

Bunbury Outer Ring Road Northern, Central and Southern Sections

Groundwater and Surface Water Monitoring 2019-2020

BORR-00-RP-EN-005

Rev 1 August 2020



EXECUTIVE SUMMARY

The Commissioner of Main Roads Western Australia (Main Roads) is proposing to construct and operate the Northern, Central and Southern sections of the Bunbury Outer Ring Road (BORR) project. BORR is a planned Controlled Access Highway linking the Forrest Highway and Bussell Highway. The completed project will provide a high standard route for access to the Bunbury Port, improve road user safety and facilitate proposed development to the east of the City of Bunbury. BORR will also provide an effective bypass of Bunbury for inter-regional traffic.

The purpose of this report is to document the findings of the 12-month water monitoring program (August 2019 – July 2020) which included field and laboratory analysis of water samples collected at 30 groundwater and 15 surface water locations along the proposed BORR alignment. This monitoring program has been undertaken prior to construction, and provides baseline information in the vicinity of the proposed BORR.

Groundwater and surface water samples were analysed for the following parameters: pH; electrical conductivity (EC); dissolved oxygen (DO); redox; temperature; total dissolved solids (TDS); acidity and alkalinity; major ions; nutrients; metals; benzene, toluene, ethylbenzene and xylene (BTEXN); total recoverable hydrocarbons (TRH); and organophosphate (OP) pesticides and glyphosate (surface water only).

During a review of the monitoring program, it was noted that a number of analytes were not detected or were just above laboratory limit of reporting (LOR) in the majority of groundwater or surface water locations, during the first six months of monitoring.

Based on these observations, the laboratory analysis suite was reduced in the last quarter of the 12-month monitoring period, from April to July 2020, for both groundwater and surface water samples. The reduced monitoring suite excluded BTEXN, TRH, PAHs, OP pesticides and glyphosate analytes.

Key findings of the 12-month groundwater and surface water monitoring program indicate the following:

- Low pH (< pH 6) was generally observed at groundwater locations in close proximity to waterways and in association with high to moderate risk Acid Sulfate Soil mapped areas.
- Elevated EC groundwater and surface water results were identified between Raymond Road and Boyanup-Picton Road and in association with the Collie River.
- In the BORR Central Section EC results were generally fresh for both groundwater and surface water locations with some seasonal increase in summer in the Preston River.
- Highest groundwater EC results, in BORR Southern Section, were recorded at BORR MW11 and MR MW05. BORR MW11 EC results indicate seasonal influence with EC reaching 24,600 µS/cm in December 2019, however EC levels recorded at MR MW05 were consistently high in the range of 19,900 to 23,500 µS/cm throughout the monitoring period.
- Several exceedances in the NPUG guidelines of ammonia (as N) were reported across four groundwater bores, several exceedances in the irrigation guidelines of phosphorus (total) were also reported for BORR_MW08a.
- Multiple exceedances in all nutrient analytes in the lowland river guidelines were found across several surface water locations, exceedances in ammonia (as N) in the slight to moderately disturbed guidelines were also reported.
- Exceedances of the NPUG guidelines for aluminium (total), aluminium (filtered), and iron (total) were reported across multiple groundwater bores. BH32.1 recorded multiple exceedances of the NPUG guidelines of Nickel (filtered).



- Elevated concentrations, above LOR and assessment criteria, were recorded for dissolved aluminium, copper, iron, manganese, nickel, zinc, total aluminium and total iron across the majority of groundwater and surface water locations, throughout the 12-month monitoring period.
- BTEXN (with the exception of one sample), PAH, OP pesticides and glyphosate were either not detected or below LOR in all groundwater or surface water samples.
- TRH did not exceed the relevant assessment criteria in all groundwater samples, however was detected above LOR within surface water samples.

This Report notes that lower than average rainfall levels were received in 2019 (550.0 mm) compared to the mean annual rainfall level (718.4 mm) for the Bunbury area. However, rainfall received in first six months of 2020 was above average for the Bunbury area.

The monitoring results for groundwater and surface water quality are consistent with the results of similar monitoring in the local area and are generally consistent with what would be expected for the area and the water resources sampled (Commander, 1984; DoW, 2009; BORR IPT, 2019a). The groundwater and surface water quality reflect the local hydrogeology and hydrology, and current and past land use. Elevated nutrients are considered likely to be due to cleared and agricultural land use throughout the Proposal Area.



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Document Control

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1 INTRODUCTION

1.1 Background

The Commissioner of Main Roads Western Australia (Main Roads) is proposing to construct and operate the Northern, Central and Southern sections of the Bunbury Outer Ring Road (BORR) project. BORR is a planned Controlled Access Highway linking the Forrest Highway and Bussell Highway. The completed project will provide a high standard route for access to the Bunbury Port, improve road user safety and facilitate proposed development to the east of the City of Bunbury. BORR will also provide an effective bypass of Bunbury for inter-regional traffic.

BORR forms a major component of the planned regional road network for the Greater Bunbury area. The land requirement for BORR was identified in the original draft Greater Bunbury Region Scheme (GBRS) in 1996, with the route advertised to the broader community as part of the GBRS assessment.

In late 2016, Main Roads WA commenced a planning review for a future South West Freeway (Forrest Highway, BORR and Bussell Highway between Mandurah and Busselton) spanning the Forrest and Bussell highways. This network forms the primary connection of Perth with Bunbury, Busselton and the broader South West Region, including the Ports of Fremantle, Bunbury and the proposed Outer Harbour at Kwinana.

The proposed BORR comprises three sections:

- 'BORR Northern Section' Forrest Highway to Boyanup-Picton Road
- 'BORR Central Section' Boyanup-Picton Road to South Western Highway, an existing four km section which was completed in May 2013, along with a 3 km extension of Willinge Drive southwards to South Western Highway
- 'BORR Southern Section' South Western Highway (near Bunbury Airport) to Bussell Highway.

This document includes the BORR Northern, Central and Southern Sections (the Proposal Area).

1.2 Proposal description

The proposed BORR is located approximately 200 km south of Perth and occurs within the City of Bunbury and Shires of Capel, Dardanup and Harvey. The majority of land intersected by the proposed BORR alignment is zoned rural (cleared agricultural land) and primary regional road, with remaining land zoned as a mix of railways, urban, urban deferred, regional open space and industrial. The majority of the alignment is cleared with some areas of remnant vegetation which are predominately associated with road reserves and drainage lines.

The Proposal includes construction and operation of the BORR Northern, Central and Southern Sections. This comprises approximately 29.5 km of new freeway standard dual carriageway and associated bridges, interchanges and other road infrastructure including, but not limited to, culverts, lighting, noise barriers, fencing, landscaping, road safety barriers and signs.

1.3 Purpose of this report

The purpose of this report is to document the findings of the 12-month water monitoring program which included sampling at groundwater and surface water locations along the proposed BORR alignment. This monitoring program has been undertaken prior to construction, and provides baseline information of surface and ground water quality from sampling points within one kilometre the proposed BORR.



1.4 Scope of work

The following scope of works were completed:

- Groundwater sampling at 30 selected locations (subject to monitoring well condition) along the BORR alignment on a monthly basis
- Surface water sampling at 15 selected locations along the BORR alignment on a monthly basis
- Field measurement of groundwater levels and in situ field quality measurement at groundwater and surface water locations
- Submission of all collected samples to a National Association of Testing Authorities (NATA) accredited analytical laboratory for analysis
- Undertake works in accordance with a site-specific Job Safety and Environmental Assessment (JSEA) and adhere to quality assurance (QA) and quality control (QC) procedures

This report is a 12 months groundwater and surface water monitoring report detailing the methods and key findings of the monitoring program.

1.5 Limitations

This Report has been prepared by Bunbury Outer Ring Road Integrated Project Team (BORR IPT) for Main Roads Western Australia and may only be used and relied on by Main Roads Western Australia for the purpose agreed between BORR IPT and Main Roads Western Australia as set out in Section 1 of this report. BORR IPT otherwise disclaims responsibility to any person other than Main Roads Western Australia arising in connection with this report. BORR IPT also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by BORR IPT in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report. The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. BORR IPT has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared. The opinions, conclusions and any recommendations in this report are based on assumptions made by BORR IPT described in this report. BORR IPT disclaims liability arising from any of the assumptions being incorrect.

BORR IPT has prepared this report on the basis of information provided by Main Roads Western Australia and others who provided information to BORR IPT (including Government authorities), which BORR IPT has not independently verified or checked beyond the agreed scope of work. BORR IPT does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information.

Investigations undertaken in respect of this report are constrained by the particular site conditions, such as the location of buildings, services and vegetation. As a result, not all relevant site features and conditions may have been identified in this report. Site conditions (including the presence of hazardous substances and/or site contamination) may change after the date of this Report. BORR IPT does not accept responsibility arising from, or in connection with, any change to the site conditions. BORR IPT is also not responsible for updating this report if the site conditions change.



2 SITE SETTING

2.1 Climate

The Bunbury area experiences a Mediterranean climate and is characterised by warm, dry summers and cool, wet winters. Rainfall is largely received during the winter months as a result of cold fronts that regularly cross the South West coast. The closest BoM weather station is Bunbury (site number 009965), which is located at 33.36 °S, 115.64 °E (BOM, 2020).

Climate data from this station indicates the mean maximum temperature ranges from 30.0 C in February to 17.3 °C in July. The mean minimum temperature ranges from 15.9 C in February to 7.1 C in July. The mean annual rainfall is 718.4 mm, with approximately 121.9 rain days a year (BOM, 2020). The Bunbury area receives most of its annual rainfall during the winter months, with rainfall peaking in July with 140.1 mm (Table 2-1).

Annual rainfall in 2019 (550.0 mm) was below annual mean rainfall from 1995 to 2020 (718.4). Annual rainfall up to July in 2020 (468.0 mm), appeared to follow the 15-year annual mean rainfall trend, with similar cumulative totals up to July (448.5 mm) (Table 2-1).

| RAINFALL (MM) | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | ОСТ | NOV | DEC | ANNUAL |
|------------------|------|------|------|------|-------|-------|-------|-------|------|------|------|------|-----------------------------|
| Mean rainfall | 11.7 | 7.2 | 19.7 | 35.9 | 97.0 | 136.9 | 140.1 | 120.2 | 79.1 | 33.1 | 21.9 | 17.0 | 718.4 |
| Rainfall 2019 | 10.6 | 0.0 | 21.2 | 16.2 | 34.8 | 182.0 | 94.6 | 91.8 | 30.0 | 53.2 | 15.4 | 0.2 | 550.0 |
| Rainfall 2020 | 1.2 | 12.4 | 35.2 | 23.6 | 114.4 | 152.2 | 129.0 | - | - | - | - | - | 468.0 (total to July) |

Table 2-1Rainfall recorded for the Bunbury region (Site No. 9965) (BOM, 2020)

2.2 Topography

Topography ranges from 5 - 39 m Australian Height Datum (AHD) with the more elevated areas associated with the Spearwood sands and Bassendean sands and the least elevated areas associated with drainage lines (5 - 10 m AHD) (GoWA, 2020).

2.3 Surface water

2.3.1 Watercourses

The Proposal Area either intercepts or is within one kilometre of four rivers, as well as numerous tributaries and minor drainage lines, including:

- Brunswick River located adjacent to the Proposal Area at its northern extent and flows to the Collie River
- Collie River flows to the Leschenault Estuary which is located 3.25 km west of the Proposal Area at the closet point
- Ferguson River flows to the Preston River
- Preston River flows to the Leschenault Estuary.



These four rivers are located in the Northern and Central Sections of the Proposal Area and all have amenity, recreation and cultural value. The Preston and Ferguson Rivers and tributaries are proclaimed under the *Rights in Water and Irrigation Act 1914* (RIWI Act) and, the part of the Proposal Area that lies within the Leschenault Inlet Management Area is proclaimed under the *Waterways Conservation Act 1976* (GoWA, 2020).

There are no proclaimed rivers (under the RIWI Act) that intersect the Southern Section of the Proposal Area, however there are a number of minor drainage lines, including Five Mile Brook, which intersect the Proposal Area (GoWA, 2020).

The Northern Section of the Proposal Area lies within the Collie River Irrigation District, proclaimed under the RIWI Act, with a network of open channels supplying irrigation water to the rural properties during summer (GoWA, 2020).

There are numerous drains through agricultural parts of the Proposal Area, which have been constructed to mitigate seasonal waterlogging and flooding. The Water Corporation owns and manages a number of drains located on private property.

2.3.2 Wetlands of International Significance

There are no Ramsar wetlands (Ramsar Sites (DBCA-010)) located within 10 km of the Proposal Area. The Ramsar listed Peel-Yalgorup System is located approximately 20 km to the north of the Proposal and the Vasse-Wonnerup System is located approximately 19 km to the south west of the Proposal (GoWA, 2020).

There are no wetlands cited in "A Directory of Important Wetlands in Australia" (Directory of Important Wetlands in Australia – Western Australia (DBCA-045)) within the Proposal Area. The nearest wetland cited is the Benger Swamp which lies approximately 13 km to the north east of the Proposal Area (GoWA, 2020).

2.3.3 Geomorphic wetlands

Wetlands on the Swan Coastal Plain have been classified (Hill, Semeniuk, Semeniuk, & del Marco, 1996) using a geomorphic-hydrologic approach to wetland classification (Semeniuk & Semeniuk, 1995). Wetlands have also been evaluated and assigned an appropriate management category which provides guidance on the nature of wetland management and protection that the wetland should be afforded.

The spatial extent of the 46 wetlands mapped in the Geomorphic Wetlands of the Swan Coastal Plain (DBCA-019) dataset, occupy 75% of the Proposal Area when combined.

The majority of which comprises Multiple Use category wetlands in the Northern and Central Sections. The Proposal Area intersects four Conservation Category Wetlands (CCW), four Resource Enhancement (RE) and 38 Multiple Use (MU) and one Not Assessed Artificial Lake (GoWA, 2020).

2.3.4 Surface water quality

Nutrient levels were routinely monitored within the four rivers, intercepted by the Proposal Area, by the Department of Water (DoW) between 2004 and 2012 (DoW, 2012). This monitoring identified elevated nutrient and phosphorus levels in the Ferguson River, which was attributed to inputs from cattle, horses and lifestyle blocks. Nutrient and phosphorus loads were lowest in the Preston River. There are no proclaimed rivers (under the RIWI Act) that intersect the Southern Section of the Proposal Area, however there are a number of minor drainage lines (including Five Mile Brook) which overlap the Proposal Area (BORR IPT, 2019d).

In-situ surface water quality monitoring was undertaken by BORR IPT (BORR IPT, 2019b) and WRM (2019) at several surface water locations along the Northern and Central Sections of the BORR alignment in September 2018 and November 2018. The key findings of the in-situ surface water quality monitoring is summarised in Table 2-2. Table 2-2 Surface water quality monitoring for BORR Northern and Central Sections in September and November 2018



| PARAMETER | FINDINGS | COMMENTS |
|----------------------------------|---------------------|--|
| EC (μS/cm) | 183 - 3360 | The Collie River and the tributary of the Preston River were recorded as brackish (EC 1780 μ S/cm and 1300 μ S/cm respectively) and also reported higher concentrations of sodium (236 mg/L, 183 mg/L) and chloride (582 mg/L, 401 mg/L) than the other surface water locations. The main artery of the Preston River and the two surface water |
| T | 42.0.27.0 | bodies were recorded as freshwater (183 μ S/cm – 579 μ S/cm). |
| Temp. (°C) | 12.8 – 27.0 | Nil. |
| рН | 6.0 - 8.7 | Limited exceedances of the adopted assessment criteria range |
| DO% Sat | 6 - 264 | Seven of the twelve WRM sample locations recorded results outside the ANZECC/ ARMCANZ (2000) guideline of 80-120%. The DO recorded at Northern 7 was highly anoxic. |
| Eh (mV) | 67 – 180.5 | Nil. |
| Turbidity (NTU) | 3.3 – 79.2 | Nil. |
| Acid sulfate soil risk | Moderate to high | Refer to section 2.5. |
| Total Nitrogen and Phosphorus | - | Nutrient levels were generally elevated and consistent with historical information from DoW. Total Nitrogen and Total Phosphorus exceeded the adopted assessment criteria at JT03, SW01 and SW02. Total Oxidised Nitrogen exceeded the adopted assessment criteria at the Collie River and Preston River locations (SW03, SW04 and |
| | | SW05). |
| BTEXN, TRH and PAHs | - | Concentrations of benzene, toluene, xylene and naphthalene (BTEXN), Total Recoverable Hydrocarbons (TRH) and Polyaromatic Hydrocarbons (PAHs) were negligible at all locations, with the exception of trace levels of toluene in the flooded area near the northern tie-in. |
| Metals | - | Concentrations of metals were also elevated and exceeded the ANZECC/ ARMCANZ (2000) water quality guidelines at all BORR IPT locations for aluminium $(0.1 - 0.8 \text{ mg/L})$. The flooded area near the northern tie-in (SW02) also exceeded the water quality guidelines for zinc (0.016 mg/L) |

¹ANZECC/ARMCANZ (2000) criteria for south west Australia lowland rivers.

2.4 Groundwater

2.4.1 Groundwater areas

The entire proposed BORR alignment occurs within the Bunbury Groundwater Area, which is proclaimed under the RIWI Act (GoWA, 2020).

The primary groundwater units underlying the Proposal Area include:



- Superficial aquifer: a thin (5 40 m below ground level (bgl)) to absent, predominantly unconfined layer, which overlies the Leederville aquifer and is recharged by direct infiltration of rainfall
- Leederville aquifer: a confined formation ranging from 15 300 m bgl, which is recharged by downward seepage from the overlying Superficial aquifer and direct infiltration in outcrop areas
- Yarragadee aquifer: a confined formation (within the Proposal Area) underlying the Leederville aquifer and ranging from 600 m to 1200 m thick. The Yarragadee aquifer recharges by direct infiltration of rainfall where unconfined, and elsewhere through limited seepage from the overlying Leederville aquifer (DoW, 2009).

2.4.2 Groundwater depth

In 2018, the BORR IPT undertook a targeted investigation of groundwater as part of the ASS investigations for the BORR Northern and Central Sections. During the ASS investigation, 20 monitoring wells (including; BORR MW13 to BORR MW 22 and BORR MW 24 to BORR MW32) were sampled and analysed for a comprehensive suite of analytes by BORR IPT (2019a). Nine groundwater wells were installed throughout the Southern Section of the Proposal Area in 2018 for the targeted ASS investigations (BORR IPT, 2020b).

Additional monitoring wells were installed throughout the Proposal Area and data loggers have been installed at 49 monitoring wells to record water levels covering the entire proposed BORR alignment.

Water level data from telemetered and non-telemetered loggers confirmed that groundwater typically flows in a westerly direction towards the Indian Ocean (BORR IPT, 2019a). Groundwater across the Proposal Area is shallow, ranging (in bores monitored during the ASS investigations for the Northern, Central and Southern Sections) from 0.6 – 10.0 m bgl (5.48 – 20.2 m AHD) (BORR IPT, 2019a; BORR IPT, 2020b).

2.4.3 Groundwater quality

Groundwater quality results for the ASS investigation are included in the overarching management plans prepared separately for the Northern and Central Sections (BORR IPT, 2020b) and Southern Sections (BORR IPT, 2020b).

2.5 Acid sulfate soils

A desktop review of the DWER Acid Sulfate Soil (ASS) Risk Mapping for the Swan Coastal Plan (DWER-055) indicates that, the majority of the Proposal Area is mapped as containing a 'moderate to low risk of ASS occurring within 3 m of the natural soil surface but high to moderate risk beyond 3 m of the natural soil surface' (GoWA, 2020).

There are also areas mapped as 'high to moderate risk of ASS occurring within 3 m of the natural soil surface' generally where the Proposal Area intersects waterways such as the Collie, Preston River and Ferguson Rivers, Five Mile Brook, wetlands the east of the Capel Golf Course and west of Centenary Road intersection with Bussell Highway (GoWA, 2020).

Further onsite ASS investigations have been undertaken within the Northern, Central and Southern Sections. Overarching management plans, including results desktop and site investigations, have been prepared separately for the Northern and Central Sections (BORR IPT, 2020b) and Southern Sections (BORR IPT, 2020b), however further site specific investigations will be required following the detailed design phase and prior to construction work commencing.

2.6 Contaminated sites

A search of the DWER Contaminated Sites Database indicates there are no listed contaminated sites within the Proposal Area (GoWA, 2020).



The DWER Contaminated Sites Database does not provide details of sites that are listed as 'possibly contaminated – investigation required'. A further limitation to the DWER Contaminated Sites Database is unreported contaminated sites.

Contaminated sites constraints mapping was undertaken for the Proposal within the Northern, Central and Southern Sections (BORR IPT, 2019c; BORR IPT, 2020a). These assessments identified a number of land parcels within the Proposal Area that are considered to represent a potential contamination risk to human health or the environment associated with the construction of BORR Southern Section.

Impact of contaminated soil and/or water shall be addressed during the detailed design and construction management phase, as per site specific management plans developed for the BORR project.



3 METHODS

3.1 Monitoring locations

The monitoring locations comprised 30 groundwater and 15 surface water monitoring sites. The selected monitoring locations provide data for superficial aquifer groundwater and surface water quality at locations along the length of the proposed BORR alignment, as the Proposal is considered unlikely to impact on Leederville or Yarragadee aquifers.

The road formation will be built using both imported fill and cut-to-fill materials from the Proposal Area. The majority of the road alignment is in fill, with some cut material to be sourced from the approaches to the Collie River Crossing. The depth of excavation at cut locations will be determined by groundwater and design levels.

An overview of the groundwater and surface water monitoring sites is provided in Table 3-3Error! Reference source not found. and Table 3-4Error! Reference source not found., respectively. The locations of monitoring sites are presented in Figure 1.

| BORE LOCATION CODE | BORR SECTION | EASTING (MGA94 ZONE 50) | NORTHING (MGA94 ZONE 50) | TOP OF CASING (TOC) LEVEL (m AHD) |
|-----------------------|--------------|----------------------------|-----------------------------|--------------------------------------|
| BORR MW18 | Northern | 381674 | 6307714 | 15.96 |
| BORR MW19 | Northern | 382876 | 6308095 | 17.07 |
| BORR MW06 | Southern | 371109 | 6299068 | 11.62 |
| BORR MW07** | Southern | 372078 | 6300142 | 15.62 |
| BORR MW08a | Southern | 373588 | 6300392 | 15.95 |
| BORR MW19b | Northern | 382876 | 6308095 | 17.02 |
| BORR MW20 | Northern | 383774 | 6308629 | 17.58 |
| BORR MW22 | Northern | 385619 | 6312198 | 15.17 |
| BORR MW22b | Northern | 385619 | 6312198 | 15.13 |
| BORR MW24 | Northern | 385483 | 6314484 | 13.13 |
| BORR MW25 | Northern | 385207 | 6315417 | 13.84 |
| BORR MW29 | Northern | 383985 | 6318170 | 18.42 |
| BORR MW31 | Northern | 383651 | 6319208 | 13.71 |
| BORR MW32 | Northern | 383416 | 6319757 | 8.25 |
| BORR_MW37 | Northern | 385365 | 6316058 | 12.33 |
| BORR_MW39 | Northern | 385503 | 6315005 | 12.17 |
| BH9.2 | Northern | 385367 | 6315856 | 13.91 |
| BH11.1 | Northern | 385500 | 6314628 | 1.89 |

Table 3-1 Groundwater monitoring sites



| BORE LOCATION CODE | BORR SECTION | EASTING (MGA94 ZONE 50) | NORTHING (MGA94 ZONE 50) | TOP OF CASING (TOC) LEVEL (m AHD) |
|-----------------------|--------------|----------------------------|-----------------------------|--------------------------------------|
| BORR MW13 | Central | 378103 | 6305283 | 14.78 |
| BORR MW14** | Central | 378708 | 6305722 | 12.68 |
| BORR MW15 | Central | 379881 | 6306346 | 15.12 |
| BH32.1 | Central | 379095 | 6303937 | 13.12 |
| BORR MW04 | Southern | 370118 | 6297060 | 9.45 |
| BORR MW05 | Southern | 370681 | 6298315 | 12.24 |
| BORR MW09 | Southern | 374241 | 6301013 | 16.45 |
| BORR MW10 | Southern | 374848 | 6301753 | 19.35 |
| BORR MW11 | Southern | 375286 | 6302605 | 20.8 |
| BORR MW12 | Southern | 375843 | 6304181 | 19.63 |
| BORR MW46* | Southern | 373882.6 | 6305094.1 | 7.03 |
| MR MW05 | Southern | 375313.5 | 6302185.3 | 20.51 |

* Note: Site BORR MW46 was included in the proposal for the monitoring program as MW (proposed) Centenary Road and the bore constructed prior to commencement of the monitoring in August.

** Note: Monitoring of BORR MW14 and BORR MW07 was discontinued following the first and second monitoring rounds, respectively, due to unfavourable monitoring well condition.

Table 3-2Surface water monitoring sites

| LOCATION CODE | BORR SECTION | DESCRIPTION | EASTING (MGA94 ZONE 50) | NORTHING (MGA94 ZONE 50) |
|---------------|--------------|---|----------------------------|-----------------------------|
| JT01 | Northern | Collie River | 385486.8 | 6314503.1 |
| MT01 | Northern | Artificial lake (Lot 104 Clifton Road) | 384205.7 | 6317974.5 |
| North Creek 4 | Northern | Millars Creek | 385167 | 6311922 |
| Northern 3 | Northern | UFI 1720 | 385589 | 6314505 |
| Northern 5 | Northern | UFI 14329 adjacent to Ferguson River | 381206 | 6307767 |
| SW06 | Northern | Raymond Road | 384662 | 6315897 |
| North Creek 2 | Central | Preston River | 379297 | 6303282 |
| SW07 | Central | Preston River — northern side of BORR (central) | 378624 | 6305674 |
| SW08 | Central | Preston River — southern side of BORR (central) | 378667 | 6305576 |



| LOCATION CODE | BORR SECTION | DESCRIPTION | EASTING (MGA94 ZONE 50) | NORTHING (MGA94 ZONE 50) |
|------------------|--------------|--|----------------------------|-----------------------------|
| SW09* | Central | Preston River tributary Lot 200/ 201 on Plan 74957 | 379383 | 6303199 |
| WRM North Site 5 | Central | Lot 514 on Plan 71851 | 377031 | 6304815 |
| Southern 3 | Southern | UFI 1106 | 376089 | 6304316 |
| Southern 4 | Southern | | 375225 | 6304694 |
| SW10 | Southern | Five Mile Creek | 373337 | 6300496 |
| SW11 | Southern | Southern extent of BORR referral area | 370214 | 6297229 |

* Note: SW09 was relocated to a tributary of the Preston River, east of the original site on the Preston River, due to the site being unsafe for access.

3.2 Standards and guidance

The groundwater and surface water quality monitoring and analysis program was undertaken in accordance with the following standards and guidance documents:

- Australian and New Zealand Environment and Conservation Council (ANZECC) & Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ) (2000) *Monitoring Guidelines Chapter 4*
- Australian Standard (1998) 5667.1 Water Quality Sampling, Part 1: Guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples (AS 5667.1:1998)
- Department of Environment Regulation (DER now DWER) (2014) Assessment and management of contaminated sites Contaminated Sites Guidelines.
- Department of Health (2014), *Contaminated Sites Ground and Surface Water Chemical Screening Guidelines*, Department of Health.

3.3 Sampling methodology

Groundwater and surface water quality monitoring was undertaken monthly within a five day period by two environmental scientists.

Groundwater sampling methods are summarised in Table 3-3.

Table 3-3Groundwater sampling methods overview

| ACTION | METHODS |
|--|---|
| Preliminary tasks | Prior to commencing fieldwork each month, a JSEA was prepared and utilised. BORR IPT consulted with landowners, shires and Main Roads to gain authorisation to access private properties and road reserves for the selected monitoring dates. |
| Sampling and laboratory analysis | Groundwater depth of each monitoring well was measured using an electronic dip meter, prior to a sample being collected. |



| ACTION | METHODS | | | | |
|-------------------------------|--|--|--|--|--|
| | Samples were collected at each location using a peristaltic pump with dedicated HDPE tubing installed in each monitoring well for the 12-month monitoring period to avoid cross contamination issues. | | | | |
| | Field parameters (temperature, electrical conductivity, pH, REDOX potential, dissolved oxygen, total dissolved solids) were measured using a calibrated YSI ProDSS water quality meter and recorded on field data sheets (included in Appendix C). Calibration certificates are included in Error! Reference source not found. . Visual and olfactory field observations were also noted on the field sheets. | | | | |
| | Following stabilisation of field parameters, groundwater samples were collected in laboratory prepared bottles and were immediately placed on ice and stored in a cool, dark environment (esky). Primary samples were then forwarded to Australian Laboratory Services (ALS) Environmental and split samples were forwarded to Eurofins-MGT (Eurofins), both of which are NATA accredited analytical laboratories. Samples were submitted within the specified holding times (excluding pH and reactive phosphorus), along with a chain of custody (CoC) form, and were placed on a standard 7-10 day turnaround. Samples were analysed for the groundwater suite detailed in Section 3.2. All groundwater samples required analysis for dissolved metals and were filtered to 0.45 microns in the field. | | | | |
| | All field and analytical results are summarised in Section 4. | | | | |
| Equipment and decontamination | Prior to and following collection of each sample, all disposable equipment was replaced with new equipment and all non-disposable equipment was decontaminated. The decontamination process involved washing down all relevant equipment with a phosphate free detergent, rinsing the equipment with deionized water, and a final rinsing with deionized water before commencing sampling at the next location. Dedicated nitrile gloves were worn for the collection of each sample. | | | | |

Surface water sampling methodology is summarised in Table 3-4.

Table 3-4 Surface water sampling method overview

| ACTION | METHODS |
|--|--|
| Preliminary tasks | Prior to commencing fieldwork each month, a JSEA was prepared and utilised. BORR IPT consulted with landowners, shires and Main Roads to gain authorisation to access private properties and road reserves for the selected monitoring dates. |
| Sampling and laboratory analysis | Field parameters (temperature, electrical conductivity, pH, REDOX potential, dissolved oxygen, total dissolved solids and turbidity) were measured at each surface water location using a calibrated YSI ProDSS water quality meter, which was left in the water body until field parameters had stabilised. Field parameters were recorded on field data sheets (included in Appendix C). Calibration certificates are included in Error! Reference source not found. Visual and olfactory field observations were also noted on the field sheets. |
| | Surface water samples were collected at each location in a 1 L non-preserved bottle using an extendable sampling stick. The non-preserved bottle was used to transfer samples to laboratory prepared bottles, due to the presence of preservatives within the bottles. Samples were immediately placed on ice and stored in a cool, dark environment (esky). Primary samples were then forwarded to ALS Laboratory and split samples were forwarded to Eurofins, both of which are NATA accredited |



| ACTION | METHODS | | | |
|-------------------------------|--|--|--|--|
| | analytical laboratories. Samples were submitted within the specified holding times (excluding pH and reactive phosphorus), along with a CoC form, and were placed on a standard 7-10 day turnaround. Samples were analysed for the surface water suite detailed in 3.2. All surface water samples required analysis for dissolved metals and were filtered to 0.45 microns in the field. All field and analytical results are summarised in Section 4. | | | |
| Equipment and decontamination | Prior to and following collection of each sample, all disposable equipment was replaced with new equipment and all non-disposable equipment was decontaminated. The decontamination process involved washing down all relevant equipment with a phosphate free detergent, rinsing the equipment with deionized water, and a final rinsing with deionized water before commencing sampling at the next location. Dedicated nitrile gloves were worn for the collection of each sample. | | | |

3.4 Laboratory analysis

ALS conducted the primary laboratory analysis of samples and Eurofins conducted the secondary laboratory analysis of split samples. Both laboratories completed internal quality assurance/ quality control (QA/QC) procedures as per their NATA accreditation. The groundwater and surface water quality analytical results are presented in Section 4.

Groundwater and surface water samples were analysed for the suites listed in Table 3-5.

| LABORATORY ANALYTICAL SUITES | | |
|---------------------------------|---|--|
| Groundwater analytical suites | | |
| Field parameters | pH, EC, DO (mg/L, % sat), redox, temperature (°C), TDS* | |
| Inorganics | pH, EC (laboratory by titration), TDS (laboratory by gravimetric)** | |
| Acidity and alkalinity | Alkalinity (carbonate as CaCO ₃), alkalinity (bicarbonate as CaCO ₃), alkalinity (hydroxide as CaCO ₃), alkalinity (total as CaCO ₃), acidity (as CaCO ₃) | |
| Major ions | Calcium, magnesium, potassium, sodium, chloride, sulfate, cations total, anions total, ionic balance, sulfide | |
| Nutrients | Ammonium (as N), ammonia (as N), nitrogen (total oxidised) (as N), nitrogen (total), reactive phosphorus (as P), Kjeldahl nitrogen total, phosphorus (total). | |
| Metals | Aluminium, cadmium, chromium, cobalt, copper, iron, lead, manganese, nickel, selenium, zinc | |
| BTEXN | Benzene, toluene, ethylbenzene, xylene, naphthalene (sum of total) | |
| TRH | Total recoverable hydrocarbons | |
| Surface water analytical suites | | |
| Field parameters | pH, EC, DO (mg/L, % sat), redox, temperature (°C), TDS*, turbidity (NTU) | |
| Inorganics | pH, EC (laboratory by titration), TDS (laboratory by gravimetric)** | |

Table 3-5Laboratory analytical suites



| | LABORATORY ANALYTICAL SUITES |
|------------------------------|---|
| Acidity and alkalinity | Alkalinity (carbonate as CaCO ₃), alkalinity (bicarbonate as CaCO ₃), alkalinity (hydroxide as CaCO ₃), alkalinity (total as CaCO ₃), acidity (as CaCO ₃) |
| Major ions | Calcium, magnesium, potassium, sodium, chloride, sulfate, cations total, anions total, ionic balance, sulfide |
| Nutrients | Ammonium (as N), ammonia (as N), nitrogen (total oxidised) (as N), nitrogen (total), reactive phosphorus (as P), Kjeldahl nitrogen total, phosphorus (total) |
| Metals | Aluminium, cadmium, chromium, cobalt, copper, iron, lead, manganese, nickel, selenium, zinc |
| BTEXN | Benzene, toluene, ethylbenzene, xylene, naphthalene (sum of total) |
| TRH | Total recoverable hydrocarbons |
| Pesticides and herbicides | OP pesticides, glyphosate |

* Field TDS recorded from YSI ProDSS water quality meter - calculated from conductivity and temperature.

**Where available laboratory results for pH, EC and TDS have been reported. If laboratory results are missing or otherwise not available, field results are reported.

It was noted, during the six-month monitoring program review, that a number of analytes were not detected or just above laboratory LOR, in the majority of groundwater or surface water locations, during the first six months of monitoring.

Based on these observations, the laboratory analysis suite was reduced in the last quarter of the 12-month monitoring period, from April to July 2020, for both groundwater and surface water samples. The reduced monitoring suite excluded BTEXN, TRH, PAHs, OP pesticide and herbicide analytes. For further information refer to Section 4.2.3.

3.5 Assessment criteria

The following assessment criteria (adopted from the guidelines included in Section 3.1), were applied.

3.5.1 Groundwater criteria

- DER 2014 Non-potable Use Groundwater (NPUG)
- ANZECC and ARMCANZ 2000 Irrigation Short-term trigger values¹.

3.5.2 Surface water criteria

- ANZECC and ARMCANZ 2000 Southwest Australia Lowland River Guidelines
- ANZECC and ARMCANZ 2000 Fresh water Slight-Mod Disturbed.

¹ GHD notes the ANZECC and ARMCANZ (2000), has now been superseded by now ANZAST (2018). However, preliminary review of these guidelines by GHD (and others) has identified a number of discrepancies with ANZECC (2000) which have yet to be clarified. As such, ANZECC (2000) criteria have been adopted for the purposes of this GME until the issues with ANZAST (2018) have been resolved.



4 **RESULTS**

4.1 Field observations

The following section discusses the field results for the monitoring events from August 2019 to July 2020. The concentration trend graphs of these events are presented in **Error! Reference source not found.**.

4.1.1 Groundwater level observations

Groundwater depth below ground level (BGL) was monitored from August 2019 to July 2020, in the locations outlined in Table 4-1. The groundwater depths have be provided in Table 4-1 as highest level BGL to lowest level BGL and have been converted to metres Australian Height Datum (m AHD) based on the surveyed top of casing (TOC) level.

Site MW14 was sampled in August 2019 and monitoring discontinued due to difficulty in obtaining samples. Similarly, monitoring of site MW07 was discontinued after sampling in September 2019.

| LOCATION ID | TOP OF CASING (TOC) LEVEL (m AHD) | GROUNDWATER DEPTH (m bTOC) | GROUNDWATER ELEVATION (m AHD) | COMMENTS |
|-------------|--|-------------------------------|-------------------------------------|--|
| BORR MW04 | 9.45 | 3.882 - 4.810 | 5.570 - 4.640 | |
| BORR MW05 | 12.24 | 5.635 - 6.782 | 6.610 - 5.458 | |
| BORR MW06 | 11.62 | 5.311 - 6.730 | 6.310 - 4.890 | |
| BORR MW07 | 15.62 | 9.999 - 10.099 | 5.621 - 5.520 | Discontinued after Round 2. |
| BORR MW08a | 15.95 | 2.073 - 4.288 | 13.880 - 11.662 | |
| BORR MW09 | 16.45 | 3.140 - 4.550 | 13.310 - 11.900 | |
| BORR MW10 | 19.35 | 1.361 - 2.315 | 17.990 - 17.035 | |
| BORR MW11 | 20.8 | 0.954 – 3.980 | 19.846 – 16.820 | Dry for January, February, April and May rounds. No recharge in March. |
| BORR MW12 | 19.63 | 1.495 – 2.466 | 18.130 - 17.164 | |
| BORR MW13 | 14.78 | 0.221 - 1.511 | 14.559 – 13.269 | |
| BORR MW14 | 12.68 | 6.251 | 6.429 | Discontinued after first round. |
| BORR MW15 | 15.12 | 1.134 - 2.175 | 13.990 - 12.945 | |
| BORR MW18 | 15.96 | 1.404 - 3.439 | 14.556 - 12.521 | |
| BORR MW19 | 17.07 | 0.379 – 2.500 | 16.690 – 14.570 | Dry for December, January, March and April rounds. Well ran dry and did not recharge to sample in February and June. |

Table 4-1Observed groundwater elevations from August 2019 to July 2020



| LOCATION ID | TOP OF CASING (TOC) LEVEL (m AHD) | GROUNDWATER DEPTH (m bTOC) | GROUNDWATER ELEVATION (m AHD) | COMMENTS |
|-------------|--|-------------------------------|-------------------------------------|--|
| BORR MW19b | 17.02 | 0.363 - 2.165 | 16.657 – 14.855 | |
| BORR MW20 | 17.58 | 0.462 - 2.944 | 17.120 – 14.636 | |
| BORR MW22 | 15.17 | 0.335 – 2.748 | 14.835 – 12.422 | Dry all months except August, September, June and July. |
| BORR MW22b | 15.13 | 0.396 - 9.970 | 14.734 – 5.160 | |
| BORR MW24 | 13.13 | 7.582 - 8.448 | 5.548 - 4.682 | |
| BORR MW29 | 18.42 | 5.499 - 6.321 | 12.920 - 12.099 | |
| BORR MW31 | 13.71 | 2.965 - 4.063 | 10.750 - 9.647 | |
| BORR MW32 | 8.25 | 0.862 - 2.653 | 7.388 – 5.597 | |
| BORR_MW37 | 12.33 | 3.515 - 5.962 | 8.840 - 6.368 | |
| BORR_MW39 | 12.17 | 7.164 - 8.442 | 5.006 - 3.728 | |
| BORR MW46 | 7.03 | 3.498 - 4.630 | 3.473 - 2.459 | |
| MR MW05 | 20.51 | 2.231 - 3.740 | 18.280 - 16.770 | |
| BH9.2 | 13.91 | 1.409 - 3.700 | 12.501 - 10.210 | |
| BH11.1 | 1.89 | 1.427 – 2.946 | 0.4631.060 | |
| BH32.1 | 13.12 | 2.707 - 4.394 | 10.413 - 8.726 | |

4.1.2 In-situ water quality observations

4.1.2.1 Groundwater

A summary of the main observations from groundwater field monitoring, from August 2019 to July 2020, is provided in Table 4-2.

Table 4-2Groundwater field observations from August 2019 to July 2020

| PARAMETER | OBSERVATION | | | |
|-----------|--|--|--|--|
| рН | Ranged generally between pH 3 – pH 7 | | | |
| | • BH9.2, BORR MW24, BORR MW29, BORR MW18 and BH32.1 all had lower pH levels, ranging between pH 3.5 and pH 5 | | | |
| EC | • Generally ranged between 100 to 9,000 μ S/cm with a minimum and maximum concentration of 144.6 μ S/cm (at BORR MW15 in August 2019) and 25,192 μ S/cm (at MR MW05 in January 2020) respectively. | | | |
| | Outliers included: | | | |
| | - MR MW05 had the highest conductivity, ranging from 20,000 to 25, 192 $\mu\text{S/cm}$ | | | |
| | - BORR MW22b had a high EC, ranging from 12,500 to 14,000 $\mu\text{S/cm}$ | | | |



| PARAMETER | OBSERVATION |
|--------------------|---|
| Redox potential | Generally ranged between -330 and 300 mV with a minimum and maximum concentration of -330.5 mV (at BORR MW31 in May 2020) and 391.4 mV (at BORR MW24 in September 2019) respectively. |
| | • BH9.2, BORR MW18 and BORR MW24 had a reading above 300 mV at one or more of the monitoring events |
| DO (%) | Generally ranged between 0.15 to 50% with a minimum and maximum concentration of 0.15% (at BORR MW13 in January 2020) and 76.3% (at BORR MW07 in September 2019) respectively. |
| | • BORR MW07, BORR MW14, BORR MW18, BORR MW22, BORR MW46 and BH9.2 had a reading above 50% at one or more of the monitoring events. |
| DO (ppm) | Generally ranged between 0 to 4 ppm with a minimum and maximum concentration of 0.05 ppm (at BORR MW08a in January 2020) and 6.92 ppm (at BORR MW07 in September 2019) respectively. |
| | BORR MW07, BORR MW18, BORR MW19, BORR MW22, BORR MW19b, BORR MW29, BORR_MW46 and MR MW05 had a reading above 4 ppm at one or more of the monitoring events |
| Temperature | Ranged from 13.9 (at BORR MW19 in August 2019) to 24.5°C (at BORR MW13 in March 2020) |
| TDS | Generally ranged between 90 and 6,000 ppm with a minimum and maximum concentration of 93.9 ppm (at BORR MW15 in August 2019) and 16,280 ppm (at MR MW05 in February 2020) respectively. |
| | • MR MW05 and BORR MW11 both had readings that varied between 6,000 and 16,300 ppm, varying at each monitoring event |
| | BORR MW22b and BORR MW19 both had slightly high levels, ranging between 8,000 and 10,000 ppm. |

4.1.2.2 Surface Water

A summary of the main observations from surface water field monitoring, from August 2019 to July 2020, has been provided in Table 4-3.

Table 4-3Surface water field observations

| PARAMETER | OBSERVATION |
|-----------|--|
| рН | Generally ranged between pH 4 and pH 9 with a minimum and maximum concentration of pH 4.38 (at Northern 3 in April 2020) and pH 9.2 (at Southern 4 in May 2020) respectively. Exceedances outside of the ANZECC & ARMCANZ 2000 - Southwest Australia Lowland River Guidelines were recorded in the following months: August 2019: MT01, WRM North Site 5, Northern 3 September 2019: MT01, WRM North Site 5, Northern 3, SW11 October 2019: MT01, Northern 3, JT01 November 2019: MT01, Northern 3, JT01, Southern 3 December 2020: Northern 3, Southern 3, Southern 4 January 2020: MT01, Southern 4, North Creek 2, SW01, SW07 February 2020: North Creek 2, Southern 4 March 2020: North Creek 2, Southern 4, SW07, SW08 |



| PARAMETER | OBSERVATION |
|--------------------|---|
| | April 2020: North Creek 2, Northern 3, Southern 4, SW07, SW08, SW09 May 2020: Southern 4 June 2020: MT01, Southern 4, SW07, SW08 July 2020: Northern 3, WRM North Site 5 |
| EC | Generally ranged between 300 and 6,500 μS/cm with a minimum and maximum concentration of 280.2 μS/cm (at SW11 in August 2019) and 30,290 μS/cm (at Northern 3 in December 2019) respectively. Outliers included: Northern 3 had the highest level, peaking at 30,290 μS/cm during the December 2019 monitoring event, but generally ranged between 8,000 and 23,000 μS/cm Southern 4 generally ranged between 5,000 and 16,000 μS/cm JT01 and WRM North Site 5 had slightly higher readings close to 10,500 and 8,000 μS/cm respectively at one occasion each. |
| Redox potential | Generally ranged between -30 and 200 mV with a minimum and maximum concentration of -179.4 mV (at SW09 in March 2020) and 301.3 mV (at Northern 3 in December 2019) respectively. Outliers included: Northern 3 had the highest readings, ranging between 200 and 300 mV JT01, Southern 4, WRM North Site 5 and SW09 had negative readings between -179.4 and -45 on one or more occasions |
| DO (%) | Generally ranged between 80 and 120% with a minimum and maximum concentration of 0.2% (at SW09 in September 2019) and 167.7% (SW11 in September 2019) respectively. Exceedances outside of the ANZECC and ARMCANZ 2000 - Southwest Australia Lowland River Guidelines (80-120%) were recorded in the following months: August 2019: MT01, North Creek 4, Southern 4, SW10, SW09 September 2019: SW09, MT01, JT01, SW10, Southern 3, Southern 4, SW11 October 2019: Su09, MT01, JT01, SW10, Southern 3, Southern 5 November 2019: SW09, MT01, Southern 4, WRM North Site 5, JT01, Northern 5 December 2020: SW07, North Creek 2, SW09, Northern 5, North Creek 4, Northern 3, SW06, MT01, JT01, Southern 4 January 2020: SW09, SW06, North Creek 4, Southern 4, MT01 February 2020: JT01, North creek 2, North creek 4, Northern 5, Southern 4, SW09 March 2020: JT01, North creek 4, Southern 4, SW07, SW08, SW09 April 2020: JT01, North Creek 4, Northern 3, Northern 5, Southern 4, SW07, SW08, SW09 June 2020: JT01, North creek 4, Northern 3, Northern 5, Southern 4, SW06, SW09 June 2020: JT01, North creek 4, Northern 5, Southern 4, SW06, SW09 June 2020: JT01, North creek 4, Northern 5, Southern 4, SW06, SW09 |
| DO (ppm) | Generally ranged between 0 – 11 ppm with a minimum and maximum concentration of 0.02 ppm (at SW09 in September 2019) and 14.73 ppm (at SW11 in September 2019) respectively. Outliers included: |
| | |



| PARAMETER | OBSERVATION | | | | | |
|-------------|---|--|--|--|--|--|
| | SW11 had the highest reading of 14.73 ppm during the September 2019 monitoring event | | | | | |
| Temperature | Increased and decreased seasonally and ranged from 8.8 (at MT01 in August 2019) – 33.1 °C (at Northern 3 in December 2019) | | | | | |
| TDS | Generally ranged from 180 – 4,000 ppm with a minimum and maximum concentration of 181 ppm (at SW11 in September 2019) and 19,688.5 ppm (at Northern 3 in December 2019) respectively. Outliers included: Northern 3 had readings ranging from 4,760 ppm and peaking at 19,688 ppm Southern 4 had higher readings varying between 5,000 and 10,500 ppm JT01, Southern 3 and WRM North Site 5 had slightly higher values ranging between 4,020 and 6,800 ppm respectively at one or more occasions. | | | | | |
| Turbidity | Generally ranged from 0.5 to 100 NTU with a minimum and maximum concentration of 0.5 NTU (at Northern 3 in November 2019) and 1,424.44 NTU (at SW09 in February 2020) respectively. Outliers included: SW09 had the highest reading of 1,424.44 NTU during the February 2020 monitoring event as well as a few other outliers in one or more occasions. SW08 also had slightly higher reading of 1340 NTU at one of the rounds. MT01, Northern 3, WRM North site 5, SW06, SW07, SW08, SW09 and SW11 had readings above 100 NTU at one or more of the monitoring events Turbidity was not measured during the October 2019 monitoring due to equipment malfunction. | | | | | |

4.2 Laboratory results

The following section discusses the laboratory results for the monitoring events from August 2019 to July 2020. The concentration trend graphs of these events are presented in **Error! Reference source not found.**.

4.2.1 Groundwater detects and exceedances

The laboratory results for the groundwater wells were assessed against the following criteria:

- DER 2014 Non-potable Use Groundwater (NPUG)
- ANZECC & ARMCANZ 2000 Irrigation Short-term trigger values

Exceedances of these criteria were recorded for major ions, nutrients and metals at a range of sites across a number of monitoring events. These are identified in Table 4-4.

4.2.2 Surface water detects and exceedances

The surface water laboratory results were assessed against the following criteria:

- ANZECC & ARMCANZ 2000 Southwest Australia Lowland River Guidelines
- ANZECC & ARMCANZ 2000 Fresh water Slight-Mod Disturbed

Exceedances of these criteria were recorded for nutrients and metals at a range of sites across a number of monitoring events. These are identified in Table 4-5.



Table 4-4Groundwater laboratory sample exceedances

| ANALYTE | | DER 2014 NPUG GUIDELINE VALUE | ANZECC 2000 IRRIGATION – SHORT TERM TRIGGER VALUES GUIDELINE VALUE | HIGHEST RECORDED CONCENTRATION | DER 2014 NPUG GUIDELINE VALUE EXCEEDANCES ² RECORDED FROM AUGUST 2019 TO JULY 2020 | ANZECC 2 VALUES E TO JULY 2 |
|------------|----------------------|-------------------------------------|---|--|--|--|
| Major ions | Chloride | 250 mg/L | - | 8,630 mg/L – MR_MW05 (February 2020) | BH9.2 (10), BORR_MW25 (11), BORR_MW37 (12), BH11.1 (12), BH32.1 (11), BORR_MW04 (11), BORR_MW19b (10), BORR_MW20 (10), BORR_MW22 (1), BORR_MW22b (10), BORR_MW24 (11), MR_MW05 (12), BORR_MW11 (7), BORR_MW19 (5), BORR_MW05 (8) | |
| | Sulfate (Filtered) | 1000 mg/L | - | 1,140 mg/L - MR_MW05 (June 2020) | MR_MW05 (9) | |
| Nutrients | Nitrogen (Total) | - | 25 mg/L | 26 mg/L – BORR_MW13 (May 2020) | | BORR_MV |
| | Phosphorous (Total) | - | 0.8 mg/L | 30.6 mg/L - BORRR_MW14 (August 2019) | | BH11.1 (2) BORR_MV |
| | Ammonia (as N) | 0.411 mg/L | - | 5.80 mg/L - BORR_MW32 (August 2019) | BORR_MW06 (1), BORR_MW08a (1), BORR_MW10 (1), BORR_MW29 (12), BORR_MW31 (12), BORR_MW32 (11), BORR_MW15 (9), MR_MW05 (1) | |
| Metals | Aluminium (Total) | 0.2 mg/L | 20 mg/L | 97.0 mg/L - BORR_MW07 (August 2019) | BH9.2 (11), BH11.1 (1), BH32.1 (11), BORR_MW04 (11), BORR_MW05 (11), BORR_MW06 (11), BORR_MW08a (11), BORR_MW10 (12), BORR_MW12 (11), BORR_MW15 (10), BORR_MW18 (10), BORR_MW19b (10), BORR_MW20 (10), BORR_MW22b(11), BORR_MW19b (10), BORR_MW25 (11), BORR_MW29 (12), BORR_MW31 (12), BORR_MW32 (12), BORR_MW37 (12), BORR_MW39 (12), BORR_MW46 (12), MR_MW05(12), BORR_MW09 (8), BORR_MW11 (7), BORR_MW13 (5), BORR_MW19 (5), BORR_MW22 (4) | BH9.2 (7), MR_MW0 |
| | Aluminium (Filtered) | 0.2 mg/L | 20 mg/L | 34.2 mg/L - BH9.2 (February 2020) | BORR_MW05 (1), BORR_MW06 (4), BORR_MW08a (11), BORR_MW18 (9), BORR_MW29 (12), BORR_MW31 (12), BORR_MW32 (12), BH9.2 (8), BH32.1 (4), BORR_MW15 (4), BORR_MW22 (2), BORR_MW24 (2), BORR_MW39 (5) | BH9.2 (7) |
| | Cobalt (Filtered) | - | 0.1 mg/L | 1.58 mg/L - BH32.1 (September 2019) | | BH32.1 (4 |
| | Iron (Total) | 0.3 mg/L | 10 mg/L | 364 mg/L - BORR_MW14 (August 2019) | BH11.1 (12), BORR_MW22b (11), BORR_MW25 (11), MR_MW05 (12), BH9.2 (11), BH32.1 (11), BORR_MW04 (11), BORR_MW05 (11), BORR_MW06 (11), BORR_MW08a (11), BORR_MW09 (2), BORR_MW10 (12), BORR_MW12 (11), BORR_MW13 (10), BORR_MW15 (10), BORR_MW19b (10), BORR_MW20 (10), BORR_MW15 (10), BORR_MW19b (10), BORR_MW20 (10), BORR_MW24 (11), BORR_MW29 (12), BORR_MW31 (12), BORR_MW32 (12), BORR_MW37 (12), BORR_MW39 (12), BORR_MW18 (3), BORR_MW11 (7), BORR_MW19 (4), BORR_MW22 (4), BORR_MW46 (12) | BH11.1 (1 BORR_MV MR_MW0 BH9.2 (9), BORR_MV BORR_MV |
| | Iron (Filtered) | - | 10 mg/L | 74.2 mg/L – BH9.2 (February 2020) | | BORR_MV BH11.1 (7 BORR_MV |
| | Nickel (Filtered) | 0.2 mg/L | 2 mg/L | 1.71 mg/L - BH32.1 (September 2019) | BH32.1 (4) | |

Note: ² Numbers within brackets represent the number of months the analyte exceeded the guideline value

2000 – IRRIGATION – SHORT TERM TRIGGER EXCEEDANCES² RECORDED FROM AUGUST 2019 2020

AM13 (1)

(2), BORR_MW08a (8), BORR_MW32 (1), MW39 (1),

7), BORR_MW24 (5), BORR_MW32 (1), V05(1)

(4), BORR_MW22b (9)

(12), BORR_MW19b (1), BORR_MW20 (1),
MW22b (9), BORR_MW24 (10), BORR_MW25 (10),
N05 (12), BORR_MW13 (2), BORR_MW15 (1),
9), BH32.1 (10), BORR_MW04 (9), BORR_MW06 (3),
MW06 (3), BORR_MW11 (4), BORR_MW37 (9),
MW39 (3), BORR_MW46 (11)

MW06 (1), BORR_MW22b (9), MR_MW05 (8), (7), BH9.2 (8), BORR_MW13 (1), BORR_MW37 (4), MW46 (10), BH32.1 (1)



Table 4-5Surface water laboratory sample exceedances

| ANALYTE | | ANZECC 2000 – SW AUSTRALIA LOWLAND RIVER GUIDELINE VALUE | ANZECC 2000 FW SLIGHT-MOD DISTURBED GUIDELINE VALUE | HIGHEST RECORDED CONCENTRATION | ANZECC 2000 – SW AUSTRALIA LOWLAND RIVER GUIDELINE VALUE EXCEEDANCES ³ RECORDED FROM AUGUST 2019 TO JULY 2020 | ANZECC 2 VALUE EX TO JULY 2 |
|-----------|-------------------------------------|---|--|---|---|---|
| Nutrients | Ammonia (as N) | 0.08 mg/L | 0.9 mg/L | 7.58 mg/L – Northern 3 (April 2020) | Northern 3 (3),), North Creek 4 (1), JT01 (3), Northern 5 (5), Southern 3 (1), Southern 4 (3), SW06 (3), SW11 (1), WRM North Site 5 (1) | MT01 (1), |
| | Nitrogen (Total Oxidised) (as N) | 0.15 mg/L | - | 3.84 mg/L - Northern 3 (April 2020) | JT01 (2), North Creek 2 (3), North Creek 4 (4), Northern 3 (2), Northern 5 (4), SW06 (4), SW07 (3), SW08 (3) | |
| | Nitrogen (Total) | 1.2 mg/L | - | 50.9 mg/L - WRM North Site 5 (November 2019) | MT01 (8), North Creek 2 (1), North Creek 4 (5), Northern 3 (7), Northern 5 (2), Southern 3 (4), Southern 4 (11), SW06 (8), SW07 (1), SW08 (2), SW09 (7), SW10 (3), SW11 (2), WRM North Site 5 (4) | |
| | Phosphorous (Total) | 0.065 mg/L | - | 15.5 mg/L - WRM North Site 5 (November 2019) | MT01 (8), Northern 3 (3), Northern 5 (12), Southern 3 (4), Southern 4 (11), SW06 (12), North Creek 4 (5), SW07 (1), SW08 (2), SW09 (9), SW10 (3), SW11 (1), WRM North Site 5 (4) | |
| Metals | Aluminium (Total) | - | 0.055 mg/L | 37.2 mg/L - WRM North Site 5 (November 2019) | | JT01 (8), N Northern (11), SW0 SW11 (3), |
| | Aluminium (Filtered) | - | 0.055 mg/L | 2.57 mg/L - Northern 3 (December 2019) | | MT01 (8), North Cre SW07 (2), North Site |
| | Cadmium (Filtered) | | 0.0002 mg/L | 0.002 mg/L – Northern 3 (April 2020) | | Northern |
| | Chromium (III + IV) (filtered) | - | 0.001 mg/L | 0.005 mg/L – SW07 (April 2020) | | MT01 (3), |
| | Copper (Filtered) | - | 0.0014 mg/L | 0.05 mg/L – SW06 (July 2020) | | JT01 (8), N Northern (11), SW0 SW11 (3), |
| | Lead (Filtered) | - | 0.005 mg/L | 0.021 mg/L- MT01 (January 2020) | | MT01 (2) |
| | Manganese (Filtered) | - | 1.9 mg/L | 8.16 mg/L Northern 3 (December 2019) | | Northern |
| | Nickel (Filtered) | - | 0.011 mg/L | 0.062 mg/L - Northern 3 (December 2019) | | JT01 (3), I Northern (4), SW06 WRM Nor |
| | Zinc (Filtered) | - | 0.008 mg/L | 0.247 mg/L - Northern 3 (December 2019) | Northern 3 (3),), North Creek 4 (1), JT01 (3), Northern 5 (5), Southern 3 (1), Southern 4 (3), SW06 (3), SW11 (1), WRM North Site 5 (1) | MT01 (7), Northern (11), SW0 SW11 (3), |

Note: 'Northern 5' was sampled and analysed for twice during the April 2020 monitoring round due to lab miscommunication.

