISON DATE: 2.5.22

OF: CBased Environmental TIME: 10.35

NAME: DATE:

OF: TIME:

RECEIVED BY

NAME: ICS DATE: 2-5-22

OF: ALS TIME: 10:37

NAME: DATE:

OF: TIME:

METHOD OF SHIPMENT

CONSIGNMENT NOTE NO.

TRANSPORT CO. NAME.

*Container Type and Preservative Codes: P = Neutral Plastic; N = Nitric Acid Preserved; C = Sodium Hydroxide Preserved; J = Solvent Washed Acid Rinced Jar; S = Solvent Washed Acid Rinced Glass Bottle; VC = Hydrochloric Acid Preserved Vial; VS = Sulfuric Acid Preserved Vial; BS = Sulfuric Acid Preserved Glass Bottle; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; O = Other.

## AUSTRALIAN LABORATORY SERVICES P/L

Environmental Division
Newcastle
Work Order Reference
EN2203999

Telephone : +61 2 4014 2500

ALS Environmental

# CERTIFICATE OF ANALYSIS

| | | | |
|---|---|---|---|
| **Work Order** | : **EN2203999** | Page | : 1 of 4 |
| Client | : **CBASED ENVIRONMENTAL PTY LTD** | Laboratory | : Environmental Division Newcastle |
| Contact | : All Deliverables | Contact | : |
| Address | : Unit 3 2 Enterprise Cres<br>Singleton NSW 2330 | Address | : 5/585 Maitland Road Mayfield West NSW Australia 2304 |
| Telephone | : +61 02 6571 3334 | Telephone | : +61 2 4014 2500 |
| Project | : Hanson Calga Dusts | Date Samples Received | : 02-May-2022 10:37 |
| Order number | : ---- | Date Analysis Commenced | : 02-May-2022 |
| C-O-C number | : ---- | Issue Date | : 11-May-2022 15:05 |
| Sampler | : Leesa King, Steve | | |
| Site | : | | |
| Quote number | : SYBQ/403/18 | | |
| No. of samples received | : 6 | | |
| No. of samples analysed | : 6 | | |

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

**Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.**

## *Signatories*

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

| *Signatories* | *Position* | *Accreditation Category* |
|---|---|---|
| Zoran Grozdanovski | Laboratory Operator | Newcastle - Inorganics, Mayfield West, NSW |

## General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Analysis as per AS3580.10.1-2016. Samples passed through a 1mm sieve prior to analysis. NATA accreditation does not apply for results reported in g/m².mth as sampling data was provided by the client.
- The dust gauges for all samples were full when received by the laboratory. They may have overflowed in the field. Results for these gauges are thus reported on an 'as received' basis.
- For dust analysis, the Limit of Reporting (LOR) referenced in the reports for deposited matter parameters represents the reporting increment rather than reporting limit.

## Analytical Results

Sub-Matrix: **DEPOSITIONAL DUST** (Matrix: **AIR**)

| Compound | CAS Number | LOR | Unit | Sample ID | CD1 04/04/22 - 02/05/22 | CD2c 04/04/22 - 02/05/22 | CD3 04/04/22 - 02/05/22 | CD4 04/04/22 - 02/05/22 | CD5 04/04/22 - 02/05/22 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 02-May-2022 00:00 | 02-May-2022 00:00 | 02-May-2022 00:00 | 02-May-2022 00:00 | 02-May-2022 00:00 |
| | | | | | EN2203999-001 | EN2203999-002 | EN2203999-003 | EN2203999-004 | EN2203999-005 |
| | | | | | Result | Result | Result | Result | Result |
| **EA120: Ash Content** | | | | | | | | | |
| **Ash Content** | ---- | 0.1 | g/m².month | | **0.8** | **0.3** | **0.5** | **0.5** | **0.3** |
| **Ash Content (mg)** | ---- | 2 | mg | | **14** | **5** | **9** | **8** | **5** |
| **EA125: Combustible Matter** | | | | | | | | | |
| **Combustible Matter** | ---- | 0.1 | g/m².month | | **1.7** | **0.2** | **1.0** | **0.7** | **0.4** |
| **Combustible Matter (mg)** | ---- | 2 | mg | | **28** | **3** | **15** | **12** | **7** |
| **EA141: Total Insoluble Matter** | | | | | | | | | |
| **Total Insoluble Matter** | ---- | 0.1 | g/m².month | | **2.5** | **0.5** | **1.5** | **1.2** | **0.7** |
| **Total Insoluble Matter (mg)** | ---- | 2 | mg | | **42** | **8** | **24** | **20** | **12** |

## Analytical Results

| Sub-Matrix: **DEPOSITIONAL DUST** (Matrix: **AIR**) | | | | Sample ID | **CD6 04/04/22 - 02/05/22** | ---- | ---- | ---- | ---- |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 02-May-2022 00:00 | ---- | ---- | ---- | ---- |
| *Compound* | *CAS Number* | *LOR* | *Unit* | | **EN2203999-006** | -------- | -------- | -------- | -------- |
| | | | | | Result | ---- | ---- | ---- | ---- |
| **EA120: Ash Content** | | | | | | | | | |
| **Ash Content** | ---- | 0.1 | g/m².month | | **0.3** | **----** | **----** | **----** | **----** |
| **Ash Content (mg)** | ---- | 2 | mg | | **5** | **----** | **----** | **----** | **----** |
| **EA125: Combustible Matter** | | | | | | | | | |
| **Combustible Matter** | ---- | 0.1 | g/m².month | | **0.5** | **----** | **----** | **----** | **----** |
| **Combustible Matter (mg)** | ---- | 2 | mg | | **9** | **----** | **----** | **----** | **----** |
| **EA141: Total Insoluble Matter** | | | | | | | | | |
| **Total Insoluble Matter** | ---- | 0.1 | g/m².month | | **0.8** | **----** | **----** | **----** | **----** |
| **Total Insoluble Matter (mg)** | ---- | 2 | mg | | **14** | **----** | **----** | **----** | **----** |

CBASED ENVIRONMENTAL PTY LIMITED

Date: 4-4-22

**Client :** Hanson Calga

**Project :**

# SURFACE WATERS

| Site | Flow Rate | Odour | Sampling Time | Bottles | Water Turbidity | Water Colour | Comments |
|---|---|---|---|---|---|---|---|
| A | DAM | NO | 8-40 | 1x 250ml GP, 1x 500mL GP, 1x PG | (C) S T | (C) LO O B G | |
| B | DAM | NO | 8-50 | 1x 250ml GP, 1x 500mL GP, 1x PG | C (S) T | C LO O (B) G | |
| C1 | DAM | NO | 10-40 | 1x 250ml GP, 1x 500mL GP, 1x PG | C (S) T | C LO O (B) G | |
| C2 | steady trickle | NO | 10-45 | 1x 250ml GP, 1x 500mL GP, 1x PG | (C) S T | (C) LO O B G | |
| D | | NO | 14-10 | 1x 250ml GP, 1x 500mL GP, 1x PG | (C) S T | (C) LO O B G | |
| F | DAM | NO | 8-30 | 1x 250ml GP, 1x 500mL GP, 1x PG | (C) S T | (C) LO O B G | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Turbidity: C=Clear, S= Slight, T=Turbid (CIRCLE)

Colour: C=Clear, LO=Light Orange, O=Orange, B=Brown, G=Green (CIRCLE)

Signed: [signature]

Sampled by: Lessa + Steve

# CHAIN OF CUSTODY DOCUMENTATION

**Australian Laboratory Services Pty Ltd**

CLIENT: CBased Environmental Pty Ltd

POSTAL ADDRESS: PO Box 245 CESSNOCK NSW 2325

SEND REPORT TO: monitoringresults@cbased.com.au

SEND INVOICE TO: renae.mikka@cbased.com.au; accounts@cbased.com.au

DATA NEEDED BY: 5 working days

REPORT NEEDED BY: 5 working days

PROJECT ID: Hanson Quarry SW

QUOTE NO.: SYBQ-403-18

P.O. NO.:

COMMENTS/SPECIAL HANDLING/STORAGE OR DIPOSAL:

FOR LAB USE ONLY

COOLER SEAL

Yes ..... 10.2 No .....