³ Numbers within brackets represent the number of months the analyte exceeded the guideline value

2000 FW SLIGHT-MOD DISTURBED GUIDELINE EXCEEDANCES³ RECORDED FROM AUGUST 2019 2020

), Northern 3 (4), Southern 4 (1)

, MT01 (8), North Creek 2 (8), North Creek 4 (11), n 3 (8), Northern 5 (9), Southern 3 (4), Southern 4 /06 (12), SW07 (9), SW08 (9), SW09(11), SW10 (3), 8), WRM North Site 5 (4)

8), North Creek 2 (3), Northern 3 (8), Northern 5 (2), reek 4 (2), Southern 3 (4), Southern 4 (4), SW06 (2), 2), SW08 (3), SW09 (6), SW10 (3), SW11 (2), WRM ite 5 (2)

n 3 (3)

3), SW07 (1), SW09 (2)

, MT01 (8), North Creek 2 (8), North Creek 4 (11), n 3 (7), Northern 5 (12), Southern 3 (4), Southern 4 /06 (12), SW07 (9), SW08 (10), SW09 (9), SW10 (3), s), WRM North Site 5 (4)

n 3 (3), WRM North Site 5 (1)

, MT01 (3), North Creek 2 (4), North Creek 4 (4), n 3 (5), Northern 5 (2), Southern 3 (1), Southern 4 06 (5), SW07 (1), SW08 (2), SW09 (3), SW10 (1), orth Site 5 (2)

7), JT01 (8), North Creek 2 (9), North Creek 4 (11), in 3 (8), Northern 5 (10), Southern 3 (4), Southern 4 /08 (9), SW09 (10), SW06 (9), SW07 (10), SW10 (3), B), WRM North Site 5 (4)



4.2.3 Non-detects in groundwater and surface water samples

It was noted, during the six-month monitoring program review, that a number of analytes were not detected or just above laboratory LOR, in the majority of groundwater or surface water locations, during the first six months of monitoring. Based on these observations, the laboratory analysis suite was reduced in the last quarter of the 12 month monitoring period, from April to July 2020, for both groundwater and surface water samples. The reduced monitoring suite excluded BTEXN, TRH, PAHs, OP pesticide and herbicide analytes included in Table 4-6. Note: Groundwater sampling analysis did not include OP pesticides and herbicide analytes within the entire 12-month monitoring period.

Table 4-6Groundwater and surface water non-detects (ND)

| ANALYTES | GROUNDWATER NON-DETECTS | SURFACE WATER NON-DETECTS |
|--|-------------------------|---------------------------|
| Acidity and alkalinity | | |
| Alkalinity (Carbonate as CaCO ₃) | ND | Detected |
| Alkalinity (hydroxide as CaCO ₃) | ND | ND |
| Major ions | | |
| Sulfide | Detected | ND |
| Metals | | |
| Selenium (filtered) | Detected | ND |
| BTEXN | | |
| Benzene | ND | ND |
| Toluene | ND | Detected |
| Ethylbenzene | ND | ND |
| Xylene (o) | ND | ND |
| Xylene (m & p) | ND | ND |
| Xylene Total | ND | ND |
| TRH - NEPM 2013 | | |
| F1 (C6-C10 minus BTEX) | ND | ND |
| F2 (>C10-C16 minus Naphthalene) | ND | ND |
| F4 (>C34-C40 Fraction) | ND | Detected |
| TRH - NEPM 1999 | | |
| C6-C9 Fraction | ND | ND |
| PAHs | | |
| Naphthalene | ND | ND |
| OP pesticides | | |
| Azinphos methyl | Not analysed | ND |
| Bolstar (Sulprofos) | Not analysed | ND |
| Bromophos-ethyl | Not analysed | ND |
| Carbophenothion | Not analysed | ND |
| Azinphos Ethyl | Not analysed | ND |
| Chlorfenvinphos | Not analysed | ND |
| Chlorpyrifos | Not analysed | ND |



| ANALYTES | GROUNDWATER NON-DETECTS | SURFACE WATER NON-DETECTS |
|-----------------------|-------------------------|---------------------------|
| Chlorpyrifos-methyl | Not analysed | ND |
| Coumaphos | Not analysed | ND |
| Demeton-O | Not analysed | ND |
| Demeton-S | Not analysed | ND |
| Demeton-S-methyl | Not analysed | ND |
| Diazinon | Not analysed | ND |
| Dichlorvos | Not analysed | ND |
| Dimethoate | Not analysed | ND |
| Disulfoton | Not analysed | ND |
| EPN | Not analysed | ND |
| Ethion | Not analysed | ND |
| Ethoprop | Not analysed | ND |
| Fenamiphos | Not analysed | ND |
| Fenitrothion | Not analysed | ND |
| Fensulfothion | Not analysed | ND |
| Fenthion | Not analysed | ND |
| Malathion | Not analysed | ND |
| Methyl parathion | Not analysed | ND |
| Mevinphos (Phosdrin) | Not analysed | ND |
| Monocrotophos | Not analysed | ND |
| Omethoate | Not analysed | ND |
| Parathion | Not analysed | ND |
| Phorate | Not analysed | ND |
| Pirimphos-ethyl | Not analysed | ND |
| Pirimiphos-methyl | Not analysed | ND |
| Profenofos | Not analysed | ND |
| Prothiofos | Not analysed | ND |
| Ronnel | Not analysed | ND |
| Sulfotepp | Not analysed | ND |
| Terbufos | Not analysed | ND |
| Trichloronate | Not analysed | ND |
| Tetrachlorvinphos | Not analysed | ND |
| Demeton-O & Demeton-S | Not analysed | ND |
| Temephos | Not analysed | ND |
| Trichlorfon | Not analysed | ND |
| Triazophos | Not analysed | ND |
| Herbicides | | |
| Glyphosate | Not analysed | ND |
| | | |



5 CONCLUSIONS

This report summarises the findings of a 12-month water monitoring program (August 2019 – July 2020) which included field and laboratory analysis of water samples collected at 30 groundwater and 15 surface water locations along the proposed BORR alignment. This monitoring program has been undertaken prior to construction, and provides baseline information in the vicinity of the proposed BORR.

Groundwater and surface water samples were analysed for the following parameters: pH; EC; DO; redox; temperature; TDS; acidity and alkalinity; major ions; nutrients; metals; BTEXN; TRH; and OP pesticides (surface water only) and glyphosate (surface water only).

During a review of the monitoring program, it was noted that a number of analytes were not detected or were just above laboratory LOR in the majority of groundwater or surface water locations, during the first six months of monitoring. This included:

- BTEXN was not detected in groundwater or surface water samples, with exception of one slight reading at SW09
- PAH was not detected in groundwater or surface water samples
- OP pesticides and glyphosate were not detected in surface water samples (note groundwater sampling analysis did not include OP pesticides or glyphosate within the entire 12-month monitoring period)
- TRH was detected at five groundwater monitoring locations however did not exceed the relevant assessment criteria
- TRH was detected at nine surface water locations, however only four locations recorded TRH levels above laboratory LOR over more than one monitoring event (MT01, Northern 3, Southern 4 and SW09).

Based on these observations, the laboratory analysis suite was reduced in the last quarter of the 12-month monitoring period, from April to July 2020, for both groundwater and surface water samples. The reduced monitoring suite excluded BTEXN, TRH, PAHs, OP pesticide and herbicide analytes.

Key findings of the 12-month groundwater and surface water monitoring program indicate the following:

- Low pH (< pH 6) was generally observed at groundwater locations in close proximity to waterways and in association with high to moderate risk Acid Sulfate Soil mapped areas
- Elevated EC groundwater and surface water results were identified between Raymond Road and Boyanup-Picton Road and in association with the Collie River
- In the BORR Central Section EC results were generally fresh for both groundwater and surface water locations with some seasonal increase in summer in the Preston River
- Highest groundwater EC results in BORR Southern Section were recorded at BORR MW11 and MR MW05. BORR MW11 EC results indicate seasonal influence with EC reaching 24,600 μS/cm in December 2019, however EC levels recorded at MR MW05 were consistently high in the range of 19,900 to 23,500 μS/cm throughout the monitoring period.
- Several exceedances in the NPUG guidelines of Ammonia (as N) were reported across 4 groundwater bores, several exceedances in the irrigation guidelines of Phosphorus (Total) were also reported for BORR_MW08a.
- Multiple exceedances in all nutrient analytes in the lowland river guidelines were found across several surface water locations, exceedances in Ammonia (as N) in the slight to moderately disturbed guidelines were also reported



- Several exceedances in the NPUG guidelines of Aluminium (Total), Aluminium (Filtered), and Iron (Total) were reported across multiple groundwater bores. BH32.1 recorded multiple exceedances of the NPUG guidelines of Nickel (Filtered)
- Multiple exceedances in the irrigation guidelines of all metals except Nickel (Filtered) across different groundwater bores were reported
- Zinc (Filtered) exceeded lowland river guidelines for multiple surface water locations, all metals exceeded the slight to moderately disturbed guidelines across different surface water locations
- Total nitrogen (TN) and total phosphorus (TP) were generally consistent across all groundwater monitoring locations. With the exception of elevated levels of TN recorded at BORR MW13 and BORR MW18 and elevated TP levels at BORR MW08a, BORR MW32, BORR MW39 and BH11.1, which were above assessment criteria.
- Levels of acidity, alkalinity, major ions and metals, such as chloride, sulfate, iron and aluminium were also elevated (relevant to criteria or above LOR) in groundwater and surface water samples and are considered to be related to background chemistry and geology.
- BTEXN (with the exception of one sample), PAH, OP pesticides and glyphosate were not detected in groundwater or surface water samples.
- TRH did not exceed the relevant assessment criteria in groundwater samples, however was detected above LOR in surface water samples.

It is noted that lower than average rainfall levels were received in 2019 (550.0 mm) compared to the mean annual rainfall level (718.4 mm) for the Bunbury area. However, rainfall received in first six months of 2020 was above average for the Bunbury area.

It is considered the monitoring results for groundwater and surface water quality are consistent with the results of similar monitoring in the local area and are generally consistent with what would be expected for the area and the water resources sampled (Commander, 1984; Department of Water, 2009; BORR IPT, 2019a). The groundwater and surface water quality reflect the local hydrogeology and hydrology, and current and past land use.



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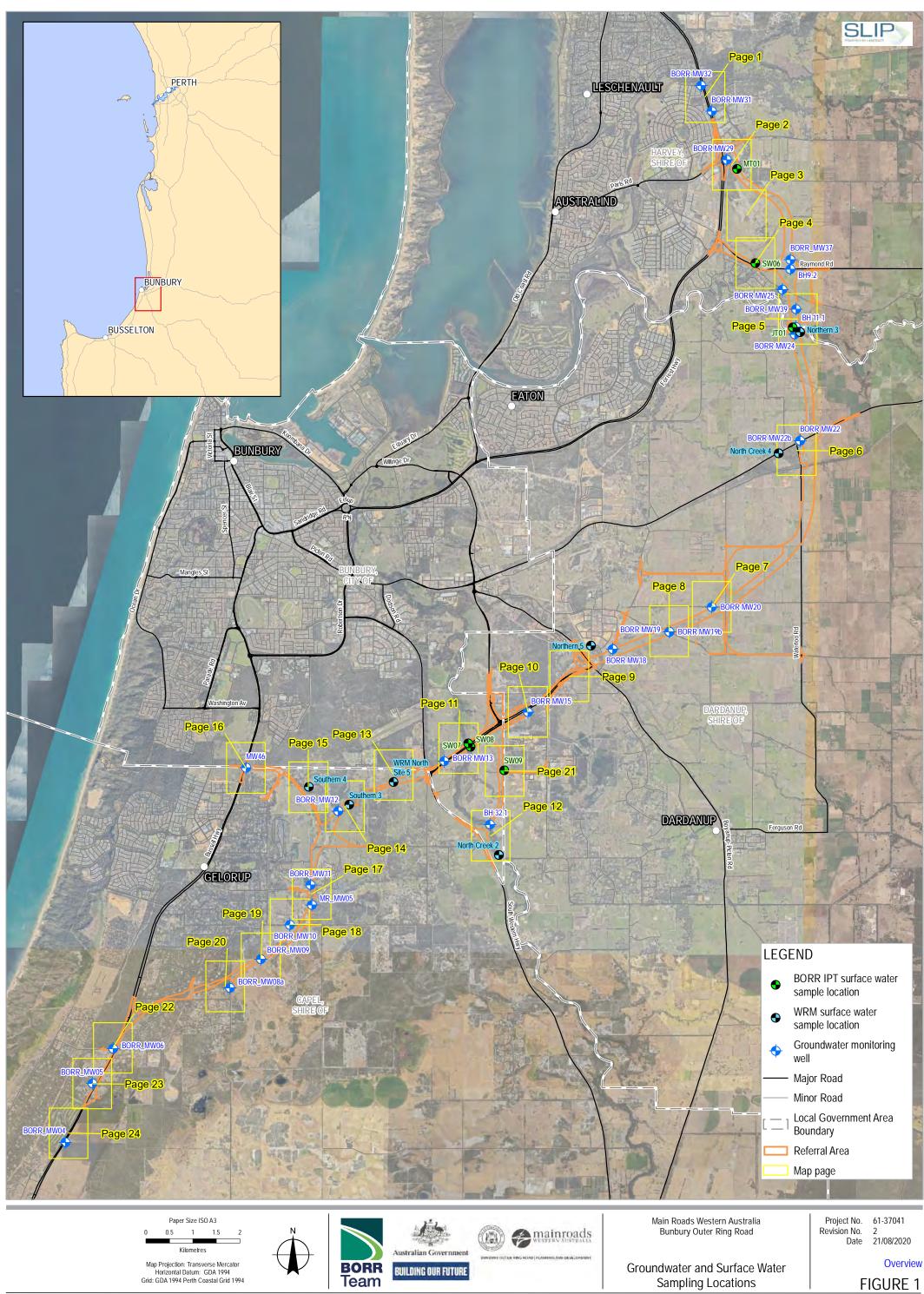


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Figures

Figure 1 Groundwater and surface water monitoring locations



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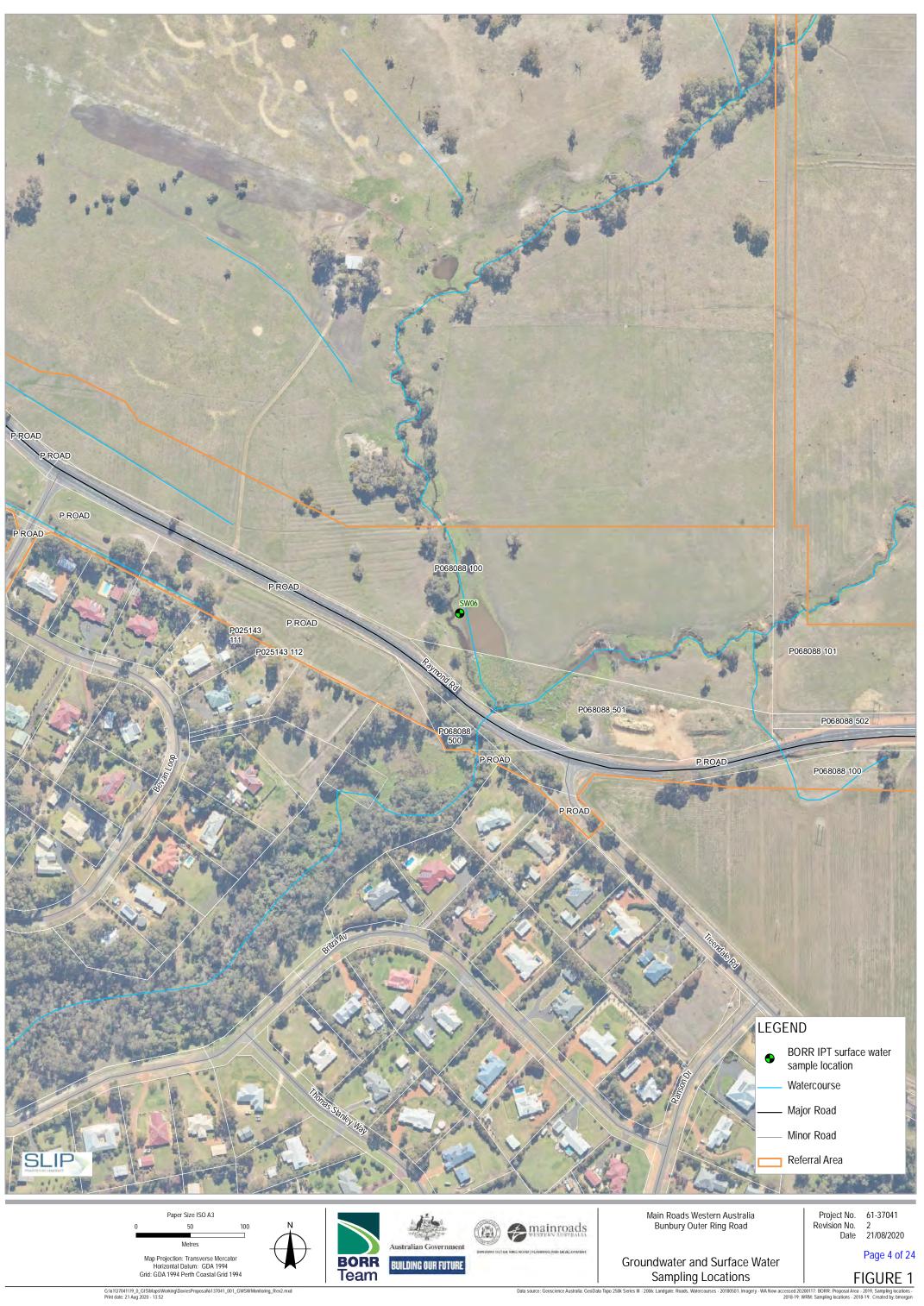
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Map Projection: Transverse Mercator Horizontal Datum: GDA 1994 Grid: GDA 1994 Perth Coastal Grid 1994 **BORR** Team **BUILDING OUR FUTURE** G:\61\37041\19_0_GIS\Maps\We Print date: 21 Aug 2020 - 13:52

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Sampling Locations

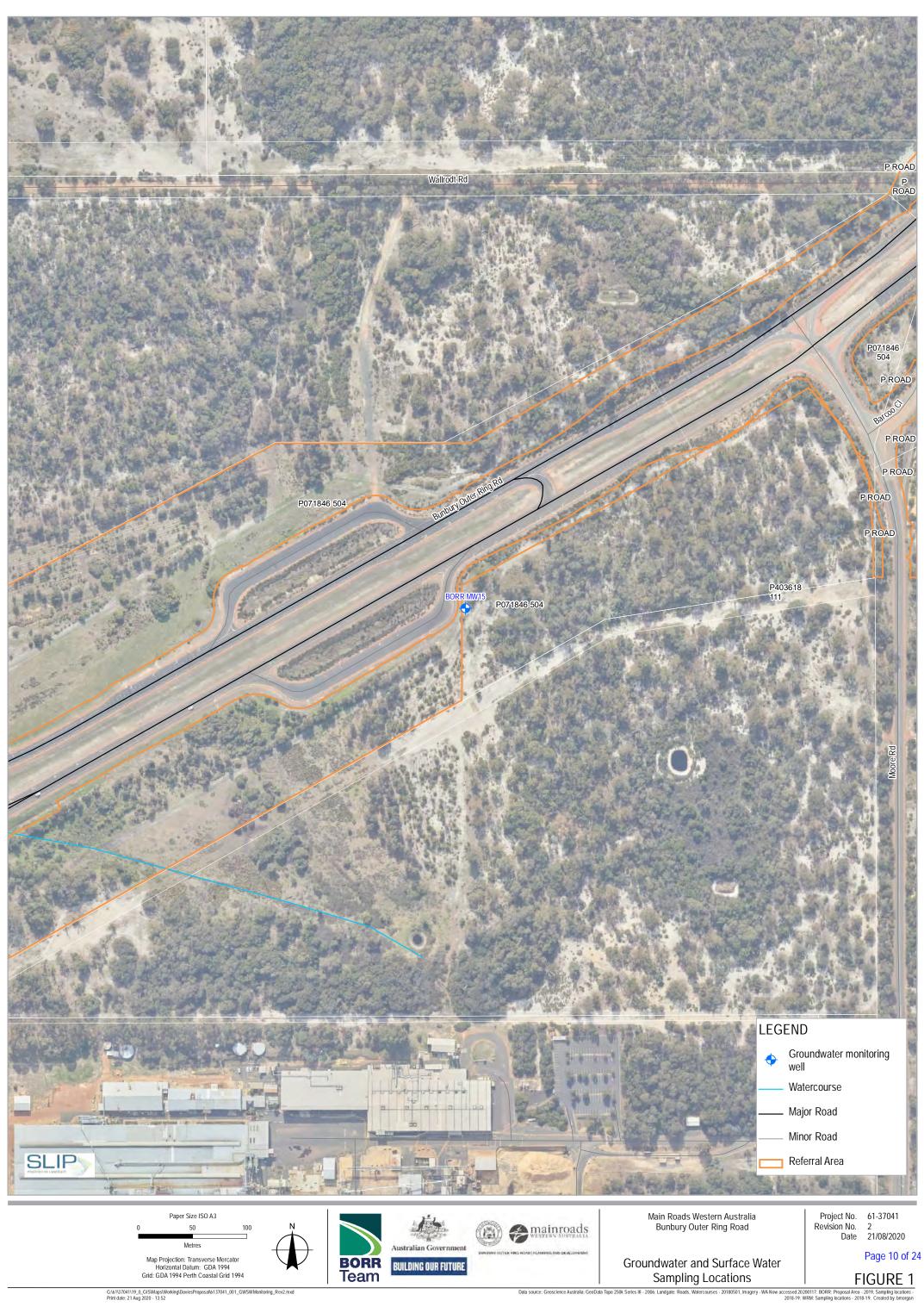


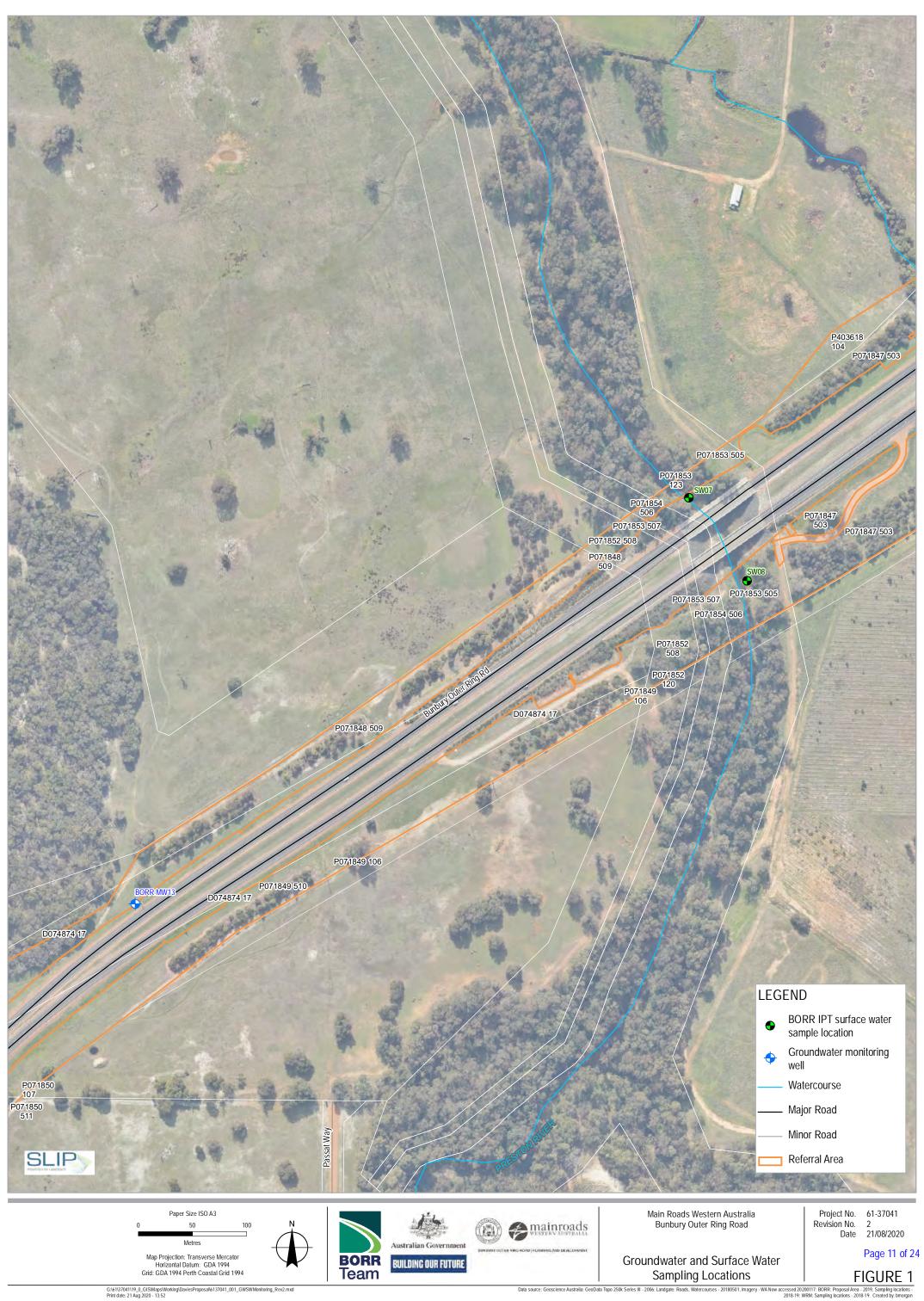


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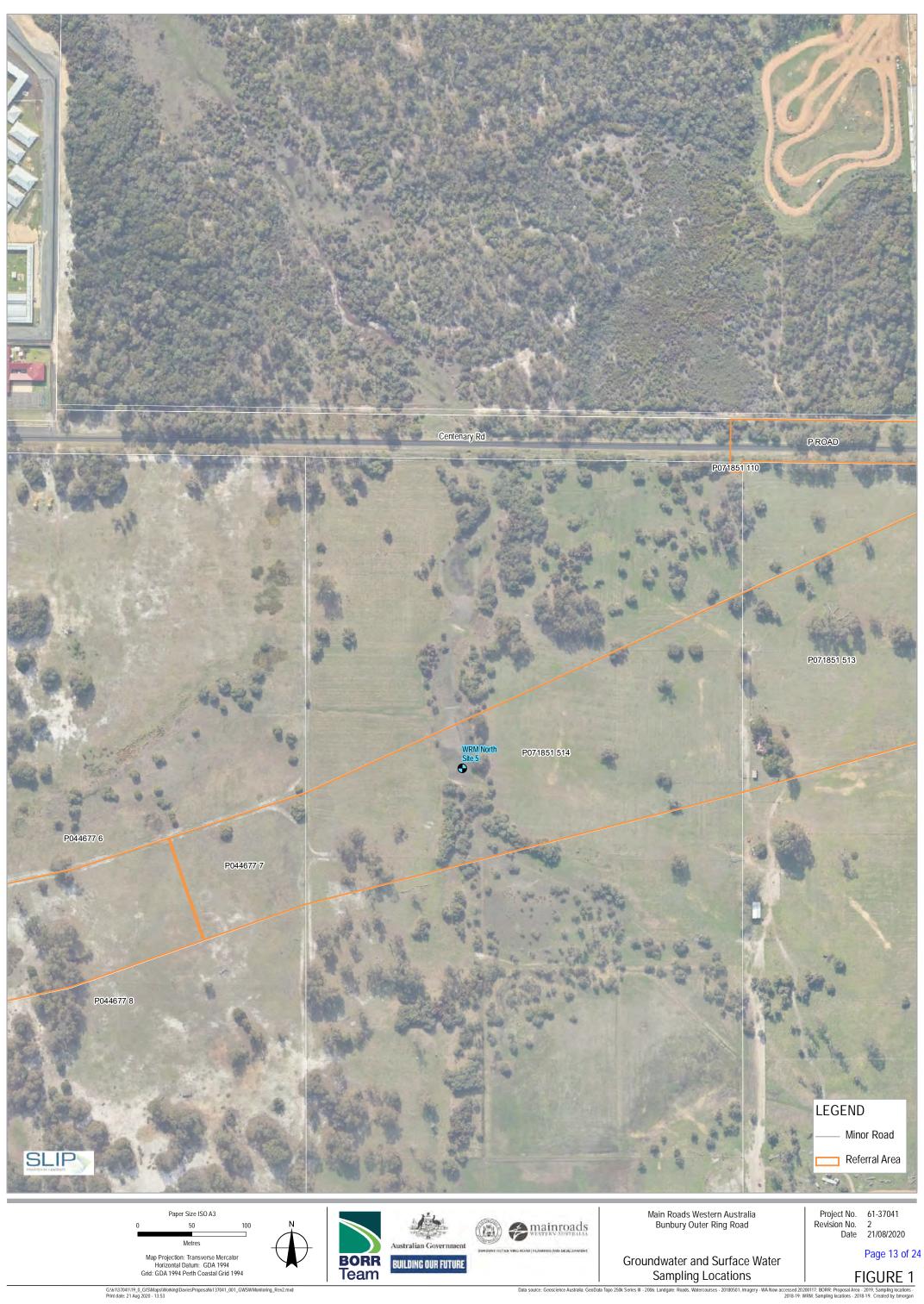


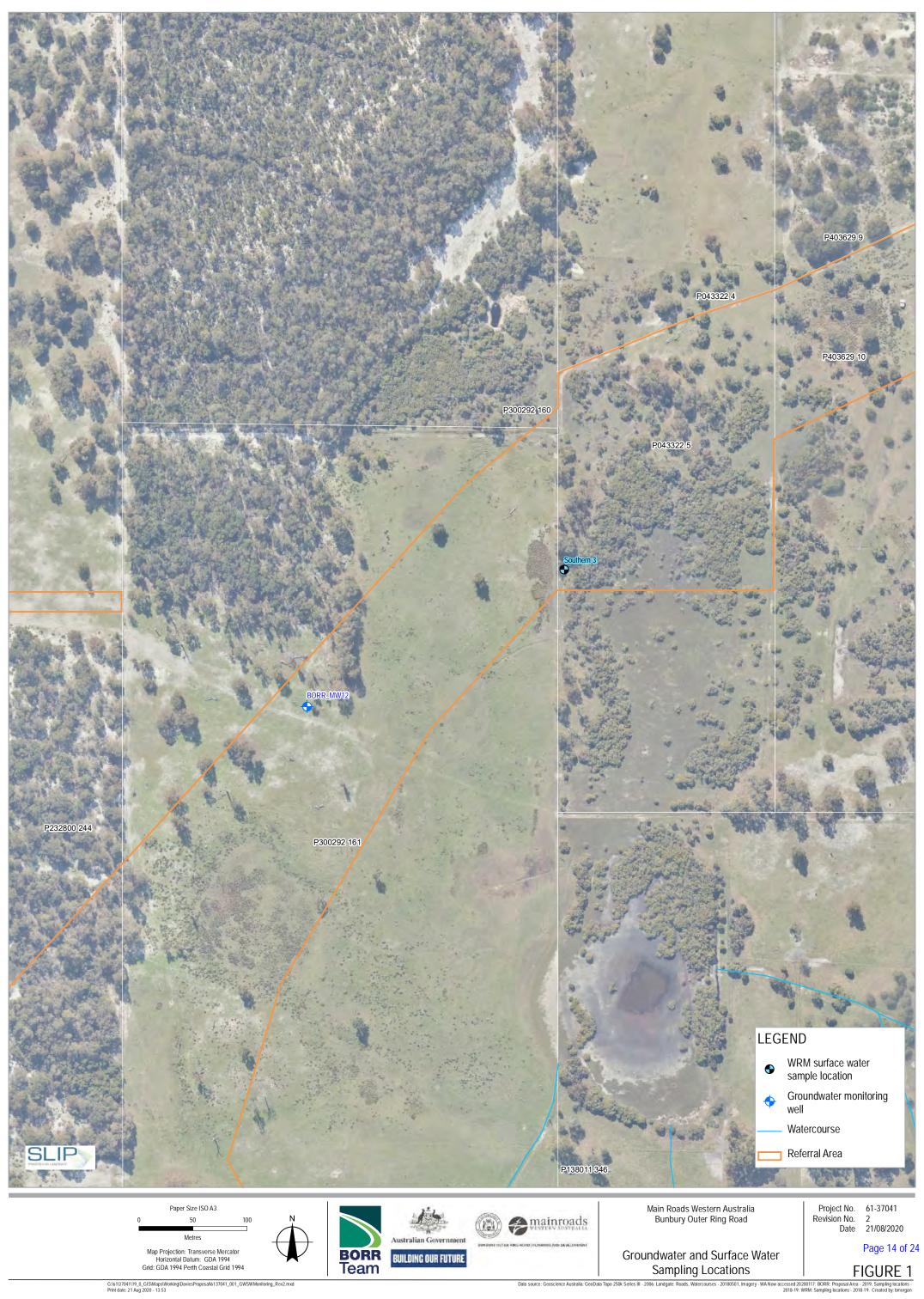


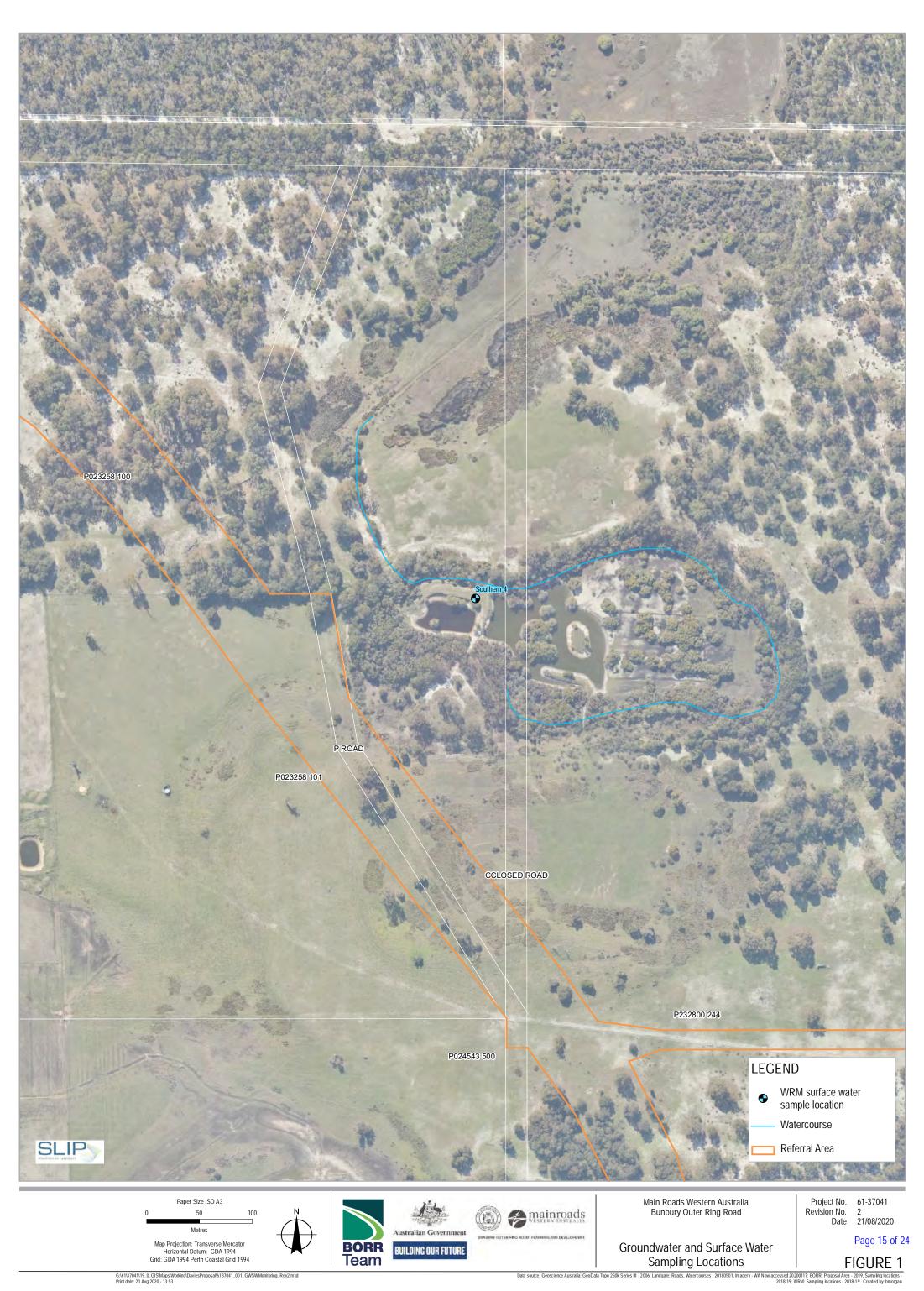






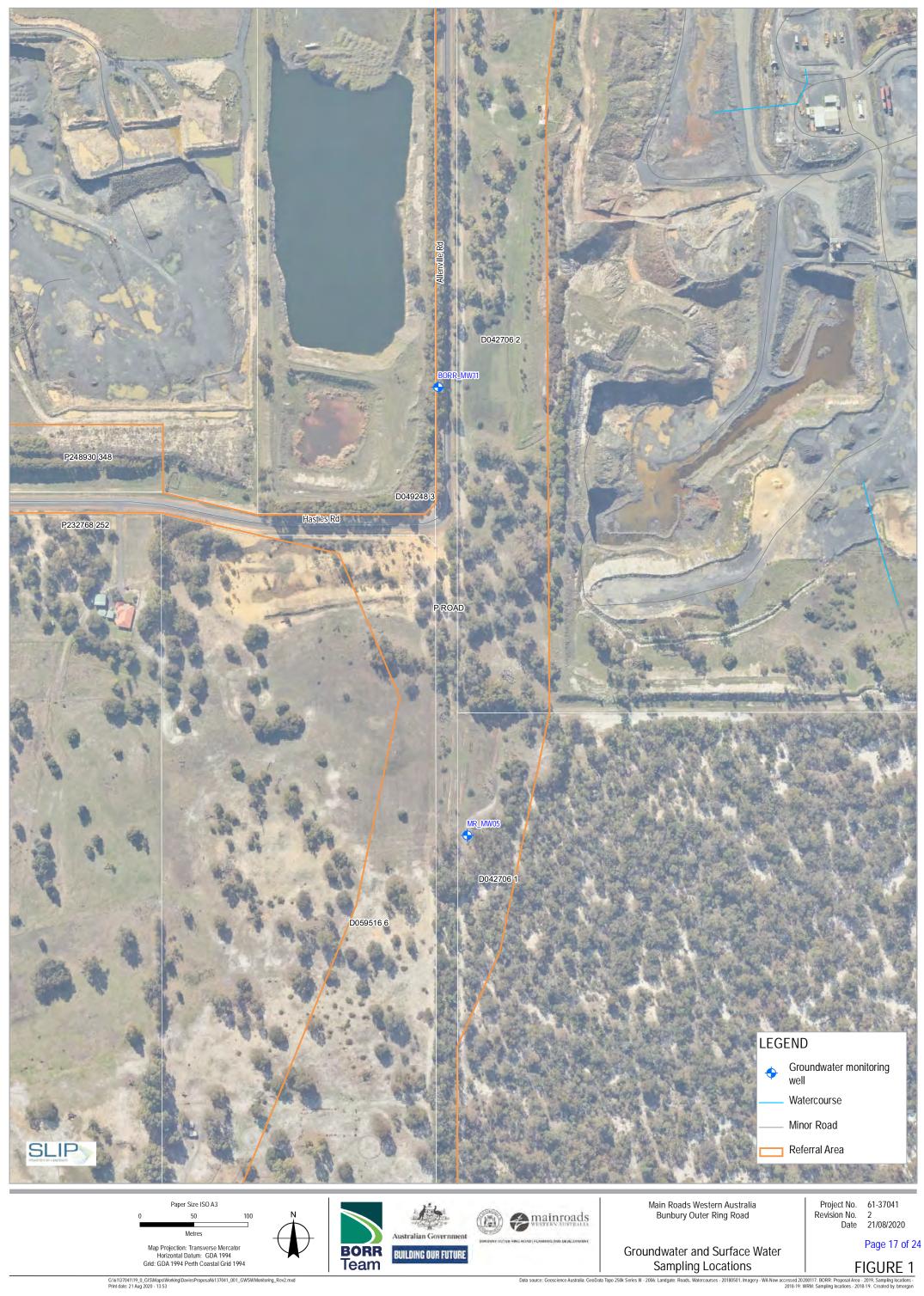


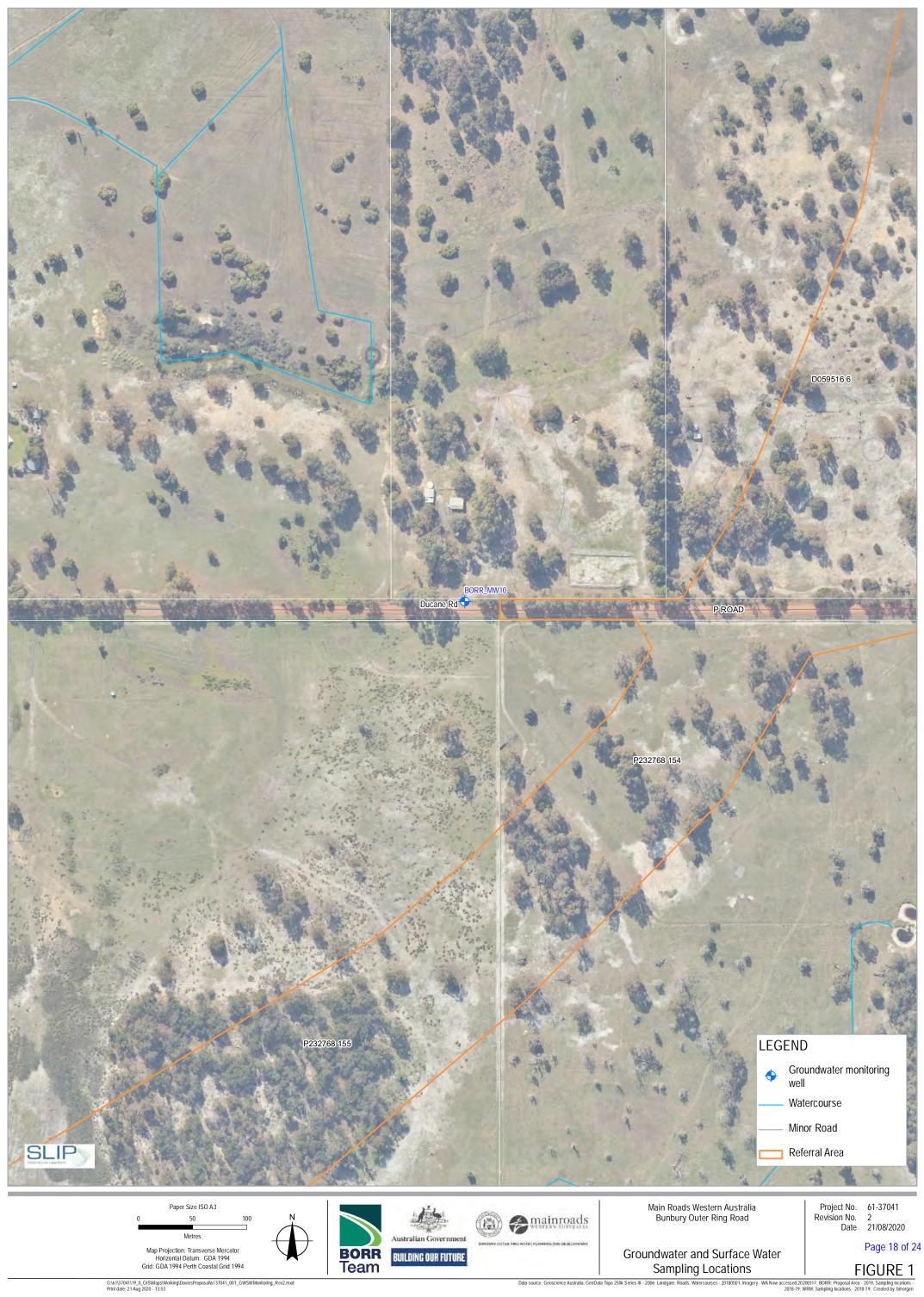


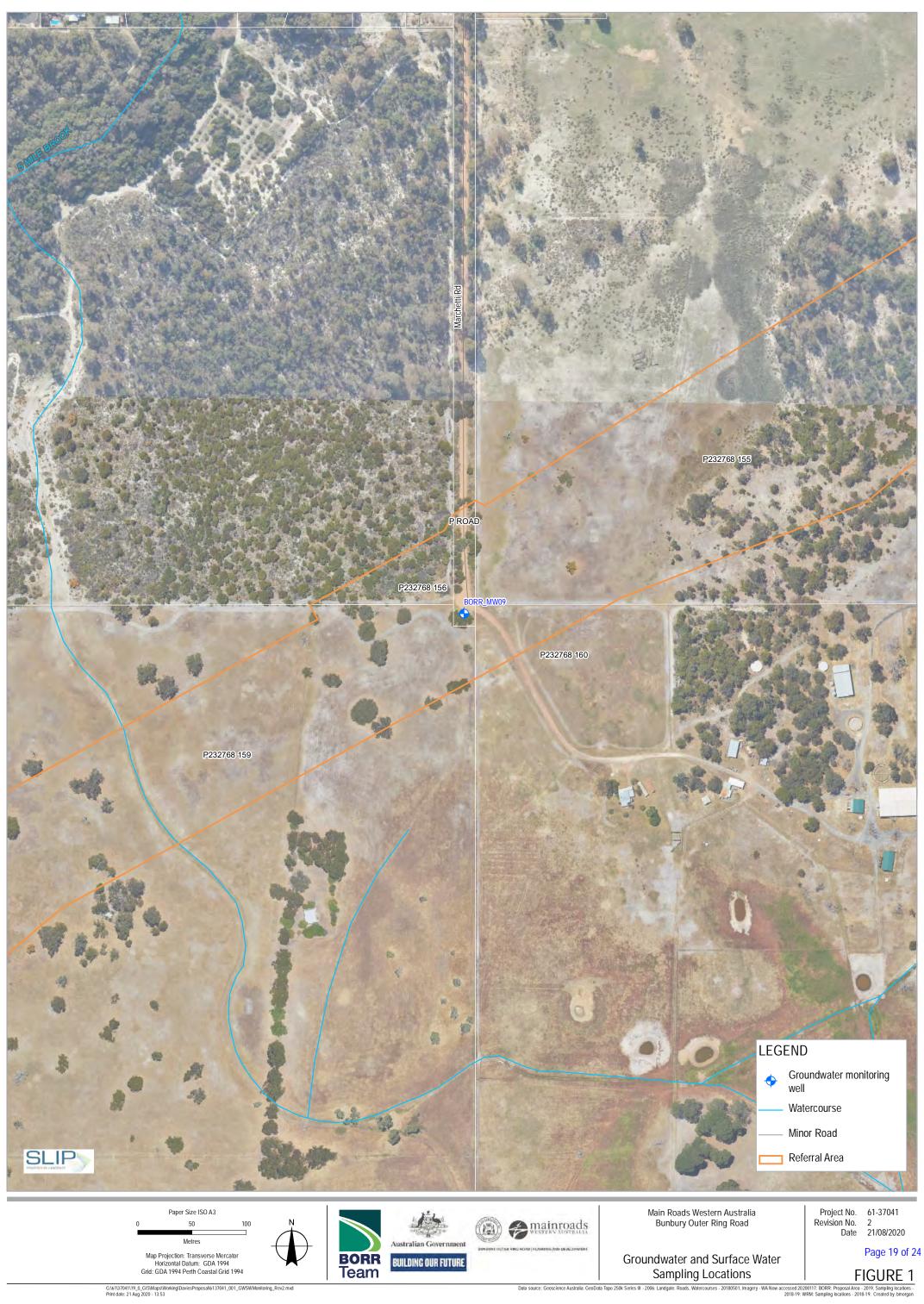




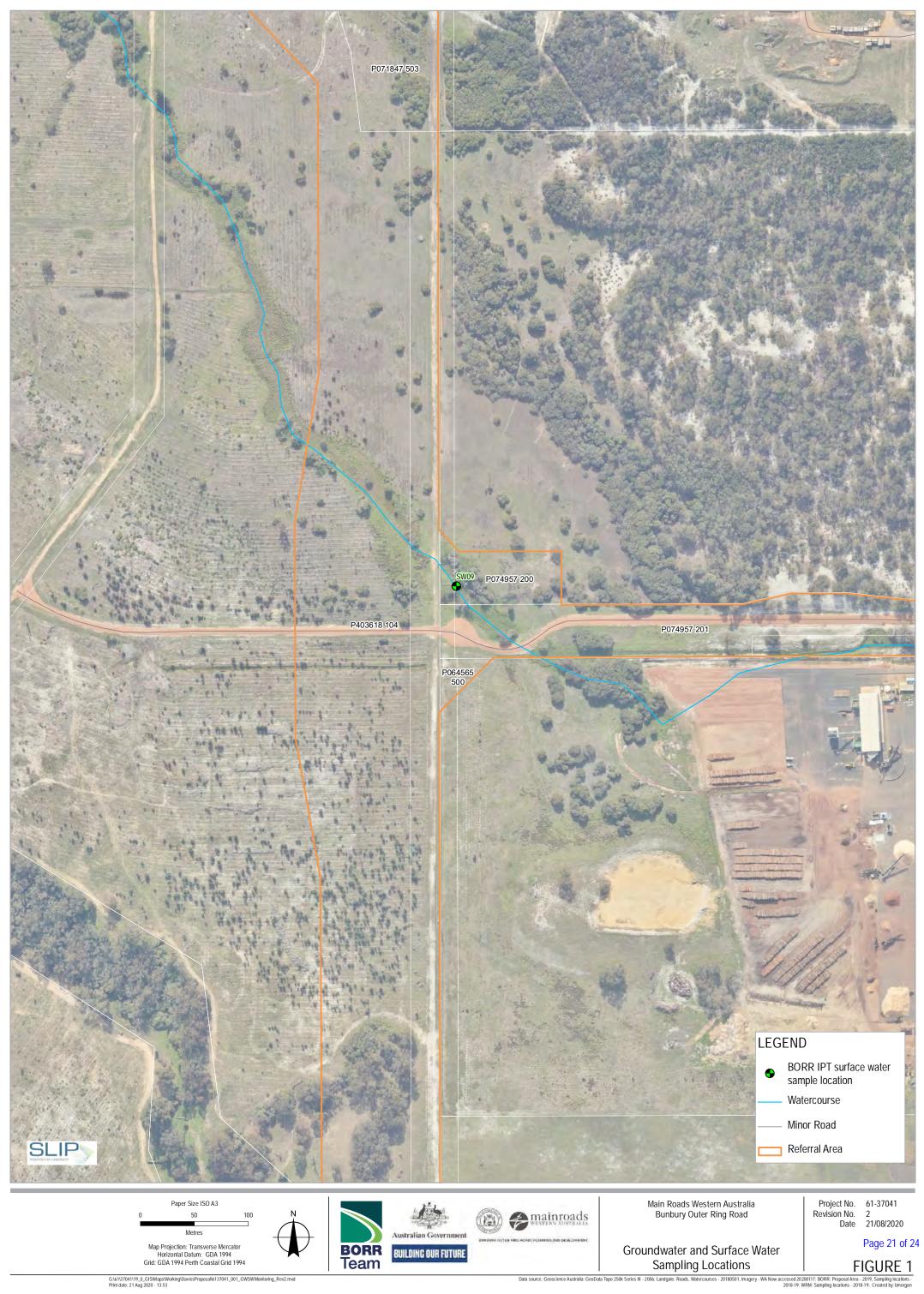
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Data quality management



Data quality management

Data quality management for the 12 month groundwater and surface water quality monitoring and analysis program will be undertaken in accordance with the standards and guidelines provided in Section 3.1, and is summarised below.

B.1 Quality systems

BORR IPT operates under a Practice of Quality Management System certified to AS/NZS ISO 90001:2000 and an Environmental Management System certified to ISO 14001:2004.