Broken ..... Intact ....

COOLER TEMP: deg.C

Total unless specified

LABORATORY BATCH NO.:

SAMPLERS: CBased Environmental Pty Ltd Teesa King

PHONE: 0265713334 E-MAIL: monitoringresults@cbased.com.au

REPORT FORMAT: HARD: Yes FAX: DISK: BULLETIN BOARD: E-MAIL: Yes

QC LEVEL: QCS1: QCS2: QCS3: Yes QCS4:

ANALYSIS REQUIRED

| SAMPLE DATA | | | | CONTAINER DATA | | pH | EC | TSS | TDS | O + G | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID | MATRIX | DATE | TIME | TYPE & PRESERVATIVE | NO. | | | | | | |
| A | Water | 4.4.22 | 8.40 | 1x 250mlGP,1x 500mLGP,1xPG | | x | x | x | x | x | |
| B | Water | " | 8.50 | 1x 250mlGP,1x 500mLGP,1xPG | | x | x | x | x | x | |
| C1 | Water | " | 10.40 | 1x 250mlGP,1x 500mLGP,1xPG | | x | x | x | x | x | |
| C2 | Water | " | 10.45 | 1x 250mlGP,1x 500mLGP,1xPG | | x | x | x | x | x | |
| D | Water | " | 14.10 | 1x 250mlGP,1x 500mLGP,1xPG | | x | x | x | x | x | |
| F | Water | " | 8.30 | 1x 250mlGP,1x 500mLGP,1xPG | | x | x | x | x | x | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
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| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | TOTAL BOTTLES: | | | | | | | |

RELINQUISHED BY:

NAME: S MORRISON DATE: 5/4/22

OF: CBased Environmental TIME:

NAME: DATE:

OF: TIME:

RECEIVED BY

NAME: KO'B DATE: 5/4/22

OF: ALS TIME: 1:21 pm

NAME: DATE:

OF: TIME:

METHOD OF SHIPMENT

CONSIGNMENT NOTE NO.

TRANSPORT CO. NAME.

*Container Type and Preservative Codes: P = Neutral Plastic; N = Nitric Acid Preserved; C = Sodium Hydroxide Preserved; J = Solvent Washed Acid Rinced Jar; S = Solvent Washed Acid Rinced Glass Bottle; VC = Hydrochloric Acid Preserved Vial; VS = Sulfuric Acid Preserved Vial; BS = Sulfuric Acid Preserved Glass Bottle; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; O = Other.

## AUSTRALIAN LABORATORY SERVICES P/L

Environmental Division
Sydney
Work Order Reference
ES2211830

Telephone : +61-2-8784 8555

ALS Environmental

# CERTIFICATE OF ANALYSIS

| | | | |
|---|---|---|---|
| **Work Order** | : **ES2211830** | Page | : 1 of 4 |
| Client | : **CBASED ENVIRONMENTAL PTY LTD** | Laboratory | : Environmental Division Sydney |
| Contact | : All Deliverables | Contact | : Helen Simpson |
| Address | : Unit 3 2 Enterprise Cres<br>Singleton NSW 2330 | Address | : 277-289 Woodpark Road Smithfield NSW Australia 2164 |
| Telephone | : +61 02 6571 3334 | Telephone | : +61 2 8784 8555 |
| Project | : Hanson Quarry SW | Date Samples Received | : 05-Apr-2022 13:21 |
| Order number | : ---- | Date Analysis Commenced | : 05-Apr-2022 |
| C-O-C number | : ---- | Issue Date | : 12-Apr-2022 12:08 |
| Sampler | : Cbased Environmental Pty Ltd, Leesa King | | |
| Site | : | | |
| Quote number | : SYBQ/403/18 | | |
| No. of samples received | : 6 | | |
| No. of samples analysed | : 6 | | |

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

**Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.**

## *Signatories*

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

| *Signatories* | *Position* | *Accreditation Category* |
|---|---|---|
| Ankit Joshi | Senior Chemist - Inorganics | Sydney Inorganics, Smithfield, NSW |
| Neil Martin | Team Leader - Chemistry | Chemistry, Newcastle West, NSW |

## General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- TDS by method EA-015 may bias high for various samples due to the presence of fine particulate matter, which may pass through the prescribed GF/C paper.

## Analytical Results

Sub-Matrix: **WATER**
(Matrix: **WATER**)

| Compound | CAS Number | LOR | Unit | Sample ID | A | B | C1 | C2 | D |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 04-Apr-2022 08:40 | 04-Apr-2022 08:50 | 04-Apr-2022 10:40 | 04-Apr-2022 10:45 | 04-Apr-2022 14:10 |
| | | | | | ES2211830-001 | ES2211830-002 | ES2211830-003 | ES2211830-004 | ES2211830-005 |
| | | | | | Result | Result | Result | Result | Result |
| **EA005: pH** | | | | | | | | | |
| **pH Value** | ---- | 0.01 | pH Unit | | **6.05** | **6.58** | **6.49** | **6.31** | **5.63** |
| **EA010P: Conductivity by PC Titrator** | | | | | | | | | |
| **Electrical Conductivity @ 25°C** | ---- | 1 | µS/cm | | **52** | **83** | **75** | **97** | **66** |
| **EA015: Total Dissolved Solids dried at 180 ± 5 °C** | | | | | | | | | |
| **Total Dissolved Solids @180°C** | ---- | 10 | mg/L | | **45** | **91** | **74** | **88** | **78** |
| **EA025: Total Suspended Solids dried at 104 ± 2°C** | | | | | | | | | |
| **Suspended Solids (SS)** | ---- | 5 | mg/L | | **17** | **15** | **20** | **6** | **7** |
| **EP020: Oil and Grease (O&G)** | | | | | | | | | |
| **Oil & Grease** | ---- | 5 | mg/L | | **6** | <5 | <5 | <5 | <5 |

## Analytical Results

| Sub-Matrix: **WATER** (Matrix: **WATER**) | | | Sample ID | **F** | ---- | ---- | ---- | ---- |
|---|---|---|---|---|---|---|---|---|
| | | | Sampling date / time | 04-Apr-2022 08:30 | ---- | ---- | ---- | ---- |
| *Compound* | *CAS Number* | *LOR* | *Unit* | **ES2211830-006** | -------- | -------- | -------- | -------- |
| | | | | Result | ---- | ---- | ---- | ---- |
| **EA005: pH** | | | | | | | | |
| **pH Value** | ---- | 0.01 | pH Unit | **5.50** | ---- | ---- | ---- | ---- |
| **EA010P: Conductivity by PC Titrator** | | | | | | | | |
| **Electrical Conductivity @ 25°C** | ---- | 1 | µS/cm | **55** | ---- | ---- | ---- | ---- |
| **EA015: Total Dissolved Solids dried at 180 ± 5 °C** | | | | | | | | |
| **Total Dissolved Solids @180°C** | ---- | 10 | mg/L | **37** | ---- | ---- | ---- | ---- |
| **EA025: Total Suspended Solids dried at 104 ± 2°C** | | | | | | | | |
| **Suspended Solids (SS)** | ---- | 5 | mg/L | **50** | ---- | ---- | ---- | ---- |
| **EP020: Oil and Grease (O&G)** | | | | | | | | |
| **Oil & Grease** | ---- | 5 | mg/L | <5 | ---- | ---- | ---- | ---- |

## Inter-Laboratory Testing

Analysis conducted by ALS Newcastle - Water, NATA accreditation no. 825, site no. 1656 (Chemistry) 9854 (Biology).