The Quality and Environmental management systems prescribe a structured approach to quality and environmental management, which covers:

- Job establishment and planning;
- Document control;
- Design control and review;
- Verification of deliverables;
- Job records;
- Internal project compliance audits; and
- The identification and management of significant environmental risks.

B.2 Field quality control procedures

Key quality control (QC) procedures include:

- Work was undertaken by an experienced GHD Environmental Scientist, according to industry accepted standards, using procedures documented in the GHD Practice Manual: Contaminated Sites Environmental Procedures
- Field QC procedures for the 12-month water quality monitoring program included sample collection, equipment decontamination, handling and transfer protocols
- Dedicated sampling equipment and disposable nitrile gloves were used to minimise the potential for cross-contamination
- Samples were collected and transferred directly into pre-treated laboratory supplied bottles. Bottles were completely filled and care was taken to minimise agitation and oxidation of the sample during transfer to the containers
- Samples were immediately preserved on ice in a chilled esky while on site. Upon completion of site work, the sealed esky was couriered to the laboratories. A sample receipt notice (SRN) was sent from the laboratory confirming that samples were received with the correct CoC
- Unique CoC documentation accompanied all samples.
- Water parameters were measured with a calibrated water quality meter. Equipment calibration certificates are provided in **Error! Reference source not found.**

• B.3 Quality assurance

A series of quality assurance (QA) procedures were implemented in order to maintain the quality of data collected by BORR IPT staff. QA procedures included:

- Use of standardised field sampling forms (provided in Appendix C)
- Use of standardised field sampling methods
- Documenting calibration and use of field instruments (provided in Error! Reference source not found.)



- Collection of quality control samples
- Use of laboratory supplied sample bottles and appropriate storage.

• B.4 Fieldwork quality control

All fieldwork was conducted in accordance with AS/NZS 5667.11, which ensured that all samples were collected in a systematic and uniform method, for obtaining accurate and reliable analytical results. Key requirements of these procedures are listed below:

- Decontamination procedures: including the use of new disposable nitrile gloves, decontamination of non-disposable sampling equipment (i.e. interface meter) between each sampling event and the use of appropriate sample bottles, as provided by the NATA accredited laboratory
- Sample identification procedures: collected samples were placed within sample bottles of appropriate preparation (i.e. filtering) and preservation for the required laboratory analysis. All sample bottles were clearly labelled with a project number, sample location and sample date. The sample bottles were then transferred to a chilled esky for sample preservation prior to and during transport to the laboratory
- Calibration of field equipment: to ensure accuracy of measurements taken in the field, the rental supplier calibrated field equipment prior to dispatch. Calibration certificates are provided in Error! Reference source not found.
- CoC information requirements: CoC forms were completed and forwarded to the testing laboratory accompanying each batch of samples. The signed CoCs are provided in **Error! Reference source not found.**.
- QC sampling frequency: blind and split duplicate samples, as well as rinsate samples, field blanks and trip blanks, were collected at appropriate frequencies and analysed by the testing laboratories.

• B.4.1 Sampling and analysis quality control

The ASC NEPM (NEPM, 2013) outlines the groundwater and surface water QC sampling protocol. The type and frequencies of groundwater and surface water QC samples colle

cted during the monitoring event were in line with the ASC NEPM (NEPM, 2013) as described below:

- *Blind duplicate*: blind duplicate samples were collected to identify any variation in analyte concentration between samples from the same sampling point and the repeatability of the primary laboratory's analysis
- *Split duplicate*: split duplicate samples were collected to provide an indication of the repeatability of the analytical results between NATA accredited laboratories
- *Rinsate blank*: rinsate blank samples are primarily used to assess the effectiveness of equipment decontamination procedures undertaken in the field. The sample is collected by passing laboratory supplied deionised water over the specific piece of decontaminated field equipment
- *Trip blank*: trip blank samples are used to assess the potential for introduction of contamination during transport and storage of field samples and are collected using laboratory supplied deionised water
- *Field blank*: field blank samples are used to assess the potential for introduction of contamination from ambient sources in the field during sampling and are collected using laboratory supplied deionised water.

The quality control sampling and analysis program undertaken is outlined in Table B-1.



Table B-1 Quality control sampling schedule

| INVESTIGATION | MATRIX | SAMPLE TYPE | REQUIRED QC RATES | ACTUAL QC RATES |
|---------------|--------|-----------------|-----------------------------|--|
| Groundwater | Water | Blind duplicate | 1 per 20 primary samples | 1 per 10 primary samples |
| | Water | Split duplicate | 1 per 20 primary samples | 1 per 20 primary samples |
| | Water | Rinsate blank | 1 per item | 1 per piece of reusable equipment (interface meter) – taken each day |
| | Water | Trip blank | 1 per esky | 1 per esky |
| | Water | Field blank | 1 per day | 1 per day |
| Surfacewater | Water | Blind duplicate | 1 per 20 primary samples | 1 per 10 primary samples |
| | Water | Split duplicate | 1 per 20 primary samples | 1 per 20 primary samples |
| | Water | Rinsate blank | 1 per item | 1 per piece of reusable equipment (sampling stick) |
| | Water | Trip blank | 1 per esky | 1 per esky |
| | Water | Field blank | 1 per day | 1 per day |

B-4-2 Quality control duplicate results

An overview of the quality control samples collected over the 12-month monitoring period are provided in Table B-2. Certificates of Analysis provided by the primary (duplicate sample) and secondary (split sample) laboratories are included in **Error! Reference source not found.**.

Table B-2 Quality control duplicate samples

| INVESTIGATION | PRIMARY SAMPLE FIELD ID/ LABORATORY SAMPLE ID | SAMPLE TYPE | QC SAMPLE FIELD ID | QC SAMPLE LAB REPORT NUMBER / LABORATORY SAMPLE ID | DATE SAMPLED |
|---------------|--|----------------|--------------------------|--|-----------------|
| Groundwater | BORR_MW19 EP1908386-004 | Duplicate | FD01 | EP1908386-011 | 19/08/2019 |
| | BORR_MW19 EP1908386-004 | Split | FS01 | 672975 - M19-Au34641 | 19/08/2019 |
| | BORR_MW04 EP1908496-007 | Duplicate | FD03 | EP1908496-008 | 21/08/2019 |
| | BORR_MW18 EP1909465-005 | Duplicate | FD01 | EP1909465-013 | 16/09/2019 |
| | BORR_MW18 EP1909465-005 | Split | FS01 | 678265 - P19-Se32570 | 16/09/2019 |



| INVESTIGATION | PRIMARY SAMPLE FIELD ID/ LABORATORY SAMPLE ID | SAMPLE TYPE | QC SAMPLE FIELD ID | QC SAMPLE LAB REPORT NUMBER / LABORATORY SAMPLE ID | DATE SAMPLED |
|---------------|--|----------------|--------------------------|--|-----------------|
| | BORR_MW32 EP1909465-022 | Duplicate | FD02 | EP1909465-023 | 17/09/2019 |
| | BORR_MW37 EP1910998-008 | Duplicate | FD02 | EP1910998-009 | 23/10/2019 |
| | BH32.1 EP1910998-014 | Duplicate | FD03 | EP1910998-015 | 24/10/2019 |
| | BH32.1 EP1910998-014 | Split | FS01 | 685136 - P19-Oc44630 | 24/10/2019 |
| | BORR MW19b EP1912183-009 | Duplicate | FD01 | EP1912183-012 | 18/11/2019 |
| | BORR MW19b EP1912183-009 | Split | FS01 | 689319 - P19-No29824 | 18/11/2019 |
| | BORR_MW37 EP1912183-023 | Duplicate | FD03 | EP1912183-032 | 19/11/2019 |
| | BORR MW19b EP1913499-017 | Duplicate | FD01 | EP1913499-021 | 17/12/2019 |
| | BORR MW12 EP1913643-026 | Duplicate | FD03 | EP1913643-027 | 19/12/2019 |
| | BORR MW12 EP1913643-026 | Split | FS01 | 695412 - P20-Ja00520 | 19/12/2019 |
| | BORR_MW05 EP2000762-009 | Duplicate | FD01 | EP2000762-014 | 20/01/2020 |
| | BORR_MW12 EP2000814-002 | Duplicate | FD03 | EP2000814-004 | 22/01/2020 |
| | BORR_MW12 EP2000814-002 | Split | FS01 | 698442- P20-Ja23488 | 22/01/2020 |
| | BORR_MW13 EP2001737014 | Duplicate | FD02 | EP2001737013 | 17/02/2020 |
| | BORR_MW10 EP2001737023 | Duplicate | FD03 | EP2001737020 | 18/02/2020 |
| | BORR_MW10 EP2001737023 | Split | FS01 | 702937 - P20-Fe25017 | 18/02/2020 |
| | BORR_MW13 | Duplicate | FD01 | EP2002914022 | 16/03/2020 |



| INVESTIGATION | PRIMARY SAMPLE FIELD ID/ LABORATORY SAMPLE ID | SAMPLE TYPE | QC SAMPLE FIELD ID | QC SAMPLE LAB REPORT NUMBER / LABORATORY SAMPLE ID | DATE SAMPLED |
|---------------|--|----------------|--------------------------|--|-----------------|
| | EP2002914009 | | | | |
| | BH11.1 | Duplicate | FD03 | EP2002914025 | 17/03/2020 |
| | EP2002914011 | | | | |
| | BH11.1 | Split | FS01 | 708662 - M20-Ma27926 | 17/03/2020 |
| | EP2002914011 | | | | |
| | BH32.1 | Duplicate | FD01 | EP2004114012 | 21/04/2020 |
| | EP2004114011 | | | | |
| | BORR_MW13 | Duplicate | FD03 | EP2004276029 | 23/04/2020 |
| | EP2004276023 | | | | |
| | BH32.1 | Split | FS01 | 715089 - P20-Ap31439 | 21/04/2020 |
| | EP2004114011 | | | | |
| | BORR_MW05 | Duplicate | FD01 | EP2005242004 | 18/05/2020 |
| | EP2005242003 | | | | |
| | BORR_MW05 | Duplicate | FD01 | EP2005242004 | 18/05/2020 |
| | EP2005242003 | | | | |
| | BORR_MW05 | Split | FS01 | 720880 - P20-My30624 | 18/05/2020 |
| | EP2005242003 | | | | |
| | BORR_MW19b | Duplicate | FD01 | EP2006304011 | 15/06/2020 |
| | EP2006304010 | | | | |
| | BORR_MW39 | Duplicate | FD02 | EP2006334009 | 17/06/2020 |
| | EP2006334003 | | | | |
| | BORR_MW19b | Split | FS01 | 726271 - M20-Jn29288 | 15/06/2020 |
| | EP2006304010 | | | | / / |
| | BORR_MW37 | Duplicate | WFD03 | EP2007640012 | 20/07/2020 |
| | EP2007640-010 | a 14 | | | |
| | BORR_MW32 | Split | WFS01 | 733336 - P20-Jl36445 | 20/07/2020 |
| | EP2007638-012 | 6 I'' | 14/5000 | | 20/07/2020 |
| | BORR_MW37 | Split | WFS02 | 733336 - P20-Jl36446 | 20/07/2020 |
| | EP2007640-010 | | | 50007600045 | 24/07/2020 |
| | BORR_MW32 | Duplicate | WFD02 | EP2007638015 | 21/07/2020 |
| | EP2007638012 | | | | 07/07/0600 |
| | BORR_MW09 | Duplicate | WFD05 | EP2007908006 | 27/07/2020 |
| | EP2007908003 | | | | |



| INVESTIGATION | PRIMARY SAMPLE FIELD ID/ LABORATORY SAMPLE ID | SAMPLE TYPE | QC SAMPLE FIELD ID | QC SAMPLE LAB REPORT NUMBER / LABORATORY SAMPLE ID | DATE SAMPLED |
|---------------|--|----------------|--------------------------|--|-----------------|
| | SW01 | Duplicate | FD02 | EP1908386-024 | 20/08/2019 |
| | EP1908386-015 | Duplicate | FD03 | EP1909465-031 | 17/09/2019 |
| | JT01 | Duplicate | 1005 | LF1909403-031 | 17/03/2013 |
| | EP1909465-029 | Dualieste | FD01 | FD1010000 03C | 22/10/2010 |
| | SW06 | Duplicate | FDUI | EP1910998-026 | 23/10/2019 |
| | EP1910998-023 | | 55.00 | 554040400 004 | 40/44/2040 |
| | MT01 | Duplicate | FD02 | EP1912183-031 | 19/11/2019 |
| | EP1912183-029 | | | | |
| | MT01 | Duplicate | FD02 | EP1913643-028 | 19/12/2019 |
| | EP1913643-001 | | | | |
| | SW06 | Duplicate | FD02 | EP2000762-025 | 21/01/2020 |
| | EP2000762-022 | | | | |
| Surface water | North Creek 2 | Duplicate | FD01 | EP2001737006 | 17/02/2020 |
| Surface Water | EP2001737004 | | | | |
| | JT01 | Duplicate | FD02 | EP2002914023 | 17/03/2020 |
| | EP2002914024 | | | | |
| | JT01 | Duplicate | FD02 | EP2004276004 | 22/04/2020 |
| | EP2004276007 | | | | |
| | Northern 3 | Duplicate | FD03 | EP2005328010 | 20/05/2020 |
| | EP2005328009 | | | | |
| | SW06 | Duplicate | FD03 | EP2006334010 | 17/06/2020 |
| | EP2006334013 | | | | |
| | WRM North 3 | Duplicate | WFD01 | EP2007638005 | 20/07/2020 |
| | EP2007638004 | | | | |
| | Southern 3 | Duplicate | WFD04 | EP2007769016 | 23/07/2020 |
| | EP2007769015 | | | | |



B.4.3 Relative percentage difference calculations

Blind and split duplicate samples were assessed by calculating the relative percentage difference (RPD) between the primary, blind (duplicate) and/or split (interlab duplicate) samples.

A quantitative measure of the accuracy of the analytical results reported was made by calculating the RPDs between the primary, blind and split results in accordance with the procedure described in AS 4482.1 – 2005 (Standards Australia, 2005). According to AS 4482.1 – 2005, typical RPDs are expected to range between 30% and 50%; however, this may be higher for organics and for low concentrations of analytes.

The percentage for RPD results are dependent on the magnitude of the results in comparison to the concentration x Estimated Quantitation Limit (EQL also called LOR) and have been generated in Esdat as shown in Table B-3 below.

Table B-3 RPD Ranges

| Concentration x EQL | RPD (%) |
|---------------------|---------|
| 1 - 10 | 81% |
| 10 - 30 | 50% |
| > 30 | 30% |

RPD exceedance results have been highlighted in yellow in the **Error! Reference source not found.**, for groundwater and surface water results, and discussed below.

B.4.3.1 Groundwater duplicate and split (interlab duplicate) RPD results

August 2019 monitoring event

Fifteen RPD exceedances were recorded for acidity, ionic balance, and some metals and nutrients in total. Fourteen of the fifteen exceedances showed the duplicates having a higher concentration than the primary samples and were above the laboratory limit of reporting (LOR).

Since both primary and duplicate samples are still within the same order of magnitude, overall, primary samples are deemed acceptable to use and are not expected to affect the outcomes of this report.

September 2019 monitoring event

Nine RPD exceedances were recorded for acidity, Total Kjeldahl Nitrogen and some metals in total. Five of the nine exceedances showed that the primary samples had a higher concentration than the duplicates and are also above the laboratory LOR. The remaining exceedances showed that the duplicates had a high concentration than the primary samples.

In both cases, the primary samples are acceptable since they are all within the same order of magnitude as the duplicates and the LOR.

October 2019 monitoring event

Five RPD exceedances were recorded for acidity, ionic balance, and some metals and nutrients in total. Three of the five exceedances showed that the primary samples have a higher concentration than the duplicates and are also above the laboratory LOR. For the remaining two exceedances, even though the duplicate sample concentrations are higher, they are still within the same order of magnitude as the primary samples.

Therefore, it is considered that using primary samples results will not have any impact on the report outcomes.

November 2019 monitoring event



Twelve RPD exceedances were recorded for acidity, ionic balance, and some metals in total. Eight of the 12 exceedances showed that the duplicates have a higher concentration than the primary samples and are also above the laboratory LOR.

Both primary and duplicate samples are still within the same order of magnitude overall and therefore primary samples are deemed acceptable to use and are not expected to affect the outcomes of this report.

December 2019 monitoring event

Two RPD exceedances were recorded for two of the blind duplicate samples for ionic balance and copper (filtered). In both cases, the primary samples had the higher concentrations that are above the laboratory LOR than the duplicate samples and therefore acceptable to use the primary results.

January 2020 monitoring event

Four RPD exceedances were recorded for acidity, ionic balance, aluminium and nitrogen (total oxidised) (as N) ranging from 38% to 73%. Three of the four exceedances resulted from the primary sample having a higher concentration than the duplicate/split samples and being above the LOR. All were within the same order of magnitude and therefore, it is acceptable to use the primary sample results.

February 2020 monitoring event

Six RPD exceedances were recorded for metals (zinc (filtered) and aluminium), ionic balance, ammonia (as N), chloride and total dissolved solids (TDS) in total. Five of the six exceedances showed the duplicates having a higher concentration than the primary samples and were above the laboratory LOR.

Since both primary and duplicate samples are still within the same order of magnitude overall, primary samples are deemed acceptable to use and are not expected to affect the outcomes of this report.

March 2020 monitoring event

Ten RPD exceedances were recorded for ionic balance, major ions (calcium and magnesium (filtered)), nitrogen total and some metals (zinc, copper and nickel (filtered) as well as iron and aluminium) in total. Three of the ten exceedances showed that the primary samples had a higher concentration than the duplicates and are also above the laboratory LOR. The remaining exceedances showed that the duplicates had a high concentration than the primary samples.

In both cases, the primary samples are acceptable since the majority are within the same order of magnitude as the duplicates .

April 2020 monitoring event

Six RPD exceedances were recorded for electrical conductivity, acidity, chloride, ionic balance and some metals (zinc and nickel (filtered)) in total. Two of the six exceedances showed that the primary samples have a higher concentration than the duplicates and are also above the laboratory LOR. For the remaining four exceedances, even though the duplicate sample concentrations are higher, they are still within the same order of magnitude as the primary samples .

Therefore, it is considered that using primary samples results will not have any impact on the report outcomes.

May 2020 monitoring event

Eight RPD exceedances were recorded for ionic balance and metals (zinc and copper (filtered) and aluminium). Five of the eight exceedances showed that the primary samples have a higher concentration than the duplicates and are also above the laboratory LOR.

Both primary and duplicate samples are still within the same order of magnitude overall and therefore primary samples are deemed acceptable to use and are not expected to affect the outcomes of this report.

June 2020 monitoring event



Nine RPD exceedances were recorded for alkalinity, acidity, ammonia as N and some metals (zinc, copper and nickel (filtered) and aluminium. Eight out of the nine exceedances showed that the duplicate samples had the higher concentrations that are above the laboratory LOR than the primary samples.

However, since they are both still within the same order of magnitude, it is not expected to have an impact on the outcomes of the report. Therefore, it is acceptable to use the primary sample results.

July 2020 monitoring event

Ten RPD exceedances were recorded for acidity, ionic balance, ammonia as N, total phosphorus, aluminium, iron (filtered) and zinc (filtered) ranging from 31% to 157%. Eight of the ten exceedances resulted from the duplicate/split samples having a higher concentration than the primary sample and being above the LOR. However, all were within the same order of magnitude and therefore, it is acceptable to use the primary sample results.

B.4.3.2 Surface water duplicate RPD results

August 2019 monitoring event

Three RPD exceedances were recorded for copper, nickel and zinc, in the range around 150 - 160%. However, the concentrations reported for the primary sample were higher and above the LOR than the duplicate sample, therefore primary sample will be used as it is more conservative.

September 2019 monitoring event

Three RPD exceedances were recorded for copper, nickel and zinc, in the range around 150%. However, the concentrations reported for the primary sample were higher and above the LOR than the duplicate sample, therefore primary sample will be used as it is more conservative.

There were also two RPD exceedances for alkalinity which was reported to be 69%. The duplicate sample had a higher concentration than the primary sample, however both samples were within the same order of magnitude therefore the primary sample is acceptable. There were also five exceedances for TRH components where the blind duplicate sample had higher concentrations than the primary samples that are also above the laboratory LOR. However, since both concentrations were within the same order of magnitude, it is acceptable to use the primary sample results.

October 2019 monitoring event

In the October 2019 monitoring round, there were RPD exceedances for major ions-ionic balance, ammonia, ammonium and copper. Except for ionic balance for which both samples had concentrations within the same order of magnitude, the primary sample also had the higher concentrations than the duplicate sample and was also just above the LOR. Therefore it is more conservative to adopt the primary sample results.

November 2019 monitoring event

Three RPD exceedances were recorded for copper, nickel and zinc, in the range around 150%. However, the concentrations reported for the primary sample were higher and above the LOR than the duplicate sample, therefore primary sample will be used as it is more conservative.

Aluminium and acidity also exceeded the RPD threshold where the concentration of the duplicate sample was higher than that of the primary sample, however since they were both within the same order of magnitude, it is not expected to have an impact on the outcomes of the report. Therefore, the primary sample is acceptable.

December 2019 monitoring event

There were three RPD exceedances for the blind duplicate sample for major ions-ionic balance, ammonia and ammonium. For these, the primary sample had higher concentrations than the blind duplicate sample and were also above the laboratory LOR, but both samples were below the criteria trigger values.



Therefore, the primary samples can be used since both are within the same order of magnitude and to be more conservative.

January 2020 monitoring event

There were two RPD exceedances for ionic balance and aluminium (100% and 106% respectively). In both cases, the primary sample had a higher concentration than the duplicate sample and was also above the laboratory LOR. Therefore, it is more conservative to use the primary sample results.

February 2020 monitoring event

There were no RPD exceedances for surface water duplicate sample in the February 2020 monitoring round.

March 2020 monitoring event

There was one exceedance for acidity (as $CaCO_3$). However, the concentration reported for the primary sample was higher and above the LOR than the duplicate sample, therefore primary sample will be used as it is more conservative.

April 2020 monitoring event

There were two RPD exceedances for major ions-ionic balance and copper (filtered). One of the two exceedances showed the primary sample had the higher concentrations than the duplicate sample and was also above the LOR. Both samples had concentrations within the same order of magnitude, therefore it is more conservative to adopt the primary sample results.

May 2020 monitoring event

There was one exceedance for ionic balance. However, the concentration reported for the primary sample was higher and above the LOR than the duplicate sample, therefore primary sample will be used as it is more conservative.

June 2020 monitoring event

There were four RPD exceedances for reactive phosphorous as P, major ions-ionic balance, and some metals (aluminium and nickel (filtered)). For these, two of the four exceedances showed that the primary sample had higher concentrations than the blind duplicate sample and were also above the laboratory LOR. Therefore, the primary samples can be used since both are within the same order of magnitude and to be more conservative.

July 2020 monitoring event

There was only one RPD exceedance for ionic balance at 179%. The duplicate sample had a higher concentration than the primary sample and was also above the laboratory LOR. However, given both are within the same order of magnitude, it is acceptable to use the primary sample results.

B.4.4 Quality control blank sample results

Only four rinsate blank samples had exceedances for three analytes over three of the monitoring events:

- Copper was detected to be at 0.009 and 0.008 mg/L, above the laboratory LOR (0.001) in two of the August 2019 monitoring event samples.
- Zinc was detected to be at 0.006 mg/L, above the laboratory LOR (0.005) in one of the September 2019 monitoring event samples.
- Nickel was detected to be at 0.003 mg/L, above the laboratory LOR (0.001) in the February 2020 monitoring event sample.

Since these were low concentrations and within the same order of magnitude, it is not expected to have an impact on the outcomes of the report and considered to be acceptable to use the results from those monitoring events.



The results of all blanks collected from the 2019 and 2020 groundwater and surface water monitoring rounds is given in **Error! Reference source not found.**.

B.5 Laboratory quality control

ALS Environmental was used as the primary laboratory and Eurofins was used as the secondary laboratory for analysis of samples. Both laboratories are NATA accredited and conducted their own completed internal quality assurance/ quality control (QA/QC) procedures.

B.5.1 Laboratory LORs

All laboratory LORs were below adopted assessment criteria levels (Table 4-4 and Table 4-5).

B.5.2 Laboratory quality assurance and quality control procedures

The following laboratory quality assurance and quality control procedures were used during the investigation.

B.5.2.1 Laboratory duplicate samples

Laboratory duplicate sample analysis is the analysis of a laboratory derived duplicate sample from the process batch, at a rate equivalent to one in 20 samples per analytical batch, or one sample per batch if less than 20 samples are analysed in a batch. A laboratory duplicate provides data on the analytical precision and reproducibility of the analytical results.

The permitted ranges for the RPD of laboratory duplicates are dependent on the magnitude of the results in comparison to the level of reporting as shown in Table B-4 below.

Table B-4 Permitted laboratory duplicate RPD Ranges

| MAGNITUDE OF RESULTS | PERMITTED RPD RANGE |
|---------------------------------|---------------------|
| < 10 x limit of reporting (LOR) | No limit |
| 10 – 20 x LOR | 0 – 50% |
| > 20 x LOR | 0 – 20% |

B.5.2.2 Method blank samples

Method or analysis blank sample analysis are the analysis of a sample that is as free as possible of the analytes of interest, but has been prepared the same as the samples under investigation. The analysis is to ascertain if laboratory reagents, glassware and other laboratory consumables contribute to the observed concentration of analytes in the process batch. The method blank should return analyte concentrations as 'not detected'.

B.5.2.3 Laboratory control samples

Laboratory control spike analysis is the analysis of either a reference material or a control matrix fortified with analytes representative of the analyte class. The purpose of laboratory control spike samples is to monitor method precision and accuracy independent of the sample matrix. Typically, the percentage recovery of the laboratory control spike sample is compared to the dynamic recovery limits based on the statistical analysis of the processed laboratory control spike sample analysis. Recoveries must lie between 70% and 130%.

B.5.2.4 Matrix spike samples

Matrix spike sample analysis is the analysis of one or more replicate portions of samples from the batch, after fortifying the additional portion(s) with known quantities of the analyte(s) of interest. The percentage recovery of target analyte(s) from matrix spike samples is used to determine the bias of the method in the specific sample matrix. Recoveries must lie between 70% and 130%.



B.5.2.5 Surrogate spike samples

Surrogate spike samples are samples with known additions of known amounts of compounds, which are similar to the analytes of interests in terms of extractability, recovery through clean-up procedures and response to chromatographic or other measurement. Surrogate compounds may be alkylated or halogenated analogues or structural isomers of analytes of interest. The purpose of surrogate spikes, which are added immediately before the sample extraction step, is to provide a check for every analysis that no gross processing errors have occurred, which could have led to significant analyte loss or faulty calculation. Recoveries must lie between 50% and 150%.

B.5.2.6 Internal standards

Internal standards are known additions of known amounts of compounds, which are not found in real samples, will not interfere with quantification of analytes of interest and may be separately and independently quantified. The purpose of internal standards in instrumental techniques is to provide independent signals, which serve to check the consistency of the analytical step. Internal standards are often used for organic compounds and some inorganic compounds.

Laboratory quality assurance and quality control results

Details of the interpretive quality control assessment report from the primary and secondary laboratories (only primary results reviewed) is provided with the laboratory Certificate of Analysis in **Error! Reference source not found.**, with a summary of main observations presented in Table B-5 below.

| DATE | LABORATORY REPORT REFERENCE | LABORATORY INTERNAL DUPLICATE SAMPLE (RPD) VALUE RANGE (%) | LABORATORY CONTROL SPIKE RECOVERY RANGE (%) | MATRIX SPIKE SAMPLE RECOVERY RANGE (%) |
|--------------|--------------------------------|--|--|---|
| | EP1908386 | 0.0 - 38.6 | 75.9 – 124.0 | 70.0 - 126.0 |
| August 2019 | EP1908496 | 0.0 - 18.2 | 48.7 – 125.0 | 69.9 - 129.0 |
| | 672975-W (secondary/split) | <1.0 - 12.0 | 92.0 - 119.0 | 70.0 - 118.0 |
| | EP1909465 | 0.0 - 83.4 | 56.9 - 127.0 | 66.5 - 123.0 |
| September | EP1909602 | 0.0 - 17.3 | 61.5 – 127.0 | 71.0 - 126.0 |
| 2019 | 678265-W (secondary/split) | <1.0-28.0 | 70.0 - 118.0 | 85.0 - 114.0 |
| | EP1910866 | 0.0 - 16.0 | 76.6 - 126.0 | 71.5 – 124.0 |
| | EP1910998 | 0.0 - 39.3 | 71.2 – 123.0 | 70.9 - 128.0 |
| October 2019 | EP1911129 | 0.0 -40.0 | 77.2 – 125.0 | 69.4 - 126.0 |
| | 685136-W (secondary/split) | <1.0-24.0 | 75.0 - 118.0 | 74.0 - 113.0 |
| | EP1912183 | 0.0 - 152.0 | 64.8 - 129.0 | 75.9 – 129.0 |
| November | EP1912321 | 0.0 - 60.2 | 76.3 – 126.0 | 71.0 - 129.0 |
| 2019 | 689319-W (secondary/split) | <1.0-20.0 | 88.0 - 116.0 | 74.0 - 116.0 |

Table B–5 Laboratory quality control results – internal RPDs and recovery ranges



| DATE | LABORATORY REPORT REFERENCE | LABORATORY INTERNAL DUPLICATE SAMPLE (RPD) VALUE RANGE (%) | LABORATORY CONTROL SPIKE RECOVERY RANGE (%) | MATRIX SPIKE SAMPLE RECOVERY RANGE (%) |
|------------------|--------------------------------|--|--|---|
| | EP1913499 | 0.0 - 14.5 | 46.4 - 125.0 | 71.0 - 126.0 |
| December 2019 | EP1913643 | 0.0 - 117.0 | 44.4 - 129.0 | 55.2 - 128.0 |
| 2019 | 695412-W (secondary/split) | <1.0 - 73.0 | 87.0 - 109.0 | 71.0 - 118.0 |
| | EP2000814 | 0.0-65.2 | 34.0 - 126.0 | 51.3 - 128.0 |
| January 2020 | EP2000762 | 0.0 - 51.8 | 46.7 – 128.0 | 56.0 - 128.0 |
| | 698442-W (secondary/split) | <1.0-83.0 | 75.0 - 118.0 | 50.0 - 130.0 |
| | EP2001737 | 0.0 - 93.3 | 57.6 - 127.0 | 54.6 - 127.0 |
| February 2020 | EP2001851 | 0.0 – 57.6 | 49.5 – 128.0 | 49.0 - 130.0 |
| | 702937-W (secondary/split) | <1.0 - 16.0 | 84.0 - 125.0 | 78.0 - 112.0 |
| | EP2002914 | 0.0 - 80.0 | 60.4 - 126.0 | 75.2 – 126.0 |
| March 2020 | EP2002968 | 0.0 - 18.5 | 50.3 - 128.0 | 44.0 - 130.0 |
| | 708662-W (secondary/split) | <1.0-140.0 | 82.0 - 121.0 | 72.0 - 121.0 |
| | EP2004114 | 0.0 – 77.3 | 86.4 - 119.0 | 77.9 – 127.0 |
| April 2020 | EP2004276 | 0.0-51.0 | 79.4 – 128.0 | 77.4 – 127.0 |
| | 715089-W (secondary/split) | <1.0-29.0 | 87.0 - 115.0 | 78.0 - 107.0 |
| | EP2005242 | 0.0 - 22.8 | 87.1 - 119.0 | 90.9 - 130.0 |
| May 2020 | EP2005328 | 0.0 - 39.0 | 74.1 - 120.0 | 81.5 - 118.0 |
| | 720880-W (secondary/split) | <1.0-12.0 | 84.0 - 117.0 | 61.0 - 115.0 |
| | EP2006304 | 0.0 - 35.0 | 83.0 - 120.0 | 82.6 - 118.0 |
| June 2020 | EP2006334 | 0.0 - 139.0 | 87.2 – 123.0 | 77.6 - 128.0 |
| | 726271-W (secondary/split) | <1.0-190.0 | 78.0 - 125.0 | 11.0 - 109.0 |
| | EP2007640 | 0.0 - 30.7 | 88.3 - 112.0 | 89.8 - 130.0 |
| July 2020 | EP2007638 | 0.0 - 29.2 | 67.3 – 124.0 | 23.5 - 129.0 |
| | EP2007769 | 0.0 - 71.7 | 93.1 - 116.0 | 78.7 - 119.0 |



| DATE | LABORATORY REPORT REFERENCE | LABORATORY INTERNAL DUPLICATE SAMPLE (RPD) VALUE RANGE (%) | LABORATORY CONTROL SPIKE RECOVERY RANGE (%) | MATRIX SPIKE SAMPLE RECOVERY RANGE (%) |
|------|--------------------------------|--|--|---|
| | EP2007909 | 0.0 - 34.7 | 90.9 - 115.0 | 88.4 - 120.0 |
| | EP2007908 | 0.0-131.0 | 81.4 - 115.0 | 68.7 - 117.0 |
| | EP2007775 | 0.0-35.1 | 74.0 - 126.0 | 45.3 - 127.0 |

The primary quality control results for groundwater and surface water presented in Appendix B are summarised below:

Laboratory duplicate recovery

All duplicate recoveries, reported as RPDs, were calculated to be within defined criteria.

Laboratory control spike recovery

All laboratory control spike (LCS) recoveries were within control limits except for the following:

- July 2020 (EP2007908): Total Kjeldahl Nitrogen as N (Recovery greater than upper control limit)
- July 2020 (EP2007909): Total Kjeldahl Nitrogen as N (Recovery greater than upper control limit)

Matrix spike recovery

Matrix spike outliers were identified for both the groundwater and surface water samples during the analysis and included the following:

- August 2019 (EP1908386): OP pesticides (malanthion and omethoate- recovery less than the lower data quality objective), nitrite and nitrate as N and glyphosate (matrix spike recovery not determined, background level greater than or equal to 4 x spike level).
- September 2019 (EP1909465): OP pesticides (bromophos-ethyl recovery less than the lower data quality objective).
- October 2019 (EP1910866): Nitrite and nitrate as N (matrix spike not determined or background level greater than or equal to 4 x spike level), OP pesticides (azinphos-ethyl and tetrachlorvinphos had recovery less than the lower data quality objective).
- October 2019 (EP1911129): Hexavalent chromium (recovery less than the lower data quality objective).
- November 2019 (EP1912183): OP pesticides (demeton-O, demeton-O and demeton-S, demeton-S, demeton-S-methyl, disulfoton, fenamiphos, fenthion, phorate, sulprofos, temephos, terbufos all reported a recovery less than the lower data quality objective).
- December 2019 (EP1913499): OP pesticides (phorate recovery less than the lower data quality objective).
- January 2020 (EP2000814): Ammonia as N and nitrite plus nitrate as N (NOx) (matrix spike recovery not determined or background level greater than or equal to 4 x spike level), OP pesticides (fenchlorphos (ronnel) recovery less than the lower data quality objective).
- January 2020 (EP2000762): OP pesticides (azinphos-ethyl recovery less than the lower data quality objective).
- February 2020 (EP2001737): OP pesticides (diazinon) (matrix spike recovery not determined, background level greater than or equal to 4 x spike level).



- February 2020 (EP2001851): OP pesticides (disulfoton) (recovery less than the lower data quality objective).
- March 2020 (EP2002968): OP pesticides (demeton-s-methyl recovery less than the lower data quality objective).
- March 2020 (EP2002914): OP pesticides (ethion recovery less than the lower data quality objective).
- April 2020 (EP2004114): Nitrite and nitrate as N (matrix spike not determined or background level greater than or equal to 4 x spike level)
- April 2020 (EP2004276): Sulfate (turbidimetric) as SO_4 and chloride (matrix spike recovery not determined or background level greater than or equal to 4 x spike level)
- May 2020 (EP2005242): Manganese (matrix spike recovery not determined or background level greater than or equal to 4 x spike level)
- June 2020 (EP2006334): Dissolved metals (cadmium, zinc and manganese) (matrix spike recovery not determined or background level greater than or equal to 4 x spike level)
- July 2020 (EP2007638): OP pesticides (azinphos-ethyl and parathion) recovery less than the lower data quality objective).

Analytes for which the matrix spike recovery data were reported as greater than or equal to four times spike level have the possibility exists that higher than expected concentrations have been reported. However, given the concentrations were all reported below the adopted guidelines or, at or below the LOR, it is unlikely that the matrix spike results will impact the conclusions of this report.

For analytes that reported recovery less than the lower data quality objective (OP pesticides and hexavalent chromium), concentrations were all reported below the LOR and therefore should not impact on the conclusions of this report.

Method blanks

There were no method blank outliers identified.

Holding times

Minor holding time exceedances to laboratory defined criteria for extraction/preparation as well as analysis were noted in laboratory reports for various groundwater and surface water samples across the 12 monitoring events.

- August 2019 (EP1908386 and EP1908496): three exceedances for extraction/preparation (1 day) and six exceedances for analysis of pH, BTEXN, OP pesticides and hydrocarbons in total (1 5 days).
- September 2019 (EP1909465 and EP1909602): two exceedances for analysis of pH (2 6 days).
- October 2019 (EP1910866, EP1910998 and EP1911129): four exceedances for analysis of pH and OP pesticides in total. (1 9 days)
- November 2019 (EP1912183 and EP1912321): three exceedances for analysis of pH and OP pesticides in total. (1 – 12 days)
- December 2019 (EP1913499 and EP1913643): four exceedances for analysis of pH, alkalinity and OP pesticides in total. (1 16 days)
- January 2020 (EP2000814 and EP2000762): two exceedances for analysis of pH, OP pesticides and reactive phosphorus as P in total. (1 6 days)
- February 2020 (EP2001737 and EP2001851): five exceedances for analysis of pH, OP pesticides, reactive phosphorus as P and sulfide as S²⁻ in total (1 9 days).
- March 2020 (EP2002968 and EP2002914): three exceedance for analysis of pH and reactive phosphorus as P in total. (1 – 8 days)



- April 2020 (EP2004114 and EP2004276): three exceedances for analysis of pH and reactive phosphorus as P in total. (3 12 days)
- May 2020 (EP2005242 and EP2005328): five exceedances for analysis of pH, reactive phosphorus as P and sulfide as S²⁻ in total. (1 – 8 days)
- June 2020 (EP2006304 and EP2006334): three exceedances for analysis of pH and reactive phosphorus as P in total. (1 8 days)
- July 2020 (EP2007638, EP2007640, EP2007769, EP2007908, EP2007909, EP2007775): six exceedances for analysis of pH in total. (4 - 8 days)

These discrepancies predominantly relate to pH, OP pesticides, reactive phosphorus as P or sulfide as S²⁻ (hydrocarbons, BTEXN and alkalinity being one off occurrences) with holding times ranging between 1 and 16 days overdue (see laboratory report results in **Error! Reference source not found.**). The majority of these exceedances ranged between 1-3 days overdue.

pH should be analysed for as soon as possible on the day the sample is collected, however due to the distance of the locations from the laboratory, this was not possible. Therefore pH was also measured while out in the field using a YSI to give a primary indication of the water quality. For analysis of reactive phosphorus as P, groundwater samples have a laboratory recommended holding time of 2 days, while for OP pesticides and sulfide as S²⁻ it is 7 days and for BTEXN and TRH it is 14 days. However, it is considered that these exceedances were marginal and are unlikely to impact the outcomes of the report.

B.5 Quality control and assurance summary

The results of the QA/QC procedures indicate that the groundwater and surface water monitoring results derived from the field, laboratory and analysis can be considered to be valid and reliable, and can be used to analyse and interpret the quality of groundwater and surface water of the sites. The majority of the found exceedances appear to be related to the low concentrations of the analytes detected within the water samples. As the concentrations between the primary and blind duplicate/split samples seem to be within the same order of magnitude or at minor concentrations, it is considered that these small differences and inconsistencies are insignificant and negligible, and are unlikely to have a major impact on the results or the outcomes of the report.



Field observations and data sheets



| Client: BORE ID: BHE9.2 | | | | | | | | | | | |
|---|------------------------|--------------|------------------|---------------------------|---------|----------------------|----------------------------|---------|--------------------|----------------------|--|
| Project: | | | | | | | | Job No. | 01010 | +[| |
| Location: | | | Casing | g diameter | : | | 50 mm | Date: | 21/08/19 | | |
| BORE CONS | TRUCTION | | | | | | | • | | | |
| | i Flush- □ ount Mon | | □ Casing only | | | leasurement Point | t D Top Casing | of PVC | Total Depth: | 8.829 m | |
| BORE DEVE | LOPMENT | | | | | | | | | | |
| Method: | | Da | ite: | | | Undertaken | By: | 1 | Vol. Removed: | L | |
| Comments (| e.g. sediment co | ontent): | , ,, | | | | | | | | |
| | | | | | | | | - | | | |
| PURGING DE | ETAILS (measur | ement poir | nts in meters | below top | o of ca | asing as indi | cated above | e) | | | |
| Method: Pe | ri-pump_ | Water Q | uality Meter | used: 🗸 | SI | Pro. | | | Undertaken B | 1: 臣 ひら | |
| Depth to wat | er: \. ૧ lÒm | Water C | olumn: | ſ | m F | Req Purge Vo |)I . ¹ : | L | Flow Rate: | L/min | |
| Presence of | | Presenc | e of DNAPL | | Т | hickness of | NAPL: | cm | Depth to NAP | L: m | |
| Pump intake: m | | | | | | | | | | | |
| PURGING MI | EASUREMENTS | 2 | | | | | I | | | 1 | |
| Vol. Purged (L) Elapsed Time (min) EC Temp. (°C) TDS (ppm mg/L) pH DO %Sat DO (ppm mg/L) Eh (mV) Water Level (m b TOC) | | | | | | | | | | | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | - | - | |
| 16 | 3 min | 1574 | 18.2 | 1022. | 83 | 5.89 | 35.6 | 3.3 | Z 113.8 | 1.90 | |
| ZL | 6 min | 1574 | 18.1 | 1023. | R | 5.86 | 32.5 | 3.0 | 5 131.0 | 1.910 | |
| SL | 9 min | 1578 | 18.1 | 1025 | .55 | 5.85 | ડા.૧ | 3.00 | 5 136.7 | 1.910 | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| Comments (| e.g. condition o | headwork | s. sheen. co | lour. odou | r. sed | liment load): | | | | | |
| · | - light l | | | | ••••• | | | shee | 2n. | | |
| ,, | 0 0 | ₩ | | | | | | | | | |
| SAMPLING D | DETAILS | | | | | Sample IE |): | | | | |
| Time: | | Vol. Remov | ved: | | L | No of Sam | ple Container | rs: | | | |
| Type of Samp | le Containers (i.e. | P = Plastic/ | G = Glass/V = | Vial, volum | ie and | i p = preserved | d/up = unpres | erved): | | | |
| Field Filtered | D | Duplicate S | Samples 🗆 | Duj | plicate | sample ID: | | | | | |
| Comments: | | | ***** | | | , | | **** | | | |
| | - | | | | | | | | | | |
| CoC Nun Bores to b | | H. T and FC | | cked by: se or a minin | num of | 3 to 5 times the | water column | Date: | ater column volume | es can be calculated | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



| Client: | | | | | | | | | | | |
|---|-----------------------|----------------|-------------------|------------------|-------|--------------------|-------------------|---------------|---------|--------------|--------------------------|
| Project: | | | | | | | | Job No. | : 6 | 137041 | |
| Location: | | | Casing | g diameter: | | | 50 mm | Date: | 20 | 108/19 | |
| BORE CONS | TRUCTION | | | | | | | | | | |
| |]Flush- □ ount Mon | | □ Casing only | Locked | | easurement pint | t □ Top Casing | of PVC | Тс | otal Depth: | 5.155 m |
| BORE DEVE | LOPMENT | | | | | | | | | | |
| Method: | | Da | ite: | | l | Undertaken | By: | · · | Vol. R | emoved: | L |
| Comments (| e.g. sediment c | ontent): | | | | | | | | | |
| | | | | | | | | | | | |
| PURGING DE | ETAILS (measu | rement poir | nts in meters | below top of | fcas | sing as indi | cated abov | e) | | | |
| Method: Per-pump Water Quality Meter used: 151 PrD. Undertaken By: EE/10 | | | | | | | | | | | |
| Depth to water: 1, 9,3,5 m Water Column: m Req Purge Vol. 1: L Flow Rate: | | | | | | | | | | | |
| Presence of LNAPL Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: m | | | | | | | | | | | |
| Pump intake: m | | | | | | | | | | | |
| PURGING MI | EASUREMENTS | 5 ² | | | | | | | | | |
| Vol. Purged (L) | Elapsed Time (min) | EC (µS/cm) | Temp. (°C) | TDS (ppm mg/L | .) | pН | DO %Sat | DO (ppm[mg | /L) | Eh (mV) | Water Level (m b TOC) |
| AS 5667.11 | : : 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | - | - |
| 1L | 3 min | 1722 | 18.8 | 117.5 | 3 | 6.59 | 13.2 | 1.21 | | -23.7 | 1.975 |
| 2L | 6min | 1654 | 187 | 1073.8 | ðc | 6.64 | (0,2 | 0.94 | t | -34-4 | 1.975 |
| 3L | 9 nin. | 1607 | 18.7 | 1043 - | 72 | 6.68 | 9.0 | 0.83 | > | - 40 . 0 | 1.975 |
| 4L- | 12nin | 1575 | 18.6 | 1036.° |)) | 6.68 | 8.1 | 0.75 | 1 1 | -43.2 | 1.975 |
| 52 | 15 min | 1593 | 18.6 | 1034.8 | ร่ใ | 6.68 | 7.7 | 0.7 | 1 | -43.6 | 1.975 |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| - | e.g. condition o | | | | | | | | | | |
| no oda | pur, cl | ear y | o Ligh | t bron | vn | <u></u> | Shee | 2~, l | 0 | sel | |
| SAMPLING D | ETAILS | | | | | Sample ID |): | | | | |
| Time: Vol. Removed: L No of Sample Containers: | | | | | | | | | | | |
| Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): | | | | | | | | | | | |
| Field Filtered | D | Duplicate S | Samples 🗆 | Duplic | ate S | Sample ID: | | | | | |
| Comments: | | | | · · · · · | | | | | | | |
| | | | | | | | | | | | |
| CoC Num | - | | | cked by: | | 4. P.1 | | Date: | -4 | | |
| Boles to p | e purged dry, until j | рн, гала ЕС : | reacings stabilis | se or a minimum | 1013 | to b times the | e water column | i volumes. Wa | ater co | iumn voiumes | can be calculated |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID - 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument -specific calibration book, or in field notes as required by local procedures.



| Client: BORE ID: BH32.1 | | | | | | | | | | | | |
|--|-----------------------------|---------------|---------------------------------------|---------------------|-----------------|----------|-------------------|----------------------------------|---------|------------|------------|-------|
| Project: | | | | | | | | Job No. | | 1370 | | |
| Location: | | | Casing | j diameter: | | | 50 mm | Date: | 2 | 208 | 19 | |
| BORE CONS | STRUCTION | | | | | | | | | | | |
| |]Flush- □ nount Mor | | □ Casing only | Locked | Measur Point | ement | t □ Top Casing | of PVC | To | tal Depth: | 10-161 | m |
| BORE DEVE | LOPMENT | | | | | | | | | | | |
| Method: | | Da | ate: | | Unde | taken | By: | \ \ | /ol. Re | emoved: | | L |
| Comments (| e.g. sediment c | ontent): | | | | | | | | ***** | | |
| | | | | | | | | | | | | |
| PURGING D | ETAILS (measu | rement poi | nts in meters | below top of | casing a | s indi | cated above |) | | | | |
| Method: fe | n-pump | Water C | Juality Meter | used: ι | JSIF | 10 | | | Unde | ertaken By | : ee /D | S |
| | ter: 3 [°] . 651 m | | olumn: | m | Req Pu | rge Vo | ol. 1: | L | Flow | Rate: 14 | /3min L | /min |
| Presence of | | Present | ce of DNAPL | | Thickne | ss of | NAPL: | cm | Dept | h to NAPL | : | m |
| Pump intake | : m | | | | | | | | | | | |
| PURGING MEASUREMENTS 2 | | | | | | | | | | | | |
| Vol. Purged (L) Etapsed Time (min) EC (μS/cm) Temp. (°C) TDS (ppm mg/L) pH DO %Sat DO (ppm mg/L) Eh (mV) Water Level (m b TOC) | | | | | | | | | | | | |
| AS 5667.1 | 1: 1998 (<+/-) | 10% | 0.2°C | - | 1(|)% | 10% | 10% | | - | - | |
| 1 | 3min | 5524 | 18.4 | 3590.8 | 75 4. | 76 | 27.0 | 2.33 | | 164.1 | ~3.65 | |
| 2 | 6 min | 5527 | .18.5 | 3592. | Z g 3 (| 4.54 | 13.3 | 1.21 19 | | 195.5 | ~3.65 | |
| 3 | 9 min | 5524 | 18.5 | 3591.8 | | .49 | 908 | 0.89 | | 219.1 | ~3.65 | |
| 4 | 12 min | 55ZI | 18.5 | 3588.6 | | | 8.9 | 0.82 | | _ | ~3.63 | |
| 5 | 15 min | 5520 | 18.5 | 3587.9 | | .48 | 8.8 | 0.8 | 1 | 230.0 | ~3.6 | 5 |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Comments (| e.g. condition o | f headwork | s, sheen, col | L Iour, odour. s | ediment | load): | | | | | l <u>.</u> | |
| | toligh | | | | | | | (<u>)</u> (<u>)</u> (<u>)</u> | e d | (. | | |
| | in order | | · · · · · · · · · · · · · · · · · · · | U. CU. UU | x, | <u>/</u> | | | | • | | ••••• |
| SAMPLING I | DETAILS | | | | San | nple IC |): BHZ | 2.1 | | | | |
| Time: | | Vol. Remo | ved: | | L No c | of Sam | ple Container | s: 8 | | | | |
| Type of Samp | le Containers (i.e | . P = Plastic | /G = Glass/V = | Vial, volume a | nd p = pre | served | d/up = unpres | erved): | | | | |
| Field Filtered | | Duplicate | Samples 🛛 | Duplic | ate Sampi | e ID: | | | | | | |
| Comments: | | | | | | | | | | | | |
| CoC Nun | nber: | | Che | cked by: | | | | Date: | | | | |
| | | | 0.10 | | | | | | | | | |

Calibration details to be recorded in the instrument -specific calibration book, or in field notes as required by local procedures.



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Groundwater Monitoring – Field Sheet

| Client: | | | | | | | <u>-</u> . | |): BORK- | · · · | |
|---|------------------------|----------------|------------------|----------------|------------|--------------------|---------------|----------|----------------|----------|--|
| Project: | | | Casia | | | | E0 | Job No.: | 0.010 | | |
| Location: | | | Casing |) diameter: | | | 50 mm | Date: | 21/08/18 | U | |
| | | | | | | | | ()) () | Tatal David | | |
| |] Flush- □ ount Mon | | □ Casing only | | | easurement pint | Casing | of PVC | Total Depth: | 13.235 m | |
| BORE DEVE | LOPMENT | | | | | | | | | | |
| Method: | | Da | ite: | | | Undertaken | By: | \ \ | /ol. Removed: | L | |
| Comments (e | e.g. sediment c | ontent): | | | | | | | | | |
| | | | | • | | | | | | | |
| PURGING DE | ETAILS (measu | rement poir | nts in meters | below top o | fcas | sing as indi | cated above |) | | | |
| Method: fl | ri-pump |) Water Q | uality Meter | used: 43 | 11 | pro. | | | Undertaken By: | EEIDS. | |
| Depth to wat | er:3.985m | Water C | olumn: | m | Re | eq Purge Vo | j. 1: | L | Flow Rate: | L/min | |
| Presence of | | Presenc | e of DNAPL | | Th | nickness of | NAPL: | cm | Depth to NAPL: | : m | |
| Pump intake | : n | | | | | | | | | | |
| PURGING M | EASUREMENT | 5 ² | | | | | | | | | |
| Vol. Purged (L) Elapsed EC Temp. (°C) TDS (ppm mg/L) pH DO %Sat DO Eh (mV) Water Level (m b TOC) | | | | | | | | | | | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | - | - | |
| 1L | Smin | 3800 | 18.1 | 2462.6 | , l | 6.62 | 9.2 | 0.82 | 4 -49.8 | 3.985 | |
| 2L | 6 min | 3523 | 18.2 | 2284.5 | 56 | 6.65 | 6.7 | 0.63 | -48.0 | 3,985 | |
| SL | 9 min | | 18.2 | 2250.1 | | | | 0,50 | | 3.985 | |
| 4L | 12 min | 3403 | 18.2 | 2210.5 | ;ำ | 6.67 | 6.0 | 0.5t | o -48.1 | 3.985 | |
| | | | | | | • | | N. ** | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| Comments (e | e.g. condition o | f headwork | s, sheen, co | lour, odour, s | sedi | ment load): | | | • | | |
| SU (fin | ry odai | r, no | Sheer | , lov | J | sed, | dea | r to | Light 1 | 2 KDMIN | |
| SAMPLING D | ETAILS | | <u> </u> | <u></u> | | Sample II |): | | | | |
| Time: | | Vol. Remov | ved: | | L | No of Sam | ple Container | s: | | | |
| Type of Samp! | le Containers (i.e | . P = Plastic/ | G = Glass/V = | Vial, volume a | and p | = preserved | l/up = unpres | erved): | | | |
| Field Filtered | | Duplicate S | Samples 🗆 | Duplic | ate \$ | Sample ID: | <u></u> | F | D03 | | |
| Comments: | | | | | | | | | | | |
| CoC Num | iber: | | Che | cked by: | | | | Date: | | | |
| | | | readings stabili | | | | | | | | |

alibration quired by local procedures.



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Groundwater Monitoring – Field Sheet

| Client: | · · · | | | | | | BORE I | : FORR- | MW05 |
|--|-------------------------|------------------|--------------------|------------------|--------------------|--------------------|---------------|---------------------|--------------------------|
| Project: | | | | | | | Job No. | : 613704 | 1 |
| Location: | | | Casing | g diameter: | | 50 mm | Date: | 21/08/1 | ጓ |
| BORE CON | STRUCTION | | | | | | | | |
| | □ Flush- □ mount Mor | | □ Casing only | Locked | Measureme Point | nt □ Top Casing | of PVC | Total Depth: | 8.020 r |
| BORE DEV | ELOPMENT | | | | | | | | |
| Method: | | D | ate: | | Undertake | en By: | · · | Vol. Removed: | |
| Comments | (e.g. sediment o | ontent): | | | | | | | |
| | | | | | | | | | |
| | ETAILS (measu | rement poi | nts in meters | s below top o | f casing as in | dicated abov | e) | | |
| Method: | en-pump | Water C | Quality Meter | used: U | 1SI Pro | • | | Undertaken By | EE DS |
| Depth to wa | ater: 5,709 n | n Water C | olumn: | m | Req Purge \ | /ol. 1: | L | Flow Rate: | Ĺ/mi |
| Presence of LNAPL Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: m | | | | | | | | | |
| Pump intak | e: n | 1 | | | | | | | |
| | | S 2 | | , | | - <u> </u> | | ····· | |
| Vol. Purged (L) | Elapsed Time (min) | EC (µS/cm) | Temp. (°C) | TDS (ppm mg/L | рН .) | DO %Sat | DO (ppm mg | /L) Eh (mV) | Water Level (m b TOC) |
| AS 5667. | 11: 1998 (<+/-) | 10% | 0.2°C | - | 10% | 10% | 10% | • | • |
| 11 | 3min | 1318 | 19.8 | 855.18 | , 6.47 | 9.8 | 0.88 | -23.2 | 5,709 |
| 21_ | 6min | 1265 | 19.7 | 822.2 | 5 6.44 | 7.2 | 0.6 | 6 -34.1 | 5,709 |
| 31 | 9min | 1096 | 19.6 | 709.5 | 9 6.41 | 6.9 | 0.63 | -41.8 | 5.709 |
| 4L | 12 min | 1015 | 19.6 | 659.8 | 3 6.32 | 7.0 | 0.6 | 4 - 43.0 | 5,709 |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| Comments | e.g. condition d | l of headwork | l (s, sheen, co | lour, odour, s | sediment load | | | | |
| light | brown, | sup | iry odd | mr, no | sheer | s lov | vse | L | |
| SAMPLING | DETAILS | | | | Sample | ID: | | | |
| Time: | | Vol. Remo | ved: | | L No of Sau | nple Container | rs: | | |
| Type of Sam | ple Containers (i.e | . P ≃ Plastic | /G = Glass/V = | Vial, volume a | nd p = preserv | ed/up = unpres | served): | | |
| Field Filtered | | Duplicate | Samples 🛛 | Duplic | ate Sample ID: | | | | |
| Comments: | | | | | | | | | |
| CoC Nu | mber: | | Che | cked by: | | | Date: | | |
| Bores to | | | readings stabili | se or a minimun | | | volumes. W | ater column volumes | can be calculated |

Calibration details to be recorded in the instrument -specific calibration book, or in field notes as required by local procedures.