(WATER) EA005: pH

C BASED ENVIRONMENTAL PTY LIMITED

Date: 4.4.22

# GROUNDWATERS

Client : Hanson Calga
Project : Bi-Annual Bores

| | Site | Time | DEPTH | Typical Depth (m) | Odour | Water Turbidity | Water Colour | 1 pH | 1 EC | 2 pH | 2 EC | Bottles (Apr/Oct) | Downloaded Logger? (Y/N)* | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5.4 | CQ3 | 8.30 | 10.50 | 10.74 | NO | (C) S T | (C) LO O B G | 5.92 | 94.2us | 5.93 | 94.4us | 1x 250ml GP, 1x 500mL GP, 1RP | ~~No~~ | logger removed |
| | CQ4 | 9.35 | 10.46 | 11.19 | NO | C S T | C LO O B G | 4.46 | 116.5us | 4.37 | 116.8us | 1x 250ml GP, 1x 500mL GP, 1RP | yes | |
| 5.4 | CQ5 | 11.15 | 5.33 | 8.04 | NO | C S T | C LO O B G | 4.02 | 210.7us | 4.00 | 213.3us | 1x 250ml GP, 1x 500mL GP, 1RP | | |
| 5.4 | CQ7 | 11.00 | 5.42 | 6.61 | NO | C S T | C LO O B G | 4.18 | 130.5us | 4.22 | 134.1 | 1x 250ml GP, 1x 500mL GP, 1RP | YES | |
| 5.4 | CQ8 | 10.55 | 5.30 | 6.93 | | ~~C S T~~ | ~~C LO O B G~~ | | | | | ~~1x 250ml GP, 1x 500mL GP, 1RP~~ | | Bore damaged. |
| | CQ10 | 12.15 | 24.40 | 25.86 | NO | C S T | C LO O B G | 4.27 | 116.4 | 4.23 | 122.9 | 1x 250ml GP, 1x 500mL GP, 1RP | yes | |
| | CQ11S | 9.25 | 10.70 | 12.1 | NO | C S T | C LO O B G | 5.70 | 141.8us | 5.73 | 141.5us | 1x 250ml GP, 1x 500mL GP, 1RP | yes | |
| | CQ11D | 9.15 | 11.88 | 12.98 | NO | C S T | C LO O B G | 5.37 | 140.7us | 5.22 | 133.4us | 1x 250ml GP, 1x 500mL GP, 1RP | yes | |
| 5.4 | CQ12 | 10.45 | 3.27 | 5.46 | NO | C S T | C LO O B G | 4.68 | 143.8us | 4.06 | 144.5us | 1x 250ml GP, 1x 500mL GP, 1RP | yes. | |
| | CQ13 | 9.50 | 11.91 | 14.42 | NO | C S T | C LO O B G | 4.23 | 120.6us | 4.22 | 122.7us | 1x 250ml GP, 1x 500mL GP, 1RP | yes | |
| | CP4 | 10.00 | 1.42 | 10.56 | NO | C S T | C LO O B G | 4.82 | 150.0us | 4.86 | 152.6us | 1x 250ml GP, 1x 500mL GP, 1RP | | |
| | CP5 | 10.10 | 4.56 | 7.95 | NO | C S T | C LO O B G | 5.91 | 81.4us | 5.98 | 84.7us | 1x 250ml GP, 1x 500mL GP, 1RP | | |
| | CP6 | 10.05 | 7.28 | 10.73 | NO | C S T | C LO O B G | 4.42 | 119.7us | 4.32 | 121.1us | 1x 250ml GP, 1x 500mL GP, 1RP | | |
| | CP7 | 10.20 | 0.77 | 3.47 | NO | C S T | C LO O B G | 5.74 | 126.4us | 5.72 | 123.5us | 1x 250ml GP, 1x 500mL GP, 1RP | | |
| | CP8 | 11.35 | 19.65 | 22.36 | NO | C S T | C LO O B G | 4.30 | 90.2us | 4.18 | 90.2us | 1x 250ml GP, 1x 500mL GP, 1RP | | |
| | CP13** | 11.10 | 11.47 | 13.4 | NO | C S T | C LO O B G | 4.61 | 97.6us | 4.45 | 112.1us | 1x 250ml GP, 1x 500mL GP, 1RP | | |
| | CP15 | 10.30 | 1.62 | 3.01 | NO | C S T | C LO O B G | 5.82 | 128.9us | 5.78 | 130.1us | 1x 250ml GP, 1x 500mL GP, 1RP | | |
| | MW7 | 13.10 | 11.17 | 15.3 | NO | C S T | C LO O B G | 5.78 | 34.8us | 5.82 | 36.7us | 1x 250ml GP, 1x 500mL GP, 1RP | NO | logger removed. |
| | MW8 | 13.25 | 5.75 | 7.66 | NO | C S T | C LO O B G | 4.58 | 50.0us | 4.57 | 51.5us | 1x 250ml GP, 1x 500mL GP, 1RP | yes | |
| | MW9 | 12.30 | 23.02 | 24.09 | YES | C S T | C LO O B G | 4.42 | 67.7us | 4.31 | 67.4 | 1x 250ml GP, 1x 500mL GP, 1RP | yes | |
| 5.4 | MW10 | | | ~~11.44~~ | | ~~C S T~~ | ~~C LO O B G~~ | | | | | ~~1x 250ml GP, 1x 500mL GP, 1RP~~ | | NO ACCESS |
| | MW13 | 10.00 | 7.48 | 7.71 | NO | C S T | C LO O B G | 4.39 | 78.9us | 4.35 | 81.1us | 1x 250ml GP, 1x 500mL GP, 1RP | | |
| | MW16 | | | ~~8.29~~ | | ~~C S T~~ | ~~C LO O B G~~ | | | | | ~~1x 250ml GP, 1x 500mL GP, 1RP~~ | | NO ACCESS |
| | MW17 | 9.45 | 9.88 | 9.93 | NO | C S T | C LO O B G | 4.83 | 107.7us | 4.75 | 93.9us | 1x 250ml GP, 1x 500mL GP, 1RP | | |

Turbidity: C=Clear, S= Slight, T=Turbid (CIRCLE)
pH/EC meter #: V0228
Laptop ID #:
Signed: Sliq

Colour: C=Clear, LO=Light Orange, O=Orange, B=Brown, G=Green (CIRCLE)

Sampled by: Leesa + Steve

*If unable to download logger please provide comment/ explanation above

**Contact Wynston 15 min prior to access on: **0414 900 555**

* MW10 MW16 Track washed away

* GW done 4.4.22 and 5.4.22

* CQ8 Bore damaged Can only get depth !!

# CHAIN OF CUSTODY DOCUMENTATION

Australian Laboratory Services Pty Ltd



CLIENT: CBased Environmental Pty Ltd

POSTAL ADDRESS: PO BOX 245 CESSNOCK NSW 2325

SEND REPORT TO: monitoringresults@cbased.com.au

SEND INVOICE TO: accounts@cbased.com.au, renae.mikka@cbased.com.au

DATA NEEDED BY: 7 working days

REPORT NEEDED BY: 7 working days

PROJECT ID: Hanson GW

QUOTE NO.: SYBQ-403-18

P.O. NO.:

COMMENTS/SPECIAL HANDLING/STORAGE OR DIPOSAL:

FOR LAB USE ONLY

COOLER SEAL

Yes ..... No .....

Broken ..... Intact ...

COOLER TEMP: deg.C

**also email results to cbased1@bigpond.com**

Total unless specified

LABORATORY BATCH NO.:

SAMPLERS : Tessa + Steve

PHONE: 0265713334 E-MAIL: monitoringresults@cbased.com.au

REPORT FORMAT: HARD: Yes FAX: DISK: BULLETIN BOARD: E-MAIL: Yes

QC LEVEL: QCS1: QCS2: QCS3: Yes QCS4:

ANALYSIS REQUIRED

| SAMPLE DATA | | | | CONTAINER DATA | | pH | EC | Ca, Mg, K, Na | Alkalinity | Sulfate | Chloride | Fluoride | Nitrate | Al, As, B, Cd | Cr, Cu, Fe, Hg | Mn, Ni, Pb, Se, Zn | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SAMPLE ID | MATRIX | DATE | TIME | TYPE & PRESERVATIVE | NO. | | | | | | | | | | | | |
| CQ3 | Water | 5-4-22 | 8:30 | 1x500mlGP, 1x250mlGP,1xRP | 3 | x | x | x | x | x | x | x | x | x | x | x | |
| CQ4 | Water | 4-4-22 | 9-35 | 1x500mlGP, 1x250mlGP,1xRP | 3 | x | x | x | x | x | x | x | x | x | x | x | |
| CQ5 | Water | 5-4-22 | 11:15 | 1x500mlGP, 1x250mlGP,1xRP | 3 | x | x | x | x | x | x | x | x | x | x | x | |
| CQ7 | Water | 5-4-22 | 11-00 | 1x500mlGP, 1x250mlGP,1xRP | 3 | x | x | x | x | x | x | x | x | x | x | x | |
| ~~CQ8~~ | ~~Water~~ | | | ~~1x500mlGP, 1x250mlGP,1xRP~~ | ~~3~~ | ~~x~~ | ~~x~~ | ~~x~~ | ~~x~~ | ~~x~~ | ~~x~~ | ~~x~~ | ~~x~~ | ~~x~~ | ~~x~~ | ~~x~~ | |
| CQ10 | Water | 4-4-22 | 12-15 | 1x500mlGP, 1x250mlGP,1xRP | 3 | x | x | x | x | x | x | x | x | x | x | x | |
| CQ11s | Water | 4-4-22 | 9-25 | 1x500mlGP, 1x250mlGP,1xRP | 3 | x | x | x | x | x | x | x | x | x | x | x | |
| CQ11d | Water | 4-4-22 | 9-15 | 1x500mlGP, 1x250mlGP,1xRP | 3 | x | x | x | x | x | x | x | x | x | x | x | |
| CQ12 | Water | 5-4-22 | 10-45 | 1x500mlGP, 1x250mlGP,1xRP | 3 | x | x | x | x | x | x | x | x | x | x | x | |
| CQ13 | Water | 4-4-22 | 9-50 | 1x500mlGP, 1x250mlGP,1xRP | 3 | x | x | x | x | x | x | x | x | x | x | x | |
| CP4 | Water | | 10-00 | 1x500mlGP, 1x250mlGP,1xRP | 3 | x | x | x | x | x | x | x | x | x | x | x | |
| CP5 | Water | | 10-10 | 1x500mlGP, 1x250mlGP,1xRP | 3 | x | x | x | x | x | x | x | x | x | x | x | |
| CP6 | Water | | 10-05 | 1x500mlGP, 1x250mlGP,1xRP | 3 | x | x | x | x | x | x | x | x | x | x | x | |
| CP7 | Water | | 10-20 | 1x500mlGP, 1x250mlGP,1xRP | 3 | x | x | x | x | x | x | x | x | x | x | x | |
| CP8 | Water | | 11-35 | 1x500mlGP, 1x250mlGP,1xRP | 3 | x | x | x | x | x | x | x | x | x | x | x | |
| CP13 | Water | | 11-10 | 1x500mlGP, 1x250mlGP,1xRP | 3 | x | x | x | x | x | x | x | x | x | x | x | |
| CP15 | Water | | 10-30 | 1x500mlGP, 1x250mlGP,1xRP | 3 | x | x | x | x | x | x | x | x | x | x | x | |
| MW7 | Water | | 13-10 | 1x500mlGP, 1x250mlGP,1xRP | 3 | x | x | x | x | x | x | x | x | x | x | x | |
| MW8 | Water | | 13-25 | 1x500mlGP, 1x250mlGP,1xRP | 3 | x | x | x | x | x | x | x | x | x | x | x | |
| MW9 | Water | | 12-30 | 1x500mlGP, 1x250mlGP,1xRP | 3 | x | x | x | x | x | x | x | x | x | x | x | |
| ~~MW10~~ | ~~Water~~ | | | ~~1x500mlGP, 1x250mlGP,1xRP~~ | ~~3~~ | ~~x~~ | ~~x~~ | ~~x~~ | ~~x~~ | ~~x~~ | ~~x~~ | ~~x~~ | ~~x~~ | ~~x~~ | ~~x~~ | ~~x~~ | |
| MW13 | Water | 5-4-22 | 10-00 | 1x500mlGP, 1x250mlGP,1xRP | 3 | x | x | x | x | x | x | x | x | x | x | x | |
| ~~MW16~~ | ~~Water~~ | | | ~~1x500mlGP, 1x250mlGP,1xRP~~ | ~~3~~ | ~~x~~ | ~~x~~ | ~~x~~ | ~~x~~ | ~~x~~ | ~~x~~ | ~~x~~ | ~~x~~ | ~~x~~ | ~~x~~ | ~~x~~ | |
| MW17 | Water | 5-4-22 | 9-45 | 1x500mlGP, 1x250mlGP,1xRP | 3 | x | x | x | x | x | x | x | x | x | x | x | |
| | | | | Total Bottles | | | | | | | | | | | | | |

Environmental Division Sydney
Work Order Reference
ES2211829

Telephone : - 61-2-8784 8555

| RELINQUISHED BY: | | RECEIVED BY | | METHOD OF SHIPMENT |
|---|---|---|---|---|
| NAME : S Morrison | DATE: 5/4/22 | NAME : TOB | DATE: 5/4/22 | |
| OF: C Based Environmental | TIME: | OF: ALS | TIME: 1:21pm. | CONSIGNMENT NOTE NO. |
| NAME : | DATE: | NAME : | DATE: | TRANSPORT CO. NAME. |
| OF: | TIME: | OF: | TIME: | |

*Container Type and Preservative Codes: P = Neutral Plastic; N = Nitric Acid Preserved; C = Sodium Hydroxide Preserved; J = Solvent Washed Acid Rinced Jar; S = Solvent Washed Acid Rinced Glass Bottle; VC = Hydrochloric Acid Preserved Vial; VS = Sulfuric Acid Preserved Vial; BS = Sulfuric Acid Preserved Glass Bottle; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; O = Other.