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| Client: | | | | | | | | | | | | |
|--|-------------------------|--------------|--------------------|------------------|-------------|--------------------|-------------------|------------|-------------|--------|-------------------|-----|
| Project: | | | | | | | | Job No.: | | | <u> </u> | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | 21/08 | 19 | | |
| BORE CONS | STRUCTION | | | | | | | | | | | |
| | ⊐ Flush- ⊡ nount Mon | | □ Casing I only | Locked | | easurement pint | : □ Top Casing | of PVC | Total D |)epth: | 1.850 | , m |
| BORE DEVE | ELOPMENT | | | | | | | | | | | |
| Method: | | Da | te: | | (| Undertaken | Ву: | 1 | /ol. Remo | ved: | | L |
| Comments | (e.g. sediment co | ontent): | | | , | / | | | | | | |
| | | | | | | | | | | | | |
| PURGING D | ETAILS (measur | ement poir | nts in meters | below top of | f cas | sing as indi | cated above |) | | | | |
| Method: p | ri-pump | Water Q | uality Meter | used: VS | r t | Y0. | | | Undertal | ken By | : EE DS | |
| Depth to wa | iter: 5.341 m | Water C | olumn: | m | Re | eq Purge Vo | ol. 1: | L | Flow Rat | te: | L/ | min |
| Presence of | | Presence | e of DNAPL | | Th | ickness of | NAPL: | cm | Depth to | NAPL | : | m |
| Pump intake: m | | | | | | | | | | | | |
| PURGING M | EASUREMENTS | 2 | <u> </u> | | | | | | | | | |
| Vol. Purged (L) Elapsed Time (min) EC (µS/cm) Temp. (°C) TDS (ppm]mg/L) pH DO %Sat DO (ppm]mg/L) Eh (mV) Water Level (m b TOC) | | | | | | | | | | | | |
| AS 5667.1 | 1: 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | • | - | |
| 1L | 3 min | 906 | 19.3 | 588.9 | 5 | 6.94 | 6.7 | 0.6 | ~ | 18.5 | 5.341 | |
| 2L_ | 6min | 1035 | 19.4 | 673.C |) | 7.19 | 5.4 | 0.5 | | ∄2.1 | 5.341 | |
| 3L | 9 min | 904 | 19.3 | 584. | 16 | 7.00 | 6.0 | 0,5" | | | 5.341 | |
| 4L | 12min | 756 | 19.3 | 485.1 | | | 8.7 | 0.8 | | 5.3 | | |
| 51 | 15min | | 19.1 | 352.1 | | | 15.4 | 1.4 | - | 7.4 | | |
| 61 | 18min | 501.0 | 19.1 | 372.8 | 0 | 6.26 | 16.0 | 1.4 | 7 -18 | 8.9 | 5.34 | ţ١ |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | (e.g. condition o | | | | | | | | | | | |
| Orgai | nic oda | ur, | dear u | jellon | <u>v</u> ., | 4000 (c | wse | یہ ہے | s she | en | | |
| SAMPLING | DETAILS | | | | | Sample II |): [\] | | | i. | | |
| Time: | | Vol. Remo | ved: | | L | No of Sam | ple Container | 's: | | | | |
| Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): | | | | | | | | | | | | |
| Field Filtered | | Duplicate | Samples 🛛 | Duplic | cate (| Sample ID: | | | | | | |
| Comments: | | | | | | | | | | | | |
| | | | | | | ··- | | | | | | |
| CoC Nu | | | | cked by: | | | | Date: | | | | |
| Bores to | be purged dry, until | pH, T and EC | readings stabili | ise or a minimur | m of 3 | 3 to 5 times th | e water column | volumes. W | ater column | volume | s can be calculat | ted |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID - 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument -specific calibration book, or in field notes as required by local procedures.

2



| Project: Job No: G37041 Location: Casing diameter: 50 mm Date: J2[05[19] BORE CONSTRUCTION Interment only Date: J0100000000000000000000000000000000000 | Client: BORE ID: MUDI BORR _MNOT | | | | | | | | | | | |
|---|----------------------------------|---|-------------|---------------|----------------|-----------|-------------|---------------------------------------|-------------|---|--------------------|------------|
| BORE CONSTRUCTION Head- works Impaint Impa | Project: | ······································ | | | | | | | Job No. | : 613 | 57041 | |
| Head- works Impount Impount <td>Location:</td> <td></td> <td></td> <td>Casing</td> <td>g diameter:</td> <td></td> <td></td> <td>50 mm</td> <td>Date:</td> <td>2210</td> <td>08/19</td> <td></td> | Location: | | | Casing | g diameter: | | | 50 mm | Date: | 2210 | 08/19 | |
| works mount Monument only Peint Casing BORE DEVELOPMENT | BORE CON | ISTRUCTION | | | | | | | | | | |
| Method: Date: Undertaken By: Vol. Removed: L Comments (e.g. sediment content): - | | | | • | Locked | | | | | Total | Depth: | 11.578m |
| Comments (e.g. sediment content): PURGING DETAILS (measurement points in meters below top of casing as indicated above) Method: POMETAILS (measurement points in meters below top of casing as indicated above) Method: POMETAILS (measurement points in meters below top of casing as indicated above) Method: POMETAILS (measurement points in meters below top of casing as indicated above) Method: POMETAILS (measurement points in meters below top of casing as indicated above) Method: POMETAILS (measurement points in meters below top of casing as indicated above) Method: POMETAILS (measurement points in meters below top of casing as indicated above) Method: POMETAILS (measurement points in meters below top of casing as indicated above) Method: POMETAILS (measurement points in meters below top of casing as indicated above) Pump intake: m PURGING MEASUREMENTS ? Presence of INAPL Vol. Purged Elapsed EC Temp. (*C) TDS (i) IDS:mingli, pH D0 %Sat MEXEMPTION 0% 0.2*C 10% Atter Server (i) 10% 10% 10% Atter Server (i) 10% 10% 10% A | BORE DEV | ELOPMENT | | | | | | | | | | |
| PURGING DETAILS (measurement points in meters below top of casing as indicated above) Method: | Method: | | Da | te: | | l | Jndertaken | By: | 1 | Vol. Rem | oved: | L |
| Method: Water Quality Meter used: \(\S\) Pro Undertaken By: EE/INS Depth to water: 9.99 m Water Column: m Req Purge Vol. 1: L Flow Rate: LImin Presence of INAPL Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: m Pump intake: m m Putro (users) pH D0 %Sat Do (ppmingrL) Eh (mV) Water Level (m b TOC) AS \$567.11: 1999 (c+h) 10% 0.2.*C 10% 10% . . 14 3rourn 12.15 T.S. 1 786.72 6.12 42.8 44.04 48.1 9.999 2L 6rourn 1059 T.T. 7 687.75 6.13 47.2 4.64 53.5 9.999 3L 9roup 18.9 6.66 41 6.70 56.3 5.22 105.4 - 15 18.9 6.66 41 6.70 56.3 5.22 105.4 - 16 10 10 10 10 10 10 10 10 17 | Comments | (e.g. sediment c | ontent): | | | | | | | | | |
| Method: Water Quality Meter used: \(\S\) (P\D Undertaken By: EE/IS Depth to water: 9.99 m Water Column: m Req Purge Vol. 1: L Flow Rate: LImin Presence of LNAPL Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: m Pump intake: m m PURGING MEASUREMENTS? PH D0 %Sat D0 (ppm mg/L) Eh (mV) Water Level (m b TOC) As 5657.11: 10% 0.2.*C 10% 10% 0.4 - - As 5657.11: 10% 0.2.*C 10% 10% 10% . - As 5657.11: 10% 0.2.*C 10% 10% 10% . . As 5657.11: 10% 0.2.*C 10% 10% 10% . . As 567.11: 10% 0.2.*C 10% 10% 10% . . . As 567.11: 10% 0.2.*C 10% 10% 10% . . . As 567.11: 10% 0.2.*C 10% 10% | | • | | | | | | | | | | |
| Method: I/I/A I/I/I/A <thi a<="" i="" th=""> <thi a<="" i="" th=""></thi></thi> | PURGING [| DETAILS (measu | rement poin | nts in meters | below top of | fcas | ing as indi | cated above | e) | | | |
| Depth to water: 9 9 m Req Purge Vol. 1: L Flow Rate: L/min Presence of LNAPL Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: m Pump intake: m Purgel Elapsed (L) EC Temp. (°C) TDS (ppm/ing/L) pH D0 %Sat DO (ppm/ing/L) Eh (mV) Water Level (m & TOC) AS 5667.11: 1998 (rH) 10% 0.2*C 10% 10% 0.4 - - -11- 2 7 15 15 1 7 866.72 6.12 42 4.04 48 9 9 - -14- 2 7 16 1 7 867.75 6.13 47.2 4.64 53.5 9 9.99 - -14- 2 7 10% 10% 10% 10% 10% 10% 10% 10% 10% 10% 10% 10% 10% 10% 10% 10% 10% 10 | Method: 🖟 | WA GUNT | Water Q | uality Meter | used: | V | ISI Pro |). | | Underta | aken By: | EE/DS |
| Pump intake: m PURGING MEASUREMENTS 2 Vol. Purged Elapsed (L) EC (µs/ming/L) Temp. (°C) TDS (ppm[mg/L) pH D0 %Sat D0 (ppm[mg/L) Eh (mV) Water Level (m b TOC) AS 567.11: 1998 (*/-) 10% 0.2 °C 10% 10% 10% . -1 3 name TE .1 7 8/6 7/2 6.12 42.8 44.04 48.1 9.999 -2L 6 ncin 10591 TF.7 6 87.76 6.13 49.7 4.64 53.5 9.999 -2L 6 ncin 10591 TF.7 6 87.76 6.13 49.7 4.64 53.5 9.999 -2L 6 ncin 10591 TF.7 6 87.76 6.13 49.7 4.64 53.5 9.999 -2L 6 ncin 10591 TF.7 6 87.76 5.72 105.4 - - 1/2 1/2 1/2 1/2 1/2 1/2 1/2 1/2 - 1/2 1/2 1/2 1/2 1/2 1/2 1/2 1/2 1/2 | | | | olumn: | m | Re | q Purge Vo | ol. 1: | L | Flow R | ate: | L/min |
| PURGING MEASUREMENTS ? Vol. Purged (L) Elapsed Time (min) EC (µS/cm) Temp. (°C) TDS (ppm/mg/L) pH D0 %Sat D0 (ppm/mg/L) Eh (mV) Water Level (m b TOC) AS 5667.11: 1998 (*/-) 10% 0.2°C 10% 10% 10% - AL 3 recent 12.1° T.S.1 78.6-72 6.12 42-8 41-0.44 48.1 9.999 2L 6 min 10% 1.7.7 6.87.76 6.13 49.2 4.64 53.5 9.999 3L 9 min 0 56.3 5.22 10.5.4 - - 18% An 9.33 18.9 6.66.41 6.70 56.3 5.22 10.5.4 - - 18% An 9.33 18.9 6.66.41 6.70 56.3 5.22 10.5.4 - - 18% An 9.33 18.9 6.66.41 6.70 56.73 5.22 10.5.4 - - 18% An 9.33 18.9 6.66.41 6.70 50.7 50.7 10.5.4 - Comm | Presence o | f LNAPL | Presenc | e of DNAPL | | Th | ickness of | NAPL: | cm | Depth t | o NAPL: | . m |
| Vol. Purged (L) Elapsed Time (min) EC (µS/cm) Temp. (°C) TDS (ppm/mg/L) pH DO %Sat DO (ppm/mg/L) Eh (mV) Water Level (m b TOC) AS 5667.11: 1998 («H-) 10% 0.2 °C 10% 10% 10% . . IL 3 runn 12.15 TS.1 786.72 6.12 42.8 4.044 48.1 9.999 IL 6 runn 1059 IT.7 687.76 6.13 47.2 4.64 53.5 9.999 IL 6 runn 1059 IT.7 687.76 6.13 47.2 4.64 53.5 9.999 IL 6 runn 1059 IT.7 687.76 6.73 47.2 4.64 53.5 9.999 IL 6 runn 1059 IT.7 686.41 6.20 56.3 5.22 10.5.4 - IL IL <td>Pump intal</td> <td>ke: m</td> <td>1</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> | Pump intal | ke: m | 1 | | | | | | | | | |
| (L) Time (min) (µS/cm) (ppm mg/L) (ppm mg/L) (m b TOC) AS 5667.11: 1998 (<+!.) | PURGING I | MEASUREMENTS | S 2 | | | • | | | | | | |
| 1L 3rain 12.13 18.1 786.72 6.12 42.8 4.04 48.1 9.999 2L 6min 1059 17.7 687.76 6.13 49.2 4.64 53.5 9.999 3L 9min - - 1059 17.7 687.76 6.13 49.2 4.64 53.5 9.999 - 1059 17.7 687.76 6.13 49.2 4.64 53.5 9.999 - 1050 17.7 687.76 6.12 49.2 4.64 53.5 9.999 - 1050 933 18.9 606.41 6.20 56.3 5.22 105.4 - - 1050 933 18.9 606.41 6.20 56.3 5.22 105.4 - - 1050 18.9 606.41 6.20 56.3 5.22 105.4 - - 1050 18.9 600.7 90.7 10.7 10.7 10.7 Comments (e.g. condition of headworks, sheen, colour, odour, sediment load): 400.7 90.7< | | | | | | | | | | | | |
| 21 6min 1059 17.7 687.76 6.13 29.2 4.64 53.5 9.999 31 9min - 18.9 666.41 6.20 56.3 5.22 105.4 - - 18.4 933 18.9 666.41 6.20 56.3 5.22 105.4 - - 18.4 933 18.9 666.41 6.20 56.3 5.22 105.4 - - 18.4 933 18.9 666.41 6.20 56.3 5.22 105.4 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - | AS 5667. | .11: 1998 (<+/-) | 10% | 0.2°C | | | 10% | 10% | 10% | | • | - |
| 21 6min 1059 17.7 687.76 6.13 49.2 4.64 53.5 9.999 31 9min - 189.4 933 18.9 666.41 6.20 56.3 5.22 105.4 - - 189.4 933 18.9 666.41 6.20 56.3 5.22 105.4 - - 189.4 933 18.9 666.41 6.20 56.3 5.22 105.4 - - 189.4 933 18.9 666.41 6.20 56.3 5.22 105.4 - - - - - - - - - - - - - - - - - - - - - <td>-11-</td> <td>- 3 min</td> <td>1213</td> <td>18.1</td> <td>786.7</td> <td>2</td> <td>-6.12</td> <td>42-8</td> <td colspan="2">4.04</td> <td>18.1</td> <td>- 9,999</td> | -11- | - 3 min | 1213 | 18.1 | 786.7 | 2 | -6.12 | 42-8 | 4.04 | | 18.1 | - 9,999 |
| - 1897 An 933 18.9 606.41 6.20 56.3 5.22 105.4 - - | -21- | | 1059 | 17.7 | 687.71 | 6 | 6.13 | 49.2 | -4.6 | 4-5 | 3.5 | 9.999 |
| Image: | 36 | Annia | | | ļ | | | | | | | |
| SAMPLING DETAILS Sample ID: Time: Vol. Removed: L No of Sample Containers: Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): Preserved/up = unpreserved): | | 1855 m | 933 | 18.9 | 666.2 | <u>+1</u> | 6.20 | 56.3 | 5.2 | 2 10 | 25.4 | |
| SAMPLING DETAILS Sample ID: Time: Vol. Removed: L No of Sample Containers: Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): Preserved/up = unpreserved): | | | | | | | | | | | | |
| SAMPLING DETAILS Sample ID: Time: Vol. Removed: L No of Sample Containers: Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): Preserved/up = unpreserved): | | | | | | | | | | | | |
| SAMPLING DETAILS Sample ID: Time: Vol. Removed: L No of Sample Containers: Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): Preserved/up = unpreserved): | | | | | • | | | · · · · · · · · · · · · · · · · · · · | | | | |
| SAMPLING DETAILS Sample ID: Time: Vol. Removed: L No of Sample Containers: Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): Preserved/up = unpreserved): | Comments | e.g. condition o | f headwork | s, sheen, co | lour, odour. s | sedir | ment load): | - red | Wy Wyrec | har | PV~ | -+e |
| SAMPLING DETAILS Sample ID: Time: Vol. Removed: L No of Sample Containers: Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): Preserved/up = unpreserved): | | | | | - — P | 70 | Ílen in | 10 h - | n .ik | | <u>}~</u> }\\!N | Junia d |
| SAMPLING DETAILS Sample ID: Time: Vol. Removed: L No of Sample Containers: Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): Preserved/up = unpreserved): | | 19-1 1 | | | :łi. | <u> </u> | | <u> </u> | S)~00A | | o odr | <u>+~.</u> |
| Time: Vol. Removed: L No of Sample Containers: Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): Preserved/up = unpreserved): | SAMPLING | DETAILS | | | | - | | | | <u>, , , , , , , , , , , , , , , , , , , </u> | | |
| Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): | | | Vol. Remov | ved: | | L | • | | rs: | | | |
| Field Filtered Duplicate Samples Duplicate Sample ID: | Type of Sam | Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): | | | | | | | | | | |
| | Field Filtered | d 🗆 | Duplicate S | Samples 🗆 | Duplic | ate S | Sample ID: | | | | | |
| Comments: | Comments | : | I,, | | I | | - | | | | | |
| | | | | | | | | | | | | |
| CoC Number: Date: Bores to be purged dry, until pH, T and EC readings stabilise or a minimum of 3 to 5 times the water column volumes. Water column volumes can be calculated | | | | | | | | | | | | |

from the following casing volumes per unit length: 40 mm ID - 1 μ m; 50 mm ID - 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



| Client: | | | | | | | | | | | | |
|--|-----------------------|--------------|-------------------|-----------------|--------|-------------------|-------------------|------------|----------|--------------|---------------------|--|
| Project: | | | | | | | | Job No.: | $-\phi$ | 13704 | | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | 22 | 208/19 | ት. | |
| BORE CONS | TRUCTION | | | | | | | | | | | |
| | Flush- □ ount Monu | | l Casing I nly | Locked | | easurement int | t □ Top Casing | of PVC | То | tal Depth: | 5.734 m | |
| BORE DEVEL | OPMENT | | | | | | | | | | | |
| Method: | | Da | te: | | ι | Jndertaken | By: | ١ | /ol. R | emoved: | L | |
| Comments (e | e.g. sediment co | ontent): | | | | | | | | | | |
| | | | | | | | | | | | | |
| PURGING DETAILS (measurement points in meters below top of casing as indicated above) | | | | | | | | | | | | |
| Method: f.en-pump Water Quality Meter used: YSI Pro . Undertaken By: EE IDS | | | | | | | | | | | | |
| Depth to wat | er: 2.189 m | Water Co | olumn: | m | Re | q Purge Vo | ol. 1: | L | Flow | v Rate: | L/min | |
| Presence of I | | Presenc | e of DNAPL | | Th | ickness of | NAPL: | cm | Dept | th to NAPL | m | |
| Pump intake: | Pump intake: m | | | | | | | | | | | |
| PURGING MEASUREMENTS ² | | | | | | | | | | | | |
| Vol. Purged (L) Elapsed Time (min) EC (μS/cm) Temp. (°C) TDS (ppm]mg/L) pH DO %Sat (ppm]mg/L) DO (ppm]mg/L) Eh (mV) Water Level (m b TOC) | | | | | | | | | | | | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | | - | |
| ١ | 3min | 633 | 18.Z | 411_14 | 8 | 5.86 | 25.1 | 2.3 | 4 | 53.8 | ~2.19 | |
| 2 | 6 min | 627 | 18.1 | 407.6 | ,93 | 5.13 | 11.0 | 1.02 | - | 47.8 | ~2.19 | |
| 3 | 9 min | 625 | 18.1 | 406.4 | 79 | 15.71 | 9.0 | 0.84 | | 45.4 | ~2.19 | |
| 4 | 12 min | 626 | 18.0 | 406.9 | 025 | 57.70 | 8 . z | 0.7 | 7 | 43.7 | ~2.19 | |
| 5 | 15min | 626 | 18.0 | 4 06.9 | 43 | 5.70 | 7.9 | 0.79 | 5 | 43.5 | ~2.19 | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Comments (e | e.g. condition of | headwork | s, sheen, col | our, odour, s | edir | nent load): | للعه | v - brow | <u>n</u> | sulfur u | , dour, no | |
| | | | | sh | eer | n lou | ~ sed | • | | | | |
| | | - | | | | | | | | | | |
| SAMPLING D | ETAILS | _ | | | | Sample ID |): | | | | | |
| Time: Vol. Removed: L No of Sample Containers: | | | | | | | | | | | | |
| Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): | | | | | | | | | | | | |
| Field Filtered | | Duplicate S | amples 🛛 | Duplic | ate S | Sample ID: | | | | | | |
| Comments: | I | | | · | | | | | | | | |
| | | | | | | | | | | | | |
| CoC Num | | | | cked by: | | | | Date: | | | | |
| Roree to be | e purged dry, until p | NH Tand FC I | eadings stabili | se or a minimun | 1 of 3 | to 5 times the | e water column | volumes, W | ater co | iumn volumes | s can de calculated | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID - 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



| Client: | | | | | | | | BORE I |): <u></u> { | BORK- | MNO | i |
|--|-------------------------------|----------------|-------------------|----------------|-------------|-----------------|-----------------|------------------------|--------------|-------------|----------------|-----------|
| Project: | | | | | | | | Job No.: | | 01370 | | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | 2 | 2/081 | 19 | |
| BORE CONS | TRUCTION | | _ | | | | | | - | | | |
| | l Flush- □ ount Mon | | ⊐ Casing I nly | Locked | Mea Poir | asurement nt | □ Top Casing | of PVC | To | tal Depth: | 5.319 | m |
| BORE DEVE | LOPMENT | | | | | | | | | | | |
| Method: | | Da | te: | | Ur | ndertaken | By: | <u>'</u> | Vol. R | emoved: | | L |
| Comments (e | e.g. sediment c | ontent): | | | | | | | | | | |
| | | | | | | | | | | | | |
| PURGING DE | ETAILS (measu | ement poir | nts in meters | below top of | f casir | ng as indi | cated above | e) | | | | |
| Method: f | en-puny | Water Q | uality Meter | used: | YS | si Pro | - | | Und | ertaken By: | EE /DS | : S · |
| Depth to wat | er: 3,256m | Water C | olumn: | m | Req | Purge Vo | ol. 1: | L | Flov | v Rate: | L | /min |
| Presence of | LNAPL | Presenc | e of DNAPL | | Thic | ckness of | NAPL: | cm | Dep | th to NAPL: | | m |
| Pump intake: m | | | | | | | | | | | | |
| PURGING MI | EASUREMENTS | 2 | | | | | | | | | | |
| Vol. Purged (L) Elapsed Time (min) EC (μS/cm) Temp. (°C) TDS (ppm mg/L) pH DO %Sat DO (ppm mg/L) Eh (mV) Water Level (m b TOC) | | | | | | | | | | | | |
| AS 5667.11 | 1: 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | - | • | |
| 11 | 3 min | 533 | 18.2 | 345.4 | ہ م | 5.86 | 28.4 | 2.67 135.5 | | 135.5 | 3.35 | ,6 |
| 26 | 6 min | 444.1 | 18.1 | 288.4 | 3 ' | 5.66 | 37.0 | 3.51 | | 142.4 | 3.35 | 6. |
| 3L | 9min | 419.1 | 18.1 | 270.9 | 3 | 5.64 | 38.7 | 3.6 | 6 | 146.7 | | 0 |
| 4L | 12 min | 402.1 | 18.0 | 262.4 | | 5.61 | 41.0 | 3.88 | \$ | \$152.8 | | |
| 51 | 15 min | 403.7 | 18.0 | 262.5 | 8 | 5.61 | 40.1 | 3,80 | 0 | 157.6 | 8.35 | <u>,6</u> |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Comments (| e.g. condition o | f headwork | s, sheen, col | lour, odour, s | sedim | ient load): | | | | | | , |
| c(eur | nesh | en, | low to | KO SL | _d_ | <u>, ho</u> | odan | | | | | |
| SAMPLING [| DETAILS | | · | | | Sample IC |): | | | | | |
| Time: | | Vol. Remov | ved: | | L | No of Sam | ple Containe | rs: r | <u>.</u> | | | |
| Type of Samp | le Containers (i.e | . P = Plastic/ | G = Glass/V = | Vial, volume a | and p = | = preserved | d/up = unpre: | served): | | | | |
| Field Filtered | | Duplicate | Samples 🗆 | Duplic | ate Sa | ampie ID: | | | | | | |
| Comments: | | | | | | - | | | | | | - |
| | | | | | | | | | | | | |
| CoC Nur | nber: De purged dry, until | nH T and EC | | cked by: | n of 2 t | o 5 times the | e water colum | Date: | later co | lumn volume | can be calcula | ated |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID - 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument --specific calibration book, or in field notes as required by local procedures.



| Client: | | | | | | | | BORE II | D: P | Jokf. | MNIO | |
|--|--------------------------------|--------------|------------------|--------------|-----------|--------------------|-------------------|----------|---------------|--------------------|---------|-----|
| Project: | | | | | | | | Job No. | ;; (| 61370 | 41 | |
| Location: | | | Casing | g diameter: | | | 50 mm | Date: | 2. | 21081 | 19 | |
| BORE CONS | TRUCTION | | | | | | | | | | | |
| |] Flush- 🛛 ount Mon | | □ Casing only | | | easurement pint | t □ Top Casing | of PVC | To | otal Depth: 3.9 | 45 | m |
| BORE DEVE | LOPMENT | | | | | | | | | | | |
| Method: | - | Da | ite: | | | Undertaken | By: | | Vol. R | lemoved: | | L |
| Comments (| e.g. sediment co | ontent): | | | | | | | | | | |
| | | | | | | | | | | | | |
| PURGING DI | ETAILS (measur | ement poi | nts in meters | below top o | of cas | sing as indi | cated abov | e) | | | | |
| Method: Pe | n-pump | Water C | uality Meter | used: L | <u>IS</u> | 1 Pro | | : | Und | lertaken By | : EE105 | 5 |
| | er: 1.36 (m | Water C | olumn: | | Re | eq Purge Vo | ol. 1: | L | Flov | w Rate: | L/m | ιin |
| Presence of LNAPL D Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: m | | | | | | | | | | | | |
| Pump intake: m | | | | | | | | | | | | |
| PURGING MI | EASUREMENTS | 2 | | | • | | | | • | | | |
| Vol. Purged (L) Elapsed Time (min) EC (μS/cm) Temp. (°C) TDS (ppm mg/L) pH DO %Sat DO (ppm mg/L) Eh (mV) Water Level (m b TOC) | | | | | | | | | | | | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | | - | |
| 1L | 3 min | 747 | 16.9 | 485.3 | 6 | 5.78 | 13.2 | 1,25 | 1.25 8.3 1.30 | | 1.361 | |
| 2L | 6min | 734 | 16.6 | 476.7 | 5 | 5.76 | 8.2 | 0.7 | 1 | 7.8 | 1.361 | |
| 3L | 9nin | 698 | 16.5 | 441. | p | 5.73 | 7.1 | 0.6 | 9 | 12.0 | 1.361 | |
| 4L | 12 nuin | 631 | 16.4 | 407. | 2าิ | 5.72 | 6.8 | 06 | 7 | 13.8 | 1.361 | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Comments (| e.g. condition o | headwork | s, sheen, co | lour, odour, | sedi | ment load): | | | | | | |
| sligh | thy nil | Ky, | no ets | heen, | 0 | slight | organ | icod | on. | () (OV | v sed. | |
| SAMPLING [| DETAILS | | | | | Sample II | D: | | | | | |
| Time: | | Vol. Remo | ved: | | L | No of Sam | ple Containe | rs: & | | | | |
| Type of Samp | le Containers (i.e. | P = Plastic | G = Glass/V = | Vial, volume | and | p = preserved | d/up = unpre | served): | | | | |
| Field Filtered | | Duplicate \$ | Samples 🗆 | Dupli | cate | Sample ID: | | | | | | |
| Comments: | | | | | | | | | | | | |
| | | <u></u> | | | | | | | | | | |
| CoC Nun | nber: e purged dry, until (| | | cked by: | | | | Date: | | | | |

from the following casing volumes per unit length: 40 mm iD - 1 L/m; 50 mm iD - 2 L/m; 100 mm iD 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



Groundwater Monitoring – Field Sheet

| Client: BORE ID: LORR MW U | | | | | | | | | | | | |
|--|------------------------|---------------|------------------|--|----------------|--------------------|-------------------|----------|----------|---------------------------------------|----------|-----|
| Project: | | | | | | | | Job No.: | ~ | (370 | | |
| Location: | | | Casing | diameter: | | <u>.</u> | 50 mm | Date: | 21 | 10811 | ዓ | |
| BORE CONS | TRUCTION | | | | | | | • | | · · · · · · · · · · · · · · · · · · · | | |
| | I Flush- □ ount Mon | | □ Casing only | | | easurement oint | t D Top Casing | of PVC | Total | Depth: | 3.979 | m |
| BORE DEVE | LOPMENT | | | | | | _ | | | | | |
| Method: | | Da | ite: | | | Undertaken | By: | ١ | /ol. Rem | noved: | | L |
| Comments (e | e.g. sediment co | ontent): | | | | | | | | | | |
| | | | | | | | | | | | | |
| PURGING DE | TAILS (measur | ement poir | nts in meters | below top o | of ca | sing as indi | cated above |) | | | | |
| Method: | 1.251 | | uality Meter | used: | | | | | Undert | aken By | : EE /IX | > |
| Depth to wat | er: 61.049m | Water C | olumn: | m | Re | eq Purge Vo | ol. 1: | L | Flow R | ate: | Ľ | min |
| Presence of | | Presence | e of DNAPL | | T | nickness of | NAPL: | cm | Depth | to NAPL | : | m |
| Pump intake | : m | | | | | | | | | | | |
| PURGING MEASUREMENTS ² | | | | | | | | | | | | |
| Vol. Purged (L) Elapsed Time (min) EC (μS/cm) Temp. (°C) TDS (ppm mg/L) pH DO %Sat DO (ppm mg/L) Eh (mV) Water Level (m b TOC) | | | | | | | | | | | | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | - | • | |
| 1L | Bruin | 4814 | 17.1 | 3123.° | 18 | 6.80 | 10.4 | 0.9 | 6 1 | (.3 | 1.251 | |
| 21 | 6min | 4703 | 17.0 | 3048. | | | 8.4 | 0.7 | ן ן | 2.4 | 1.25 | } |
| 3L | 9 nuin | 4 5 65 | 16.9 | 32949 | - | | 7.6 | 0.F | 2 1 | 8.1 | 1.251 | |
| 4L | 12min | 4308 | 9.91 | 2790 | . R | 6.89 | 7.7 | 0.2 | 15 2 | 28.4 | 1.251 | |
| 5L | 15mjn | 3982 | 16.4 | 258. | 25 | 6.90 | 16.2 | 0.99 | 1 2 | 41.4 | 1.251 | |
| 61 | 18min | 393A | 16.3 | 2552 | . H- | 6.90 | 11.0 | 1.0- | 7 4 | 5 .4 | 1.251 | |
| | | | | | | | | | | | | |
| 0 | | (b | | | 1* | | | | | | | |
| | e.g. condition of | | | ······································ | | | | | | | | |
| Light k | stown . | no od | our, v | e She | h | 160 | v Sld | | | | | |
| SAMPLING D | ETAILS | | | _ | | Sample ([|): | | | | | |
| Time: | | Vol. Remo | ved: | | L | No of Sam | ple Container | s: | | | | |
| Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): | | | | | | | | | | | | |
| Field Filtered | | Duplicate S | Samples 🛛 | Dupli | cate | Sample ID: | | | | | | |
| Comments: | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| CoC Number: Checked by: Date: | | | | | | | | | | | | |

Calibration details to be recorded in the instrument -specific calibration book, or in field notes as required by local procedures.



| Client: | | | | | | | | | | | |
|--|---|-------------|-------------------|---------------|----------|--------------------|----------------------------|------------|----------|--------------|-------------------|
| Project: | | | | | | | <u> </u> | Job No.: | Ľ. | 13704 | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | 21 | 08/19 | |
| BORE CONS | | | | | | | | | | | |
| | l Flush- 🛛 ount Moni | |] Casing I nly | Locked | | easurement bint | t 🗆 Top Casing | of PVC | То | otal Depth: | 4.418 m |
| BORE DEVE | OPMENT | | | | | | | | | | |
| Method: | | Da | te: | | (| Undertaken | Ву: | 1 | Vol. R | emoved: | L |
| Comments (e | e.g. sediment co | ntent): | | | | | | | | | |
| | | | | | | | | | | | |
| PURGING DETAILS (measurement points in meters below top of casing as indicated above) | | | | | | | | | | | |
| Method: Peri-promp Water Quality Meter used: YSI PVO Undertaken By: EE/DS | | | | | | | | | | | |
| | er: 1.554 m | Water C | olumn: | m | Re | eq Purge Vo |)]. ¹ : | L | Flow | v Rate: | L/min |
| Presence of | | Presenc | e of DNAPL | | Th | ickness of | NAPL: | cm | Dept | th to NAPL: | : m |
| Pump intake: m | | | | | | | | | | | |
| PURGING ME | ASUREMENTS | 2 | | | | | | | | | |
| Vol. Purged (L) Elapsed Time (min) EC (µS/cm) Temp. (°C) TDS (ppm mg/L) pH DO %Sat (ppm mg/L) DO (ppm mg/L) Eh (mV) Water Level (m b TOC) | | | | | | | | | | | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | - | ï | 10% | 10% | 10% | | | - |
| 1L | 3nnin | 1154 | IF.2 | 739.0 | ς | 6.29 | 9.4 | 0.9 | 0 | 12.0 | 1.554 |
| 2∟ | 6 min | 897 | 17.0 | 579.8 | ٤Ś | 6.14 | 9.8 | 0.95 | 5 | 36.7 | 1.554 |
| 31 | 9 min | 738 | 16.9 | 476.9 | 8 | 6.07 | 12.5 | 1.21 | | 48-9 | 1.554. |
| 4L | 12 min | 681 | 16.8 | 441.7 | 4 | 6.03 | 13.5 | 1.3 | ١ | 55.6 | 1.554 |
| 51 | 15 min | 647 | 16.0 | 419.6 | ^ | 6.00 | 13.0 | 1.2 | 6 | 57.8 | 1.554 |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | • | | | | |
| Comments (e | .g. condition of | headwork | s, sheen, col | our, odour, s | edi | ment load): | L I | | ł | <u> </u> | |
| | brown | | | | | | | th wa | | r ced. | |
| 0000 | | , 7.0 (| | | | <u></u> | | 1010 | | | |
| SAMPLING D | ETAILS | | | | | Sample ID |): | | | | |
| Time: | | Vol. Remov | ed: | | L | No of Sam | ple Container | s: | | | |
| Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): | | | | | | | | | | | |
| Field Filtered | | Duplicate S | amples 🗆 | Duplic | ate \$ | Sample ID: | | | | | |
| Comments: | | - | - | 1 ` | | - | | | | | |
| | | | | | | | | | | | |
| CoC Nurr | | | | cked by: | | | 8 | Date: | | | |
| | e purged dry, until <u>p</u> llowing casing volu | | | | | | | volumes. W | ater co | lumn volumes | can be calculated |

Calibration details to be recorded in the instrument -specific calibration book, or in field notes as required by local procedures.

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| Client: | | | | | | | | BORE | D: 🍂 | a for | <u>2_ MW2!</u> | 3 |
|------------------------|---|--------------------------|------------------|------------------|-------|---|--------------------------------|---------------|---------|--------------|--------------------------|-----|
| Project: | | | | | | | | Job No. | : 6 | 15704 | ر ا | |
| Location: | | | Casing | ı diameter: | | | 50 mm | Date: | (0 | 210811 | 9 | |
| BORE CONS | TRUCTION | | | | | | | | | | | |
| | I Flush- □ ount Mon | | Casing Casing | | | easurement bint | t □ Top Casing | of PVC | To | otal Depth: | 4.398 | ŗ |
| BORE DEVEL | LOPMENT | | | | | | | | | | | |
| Method: | | Da | ate: | | Ţι | Undertaken | By: | | Vol. R | emoved: | | L |
| Comments (e | e.g. sediment co | ontent): | | | | | | ,,,, | | | | |
| PURGING DE | TAILS (measu | ement poi | nts in meters | below top of | fcas | sing as indi | cated above | e) | | | | |
| Method: Poi | pump | Water G | Juality Meter | used: YSI | I | | | | Und | lertaken By | EEDS | > |
| Depth to wat | er:().356 m | Water C | olumn: | m | Re | eq Purge Vo | ol. ¹ : | L | Flov | w Rate: | L/r | nir |
| Presence of I | | Present | e of DNAPL | | Th | ickness of | NAPL: | cm | Dep | th to NAPL | | m |
| Pump intake: | : m | | | | | | | | | | | |
| PURGING ME | ASUREMENTS | 2 | | | | | · · · · · · | | | · · -· · · | | |
| Vol. Purged (L) | Elapsed Time (min) | EC (µS/cm) | Temp. (°C) | TDS (ppmjmg/L | .) | рН | DO %Sat | DO (ppm[mg | j/L) | Eh (mV) | Water Level (m b TOC) | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | • | - | |
| 11 | 3min | 911 | 15.6 | 586.5 | | 6.62 | 22.3 | 2.14 | > | 120.2 | AR ASTO | -3! |
| 2 L | brin | 896 | 15.6 | 582.0 | F | 6.42 | 13.1 | 1.28 | , | 7).7 | 0.35 | _ |
| 3L | 9 min | 893 | 15.6 | 580.8 | | 6.41 | 11.5 | 1.14 | - | 63.4 | 0.35 | |
| 46 | 12min | 891 | 15.7 | 579.5 | 53 | 6.38 | 10.7 | 1.05 | | 58.4 | 0.55 | |
| 5L. | 15min | 890 | 15.7 | 578.9 | 0 | 6.37 | 10.00 | 0.94 | ٦_ | 57.0 | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Comments (e | .g. condition o | f headwork | s, sheen. col | our, odour. s | edir | ment load): | | | | | - | |
| | od | •••••• | | | -• | | | | | | | |
| | | | | , | | | | | | | | |
| SAMPLING D | | | L | Sample ID | | ~ | | | | | | |
| Time: Type of Sampl | e Containers (i.e | Vol. Remo P = Plastic | | Vial, volume a | _ | | ple Container d/up = unpres | | | | | |
| Field Filtered | | Duplicate | Samples 🗆 | Duplic | ate S | Sample ID: | | | | | | |
| Comments: | | | | | | | | | | | | |
| CoC Num | ber: | | Che | cked by: | | | | Date: | | | | _ |
| Bores to be | e purged dry, until llowing casing vol | | readings stabili | se or a minimun | | | | | ater co | lumn volumes | can be calculate | d |



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Groundwater Monitoring – Field Sheet

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| Client: | | | | | | | | BORE I |): Q | LORR -1 | MW14 | |
|---|---|--------------|-------------------|--------------|-------------|--------------------|-------------------|----------|----------------|--------------|-------------------|--|
| Project: | | | | | | | | Job No. | - 0 | 13704 | 1 | |
| Location: | | | Casing | diameter: | i .~ | | 50 mm | Date: | (9 | 108/19 | | |
| BORE CONSTRUC | CTION | | | | | | | | <u> </u> | | | |
| Head- 🖾 Flus works mount | sh- ⊡ Monui | |] Casing I nly | Locked | | easurement pint | t 🖾 Top Casing | o of PVC | To | otal Depth: | 7.295 m | |
| BORE DEVELOP | MENT | | | | | | · | | | | | |
| Method: | | Dat | e: | | | Undertaken | By: | | Vol. R | Removed: | L | |
| Comments (e.g. s | ediment cos | ntent): | | | | | | I | | | | |
| - 11 | | | | | | | | | | | | |
| PURGING DETAIL | .S (measure | ment poin | ts in meters | below top of | fcas | sing as indi | cated abov | e) | | | | |
| Method: Bailer | (| Water Qu | ality Meter | used: 🖓 | SI | - | | | Und | iertaken By: | EEIDS. | |
| Depth to water: | 5.251 m | Water Co | olumn: | m | Re | eq Purge Vo | ol. 1: | L | Flov | w Rate: | L/min | |
| Presence of LNAP | »լ 🗆 | Presence | e of DNAPL | | Th | ickness of | NAPL: | cm | Dep | oth to NAPL: | : m | |
| Pump intake: | m | | | | | | | | | | | |
| PURGING MEASU | PURGING MEASUREMENTS 2 | | | | | | | | | | | |
| Vol. Purged (L)Elapsed Time (min)EC (μS/cm)Temp. (°C)TDS (ppm mg/L)pHDO %SatDO (ppm mg/L)Eh (mV)Water Level (m b TOC) | | | | | | | | | | | | |
| AS 5667.11: 1998 | ; (<+/-) | 10% | 0.2°C | • | | 10% | 10% | 10% | | - | - | |
| H -3 | min | 358.4 | 22.0 | 232.9 | 7 | 6.70 | 928 | 8.01 | ' \ | (66.1 | | |
| | Min | | | | | | | | | | | |
| | min | | | - | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| : | | | | | | | | | | | | |
| Comments (e.g. co | ***** | ••••••• | | | ••••• | | · ver | y Sic | <u>v</u> | citer in | <u>jl</u> | |
| orange | , high | _ ج | L, no | odour | , | <u>ye Sh</u> | een - | tree. | 40 | silter in | d fild but | |
| * pump | did ha | ot no | vk (ti | so turb | <u>id</u> | 1- 60 | yleri | rzed | Ę. | ield filt | er at (ab. | |
| SAMPLING DETAI | ILS | | | | | Sample ID |): | | -' | | | |
| Time: | | Vol. Remov | ed: | | L | No of Sam | ple Containe | rs: | | | * | |
| Type of Sample Con | Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): | | | | | | | | | | | |
| Field Filtered | | Duplicate Sa | amples 🗆 | Duplic | ate S | Sample ID: | | | | | | |
| Comments: | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| CoC Number: | od dar until | Tand EC | | cked by: | 1062 | to 5 times the | water colum | Date: | ater oo | | can be calculated | |

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from the following casing volumes per unit length: 40 mm ID - 1 \perp /m; 50 mm ID - 2 L/m; 100 mm ID 8 \perp /m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



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Groundwater Monitoring – Field Sheet

| Client: | | | | | | | | BORE II |): p | ORR- | -MNV5 |
|--------------------|------------------------------|----------------|--------------------|----------------|--------------|--------------------|-------------------|----------|--------|-------------|-----------|
| Project: | | | | | | | | Job No. | | 13704 | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | 19 | 108/19 | |
| BORE CONS | TRUCTION | | | | | | | | | | |
| |) Flush- □ ount Mon | | □ Casing I only | □ Locked | | easurement pint | : D Top Casing | of PVC | То | tal Depth: | 3.742 |
| BORE DEVE | | | | | | | | | | | |
| Method: PA | Aprop | Da | te: | | ι | Undertaken | By: EE | 10 | Vol. R | emoved: | L |
| Comments (e | e.g. sediment co | ontent): | | | ***** | | ,, | | | | |
| PURGING DE | TAILS (measu | ement poir | nts in meters | below top of | cas | sing as indi | cated above | ə) | | | |
| Method: ρ_{U} | • | | uality Meter | | | 1 pm | | - | Und | ertaken By: | EELER |
| | er: 1.) <u>5</u> 7 m | Water C | olumn: | m | _ | eq Purge Vo | ol. 1: | L | | v Rate: | L/min |
| Presence of | | | e of DNAPL | | | ickness of | | cm | Dep | th to NAPL: | : m |
| Pump intake | . m | | | | | | | | | | |
| | ASUREMENTS | 2 | | | | | | | · | | |
| Vol. Purged (L) | | | | | | | | | | | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | - | - |
| 11 | 3min | K17.7 | 16.5 | 95.74 | • | 5.73 | 16.2 | 1.56 | | 4.6 | 1.253 |
| 21 | 6 min | 144.1 | 16.5 | 93.6? | 2 | 5.69 | B.ø | RAN | 1.26 | 12.4 | 1.253 |
| _3L | 9 min | 144.6 | 16.4 | 93.99 | | 5.67 | 12.0 | 1.17 | - | -2.3 | 1.253 |
| | | | | | | | <u></u> | | | | |
| | | | | | | | | | | | |
| <u> </u> | | | | • | | | | | | | |
| | | | | | | | | | | | |
| Comments (| e.g. condition o | f headwork | s, sheen, col | our, odour, s | edi | ment load): | | | | | |
| Clear | to ligh | t bron | n, sz | (Haryo | do | ur, i | no she | ln , | lon | ito no | sed. |
| SAMPLING D | DETAILS | | | | | Sample II |): | | | | |
| Time: | | | L | No of Sam | ple Containe | rs: | | | | | |
| Type of Samp | le Containers (i.e | . P = Plastic/ | G = Glass/V = | Vial, volume a | nd p | p = preserve | d/up = unpres | served): | | | |
| Field Filtered | | Duplicate \$ | Samples 🗆 | Duplic | ate (| Sample ID: | | | | | |
| Comments: | | | | I | | | | | | | |
| | | | | | | | | | | | ····· |
| CoC Nun | nber: e purged dry, until | | | cked by: | | | | Date: | | | |

2 Calibration details to be recorded in the instrument -specific calibration book, or in field notes as required by local procedures.

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Groundwater Monitoring – Field Sheet

| Client: | | | | | | | | BORE II |): ¢ | Lakkan | AN BORR. | _M/W |
|--------------------|------------------------|---------------|------------------|--------------------|------|---------------------------------------|-------------------|---------------|------------|-------------|--------------------------|------|
| Project: | | | | | | | | Job No. | : 6 | 13704 | -1 | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | 19 | 108/19 | ` | |
| BORE CONS | TRUCTION | | | | | | | | | | | |
| | l Flush- □ ount Mon | | □ Casing only | | | easurement oint | t □ Top Casing | of PVC | To | otal Depth: | 3.972 | |
| BORE DEVE | LOPMENT | | | | | | | | | | | |
| Method: | | Da | ate: | | Т | Undertaken | By: | | Vol. R | emoved: | | L |
| Comments (| e.g. sediment co | ontent): | | | | | | | | | | |
| | | | | | | | | | | | | |
| PURGING DE | TAILS (measur | ement poi | nts in meters | below top of | fca | sing as indi | cated above |) | | | | |
| Method: Per | ri. Ysi | Water C | uality Meter | used: | | | | | Und | ertaken By: | EELOS | , , |
| | er: 1, 50 1 m | Water C | olumn: | m | R | eq Purge Vo | ol. 1: | L | Flov | v Rate: | . Li | min |
| Presence of | | Presend | e of DNAPL | | Tł | nickness of | NAPL: | cm | Dep | th to NAPL: | : | m |
| Pump intake | : m | | | | | | | | | | | |
| PURGING M | EASUREMENTS | ;2 | | | • | | | | | | | |
| Vol. Purged (L) | Elapsed Time (min) | EC (µS/cm) | Temp. (°C) | TDS (ppm mg/L | .) | pН | DO %Sat | DO (ppm mg | /L) | Eh (mV) | Water Level (m b TOC) | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | - | - | |
| 1L | 3nin | 262.3 | 16.8 | 170.6 | 4 | 4.75 | 40.5 | 3.88 | | 174.8 | 1.501 | |
| ZL | bmin | 260.8 | 16.6 | 169.4 | ð | 4.57 | 36.3 | 3.5 | 4 | 215.9 | 1.501 | |
| 36 | gnin | | | 165.5 | .6 | 4.53 | 36.9 | 3.62 | - | 227.0 | 1.501 | |
| 4L | | 253.0 | | 164.7 | | 4.54 | 58.3 | 3.7 | 0 | 236.8 | 1.501 | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | - | | | | | |
| Commente (é | .g. condition of | f headwork | s sheen co | l Iour adour e | iha; | ment load): | | | | | · · | |
| | - | | | | | | • | | | | | |
| CUNY | , no edo | nr, n | <u>e Shlu</u> | \sim , 10 \sim | | no 50 | <u>A</u> | | | | | |
| SAMPLING D | ETAILS | | | | | Sample ID |); | | | | | |
| Time: | | Vol. Remov | ved: | | L | · · · · · · · · · · · · · · · · · · · | ple Container | 5: | | | | |
| | e Containers (i.e. | | | Vial, volume a | | | - | | | | | |
| 1 | | | | | - 1 | | | | | | | |
| Field Filtered | | Duplicate S | Samples 🗆 | Duplic | ate | Sample ID: | | | | | | |
| Comments: | | | | 1 | | | | | · <u> </u> | | | |
| | | | | | | | | | | | | |
| CoC Num | her' | | Che | cked by: | | | | Date: | | | | |

Calibration details to be recorded in the instrument -specific calibration book, or in field notes as required by local procedures.



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Groundwater Monitoring – Field Sheet

| Client: | | | | | | | | BORE I |): (| BORK | - MW1 | 9 |
|---|---|--------------|------------------|-----------------|--------|--------------------|-------------------|------------|--------------|--------------|------------------|-----|
| Project: | | | <u>-</u> | | | | | Job No. | | 1370 | | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | 14 | 1/08/14 | 7 | |
| BORE CONS | TRUCTION | | | | | | | | | | | |
| | l Flush- □ ount Mon | | □ Casing only | Locked | | easurement bint | t D Top Casing | of PVC | To | otal Depth: | 2.589 | m |
| BORE DEVEL | OPMENT | | | | | | | | | | | |
| Method: | | Da | ite: | | l | Undertaken | By: | , | Vol. R | emoved: | · <u> </u> | L |
| Comments (e | e.g. sediment c | ontent): | | | | | | | | | | |
| | | | | | | | | | | | | |
| PURGING DETAILS (measurement points in meters below top of casing as indicated above) | | | | | | | | | | | | |
| Method: | | Water Q | uality Meter | used: | | | | | Und | lertaken By: | EED | Ś. |
| Depth to wate | er: () , 379 m | Water C | olumn: | m | Re | eq Purge Vo | ol. 1: | L | Flov | w Rate: | L/I | min |
| Presence of I | LNAPL | Presenc | e of DNAPL | | Th | ickness of | NAPL: | cm | Dep | th to NAPL: | : | m |
| Pump intake: | : m | | | | | 101 | ···· | | | | | |
| PURGING ME | PURGING MEASUREMENTS 2 | | | | | | | | | | | |
| Vol. Purged (L) Elapsed Time (min) EC (µS/cm) Temp. (°C) TDS (ppm mg/L) PH DO %Sat DO (ppm mg/L) DO %Sat DO (ppm mg/L) PH | | | | | | | | | | | | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | - | - | |
| 11- | 3min | 17746 | 15,9 | 0220.1 | 9 | 6.56 | 14.7 | 1.34 | | 35.0 | 0.38 | |
| 26 | 6min | | | 3880. | 64 | 6.46 | 8.8 | 2.00 | 2 | 63.Z | 0.38 | |
| 36 | 9 min | 3801 | 14.6 | 2705. | 77 | 16.Zb | 24.4 | 2.4 | 8 | 72.4 | 0.38 | |
| 4L | 12 min | 2505 | 14.1 | 16 03.7 | ſ | 6.21 | 29.9 | Z .04 | 5 | 91,9 | 0.58 | |
| 5L | 15min | | | | | | 29.1 | 2.9- | \mathbf{F} | 103.9 | 0.38 | |
| 66. | 18 min | 2364 | iz.9 | 1532.4 | fo | 6.15 | 28.7 | 2.94 | 4 | 112.2 | 0.38 | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Comments (e | .g. condition o | f headwork | s, sheen, col | our, odour, s | sedir | ment load): | | | | | | |
| Clear | , no c | odou | $< \mathcal{N}$ | sheer | \sim | , 100 | v to r | ~° g- | ed | | | |
| |) | | , | | | | | | • | | | |
| SAMPLING D | SAMPLING DETAILS Sample ID: | | | | | | | | | | | |
| Time: | | Vol. Remov | ved: | | L | No of Sam | ple Container | s: | | | ·. | |
| Type of Sample | Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): | | | | | | | | | | | |
| Field Filtered | a ⁄ | Duplicate S | Samples 🖸 | Duplic | ate S | Sample ID: | F(61, | FSO | ١ | | | |
| Comments: | | | | 1 | | | | | | | | |
| | | | | | | | | | | | | |
| CoC Num | | | | cked by: | | | | Date: | | | | |
| Bores to be | e purged dry, until | pH, T and EC | readings stabili | se or a minimum | 1 of 3 | to 5 times the | e water column | volumes. W | ater co | lumn volumes | can be calculate | ed |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID - 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument -specific calibration book, or in field notes as required by local procedures.



| Client: | | | | | | | | | | | | |
|---|-----------------------------------|--------------|------------------|-----------------|--------|--------------------|-------------------|---------------|---------|-----------------------|-------------------|--|
| Project: | <u> </u> | | | | | | | Job No. | : 67 | 66137 | 041 | |
| Location: | | | Casing | g diameter: | | | 50 mm | Date: | 19 | 108/19 | | |
| BORE CONS | TRUCTION | | | | | | | | | | | |
| | ÌFlush- □ ount Mon | | □ Casing only | | • | easurement pint | t □ Top Casing | of PVC | Tc | otal Depth: 12.135 | m | |
| BORE DEVE | LOPMENT | | | | | | | | | | | |
| Method: | | Da | nte: | | | Undertaken | By: | | Vol. R | emoved: | L | |
| Comments (| e.g. sediment c | ontent): | | | | | | | | | | |
| | | | | | | | | | | | | |
| PURGING DE | TAILS (measu | rement poi | nts in meters | below top of | fcas | sing as indi | cated abov | e) | | | | |
| Method: Pori-pump, YSI Water Quality Meter used: YSI Pro Undertaken By: EEIDS. | | | | | | | | | | | | |
| | er: 0,515 m | | olumn: | m | Re | eq Purge Vo | ol. 1: | L | Flov | v Rate: 1L | /3min L/min | |
| Presence of | | Presend | e of DNAPL | | Th | ickness of | NAPL: | cm | Dep | th to NAPL: | : m | |
| Pump intake | : m | | | | | | | | | | | |
| PURGING M | PURGING MEASUREMENTS ² | | | | | | | | | | | |
| Vol. Purged (L)Elapsed Time (min)EC (μS/cm)Temp. (°C)TDS (ppm mg/L)pHDO %SatDO (ppm mg/L)Eh (mV)Water Level (m b TOC) | | | | | | | | | | | | |
| A\$ 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | | | 10% | 10% | 10% | | - | • | |
| IL | 3min | 2320 | 18.1 | 1518. | 61 | 5.72 | 21.8 | 1.95 | | 42.6 | 0.515. | |
| 2L | 6 min | 2379 | 18.2 | 1546.0 | 1 | 5.64 | 9.8 | 0.91 | | 34.1 | 0.515. | |
| 3∟ | 9 min | 2378 | 18.2 | (545. | 42 | 5.65 | 8.8 | 0.81 | | 25.5 | 0.515. | |
| AL | 12 min | 2377 | 18.2 | 1545.1 | | | | 0.7 | Ъ | 15.0 | 0.515. | |
| 5L : | 15 min | 2376. | 18.2 | 1544. | 20 | 5.66 | 7.4 | 0.6 | 1 | 7.5 | 0.515 | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | e.g. condition o | t headwork | | | | | | | г | _ | | |
| Clear | -sligh | thy a | oudy | , NO 00 | d C | 21V., | ne sh | len | ,(c | onse | <u>d</u> | |
| SAMPLING D | ETAILS | | | | | Sample ID |); | | | | | |
| Time: | | ved: | No of Sam | ple Containe | rs: | | | | | | | |
| Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): | | | | | | | | | | | | |
| Field Filtered | | Duplicate \$ | Samples 🗆 | Duplic | ate \$ | Sample ID: | | | | | | |
| Comments: | | | | | | | | | | | | |
| | | · | | | | | | | | | | |
| CoC Num | | 11 7 1-2 | | cked by: | | 4.5.1.5 | | Date: | | | | |
| Bores to be | e purged dry, until | pm, i and EC | readings stabili | se or a minimun | 1 01 3 | to 5 times the | a water column | i volumes. Wa | ater co | iumn volumes | can be calculated | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



| Client: | | | | | | - | | BORE | ID: | MWTO | BORR-NW20 |
|---|-----------------------|----------------|------------------|-----------------|----------|--------------------|-------------------|--------------|-------------|---------------------------------------|-------------------|
| Project: | | | · · · · · · | <u> </u> | | | | Job No |).: 4 | 6130 61 | 37041 |
| Location: | | | Casing | g diameter: | | | 50 mm | Date: | | 19/8 | 1 |
| BORE CONS | TRUCTION | | | | | | | | | | |
| | İFlush- 🗆 ount Mon | | □ Casing only | Locked | | easurement pint | t 🗆 Top Casing | of PVC | T | otal Depth: 14。6つつ | m |
| BORE DEVEL | LOPMENT | | | | | | | | | | |
| Method: | | Da | te: | | 1 | Undertaken | By: | | Vol. F | Removed: | L |
| Comments (e | e.g. sediment co | ontent): | | | | | | I | | | |
| | | | | | | | | | | | |
| PURGING DE | TAILS (measur | ement poir | nts in meters | below top of | fcas | sing as indi | cated abov | e) | | | |
| Method: Per | Dump | Water Q | uality Meter | used: \ | 451 | Pro | | | Unc | lertaken By | : DS/EE |
| Depth to wate | P1 | Water C | olumn: | m | 1 | eq Purge Vo | ol. 1: | L | Flo | w Rate: L | /3min L/min |
| Presence of I | | Presenc | e of DNAPL | | Th | nickness of | NAPL: | cm | Dep | oth to NAPL | : m |
| Pump intake: | : m | | | | | | | | | | |
| PURGING MEASUREMENTS 2 | | | | | | | | | | | |
| Vol. Purged (L)Elapsed Time (min)EC (μS/cm)Temp. (°C)TDS (ppm mg/L)pHDO %SatDO (ppm mg/L)Eh (mV)Water Level (m b TOC) | | | | | | | | | | | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | , | - | • |
| l | 3 min | 5750 | 17.6 | 3737.1 | 8 | 5.45 | 20.3 | 1.88 | 5 | 191.4 | 0.462 |
| 2 | 6min | 5728 | 17.8 | 3720. | 52 | 5.44 | 16 | 1.49 | ١ | 194.8 | 0.462. |
| 3 | 9 min | 5663 | 17.8 | 3672.9 | ٦٩ | 5,44 | 15.1 | 1.30 | 1 | 190.0 | 0.462 |
| 4 | 12 min | 5525 | 17.8 | 3580.3 | <u>۱</u> | 5.45 | 13.4 | 1.20 | 5 | 180.5 | 0-462 |
| Ś | 15 min | 5407 | 17.8 | 3513.1 | 7 | 5.46 | 12.1 | 1.13 | > | F1.3 | 0.462. |
| | | | | - | | | | | | | |
| | | | | | | | | | | | |
| _ | | | | | | | | | | | |
| | .g. condition of | | | | | | | | rgan | <u>ve ogor</u> |) ~ |
| Clear | -light | brown | , ve (| sheen | j | low to |) ho s | sed | | | |
| SAMPLING D | ETAILS | | | | | Sample (D |): BOR | .R_ Mh | -20 | | |
| Time: | | Vol. Remov | /ed: | | L | - | ple Containe | | | | |
| Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): | | | | | | | | | | | |
| Field Filtered | | Duplicate S | amples 🛛 | Duplic | ate \$ | Sample ID: | | | | | |
| Comments: | | | - | I . | | | | | | | |
| | | | | | | | | | | | |
| CoC Num | | | | cked by: | | | | Date | - | · · · · · · · · · · · · · · · · · · · | |
| Bores to be | e purged dry, until j | pH, T and EC I | eadings stabili | se or a minimum | 1 of 3 | to 5 times the | e water columr | n volumes. V | Nater co | olumn volumes | can be calculated |

•

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



2

Groundwater Monitoring – Field Sheet

| Client: | | | | | | | | BORE II |): R | ore- | MW22 | |
|---|---|---------------|------------------|------------------|-------|--------------------|--------------------|--------------|---------|-------------|-------------------|--|
| Project: | | | | | | . <u>.</u> | <u></u> . | Job No. | • | 3704 | (| |
| Location: | · | | Casing | j diameter: | - | | 50 mm | Date: | 17/ | 08/19 | | |
| BORE CONS | TRUCTION | | | | | | | | | | | |
| |]Flush- □ ount Mon | | □ Casing only | | | easurement pint | t 🗆 Top Casing | o of PVC | То | tal Depth: | 1,435 m | |
| BORE DEVE | LOPMENT | | | | | | | | | | - | |
| Method: | | Da | te: | | (| Undertaken | By: | , | Vol. R | emoved: | L | |
| Comments (| e.g. sediment c | ontent): | | | | | | | | | | |
| | | | | | | | | | | | | |
| PURGING DI | ETAILS (measu | rement poir | nts in meters | below top of | fcas | sing as indi | cated abov | e) | | | | |
| Method: Pl | NIPUMP | Water Q | uality Meter | used: Y | SI | pro | | | Und | ertaken By | EE/DS | |
| Depth to wat | er: 0.335m | Water C | olumn: | m | Re | eq Purge Vo | o[. ¹ : | L | Flow | Rate: | L/min | |
| Presence of | LNAPL | Presenc | e of DNAPL | | Th | ickness of | NAPL: | cm | Dept | th to NAPL: | : m | |
| Pump intake | : m | 1 | | | | | | | | | | |
| PURGING M | PURGING MEASUREMENTS 2 | | | | | | | | | | | |
| Vol. Purged (L)Elapsed Time (min)EC (µS/cm)Temp. (°C)TDS (ppm mg/L)pHDO %SatDO (ppm mg/L)Eh (mV)Water Level (m b TOC) | | | | | | | | | | | | |
| AS 5667.1 | l: 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | | - | |
| 1L | Bruin | 715 | 14.2 | 460.1 | σ | 6.68 | 26.6 | 3.75 | | -3.7 | 0.335. | |
| 21 | 6min | 629 | 14.2 | 408. | | | | | | 6.6 | 0.335 | |
| 31 | B min | 620 | 14.3 | | | 6.52 | | 3.4 | | (1.4 | 0,335. | |
| | | | | | | | | | | | | |
| | | | | , | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Comments (| e.g. condition o | f headwork | s, sheen, col | lour, odour, s | sedi | ment load): | | <u></u> | | | | |
| clear | , <u>no</u> o | donr | . <u>~</u> | sheen | | ila | لم حک | | | | | |
| | `````````````````````````````````````` | | r | | , | | | | | | | |
| SAMPLING [| DETAILS | | | | | Sample ID |): | | | | | |
| Time: | | Vol. Remov | /ed: | | L | No of Sam | ple Containe | rs: | | | | |
| Type of Samp | Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): | | | | | | | | | | | |
| Field Filtered | | Duplicate S | Samples 🗆 | Duplic | ate S | Sample ID: | | | | | | |
| Comments: | | | | • | | | | | | | | |
| | | | | | | | | | | | | |
| CoC Nun | | | | cked by: | | 4. E.M | | Date: | | | المعم المعامية مع | |
| Bores to D | e purged dry, until | pra, i and EC | reaungs stabilis | ae or a minimuli | 1013 | េ ១ ពារទេ ហេខ | water column | a volumes. W | atel CO | amm volumes | Gan be calculated | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



| Client: | | | | | | | | BORE ID |): L | pll_ | MW22b | |
|--|---|-------------|------------------|---|-----------|------------------|-------------------|----------|---------|----------------------|-------------------|--|
| Project: | | | | | | | | Job No.: | | 61370 | | |
| Location: | | | Casing | g diameter: | | | 50 mm | Date: | ľ | 9/08) | 19 | |
| BORE CONS | TRUCTION | | | | <u></u> | | | | | | | |
| | l Flush- □ ount Mon | | □ Casing only | Locked | Me Poi | asurement int | t □ Top Casing | of PVC | | al Depth: 13, 200 | m ⊃ | |
| BORE DEVE | LOPMENT | | | | | | | | | | | |
| Method: | | Da | ite: | | U | Indertaken | By: | ١ | Vol. Re | moved: | L | |
| Comments (e | e.g. sediment c | ontent): | | | | | | | | | | |
| | | | | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | | | | | | | | |
| PURGING DE | PURGING DETAILS (measurement points in meters below top of casing as indicated above) | | | | | | | | | | | |
| Method: Puri | pump | Water Q | uality Meter | used: YSI | I PA | N | | | Unde | rtaken By | : 田区 | |
| Depth to wate | er: 2,745 m | Water C | olumn: | m | Re | q Purge Va | ol. 1: | L | Flow | Rate: 10 | /3min L/min | |
| Presence of | | Presend | e of DNAPL | | Thi | ickness of | NAPL: | cm | Depti | h to NAPL | : m | |
| Pump intake: | Pump intake: m | | | | | | | | | | | |
| PURGING MEASUREMENTS ² | | | | | | | | | | | | |
| Vol. Purged (L) Elapsed Time (min) EC (μS/cm) Temp. (°C) TDS (ppm mg/L) pH DO %Sat DO (ppm mg/L) Eh (mV) Water Level (m b TOC) | | | | | | | | | | | | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | • | • | |
| ١ | 3min | 13369 | 19.1 | 8702.3 | S۱ - | 5.40 | 10.9 | 0.93 | > - | -93.4 | 2.745 | |
| 2 | bmin | 13536 | 19.2 | 8800,- | 71 | 5.38 | 8.1 | 0.71 | + | 95.8 | 2.745 | |
| 3 | 9 min | 13567 | A.Z | 881991 | 74 | 5.41 | 7.4 | 0 65 | 5 (| 02.3 | 2.745 | |
| 4 | 12 rin | 13560 | 19.3 | 8812.3 | 51 | 5.39 | 6-7 | 0.59 | | -90.3 | 2.745 | |
| 5 | 15 min | 13543 | 19.3 | 88013 | 24 | 5.41 | 6.4 | 0.54 | 0 - | -88.9 | 2.745 | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Comments (e | e.g. condition o | f headwork | s, sheen, co | lour, odour, s | sedin | nent load): | | | | | | |
| organ | ic odou | ır, d | avk br | own to | <u> </u> | rey, | clear | , nre | ,d 8 | sed, | no | |
| šh | eln. | | | | | · · · | | | | | | |
| SAMPLING D | ETAILS | | | | | Sample ID | | R_ MWZ | 226 | | | |
| Time: | | | | | | | | | | | | |
| Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): | | | | | | | | | | | | |
| Field Filtered | | Duplicate S | Samples 🗆 | Duplic | ate S | ample ID: | | | | | | |
| Comments: | | | | 1 | | | | | | | | |
| | | | | | | | | | | | | |
| CoC Num | | | | cked by: | | 4 E farme ft | | Date: | | | can be calculated | |

from the following casing volumes per unit length: 40 mm ID \cdot 1 L/m; 50 mm ID - 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



2

Groundwater Monitoring – Field Sheet

| Client: | | | | | | | | BORE II |): { | GORL-1 | UN24 | |
|---|---|--------------|-------------------|-------------------------------|--------|-------------------|--------------------|-------------|---------|--------------|-------------------|--|
| Project: | | | | | | | | Job No. | - | 13704 | | |
| Location: | | | Casing | g diameter: | | | 50 mm | Date: | 2 | 0/08/10 | 1 | |
| BORE CONS | STRUCTION | | | | | | | | | • | | |
| |] Flush- □ ıount Mon | | □ Casing only | Locked | | easuremen pint | t 🗆 Top Casing | of PVC | T | otal Depth: | 1.860 m | |
| BORE DEVE | LOPMENT | | | | | | | | | | | |
| Method: | | Da | ate: | | Ţ | Undertaken | n By: | 1 | Vol. F | Removed: | L | |
| Comments (| e.g. sediment c | ontent): | | | | | | | | | | |
| | | | | | | | | | | | | |
| PURGING D | PURGING DETAILS (measurement points in meters below top of casing as indicated above) | | | | | | | | | | | |
| Method: Peri-pump Water Quality Meter used: MSI Pro. Undertaken By: EE /10 | | | | | | | | | | | | |
| Depth to wat | ter: 7.840m | Water C | olumn: | m | Re | eq Purge Vo | ol. ¹ : | L | Floy | w Rate: | L/min | |
| Presence of | | Presend | e of DNAPL | | Th | ickness of | NAPL: | cm | Dep | oth to NAPL: | m | |
| Pump intake | Pump intake: m | | | | | | | | | | | |
| PURGING M | PURGING MEASUREMENTS 2 | | | | | | | | | | | |
| Vol. Purged (L)Elapsed Time (min)EC (μS/cm)Temp. (°C)TDS (ppm mg/L)pHDO %SatDO (ppm mg/L)Eh (mV)Water Level (m b TOC) | | | | | | | | | | | | |
| AS 5667.1 | 1: 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | • | • | |
| 1L | 3 Min | 1888 | i9.7 | 1227.14 | 4 | 4.12 | 27.7 | 2.50 | 2 | 277.2 | 7.840 | |
| л К | 6min | 1889 | 191.7 | 1227.0 | 13 | 4.10 | 24.7 | 2.26 | 2 | 303.9 | 7.840 | |
| 3L | 9 min. | 1885 | 19.7 | 1725.9 | 5) | 4.11 | 24.6 | Z.24 | | 316.9 | 7.840 | |
| 4L | 12min | 1882 | 19.7 | 1222. | 89 | 4.12 | 23.9 | 2.16 | | 324 -6 | 7.840 | |
| El- | 15 | | | | | | | | | | | |
| | | | | | | | | | | : | | |
| | | | | : | | | | | | | | |
| : | | | | | | | | | | | | |
| Comments (| e.g. condition o | f headwork | s, sheen, co | lour, o <mark>dour</mark> , s | sedir | ment load): | | | | | | |
| No ac | lour, no | o She | en, la | ow sla | d ; | , dau | dy ci | ghtb) | /ON | <u> </u> | | |
| SAMPLING [| DETAILS | | | | | Sample (C |): | | | | | |
| Time: | Time: Vol. Removed: L No of Sample Containers: | | | | | | | | | | | |
| Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): | | | | | | | | | | | | |
| Field Filtered | | Duplicate S | Samples 🗆 | Duplic | ate S | Sample ID: | - | | | | | |
| Comments: | | | | <u> </u> | | | | | | | | |
| | | | | | | | | | | | | |
| CoC Nun | | | | cked by: | | | | Date: | | | | |
| Bores to b | e purged dry, until j | pH. T and EC | readinos stabili: | se or a minimum | ı of 3 | to 5 times the | e water column | volumes. Wa | ater co | lumn volumes | can be calculated | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID - 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



| Client: | | | | | | | | | | | | |
|--|---|------------|--------------------|----------------|-------|--------------------|-------------------|--------------|-------------------|-----------------------|--|--|
| Project: | <u>.</u> | | | | | | | Job No.: | <u> </u> | | | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | 21/08/ | ۲ ۲ | | |
| BORE CONS | TRUCTION | | | | r | | | | | | | |
| | IFlush- □ ount Mon | | □ Casing I only | 🗅 Locked | | easurement pint | : D Top Casing | of PVC | Total Depth | : 13.[39 m | | |
| BORE DEVEL | OPMENT | | | | | | | | | | | |
| Method: | | Da | ite: | | Γι | Jndertaken | By: | ١ | Vol. Removed: | L | | |
| Comments (e | e.g. sediment co | ontent): | | | | | | | | | | |
| | | | | | | | | | | | | |
| PURGING DETAILS (measurement points in meters below top of casing as indicated above) | | | | | | | | | | | | |
| Method: Peri-pump Water Quality Meter used: 45(Pro . Undertaken By: EE/DS | | | | | | | | | | | | |
| Depth to wat | er: 6,926m | Water C | olumn: | m | Re | eq Purge Vo | ol. 1: | L | Flow Rate: | L/min | | |
| Presence of I | | Presenc | e of DNAPL | | Th | ickness of | NAPL: | cm | Depth to NAF | L: m | | |
| Pump intake: | m | | | | | | | | | | | |
| PURGING MEASUREMENTS 2 | | | | | | | | | | | | |
| Vol. Purged (L) Elapsed Time (min) EC (μS/cm) Temp. (°C) TDS (ppm mg/L) pH DO %Sat DO (ppm mg/L) Eh (mV) Water Level (m b TOC) | | | | | | | | | | | | |
| AS 5667.11 | AS 5667.11: 1998 (<+/-) 10% 0.2°C - 10% 10% 10% - | | | | | | | | | | | |
| 1L | 3 nin | 3753 | 18.6 | 2439.5 | 57 | 5.58 | 8.4 | 0.7- | 7 53.4 | 6.926. | | |
| 2L | 6 nin | 3752 | 18.6 | 2440. | | U U | 7.3 | 0.67 | + 60.8 | 6.926 | | |
| 3L | 9 nin | 3747 | 18.5 | 2439.4 | 4) | 5.49 | 6.7 | 0.62 | 61.8 | 6.926. | | |
| 4L | 12min | 3736 | 18.6 | 24279 | 39 | 5.48 | 6.5 | 0.60 | 0 60.7 | 6.926. | | |
| | | | | | | | • | | | | | |
| | | | | | | | | | | | | |
| _ | | | | | 1 | | | | | | | |
| | | | | | | | | | | | | |
| Comments (e | .g. condition o | f headwork | s, sheen, col | lour, odour, s | sedir | ment load): | · · · · · | | ······ | - I | | |
| (lear | tour | ndy | , òraan | ic odo | »N. | r lov | v to n | o set | , no ju | en | | |
| | | J | , | | | | | | | | | |
| SAMPLING D | ETAILS | | | | | Sample II |): | | | | | |
| Time: Vol. Removed: L No of Sample Containers: | | | | | | | | | | | | |
| Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): | | | | | | | | | | | | |
| Field Filtered | Ð | Duplicate | Samples 🗆 | Duplic | ate § | Sample ID: | | | | | | |
| Comments: | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| CoC Num | | | | cked by: | | | | Date: | | | | |
| | e purged dry, until Ilowing casing vol | | | | | | | n volumes. W | ater column volun | nes can be calculated | | |

Calibration details to be recorded in the instrument -specific calibration book, or in field notes as required by local procedures.

1 2

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| Client: | | | | | | | | BORE I | | | MW29 | |
|----------------------|--|---------------------------------|-------------------------------------|---------------------|------------------|------------------------------------|-------------------|---------------|---------|---------------|--------------------------|-----|
| Project: | | | | | | | | Job No. | : 6 | 137041 | , , | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | 21/1 | 08)19 | | |
| BORE CON | ISTRUCTION | | | | | | | | `` | _ | | |
| | □ Flush- □ mount Mon | | □ Casing I only | Locked | | easurement pint | : D Top Casing | of PVC | Т | otal Depth: | 8.431 | m |
| BORE DEV | ELOPMENT | | | | | | | | | | - | |
| Method: | | Da | ate: | | l | Undertaken | By: | | Vol. R | Removed: | | L |
| Comments | (e.g. sediment c | ontent): | | | | | | | | | | , |
| PURGING | DETAILS (measu | ement poi | nts in meters | below top of | f cas | sing as indi | cated above | 2) | | | | |
| Method: | eri-pump | Water G | Quality Meter | used: ∿ | 151 | Pro | | | Und | lertaken By | EIDS | |
| Depth to w | ater: 5.684 m | Water C | olumn: | m | Re | eq Purge Vo |)i . 1: | L | ۶lo | w Rate: | L/n | nin |
| Presence of | of LNAPL | Presen | ce of DNAPL | | Th | ickness of | NAPL: | cm | Dep | th to NAPL | : | m |
| Pump intal | ke: m | | | | | | | | | | | |
| PURGING | MEASUREMENTS | 2 | | | | | | | | | | |
| Vol. Purgeo (L) | Elapsed Time (min) | EC (µS/cm) | Temp. (°C) | TDS {ppmjmg/L | .) | PН | DO %Sat | DO (ppm mg | /L) | Eh (mV) | Water Level (m b TOC) | |
| AS 5667 | .11: 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | - | - | |
| 1L | Brin | 975 18.1 634.38 | | | | 5.00 | 9.9 | 0.9 | 2_ | 40.7 | 5.684 | |
| 2L | bmin | 979 | 18.1 | 635.0 | 14 | 5.00 | 7:5 | 0.7 | σ | 41.1 | 5.684 | 1- |
| 3L | 9 min | 975 | 18.1 | 633.8 | 38 | 5.0q | 6.7 | 0.6 | S | ST .S | 5.68L | ł |
| 4L | IZMin | 969 | 18.1 | | | 5.02 | 6.4 | 6.6 | 0 | 80.4 | 5.861 | +. |
| 1 | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| • | | | , I | | | | | <u></u> | | | | |
| | | | | | | | | | | | | |
| Comments | (e.g. condition o | f headworl | s, sheen, col | l lour, odour: s | sediu | ment load): | | | | | L | |
| | | | | | | | | | J | | | |
| <u>U la v</u> | - to Light | π, >0 | upur j | | <u></u> | y <u>SL</u> ee | <u>, 10</u> | NN PER | <u></u> | | | |
| SAMPLING | DETAILS | | | | | Sample ID |): | | | · | | |
| Time: | | L | No of Sam | ple Containei | 'S: . | | | | | | | |
| Type of San | nple Containers (i.e | P = Plastic | /G = Glass/V = | Vial, volume a | and p | o = preserved | 1/up = unpres | erved): | | | | |
| Field Filtere | d 🗆 | Duplicate | Samples 🗆 | Duplic | ate S | Sample ID: | | | | | | |
| Comments | | | | | | | | | | | | |
| CoC N | umber: | | Che | cked by: | | | | Date: | | | | |
| Bores to | be purged dry, until | pH, T and EC | readings stabili | se or a minimun | n of 3 | to 5 times the | e water column | | ater co | olumn volumes | s can be caiculate | ed |
| from the Calibrat | e following casing vol ion details to be reco | imes per unit ded in the in: | t tength: 40 mm strument –specif | ic calibration bo | m ID - bok, c | – 2 L/m; 100 π or in field note | s as required t | by local proc | edures | i. | | |



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Groundwater Monitoring – Field Sheet

| Client: | | | | | | | | | | DRR_MW | 31 |
|---|--|----------------|------------------|------------------|-------|--------------------|-------------------|---------------|--------|--------------------|--------------------------|
| Project: | | | | | | | | Job No.: | : 6 | 137041 | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | 2 | 1/8/19 | |
| BORE CONS | TRUCTION | | | <u>.</u> | | | | | | | |
| |]Flush- □ ount Mon | | □ Casing only | Locked | | easurement oint | t □ Top Casing | of PVC | Т | otal Depth: م م | m ⊃2_9 |
| BORE DEVE | LOPMENT | | | | | | | | | | |
| Method: | | Da | ite: | | | Undertaken | By: | 1 | Vol. R | Removed: | L |
| Comments (e | e.g. sediment c | ontent): | | | | | | | | | |
| | | | | | | | | | | | |
| PURGING DETAILS (measurement points in meters below top of casing as indicated above) | | | | | | | | | | | |
| Method: Peri Water Quality Meter used: YS1 Pro Undertaken By: EE/DS | | | | | | | | | | | |
| Depth to wat | er:3₅474 m | Water C | olumn: | m | Re | eq Purge Vo | i. 1: | L | Flov | w Rate: | L/min |
| Presence of | | Presenc | e of DNAPL | | Th | nickness of | NAPL: | cm | Dep | th to NAPL | : ['] m |
| Pump intake: m | | | | | | | | | | | |
| PURGING MEASUREMENTS 2 | | | | | | | | | | | |
| Vol. Purged (L) | Elapsed Time (min) | EC (µS/cm) | Temp. (°C) | TDS (ppm mg/L | .) | рН | DO %Sat | DO (ppm mg | /L) | Eh (mV) | Water Level (m b TOC) |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | - | • |
| 12 | 3 min | 280.5 | 16.2 | 182.92 | 2 | 5.27 | 19.3 | 1.82 | - | 149.7 | 3.474 |
| 21 | 6 min | 278.2 | 16.9 | 180.7 | 8 | 5.21 | 11.5 | (.)) | | 99.4 | 3.474 |
| 3L | 9 nin | EA 80.2 | 17.0 | 179.99 | | AMM | 10.3 | 0.99 | 5 | 67.0 | 3.474 |
| | | 277.0 | MANO | | | 5.18 | | | | | |
| 4L | 12 min | 275.3 | 17.0 | 178.80 |) | 5.17 | 9.6 | 0.91 | | 51.0 | 3.474 |
| | , | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| Comments (e | e.g. condition o | f headwork | s, sheen, co | lour, odour, s | sedi | ment load): | | | | | |
| clear + | o light ! | RIDUN | , sulf | ing od | ou | w,n | o Shel | $n_{2} 10$ | \sim | sed. | |
| SAMPLING D | DETAILS | | | | | Sample ID |): | | | | |
| Time: | | Vol. Remov | ved: | . m | L | +•••• | ple Containe | rs: | | | |
| Type of Sampl | le Containers (i.e | . P = Plastic/ | G = Glass/V = | Vial, volume a | und p | p = preserved | d/up = unpres | served): | | | |
| Field Filtered | | Duplicate S | Samples 🗆 | Duplic | ate | Sample ID: | | | | . <u> </u> | |
| Comments: | | I | | · · | | | | | | | |
| | | | | | | | | | | | |
| CoC Num | | | | cked by: | | | | Date: | | | |
| | Bores to be purged dry, until pH, T and EC readings stabilise or a minimum of 3 to 5 times the water column volumes. Water column volumes can be calculated from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID - 2 L/m; 100 mm ID 8 L/m | | | | | | | | | | |

Calibration details to be recorded in the instrument -specific calibration book, or in field notes as required by local procedures.



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| Client: | | | | | | | BORE II |): | BORR- | -MW32 | |
|---|------------------------|---------------|------------------|---|--------|--------------------|-------------------|---------------|--------|-------------|---------------------------------------|
| Project: | | | | | | | | Job No. | | 13704 | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | 6 | 26/08 | ા ભ |
| BORE CONS | TRUCTION | | | | | | | | | | |
| | I Flush- □ ount Mon | | □ Casing only | Locked | | easurement pint | t 🗆 Top Casing | of PVC | То | otal Depth: | 5.075 |
| BORE DEVE | LOPMENT | | | | | | | | | | |
| Method: | | Da | ite: | | | Undertaken | By: EE | 1010 | Vol. R | emoved: | L |
| Comments (e | e.g. sediment c | ontent): | | | | | | -i | | | |
| | | | | | | | | | | | |
| PURGING DETAILS (measurement points in meters below top of casing as indicated above) | | | | | | | | | | | |
| Method: Puripump Water Quality Meter used: MSI Pro Undertaken By: | | | | | | | | | | | |
| Depth to wat | er: 2 . 1 20m | Water C | olumn: | m | Re | eq Purge Vo | ol. 1: | L | Flow | v Rate: | L/min |
| Presence of | LNAPL | Presenc | e of DNAPL | | Th | nickness of | NAPL: | cm | Dept | th to NAPL: | : m |
| Pump intake: | : m | | | | | | | | | | |
| PURGING MEASUREMENTS 2 | | | | | | | | | | | |
| Vol. Purged (L) | Elapsed Time (min) | EC (µS/cm) | Temp. (°C) | TDS (ppm mg/l | L) | рH | DO %Sat | DO (ppm[mg | /L) | Eh (mV) | Water Level (m b TOC) |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | • | | 10% | 10% | 10% | | - | • |
| 1∟ | 3 min | 358.9 | H.5 | 233.0 | 3 | 4.95 | 16.6 | 1.5 | 5 | -3.3 | 2.120. |
| 21_ | bruin | 3247 | 17.4 | 210.9 | Į6 | 5.15 | 8.7 | 0.8 | 3 | -11.7 | 2.120 . |
| 3L | 9 min | | | | | | 7.8 | 0.7 | 4 | - 14.2 | 2.120 |
| 4L | 12 min | | | 206 . | 17 | 5.21 | 7.3 | 0.70 |) | -15.7 | 2,120 |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| Comments (e | e.g. condition o | f headwork | s, sheen. col | our, odour. s | sedi | l ment load): | | | | | |
| | | | | | \sim | | | SL DOA | | | |
| OVPAVOI | c odour, | 1001 | <u>Cy oru</u> | | | K SCE | | Sheen | | | |
| SAMPLING D | ETAILS | | | | | Sample ID |): | | | | |
| Time: | | Vol. Remov | ved: | | L | No of Sam | ple Containe | rs: | | | |
| Type of Sampl | le Containers (i.e | P = Plastic/ | G = Glass/V = | Vial, volume a | and p | o = preserved | l/up = unpres | served): | | | |
| Field Filtered | | Duplicate S | Samples 🗆 | Duplic | ate \$ | Sample ID: | | | | | |
| Comments: | | | | I | | | | | | | · · · · · · · · · · · · · · · · · · · |
| | | •••••• | , | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | | | | | | | |
| CoC Num | | | | cked by: | | | | Date: | | . <u>.</u> | |
| Bores to be purged dry, until pH, T and EC readings stabilise or a minimum of 3 to 5 times the water column volumes. Water column volumes can be calculated | | | | | | | | | | | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



| Client: | | | | | | | | BORE ID |): fg | ORF-N | 1W37 |
|--|--|---------------|---------------|------------------|----------------------------|-------------------|---------------------------------------|---------------|----------|--------------|--------------------------|
| Project: | | | | | | | | Job No.: | | 13704 | |
| Location: | · · · · · · | | Casing | diameter: | | | 50 mm | Date: | 2 | 1/08/19 | 1 . |
| BORE CON | STRUCTION | | | | | | | | | | |
| | □ Flush- □ mount Mon | | Casing | | | easurement int | t D Top Casing | of PVC | To | tal Depth: | 11.591 |
| BORE DEV | ELOPMENT | | | | | | | | | | |
| Method: | wigeamp | ⁄ Da | te: | | ι | Jndertaken | By: | \ | /ol. Re | emoved: | |
| Comments | (e.g. sediment c | ontent): | | | | | | | | | |
| | | | **** | | | | | | | | |
| PURGING I | DETAILS (measu | rement poir | nts in meters | below top of | cas | ing as indi | cated above |) | | | |
| Method: Peri-Pump Water Quality Meter used: MSI Pro. Undertaken By: EE (DS | | | | | | | | | | | |
| | ater: 4.764 m | m | Re | q Purge Vo | bi . ¹ : | L | Flow | Rate: | L/mir | | |
| Presence o | f LNAPL | Presenc | e of DNAPL | | Th | ickness of | NAPL: | cm | Dept | th to NAPL: | : m |
| Pump intak | ie: m | | | | | | | | | | |
| PURGING MEASUREMENTS 2 | | | | | | | | | | | |
| Vol. Purged (L) | Elapsed Time (min) | EC (µS/cm) | Temp. (°C) | TDS (ppm mg/L |) | рН | DO %Sat | DO (ppm mg | /L) | Eh (mV) | Water Level (m b TOC) |
| AS 5667. | 11: 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | | - |
| 11 | Brin | 3524 | 18.6 | 2291.0 | 61 | 5.48 | 13.0 | 1.16 | | 45.2 | 4.764 |
| 2L_ | bmin | 3542 | 18.8 | 2302.5 | 53 | 5.35 | 8.4 | 0.46 | | 61.1 | 4.764 |
| 3L | gnin | 3539. | 18.9 | 2300.8 | 35 | 5.34 | 7.1 | 0.65 | | 57.3 | 4.764 |
| 4L | 12min | 2221450 | 18.9 | 2296.5 | 50 | 5.36 | 6.7 | 0.6 | | 51.3 | |
| | | 353 1 | R | | | | | | | | |
| 51 | 15min | 3524 | | 22909 | 18 | 5.35 | 6.4 | 0.58 | ζ. | 48.2 | 4.764 |
| | | - • | 10.1 | | | | | | | | |
| | | | | | | | | | | | |
| Comments | (e.g. condition c | f headwork | s, sheen, co | lour, odour, s | ibea | ment load): | · · · · · · · · · · · · · · · · · · · | | | | |
| OYGax | vicodou | v, C | lear, | no sh | ee | n, lo | 100 + 10 | ~ 5 | ed | | |
| SAMPLING | DETAILS | _ | | | | Sample I |): | | | | <u> </u> |
| Time: | | Vol. Remo | ved: | | L | No of Sam | ple Container | s: | | | |
| Type of Sam | iple Containers (i.e | . P = Plastic | G = Glass/V = | Vial, volume a | ind p |) = preserved | d/up = unpres | erved): | | | |
| Field Filtere | d 🗆 | Duplicate | Samples 🗆 | Duplic | ate S | Sample ID: | | | | | |
| Comments | • | | | I | | | | | | | |
| ····· | | | | | | | | | | | |
| CoC Ni | | | | cked by: | | | | Date: | | | |
| | be purged dry, until following casing vol | | | | | | | volumes. W | ater col | lumn volumes | s can be calculated |

Calibration details to be recorded in the instrument -specific calibration book, or in field notes as required by local procedures.

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| Client: | | | | | | | | BORE IE | | | MN39 |
|---|-----------------------|---|--------------------|------------------|-----------|------------------|-------------------|---------------|---------------|-------------|--------------------------|
| Project: | | | | | | | | Job No.: | | 13704 | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | L | >108/1 | 9 |
| BORE CONS | | | | | | | | | | | |
| | Flush- □ ount Mon | | ⊐ Casing I only | □ Locked | Me Poi | asurement int | t I Top Casing | of PVC | To | tal Depth: | 3.965 ^m |
| BORE DEVEL | OPMENT | | | | | | | | | | · |
| Method: | | Da | te: | | U | Indertaken | By: | ١ | Vol. R | emoved: | L |
| Comments (e | .g. sediment c | ontent): | | - | | | - | | | | |
| | | | | | | | | | | | |
| PURGING DETAILS (measurement points in meters below top of casing as indicated above) | | | | | | | | | | | |
| Method: Phri-pump Water Quality Meter used: Down YSIPro Undertaken By: EE/10 | | | | | | | | | | | |
| Depth to wate | er: 7.672m | Water C | olumn: | m | Red | q Purge Vo | 5 , 1: | L | Flow | v Rate: | L/min |
| Presence of I | | Presenc | e of DNAPL | | Thi | ickness of | NAPL: | cm | Dep | th to NAPL: | m |
| Pump intake: | : m | | | | | | | | | | |
| PURGING MEASUREMENTS 2 | | | | | | | | | | | |
| Vol. Purged (L) | Elapsed Time (min) | EC (µS/cm) | Тетр. (°C) | TDS (ppm mg/L | .) | рН | DO %Sat | DO (ppm mg | /L) | Eh (mV) | Water Level (m b TOC) |
| AS 5667.11: | : 1998 (<+/-) | 10% | 0.2 ºC | - | | 10% | 10% | 10% | | - | • |
| 11_ | Brin | 404.8 | 19.0 | 262.6 | 54 | 5.27 | 9.2 | 0.85 | , | 145.0 | 7.672. |
| 21 | bmin | 408.2 | 18.9 | 265.0 | 7 | 5.24 | 7.4 | 0.68 | 2 | 165.1 | 7.672. |
| 3L | | 373.4 | 18.9 | 242.1 | 0 | 5,20 | 6.8 | 0,64 | ł | 178.0 | 7.672. |
| 41 | 12min | | 18.8 | 238.1 | 17 | 5.16 | 6.7 | 0.63 | 2 | 190.0 | 7.672. |
| 5 L | ISmin | 369.2 | 18.8 | 239.8 | 8 | 5.16 | 6.7 | 0.62 | · > | 191.5 | 7.672 |
| | | | | | | | | | | | |
| | · | | | | | | | | | | |
| Commonte /a | e.g. condition o | f hoodwork | s shoon col | | nibos | nont load): | | | | | |
| | | | | | - ~⁄ | | <u>چ</u> | <u> </u> | | | - de |
| <u>N0 000</u> | ur, 10; | | 0 | -3c - v | 70 | | <u>ر - حر</u> | \sim | <i>w</i> | | slas. |
| SAMPLING D | ETAILS | | | | | Sample ID |): B | PRR- | \mathcal{M} | W39 | |
| Time: | | Vol. Remov | ved: | | L | No of Sam | ple Container | rs: | | S | |
| Type of Sample | e Containers (i.e | . P = Plastic/ | G = Glass/V = | Vial, volume a | and p | = preserved | d/up = unpres | erved): | | | |
| Field Filtered | E | Duplicate S | amples 🗆 | Duplic | ate S | ample ID: | | | | | |
| Comments: | | | | F | | | | | | | |
| | | | | | | | | | | | |
| CoC Num | | ······································ | | cked by: | | | | Date: | | | |
| Bores to be | e purged dry, until | Bores to be purged dry, until pH, T and EC readings stabilise or a minimum of 3 to 5 times the water column volumes. Water column volumes can be calculated | | | | | | | | | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument -specific calibration book, or in field notes as required by local procedures.



| Client: | | | | BORE ID: BORR-MW 46 | | | | | | | | |
|---|---|----------------|------------------|---------------------|-------|--------------------|-------------------|---------------|-------------------|------------|--------------------------|--------|
| Project: | | | - | | | | | Job No.: | | 13704 | :1 | |
| Location: | | | Casing | j diameter: | | | 50 mm | Date: | 21 | 08/19 | | |
| BORE CONS | TRUCTION | | | | | | | | | | | |
| |] Flush- 🛛 ount Mon | | □ Casing only | | | easurement bint | t 🗆 Top Casing | of PVC | То | tal Depth: | 5.990 | m |
| BORE DEVEL | LOPMENT | | | | | | | | | | | |
| Method: | | Da | te: | | | Undertaken | By: | 1 | Vol. R | emoved: | | L |
| Comments (e | e.g. sediment co | ontent): | | | | | | | | | | |
| | | | | | | | | | | | | |
| PURGING DETAILS (measurement points in meters below top of casing as indicated above) | | | | | | | | | | | | |
| Method: Water Quality Meter used: Undertaken By: EE DS. | | | | | | | | | | | • - | |
| Depth to wat | er: 3.585m | Water C | olumn: | m | Re | eq Purge Vo | ol. 1: | L | Flow | Rate: | L/n | nin |
| Presence of | LNAPL | Presenc | e of DNAPL | | Th | nickness of | NAPL: | cm | cm Depth to NAPL: | | | |
| Pump intake: | : m | | | | | | | | | | | |
| PURGING MEASUREMENTS ² | | | | | | | | | | | | |
| Vol. Purged (L) | Elapsed Time (min) | EC (µS/cm) | Temp. (°C) | TDS (ppm mg/L |) | pН | DO %Sat | DO (ppm mg | /L) | Eh (mV) | Water Level (m b TOC) | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | | | 10% | 10% | 10% | | - | - | |
| 1∟ | Brin | 306.2 | 18.6 | 193.64 | ł | 6.46 | 544 | 5.08 | 2 | 87.5 | 3.585 | , |
| ZL | 6 ruin | 247.7 | 18.6 | 160.25 | | 6.34 | 53.3 | 4.98 | Ś | 90.2 | 3.585 | |
| 3L | | 238.0 | 18.6 | 154.60 | ້ | 6.28 | 52.7 | 4.92 | - | 93.1 | 3.585 | - 3 |
| 41- | 12min | 235.8 | 18.7 | 153.18 | 5 | 6.25 | 52.6 | 4.80 | ١ | 93.0 | 3.585 | 5 |
| | | | | | - | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Comments (e | e.g. condition o | f headwork | s, sheen, col | lour, odour, s | edi | ment load): | | | | | | |
| Clear | to Ligi | nt br | own, | lons | ٥ | l, vo | shee | en, h | 9 0 | odour | | |
| SAMPLING D | ETAILS | | | | | Sample I |): | | | | | |
| Time: | | Vol. Remov | /ed: | | L | No of Sam | ple Containe | rs: | | | | |
| Type of Sampl | le Containers (i.e. | . P = Plastic/ | G = Glass/V = | Vial, volume a | ind p |) = preserve | d/up = unpres | served): | | | | |
| Field Filtered | | Duplicate S | Samples 🛛 | Duplic | ate S | Sample ID: | | | | | | |
| Comments: | | | | 1 | | | | | | | đ. t | |
| | i di ka | | | | | | | | | | | |
| CoC Num | | | | cked by: | | | | Date: | | | | |
| Bores to be | Bores to be purged dry, until pH, T and EC readings stabilise or a minimum of 3 to 5 times the water column volumes. Water column volumes can be calculated | | | | | | | | | | | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID - 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument -specific calibration book, or in field notes as required by local procedures.



| Client: | | | | | | | | |): MR-M | | |
|--|-------------------------|---------------|------------------|------------------|--------|---------------|---------------|---------------|----------------|----------------------------|--|
| Project: | | | | | | | | Job No.: | B18 61 | | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | 22/08/1 | 19 | |
| BORE CON | STRUCTION | | | | | | | | | | |
| | ⊐ Flush- □ nount Mon | | □ Casing only | • | | | | of PVC | Total Depth | n: 4.884 m | |
| BORE DEVE | ELOPMENT | | | | | | | | | | |
| Method: | | Da | te: | | U | Indertaken | By: | 1 | Vol. Removed: | L | |
| Comments | (e.g. sediment co | ontent): | | | | | | | | | |
| | | | | | | | | | | | |
| PURGING D | ETAILS (measu | ement poir | nts in meters | below top of | f casi | ing as indi | cated above |) | | | |
| Method: Plvi-Prvn P Water Quality Meter used: YSI Pro. Undertaken By: EEDS | | | | | | | | | | | |
| Depth to wa | nter: 2 428 m | Water C | olumn: | m | Red | q Purge Vo | ol. 1: | L | Flow Rate: | L/min | |
| Presence of | | Presend | e of DNAPL | | Thi | ickness of | NAPL: | cm | Depth to NA | PL: m | |
| Pump intak | e: m | | - | | | - | | | | | |
| PURGING MEASUREMENTS 2 | | | | | | | | | | | |
| Vol. Purged (L) | Elapsed Time (min) | EC (μS/cm) | Temp. (°C) | TDS (ppm]mg/L | L) | рН | DO %Sat | DO (ppm mg | Eh (mV J/L) |) Water Level (m b TOC) | |
| AS 5667.1 | 11: 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | - | - | |
| 11 | Bruin | 23535 | 17.7 | 5317.8 | SD | 5,58 | 9.2 | 0.80 | | 2.428 | |
| 2L | bruin | 23709 | 17.6 | 5416.6 | 51 | 5.60 | 8.0 | 0.69 | 62.0 | 2.428 | |
| 31 | 9 min | | | 5424- | 22_ | 5.61 | 7.4 | 0.6 | 5 60.1 | 2.428 | |
| 41 | 12nin | | | 5385.1 | | | 7.1 | 0.6 | 2 58.9 | 2.428 | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | <u></u> | | | | | | | | | |
| Comments | (e.g. condition o | f headworl | ks, sheen, co | lour, odour, s | sedin | nent load): | I | | | | |
| light | t brown | , suf | ury o | tour, | no | SLee | n_n | rod G | <u>يا.</u> | | |
| SAMPLING | DETAILS | | <u> </u> | | | Sample II | D: | | - | | |
| Time: | | Vol. Remo | ved: | No. | L | No of Sam | ple Containe | rs: 8 | | | |
| Type of Sam | ple Containers (i.e | . P = Plastic | /G = Glass/V = | : Vial, volume : | and p |) = preserve | d/up = unpres | served): | | | |
| Field Filtered | 1 D _ | Duplicate | Samples 🛛 | Duplie | cate S | Sample ID: | | | | · | |
| Comments | | | | | | | | | | | |
| CoC Nu | Imher: | | Ch4 | ecked by: | | | | Date: | | | |
| | | p¥ T and EC | | | m of 3 | to 5 times th | e water colum | | | mes can be calculated | |

Bores to be purged dry, until pH, I and EC readings stabilise or a minimum of 3 to 5 times the water column volumes. Water column from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID - 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument -specific calibration book, or in field notes as required by local procedures.

.



| Client: BORE ID: BH 9.2 | | | | | | | | | | | | |
|---|---|---------------|--------------------|------------------|-------|--------------------|-------------------|---------------|--------|-------------|--------------------------|-----|
| Project: | | | | | | | | Job No.: | | 613702 | | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | ť | 7/09/19 | | |
| BORE CONS | TRUCTION | | | | | | | | | | | |
| 1. | ÍFlush- □ Iount Mon | | □ Casing I only | Locked | | easurement bint | t □ Top Casing | of PVC | To | otal Depth: | 8.851 | m |
| BORE DEVE | LOPMENT | | | | | | | | | | | |
| Method: | | Da | ite: | | | Undertaken | By: | \ \ | /ol. R | emoved: | | L |
| Comments (e | e.g. sediment c | ontent): | | | | | | | | | | |
| | | | | | | | | | | | | |
| PURGING DETAILS (measurement points in meters below top of casing as indicated above) | | | | | | | | | | | | |
| Method: Peri-pump Water Quality Meter used: 451 Pro Undertaken By: 02/05 | | | | | | | | | | | | |
| | er: 1.659m | | olumn: | m | Re | eq Purge Vo | ⊳l. ¹: | L | Flov | v Rate: | L/r | nin |
| Presence of | | Th | ickness of | NAPL: | cm | Dep | th to NAPL: | : | m | | | |
| Pump intake | : m | | | | | | | | | | | |
| PURGING MEASUREMENTS 2 | | | | | | | | | | | | |
| Vol. Purged (L) | Elapsed Time (min) | EC (µS/cm) | Temp. (°C) | TDS (ppm mg/L |) | рН | DO %Sat | DÖ (ppm mg | /L) | Eh (mV) | Water Level (m b TOC) | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | | • | |
| 1L | Bruin | 2110 | 18.8 | 1373 | | 5.86 | 23.1 | 2.12 | | 147.2 | 1.659 | |
| 2L | 6nin | 2138 | 18.7 | 1390 | | 5.85 | 21.4 | 1.98 | | 163.1 | 1.659 | • |
| 3Ŀ | 9 ruin | 2140 | 18.7 | 1391 | | 5.84 | 20.7 | 1.97 | 2_ | 173.3 | 1.659 | |
| 46 | 12nin | 182141 | 18.7 | 1392 | | 5.84 | 20.4 | 1.90 | | 177.0 | 1.659 | |
| | | | | | | | | | | | | |
| | : | | | | | | | | | | | |
| | | | | · | | | | | | | | |
| | | | | | | | | | | | | |
| Comments (e | e.g. condition o | f headwork | s, sheen, col | our, odour, s | edi | ment load): | - L | | | · | | |
| Clear | , low-to | mod | sed, | ng 00 | lor | r, n | o Sheer | ١. | | | | |
| SAMPLING D | ETAILS | | | | | Sample ID |): | | | | | |
| Time: | | Vol. Remov | /ed: | | L | No of Sam | ple Container | s: 8 | | | | |
| Type of Sampl | le Containers (i.e. | P = Plastic/ | G = Glass/V = ` | Vial, volume a | nd p | = preserved | d/up = unpres | erved): | | | | |
| Field Filtered | | Duplicate S | Samples 🗆 | Duplic | ate S | Sample ID: | | | | | | |
| Comments: | | | | | | | | | | | | |
| | | | | | | | <u> </u> | | | | | |
| | CoC Number: Checked by: Date: Bores to be purged dry, until pH, T and EC readings stabilise or a minimum of 3 to 5 times the water column volumes. Water column volumes can be calculated | | | | | | | | | | | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID - 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument -specific calibration book, or in field notes as required by local procedures.



| Client: | | | | BORE ID: BHILL | | | | | | | | |
|---|---|----------------|--------------------|------------------|------------|---|-------------------|------------------|----------|--------------|--------------------------|---|
| Project: | | | | | | | | Job No. | | 013701 | | |
| Location: | | | Casing | diameter: | | <u></u> . | 50 mm | Date: | ۲ | 7/09/19 | 1 | |
| BORE CONS | TRUCTION | | | | | | | | | | | |
| | Flush- □ ount Mon | | ⊐ Casing I only | Locked | Mea Poi | asurement int | : □ Top Casing | of PVC | To | tal Depth: , | 5.071 | m |
| BORE DEVEL | OPMENT | | | | | | | | | | | |
| Method: | | Da | te: | | U | Indertaken | By: | ١ | Vol. Re | emoved: | | L |
| Comments (e | e.g. sediment co | ontent): | | | | | | | | | | |
| | | | | | | | | | | | | |
| PURGING DETAILS (measurement points in meters below top of casing as indicated above) | | | | | | | | | | | | |
| Method: Pen-pump Water Quality Meter used: YSIPro. Undertaken By: E/DS | | | | | | | | | | | | |
| Depth to wate | L | Flow | Rate: | L/mi | in | | | | | | | |
| Presence of L | resence of LNAPL Presence of DNAPL | | | | | | NAPL: | cm | | | | |
| Pump intake: | : m | | | | | | | | | | | |
| PURGING MEASUREMENTS 2 | | | | | | | | | | | | |
| Vol. Purged (L) | Elapsed Time (min) | EC (µS/cm) | Temp. (°C) | TDS (ppm mg/L | .) | рН | DO %Sat | DO (ppm¦mg/L) | | Eh (mV) | Water Level (m b TOC) | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | • | • | |
| 1L | 3 nuin | 1660 | 19.6 | 1079 | | 6.59 | 7.5 | 0.6 | 0 | -52.7 | 1.863 | |
| 26 | 6 min | 1619 | 19.5 | 1052 | | 6.66 | 3.2 | 0.2 | ٦ | -66.9 | 1.863. | |
| 31- | gnin | 1578 | 19.4 | 1025 | | 6.71 | 2.2 | 0.20 | | -71.3 | 1.863 | |
| 46 | 12min | 1558 | 19.4 | 1012 | | 6.73 | 1.9 | 0.17 | | -72.8 | 1.863 | |
| Ъ Л | ISmin | 1548 | 19-4 | 1006 | | 6.73 | 1.7 | 0.10 | | -72.7 | 1.863 | |
| | | | | | _ | | | | | | | |
| | | | | | | | | | | | | |
| Comments (e | e.g. condition o | f headwork | s, sheen, col | our, odour, s | sedin | nent load): | | | | | | |
| ······ | to Light b | | | | | | ····· | | | | | |
| Jugo | | | | Z | | ~ | | έ. | | | | |
| SAMPLING D | ETAILS | | | | | Sample (C |): | | | | | |
| Time: | | Vol. Remov | /ed: | | L | No of Sam | ple Container | s: 8 | ¥) | | | |
| Type of Sampl | e Containers (i.e. | . P = Plastic/ | G = Glass/V = | Vial, volume a | and p | = preserved | J/up = unpres | erved): | | | | |
| Field Filtered | Ø | Duplicate S | Samples 🗆 | Duplic | ate S | ample ID: | | | | | | |
| Comments: | | | | I | | | | | | | | _ |
| | | | | | | | | | | | | |
| | Coc Number: Date: Bores to be purged dry, until pH, T and EC readings stabilise or a minimum of 3 to 5 times the water column volumes. Water column volumes can be calculated | | | | | | | | | | | |
| Bores to be | e puraed dry, until I | DH. I and EC | readings stabilis | se or a minimun | n of 31 | to 5 times the | e water column | volumes. W | ater col | umn volumes | can de calculatéd | |

from the following casing volumes per unit length: 40 mm ID - 1 μ m; 50 mm ID - 2 μ m; 100 mm ID 8 μ m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



| Client: | MRWA BORE ID: BH32.1 | | | | | | | | | | | |
|--------------------------------------|---|---------------|----------------|----------------|------------------|-------------------|-------------------|---------------|-----------------------|-------------|--------------------------|------------|
| Project: | BORR Gro | oundwo | ster sar | mpling | _ ⁹ ¥ | ð Sept. | | Job No. | | 613704 | | |
| Location: | | | | diameter: | | | 50 mm | Date: | 16 | /٩ | | |
| BORE CON | STRUCTION | | | | | | | | | | | |
| | MarFlush- ™ot mount Mon | | Casing | Locked | | easurement int | t □ Top Casing | of PVC | Тс | ital Depth: | 3 | m |
| BORE DEVI | ELOPMENT | | | | | | | | | | | |
| Method: | | Da | ite: | | ι | Jndertaken | By: | · · | Vol. R | emoved: | | L |
| Comments | (e.g. sediment c | ontent): | | | | | | | | | | |
| | | | | | | | | | | | | |
| | DETAILS (measu | rement poir | nts in meters | below top of | fcas | ing as indi | cated abov | e) | | | | |
| Method: 6 | eri pump | Water C | uality Meter | used: YS | 1 | pro | | | Und | ertaken By | : DS/EE | |
| Depth to wa | ater: 3,46 m | Water C | olumn: | m | Re | q Purge Vo | ol. 1: | L | Flov | v Rate: | L/ | min |
| Presence of LNAPL Presence of DNAPL | | | | | | ickness of | NAPL: | cm | cm Depth to NAPL: | | | |
| Pump intak | e: m | | | | | | | | | | | |
| PURGING N | ASUREMENTS | <u>2</u> | | | | | | | | | Γ | |
| Vol. Purged (L) | | | | | .) | рН | DO %Sat | DO (ppmjmg | DO Eh ((ppmimg/L) | | Water Level (m b TOC) | |
| AS 5667.1 | 11: 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | - | - | |
| 1L | 3 ruin | 7087 | 19.3 | 4621 | | 4.60 | 8.1 | 0.71 | | 40.7 | 3.46 | |
| 2L | bruin | 7166 | 19.2 | 4658 | | 4.60 | 4.6 | 0.4 | ۱ | 13.I | 3.46 | |
| 3L | 9 nin | 7137 | 19.2 | 4637 | | 4.61 | 3.9 | 6.35 | > | 11.1 | 3.46 | |
| 46 | 12 min | 7103 | 19.3 | 4615 | | 4.61 | 2.1 | 0.19 | | 10.4 | 3.46 | |
| 5L | 15 min | 7072 | 19.3 | 4596 | | 4.61 | 1.7 | 0.16 | | 9.3 | 3-46 | |
| | | | | | | | | | | | | |
| | | | | | | | | | | <u> </u> | | |
| Comments | (e.g. condition o | f headwork | s, sheen, co | lour, odour, s | sedir | ment load): | ıl | | - | L | I <u>-</u> | |
| No 00 | dour, no. | Sheen | ., 10 <i>m</i> | sed, | Л | ear + | o ligh= | t brov | ۷⁄۸ | | | |
| SAMPLING | DETAILS | <u></u> | | | | Sample IC |): | · | | | | |
| Time: | | Vol. Remo | ved: | | L | No of Sam | ple Containe | rs: 8 | | | | |
| Type of Sam | ple Containers (i.e | . P = Plastic | G = Glass/V = | Vial, volume a | ind p |) = preserve | d/up = unpres | served): | | | | |
| Field Filtered | | Duplicate | Samples 🗆 | Duplic | ate S | Sample ID: | | | | | | |
| Comments: | | | | | | | | | | | | . <u> </u> |
| | | | | | | | | . | | | | |
| | CoC Number: Date: Bores to be purged dry, until pH, T and EC readings stabilise or a minimum of 3 to 5 times the water column volumes. Water column volumes can be calculated | | | | | | | | | | | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID - 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument -specific calibration book, or in field notes as required by local procedures.



| Client: | | | | | | | | BORE |): B | ORR N | 11104 | |
|--------------------|------------------------|------------------------|--------------------|---------------------|---------------|-----------|-------------------|---------------|---------|-------------|--------------------------|-------|
| Project: | | | | | | | | Job No.: | | 137041 | | |
| Location: | | | Casing | ı diameter: | | | 50 mm | Date: | ۱۹ | 8/09/16 | 1 | |
| BORE CONS | | | | | | | | | | <u></u> | | |
| | ØFlush- □ nount Mon | | □ Casing I only | Locked | Meas Point | urement | t □ Top Casing | of PVC | Tof | tal Depth: | 13.135 | m |
| BORE DEVE | LOPMENT | | | | | | | | | | | |
| Method: | | Da | te: | * | Unc | dertaken | By: | ١ | /ol. Re | emoved: | | L |
| Comments (| e.g. sediment c | ontent): | | | | | | | | | | |
| | | | | _ | | | | | | | | |
| · | ETAILS (measu | rement poi | nts in meters | | | | cated above | e) | | | | |
| | ni-pump | | uality Meter | used: | 5/1 | | | | Unde | ertaken By: | EE/10 | |
| | ter: <u> </u> | Water C | olumn: | m | | Purge Vo | | L | | Rate: | | ./min |
| Presence of | | Presence | e of DNAPL | | Thick | ness of | NAPL: | cm | Dept | h to NAPL: | | m |
| Pump intake | | | | | | | | | | | | |
| | EASUREMENTS | | | | | | | | r | | | |
| Vol. Purged (L) | Elapsed Time (min) | EC (µS/cm) | Temp. (°C) | TDS (ppm mg/L | .) | рН | DO %Sat | DO (ppm mg | /L) | Eh (mV) | Water Level (m b TOC) | |
| AS 5667.1 | 1: 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | • | | |
| 1L | Snin | 3255 | 18.4 | 2115 | 6 | 0F.6 | 4.2 | 0.38 | | -70.9 | 3.882 | 2 |
| 21 | bruin | 3230 | 18.4 | 2078 | | 6.72 | 2.9 | 0,27 | t | -76.4 | 3.882 | |
| 36 | 9nin | 3196 | 18.4 | 2077 | 6 | 5.73 | 2.4 | 0.2 | · C | - 81.7 | 3.882 | |
| 44 | 12 nin | 3090 | 17.9 | 2008 | 6 | ».77 | 1.8 | 0.17 | | -93.6 | 3.88 | 2 |
| 52 | 15 min | 3075 | 17.9 | 21998 | ł | 6.77 | 1.6 | 0.15 | | - 914.7 | 3.882 | |
| | | | | | | | | | | | | |
| | | | | | | • | | | | | | |
| Commente (| e.g. condition o | f headwork | s sheen co | l Iaur. odour. s | | | lI | | 1 | | | |
| | | | | | | | | o lluis | - Ar | · | | |
| CILLOW - | - clardy | $, \Delta \mathcal{L}$ | sheen ; | , IVIUC | SCD | <u> </u> | ujut | SUHUV | <u></u> | /ur · | | |
| SAMPLING | DETAILS | | ···· | | S | ample ID |): | | | | | |
| Time: | | Vol. Remo | ved: | | LN | o of Sam | ple Containe | rs: 8 | | | | |
| Type of Samp | ble Containers (i.e | . P = Plastic | G = Glass/V = | Vial, volume a | and p = p | preserved | :/up = unpres | served): | | | | |
| Field Filtered | Ø | Duplicate | Samples 🛛 | Duplic | ate Sarr | ıple ID: | | <u> </u> | | | | |
| Comments: | | L | | | | | | | | | | |
| | | | | | | | | | | | | |
| CoC Nur | nher: | | Cho | cked by: | | | | Date: | | | | |

from the following casing volumes per unit length: 40 mm ID - 1 μ m; 50 mm ID – 2 μ m; 100 mm ID 8 μ m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.