**AUSTRALIAN LABORATORY SERVICES P/L**

ALS Environmental

# CERTIFICATE OF ANALYSIS

| | | | |
|---|---|---|---|
| **Work Order** | : **ES2211829** | Page | : 1 of 12 |
| Client | : **CBASED ENVIRONMENTAL PTY LTD** | Laboratory | : Environmental Division Sydney |
| Contact | : All Deliverables | Contact | : Helen Simpson |
| Address | : Unit 3 2 Enterprise Cres<br>Singleton NSW 2330 | Address | : 277-289 Woodpark Road Smithfield NSW Australia 2164 |
| Telephone | : +61 02 6571 3334 | Telephone | : +61 2 8784 8555 |
| Project | : Hanson GW | Date Samples Received | : 05-Apr-2022 13:22 |
| Order number | : ---- | Date Analysis Commenced | : 05-Apr-2022 |
| C-O-C number | : ---- | Issue Date | : 12-Apr-2022 13:29 |
| Sampler | : Leesa + Steve | | |
| Site | : | | |
| Quote number | : SYBQ/403/21 and PLANNED EVENTS | | |
| No. of samples received | : 21 | | |
| No. of samples analysed | : 21 | | |

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

**Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.**

## *Signatories*

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

| *Signatories* | *Position* | *Accreditation Category* |
|---|---|---|
| Ankit Joshi | Senior Chemist - Inorganics | Sydney Inorganics, Smithfield, NSW |
| Neil Martin | Team Leader - Chemistry | Chemistry, Newcastle West, NSW |

## General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | Sample ID | CQ3 | CQ4 | CQ5 | CQ7 | CQ10 |
|---|---|---|---|---|---|---|---|---|
| | | | Sampling date / time | 05-Apr-2022 08:30 | 04-Apr-2022 09:35 | 05-Apr-2022 11:15 | 05-Apr-2022 11:00 | 04-Apr-2022 12:15 |
| Compound | CAS Number | LOR | Unit | ES2211829-001 | ES2211829-002 | ES2211829-003 | ES2211829-004 | ES2211829-005 |
| | | | | Result | Result | Result | Result | Result |
| **EA005: pH** | | | | | | | | |
| pH Value | ---- | 0.01 | pH Unit | 6.21 | 4.55 | 4.09 | 4.32 | 4.47 |
| **EA010P: Conductivity by PC Titrator** | | | | | | | | |
| Electrical Conductivity @ 25°C | ---- | 1 | µS/cm | 117 | 132 | 236 | 150 | 137 |
| **ED037P: Alkalinity by PC Titrator** | | | | | | | | |
| Hydroxide Alkalinity as CaCO3 | DMO-210-001 | 1 | mg/L | <1 | <1 | <1 | <1 | <1 |
| Carbonate Alkalinity as CaCO3 | 3812-32-6 | 1 | mg/L | <1 | <1 | <1 | <1 | <1 |
| Bicarbonate Alkalinity as CaCO3 | 71-52-3 | 1 | mg/L | 25 | 7 | <1 | <1 | <1 |
| Total Alkalinity as CaCO3 | ---- | 1 | mg/L | 25 | 7 | <1 | <1 | <1 |
| **ED041G: Sulfate (Turbidimetric) as SO4 2- by DA** | | | | | | | | |
| Sulfate as SO4 - Turbidimetric | 14808-79-8 | 1 | mg/L | 4 | 9 | 16 | 10 | 17 |
| **ED045G: Chloride by Discrete Analyser** | | | | | | | | |
| Chloride | 16887-00-6 | 1 | mg/L | 24 | 24 | 26 | 25 | 28 |
| **ED093F: Dissolved Major Cations** | | | | | | | | |
| Calcium | 7440-70-2 | 1 | mg/L | 2 | <1 | 8 | 2 | 1 |
| Magnesium | 7439-95-4 | 1 | mg/L | 5 | 3 | 5 | 4 | 2 |
| Sodium | 7440-23-5 | 1 | mg/L | 10 | 19 | 9 | 10 | 14 |
| Potassium | 7440-09-7 | 1 | mg/L | 1 | <1 | 6 | 2 | <1 |
| **EG020T: Total Metals by ICP-MS** | | | | | | | | |
| Aluminium | 7429-90-5 | 0.01 | mg/L | 0.03 | 0.46 | 1.86 | 1.20 | 0.71 |
| Arsenic | 7440-38-2 | 0.001 | mg/L | <0.001 | 0.001 | <0.001 | <0.001 | <0.001 |
| Cadmium | 7440-43-9 | 0.0001 | mg/L | <0.0001 | 0.0002 | <0.0001 | <0.0001 | <0.0001 |
| Chromium | 7440-47-3 | 0.001 | mg/L | <0.001 | 0.002 | 0.002 | 0.002 | 0.002 |
| Copper | 7440-50-8 | 0.001 | mg/L | 0.001 | 0.002 | 0.001 | 0.005 | 0.036 |
| Lead | 7439-92-1 | 0.001 | mg/L | <0.001 | 0.002 | 0.002 | 0.002 | 0.005 |
| Manganese | 7439-96-5 | 0.001 | mg/L | 0.824 | 0.010 | 0.015 | 0.016 | 0.020 |
| Nickel | 7440-02-0 | 0.001 | mg/L | 0.012 | 0.004 | 0.001 | <0.001 | 0.002 |
| Selenium | 7782-49-2 | 0.01 | mg/L | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Zinc | 7440-66-6 | 0.005 | mg/L | 0.079 | 0.190 | 0.040 | 0.137 | 0.046 |
| Boron | 7440-42-8 | 0.05 | mg/L | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| Iron | 7439-89-6 | 0.05 | mg/L | 0.10 | 0.18 | 0.07 | 0.72 | 0.26 |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | |
| Mercury | 7439-97-6 | 0.0001 | mg/L | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EK040P: Fluoride by PC Titrator** | | | | | | | | |
| Fluoride | 16984-48-8 | 0.1 | mg/L | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |

## Analytical Results

Sub-Matrix: **WATER**
(Matrix: **WATER**)

| Compound | CAS Number | LOR | Unit | Sample ID | CQ3 | CQ4 | CQ5 | CQ7 | CQ10 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 05-Apr-2022 08:30 | 04-Apr-2022 09:35 | 05-Apr-2022 11:15 | 05-Apr-2022 11:00 | 04-Apr-2022 12:15 |
| | | | | | ES2211829-001 | ES2211829-002 | ES2211829-003 | ES2211829-004 | ES2211829-005 |
| | | | | | Result | Result | Result | Result | Result |
| **EK057G: Nitrite as N by Discrete Analyser** | | | | | | | | | |
| **Nitrite as N** | 14797-65-0 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK058G: Nitrate as N by Discrete Analyser** | | | | | | | | | |
| **Nitrate as N** | 14797-55-8 | 0.01 | mg/L | | **0.19** | **3.82** | **11.4** | **4.81** | **0.58** |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | | |
| **Nitrite + Nitrate as N** | ---- | 0.01 | mg/L | | **0.19** | **3.82** | **11.4** | **4.81** | **0.58** |
| **EN055: Ionic Balance** | | | | | | | | | |
| **ø Total Anions** | ---- | 0.01 | meq/L | | **1.26** | **1.00** | **1.07** | **0.91** | **1.14** |
| **ø Total Cations** | ---- | 0.01 | meq/L | | **0.97** | **1.07** | **1.36** | **0.92** | **0.82** |