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| Client: | | | | | | | _ | BORE ID | | | 11105 | |
|--|---|----------------|----------------------|--------------|-------|--------------------|--------------|----------|-----------|------------|-------------------|--|
| Project: | | | | | | - | | Job No.: | | 1370 | 41 | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | 191 | 0919 | | |
| BORE CONS | TRUCTION | | | | · | | | | | | | |
| | [Flush- □ ount Mon | | ⊐ Casing – L only | | | easurement bint | Casing | of PVC | Tota | l Depth: | 7.566 m | |
| BORE DEVEL | OPMENT | | | | | | | | | | | |
| Method: | | Da | te: | | 1 | Undertaken | By: | ١ | /ol. Ren | noved: | L | |
| Comments (e | e.g. sediment c | ontent): | | | | | | | | | | |
| • | | | | | | | | | | | | |
| PURGING DE | PURGING DETAILS (measurement points in meters below top of casing as indicated above) | | | | | | | | | | | |
| Method: fen-pump Water Quality Meter used: YSIPm Undertaken By: EE 10 | | | | | | | | | | | | |
| Depth to wate | er: 5.647 | Water C | olumn: | m | Re | eq Purge Vo | d. 1: | L | Flow F | Rate: | Limin | |
| Presence of I | | Presenc | e of DNAPL | | Th | nickness of | NAPL: | cm | Depth | to NAPL: | m | |
| Pump intake: | | | | | | | | | | | | |
| PURGING ME | ASUREMENTS | <u>}</u> 2 | | | | | | | | | | |
| Vol. Purged (L) Elapsed Time (min) EC (μS/cm) Temp. (°C) TDS (ppm mg/L) pH DO %Sat (ppm mg/L) DO (ppm mg/L) Eh (mV) Water Level (m b TOC) | | | | | | | | | | | | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | • | - | |
| 11 | Bruin | 1273 | 19.7 | 826 | | 6.65 | 4.2 | 0.38 | | 96.9 | 5.647 | |
| 2L | 6 min | 1200 | 19.8 | \$779 | i | 6.60 | 3.3 | 0.31 | - | .90.4 | 5.647 | |
| 3L | 9 nuin | 1149 | 19.8 | 746 | | 6.57 | 2.8 | 0.25 | - | 86.2 | 5.647 | |
| AL | 12min | 1119 | 19.7 | 726 | | 6.55 | 2.5 | 0.22 | | - 85.8 | - | |
| 51 | 15 min | 1077 | (၅.8 | 699 | | 6.52 | 2.3 | 0.21 | | . 87.3 | 5.6 L F | |
| 6L | 18 nuin | 1071 | 19.8 | 696 | | 6.52 | 2.2 | 0.20 | , - | 87.7 | 5.647 | |
| | | | | | | | | | | | | |
| | | | | | | | | | | `. | | |
| Comments (e | e.g. condition o | f headwork | s, sheen, col | our, odour, | sedi | ment load): | | | ., | | | |
| clew | , Sulqu | r oda | ar, lon | ssed, | na | sleen | <u>^ -</u> | | | | | |
| SAMPLING D | ETAILS | | | | | Sample ID |): | | | | | |
| Time: | | Vol. Remo | ved: | | L | No of Sam | ple Containe | rs: 🞗 | | | | |
| Type of Sampl | le Containers (i.e | . P = Plastic/ | G = Glass/V = | Vial, volume | and p | p = preserved | d/up = unpre | served): | | | | |
| Field Filtered | | Duplicate : | Samples 🗆 | Dupli | cate | Sample ID: | | | | | | |
| Comments: | | L | | 1 | | · | | | | | | |
| · · · · · · · · · · · · · · · · · · · | ······ | | | | | | | | | | | |
| CoC Num | | | | cked by: | moto | 2 to 5 times the | water colum | Date: | ator colu | mn volumer | can be calculated | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID - 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.

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| works mount Monument only Point Casing S. 000 BORE DEVELOPMENT Method: Date: Undertaken By: Vol. Removed: Comments (e.g. sediment content): Undertaken By: Vol. Removed: PURGING DETAILS (measurement points in meters below top of casing as indicated above) Method: Undertaken By: Undertaken By: EE / #2 (c PURGING DETAILS (measurement points in meters below top of casing as indicated above) Method: Undertaken By: EE / #2 (c) Method: @Date: Water Quality Meter used: \SI Aro Undertaken By: EE / #2 (c) Purginds MEASUREMENTS / Water Column: m Req Purge Vol. 1: L Flow Rate: L/min PURGING MEASUREMENTS / Presence of DNAPL Thickness of NAPL: cm Dof(s) Meter Level (mpmingl) En (mV) Water Level (mp Time(n) Meter Level (mp Time(n) Meter Level (mp Time(n) Em Time (ma) Vol. Removed: | Client: | | | | · ··· | | | | BORE |): [| | | | | | | | | | | | | |
|--|---|---|-------------|------------|----------------|------|---------------|---------------|--------------|-------------|--------------|----------------|-------|--|--|--|--|--|--|--|--|--|--|
| BORE CONSTRUCTION Total Depth: Casing □ Locked Measurement □ Top of PVC Total Depth: S. 006 r Head: works DXFkush- maunt Date: Undertaken By: Vol. Removed: Vol. Removed: BORE DEVELOPMENT Method: Date: Undertaken By: Vol. Removed: Vol. Removed: Comments (e.g. sediment content): Oate: Undertaken By: Vol. Removed: Undertaken By: Vol. Removed: PURGING DETAILS (measurement points in meters below top of casing as indicated above) Method: Indertaken By: Etc. /# Indertaken By: Etc. /# Indertaken By: Etc. /# Indertaken By: Indertaken By: Indertaken By: Indertaken By: Etc. /# Indertaken By: Indertaken By:< | | | | | | | | | · · · | | | | | | | | | | | | | | |
| Head- mount XFlush- mount Only Locked Measurement Point Date Total Depth: 8, ∞6 7 BORE DEVELOPMENT Mathod: Date: Undertaken By: Vol. Removed: Vol. Removed: Comments (e.g. sediment content): Date: Undertaken By: Vol. Removed: Undertaken By: Vol. Removed: PURGING DETAILS (measurement points in meters below top of casing as indicated above) Mathod: Undertaken By: EE Mathod: PURGING DETAILS (measurement points in meters below top of casing as indicated above) Mathod: Undertaken By: EE Mathod: PURGING MEASUREMENTS: Water Column: m Rea Purge Vol. 1: L Flow Rate: Undertaken By: EE Mathod: Vol. Purged Elapsed EC Temp. (*O TDS D0 %Sat DD DD Mater Level (mb TOC) AS 567.11: 198 (rM) 10% 0.2* 10% 10% 10% . <td< td=""><td>Location:</td><td></td><td></td><td>Casing</td><td>diameter:</td><td></td><td></td><td>50 mm</td><td>Date:</td><td>١٤</td><td>8/09/19</td><td></td><td></td></td<> | Location: | | | Casing | diameter: | | | 50 mm | Date: | ١٤ | 8/09/19 | | | | | | | | | | | | |
| BORE DEVELOPMENT Method: Date: Undertaken By: Vol. Removed: Comments (e.g. sediment content): PURGING DETAILS (measurement points in meters below top of casing as indicated above) Method: @Vire Quality Meter used: \(S1 Pro.) Undertaken By: EE /# (c Depth to water: 5. A13 m Water Coolumn: m Req Purge Vol. 1: L Flow Rate: L/min Presence of LNAPL Presence of DNAPL Thickness of NAPL: m Depth to NAPL: m Depth to NAPL: m m Purplintake: m Purplintake: m Purplintake: m m Purplintake: m Doff to NAPL: m Depth to NAPL: m Purplintake: m Purplintake: m m Purplintake: m Noff m m flow Rate: L/min Mater Level (m to Toth flow flow flow flow flow flow flow flow | BORE CONSTRUCTIO | N | | | | | | | | | | | | | | | | | | | | | |
| Method: Date: Undertaken By: Vol. Removed: Comments (e.g. sediment content): PURGING DETAILS (measurement points in meters below top of casing as indicated above) Undertaken By: Vol. Removed: PURGING DETAILS (measurement points in meters below top of casing as indicated above) Undertaken By: Eff MP (above) Method: Purp (Mater Quality Meter used: YS.1 Pro. Undertaken By: Eff MP (above) Depth to water: 5.4(3 m) Water Column: m Req Purge Vol. ': L Flow Rate: Undertaken By: Presence of LNAPL Presence of DNAPL Thickness of NAPL: Cm Depth to NAPL: n PURGING MEASUREMENTS * Vol. Purged Elagosed Eff (m) Water Level (mb TOC) Meter Level (mb TOC) As sep:rit: 10% 0.2 c 10% 10% 0.2 . . 1L Shuin 91.5 19.4 57.4 7.2.7 3.2 0.2.8 . . 2L Gruin 82.1 19.7 57.4 7.2.6 2.1.2 0.1.9 | | | | sing D | Locked | | | | | T | otal Depth: | 8.006 | m | | | | | | | | | | |
| Comments (e.g. sediment content): PURGING DETAILS (measurement points in meters below top of casing as indicated above) Method: PUN-purp Water Quality Meter used: YS1 Pro . Undertaken By: EE /# 10 Depth to water: 5. A(13 m) Water Column: m Req Purge Vol. 1: L Flow Rate: Limit Presence of LNAPL Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: n Depth to NAPL: m PURGING MEASUREMENTS ² Vol. Purged Elipsed EC Temp. (*C) TDS pH D0 %Sat DO DO Eh (mV) Water Level (m b TOC) As Sep7.11: 1998 (c4+) 10% 0.2×c 10% 10% 10% - <t< td=""><td>BORE DEVELOPMENT</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<> | BORE DEVELOPMENT | | | | | | | | | | | | | | | | | | | | | | |
| PURGING DETAILS (measurement points in meters below top of casing as indicated above) Method: PUR-purp Water Quality Meter used: YSI Pro Undertaken By: EE // // // // // // // // // // // // / | Method: | | Date: | | | l | Undertaken | By: | ١ | Vol. F | Removed: | | L | | | | | | | | | | |
| Method:Prime PURWater Quality Meter used: $\langle S1 \ Pro \cdot$ Undertaken By: $EE \ PrimeEE \ $ | Comments (e.g. sedim | ent content) |): | | | | | | | ••••• | | | | | | | | | | | | | |
| Method:Prime PURWater Quality Meter used: $\langle S1 \ Pro \cdot$ Undertaken By: $EE \ PrimeEE \ $ | | | | | | | | | | | | | | | | | | | | | | | |
| Depth to water: 5. A(3 m) Water Column: m Req Purge Vol. 1: L Flow Rate: L/min Presence of LNAPL Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: n Pump intake: m Thickness of NAPL: cm Depth to NAPL: n PURGING MEASUREMENTS 2 Temp. (°C) TDS pH D0 %Sat DO Eh (mV) Water Level (L) Time (min) (LS:cm) Temp. (°C) TDS pH D0 %Sat DO Eh (mV) Water Level (L) Shinin QL S (P, 9 SAL 7.27 3.2 O.28 -flo-2 S.413 ZL Gnuin M32 (P, 9 SAL 7.26 2.2 O.19 -ft%3.5 S.413 ZL Gnuin M32 (P, 9 SAL 7.26 2.2 O.19 -ft%3.5 S.413 ZL Gnuin M32 (P, 9 SAL 7.26 2.2 O.19 -ft%3.5 S.413 ZL Gnuin M20 (P.3 SAL F.00 S.413 | | | | | | | | | | | | | | | | | | | | | | | |
| Presence of LNAPL □ Thickness of NAPL: cm Depth to NAPL: n Pump intake: m | Method: Peri-pu | mp Wat | ter Quality | / Meter u | ised: Y | 81 | Pro. | | | | <u>.</u> | / | | | | | | | | | | | |
| Pump intake: m PURGING MEASUREMENTS ² Vol. Purged Elapsed Time (min) EC (u)S(cm) Temp. (*C) TDS (ppm/ingl.) pH D0 %Sat (ppm/ingl.) D0 (ppm/ingl.) Eh (mV) Water Level (m b TOC) AS 567.11: 1998 (~H) 10% 0.2~c 10% 10% 0 . 1L 3 min 91.5 19.9 594 7-29 3.2 0.28 -ft0-2 5.2415 2L 6 min 882 19.9 571 7-26 2.2 0.19 -178.3 5.413 3L 9 min 713 19.9 51.3 7.13 2.1 0.19 -1/45.2 5.143 4L 12 min 72.0 19.8 2/65 7.00 3.0 0.27 -116.2 5.143 5L 15 min 5.3 19.8 2/65 5.0 0.447 -79.0 5.143 6L 18 min 412.1 19.7 2/66 6.43 15.1 1.37 -2/8.8 5.143 7L 21 min 4/8.8 19.7 2/62 6.43 | | <u>· · · · · · · · · · · · · · · · · · · </u> | | | m | | | | L | | | | ./min | | | | | | | | | | |
| PURGING MEASUREMENTS? Vol. Purged Elapsed Time (min) Comp. (*C) TDS (ppm/mg/L) pH D0 %Sat DO (ppm/mg/L) Eh (mV) Water Level (m b TOC) AS 567.11: 1998 (*H) 10% 0.2*C . 10% 10% 0.2 . 10% 10% . . 1L Swin 9(5) [9.9] 59(4) 7.2.0 3.2 0.2.8 | | D Pre | sence of I | DNAPL | | Th | ickness of | NAPL: | cm | Dep | oth to NAPL: | | m | | | | | | | | | | |
| Vol. Purged (L) Elapsed Time (min) EC (µSicm) Temp. (°C) TDS (ppm mg/L) pH D0 %Sat D0 (ppm mg/L) Eh (mV) Water Level (m b TOC) AS 5667.11: 1998 (*H) 10% 0.2*C . 10% 10% . . 1L 3 ruin 9(*S) (9.9) 59.4 7.29 3.2 0.28 -fl0-2 5.413 2L 6 ruin 882 19.9 571 7.26 2.2 0.19 -f78.3 5.413 3L 9 ruin 713 19.9 513 7.13 2.1 0.19 -l45.2 5.143 4L 12 ruin 72.0 19.8 4.65 7.00 3.0 0.27 -116.2 5.143 5L 15 ruin 553 19.8 35 % 6.82 5.0 0.447 -79.0 5.143 6L 18 ruin 412.1 19.7 2.66 6.43 15.1 1.37 -2.8.8 5.143 7L 21 ruin 408.8 19.7 2.65 6.43 14.8 71.55 -26.4 5.143 | | | | | | | | | | | | | | | | | | | | | | | |
| (L) Time (min) (usicm) (ppm mg/L) (ppm mg/L) (m b TOC) AS 5667.11: 1998 (*4) 10% 0.2*C . 10% 10% 10% . 1L 3 huin 9L 5 (9.9) 594 7.29 3.2 0.28 -ft0-2 5.418 2L 6 huin 882 19.9 594 7.26 2.2 0.19 178.3 5.413 3L 9 huin 713 19.9 513 7.13 2.1 0.19 -145.2 5.143 4L 12 min 72.0 19.8 2.65 7.00 3.0 0.27 -116.2 5.143 5L 15 min 553 19.8 35% 6.82 5.0 0.447 -79.0 5.143 6L 18 min 412.1 19.7 2.66 6.40 1.07 -4443 5.143 7L 21 min 408.8 19.7 2.65 6.43 15.1 1.37 -2.8.8 5.142 8L 24 min 402.1 19.7 2.65 6.43 14.8 91.55 | · | | | | | | ··· I | | | | | 184-4 | 1 | | | | | | | | | | |
| 1L 3n in 91 S 19.9 S94 7-29 3.2 0.28 -190-2 S.44S 2L 6n in 882 19.9 S71 7.26 2.2 0.19 -178.3 S.44S 3L 9 min 713 19.9 S13 7.13 2.1 0.19 -145.2 5.143 4L 12 min 720 19.8 2.65 7.00 3.0 0.27 -116.2 5.143 5L 15 min 553 19.8 2.65 7.00 3.0 0.27 -716.2 5.143 6L 18 min 412.1 19.7 266 6.60 11.6 1.07 -444.3 5.143 7L 21 min 408.8 19.7 265 6.43 15.1 1.37 -28.8 5.143 8L 24 min 402.1 19.7 262 6.43 14.8 71.55 -26.4 5.143 8L 24 min 402.1 19.7 262 6.43 14.8 71.55 -26.4 5.143 comments (e.g. condition of headworks, | | | | | | | | | | | | | | | | | | | | | | | |
| 2L $6nin$ 882 19.9 571 7.26 2.2 0.19 -178.3 5.413 $3L$ $9nin$ 793 19.9 513 7.13 2.1 0.19 -145.2 5.143 $4L$ $12 min$ 720 61.8 465 7.00 3.0 0.27 -116.2 5.143 $5L$ $15 min$ 553 19.8 357 6.82 5.0 0.47 -79.0 5.143 $6L$ $18 min$ 412.1 19.7 266 6.60 11.6 1.07 -4443 5.143 $7L$ $21 min$ 408.8 19.7 265 6.43 15.1 1.37 -28.8 5.143 $8L$ $24 min$ 402.1 19.7 262 6.43 14.8 91.35 -26.4 5.143 Comments (e.g. condition of headworks, sheen, colour, odour, sediment load): $5MgLr$ $5MgLr$ 6.43 14.8 91.35 -26.4 5.144 Sample ID: Sample ID: $5MgLr$ | AS 5667.11: 1998 (<+/-) | 10% | 6 0 | .2°C | - | | 10% | 10% | 10% | | - | - | | | | | | | | | | | |
| $3L$ 9 min. 713 19.9 513 7.13 2.1 0.19 -145.2 5.143 $4L$ 12 min 720 9.8 465 7.00 3.0 0.27 -116.2 5.143 $5L$ 15 min 553 19.8 357 6.82 5.0 0.47 -79.0 5.143 $6L$ $8min$ 412.1 19.7 266 6.60 11.6 1.07 -443 5.143 $7L$ $21min$ 408.8 19.7 265 6.43 15.1 137 -28.8 5.143 $8L$ $24min$ 402.1 19.7 262 6.43 14.8 91.35 -26.4 5.143 Comments (e.g. condition of headworks, sheen, colour, odour, sediment load): $SkigUt$ $Sugut$ $Sugut$ $Sugut$ $100 + 0 \mod Sed$. SAMPLING DETAILS Sample ID: $Sample ID:$ $Time:$ $Vol. Removed:$ L No of Sample Containers: 8 Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = un | 1L Ju | in 91. | 5 19 | . ૧ | 594 | | 7-29 | 3.2 | 0.2 | 8 | · · | | • | | | | | | | | | | |
| 4L $12 min$ 720 19.8 465 7.00 3.0 0.27 -116.2 5.143 $5L$ $15 min$ 553 19.8 357 6.82 5.0 0.47 -79.0 5.143 $6L$ $15 min$ 553 19.7 266 6.60 11.6 1.07 -4443 5.143 $6L$ 19.7 265 6.43 15.1 1.37 -28.8 5.143 $7L$ $21 min$ 408.8 19.7 265 6.43 15.1 1.37 -28.8 5.143 $8L$ $24 min 402.1$ 19.7 262 6.43 14.8 61.35 -26.4 5.143 Comments (e.g. condition of headworks, sheen, colour, odour, sediment load): 500 500 500 100 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 10000 10000 10000 <td< td=""><td>ZL bru</td><td>in 88</td><td>2 14</td><td>٦.٩</td><td>571</td><td></td><td>7.26</td><td>2.2</td><td>0.10</td><td>ነ</td><td>- 178.3</td><td><u>S. 41</u>5</td><td>5</td></td<> | ZL bru | in 88 | 2 14 | ٦.٩ | 571 | | 7.26 | 2.2 | 0.10 | ነ | - 178.3 | <u>S. 41</u> 5 | 5 | | | | | | | | | | |
| $4 \bot$ $12 \min$ 720 9.8 465 $7, \infty$ 3.0 0.27 -116.2 5.143 $5 \bot$ $15 \min$ 553 19.8 357 6.82 5.0 0.47 -79.0 5.143 $6 \bot$ $15 \min$ 412.1 19.7 266 6.60 11.6 1.07 -44.3 5.143 $7 \bot$ $21\min$ 408.8 19.7 265 6.43 15.1 1.37 -28.8 5.143 $8 \bot$ $24\min$ 402.1 19.7 262 6.43 14.8 91.35 -26.4 5.143 Comments (e.g. condition of headworks, sheen, colour, odour, sediment load): 500 500 11.3 500 5.143 SAMPLING DETAILS Sample ID: 500 100 1000 | 3L 9n | in. 793 | 3 19 | .9 | 513 | | 7.13 | 2.1 | 0.19 | | -145.2 | ら.14 | 3 | | | | | | | | | | |
| 6L 18 min $H12.1$ 19.7 266 6.60 11.6 1.07 -44.3 5.143 7L 21 min 408.8 19.7 265 6.43 15.1 1.37 -28.8 5.143 8L 24 min 402.1 19.7 262 6.43 14.8 $@1.35$ -26.4 5.143 Comments (e.g. condition of headworks, sheen, colour, odour, sediment load): SLight Surfur odour, no Sheen, yellow - cloudy, low -to mod Sed. SAMPLING DETAILS Time: Vol. Removed: L No of Sample Containers: 8 Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): Field Filtered Duplicate Samples Duplicate Sample ID: Comments: | 4L 12m | in 72 | .0 19 | . 8 | 465 | | 7,00 | 3.0 | 0.27 | ł | -116.2 | 5.14 | 3 | | | | | | | | | | |
| $7L$ 21 min 408.8 19.7 265 $6\cdot 43$ 15.1 1.37 -28.8 $5.14/3$ $8L$ $24 \text{ min} 402.1$ 19.7 262 6.43 14.8 $@1.35$ -26.4 $5.14/3$ Comments (e.g. condition of headworks, sheen, colour, odour, sediment load): $Slight Sulfur odour, no sheen, yellow - cloudy, low to mod sed. SAMPLING DETAILS Sample ID: Time: Vol. Removed: L No of Sample Containers: 8 Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): Field Filtered Duplicate Samples Duplicate Sample ID: Comments: Duplicate Samples Duplicate Sample ID: Comments: $ | 5L 15M | <i>i</i> n 55 | 3 19 | 8.1 | 357 | | | | | | | | | | | | | | | | | | |
| 8L 24 nin 402.1 19.7 262 6.43 14.8 91.35 -26.4 5.143 Comments (e.g. condition of headworks, sheen, colour, odour, sediment load): Skight Sulfur odour, no Shean, yellow -cloudy, low to mod Sed. SAMPLING DETAILS Sample ID: Time: Vol. Removed: L No of Sample Containers: 8 Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): Field Filtered Image: Description of Duplicate Samples | 6L (8ni | n + 12 | 1 19 | .7 | 266 | | 6.60 | 11.6 | <u> 1.07</u> | | -44.3 | 5.14 | 3 | | | | | | | | | | |
| Comments (e.g. condition of headworks, sheen, colour, odour, sediment load): Stught Sugar odour, no Sheen, yellow -clouely, low to mod Sed. SAMPLING DETAILS Sample ID: Time: Vol. Removed: L No of Sample Containers: 7ype of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): Field Filtered Duplicate Samples Duplicate Sample ID: Comments: | 7L 21n | in 408 | .8 19 | .7 | 265 | | | | | | -28.8 | 5.143 | > | | | | | | | | | | |
| Stight Sulfur odour, no Sheen, yellow -cloudy, low -b mod Sed. SAMPLING DETAILS Time: Vol. Removed: L No of Sample Containers: Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): Field Filtered Duplicate Samples Duplicate Sample ID: Comments: | 81 24n | vin 402 | (9 | .7 | 262 | | 6.43 | 14.8 | @1.35 | > | -26.4 | 5.143 | > | | | | | | | | | | |
| SAMPLING DETAILS Sample ID: Time: Vol. Removed: L No of Sample Containers: S Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): Field Filtered Duplicate Samples Duplicate Sample ID: Comments: | Comments (e.g. condi | tion of head | works, sh | een, colo | our, odour, s | ediı | ment load): | | | | | | | | | | | | | | | | |
| Time: Vol. Removed: L No of Sample Containers: S Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): Field Filtered Duplicate Samples Duplicate Sample ID: Comments: Comments: Comments: Comments: Comments: | Sloght surg | urodo | ir, na | she | en, y | U | lan-c | Jandy | <u>, lon</u> | <u>) -(</u> | omod | sed. | | | | | | | | | | | |
| Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): Field Filtered Duplicate Samples Duplicate Samples Duplicate Sample ID: Comments: Duplicate Sample ID: | SAMPLING DETAILS | | | | | | Sample ID |): | | | | | | | | | | | | | | | |
| Field Filtered Duplicate Samples Duplicate Sample ID: Comments: | Time: Vol. Removed: L No of Sample Containers: 8 | | | | | | | | | | | | | | | | | | | | | | |
| Comments: | Type of Sample Containe | ers (i.e. P = Pla | astic/G = G | lass/V = V | /ial, volume a | nd p |) = preserved | d/up = unpres | served): | | | | | | | | | | | | | | |
| | Field Filtered 🗹 Duplicate Samples 🗆 Duplicate Sample ID: | | | | | | | | | | | | | | | | | | | | | | |
| | Comments: | 1 | | | 1 | | | | - | | | - | | | | | | | | | | | |
| CoC Number | | | | | | | | | | | | | | | | | | | | | | | |
| CoC Number: Checked by: Date: Bores to be purged dry, until pH, T and EC readings stabilise or a minimum of 3 to 5 times the water column volumes. Water column volumes can be calculated | CoC Number: | | 450 " | | - | | to E there at | unter echarry | Date: | ate | | can be calavit | atod | | | | | | | | | | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



| Client: | | | | | | | | BORE II |): | POLL | 10007 | |
|--|---|---------------|---------------|------------------|----|-------------------|-------------------|---------------|--------|---------------|--------------------------|--|
| Project: | | | | | | | | Job No. | : (| <u>613701</u> | LI I | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | 18 | 5/09/19 | | |
| BORE CONS | TRUCTION | | | | | | | | | • | | |
| | I Flush- □ ount Mon | | Casing Casing | | | easurement int | t □ Top Casing | of PVC | To | otal Depth: | (1.767 ^m | |
| BORE DEVEL | LOPMENT | | | | | | | | | | | |
| Method: | | Da | ate: | | ι | Jndertaken | By: | • | Vol. R | emoved: | L | |
| Comments (e.g. sediment content): | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| PURGING DE | PURGING DETAILS (measurement points in meters below top of casing as indicated above) | | | | | | | | | | | |
| Method: $Bau(ev$ Water Quality Meter used: <u>451</u> Pro Undertaken By: | | | | | | | | | | | | |
| Depth to water: O O O M Water Column: m Req Purge Vol. 1: L Flow Rate: L/min | | | | | | | | | | | | |
| Presence of LNAPL Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: m | | | | | | | | | | | | |
| Pump intake: m | | | | | | | | | | | | |
| PURGING ME | EASUREMENTS | 2 | | | | | | | | | | |
| Vol. Purged (L) | Elapsed Time (min) | EC (µS/cm) | Temp. (°C) | TDS (ppm mg/L | .) | pН | DO %Sat | DO (ppmļmg | /L) | Eh (mV) | Water Level (m b TOC) | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | | | 10% | 10% | 10% | | - | - | |
| | | 508 | J0.0 | ८८० | | 6.28 | 76.3 | @6.9 | 2 | 83.6 | 10.019 | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | <u></u> | | | | | | | | |
| | | | | | | | | | | | <u>.</u> | |
| | | | | | | | | | | | | |
| | | | | | | | · | | | | | |
| | | | | - | | | | | | | | |
| | e.g. condition of | | | | | | | ······ | | | | |
| Bailed | not pium igilt bro | pid - | reena | rge vat | ł | too slo | w firs | tiour | d | | ., | |
| milky (| igut bro | wn, t | urbid, | No She | en | -, no | odour | , Ma | d se | ed. | | |
| SAMPLING D | ETAILS | | | | | Sample ID |): | | | | | |
| Time: | | Vol. Remo | ved: | | L | No of Sam | ple Container | rs: S | 2 | | | |
| Type of Sample | Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): | | | | | | | | | | | |
| Field Filtered 🖬 Duplicate Samples 🗆 Duplicate Sample ID: | | | | | | | | | | | | |
| Comments: | | | | t | | | | | | | | |
| | | | | | | | | | | | | |
| CoC Num | ber: | | Che | cked by: | | | unter column | Date: | | | | |

Bores to be purged dry, until pH, T and EC readings stabilise or a minimum of 3 to 5 times the water column volumes. Water column from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID - 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument -specific calibration book, or in field notes as required by local procedures. volumes can be calculated



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Groundwater Monitoring – Field Sheet

| Client: | | | | | | | | BORE I |): GORR N | | |
|----------------------|----------------------------------|---------------|------------------|---------------------------------------|----------|--------------------|-------------------|----------------------|---------------------|--------------------------|------|
| Project: | | | | | | | | Job No.: | | | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | 18/09/1 | 9 | |
| BORE CON | ISTRUCTION | | | | | | | | | | |
| | ⊠ Flush- □ mount Mon | | Casing I only | | | easurement pint | t □ Top Casing | of PVC | Total Depth: | 5.828 | m |
| BORE DEV | ELOPMENT | | | | | | | | | | |
| Method: | | Da | ate: | | | Undertaken | By: | <u> </u> | /ol. Removed: | | L |
| Comments | (e.g. sediment co | ontent): | **** | | | | | | | | |
| | | | | | | | | | | | - |
| PURGING | DETAILS (measur | ement poi | nts in meters | below top of | fcas | sing as indi | cated above |) | | | |
| Method: | Ren-pump | Water C | uality Meter | used: | L. | JSI Pro | | | Undertaken By | : EE 10 | |
| Depth to w | ater: 2.073 m | Water C | olumn: | m | Re | eq Purge Vo | ol. 1: | L | Flow Rate: | L/m | າ່າກ |
| Presence o | | Presen | e of DNAPL | | Th | nickness of | NAPL: | ¢m | Depth to NAPL | : | m |
| Pump intal | ke: m | | | | | | | | | | |
| PURGING | MEASUREMENTS | 2 | ·· | | | | | | | r | |
| Vol. Purged (L) | Elapsed Time (min) | EC (µS/cm) | Temp. (°C) | TDS (ppm mg/L | .) | рН | DO %Sat | DO (ppm mg | /L) Eh (mV) | Water Level (m b TOC) | |
| AS 5667. | .11: 1998 (<+/-) | 10% | 0.2∘C | - | | 10% | 10% | 10% | - | - | |
| 11 | Snin | 524 | 18.5 | 341 | | 5.84 | 2.8 | 0.26 | , -27.7 | 2.073 | |
| 21 | 6min | 530 | 18.4 | 344 | | 5.83 | 2.1 | 0.20 | 3 -32.4 | 2.073 | |
| 32 | 9 nin | 530 | 18.4 | 345 | | 5.82 | 1.8 | 018 | - 35.4 | 2.073. | |
| 46 | 12 nijn | 530 | 18,4 | 345 | | 5.82 | 1.6 | 0.15 | -37.4 | 2.078 | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | (e.g. condition of | | | | | | | | | | |
| er yellen |), as Sul | fur od | air, lo | w sed | . | no Qu- | eln. | **** | | | |
| SAMPLING | DETAILS | | | | | Sample ID |): | | | <u></u> | |
| Time: | | Vol. Remo | ved: | | L | No of Sam | ple Container | s: 8 | | | |
| Type of Sam | ple Containers (i.e. | P = Plastic | /G = Glass/V = ' | Vial, volume a | nd p | o = preserved | d/up = unpres | erved): | | | |
| Field Filtered | t 🗹 | Duplicate | Samples 🗆 | Duplic | ate \$ | Sample ID: | | | | | |
| Comments | | | | · · · · · · · · · · · · · · · · · · · | | | | | | | |
| | | | | -111 | | | | | | | |
| CoC Nu 1 Bores to | imber: be purged dry, until (| oH, T and EC | | cked by: se or a minimum | 1 of 3 | to 5 times the | e water column | Date: volumes. Wa | ater column volumes | s can be calculated | d |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



| Client: | | | | | | | | BORE II | | <u>CORRA</u> | | | |
|---|---|----------------|--------------------|----------------|------|--------------------|--------------------|---------|---------|--------------|---|--|--|
| Project: | | | | | | | | Job No. | | 013704 | | | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | ١ | 81091 | 19 | | |
| BORE CONS | TRUCTION | | | | | | | | | | | | |
| | ÌFlush- □ ount Mon | | □ Casing I only | | | easurement oint | : □ Top Casing | of PVC | To | otal Depth: | 5.305 ^m | | |
| BORE DEVEL | LOPMENT | | | | | | | | | | | | |
| Method: | | Da | te: | | | Undertaken | By: | 1 | Vol. R | Removed: | L | | |
| Comments (e | e.g. sediment c | ontent): | | | | | | | | | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | | |
| | | | | | | | | | | | | | |
| PURGING DE | PURGING DETAILS (measurement points in meters below top of casing as indicated above) | | | | | | | | | | | | |
| Method: Peri-pump Water Quality Meter used: USI Pro Undertaken By: EE 10 | | | | | | | | | | | | | |
| Depth to wat | er: 3 . 140 m | Water C | olumn: | m | Re | eq Purge Vo | ol. ⁴ : | L | Flov | w Rate: | L/min | | |
| Presence of I | | Presenc | e of DNAPL | | T۲ | nickness of | NAPL: | cm | Dep | th to NAPL | m m | | |
| Pump intake: | Pump intake: m | | | | | | | | | | | | |
| PURGING ME | EASUREMENTS | 3 ² | | | | | | | | | | | |
| PURGING MEASUREMENTS ² Vol. Purged Elapsed EC Temp. (°C) TDS pH DO %Sat DO Eh (mV) Water Level (ppm mg/L) (µS/cm) (µS/cm) (0 DO (ppm mg/L)) | | | | | | | | | | | | | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | • | | 10% | 10% | 10% | | - | • | | |
| 1L | 3 nin | 495.0 | 18.3 | 316 | | 5.96 | 32.7 | 3.10 | · | 129.0 | 3.140 | | |
| 2L | brin | 384.6 | 18.2 | 247 | | 5.98 | 41.9 | 3.9 | 6 | 127.1 | S.140 | | |
| 3L | 9 rin | 372.2 | 18.2 | 243 | | 5.95 | 44.1 | 4.1 | 5 | 130.4 | 3.140 | | |
| 4L | 12 nin | 401.2 | 18.2 | 261 | | 5.91 | 41.8 | 3.92 | | 134.2 | 3.140 | | |
| 5L | 15nin | 401.0 | 18.2 | 262 | | 5.૧١ | 41.3 | 3.89 | | 136.8 | 3.140 | | |
| u | | | | | | | | | | | | | |
| | | | - | | | | | | | | | | |
| Comments (e | e.g. condition o | f headwork | s, sheen, col | our, odour, s | edi | ment load): | | | | | | | |
| Clear. | , no odi | ur, h | o nee | m, 1a | N | sed. | | | | | | | |
| , | , |) | 0/ | <i>.</i> | | - | | | | | | | |
| SAMPLING D | ETAILS | | | | | Sample ID |): | | | | | | |
| Time: | | Vol. Remov | ved: | | L | No of Sam | ple Container | s: 💡 | | | | | |
| Type of Sampl | le Containers (i.e | . P = Plastic/ | G = Glass/V = | Vial, volume a | nd p | p = preserved | l/up = unpres | erved): | | | | | |
| Field Filtered | d | Duplicate S | Samples 🖾 | Duplic | ate | Sample ID: | | | | | | | |
| Comments: | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| CoC Num | iber: e purged dry, until | nU T and EC | | cked by: | of 2 | to 5 times the | water column | Date: | ator co | lumn volumes | can be calculated | | |

from the following casing volumes per unit length: 40 mm ID - 1 μ m; 50 mm ID - 2 μ m; 100 mm ID 8 μ m. Calibration details to be recorded in the instrument -specific calibration book, or in field notes as required by local procedures.



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Groundwater Monitoring – Field Sheet

| Client: | | | | | | | | BORE II | D: { | BORRI | INIO | |
|--------------------|-----------------------|----------------|-----------------------------|------------------|-------|--------------------|---------------------------------------|---------------|----------|--|--------------------------|-----|
| Project: | | | | | | | | Job No. | : (| 013701 | <u>+1</u> | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | <u>(</u> | 8/09/10 | ۱ | |
| BORE CONS | | | | | 1 | | | | | | | |
| | ÎFlush- □ ount Mor | | □ Casing only | | | easurement pint | t D Top Casing | of PVC | T | otal Depth: | 4.114 | m |
| BORE DEVE | | | | _ | | | | | | | | |
| Method: | | Da | te: | | | Undertaken | By: | <u> </u> | Vol. F | Removed: | | L |
| Comments (e | e.g. sediment c | ontent): | | | | | | | | | | |
| | ······ | | | | | | | | | | | |
| | TAILS (measu | rement poir | nt <mark>s in</mark> meters | below top o | fcas | sing as indi | cated above | *) | | . <u> </u> | | |
| Method: PU | <u>ri-pump</u> | Water Q | uality Meter | used: | 4 | htp. | | | Und | dertaken By | 臣 110 | |
| Depth to wat | er: 1.375m | Water C | olumn: | m | - | eq Purge Vo | · · · | L | <u> </u> | w Rate: | | min |
| Presence of | | Presenc | e of DNAPL | | Th | nickness of | NAPL: | cm | Dep | oth to NAPL | | m |
| Pump intake | | _ | | | | | | | | | | |
| | | | | | | | | | | | | |
| Vol. Purged (L) | Elapsed Time (min) | EC (µS/cm) | Temp. (°C) | TDS (ppm mg/L | _) | рН | DO %Sat | DO (ppm¦mg | j/L) | Eh (mV) | Water Level (m b TOC) | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | • | | 10% | 10% | 10% | | | - | |
| ۱L | Bruin | So: | 16.8 | 323 | | 6.06 | 3.1 | 0.30 | 0 | -9.0 | 1.375 | > |
| 2L | brin | 463.3 | 16.6 | 300 | | 6.08 | 2.0 | 0.19 | } | -5.4 | 1.575 | - |
| 3L | 9nvin | 454.9 | 16.6 | 295 | | 6.09 | 1.8 | 0.17 | t | -3.6 | 1.375 | - |
| 42 | 12 Min | 450.3 | ط. 6) | 243 | | 6.09 | 1.7 | 0. (6 | 1 | -2.4 | 137 | 5 |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Comments (e | e.g. condition c | f headwork | s, sheen, col | our, odour, s | sedi | ment load): | P | | | ······································ | | |
| CLOM | V, LOU | 1 to m | rdsed. | NO 00 | 104 | ir, no | sheer | <u>ำ</u> . | | | | |
| |) | | | | | | 1000 Paul 10 7 11 Prove 100 77000 P | | | | | |
| SAMPLING D | ETAILS | | | | | Sample ID |): | | | | | |
| Time: | | Vol. Remo | ved: | | L | No of Sam | ple Container | rs: 8 | | | | |
| Type of Sampl | e Containers (i.e | . P = Plastic/ | G = Glass/V = | Vial, volume a | and p | p = preserved | 1/up = unpres | erved): | | | | |
| Field Filtered | | Duplicate \$ | Samples 🛛 | Duplic | ate (| Sample ID: | · · · · · · · · · · · · · · · · · · · | | | | | |
| Comments: | | | | | | | | | | | | |
| | ······ | | | | | | | | | | | |
| CoC Num | ber: | | Che | cked by: | | | | Date: | | | | |

Calibration details to be recorded in the instrument -specific calibration book, or in field notes as required by local procedures.



| Client: | | | | | | | | BORE |): (| Sorr i | JUNI | |
|---|---|---|--------------------|-----------------|-------|--------------------|---------------------------------------|---------------|----------|---------------|-------------|--------|
| Project: | | | <u> </u> | | | | | Job No.: | | 613701 | | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | - 14 | 7/09/19 | | |
| BORE CONS | | | | | | | | | | | | |
| · · · | NFlush- 🗆 ount Mon | | □ Casing I only | | | easurement pint | t □ Top Casing | of PVC | То | tal Depth: | | m |
| BORE DEVEL | OPMENT | | | | | | | | | | | |
| Method: | | Da | te: | | I | Undertaken | By: | 1 | Vol. R | emoved: | | L |
| Comments (e | e.g. sediment c | ontent): | | | | | | | | | | |
| | | | | | | | | | | | | |
| PURGING DE | PURGING DETAILS (measurement points in meters below top of casing as indicated above) | | | | | | | | | | | |
| Method: Pen-pump Water Quality Meter used: 451Pro Undertaken By: EE/10 | | | | | | | | | | | | |
| Depth to water: 1.392 m Water Column: m Req Purge Vol. 1: L Flow Rate: L/min | | | | | | | | | | | | |
| Presence of LNAPL Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: m | | | | | | | | | | | | |
| Pump intake: m | | | | | | | | | | | | |
| PURGING ME | ASUREMENTS | 2 | | | | | | | | | | |
| PURGING MEASUREMENTS 2 Vol. Purged (L) Elapsed Time (min) EC (µS/cm) Temp. (°C) TDS (ppm mg/L) pH DO %Sat DO (ppm mg/L) Eh (mV) Water Level (m b TOC) | | | | | | | | | | | | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | - | - | |
| 1L | 3 nuin | 2067 | 17.5 | 1340 | | 7.03 | <i>ς .</i> ٩ | 0.37 | - | -56.6 | 1.297 | 2 |
| 26 | | 1903 | F7.3 | 1239 | | 7.03 | 6.2 | 0.60 | , | - 38.4 | 1.39 | i2 . |
| 3L | 9 min | 2185 | 17.2 | 1429 | | 7.04 | 7.9 | 0.76 | • | -42.4 | 1.39 | 2 |
| 46 | 12 min | 2318 | 17.3 | 1515 | | 7.04 | 7.4 | 0.70 | > | -51.6 | 1.39 | 2 |
| 56 | Brun | 2494 | 17.3 | 1627 | | 7.04 | 7.2 | 0.69 | | ~57.5 | 1.397 | 2 |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Comments (e | e.g. condition o | f headwork | s, sheen, col | lour, odour, s | sedi | ment load): | | | | | | |
| light | yellon, ? | slight | - sulfur | odair | ·, | no sh | een la | 2~ SC | d. | | | |
| SAMPLING D | ETAILS | • · · · · · · · · · · · · · · · · · · · | | | | Sample II | | ı | | | | |
| Time: Vol. Removed: L No of Sample Containers: 9 | | | | | | | | | | | _ | |
| Type of Sampl | e Containers (i.e | . P = Plastic | G = Glass/V = | Vial, volume a | ind p | = preserved | d/up = unpre | served): | <u> </u> | | | |
| Field Filtered | ₽∕ | Duplicate | Samples 🗆 | Duplic | ates | Sample ID: | | | | | | |
| Comments: | Comments: | | | | | | | | | | | |
| | | | | | | | | | | | | |
| CoC Num | | -11 7 - 1 7 7 | | cked by: | | 14a E 41 | · · · · · · · · · · · · · · · · · · · | Date: | ate | lunan watuma- | oon he as | ulatod |
| Bores to b | e purged dry, until | pri, i and EC | reaunigs stabill | se ur a minimuñ | 013 | o to o times the | e malel columi | a voidines. W | ater GO | anni votumes | oan be call | anarea |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.