## Analytical Results

Sub-Matrix: **WATER**
(Matrix: **WATER**)

| Compound | CAS Number | LOR | Unit | Sample ID | CQ11s | CQ11d | CQ12 | CQ13 | CP4 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 04-Apr-2022 09:25 | 04-Apr-2022 09:15 | 05-Apr-2022 10:45 | 04-Apr-2022 09:50 | 04-Apr-2022 10:00 |
| | | | | | ES2211829-006 | ES2211829-007 | ES2211829-008 | ES2211829-009 | ES2211829-010 |
| | | | | | Result | Result | Result | Result | Result |
| **EA005: pH** | | | | | | | | | |
| **pH Value** | ---- | 0.01 | pH Unit | | **5.24** | **5.78** | **4.23** | **4.36** | **5.03** |
| **EA010P: Conductivity by PC Titrator** | | | | | | | | | |
| **Electrical Conductivity @ 25°C** | ---- | 1 | µS/cm | | **164** | **146** | **159** | **140** | **174** |
| **ED037P: Alkalinity by PC Titrator** | | | | | | | | | |
| **Hydroxide Alkalinity as CaCO3** | DMO-210-001 | 1 | mg/L | | <1 | <1 | <1 | <1 | <1 |
| **Carbonate Alkalinity as CaCO3** | 3812-32-6 | 1 | mg/L | | <1 | <1 | <1 | <1 | <1 |
| **Bicarbonate Alkalinity as CaCO3** | 71-52-3 | 1 | mg/L | | **26** | **10** | <1 | <1 | **2** |
| **Total Alkalinity as CaCO3** | ---- | 1 | mg/L | | **26** | **10** | <1 | <1 | **2** |
| **ED041G: Sulfate (Turbidimetric) as SO4 2- by DA** | | | | | | | | | |
| **Sulfate as SO4 - Turbidimetric** | 14808-79-8 | 1 | mg/L | | **14** | **22** | **22** | **4** | **36** |
| **ED045G: Chloride by Discrete Analyser** | | | | | | | | | |
| **Chloride** | 16887-00-6 | 1 | mg/L | | **27** | **26** | **18** | **28** | **22** |
| **ED093F: Dissolved Major Cations** | | | | | | | | | |
| **Calcium** | 7440-70-2 | 1 | mg/L | | **2** | <1 | <1 | <1 | **7** |
| **Magnesium** | 7439-95-4 | 1 | mg/L | | **4** | **5** | **7** | **5** | **5** |
| **Sodium** | 7440-23-5 | 1 | mg/L | | **16** | **19** | **11** | **12** | **11** |
| **Potassium** | 7440-09-7 | 1 | mg/L | | **3** | **2** | <1 | **2** | **6** |
| **EG020T: Total Metals by ICP-MS** | | | | | | | | | |
| **Aluminium** | 7429-90-5 | 0.01 | mg/L | | **0.11** | **0.34** | **1.18** | **0.35** | **0.19** |
| **Arsenic** | 7440-38-2 | 0.001 | mg/L | | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| **Cadmium** | 7440-43-9 | 0.0001 | mg/L | | **0.0011** | <0.0001 | <0.0001 | <0.0001 | **0.0002** |
| **Chromium** | 7440-47-3 | 0.001 | mg/L | | **0.001** | <0.001 | **0.001** | <0.001 | <0.001 |
| **Copper** | 7440-50-8 | 0.001 | mg/L | | **0.003** | **0.002** | **0.002** | <0.001 | **0.003** |
| **Lead** | 7439-92-1 | 0.001 | mg/L | | **0.002** | **0.003** | **0.003** | <0.001 | **0.015** |
| **Manganese** | 7439-96-5 | 0.001 | mg/L | | **0.027** | **0.021** | **0.009** | **0.006** | **0.007** |
| **Nickel** | 7440-02-0 | 0.001 | mg/L | | **0.002** | **0.002** | **0.002** | **0.003** | **0.004** |
| **Selenium** | 7782-49-2 | 0.01 | mg/L | | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| **Zinc** | 7440-66-6 | 0.005 | mg/L | | **0.054** | **0.083** | **0.079** | **0.016** | **0.241** |
| **Boron** | 7440-42-8 | 0.05 | mg/L | | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| **Iron** | 7439-89-6 | 0.05 | mg/L | | **0.82** | **0.33** | **0.09** | <0.05 | **0.06** |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | | |
| **Mercury** | 7439-97-6 | 0.0001 | mg/L | | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EK040P: Fluoride by PC Titrator** | | | | | | | | | |
| **Fluoride** | 16984-48-8 | 0.1 | mg/L | | **0.4** | <0.1 | <0.1 | <0.1 | <0.1 |

## Analytical Results

Sub-Matrix: **WATER**
(Matrix: **WATER**)