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| Client: | | | | | | | | BORE ID |): MARANA | BORR MN172 |
|--------------------|-------------------------------|----------------|--------------------|----------------|----------|--------------------|---------------------------------------|---------------|----------------------|---------------------------------------|
| Project: | | | | | | | | Job No.: | +(01 | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | 18/09/1 | ዓ. |
| BORE CON | STRUCTION | | | | | | | | | · |
| | Xi Flush- □ mount Mon | | □ Casing I only | | | easurement oint | t D Top Casing | of PVC | Total Depth: ムー・ろ | |
| BORE DEVE | ELOPMENT | | | | | | | | | |
| Method: | | Da | ite: | | | Undertaken | By: | \ | /ol. Removed: | L |
| Comments | (e.g. sediment c | ontent): | | | | | | | | |
| | | | | | | | | | | |
| PURGING D | ETAILS (measu | rement poi | nts in meters | below top | of ca | sing as indi | cated above | e) | | |
| Method: f_{ℓ} | en-pump | Water G | uality Meter | used: | 4 | SI Pro. | | | Undertaken B | y: EE /10 |
| | ater: 1,495 m | Water C | olumn: | m | R | eq Purge Vo | ol. 1: | L | Flow Rate: | L/min |
| Presence of | f LNAPL | Presen | e of DNAPL | | TI | nickness of | NAPL: | cm | Depth to NAP | L: m |
| Pump intak | e: n | | | | | | | | | |
| PURGING M | EASUREMENTS | 5 ² | | | | | | | | _ |
| Vol. Purged (L) | Elapsed Time (min) | EC (μS/cm) | Temp. (°C) | TDS (ppm mg | j/L) | pН | DO %Sat | DO (ppm[mg | /L) Eh (mV) | Water Level (m b TOC) |
| AS 5667.1 | 11: 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | - | - |
| 1L | Brun | 835 | 17.7 | 535 | , | 6.47 | 5.4 | 0.51 | -35-1 | 1.495. |
| 26 | brin | 551 | 17.6 | 357 | • | 6.32 | 4.6 | 0.4 | 4-10.4 | 1.495. |
| 3L | 9nin | 523 | 17.7 | 340 | | 6.27 | 3.9 | 0.3- | + -7.0 | 1.495 |
| 41 | 12 min | 520 | 17.7 | 338 | | 6.26 | 3.7 | 0.35 | 5 -3.9 | 1.495. |
| 51 | 15 min | 526 | (7.7 | 342 | | 6.26 | 3.5 | 0.3 | 3 -2.0 | 1.495 |
| | | | | | | | · · · · · · · · · · · · · · · · · · · | | | |
| | | | | | | | | | | |
| Comments | (e.g. condition c | f headworl | s, sheen, co | lour, odour | , sedi | iment load): | L L | | <u> </u> | · · · · · · · · · · · · · · · · · · · |
| CLEAR | -, Low 70 | mod | ed, no | Sheer | \ | no ad | our, | | | |
| SAMPLING | DETAILS | | | | | Sample I |): | | <u></u> | |
| Time: | | Vol. Remo | ved: | | L | No of Sam | ple Containe | r s: { | • | |
| Type of Sam | ple Containers (i.e | . P = Plastic | /G = Glass/V = | Vial, volum | e and | p = preserve | d/up = unpres | served): | | |
| Field Filtered | | Duplicate | Samples 🗆 | Dup | licate | Sample ID: | | | <u> </u> | |
| Comments: | | | | | | | | | | |
| | | | | | | | | | | |
| CoC Nu | mber: be purged dry, until | nH T and EA | | cked by: | um of | 3 to 5 times the | e water column | Date: | ater column volum | es can be calculated |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID - 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



| Client: | | BORE II | D: | BORRI | NWB | | | | | | | |
|--|-------------------------|---------------|---------------|----------------|--------|--------------------|-------------------|----------|---------|---------------|------------------|----------|
| Project: | | | | | | | | Job No. | : (| 61370- | | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | U | 6/09/19 | | |
| BORE CON | STRUCTION | | | | | | | | | | | |
| | ⊠√Flush- □ mount Mon | | Casing | | 1 | easurement pint | t 🗇 Top Casing | o of PVC | To | otal Depth: | 4.346 | m |
| BORE DEV | ELOPMENT | | | | | | | | | | | |
| Method: | | Da | ite: | | | Undertaken | By: | , | Vol. F | Removed: | | L |
| Comments | (e.g. sediment c | ontent): | | | | | | | | | | |
| PURGING D | DETAILS (measu | ement poi | nts in meters | below top o | fca | sing as indi | cated abov | e) | | | | |
| Method: P | eni-pump | Water C | uality Meter | used: | 181 | 1 Pro | | | Und | iertaken By | EE OS | |
| · · · · | ater: ().485 m | Water C | olumn: | m | R | eq Purge Vo | ol. 1: | L | Flov | w Rate: | L/r | min |
| Presence o | fLNAPL 🗆 | Presend | e of DNAPL | | Tł | nickness of | NAPL: | cm | Dep | th to NAPL | | m |
| Pump intak | ie: m | | | | | | | | | | | |
| PURGING N | AEASUREMENTS | 3 2 | | | • | | | | | | | |
| Vol. Purged (L) Elapsed Time (min) EC (μS/cm) Temp. (°C) TDS (ppm]mg/L) pH DO %Sat DO (ppm]mg/L) Eh (mV) Water Level (m b TOC) | | | | | | | | | | | | |
| AS 5667. | 11: 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | • | • | |
| 11 | 3min | 906 | 17.2 | 589 | | 6.70 | 7.8 | 0.72 | | 116.3 | 0.485 | |
| 2L | brite | 885 | 17.1 | 575 | | 6.64 | 4.3 | 0.41 | | 115.3 | 0.485 | |
| 3L | 9 min | 841 | 17.1 | 546 | | 6.53 | 3,5 | 0.33 | | (13.4 | 0.485 | i. |
| 4L | 12 ruin | 822 | 17.1 | 534 | | 6.47 | | 0.22 | | 102.8 | 0.485 | 7 |
| 51 | 15 min | \$ 811 | <u>I. FI</u> | 527 | | 6.43 | 1.9 | 0.18 | | 75.7 | 0.485 | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | <u> </u> |
| Comments | (e.g. condition o | f headwork | s, sheen, col | our, odour, s | sedi | ment load): | | | | | | |
| nº 00 | lour, no | * She | en, la | sw Sl | d | , cl.eau | <u>~ to (</u> | ight k | DV01 | NN - | | |
| SAMPLING | DETAILS | | | | | Sample ID |): | | | | | |
| Time: | | Vol. Remo | ved: | | L | No of Sam | ple Containe | rs: 8 | | | | |
| Type of Sam | ple Containers (i.e | . P = Plastic | G = Glass/V = | Vial, volume a | and | p = preserved | d/up = unpre | served): | | | | |
| Field Filtered | | Duplicate | Samples 🗇 | Duplic | ate | Sample ID: | | | | | | |
| Comments: | , | | | | | | | | | | | |
| CoC Nu | mber: | | Che | cked by: | | | | Date: | _ | - | | |
| | be purged dry, until | pH. T and EC | | - | n of 3 | 3 to 5 times the | e water colum | | ater co | olumn volumes | can be calculate | ed |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



| Client: | | | | | | | | BORE I |): | BORR 1 | MNKS | |
|---|--|----------------|--------------------|-----------------|--------|--------------------|-------------------|------------|----------|---------------|-----------------|------|
| Project: | | | | | | | | Job No. | | 613704 | | |
| Location: | | | Casing | ı diameter: | | | 50 mm | Date: | 16 | 109/10 | 1 | |
| BORE CONS | TRUCTION | | | | | | | | | | | |
| | ÍFlush- □ ount Mon | | □ Casing I only | Locked | | easurement pint | t □ Top Casing | of PVC | T | otal Depth: | 8.739 | m |
| BORE DEVEL | LOPMENT | | | | | | | | | | | |
| Method: | | Da | ite: | | | Undertaken | By: | , | Vol. F | Removed: | | L |
| Comments (e | e.g. sediment c | ontent): | | | | | | I. | | | | |
| | | | | | | | | | | | | |
| PURGING DETAILS (measurement points in meters below top of casing as indicated above) | | | | | | | | | | | | |
| Method: Peri-Pump Water Quality Meter used: YSI Pro Undertaken By: EE 105 | | | | | | | | | | | | |
| Depth to wate | Depth to water: Image: Image | | | | | | | | | | | |
| Presence of I | | Presenc | e of DNAPL | | Th | ickness of | NAPL: | cm | Dep | oth to NAPL | : | m |
| Pump intake: m | | | | | | | | | | | | |
| PURGING ME | EASUREMENTS | 5 ² | | | | | | | | | | |
| PURGING MEASUREMENTS 2 Vol. Purged Elapsed EC Temp. (°C) TDS pH DO %Sat DO Eh (mV) Water Level (L) Time (min) (µS/cm) (ppm[mg/L) (ppm[mg/L) (m b TOC) | | | | | | | | | | | | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | • | | 10% | 10% | 10% | | - | - | |
| 1L | Snin | 151.6 | 17.7 | 98 | | 5.92 | z.5 | 0.32 | - | -10.7 | 1.134 | |
| 2L | • | 150.8 | 17.6 | 98 | | 5.89 | 1.9 | 0.18 | ` | -41.9 | 1.134 | |
| 31 | | 152.2 | 17.6 | 99 | 1 | 5.88 | 1.4 | 0.13 | | -64.1 | 1.134 | |
| 42 | 12min | 154.2 | 17.6 | 100 | | 5.88 | 1.2 | 0.12 | | -79.1 | 1.134 | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | - | | | | | | | | |
| Comments (e | e.g. condition o | f headwork | s, sheen, col | our, odour, s | edi | ment load): | | | | | | |
| Muddy | odour, | ne sh | een, lai | n sed | , C | rear to | olight | broni | <i>1</i> | | | |
| SAMPLING D | ETAILS | | | | | Sample ID |): | | | | | |
| Time: | Time: Vol. Removed: L No of Sample Containers: 8 | | | | | | | | | | | |
| Type of Sample | Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): | | | | | | | | | | | |
| Field Filtered | র্ত্র | Duplicate S | Samples 🛛 | Duplic | ate \$ | Sample ID: | | | | | | |
| Comments: | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| CoC Num | | • • • • • • | | cked by: | | | | Date: | | | | |
| Bores to be | e purged dry, until | pH, T and EC | readings stabilis | se or a minimum | l of 3 | to 5 times the | water column | volumes. W | ater co | olumn volumes | can be calculat | ed 🗌 |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



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2

Groundwater Monitoring – Field Sheet

| Client: | | | | | | | | | | LORRN | 11118 | |
|--|------------------------------|----------------|--------------------|------------------|-------|--------------------|-------------------|---------------|--------|-------------|--------------------------|---|
| Project: | | | | | | | | Job No.: | • | 613704 | | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | te | 6109/19 | ł | |
| BORE CONS | TRUCTION | | | | | | | | - | | | |
| | l Flush- 🗆 ount Mon | | ⊐ Casing I only | Locked | | easurement bint | : D Top Casing | of PVC | To | otal Depth: | 3.166 | m |
| BORE DEVEL | OPMENT | | | | | | | | | | | |
| Method: | | Da | te: | | ι | Undertaken | By: | 1 | Vol. R | Removed: | | L |
| Comments (e | e.g. sediment c | ontent): | | | | | | | | | | |
| | | | | | | | | | | | | |
| PURGING DETAILS (measurement points in meters below top of casing as indicated above) | | | | | | | | | | | | |
| Method: Peri-pump Water Quality Meter used: 1SI Pro. Undertaken By: EEDS | | | | | | | | | | | | |
| Depth to water: 1.537 m Water Column: m Req Purge Vol. 1: L Flow Rate: L/min | | | | | | | | | | | | |
| Presence of LNAPL D Presence of DNAPL D Thickness of NAPL: cm Depth to NAPL: m | | | | | | | | | | | | m |
| Pump intake: m | | | | | | | | | | | | |
| PURGING ME | ASUREMENTS | 32 | | | | | | | | | | |
| Vol. Purged (L) | Elapsed Time (min) | EC (μS/cm) | Temp. (°C) | TDS (ppm]mg/L |) | рН | DO %Sat | DO (ppm mg | /L) | Eh (mV) | Water Level (m b TOC) | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | • | - | |
| 1∟ | Brin | 257.5 | 18.0 | 166 | | 5.03 | 47.2 | 4.46 | 2 | 214.5 | 1.537 | |
| 2L | brin | 242.6 | 17.3 | 157 | | 4.73 | 46.7 | 4.48 | | 237.9 | 1.537 | |
| 3L | 9 min | 239.2 | 17.2 | 155 | | 4.70 | 46.4 | 4.4 | ⊦ | 248.2 | 1.537 | |
| 46 | 12 min | 234.8 | 17.1 | 153 | | 4.68 | 46.3 | 4.46 | > | 256`.8 | 1.537 | |
| 51 | 15 min | 231.6 | 17.1 | 150 | | 4.69 | 46.0 | 4.43 | | 259.8 | 1.537 | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | × | |
| | | | | | | | | | | | | |
| Comments (e | .g. condition o | f headwork | s, sheen, col | our, odour, s | edi | ment load): | | | | • • • | | |
| nood | ronr, c | 1 env. | NO Sh | een, I | 0 | N-to, | no sco | Y | | | | |
| | | | | <u> </u> | | | | | | | | |
| SAMPLING D | ETAILS | • | | | | Sample ID |): | | | | | |
| Time: | | Vol. Remov | ved: | | L | No of Sam | ple Containe | rs: 8 | | | | |
| Type of Sampl | e Containers (i.e | . P = Plastic/ | G = Glass/V = | Vial, volume a | nd p | o = preserved | l/up = unpres | served): | | | | |
| Field Filtered | Ø | Duplicate \$ | Samples 🗹 | Duplic | ate § | Sample ID: | FDC | • | FSQ | > | | |
| Comments: | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| CoC Num | iber: e purged dry, until | | | cked by: | | | | Date: | | | | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID - 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument -specific calibration book, or in field notes as required by local procedures.



| Client: | | | | | | | | BORE II |): { | <u>CORR N</u> | MMA | |
|--------------------|--------------------------------------|---------------|--------------------|------------------|------------|--------------------|-------------------|---------------|---|-----------------|--------------------------|-----|
| Project: | | | | | | | | Job No. | : 6 | 013704 | | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | 16 | 109/19 | | |
| BORE CONS | TRUCTION | | | | | | - | | <u> </u> | | | |
| | (Flush- □ ount Mon | | □ Casing I only | Locked | | easurement bint | t 🗆 Top Casing | of PVC | To | otal Depth: | 2.561 | m |
| BORE DEVEL | | | | | | | | | | | | |
| Method: | | Da | te: | | I | Undertaken | By: | | Vol. R | Removed: | | L |
| Comments (e | e.g. sediment c | ontent): | | ,,,,, | | | | | | | | |
| | | | | | | | | | | | | |
| | TAILS (measu | rement poir | nts in meters | below top of | | | | e) | | | | |
| | n-pump | | uality Meter | used: | <u> </u> | SI Pro | | | | | EE/D | |
| | er: 0,751 m | | | m | | eq Purge Vo | | L | | w Rate: | | min |
| Presence of l | | Presend | e of DNAPL | | Th | ickness of | NAPL: | cm | Dep | oth to NAPL | : | m |
| Pump intake: | | | | | | | | | | | | |
| | EASUREMENTS | | | | | | | | | F F (-10 | 16/-61 | |
| Vol. Purged (L) | Elapsed Time (min) | EC (µS/cm) | Temp. (°C) | TDS (ppm mg/L |) | рН | DO %Sat | DO (ppm mg | (/L) | Eh (mV) | Water Level (m b TOC) | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | • | - | |
| IL | Brin | 8748 | 17.0 | 5591 | | 6.78 | 6.1 | 0.5 | ,6 | -67.7 | 0.751 | |
| 21 | 6 min | 5522 | 16.9 | 3556 | | 6.61 | 4.9 | 0.47 | \vdash | -20.1 | 0.751 | |
| 3L | 9 min | 3137 | 17.0 | 2011 | | 6.36 | 12.7 | 1.2 | 5 | -9.9 | 0.751 | |
| 4L | 12 nin | 2605 | I7.1 | 1682 | | 6.28 | 9.5 | 0.90 | <u>с</u> | (1.1 | 0.751 | |
| SL | 15min | 2523 | 17.1 | 1636 | | 6.26 | 8.3 | 0.78 | 2 | 26.3 | 0.751 | |
| 66 | 18min | 2492 | 17.1 | 1621 | | 6.25 | 5.8 | 0.5 | | 36.8 | 0.751 | |
| H | 21nin | 2512 | (7.1 | (633 | | 6.25 | 5.4 | 0.5 | 1 | 43.3 | 0751 | |
| | | | | | | | | | | | | |
| | e.g. condition o | •••••• | | | | | | | | | | |
| Shight | organi | codon | <u>c, re s</u> | heen, | <i>C</i> / | lear, | 10~1 | one: | Sed | l | | |
| SAMPLING D | ETAILS | | | | | Sample II | D: | | | - | | |
| Time: | 2 | Vol. Remo | ved: | | L | No of Sam | ple Containe | rs: 9 | | | | |
| Type of Samp | le Containers (i.e | . P = Plastic | G = Glass/V = | Vial, volume a | ind p | o = preserve | d/up = unpres | served): | | | | |
| Field Filtered | | Duplicate | Samples 🛛 | Duplic | ate | Sample ID: | | | | | | |
| Comments: | | | | I | | | | | | | | |
| <u> </u> | | | | | | | | | ••••••••••••••••••••••••••••••••••••••• | | | |
| CoC Num | n ber: e purged dry, until | | | cked by: | | | | Date: | | | | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID - 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument -specific calibration book, or in field notes as required by local procedures.

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| Client: | | | | | | | | BORE I |): E | ore m | NI9B | |
|--------------------|-------------------------------|----------------|------------------|-----------------------------|------------|--------------------|-------------------|---------------|---------|--------------|----------------------------------|-----|
| Project: | | | | | | | | Job No. | | 13704 | | |
| Location: | | | Casing | j diameter: | | | 50 mm | Date: | 16 | 09/19 | | |
| BORE CON | STRUCTION | | | | | | | | | | | |
| |)≨jFlush- □ nount Mor | | □ Casing only | Locked | | easurement vint | t □ Top Casing | of PVC | То | otal Depth: | 12.124 | m |
| BORE DEVE | ELOPMENT | | | | | | | | | | | |
| Method: | | Da | nte: | | | Undertaken | By: | 1 | Vol. R | emoved: | | L |
| Comments | (e.g. sediment c | ontent): | | | | | | | | | | |
| | | | | | | | | | | | | |
| PURGING D | ETAILS (measu | rement poi | nts in meters | below top of | fcas | sing as indi | cated above | e) | | | | |
| Method: ρ_k | evi-pump | Water C | uality Meter | used: | 45 | I Pro | | | Und | ertaken By: | : de/ds | |
| | ter: 0.53\ m | Water C | olumn: | m | Re | eq Purge Vo | ol. 1: | L | Flov | v Rate: | L/ | min |
| Presence of | | Presen | e of DNAPL | | Th | ickness of | NAPL: | cm | Dep | th to NAPL: | : | m |
| Pump intak | e: n | | | | | | | | | | | |
| PURGING N | EASUREMENT | 3 ² | | | | | | | | | | |
| Vol. Purged (L) | Elapsed Time (min) | EC (µS/cm) | Temp. (°C) | TDS (ppm mg/L | .) | рН | DO %Sat | DO (ppmimg | /L) | Eh (mV) | Water Level (m b TOC) | |
| AS 5667.1 | 1: 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | - | - | |
| 1L | Bhin | 2321 | 19.3 | 1508 | | 5.94 | 4.8 | 0.43 | , , | -51.8 | 0.531 | |
| 2L | 6 min | 2319 | 19.3 | 1507 | | 5.93 | 2.9 | 0.26 | 0 | -69.8 | 0.531 | |
| 31 | anin | 2317 | 19.3 | 1506 | | 5,95 | 2.3 | 0.21 | • | - 80 .8 | 0.531 | |
| 46 | 12 ruin | 2307 | 19.3 | 1500 | | 5.93 | 1.8 | 0.16 | , | -89.1 | 0.53 | (|
| <u>.</u> | _ | | | | | | | | | | | |
| | | | | | | | | | | | l | • |
| | | | | | | | | | | | | |
| | _ | | | | | | | | | | | |
| | (e.g. condition o | | | | | | | ······ | | | | |
| Shigh | A organ | ic odo | ur, a | enr, n | <u>9 S</u> | Leen | , 100 | sed | | | | |
| SAMPLING | DETAILS | | | | | Sample ID |): | | | | | |
| Time: | | Vol. Remo | ved: | | L | No of Sam | ple Containe | rs: 👌 | | | | |
| Type of Sam | ple Containers (i.e | . P = Plastic | /G = Glass/V = | Vial, volume a | ind p |) = preserved | d/up = unpres | served): | | | | |
| Field Filtered | | Duplicate | Samples 🛛 | Duplic | ate | Sample ID: | <u></u> | | | | | |
| Comments: | | | | 1 | | | | | | | *** ***** *** / **** | |
| 0-01 | | | | | | | | Detai | | | | |
| CoC Nu Bores to | mber: be purged dry, until | oH. T and EC | | cked by: se or a minimun | n of 3 | to 5 times the | e water column | Date: | ater co | lumn volumes | can be calculat | ed |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID - 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument -specific calibration book, or in field notes as required by local procedures.

2



| Client: | | | | | | | | BORE ID | : BORRI | NMZO | |
|--------------------|------------------------|----------------|--------------------|------------------|-------------|-----------------|-------------------|----------------|--------------------|--|-----|
| Project: | | | | | | | | Job No.: | 615701 | -11 | |
| Location: | | | Casing | diameter: | | | 50 m m | Date: | 16/09/19 | | |
| BORE CONS | TRUCTION | | | | _ | | | | | | |
| | ()Flush- □ ount Mor | | □ Casing I only | | Mea Poir | asurement nt | t □ Top Casing | of PVC | Total Depth: | 13.118 | m |
| BORE DEVEL | LOPMENT | | | | | | | | | | |
| Method: | | Da | ite: | | Ur | ndertaken | By: | ١ | /ol. Removed: | | L |
| Comments (e | e.g. sediment c | ontent): | | | | | | | | | |
| | | | | | | | | | | | |
| PURGING DE | ETAILS (measu | rement poi | nts in meters | below top of | fcasiı | ng as indi | cated above |) | | | |
| Method: ρ_{U} | n-pump | Water C | uality Meter | used: | 4 | SI Pr | D | | Undertaken By | · Elos | |
| Depth to wat | er:0.491 m | Water C | olumn: | m | Req | Purge Vo | ol . 1: | L | Flow Rate: | | min |
| Presence of I | | Presenc | e of DNAPL | | Thic | ckness of | NAPL: | cm | Depth to NAPL | .: | m |
| Pump intake: | : n | t - | | | | | | | | | |
| PURGING ME | EASUREMENTS | 3 2 | | | | | | | | | |
| Vol. Purged (L) | Elapsed Time (min) | EC (µS/cm) | Temp. (°C) | TDS (ppm[mg/L | .) | рН | DO %Sat | DO (ppm mg/ | /L) | Water Level (m b TOC) | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | • | | 10% | 10% | 10% | • | - | |
| 1∟ | Smin | 4361 | 18.9 | 2832 | c | 5.56 | 7,9 | 0.71 | 158.5 | 0.491 | |
| 21 | | 4320 | 18.8 | 2807 | 4 | 5.56 | 3.8 | 0.36 | + 150.6 | 0-491 | |
| 3L | 9nin | 4315 | 18.8 | 2805 | | 5.56 | 2.9 | 0.27 | + 149.4 | 0.491 | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| Comments (e | e.g. condition o | f headwork | s, sheen, col | our, odour, s | sedim | ent load): | | | I | | |
| nood | lour, n | o She | en, cl. | ear to l | ىلى | 2600 | wn lo | w Se | <u>d</u> | | |
| SAMPLING D | ETAILS | | | | | Sample ID |): | | | | |
| Time: | | Vol. Remov | ved: | | LI | No of Samj | ple Container | s: 8 | | | |
| Type of Sample | e Containers (i.e | . P = Plastic/ | G = Glass/V = ' | Vial, volume a | nd p = | = preserved | l/up = unpres | erved): | | | |
| Field Filtered | Ø | Duplicate S | Samples 🗆 | Duplic | ate Sa | mple ID: | | | | ······································ | |
| Comments: | | | | | | | | | | | |
| | | | | | | | | | | | |
| CoC Num | | oH T and EA | | ked by: | 1 of 2 to | 5 fimee the | water column | Date: | iter column volume | s can be calculate | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID - 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



| Client: | | | | | | | | BORE | D: | BORR | mwzz |
|--------------------|-----------------------|---------------|------------------|------------------|--------|-------------------|------------------|---------------|------|------------------------|----------------------------|
| Project: | <u> </u> | | | | | _ | | Job No | .: | 613704 | :1 |
| Location: | | | Casing | g diameter: | | • | 50 mm | Date: | | 16/9 | |
| BORE CONS | TRUCTION | | | - | | | | | | | |
| | (Flush- □ ount Mon | | □ Casing only | Locked | | easuremen pint | t 🗆 To Casing | o of PVC J | T | rotal Depth: (. ୳୫ | m S |
| BORE DEVEL | LOPMENT | | | | | | | | | | |
| Method: | | D | ate: | | | Undertaken | ı By: | | Vol. | Removed: | L |
| Comments (e | e.g. sediment c | ontent): | | | | | | ľ | | | |
| | | | | | | | | ****** | | | |
| PURGING DE | TAILS (measu | rement poi | nts in meters | s below top of | fca | sing as indi | icated abov | e) | | | |
| Method: (| eri pump | Water (| Quality Meter | used: Ys | | | | | Un | dertaken By | : EE/DS |
| Depth to wat | | Water (| Column: | m | R | eq Purge Vo | ol. 1: | L | Flo | w Rate: | L/min |
| Presence of I | | Presen | ce of DNAPL | | Tł | nickness of | NAPL: | cm | De | pth to NAPL: | : m |
| Pump intake: | : m | | | | | | | | | · | |
| PURGING ME | EASUREMENTS | ; 2 | | | | | | | 1 | | |
| Vol. Purged (L) | Elapsed Time (min) | EC (µS/cm) | Temp. (°C) | TDS (ppmjmg/L | .) | рН | DO %Sat | DO (ppmjmg | g/L) | Eh (mV) | Water Level (m b TOC) |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | - | • |
| 1L | Brin | 1258 | 17.1 | 810 | | 6.83 | 11.2 | 1.08 | | -359 | 0.53 |
| 2L | brin | 648 | 17.0 | 418 | | 6.0 | 10.1 | 0.95 | 5 | -50.0 | and the |
| SL | gnin | 670 | 19752 | 436 | | 6.55 | 27.9 | 2.63 | > | 19.4 | \$10000 |
| -4L | -12asin | - | inte | | | | | | | | Neel vanday Slowreenage |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | , | | | | | | | | - | |
| Comments (e | e.g. condition o | f headworl | (s, sheen, co | lour, odour, s | edi | ment load): | | | | | |
| Clear, | no odo | ur, r | U Shel | n,lov | \sim | sed. | | | | | |
| SAMPLING D | ETAILS | | | | | Sample ID |): | | | | |
| Time: | | Vol. Remo | ved: | | L | No of Sam | ple Containe | irs: 🖏 | | | |
| Type of Sampl | e Containers (i.e. | P = Plastic | /G = Glass/V = | Vial, volùme a | und p | o = preserved | d/up = unpre | served): | | | |
| Field Filtered | | Duplicate | Samples 🛛 | Duplic | ate | Sample ID: | | | | | |
| Comments: | +neu | van c | lny - n | vaited | a | bout | ZOnir | y to | Sal | mple. | ****** |
| CoC Num | ber: | | Che | cked by: | | ···- | | Date: | | | |
| | e purged dry, until | H. T and EC | | | n of 3 | to 5 times the | e water colum | | | olumn volumes | can be calculated |

from the following casing volumes per unit length: 40 mm ID - 1 Lm; 50 mm ID - 2 Lm; 100 mm ID 8 Lm. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.

| | _ | |
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| X | | \geq |
| | | |

| Client: | MRWA | | | | | | BORE |): BORK N | nw226 |
|--------------------|-----------------------|----------------|--------------------|------------------|----------------------|-------------------|---------------|---------------------|--------------------------|
| Project: | BORR (| Froundwa | ster Sar | npling | - Sept. ro | und . | Job No. | 613701 | + 1 |
| Location: | | | Casing | diameter: | - | 50 mm | Date: | 16/9 | |
| BORE CONS | TRUCTION | | | | | | | | |
| | ∬Flush- ⊡ ount Mor | | □ Casing I only | Locked | Measuremen Point | t 🗆 Top Casing | o of PVC | Total Depth: 3 | m م20 |
| BORE DEVE | LOPMENT | | | | | | | | |
| Method: | | Da | ite: | | Undertake | n By: | | /ol. Removed: | . L |
| Comments (e | e.g. sediment c | ontent): | | | | | | | |
| | | | | | | , | | | |
| PURGING DE | ETAILS (measu | rement poir | nts in meters | below top of | f casing as ind | icated abov | re) | | |
| Method: | feri | Water Q | uality Meter | used: VSI | | | | Undertaken By | : EE/OS |
| Depth to wat | er: 1 .591 m | Water C | olumn: | m | Req Purge V | ol. 1: | L | Flow Rate: | L/min |
| Presence of | | Presence | e of DNAPL | | Thickness of | NAPL: | cm | Depth to NAPL | : m |
| Pump intake | : п | 1 | | | | | | | |
| PURGING ME | EASUREMENT | 5 ² | | | · · · · · | | | | |
| Vol. Purged (L) | Elapsed Time (min) | EC (µS/cm) | Temp. (°C) | TDS (ppm mg/L | .) pH | DO %Sat | DO (ppm mg | Eh (mV) /L) | Water Level (m b TOC) |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | | 10% | 10% | 10% | | • |
| 1 | 3 min | 12832 | 20.5 | 8 347 8 345 | 5.52 | 30.0 | 2.50 | 0 -19.6 | ~2.40 |
| 2 | 6 min | 12790 | 20.3 | | 5,30 | 4.5 | 0.38 | 5-50.3 | ~2.40 |
| 3 | 9 min | 12812 | 20.3 | 8342 | 5.48 | 2-5 | 0.21 | -69.3 | ~2.40 |
| 4 | 12 min | 12794 | 20.3 | 8313 | <i>5</i> .52 | 2.5 | 0.21 | - 78.8 | ~2.40 |
| 5 | 15min | 12766 | 20.3 | 8297 | 57.60 | 2.0 | 0.18 | -82.1 | ~2.40 |
| 6 | 18 min | 12759 | 20.3 | 8295 | 5.60 | 1.9 | 0.16 | - 82.z | ~ 2.40 |
| | | | | | | | | | |
| | | | | | | | | | |
| Comments (e | .g. condition o | f headwork | s, sheen, col | our, odour, s | ediment load) | n | rganic | odour, no | sheen, |
| Cle | zer-pale l | orown | , ilow so | 2d. 10ad | | | | | |
| SAMPLING D | ETAILS | | | ځ | Sample I | D: 1 | BORK M | W226 | |
| Time: | | Vol. Remov | ved: | | | ple Containe | | | |
| | e Containers (i.e | | | Vial, volume a | | | | | |
| Field Filtered | छ | Duplicate S | amples 🗆 | Duplic | ate Sample ID: | | | | |
| Comments: | | | | I | | | | <u></u> | |
| | | | | | | | | | |
| CoC Num | | | | cked by: | | | Date: | - | |
| Bores to be | e purged dry, until | pH, T and EC | readings stabilis | se or a minimum | n of 3 to 5 times th | e water colum | n volumes. Wa | ater column volumes | s can be calculated |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID - 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument -specific calibration book, or in field notes as required by local procedures.

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| Client: | | | | | | | | BORE |); E | ORR N | 1W24 | |
|-----------------------|-------------------------------|----------------|------------------|------------------|-------------------|-------|-------------------|---------------|----------|-------------|---|------------|
| Project: | | | | | | | | Job No. | : (| 61370 | 41 | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | ľ | 7109119 | 1 | |
| BORE CONS | STRUCTION | | | | | | | | | | | |
| | A[Flush- □ nount Mon | | □ Casing only | Locked | Measuren Point | nent | t □ Top Casing | of PVC | To | tal Depth: | 9.878 | , m |
| BORE DEVE | LOPMENT | | | | | | | | | | | |
| Method: | | Da | te: | | Underta | ken | By: | \ \ | Vol. Re | emoved: | | L |
| Comments (| e.g. sediment c | ontent): | | | | | | | | ****** | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | |
| | | | | | | | | | | | | |
| PURGING D | ETAILS (measu | rement poir | nts in meters | below top of | casing as | indi | cated abov | e) | | | | |
| Method: fl | vi-pump | Water Q | uality Meter | used: V | ISI Pro | • | | | Unde | ertaken By | EE DS | |
| Depth to wa | ter: 7.771 m | Water C | olumn: | m | Req Purg | e Vo | 6. 1: | L | Flow | Rate: | L/ | min |
| Presence of | | Presenc | e of DNAPL | | Thickness | s of | NAPL: | cm | Dept | h to NAPL | ; | m |
| Pump intake | e: m | 1 | | | | | | | | | | |
| PURGING M | EASUREMENTS | 5 ² | | | | | | | | | | |
| Vol. Purged (L) | Elapsed Time (min) | EC (µS/cm) | Temp. (°C) | TDS (ppm mg/L |) PH | | DO %Sat | DO (ppmjmg | /L) | Eh (mV) | Water Level (m b TOC) | |
| AS 5667.1 | 1: 1998 (<+/-) | 10% | 0.2°C | - | 10% | | 10% | 10% | | - | - | |
| 1∟ | Brin | 1785 | 20.3 | 1160 | 4.2 | -7 | 24.2 | 2.16 | | 336.9 | 7.771 | |
| 26 | brin | 471779 | 20.3 | 1155 | 4.2 | 8 | 21.9 | 1.97 | - | 357.1 | 7.771 | |
| 32 | 9 nuin | FH64 | 20.3 | 1 146 | 4.2 | ື | 21.3 | 019 | ۱ | 376.6 | 7.771 | |
| 41 | 12min | 1766 | 20.3 | 1148 | 4.7 | 27 | 20.8 | 1.87 | | 391.4 | 7.741 | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Comments (| e.g. condition o | f headwork | s, sheen, col | our, odour, s | ediment lo | ad): | | | | | | |
| milky | lighth | ovin, | noshe | en, l | ow be | ک | , <i>N</i> 9 | adour | <u> </u> | | | |
| SAMPLING I | DETAILS | | | | Samp | le ID |); | | | | | |
| Time: | | Vol. Remov | ved: | | | | ple Containe | rs: | | | | |
| Type of Samp | le Containers (i.e | . P = Plastic/ | G = Glass/V = | Vial, volume a | | | | | | | | |
| Field Filtered | চ | Duplicate S | amples 🗆 | Duplic | ate Sample I | D: | | | | | | |
| Comments: | | - | | | | | | | | | | |
| 0-01 | | | | -leg al las | | | | Detai | | | | |
| CoC Nun Bores to b | nder: De purged dry, until | pH. T and FC (| | cked by: | of 3 to 5 time | s the | water column | Date: | ater col | umn volumes | can be calculat | ed |

from the following casing volumes per unit length: 40 mm ID - 1 \perp /m; 50 mm ID – 2 \perp /m; 100 mm ID 8 \perp /m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



| Client: | | | | | | | | | | | | |
|---|---|--------------|--------------------|----------------|--------|--------------------|-------------------|--------------|----------|--------------|-------------------|--|
| Project: | | | | | | | | Job No.: | | | | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | ٦ | 7109/19 | | |
| BORE CONS | TRUCTION | | | | | | | | | | | |
| | [Flush- □ ount Mo n | | □ Casing I only | Locked | | easurement bint | : D Top Casing | of PVC | Тс | otal Depth: | 13.010 m | |
| BORE DEVEL | OPMENT | | | | | | | | | | | |
| Method: | | Da | te: | | l | Undertaken | By: | ١ | /ol. R | Removed: | L | |
| Comments (e | e.g. sediment co | ontent): | | | | | | | | | | |
| | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | | | | | | | | | | | |
| PURGING DE | TAILS (measur | ement poir | nts in meters | below top of | cas | sing as indi | cated above |) | | | | |
| Method: Pe | n-pump | Water Q | uality Meter | used: | K | si Pro | | | Und | lertaken By: | EE/DS | |
| Depth to wate | er: 6.351 m | Water C | olumn: | m | Re | eq Purge Vo | ol. 1: | L | Flov | w Rate: | L/min | |
| Presence of L | | Presenc | e of DNAPL | | Th | ickness of | NAPL: | cm | Dep | oth to NAPL: | m | |
| Pump intake: | m m | | | | | | | | | | | |
| PURGING ME | ASUREMENTS | 2 | | | | | | | | | | |
| Vol. Purged (L) Elapsed Time (min) EC (μS/cm) Temp. (°C) TDS (ppm]mg/L) pH DO %Sat DO (ppm]mg/L) Eh (mV) Water Level (m b TOC) AS 5667.11: 1998 (<t -)<="" td=""> 10% 0.2 °C - 10% 10% - -</t> | | | | | | | | | | | | |
| AS 5667.11: 1998 (<+/-) 10% 0.2°C - 10% 10% | | | | | | | | | | | | |
| 12 3ruin 3694 18.8 2402 5.74 4.9 0.43 -34.1 6.351 | | | | | | | | | | | | |
| 22 | 6 min | 3714 | 18.8 | 2414 | | 5.72 | 3.2 | 0.30 | 5 | -40.5 | 6.351 | |
| 3 | 9 nin | 3685 | 18.8 | 2394 | | 5.64 | 2.3 | 0.2 | .1 | -37,8 | 6.351 | |
| 44 | 12 min | 3662 | 18.8 | 2380 | | 5.61 | 1.8 | 0.17 | \vdash | - 39.4 | 6.351 | |
| 与レ | 15 min | 3660 | 18.8 | 2379 | | 5.59 | 1.5 | 0.14 | | -42.0 | - | |
| 62 | 18 min | 3657 | 18.7 | 2377 | | 5.59 | (.4 | 0.13 | | -43.4 | 6.351 | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Comments (e | e.g. condition o | f headwork | s, sheen, col | our, odour, s | ediı | ment load): | | | | | | |
| Uore | ey yello | ∾,∦ | xe mr | day od | \sim | r, no | sleen | , 100 | Se | 火. | | |
| | | / | | | | | | · | | · | | |
| SAMPLING D | ETAILS | | | | | Sample ID |): | | | | | |
| Time: | | Vol. Remov | red: | | L | No of Sam | ple Container | s: 8 | | | | |
| Type of Sample | e Containers (i.e. | P = Plastic/ | G = Glass/V = | Vial, volume a | nd p |) = preserved | l/up = unpres | erved): | | | | |
| Field Filtered | Ø | Duplicate S | Samples 🗆 | Duplic | ate S | Sample ID: | | | | | | |
| Comments: | | | | | | | | | | | | |
| ······ | | | | | | | | | | | | |
| CoC Num | | | | cked by: | | A. Educe d | | Date: | | | ان المادة مع | |
| | e purged dry, until (Nowing casing volu | | | | | | | volumes. Wa | ater co | numn volumes | can be calculated | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID - 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument -specific calibration book, or in field notes as required by local procedures.

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| Client: | | | | | | | | BOREID | | olr N | | |
|----------------------|----------------------------------|----------------|------------------|-----------------------------|-----------|------------------|--|----------------|----------|--------------|--------------------------|-----|
| Project: | | | | | | | | Job No.: | | 擅 613= | | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | ľ | 7/09/19 | | |
| BORE CO | NSTRUCTION | | | | r | | | | <u> </u> | | | |
| Head- works | t\$AlFlush- □ mount Mon | | □ Casing only | | Me Poi | asurement int | t D Top Casing | of PVC | To | otal Depth: | 8.451 | m |
| BORE DE | ELOPMENT | | | | _ | | | | | | | |
| Method: | | Da | te: | | U | Indertaken | ı By: | ١ | /ol. R | emoved: | | L |
| Comments | s (e.g. sediment c | ontent): | | | | | | **** | | | | |
| | | | | | | | | | | | | |
| | DETAILS (measu | · · · | | · · · | | | cated above | e) | | | | |
| | Peri-pump | | uality Meter | | - | 1 pro. | | | | | EE/DS | |
| | /ater: 5.4°Ĥ m | | | m | | q Purge Vo | | L | | v Rate: | | min |
| Presence of | | | e of DNAPL | | Ini | ickness of | NAPL: | cm | Dep | th to NAPL: | | |
| Pump inta PURGING | Ke: m MEASUREMENTS | | | | | | | | | | | |
| Vol. Purge | | EC (µS/cm) | Temp. (°C) | TDS (ppmjmg/L |) | рН | DO %Sat | DO (ppm mg/ | /L) | Eh (mV) | Water Level (m b TOC) | |
| AS 5667 | ′.11: 1 9 98 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | • | • | |
| IL | Bruin | 870 | 8.81 | 566 | | 5.22 | 5.0 | 0.49 | 10 | -58.1 | 5.49 | ٦. |
| ZL | 6min | 868 | 18.8 | 564 | | 5.20 | 3.0 | 0, Z= | 7 | -76.1 | 5.4 9 | ٩ |
| 3L | 9nin | 866 | 18.8 | 5 63 | | 5.19 | 2.6 | 0.24 | 4 | -89.7 | 5.494 | } |
| 4L | 12 rin | 867 | 18.8 | 564 | | 5.19 | 2.3 | a.2 | 1 | - 103.5 | 5.49 | 7 |
| 5L | 15 min | 867 | 18.8 | 563 | | 5.19 | 2.0 | 0.10 | 1 | -1 10,9 | 5.490 | ો |
| | | | | | - | | | | | | | |
| | , | | | | + | | | | | | | |
| Comments | s (e.g. condition o | f headwork | s, sheen, co | lour, odour, s | edin | nent load): | <u> </u> | | | | | |
| brown | n, nrod s | U, 5 | trang | sulfur | sde | 34r, | no she | 201. | | | | |
| SAMPLING | DETAILS | | <u></u> | | | Sample II |): | | | | | |
| Time: | | Vol. Remov | ved: | | L | No of Sam | ple Container | s: 8 | | | | |
| Type of Sar | nple Containers (i.e | . P = Plastic/ | G = Glass/V = | Vial, volume a | nd p | = preserve | d/up = unpres | served): | | | | |
| Field Filtere | d 🗹 | Duplicate S | Samples 🗆 | Duplic | ate S | ample ID: | | | | | | |
| Comments | 3: | | | / | | | | | | | | |
| 0-0 N | umbor | | 04- | akad bur | | | | Date: | | | | |
| CoC N Bores to | umber: o be purged dry, until | oH. T and EC | | cked by: se or a minimum | of 3 | to 5 times the | e water column | | ater co | lumn volumes | can be calcula | ted |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID - 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



| Client: | | | | | | | | BORE I |): <i>(</i> - | BORRM | W31 | |
|---|------------------------|----------------|--------------------|---|---------------|--------------------|-------------------|---------------|---------------|--------------|--------------------|-----|
| Project: | | | | | | | | Job No. | | 61370 | | |
| Location: | | | Casing | diameter: | | • | 50 mm | Date: | (1 | 7/09/10 | 3 | |
| BORE CONS | TRUCTION | | | | | | | | | | | |
| | l Flush- □ ount Mon | | □ Casing I only | ⊐ Locke d | 1 | easurement pint | t □ Top Casing | of PVC | T | otal Depth; | 6.010 | m |
| BORE DEVEL | OPMENT | | | | | - | | | | | | |
| Method: | | Da | te: | | I | Undertaken | By: | Ň | Vol. F | Removed: | | L |
| Comments (e | e.g. sediment c | ontent): | | | | | | | | | | |
| | ****** | | | | | | | | | | | |
| PURGING DE | TAILS (measu | rement poin | ts in meters | below top of | fcas | sing as indi | cated abov | e) | | | | |
| Method: ρ_ℓ | n-pump | > Water Q | uality Meter | used: C | 15 | , Pro | • | | Und | lertaken By | : EE/DS | |
| | er: 2,965m | | olumn: | m | Re | eq Purge Vo | ol. 1: | L | | w Rate: | | nin |
| Presence of I | | Presenc | e of DNAPL | | Th | nickness of | NAPL: | cm | Dep | oth to NAPL | : | m |
| Pump intake: | : m | | | | | | | | | | | |
| PURGING ME | ASUREMENTS | 3 ² | | | | | | | | | | |
| Vol. Purged (L) Elapsed Time (min) EC (μS/cm) Temp. (°C) TDS (ppm mg/L) pH DO %Sat DO (ppm mg/L) Eh (mV) Water Level (m b TOC) AS 5557 11: 100% (ct/) 10% 10% 10% 10% 10% 10% | | | | | | | | | | | | |
| (L) (Ime (min)) (µS/cm) (ppm/mg/L) (ppm/mg/L) (m b roc) AS 5667.11: 1998 (<+/-) | | | | | | | | | | | | |
| 12 Juin 205.6 18.5 173 5.45 5.8 0.53 56.3 2.965 | | | | | | | | | | | | |
| 2L | 6min | 264.4 | 1B.4 | 172 | | 5.40 | 8.8 | 03 | 2 | 39.8 | 2.965 | |
| SL | 9~in | 213.7 | 18.4 | 171 | | 5.39 | 2.7 | 0.2 | 6 | 25.2 | 2.965 | |
| 4L | 12 Min | 262.7 | 18.4 | 171 | | 5,38 | 2.1 | 0.20 | ッ | 12.2 | 2.965 | , |
| 51 | 15 min | 262.3 | 18.4 | 170 | | 5.38 | 1.8 | 0.17 | • | 4.6 | 2.965 | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Comments (e | .g. condition o | f headwork: | s, sheen, col | our. odour. s | sedi | ment load): | | | | | | |
| · · · | | | | | | | | 1 | cl | e co | | |
| Supe | w odon | r, uč | juten | <u>, , , , , , , , , , , , , , , , , , , </u> | \mathcal{M} | paera | 10 5.00 | <u>`</u> ^_O | 172 | | | |
| SAMPLING D | ETAILS | | | | | Sample ID |): | | | | | |
| Time: | | Vol. Remov | ved: | | L | No of Sam | ple Containe | rs: B | ı | | | |
| Type of Sampl | e Containers (i.e | . P = Plastic/ | G = Glass/V = | Vial, volume a | ind p | o = preserved | l/up = unpres | served): | | | | |
| Field Filtered | Ø | Duplicate S | amples 🗆 | Duplic | ate S | Sample ID: | | | | | | |
| Comments: | | | | t | | | | | | · · · · · | | |
| | | | | | | | | | | | | |
| CoC Num | | | | cked by: | | | | Date: | - 4 | | | |
| Bores to be | e purged dry, until | DH. I and EC 1 | eagings stabilis | ie or a minimun | n of 3 | s to 5 times the | e water column | i volumes. Wa | атег сс | numn volumes | s can de calculâtê | a |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm iD – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



| Client: | | | | | | | | BORE I |): (² | YORR N | IW32 | |
|--------------------|---------------------------|----------------|--------------------|------------------|----------|--------------------|-------------------|---------------|-------------------|--------------|--------------------------|-----|
| Project: | | | | | | | | Job No. | 0 | 13704 | | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | ٢ | 7109/11 | Ì | |
| BORE CONS | FRUCTION | | | | | | | | | | | |
| | Flush- 🗆 punt Мол | | ⊐ Casing I only | Locked | | easurement bint | t □ Top Casing | of PVC | To | otal Depth: | 5.030 | m |
| BORE DEVEL | OPMENT | | | | | | | | | | | |
| Method: | | Da | ite: | | | Undertaken | By: | 1 | Vol. R | emoved: | | L |
| Comments (e | .g. sediment c | ontent): | | | | | | · | | | | |
| | | | | | | | | | | | | |
| PURGING DE | TAILS (measu | rement poir | nts in meters | below top of | cas | sing as indi | cated above | e) | | | | |
| Method: Per | i amp | Water Q | uality Meter | used: y | ςι. | Pro. | | | Und | ertaken By | : E[DS | ŝ |
| Depth to wate | | Water C | olumn: | m | Re | eq Purge Vo | ol. 1: | L | Flov | v Rate: | L/I | min |
| Presence of L | NAPL 🗆 | Presenc | e of DNAPL | | Th | ickness of | NAPL: | cm | Dep | th to NAPL | | m |
| Pump intake: | m | | | | | | | | | | | |
| PURGING ME | ASUREMENTS | 5 ² | | | | - . | | | | | | |
| Vol. Purged (L) | Elapsed Time (min) | EC (µS/cm) | Temp. (°C) | TDS (ppm mg/L |) | рН | DO %Sat | DO (ppm mg | /L) | Eh (mV) | Water Level (m b TOC) | |
| AS 5667.11: | 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | • | | |
| IL | Snin | 316 | 18.3 | 205 | | 5.67 | 5.7 | 0.57 | 2 | -64.0 | 2.011 | |
| 2L | 6min | 313.8 | 18.2 | 204 | | 5.65 | 5.3 | 0.3 |) | -84.1 | 10.5 | |
| 1948 3L | 9nin | 312.1 | 18.Z | 203 | | 5.64 | 2.4 | 0.27 | 2 | -94.6 | 2.01 | |
| 41 | 12 nain | 310.7 | 18.2 | 202 | | 5.64 | 2.1 | 0.20 |) | - 100 .4 | 110. S | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | _ |
| Comments (e | .g. condition o | f headwork | s, sheen, col | our, odour, s | edi | ment load): | | | | | | - |
| | - rodour, | ····· | | | | | | ואען | -+0 | made | лd | |
| | | | <u> </u> | | x | <i>q</i> ¥ | | | | | | |
| SAMPLING D | ETAILS | | | | | Sample ID |): | | | | | |
| Time: | | Vol. Remov | ved: | | L | No of Sam | ple Container | 's: 🕅 | | | | |
| Type of Sample | e Containers (i.e. | . P = Plastic/ | G = Glass/V = | Vial, volume a | nd p |) = preserved | 1/up = unpres | erved): | | | | |
| Field Filtered | C | Duplicate S | Samples 🗹 | Duplic | ate \$ | Sample ID: | FDC | Σ. | | | | |
| Comments: | | | | · | | | | | | | | |
| | | | | | | | | | | | | |
| CoC Num | ber: purged dry, until | | | cked by: | of 2 | to 5 times the | water column | Date: | ator oc | lumn volumee | can be calculate | ori |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



| Client: | | | | | | | | BORE I |): f | JORR N | 11246 | |
|--------------------|-------------------------|---------------|------------------|-----------------------------|-------------|----------------|---------------------------------------|---------------|-------------|---------------|--------------------------|-------|
| Project: | | | | | | | | Job No. | : (| 613704 | | |
| Location: | | | Casing | ı diameter: | | | 50 mm | Date: | lo | 1 09119 | - | |
| BORE CONS | TRUCTION | | | | | | | | | | | |
| 1 (| Î,Flush- □ iount Mon | | □ Casing only | Locked | Mea Poir | isuremen it | t □ Top Casing | of PVC | T | otal Depth: | 6.128 | n |
| BORE DEVE | LOPMENT | | | | | | | | | | | |
| Method: | | Da | ate: | | Ur | ndertaker | n By: | ١ | Vol. F | Removed: | | l |
| Comments (| e.g. sediment c | ontent): | | | | | | | | | | |
| PURGING DI | ETAILS (measu | rement poi | nts in meters | below top of | fcasir | ng as indi | icated above | e) | | | | |
| | n-pump | | uality Meter | | | sipn | | | Unc | lertaken By | : 田(10 | |
| | er: 3.556 m | | | m | | Purge Vo | ol. 1: | L | | w Rate: | · · · | ./mir |
| Presence of | | - | ce of DNAPL | | <u> </u> | kness of | | cm | Dep | oth to NAPL | • | m |
| Pump intake | : m | | | | | | | | | | | |
| PURGING M | EASUREMENTS | <u>}</u> 2 | | | | | | | | | | |
| Vol. Purged (L) | Elapsed Time (min) | EC (µS/cm) | Temp. (°C) | TDS (ppm[mg/L | .) | рН | DO %Sat | DO (ppm mg | /L) | Eh (mV) | Water Level (m b TOC) | |
| AS 5667.11 | l: 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | - 1 | - | |
| 11 | 3 rin | 576 | 19.3 | 374 | 1 | 5.71 | 3.1 | 0.28 | , | 9.9 | 3.55(| 0 |
| 26 | brin | STS | 19.5 | 373 | I | 5.71 | 2.0 | 0.18 | \$ | 13.9 | 3,55 | |
| 31 | 9 min | 576 | 19.5 | 374 | 6 | 5.71 | 1.7 | 0.16 | | 16.3 | Ч Ч | 6 |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | <u> </u> | | | |
| Comments (| e.g. condition o | f headwork | s, sheen, col | lour, odour, s | sedim | ent load): | · · · · · · · · · · · · · · · · · · · | | | <u>.</u> | <u> </u> | |
| claud | ly light | | | ferror s | | | • | lour, | <u>.</u> ^< | , she | N, IOW | |
| ton | ja va. | | | | | | | | | | <u> </u> | |
| SAMPLING [| DETAILS | | | | | Sample II | | | | | | |
| Time: | | Vol. Remo | | | | | ple Container | | | | | |
| Type of Samp | le Containers (i.e | . P = Plastic | (G = Glass/V = | Vial, volume a | ind p = | e preserve | d/up = unpres | erved): | | | | |
| Field Filtered | | Duplicate | Samples 🛛 | Duplic | ate Sa | mple ID: | | | | | | |
| Comments: | | | | | | | | | | - | | |
| CaO Maria | abori | | 04- | akad hu: | | | | Deter | | | | |
| CoC Nun | | nU T and EC | | cked by: se or a minimum | | E times th | a water column | Date: | ater or | niump volumes | can be calcul | atod |

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Calibration details to be recorded in the instrument -specific calibration book, or in field notes as required by local procedures.

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| Client: | | | | | | | | | | | | | |
|--|--------------------------------|----------------|--------------------|----------------|-------|-------------------|-------------------|----------|--------------|--------------|----------|--|--|
| Project: | | | | | | | | Job No | .: | 61370 | 41 | | |
| Location: | | | Casing | ı diameter: | | | 50 mm | Date: | | 17/09/1 | 9 | | |
| BORE CONS | TRUCTION | | | | | | | | | | | | |
| | IFlush- 🗆 ount Mon | | □ Casing I only | Locked | | easurement int | : 🗆 Top Casing | of PVC | T | otal Depth: | 11.555 " | | |
| BORE DEVEL | LOPMENT | | | | | | | | | | | | |
| Method: | | Da | ite: | | l | Jndertaken | By: | | Vol. F | Removed: | L | | |
| Comments (e | e.g. sediment co | ontent): | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| PURGING DE | TAILS (measu) | rement poir | nts in meters | below top of | cas | ing as indi | cated above | e) | | | | | |
| Method: fu | ri-pump | Water Q | uality Meter | used: | Ч | SI Pro | ÷ | | Und | lertaken By | EEDS | | |
| | er: 3,515 m | Water C | olumn: | m | Re | q Purge Vo | ol. 1: | L | | w Rate: | L/min | | |
| Presence of I | LNAPL 🗆 | Presend | e of DNAPL | | Th | ickness of | NAPL: | cm | Dep | oth to NAPL: | : m | | |
| Pump intake: | : m | | | | | | | | | | | | |
| PURGING MEASUREMENTS 2 | | | | | | | | | | | | | |
| Vol. Purged (L) Elapsed Time (min) EC (μS/cm) Temp. (°C) TDS (ppm mg/L) pH DO %Sat DO (ppm mg/L) Eh (mV) Water Level (m b TOC) AS 5667.11: 1998 (<+/-) | | | | | | | | | | | | | |
| AS 5667.11 | : 1998 (<+/-) | | | | | | | | | | | | |
| 11 | 3 nuin | 3465 | 19.8 | 2252 | | 5.48 | 4.1 | 0.3 | \mathbf{f} | -21.1 | 3.515 | | |
| 2L | bmin | 3456 | 19.9 | 2247 | | 5.37 | B102.5 | 0.2 | .7 | and | 3.515 | | |
| 3L | nin | 3447 | 19.9 | 2240 | | 5.39 | 2.1 | 0.10 | ì | -3.2 | 3.515 | | |
| 41 | Rnin | 3438 | 20.0 | 2235 | | 5,41 | ۱.٦ | 0,1 | 7 | -6.9 | 3.515 | | |
| 51 | 15 min | 3431 | 20.0 | 2230 | , | 5.43 | 1.8 | 0.1 | 6 | -10.5 | 3.515 | | |
| 6L | 18ruin | 3432 | 20.0 | 2224 | ł | 5.43 | 1.6 | 0.15 | \$ | -14.0 | 3.515. | | |
| | | | | | | | | | | | • | | |
| | | | | | | | | | | | | | |
| Comments (e | e.g. condition of | f headwork | s, sheen, col | our, odour, s | edir | ment load): | l- | | | ,ı,I | | | |
| tigut | organic o | dour, | Cleav- | -cland | } , | NO SI | eer, | 1000 | to | no seo | (- | | |
| SAMPLING D | ETAILS | | | | | Sample ID |): | | | | | | |
| Time: | | Vol. Remov | ved: | | L | No of Sam | ple Container | 'S: | 8 | | | | |
| Type of Sampl | e Containers (i.e. | . P = Plastic/ | G = Glass/V = | Vial, volume a | nd p | = preserved | l/up = unpres | served): | <u></u> | | | | |
| Field Filtered | | Duplicate S | Samples 🗆 | Duplic | ate S | Sample ID: | | | | | | | |
| Comments: | | | | <i>.</i> | | | | | | | | | |
| ····· | | | | | | | | | | | | | |
| CoC Num | iber: e purged dry, until j | | | cked by: | | | | Date: | | | | | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



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Groundwater Monitoring – Field Sheet

| Client: | | | | | | | BORE | D: BORR | MW39 | | | |
|-----------------------------------|------------------------|----------------|------------------|-----------------|------------------------|-------------------|-----------|-----------------------------|------------------------|--|--|--|
| Project: | | | | | | | Job No. | | | | | |
| Location: | | | Casing | g diameter: | | 50 mi | n Date: | 17/09/1 | 9 | | | |
| BORE CONS | TRUCTION | | | | | | | | | | | |
| | £∕Flush- □ ount Mon | | □ Casing only | | Measurem Point | ent D To Casir | op of PVC | Total Depth: | 13,928 | | | |
| BORE DEVE | LOPMENT | | | | - | | | | | | | |
| Method: | | Da | ite: | | Undertal | ken By: | | Vol. Removed: | | | | |
| Comments (| e.g. sediment c | ontent): | | | | | | | | | | |
| | | | | 1 - f | | | | | | | | |
| | ETAILS (measu | | | | casing as i | ndicated abo | ve) | Understeller Dr | | | | |
| Method: | | | uality Meter | | Bee Durre | | L | Undertaken By Flow Rate: | <u>r: EE/DS</u> L/m | | | |
| Presence of | er: 7.271 m | | | | Req Purge Thickness | | | | | | | |
| Presence of Pump intake | | | e of DNAPL | | THICKNESS | UINAFL: | cm | Depth to NAPL | | | | |
| PURGING MEASUREMENTS ² | | | | | | | | | | | | |
| Vol. Purged | Elapsed | EC | Temp. (°C) | TDS | рН | DO %Sat | DO | Eh (mV) | Water Level | | | |
| (L) | Time (min) | (µS/cm) | | (ppm mg/L | | | (ppm mg | | (m b TOC) | | | |
| AS 5667.11 | l: 1998 (<+/-) | 10% | 0.2°C | - | 10% | 10% | 10% | | • | | | |
| 11 | 3min | 291.9 | 20.1 | 190 | 5.4 | | 0.6 | 2 162.1 | 7.271 | | | |
| 2L | 6 prin | 289.3 | 20.1 | 188 | 5.8 | 33 S.8 | 0.34 | 174.1 | 7-271 | | | |
| 31 | 9nin | 290.4 | 20.0 | 18୩ | 5.2 | .9 2.9 | 0.2 | 6 179.4 | 7.271 | | | |
| 46 | 12nin | 289.6 | 20.0 | 188 | 5.2 | 8 2.2 | 0,20 | o 183.7 | 7.271 | | | |
| 5L | 15min | 288.9 | <u>2</u> 0.0 | 188 | S . Z | 8 1.9 | 0.18 | 3 186.6 | 7.271 | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | <u> </u> | | | | | | | | |
| | e.g. condition o | | | | | | | | | | | |
| milky - | to light | JUNN | . resh | len, | (000 5 | ed, n | o oda | <u>v</u> | | | | |
| SAMPLING D | DETAILS | | | | Sampl | e ID: | | | | | | |
| Time: | | Vol. Remov | ved: | | L No of S | ample Contair | iers: 8 | | | | | |
| Type of Samp | le Containers (i.e | . P = Plastic/ | G = Glass/V = | Vial, volume a | ind p = prese | rved/up = unpi | eserved): | | | | | |
| Field Filtered | ц. | Duplicate \$ | Samples 🗆 | Duplic | ate Sample II |): | | | | | | |
| Comments: | | | | | | | | | | | | |
| ► CoC Nur | ıber: | | Che | cked by: | | | Date: | · · · · · | | | | |
| Bores to b | | | readings stabili | se or a minimun | | | | later column volume | s can be calculated | | | |

Calibration details to be recorded in the instrument -specific calibration book, or in field notes as required by local procedures.