| Compound | CAS Number | LOR | Unit | Sample ID | CQ11s | CQ11d | CQ12 | CQ13 | CP4 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 04-Apr-2022 09:25 | 04-Apr-2022 09:15 | 05-Apr-2022 10:45 | 04-Apr-2022 09:50 | 04-Apr-2022 10:00 |
| | | | | | **ES2211829-006** | **ES2211829-007** | **ES2211829-008** | **ES2211829-009** | **ES2211829-010** |
| | | | | | Result | Result | Result | Result | Result |
| **EK057G: Nitrite as N by Discrete Analyser** | | | | | | | | | |
| **Nitrite as N** | 14797-65-0 | 0.01 | mg/L | | **0.04** | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK058G: Nitrate as N by Discrete Analyser** | | | | | | | | | |
| **Nitrate as N** | 14797-55-8 | 0.01 | mg/L | | **0.18** | **0.07** | **5.22** | **3.81** | **1.62** |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | | |
| **Nitrite + Nitrate as N** | ---- | 0.01 | mg/L | | **0.22** | **0.07** | **5.22** | **3.81** | **1.62** |
| **EN055: Ionic Balance** | | | | | | | | | |
| **ø Total Anions** | ---- | 0.01 | meq/L | | **1.57** | **1.39** | **0.96** | **0.87** | **1.41** |
| **ø Total Cations** | ---- | 0.01 | meq/L | | **1.20** | **1.29** | **1.05** | **0.98** | **1.39** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | Sample ID | CP5 | CP6 | CP7 | CP8 | CP13 |
|---|---|---|---|---|---|---|---|---|
| | | | Sampling date / time | 04-Apr-2022 10:10 | 04-Apr-2022 10:05 | 04-Apr-2022 10:20 | 04-Apr-2022 11:35 | 04-Apr-2022 11:10 |
| Compound | CAS Number | LOR | Unit | ES2211829-011 | ES2211829-012 | ES2211829-013 | ES2211829-014 | ES2211829-015 |
| | | | | Result | Result | Result | Result | Result |
| **EA005: pH** | | | | | | | | |
| pH Value | ---- | 0.01 | pH Unit | 5.89 | 4.47 | 5.84 | 4.46 | 4.63 |
| **EA010P: Conductivity by PC Titrator** | | | | | | | | |
| Electrical Conductivity @ 25°C | ---- | 1 | µS/cm | 106 | 144 | 144 | 112 | 126 |
| **ED037P: Alkalinity by PC Titrator** | | | | | | | | |
| Hydroxide Alkalinity as CaCO3 | DMO-210-001 | 1 | mg/L | <1 | <1 | <1 | <1 | <1 |
| Carbonate Alkalinity as CaCO3 | 3812-32-6 | 1 | mg/L | <1 | <1 | <1 | <1 | <1 |
| Bicarbonate Alkalinity as CaCO3 | 71-52-3 | 1 | mg/L | 12 | <1 | 12 | <1 | <1 |
| Total Alkalinity as CaCO3 | ---- | 1 | mg/L | 12 | <1 | 12 | <1 | <1 |
| **ED041G: Sulfate (Turbidimetric) as SO4 2- by DA** | | | | | | | | |
| Sulfate as SO4 - Turbidimetric | 14808-79-8 | 1 | mg/L | 8 | 12 | 20 | 11 | 13 |
| **ED045G: Chloride by Discrete Analyser** | | | | | | | | |
| Chloride | 16887-00-6 | 1 | mg/L | 15 | 23 | 15 | 22 | 28 |
| **ED093F: Dissolved Major Cations** | | | | | | | | |
| Calcium | 7440-70-2 | 1 | mg/L | 1 | <1 | 9 | <1 | 2 |
| Magnesium | 7439-95-4 | 1 | mg/L | 7 | 6 | 4 | 2 | 2 |
| Sodium | 7440-23-5 | 1 | mg/L | 8 | 11 | 5 | 12 | 12 |
| Potassium | 7440-09-7 | 1 | mg/L | 2 | <1 | 8 | <1 | 2 |
| **EG020T: Total Metals by ICP-MS** | | | | | | | | |
| Aluminium | 7429-90-5 | 0.01 | mg/L | 0.03 | 0.32 | 0.60 | 0.53 | 0.54 |
| Arsenic | 7440-38-2 | 0.001 | mg/L | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Cadmium | 7440-43-9 | 0.0001 | mg/L | 0.0002 | 0.0003 | <0.0001 | <0.0001 | <0.0001 |
| Chromium | 7440-47-3 | 0.001 | mg/L | 0.003 | 0.003 | 0.001 | 0.001 | <0.001 |
| Copper | 7440-50-8 | 0.001 | mg/L | 0.005 | 0.014 | 0.035 | <0.001 | <0.001 |
| Lead | 7439-92-1 | 0.001 | mg/L | 0.003 | 0.007 | 0.009 | <0.001 | <0.001 |
| Manganese | 7439-96-5 | 0.001 | mg/L | 0.123 | 0.056 | 0.244 | 0.002 | 0.016 |
| Nickel | 7440-02-0 | 0.001 | mg/L | 0.031 | 0.010 | <0.001 | <0.001 | 0.001 |
| Selenium | 7782-49-2 | 0.01 | mg/L | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Zinc | 7440-66-6 | 0.005 | mg/L | 0.713 | 0.357 | 0.070 | 0.037 | 0.010 |
| Boron | 7440-42-8 | 0.05 | mg/L | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| Iron | 7439-89-6 | 0.05 | mg/L | 0.40 | 0.60 | 3.44 | 0.18 | 0.23 |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | |
| Mercury | 7439-97-6 | 0.0001 | mg/L | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EK040P: Fluoride by PC Titrator** | | | | | | | | |
| Fluoride | 16984-48-8 | 0.1 | mg/L | <0.1 | <0.1 | <0.1 | 0.3 | 0.4 |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | Sample ID | CP5 | CP6 | CP7 | CP8 | CP13 |
|---|---|---|---|---|---|---|---|---|
| | | | Sampling date / time | 04-Apr-2022 10:10 | 04-Apr-2022 10:05 | 04-Apr-2022 10:20 | 04-Apr-2022 11:35 | 04-Apr-2022 11:10 |
| Compound | CAS Number | LOR | Unit | ES2211829-011 | ES2211829-012 | ES2211829-013 | ES2211829-014 | ES2211829-015 |
| | | | | Result | Result | Result | Result | Result |
| **EK057G: Nitrite as N by Discrete Analyser** | | | | | | | | |
| **Nitrite as N** | 14797-65-0 | 0.01 | mg/L | <0.01 | <0.01 | **0.01** | <0.01 | <0.01 |
| **EK058G: Nitrate as N by Discrete Analyser** | | | | | | | | |
| **Nitrate as N** | 14797-55-8 | 0.01 | mg/L | **2.66** | **4.85** | **4.00** | **0.96** | **0.41** |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | |
| **Nitrite + Nitrate as N** | ---- | 0.01 | mg/L | **2.66** | **4.85** | **4.01** | **0.96** | **0.41** |
| **EN055: Ionic Balance** | | | | | | | | |
| **ø Total Anions** | ---- | 0.01 | meq/L | **0.83** | **0.90** | **1.08** | **0.85** | **1.06** |
| **ø Total Cations** | ---- | 0.01 | meq/L | **1.02** | **0.97** | **1.20** | **0.69** | **0.84** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | Sample ID | CP15 | MW7 | MW8 | MW9 | MW13 |
|---|---|---|---|---|---|---|---|---|
| | | | Sampling date / time | 04-Apr-2022 10:30 | 04-Apr-2022 13:10 | 04-Apr-2022 13:25 | 04-Apr-2022 12:30 | 05-Apr-2022 10:00 |
| Compound | CAS Number | LOR | Unit | ES2211829-016 | ES2211829-017 | ES2211829-018 | ES2211829-019 | ES2211829-020 |
| | | | | Result | Result | Result | Result | Result |
| **EA005: pH** | | | | | | | | |
| pH Value | ---- | 0.01 | pH Unit | **5.90** | **6.14** | **4.90** | **4.55** | **4.43** |
| **EA010P: Conductivity by PC Titrator** | | | | | | | | |
| Electrical Conductivity @ 25°C | ---- | 1 | µS/cm | **146** | **65** | **72** | **89** | **102** |
| **ED037P: Alkalinity by PC Titrator** | | | | | | | | |
| Hydroxide Alkalinity as CaCO3 | DMO-210-001 | 1 | mg/L | <1 | <1 | <1 | <1 | <1 |
| Carbonate Alkalinity as CaCO3 | 3812-32-6 | 1 | mg/L | <1 | <1 | <1 | <1 | <1 |
| Bicarbonate Alkalinity as CaCO3 | 71-52-3 | 1 | mg/L | **7** | **9** | **2** | <1 | <1 |
| Total Alkalinity as CaCO3 | ---- | 1 | mg/L | **7** | **9** | **2** | <1 | <1 |
| **ED041G: Sulfate (Turbidimetric) as SO4 2- by DA** | | | | | | | | |
| Sulfate as SO4 - Turbidimetric | 14808-79-8 | 1 | mg/L | **15** | **7** | **4** | **4** | **3** |
| **ED045G: Chloride by Discrete Analyser** | | | | | | | | |
| Chloride | 16887-00-6 | 1 | mg/L | **13** | **14** | **18** | **23** | **27** |
| **ED093F: Dissolved Major Cations** | | | | | | | | |
| Calcium | 7440-70-2 | 1 | mg/L | **3** | **5** | <1 | <1 | <1 |
| Magnesium | 7439-95-4 | 1 | mg/L | **4** | **1** | **2** | **1** | **2** |
| Sodium | 7440-23-5 | 1 | mg/L | **9** | **6** | **6** | **12** | **13** |
| Potassium | 7440-09-7 | 1 | mg/L | **8** | **2** | <1 | <1 | <1 |
| **EG020T: Total Metals by ICP-MS** | | | | | | | | |
| Aluminium | 7429-90-5 | 0.01 | mg/L | **0.23** | **1.23** | **0.30** | **0.45** | **0.15** |
| Arsenic | 7440-38-2 | 0.001 | mg/L | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 |
| Cadmium | 7440-43-9 | 0.0001 | mg/L | <0.0001 | <0.0001 | <0.0001 | **0.0003** | <0.0001 |
| Chromium | 7440-47-3 | 0.001 | mg/L | <0.001 | **0.002** | **0.004** | **0.002** | <0.001 |
| Copper | 7440-50-8 | 0.001 | mg/L | **0.004** | **0.003** | **0.003** | **0.007** | **0.004** |
| Lead | 7439-92-1 | 0.001 | mg/L | <0.001 | <0.001 | **0.001** | **0.001** | <0.001 |
| Manganese | 7439-96-5 | 0.001 | mg/L | **0.102** | **0.031** | **0.012** | **0.010** | **0.037** |
| Nickel | 7440-02-0 | 0.001 | mg/L | <0.001 | **0.001** | **0.001** | **0.001** | **0.002** |
| Selenium | 7782-49-2 | 0.01 | mg/L | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| Zinc | 7440-66-6 | 0.005 | mg/L | **0.276** | **0.119** | **0.056** | **0.059** | **0.066** |
| Boron | 7440-42-8 | 0.05 | mg/L | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| Iron | 7439-89-6 | 0.05 | mg/L | **3.93** | **1.01** | **0.28** | **0.28** | **0.08** |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | |
| Mercury | 7439-97-6 | 0.0001 | mg/L | <0.0001 | <0.0001 | <0.0001 | <0.0001 | <0.0001 |
| **EK040P: Fluoride by PC Titrator** | | | | | | | | |
| Fluoride | 16984-48-8 | 0.1 | mg/L | **0.2** | <0.1 | <0.1 | <0.1 | <0.1 |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Sample ID | CP15 | MW7 | MW8 | MW9 | MW13 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 04-Apr-2022 10:30 | 04-Apr-2022 13:10 | 04-Apr-2022 13:25 | 04-Apr-2022 12:30 | 05-Apr-2022 10:00 |
| Compound | CAS Number | LOR | Unit | | ES2211829-016 | ES2211829-017 | ES2211829-018 | ES2211829-019 | ES2211829-020 |
| | | | | | Result | Result | Result | Result | Result |
| **EK057G: Nitrite as N by Discrete Analyser** | | | | | | | | | |
| **Nitrite as N** | 14797-65-0 | 0.01 | mg/L | | **0.07** | <0.01 | <0.01 | <0.01 | <0.01 |
| **EK058G: Nitrate as N by Discrete Analyser** | | | | | | | | | |
| **Nitrate as N** | 14797-55-8 | 0.01 | mg/L | | **6.81** | **0.03** | **0.17** | **0.10** | **0.60** |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | | |
| **Nitrite + Nitrate as N** | ---- | 0.01 | mg/L | | **6.88** | **0.03** | **0.17** | **0.10** | **0.60** |
| **EN055: Ionic Balance** | | | | | | | | | |
| **ø Total Anions** | ---- | 0.01 | meq/L | | **0.82** | **0.72** | **0.63** | **0.73** | **0.82** |
| **ø Total Cations** | ---- | 0.01 | meq/L | | **1.07** | **0.64** | **0.42** | **0.60** | **0.73** |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | Sample ID | MW17 | ---- | ---- | ---- | ---- |
|---|---|---|---|---|---|---|---|---|
| | | | Sampling date / time | 05-Apr-2022 09:45 | ---- | ---- | ---- | ---- |
| Compound | CAS Number | LOR | Unit | ES2211829-021 | -------- | -------- | -------- | -------- |
| | | | | Result | ---- | ---- | ---- | ---- |
| **EA005: pH** | | | | | | | | |
| **pH Value** | ---- | 0.01 | pH Unit | **5.03** | ---- | ---- | ---- | ---- |
| **EA010P: Conductivity by PC Titrator** | | | | | | | | |
| **Electrical Conductivity @ 25°C** | ---- | 1 | µS/cm | **124** | ---- | ---- | ---- | ---- |
| **ED037P: Alkalinity by PC Titrator** | | | | | | | | |
| **Hydroxide Alkalinity as CaCO3** | DMO-210-001 | 1 | mg/L | <1 | ---- | ---- | ---- | ---- |
| **Carbonate Alkalinity as CaCO3** | 3812-32-6 | 1 | mg/L | <1 | ---- | ---- | ---- | ---- |
| **Bicarbonate Alkalinity as CaCO3** | 71-52-3 | 1 | mg/L | **4** | ---- | ---- | ---- | ---- |
| **Total Alkalinity as CaCO3** | ---- | 1 | mg/L | **4** | ---- | ---- | ---- | ---- |
| **ED041G: Sulfate (Turbidimetric) as SO4 2- by DA** | | | | | | | | |
| **Sulfate as SO4 - Turbidimetric** | 14808-79-8 | 1 | mg/L | **3** | ---- | ---- | ---- | ---- |
| **ED045G: Chloride by Discrete Analyser** | | | | | | | | |
| **Chloride** | 16887-00-6 | 1 | mg/L | **34** | ---- | ---- | ---- | ---- |
| **ED093F: Dissolved Major Cations** | | | | | | | | |
| **Calcium** | 7440-70-2 | 1 | mg/L | <1 | ---- | ---- | ---- | ---- |
| **Magnesium** | 7439-95-4 | 1 | mg/L | **3** | ---- | ---- | ---- | ---- |
| **Sodium** | 7440-23-5 | 1 | mg/L | **17** | ---- | ---- | ---- | ---- |
| **Potassium** | 7440-09-7 | 1 | mg/L | <1 | ---- | ---- | ---- | ---- |
| **EG020T: Total Metals by ICP-MS** | | | | | | | | |
| **Aluminium** | 7429-90-5 | 0.01 | mg/L | **0.10** | ---- | ---- | ---- | ---- |
| **Arsenic** | 7440-38-2 | 0.001 | mg/L | <0.001 | ---- | ---- | ---- | ---- |
| **Cadmium** | 7440-43-9 | 0.0001 | mg/L | **0.0002** | ---- | ---- | ---- | ---- |
| **Chromium** | 7440-47-3 | 0.001 | mg/L | **0.001** | ---- | ---- | ---- | ---- |
| **Copper** | 7440-50-8 | 0.001 | mg/L | **0.005** | ---- | ---- | ---- | ---- |
| **Lead** | 7439-92-1 | 0.001 | mg/L | **0.002** | ---- | ---- | ---- | ---- |
| **Manganese** | 7439-96-5 | 0.001 | mg/L | **0.189** | ---- | ---- | ---- | ---- |
| **Nickel** | 7440-02-0 | 0.001 | mg/L | **0.005** | ---- | ---- | ---- | ---- |
| **Selenium** | 7782-49-2 | 0.01 | mg/L | <0.01 | ---- | ---- | ---- | ---- |
| **Zinc** | 7440-66-6 | 0.005 | mg/L | **0.060** | ---- | ---- | ---- | ---- |
| **Boron** | 7440-42-8 | 0.05 | mg/L | <0.05 | ---- | ---- | ---- | ---- |
| **Iron** | 7439-89-6 | 0.05 | mg/L | **0.08** | ---- | ---- | ---- | ---- |
| **EG035T: Total Recoverable Mercury by FIMS** | | | | | | | | |
| **Mercury** | 7439-97-6 | 0.0001 | mg/L | <0.0001 | ---- | ---- | ---- | ---- |
| **EK040P: Fluoride by PC Titrator** | | | | | | | | |
| **Fluoride** | 16984-48-8 | 0.1 | mg/L | <0.1 | ---- | ---- | ---- | ---- |

## Analytical Results

| Sub-Matrix: WATER (Matrix: WATER) | | | | Sample ID | MW17 | ---- | ---- | ---- | ---- |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Sampling date / time | 05-Apr-2022 09:45 | ---- | ---- | ---- | ---- |
| Compound | CAS Number | LOR | Unit | | ES2211829-021 | -------- | -------- | -------- | -------- |
| | | | | | Result | ---- | ---- | ---- | ---- |
| **EK057G: Nitrite as N by Discrete Analyser** | | | | | | | | | |
| **Nitrite as N** | 14797-65-0 | 0.01 | mg/L | | <0.01 | ---- | ---- | ---- | ---- |
| **EK058G: Nitrate as N by Discrete Analyser** | | | | | | | | | |
| **Nitrate as N** | 14797-55-8 | 0.01 | mg/L | | **0.25** | ---- | ---- | ---- | ---- |
| **EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser** | | | | | | | | | |
| **Nitrite + Nitrate as N** | ---- | 0.01 | mg/L | | **0.25** | ---- | ---- | ---- | ---- |
| **EN055: Ionic Balance** | | | | | | | | | |
| ø **Total Anions** | ---- | 0.01 | meq/L | | **1.10** | ---- | ---- | ---- | ---- |
| ø **Total Cations** | ---- | 0.01 | meq/L | | **0.99** | ---- | ---- | ---- | ---- |

## Inter-Laboratory Testing

Analysis conducted by ALS Newcastle - Water, NATA accreditation no. 825, site no. 1656 (Chemistry) 9854 (Biology).

(WATER) EA005: pH