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| Client: | | | | | | | | | | | | | |
|--|-------------------------------|----------------|------------------|----------------|--------|--------------------|-------------------|----------|---------|--------------|-------------------|--|--|
| Project: | | | | | | | | Job No.: | : (| 013701 | f(| | |
| Location: | | | Casing | g diameter: | | | 50 mm | Date: | 19 | 1/09/17 | | | |
| BORE CON | STRUCTION | | | | | | | | | | | | |
| | ⊠rlush- □ mount Mor | | □ Casing only | | | easurement vint | t D Top Casing | of PVC | T | otal Depth: | 5.036 m | | |
| BORE DEVI | ELOPMENT | | | | | | | | | | | | |
| Method: | | Da | ite: | | | Undertaken | By: | 1 | Vol. F | Removed: | L | | |
| Comments | (e.g. sediment c | ontent): | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | ETAILS (measu | rement poir | nts in meters | below top of | cas | sing as indi | cated above | 2) | | | | | |
| Method: | eri-pump | Water Q | uality Meter | used: Ų | 151 | pro. | | | Unc | dertaken By | : EE/10 | | |
| | ter: 2.547m | | olumn: | m | Re | eq Purge Vo | ol. 1: | L | Flor | w Rate: | L/min | | |
| Presence of | | Presenc | e of DNAPL | | Th | ickness of | NAPL: | cm | Dep | oth to NAPL | : m | | |
| Pump intak | e: n | 1 | | | | | | | | | | | |
| PURGING MEASUREMENTS 2 | | | | | | | | | | | | | |
| Vol. Purged (L) Elapsed Time (min) EC (µS/cm) Temp. (°C) TDS (ppm mg/L) pH DO %Sat DO (ppm mg/L) Eh (mV) Water Level (m b TOC) AS 5667.11: 1998 (<+/-) | | | | | | | | | | | | | |
| AS 5667.1 | 1: 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | • | - | | |
| 1L | 3 nin | 22907 | 17.5 | 14892 | | 5.76 | 4.2 | 0.36 | 0 | -23.3 | 2.547 | | |
| 2L- | brin | 2.2894 | 17.6 | 14878 | | 5.77 | 2.6 | 0.2 | 3 | - 25 ·J | 2.547 | | |
| 31- | 9 nin | 22870 | 17.6 | 14864 | | 5.79 | 2.6 | 0.1- | 1 | - 29.5 | 2.547 | | |
| 4L | 12 righ | 22813 | 17.6 | 14828 | | 5.79 | (. 8 | 0.16 | 5 | - 30.9 | 2.547 | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Comments | (e.g. condition o | f headwork | s, sheen, co | lour, odour, s | edi | ment load): | | | | | • | | |
| dear | to light | yellav | , nosh | len, li | ŊV | used, | Sulfar | -odoui | <u></u> | | | | |
| SAMPLING | DETAILS | | | | | Sample ID |): | | | <u> </u> | | | |
| Time: | | Vol. Remov | ved: | | L | No of Sam | ple Container | s: 9 | | | | | |
| Type of Sam | ple Containers (i.e | . P = Plastic/ | G = Glass/V = | Vial, volume a | nd p |) = preserved | d/up = unpres | erved): | | · | | | |
| Field Filtered | | Duplicate \$ | Samples 🛛 | Duplic | ate \$ | Sample ID: | | | | | | | |
| Comments: | | | | I | | | | | | | | | |
| | | | | | | | | • | | | | | |
| CoC Nu | mber: be purged dry, until | nU Tand TA | | cked by: | | to 5 times the | unator oplume | Date: | ator cr | lumn volumor | can be calculated | | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



| Client: BORE ID: $2 + (9, 2)$ | | | | | | | | | | | | | |
|--|---|---------------------------------------|----------------|----------------|-----------|------------------|-------------------|---------|--------|-------------|--------------|----------|--|
| Project: | | | | | | | | Job No. | | 3704 | | _ | |
| Location: | | | Casing | g diameter: | | | 50 mm | Date: | 23 | 10/19 | | | |
| BORE CONS | TRUCTION | | | | | | | | | | | | |
| | PFlush- □ ount Mon | ument | Casing only | Locked | Me Poi | asurement int | t □ Top Casing | of PVC | То | tal Depth: | 8.896 | m | |
| BORE DEVE | LOPMENT | | | | | | | | | | | | |
| Method: | | D | ate: | | U | Indertaken | By: | 1 | Vol. R | emoved: | | L | |
| Comments (e | e.g. sediment co | ontent): | | | | | | · | | - | | | |
| | | | | | | | ******** | | | | | | |
| PURGING DE | TAILS (measur | ement po | ints in meters | below top of | f casi | ing as indi | cated above | e) | | | | | |
| Method: <i>fl</i> | n'-pump | Water (| Quality Meter | used: | 451 | 1 Pro | | | Und | ertaken By | : EE (| ру | |
| Depth to wat | er: Z-\$04m | Water (| Column: | m | Rec | q Purge Vo | ol. 1: | L | Flow | / Rate: | | L/min | |
| Presence of I | | Presen | ce of DNAPL | | Thi | ckness of | NAPL: | cm | Dept | th to NAPL: | : | m | |
| Pump intake: | : m | | | | | | | | | | | | |
| PURGING MEASUREMENTS ² | | | | | | | | | | | | | |
| Vol. Purged (L) Elapsed Time (min) EC (μS/cm) Temp. (°C) TDS (ppm mg/L) pH DO %Sat DO (ppm mg/L) Eh (mV) Water Level (m b TOC) | | | | | | | | | | | | | |
| AS 5667.11 | AS 5667.11: 1998 (<+/-) 10% 0.2°C - 10% 10% | | | | | | | | | | | | |
| ۱L | 4 min | 7872 19.1 5116.83 3.93 3.9 0.35 274.0 | | | | | | | | | | | |
| 21 | 8 min. | 7869 | 19-1 | 51174.9 | 2 | 2-94 | 2.9 | 0-2 | 6 | 275.2 | | | |
| 3∟ | 12min. | 7862 | 19.3 | 5111.2 | | 3.93 | 2.3 | D. 2 | 1 | 276.5 | - | | |
| 4L | 16 min. | | 19-3 | 511.7 | | 3.93 | 2.0 | 0 18 | - | 276.9 | | . | |
| | | | | | | | | | | | . | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Comments (e | .g. condition of | headworl | ks, sheen, col | our, odour, s | edim | ent load): | | | | | | | |
| Clerr | , ~ 0 0 d | aur, | NOSL | een j | (0) | $w + \delta$ | ne S- | ed. | | | | | |
| SAMPLING D | ETAILS | | | | | Sample ID | ; | | | | | | |
| Time: | | Vol. Remo | ved: | | L | No of Samp | ole Container | s: { | | | | | |
| Type of Sample | e Containers (i.e. | P = Plastic | /G = Glass/V = | Vial, volume a | nd p : | = preserved | /up = unpres | erved): | | | | | |
| Field Filtered | D | Duplicate | Samples 🗆 | Duplica | ate Sa | mple ID: | | | | <u>.</u> | | | |
| Comments: | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| CoC Num | | | | cked by: | | | | Date: | | | caa ba calau | | |

minimum of 3 to 5 times the water column volumes. Water column volumes can be calculated purged dry, until pH, 1 and EC rea ings su from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



| Client: BORE ID: (3+1).1 | | | | | | | | | | | | | |
|--|--|---------------|---------------------|----------------|------|--------------------|-------------------|-----------------|-------------|-------------|----------|------|--|
| Project: | | | | | | | | Job No.: | : 6 | 13764 | ١ | | |
| Location: | | | Casing | g diameter: | | | 50 mm | Date: | 2 | 3/10/10 | 1 | | |
| BORE CONST | TRUCTION | | | | | | | | | | | | |
| · · · | Flush- 🗆 punt Mon | | □ Casing only | | | easurement pint | t ⊡ Top Casing | o of PVC | T | otal Depth: | 5.058 | m | |
| BORE DEVEL | OPMENT | | | | | | | | | | | | |
| Method: | | Da | ate: | | | Undertaken | By: | ١ | Vol. R | Removed: | | L | |
| Comments (e | .g. sediment c | ontent): | | | | | | | | · | | | |
| | ****** | | | | | | ***** | | | | | | |
| PURGING DE | TAILS (measu | rement poi | nts in meters | below top of | fcas | sing as indi | cated abov | e) | | | | | |
| Method: | vi-pump | Water C | Quality Meter | used: പ | 5 | IPro. | | | Und | lertaken By | : EZ P | Я | |
| | er: 1.812 m | Water C | Column: | m | Re | eq Purge Vo | ol. 1: | L | Flov | w Rate: 🖉 🖉 | MESO.3LI | min | |
| Presence of L | | Presend | ce of DNAPL | | Th | ickness of | NAPL: | cm | Dep | th to NAPL | : | m | |
| Pump intake: | m | 1 | | | | | | | ! | | | | |
| PURGING MEASUREMENTS 2 | | | | | | | | | | | | | |
| Vol. Purged (L) Elapsed Time (min) EC (μS/cm) Temp. (°C) TDS (ppm mg/L) pH DO %Sat DO (ppm mg/L) Eh (mV) Water Level (m b TOC) AS 5567 11: 1998 (<+/_) | | | | | | | | | | | | | |
| AS 5667.11: 1998 (<+/-) 10% 0.2°C - 10% 10% | | | | | | | | | | | | | |
| 11 | 12 Snin 1781 19.2 1156.05 6.82 4.9 0.44 -75.3 ~1.812 | | | | | | | | | | | | |
| 2L | bruin | 1684 | 19.2 | 1093.40 | ì | 6.89 | 5.5 | <i>o.</i> 33 | | -83.6 | 1.85 | 2 | |
| 36 | 9 nin | 1618 | 19.1 | 1051.90 | | 6.94 | 27 | 6.25 | | -88-4 | ~1.812 | | |
| 4L | 12 min | 1615 | 19.1 | 1049.2 | .2 | 6.95 | 2.3 | 0.21 | | -89.3 | ~1.812 | | |
| | | | | • | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | - | | | | | | | |
| Comments (e | .g. condition o | f headwork | l (s. sheen, col | our. odour. s | edi | ment load): | | | | | | | |
| | - | | | | | | •••••• | ~ | 50 | d | | | |
| Crear U | ight yel | | <u>ne aaa</u> | ur, no | Nr | len, | 10/1 | s mou | <u>' 77</u> | <u>v</u> . | | •••• | |
| SAMPLING D | ETAILS | | | | | Sample ID |): | | | | | | |
| Time: | | Vol. Remo | ved: | | L | No of Sam | ple Containe | rs: 8 | | | | | |
| Type of Sample | e Containers (i.e | . P = Plastic | /G = Glass/V = | Vial, volume a | nd p |) = preserved | d/up = unpre | served): | | | | | |
| Field Filtered 🗹 Duplicate Samples 🗆 Duplicate Sample ID: | | | | | | | | | | | | | |
| Comments: | Comments: | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| CoC Num | | | | cked by: | | | | Date: | | | | | |

Bores to be purged dry, until pH, T and EC readings stabilise or a minimum of 3 to 5 times the water column volumes. Water column from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID - 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures. volumes can be calcula



1

Groundwater Monitoring – Field Sheet

| Client: BORE ID: But 32.1 Project: Job No.: Use 30041 Location: Casing diameter: 50 mm Date: 2411019 BORE CONSTRUCTION Head- Image: Construction only Image: Construction only Image: Construction only Total Depth: Construction only Total Depth: Construction only Image: Construction only Total Depth: Construction only Image: Construction only Image: Construction only Total Depth: Construction only Image: Construction only Image: Construction only Image: Construction only Total Depth: Construction only Image: C | m | L | KH27.1 | ID: | I BOREI | | | | | | | | | | | | | | | |
|---|----------|-----------------|---------------|--------|------------------|----------------|------------------|------------|------------|------------|---------------|---|---------------|--------------|--|--|--|--|--|--|
| Location: Casing diameter: 50 mm Date: 24 10 19 BORE CONSTRUCTION Head- works Image: Casing in the casing indicated above) Image: Casing indicated above Total Depth: Casing indicated above BORE DEVELOPMENT Image: Casing indicated above Image: Casing indicated above Vol. Removed: Casing indicated above PURGING DETAILS (measurement points in meters below top of casing as indicated above) Image: Casing indicated above | | | | | | | | | | | | | | | | | | | | |
| BORE CONSTRUCTION Head- works Image: Casing only Image: Casing only </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>—</td> <td></td> <td></td> <td></td> <td></td> | | | | | | | | | | — | | | | | | | | | | |
| Head-works Image: Monument Image: Casing only Locked only Measurement Point Image: Casing Total Depth: Image: Casing Total Depth: Image: Casing Image: Casi | | 1 | 24110119 | c | Date: | 50 mm | | eter: | Casing (| | | - | | | | | | | | |
| BORE DEVELOPMENT Method: Date: Undertaken By: Vol. Removed: Comments (e.g. sediment content): PURGING DETAILS (measurement points in meters below top of casing as indicated above) | | | | | ·• | | | <u>1</u> | | | | | ····· / | r | | | | | | |
| Method: Date: Undertaken By: Vol. Removed: Comments (e.g. sediment content): | L | 0.139 | otal Depth: | Т | | | | | ng 🗆 | | | | • | - | | | | | | |
| Comments (e.g. sediment content): PURGING DETAILS (measurement points in meters below top of casing as indicated above) | L | | | | | | | | | • | | ENT | VELOPMEN | BORE DE | | | | | | |
| PURGING DETAILS (measurement points in meters below top of casing as indicated above) | | | Removed: | Vol. F | | a By: | Undertaken | | | Date: | D | | | Method: | | | | | | |
| | | | | | ,,,,, | | | | | | ontent): | diment co | ts (e.g. sedi | Comments | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | | | | | e) | icated above | sing as indi | v top of c | neters t | oints in | rement poi | (measure | DETAILS (| PURGING | | | | | | |
| Method: Peripump Water Quality Meter used: YSI Pro Undertaken By: EX PY | <u> </u> | $: EP_{P_{1}}$ | dertaken By: | Un | | | Pro | <u>45</u> | Meter u | Quality | Water (| ump | Peri-pu | Method: | | | | | | |
| Depth to water: 3,960 m Water Column: m Req Purge Vol. 1: L Flow Rate: L/r | ./min | L | w Rate: | Flo | L | ol. <u>1</u> : | eq Purge Vo | m F | : | Colum | Water (| 960'm | water: 3,9 | Depth to v | | | | | | |
| Presence of LNAPL Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: | m | : | oth to NAPL: | Dej | cm | NAPL: | nickness of | 1 | NAPL | nce of C | Presen | . 🗆 | of LNAPL | Presence | | | | | | |
| Pump intake: m | | | | | | | | | | | _ | m | ake: | Pump inta | | | | | | |
| PURGING MEASUREMENTS 2 | | | | | | | | | | | | | | | | | | | | |
| Vol. Purged (L) Elapsed EC Temp. (°C) TDS pH DO %Sat DO Eh (mV) Water Level (m b TOC) | | | | | | | | | | | | | | | | | | | | |
| AS 5667.11: 1998 (<+/-) 10% 0.2°C - 10% 10% 10% | | | | | | | | | | | | | | | | | | | | |
| 1L 3min 8646 19.1 5615.36 4.09 4.9 0.44 309.0 | | | 309.0 | 4 | 0.41 | 4.9 | 4.09 | o15.36 | \ | , 19. | 864b | min | 3, | ۱L | | | | | | |
| 2L 6 min 8333 19.1 5411.03 4.13 3.6 0.32 320.1 | | | 320.1 | 2 | 0.37 | 3.6 | 4.13 | 11.0- | .(| 19 | 8333 | min | 6, | 2 L | | | | | | |
| 3L 9nin 7998 19.1 5197.04 4.19 3.0 027 319.6 | | | 319.6 | - | 027 | 3.0 | | | | 19. | 7998 | vin | 9n | 36 | | | | | | |
| 4L 12min 7334 19.1 4754.45 4.32 2.4 0.22 308.1 | | - | | | | | | | <u>ا</u> | 19. | 7334 | nin | 12n | 4L | | | | | | |
| SL 15min 6831 19.1 4430.22 4.42 2.1 0.19 300.8 | | | - | | | | | | | ` | | | | | | | | | | |
| 62 18min 6498 19.1 4166.67 4.51 2.0 0.18 291.0 | | | | | | | | | | 19. | 6498 | min | 18r | 62 | | | | | | |
| 7L 21 min 6250 19.1 4067.61 4.54 1.9 0.17 285.6 | | | 285.6 | | о.Г 1 | 1.9 | 4.54 | 67.61 | <u>. \</u> | 19 | 6250 | nin | 21 n | 7L | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| Comments (e.g. condition of headworks, sheen, colour, odour, sediment load): | | | | | | | | | | | | | | | | | | | | |
| clear slight metallic odour, no sheen, low to mod sed. | | | dsed | mo | s to j | n, lov | shee | r, n | c od | aui | meta | ight | ir, sú | <u>Cl</u> Qa | | | | | | |
| SAMPLING DETAILS Sample ID: | | <u>_</u> | | | | D: | Sample I | | | | | .S | G DETAILS | SAMPLIN | | | | | | |
| Time: Vol. Removed: L No of Sample Containers: 😵 🖇 | | | | | | | | | | | | | | | | | | | | |
| Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): | | | | | served): | d/up = unpres | p = preserve | olume and | ass/V = V | tic/G = G | . P = Plastic | ainers (i.e. | Imple Contai | Type of Sa | | | | | | |
| Field Filtered Duplicate Samples Duplicate Sample ID: FDO3, FSO1 | | | | 501 | 3, FS | FDO. | Sample ID: | Duplicate | s 🗹 | te Sampl | Duplicate | <u>/. </u> | red 12 | Field Filter | | | | | | |
| Comments: | | | | | | | | | | | I | | ts: | Comment | | | | | | |
| CoC Number: Checked by: Date: | | | <u> </u> | .• | Date | | | hv: | Choo | | | | lumbor | Coc N | | | | | | |
| Bores to be purged dry, until pH, T and EC readings stabilise or a minimum of 3 to 5 times the water column volumes. Water column volumes can be calculate | ated | s can be calcul | olumn volumes | - | | e water column | 3 to 5 times the | | | EC reading | pH. T and FC | d dry, until r | | | | | | | | |



| Client: | | | | | | | | | | | | | |
|--|--|--|------------------|---------------------|--|--------------------------------|---|----------|---------|--------------|---|-----|--|
| Project: | | | | | | | | Job No. | : (| 013704 | (| | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | | 28/10/14 | ካ | | |
| BORE CONS | TRUCTION | | | | | | | | | | | | |
| - | Flush- □ ount Mon | | □ Casing only | Locked | | easuremen [.] pint | t □ Top Casing | o of PVC | T | otal Depth: | B.195 | m | |
| BORE DEVEL | LOPMENT | | | | | | | | | | | | |
| Method: | | Da | ite: | | | Undertaken | By: | \ \ | Vol. F | Removed: | | L | |
| Comments (e | e.g. sediment c | ontent): | | | | | | · | | | | | |
| | | | | | | | | | | | | | |
| PURGING DE | TAILS (measu | rement poi | nts in meters | below top o | f ca: | sing as indi | cated abov | e) | | | | | |
| Method: Pe | n-pimp | Water C | uality Meter | used: (y | SI | Pro | | | Unc | lertaken By | : DE DS | > | |
| | er: Հէ ,Չ֏5m | -1 | olumn: | m | Re | eq Purge Va | ol. 1: | L | | w Rate: | | min | |
| Presence of | | Presenc | e of DNAPL | | T۲ | nickness of | NAPL: | cm | Dep | oth to NAPL | • | m | |
| Pump intake: | : n | 1 | | | | | | | | | | | |
| PURGING MEASUREMENTS 2 | | | | | | | | | | | | | |
| Vol. Purged (L) Elapsed Time (min) EC (µS/cm) Temp. (°C) TDS (ppm mg/L) pH DO %Sat (ppm mg/L) DO (ppm mg/L) Eh (mV) Water Level (m b TOC) AS 5667.11: 1998 (<+/-) | | | | | | | | | | | | | |
| AS 5667.11 | AS 5667.11: 1998 (<+/-) 10% 0.2 °C - 10% 10% 10% - | | | | | | | | | | | | |
| 1L | Bhin | 4292 19.2 2793.90 6.60 9.0 0.80 -21.6 ~4.094 | | | | | | | | | 5 | | |
| 22 | brin | 4341 | 19.2 | 2821.9 | 5 | 6.63 | 4.3 | 0.39 | | -21.6 | л 4.00 | 75 | |
| 32 | 9 nin | 4336 | 19.2 | 2818.6 | 8 | 6.63 | 3.8 | 0.34 | | -22.4 | №4.09 ~4.09 | Ś | |
| 41 | 12nin | 4334 | 19.2 | 2816.7 | 0 | 6.63 | 3.5 | 0.32 | | | ~H.095 | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Comments (e | .g. condition o | f headwork | s, sheen, col | , lour, odour, s | sedi | ment load): | | | | · | ı <u>, , , , , , , , , , , , , , , , , , , </u> | | |
| | | | | | | | *************************************** | | | | | | |
| | | | | | | | | | | | | | |
| SAMPLING D | ETAILS | | | | | Sample ID |): | | | | | | |
| Time: | | Vol. Remov | ved: | - | L | No of Sam | ple Containe | rs: X | | | | | |
| Type of Sampl | e Containers (i.e | . P = Plastic/ | G = Glass/V = | Vial, volume a | and p | p = preserved | 1/up = unpre | served): | | | | | |
| Field Filtered | Ø | Duplicate S | Samples 🗀 | Duplic | ate s | Sample ID: | | | | | | | |
| Comments: | * Ver | rest r | nowing | aron | \sim | d wee | L | | | | | | |
| CoC Num | ber: | | Che | cked by: | <u>. </u> | | | Date: | | | | | |
| | e purged dry, until | pH. T and EC | | | n of 3 | 3 to 5 times the | water colum | | ater co | iumn volumes | can be calculate | ed | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



| Client: | | | | | | | | BORE ID |): | BORR | MNOS | | | |
|--|---|---|------------------|-----------------|----------|--------------------|-------------------|------------|---------|--------------|---------------------------------------|---|--|--|
| Project: | · | | | | | | | Job No.: | | 613704 | | _ | | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | | 28/10/14 | 1 | _ | | |
| BORE CONS | TRUCTION | - | | | | | | | | | | | | |
| | Flush- □ ount Mon | | ⊐ Casing only | | | easurement pint | t □ Top Casing | of PVC | То | otal Depth: | 8.021 | n | | |
| BORE DEVEL | OPMENT | | | | | | | | | | | | | |
| Method: | | Da | te: | | 1 | Undertaken | By: | 1 | Vol. R | emoved: | | L | | |
| Comments (e | .g. sediment c | ontent): | | | | | | · · | | | | | | |
| | | | | | | | | | | | | | | |
| PURGING DE | TAILS (measu | rement poir | its in meters | below top of | cas | sing as indi | cated above | .) | | | | | | |
| Method: Pl | n-pump | Water Q | uality Meter | used: | 45 | 1 PM | | | Und | ertaken By: | ETAS | | | |
| Depth to wate | er: 5,635 m | Water C | olumn: | m | Ře | eq Purge Vo | ol. 1: | L | Flow | v Rate: | L/mir | n | | |
| Presence of l | | Presenc | e of DNAPL | | Th | lickness of | NAPL: | cm | Dep | th to NAPL: | : រា | n | | |
| Pump intake: | : m | | | | | | | | | | | | | |
| PURGING MEASUREMENTS 2 | | | | | | | | | | | | | | |
| Vol. Purged (L) Elapsed Time (min) EC (µS/cm) Temp. (°C) TDS (ppm mg/L) pH DO %Sat DO (ppm mg/L) Eh (mV) Water Level (m b TOC) | | | | | | | | | | | | | | |
| AS 5667.11 | AS 5667.11: 1998 (<+/-) 10% 0.2°C - 10% 10% | | | | | | | | | | | | | |
| 16 | Brin | 1466 21.2 945.41 6.94 25.0 2.15 -41.8 ~5.63 | | | | | | | | | | | | |
| 21 | | 1379 | 21.4 | 897.40 | > | 6.76 | 14.0 | 1.22 | | - 41.8 | ~5.635 | | | |
| 3L | 9 rin | 1367 | 21.0 | 888.27 | 1 | 6.768 | 12.0 | 1.05 | , | -42.8 | ~5.635 | | | |
| 46 | 12 ruin | 1359 | 20.9 | 883.90 | } | 6.63 | 8.8 | 0.74 | | -44.6 | NG .635 | | | |
| 56 | 15min | 13550 | 20.8 | 880.00 | | 6.59 | 7.0 | 0.63 | , , | -45.0 | N5.635 | | | |
| 61 | 18nin | 1340 | 20.8 | 00.088 | | 6.54 W | 6.0 | 0.53 | | -47.7 | ~5.635 | | | |
| | | | | | | | | | | | · · · · · · · · · · · · · · · · · · · | | | |
| | | | | | | | | | | | | | | |
| Comments (e | e.g. condition o | f headwork | s, sheen, co | lour, odour, s | edi | ment load): | | | | | | | | |
| clard | gbrown | , slig | INT SU | Gurode | <u>n</u> | х, 19 | sheen | 100 | to | mod S | sed. | | | |
| SAMPLING D | ETAILS | | | | | Sample II |): | | | | | | | |
| Time: | | Vol. Remov | ved: | | L | No of Sam | ple Container | s: 🛛 | | | | | | |
| Type of Sampl | e Containers (i.e | . P = Plastic/ | G = Glass/V = | Vial, volume a | ind p |) = preservei | d/up = unpres | erved): | | | | | | |
| Field Filtered | Ø | Duplicate S | Samples 🛛 | Duplic | ate \$ | Sample ID: | | | | | | | | |
| Comments: | | | | I | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| CoC Num | | | | cked by: | | | | Date: | | | | | | |
| Bores to be | e purged dry, until | pH, T and EC | readings stabili | se or a minimun | ı of 3 | to 5 times the | e water column | volumes. W | ater co | lumn volumes | can be calculated | | | |

Bores to be purged dry, until pH, T and EC readings stabilise or a minimum of 3 to 5 times the water column volumes. Water column from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



| Client: | | | | | | | | BORE |): { | SOLP 1 | 11106 | | |
|---|---|----------------|-------------------|-----------------|--------|-------------------|-------------------|--------------|---------|--------------------|-------------------|--|--|
| Project: | | | | | | | | Job No.: | : | 62704 | 1 | | |
| Location: | | | Casing | g diameter: | | | 50 mm | Date: | 2 | 8/10/1 | 9 | | |
| BORE CONS | TRUCTION | | | | | | | | | | | | |
| | YFlush- □ Nount Mor | | Casing Conly | Locked | | easuremen oint | t □ Top Casing | of PVC | T | otal Depth: | 7.851 " | | |
| BORE DEVE | LOPMENT | | | | | | | | | | | | |
| Method: | | Da | ite: | | | Undertaker | ו By: | 1 | Vol. F | Removed: | | | |
| Comments (| e.g. sediment c | ontent): | | | | | | ····· | | | | | |
| | | | | | | | | | | | | | |
| PURGING DI | ETAILS (measu | rement poi | nts in meters | below top of | fca | sing as ind | icated above | e) | | | | | |
| Method: p_i | wi-pimp | Water G | uality Meter | used: Y | 51 | Pio | | | Unc | lertaken By | EE/DS | | |
| Depth to wat | er: 5.311 m | Water C | olumn: | m | R | eq Purge Vo | ol. 1: | L | Flow | w Rate: | ۲ L/min | | |
| Presence of | LNAPL 🗆 | Presenc | e of DNAPL | | T۲ | nickness of | NAPL: | cm | Dep | oth to NAPL: | : m | | |
| Pump intake | : m | 1 | | | | | | | | | | | |
| PURGING MI | PURGING MEASUREMENTS 2 | | | | | | | | | | | | |
| Vol. Purged (L) Elapsed Time (min) EC (µS/cm) Temp. (°C) TDS (ppm mg/L) pH DO %Sat DO (ppm[mg/L) Eh (mV) Water Level (m b TOC) AS 5657 11: 1998 (c4/L) 10% 0.2 °C 10% 10% 10% | | | | | | | | | | | | | |
| AS 5667.11 | AS 5667.11: 1998 (<+/-) 10% 0.2°C - 10% 10% 10% | | | | | | | | | | | | |
| 1L | Brin | 6966 | | | | | | | | | | | |
| 21 | 6nin | 937 | 20.3 | 608-42 | - | 7.00 | 4.7 | 0.4Z | | -142.3 | ~G.311 | | |
| 3L | 9nin | 927 | 20.3 | 603 | | 7.00 | 4.3 | 0.38 | | -(40. 7 | ~5.311 | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Comments (| e.g. condition o | f headwork | s, sheen, col | lour, odour, s | edi | ment load): | | ***** | | | | | |
| Clear | brown, | mad | sed, s | light | Si | Afur | odour | , ne | Sh | ren | | | |
| SAMPLING E | DETAILS | | | | | Sample I |): | | | | | | |
| Time: | | Vol. Remov | ved: | | L | No of Sam | ple Container | s : 欠 | | | | | |
| Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): | | | | | | | | | | | | | |
| Field Filtered | | Duplicate S | Samples 🛛 | Duplic | ate \$ | Sample ID: | | | | | | | |
| Comments: | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| CoC Num | | | | cked by: | | | | Date: | | | | | |
| Bores to be | e purged dry, until | pH, T and EC I | readings stabilis | se or a minimur | ı of 3 | to 5 times the | e water column | volumes. Wa | ater co | umn volumes | can be calculated | | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



| Client: | | | | | | | | | | | | |
|--|----------------------|---------------------------------------|------------------|----------------|-----------|-----------------|-------------------|----------|----------|--------------|---------------------|--|
| Project: | GW + 5 | SW 50 | mpling | | | | | Job No. | | 213704 | | |
| Location: | | | Casing | g diameter: | | | 50 mm | Date: | | 28/10/14 | 1 | |
| BORE CONS | TRUCTION | | | | | | | | | | | |
| | Flush- □ ount Mon | | □ Casing only | □ Locked | Me Poi | asuremen int | t □ Top Casing | of PVC | То | otal Depth: | <725 m | |
| BORE DEVE | LOPMENT | | | | | | | | | | | |
| Method: | | Da | ite: | | U | Indertaker | HBy: | | Vol. R | emoved: | L | |
| Comments (e | e.g. sediment c | ontent): | | | - | | | | | | | |
| | | | | | | | | | | | | |
| PURGING DE | ETAILS (measu | rement poi | nts in meters | below top of | f casi | ing as ind | icated abov | e) | | | | |
| Method: | in pum | 2 Water C | uality Meter | used: | 45 | ol Pro | | | Und | lertaken By | : EE/DS | |
| | er: <u>1</u> .720m | | olumn: | m | Ree | q Purge Vo | ol. 1: | L | Flov | v Rate: | L/min | |
| Presence of | | Presend | e of DNAPL | | Thi | ickness of | NAPL: | cm | Dep | th to NAPL | : m | |
| Pump intake: m | | | | | | | | | | | | |
| PURGING MEASUREMENTS ² | | | | | | | | | | | | |
| Vol. Purged (L) Elapsed Time (min) EC (μS/cm) Temp. (°C) TDS (ppm]mg/L) pH DO %Sat (ppm mg/L) DO (ppm mg/L) Eh (mV) Water Level (m b TOC) | | | | | | | | | | | | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | - | • | |
|)د | 4min | 661 | 19.4 | 419.110 |) | 6.31 | 11.6 | 1.03 | - | 45.7 | ~5.72 | |
| 22 | 8 min | 603 | 19.1 | 391.06 | 6 | 6.15 | 6.3 | 0.57 | | -47.9 | ~5.72 | |
| 3L | 12min | 593 | 19.0 | 384.2 | 90 | 6.10 | 5.5 | 0.49 | | - 48.3 | ~5.72 | |
| 41 | Ibmin | 586 | 19.0 | 380.6 | 23 | 6.06 | 4.5 | ο.Υ | -1 | -48.7 | ~5.72 | |
| 5L | 20 min | 585 | 19.0 | 380.70 | 21 | 6.05 | 4.1 | 0.30 | <u>}</u> | - 48.9 | ~5.72 | |
| | <u>.</u> | | | | | | | | | | | |
| | | | | l | | | | | | | | |
| Comments (e | e.g. condition o | f headwork | s, sheen, co | lour, odour, s | sedin | nent load): | | | | | | |
| doud | y kown | , ovg | anic ad | our, n | ي و | Leen | , (ow | +70 M | ed. | sed. | | |
| SAMPLING D | ETAILS | | | | | Sample II | D: | | | | ····· | |
| Time: | | Vol. Remo | ved: | | L | No of Sam | ple Containe | rs: 8 | | | | |
| Type of Sampl | le Containers (i.e | . P = Plastic | /G = Glass/V = | Vial, volume a | and P | = preserve | d/up = unpre | served): | | | | |
| Field Filtered | Ø | Duplicate | Samples 🛛 | Duplic | ate S | ample ID: | | | | | | |
| Comments: | | · · · · · · · · · · · · · · · · · · · | | | | | | | | | | |
| | b | | | -land 1 | | | | B-4- | | | | |
| CoC Num | | nu Tand FO | | cked by: | n of 3 - | to 5 times th | o wator colum | Date: | latar co | iumn volumer | s can be calculated | |

from the following casing volumes per unit length: 40 mm ID - 1 μ m; 50 mm ID - 2 μ m; 100 mm ID 8 μ m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



| Client: | | | | | | | BORE II | : BORRN | 11109 |
|--------------------|-----------------------|---|---------------|------------------|---------------------|--------------------|----------------|--------------------|--------------------------|
| Project: | | | | | | | Job No. | | |
| Location: | | | Casing | g diameter: | | 50 mm | Date: | 23/10/19 | |
| BORE CONS | | | | | | | | | |
| | vFlush- □ ount Mor | | Casing Casing | Locked | Measuremer Point | nt 🗆 Top Casing | o of PVC | Total Depth: | 5.298 m |
| BORE DEVEL | OPMENT | | | | | | | | |
| Method: | | Da | ate: | | Undertake | n By: | N | /ol. Removed: | L |
| Comments (e | .g. sediment c | ontent): | | | | | ***** | | ***** |
| | | | | | | | | | |
| PURGING DE | TAILS (measu | rement poi | nts in meters | below top of | f casing as inc | licated abov | e) | | |
| Method: Pe | ni-pmp | Water C | uality Meter | used: y | Si Pro. | | | Undertaken By | : €E (PY |
| Depth to wate | er: 3.161 m | Water C | olumn: | m | Req Purge V | ol. 1: | L | Flow Rate: | L/min |
| Presence of L | | Presend | e of DNAPL | | Thickness o | f NAPL: | cm | Depth to NAPL | : m |
| Pump intake: | Ť | 1 | <u>-</u> | | | | 1 | | |
| | ASUREMENT | 1 | | 1 | | | | | |
| Vol. Purged (L) | Elapsed Time (min) | EC (µS/cm) | Temp. (°C) | TDS (ppm[mg/L |) pH | DO %Sat | DO (ppmjmg) | Eh (mV) /L) | Water Level (m b TOC) |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°Ć | • | 10% | 10% | 10% | - | - |
| 1L | 3 min | 391.7 | 18.7 | 253.08 | 6.17 | 33- Z | 3-12 | 152.4 | |
| 21 | 6 min. | 305.3 | 18.6 | 198.10 | 6.15 | 45.3 | 4.2 | 3 162.2 | • |
| 36 | Tmin | 300.7 | 18.5 | 195.4 | 8 6.09 | 43.0 | 4.02 | 171.7 | |
| 4L | 12 min | 302.4 | 18.5 | 196-6 | v | 41.7 | 3.90 |) 175.3 | |
| 5L | ls m | 300.8 | 18.5 | 194.5 | 26.07 | 41-4 | 3.87 | 178.2 | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | i | | | | |
| Comments (e | .g. condition o | f headwork | s, sheen, col | lour, odour, s | ediment load) | : | | I | |
| Cleav | , no od | our 1 | slee | m, lan | , to no | Sed. | | | |
| | , | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | | | | | | | |
| SAMPLING D | ETAILS | | | | Sample I | D: | | | |
| Time: | | Vol. Remov | /ed: | | L No of Sam | ple Containe | rs: 8 | | |
| Type of Sample | e Containers (i.e | . P = Plastic/ | G = Glass/V = | Vial, volume a | nd p = preserve | d/up = unpres | served): | | |
| Field Filtered | B | Duplicate S | Samples 🛛 | Duplic | ate Sample ID: | | | | |
| Comments: | | • • • • • | · | 1 | , | | | | |
| | | | | | | | | | |
| CoC Num | ber: | | | cked by: | | | Date: | ter column volumes | |

·



| Client: | | | | | | | | BOREI | | BORRI | | | |
|---|---|----------------|--------------------|-----------------|--------|--------------------|-------------------|--------------|----------|---------------|-------------------|-----|--|
| Project: | | | | | | | | Job No. | | <u>613702</u> | <u>+</u> l | | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | 2- | 3/10/19 | | | |
| BORE CONS | | | | | | | | | | | | | |
| | rFlush- □ ount Mon | | □ Casing I only | | | easurement pint | t □ Top Casing | of PVC | To | otal Depth: | 3.922 | | |
| BORE DEVE | LOPMENT | | | | | | | | | | | | |
| Method: | | Da | te: | | Ī | Undertaken | By: | | Vol. R | lemoved: | | L | |
| Comments (e | e.g. sediment co | ontent): | | | | | | | | | | | |
| | *********** | | | | | | | | | | | | |
| PURGING DE | TAILS (measur | ement poir | its in meters | below top of | cas | sing as indi | cated above | e) | | | | | |
| Method: Pl | ri-pump | Water Q | uality Meter | used: Ya | 51 | Pro | | | Und | lertaken By: | E PY | | |
| Depth to wat | er: 1.464 m | Water C | olumn: | m | Re | eq Purge Vo | ol. 1: | L | Flov | w Rate: | <u> </u> | min | |
| Presence of | | Presenc | e of DNAPL | | Th | ickness of | NAPL: | cm | Dep | th to NAPL: | | m | |
| Pump intake | : m | | | | | | | | | | | | |
| PURGING MEASUREMENTS 2 | | | | | | | | | | | | | |
| Vol. Purged (L) Elapsed Time (min) EC (µS/cm) Temp. (°C) TDS (ppm mg/L) pH DO %Sat DO (ppm mg/L) Eh (mV) Water Level (m b TOC) AS 5667 11: 1998 (<t s)<="" td=""> 10% 0.2 °C 10% 10% 10% - -</t> | | | | | | | | | | | | | |
| AS 5667.11 | AS 5667.11: 1998 (<+/-) 10% 0.2°C - 10% 10% 10% | | | | | | | | | | | | |
| IL | 3 min | 801 🏨 | 17.5 | , , | - 13-4 | | | | | | | | |
| 26 | Gmin | 647 | 17.4 | 419.05 | / | 5,89 | 2.4 | 0, 2 | 3 | -9.3 | | | |
| 3L | 9 min | 525 | 17-3 | 340.5 | 2_ | 5.86 | 1.9 | 0.1 | 6 | _ 0. 2 | | | |
| 4L | 12 min. | 484.6 | 17.3 | 314.4 | 0 | 5.85 | 1.7 | 0.1 | Ь | 2.9 | | | |
| 51 | tsmin | 450.4 | 17.3 | 292.6 | 3 | 5.83 | 1-5 | 0-14 | | 3.8 | | | |
| 61_ | (8 min | 440.8 | 17-4 | 286.3 | 6 | 5.83 | 1.5 | 0.1 | 4 | 4.4 | <u> </u> | | |
| | | • | | | | | | | , | | | | |
| | | | | | | | | | | | | | |
| Comments (e | e.g. condition o | f headwork | s, sheen, col | our, odour, s | edi | ment load): | | | | | | | |
| Clear, | nooda | r, he | > Sheer | n, lou | 2 | sed | | | | | | | |
| SAMPLING D | ETAILS | | | | | Sample ID |): | | | | | | |
| Time: | | Vol. Remov | ved: | | L | • | ple Containe | rs: X | | | | | |
| | e Containers (i.e | | | Vial, volume a | nd p | l | | ~~~~~ | | | | | |
| Field Filtered | F | Duplicate S | amples 🛙 | Duplic | ate S | Sample ID: | | | | | | | |
| Comments: | | | | I | | | | | | | | | |
| | | | | | | | | | | | | | |
| CoC Nur | | | | cked by: | | | | Date: | | | | | |
| Bores to b | e purged dry, until | pH, T and EC I | readings stabili | se or a minimun | 1 of 3 | to 5 times the | e water columi | n volumes. W | later co | numn volumes | ; can pe calculat | ea | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID - 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



| Client | | | | | | | | | BORE ID: GORRMWIL | | | |
|---|---------------------|-----------------|-----------------|---------------------------|-----------------|----------------------------|------------------|--|-------------------|---------------------|--------------------------|--|
| Client: Project: | | | | | | | | BORE ID: 60/2RMW11 Job No.: 6137041 | | | | |
| Location: | diameter: | diameter: 50 mm | | | | | 3/10/19 | | | | | |
| | | | | Date: | L | SIGUI | | | | | | |
| | | | □ Casing | | M | easuremen | + D Too | of PVC | Т | ntal Denth: | <i>3.87</i> 3 m | |
| works mount Monument only | | | • | | | | Point Casing | | | otur Deptili. | | |
| BORE DEV | ELOPMENT | | | | | | | | | | | |
| Method: | Undertaken By: | | | , | Vol. Removed: L | | | | | | | |
| Comments (e.g. sediment content): | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| PURGING DETAILS (measurement points in meters below top of casing as indicated above) | | | | | | | | | | | | |
| | | | | | | | 1 Pro | | | Undertaken By: モ/ソア | | |
| | ater: 1.472 n | olumn: | m | ř— | eq Purge Vo | L | Flow Rate: L/min | | | | | |
| | | | e of DNAPL | | Th | Thickness of NAPL: | | cm | Depth to NAPL: | | : m | |
| Pump intake: m | | | | | | | | | | | | |
| PURGING | MEASUREMENT | S ² | | | I | | | | | | | |
| Vol. Purgeo (L) | | | Temp. (°C) |) TDS (ppm mg/L) | | рН | DO %Sat | DO (ppm mg/L) | | Eh (mV) | Water Level (m b TOC) | |
| AS 5667.11: 1998 (<+/-) 10% | | | 0.2°C | • | | 10% | 10% | 10% | | - | | |
| - | L 5 mm. | 12934- | 17.9 | 3409.9 | 82 | 6-86 | 7.8 | 0.71 | | 52.9 | | |
| 1-5L | - 75 min. | 12963 | 17.9 | 3426-2 | | | 7.1 | 0-64 | Ļ. | 51.3 | | |
| 21 | 10 min | 12993 | 17.9 | 344.6.2 | | 6.90 | 6.4 | 0.5-8 | | 46.7 | | |
| 2.51 | 12.5 min | 13049 | 17.9 | 3482.6 | | | 6-2 | 0.56 | | 41.0 | 6 | |
| 3/ | 15 min. | | 17.9 | | | | 6.3 | a.57 | | 32.4 | -13-873- 12.850 | |
| | (j rma, | 3072 | 11.1 | 3497.0 | <u> </u> | 6.93 | 0.5 | (1.3] | | 52.4 | 2.010 | |
| | | | | | | | | | | | · . | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | (e.g. condition (| | | | | | | | | | ***** | |
| Clea | w yellou | 1 000 | red | ho od | JUN | w, \sim | shee | \sim · | | | | |
| | • | | / | | | E | | | | | | |
| | | | | | | Sample ID: | | | | | | |
| Time: Vol. Removed: L Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and | | | | | | No of Sample Containers: 8 | | | | | | |
| Type of San | ple Containers (i.e | e. P = Plastic | 'G = Glass/V = | Vial, volume a | and p | o = preserve | d/up = unpre | served): | | | | |
| Field Filtered 😡 Duplicate Samp | | | Samples 🗆 | es 🗆 Duplicate Sample ID: | | | | | | | • • • | |
| Comments: Slow recharge | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| CoC Number: Date: Bores to be purged dry, until pH, T and EC readings stabilise or a minimum of 3 to 5 times the water column volumes. Water column volumes can be calculated | | | | | | | | | | | | |
| Bores to | be purged dry, unti | pH. T and EC | readings stabil | ise or a minimun | n of 3 | to 5 times th | e water columr | n volumes. W | ater co | Diumn volumes | s can be calculated | |

from the following casing volumes per unit length: 40 mm ID - 1 Um; 50 mm ID - 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



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Groundwater Monitoring – Field Sheet

| Location: Casing diameter: 50 mm Date: 22/10 [19] EORE CONSTRUCTION Beasurement DTop of PVC Total Depth: 1, 3, 3, 3, m Beak Monument onky Date: Undertaken By: Total Depth: 1, 3, 3, 3, m BORE DEVELOPMENT Method: Date: Undertaken By: Vol. Removed: L Comments (e.g. sediment content): Date: Undertaken By: Vol. Removed: L PURGING DETAILS (measurement points in meters below top of casing as indicated above) Undertaken By: E/C^Y Method: Dif: y Water Quality Meter used: 'S L P rO Undertaken By: E/C Y Dapth to water: J.G. & Water Column: m Req Purge Vol. 1: L Flow Rate: ~0.2.5 Umin Presence of UNAPL Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: m PURGING MEASUREMENTS * Yoi. Pyreid Eggsed EC 10% 10% 10% in b TOC) As 5667.11: 1980 (whith in the final work in the final wor | Client: | | | | | | | | BORE | | borri | | | |
|--|---|---|------------|---------------|---------------|-----|--------------|-------------|----------|----------|-------------|-------------|-----|---|
| BORE CONSTRUCTION Image: Second | Project: | | | 1 | | | | | <u> </u> | | | | | |
| Head- mount Image Casing Image Image Measurement Image Top of PVC Total Depth: | | | | Casing |) diameter: | | | 50 mm | Date: | 22 | 10/19 | | | |
| Works mount works undertaken By: Vol. Removed: L Comments (e.g. sediment content): Comments (e.g. sediment content): Undertaken By: Ø / 100 Undertaken By: Ø / 100 L L PURGING DETAILS (measurement points in meters below top of casing as indicated above) Undertaken By: Ø / 100 Undertaken By: Ø / 100 Undertaken By: Ø / 100 Depth to water: L Flow Rate: ~0.25 Umin Purge Not Meters: Indicated above) Mater Column: m Req Purge Vol. 1: L Flow Rate: ~0.25 Umin Purge Not Meters: Indicated above) Indicated above) Undertaken By: Ø / 100 Indicated above) Purge Not Meters: I. Presence of DNAPL Thickness of NAPL: Cm Depth to NAPL: m | r | , | | | | | | | | | ······ | | | |
| Method: Date: Undertaken By: Vol. Removed: L Comments (a.g. sediment content): | | | | • | Locked | | | | | T | otal Depth: | 4.393 | m | |
| Comments (e.g. sediment content): PURGING DETAILS (measurement points in meters below top of casing as indicated above) Method: $Pirop$ Water Quality Meter used: $\Im Sl Pro$ Undertaken By: $EP I PY$ Depth to water: $I \cdot b \downarrow b$ Mater Column: m Req Purge Vol. 1; L Flow Rate: ~ 0.25 Limin Presence of LNAPL Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: m Purged Elapsed (psicm) (psicm) (ppingl) PH D0 %Sat D0 (ph mV) Water Level (L) Time (min) (psicm) (psicm) (ppingl) PH D0 %Sat D0 (ph m TOC) (mb TOC) AS 5657.11: 1988 (srift) 10% 0.2 cc 10% 10% . . . J L 4 min. 78C 18 · 6 SOG .0.31 6.59 S.3 0.49 -54.2 . J L 4 min. 78C 18 · 6 SOG .0.32 2.58 0.26 -21.6 . J L 4 min. 6.20 2.02 0.20 -2.6 -21.6 . . . | BORE DEVEL | LOPMENT | | | | | | | | | | | | |
| PURGING DETAILS (measurement points in meters below top of casing as indicated above) Method: Plin = plump Water Quality Meter used: SSI Pro Undertaken By: EP Prov Method: Plin = plump Water Quality Meter used: SSI Pro Undertaken By: EP Prov Undertaken By: EP Prov Depth to water: 1, byth m Water Column: m Req Purge Vol. 1: L Flow Rate: ~0.25 L/min Presence of LNAPL Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: m Purg intake: m n n n n n n PURGING MEASUREMENTS 2 Vol. Purged Elapsed C 10% 10% 10% 10% not of the ToO) AS \$667.11.1989(svH) 10% 0.2×C 10% 10% 10% - - 1 L 4 min. 7.8 (S.6 SOG.0.3) C.5 (S.2 0.4 (A) - - 2 L 8 m. (L2 - 18.5 (4.2.8.355 L.3 (S. 2.5 0.2 (S. 2.6 - 2.1 (S. 2.6 - 2.1 (S. 2.6 - 2.1 (S. 2.6 - 2.1 (S. 2.2 0.2 (S. 2.2 0.2 (S. 2.2 0.2 (S. 2.2 0.2 (S. 2 | Method: | | Da | ate: | | | Undertaken | By: | | Vol. F | Removed: | | L | |
| Method: Planp Water Quality Meter used: $\int SI \ell rore Undertaken By: EE IPY Depth to water: I_1 \downarrow_0 \downarrow_0 m Water Column: m Req Purge Vol. 1: L Flow Rate: \sim 0.25 L/min Presence of INAPL Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: m Pump intake: m m m pethods pethods pethods pethods m PURGING MEASUREMENTS 2 m m pethods pH D0%Sat D0 pethods m $ | Comments (e | e.g. sediment co | ontent): | | | | | | | | | | | |
| Method: Plin pump Water Quality Meter used: $5 \leq l \neq \infty$ Undertaken By: $E \equiv l \neq Y$ Depth to water: $l, b \downarrow b$ m Water Column: m Req Purge Vol. 1: L Flow Rate: ~ 0.25 L/min Presence of INAPL Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: m Pump intake: m m m m m m m PURGING MEASUREMENTS * vol. Elapsed EC Temp. (°C) TDS pH D0 %Sat D0 (m) Water Level (L) fine (min) (µS/cm) 0.2°C - 10% 10% 1% - - 1 4 min. 7%C 18.5 6.59(.03) 6.37 3.5 0.32 -31.8 2 Water. 6.5 18.5 42.8.350 6.37 3.5 0.2.6 -21.6 3 L 12 m. 6.5 18.5 39.2<-4% | | | | | | | | | | | | | | |
| Depth to water: I. b th m Water Column: m Req Purge Vol. 1: L Flow Rate: -0.25 L/min Presence of LNAPL Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: m Pump intake: m Thickness of NAPL: cm Depth to NAPL: m PURGING MEASUREMENTS 2 Vol. Purged Elapsed EC Temp. (*C) TDS pH D0 %Sat D0 (ppm/mg/L) Eh (mV) Water Level (L) Time (min) 0% 0.2*C 10% 10% 0.45% S D0 (ss at 5607.11: 1998 (c+4) 10% 0.2*C 10% 10% 10% . <td>PURGING DE</td> <td>TAILS (measur</td> <td>ement poi</td> <td>nts in meters</td> <td>below top of</td> <td>fca</td> <td>sing as indi</td> <td>cated abov</td> <td>e)</td> <td></td> <td></td> <td></td> <td></td> | PURGING DE | TAILS (measur | ement poi | nts in meters | below top of | fca | sing as indi | cated abov | e) | | | | | |
| Presence of LNAPL Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: m Pump intake: m m m m m m m PURGING MEASUREMENTS 2 Vol. Purged Elapsed EC Temp. (°C) TDS pH D0 %Sat DO (ppm(mg/L) Eh (mV) Water Level (m b TOC) AS 5667.11: 1998 (<++) | Method: Plr | i-pump | Water C | uality Meter | used: | 51 | Pro | | | Unc | lertaken By | EP | 1 | |
| Pump intake: m m PURGING MEASUREMENTS 2 PURGING MEASUREMENTS 2 Vol. Purged (L) Elapsed Time (min) EC (μ S/cm) Temp. (°C) TDS (ppm mg/L) pH D0 %Sat DO (ppm mg/L) Eh (mV) Water Level (m b TOC) AS 5667.11: 1988 (~4/-) 10% 0.2 °C - 10% 10% 10% - - I 4 rmin. 78G 18 · 6 \$\$09.03) 6.357 \$\$-3 0.447 -\$\$4.2 2 4 main. 662 18 · 5 42.8.350 6.37 3.5 0.32 -31.8 3 L 12 min. 6.2D 18 · 5 39.2 · 486 6.2L 2.2 0.2D -LLE, 9 4 L 16 min 6.05 18 · 5 39.2 · 486 6.2L 2.2 0.2D -LLE, 9 5 L 20 min \$\$^{21}_{18}_{18}_{18}_{18}_{18}_{18}_{18}_{1 | Depth to wate | er: 1.646 m | Water C | olumn: | m | Re | eq Purge Vo | ol. 1: | L | Flow | w Rate: ~< | 0.25 LI | min | |
| PURGING MEASUREMENTS ² Vol. Purged Elapsed Time (min) EC (µS(cm) Temp. (°C) TDS (ppm mg/L) pH D0 %Sat DO (ppm mg/L) Eh (mV) Water Level (m b TOC) AS 5657.11: 1998 (x4-) 10% 0.2°C - 10% 10% 0.9% - - 1 L 4 min. 78G 18-6 SOG.03) 6-54 S.3 0.449 -54.2 2 L 8 min. 66.2 18-5 42.8 3.5 0.32 -31.8 3 L 12 min. 6.20 18-4 40.3.000 6.30 2.6 2.1.6 4 L 16 min. 6.5 39.2.486 6.24 2.2 0.20 -21.6 3 L 12 min. 560 18-5 39.2.486 6.24 2.2 0.20 -149.9 3 L 20 min. 560 18-5 39.2.486 6.24 2.2 0.16 -8.6 9 L 30 min. 560 18-9 363.548 6.19 2.1 0.19 -3.1 SAMPLING DETAILS <td colour,="" colspasetion="" headworks,="" odour,="" of="" se<="" sheen,="" td=""><td>Presence of I</td><td>LNAPL</td><td>Presend</td><td>e of DNAPL</td><td></td><td>T۲</td><td>nickness of</td><td>NAPL:</td><td>cm</td><td>Dep</td><td>oth to NAPL</td><td>:</td><td>m</td></td> | <td>Presence of I</td> <td>LNAPL</td> <td>Presend</td> <td>e of DNAPL</td> <td></td> <td>T۲</td> <td>nickness of</td> <td>NAPL:</td> <td>cm</td> <td>Dep</td> <td>oth to NAPL</td> <td>:</td> <td>m</td> | Presence of I | LNAPL | Presend | e of DNAPL | | T۲ | nickness of | NAPL: | cm | Dep | oth to NAPL | : | m |
| Vol. Purged (L)Elapsed Time (min)EC (µS(cm))Temp. (°C) (µS(cm))TDS (ppm/mg/L)pHDO %Sat (ppm/mg/L)DO (ppm/mg/L)Eh (mV)Water Level (m b TOC)AS 5667.11: 1998 (<+/-) | Pump intake: m PURGING MEASUREMENTS ² | | | | | | | | | | | | | |
| (L) Time (min) (µS/cm) (µpm mg/L) (µpm mg/L) (µ b TOC) AS 5667.11: 1998 (s4+) 10% 0.2 °C 10% 10% 10% . IL 4 min. 78(18 · 6 SOG . 03) 6 · 54 S · 3 0 · 44 - 54 · 2 2 8 min. 662 18 · 5 42 · 8 · 350 6 · 37 3 · 5 0 · 32 · - 31 · 8 3 12 min. 6 · 20 18 · 4 4 · 03 · 000 6 · 30 2 · 8 0 · 26 - 21 · 6 4 16 min. 6 · 5 39 · 2 · 486 6 · 24 2 · 2 0 · 20 -416 · 9 51 20 min. 571 18 · 6 38 · 4 · 486 6 · 24 2 · 1 0 · 16 · 8 · 6 91 *30 min 560 18 · 9 363 · 578 6 · 19 2 · 1 0 · 16 · 8 · 6 91 *30 min 560 18 · 9 363 · 578 6 · 19 2 · 1 0 · 16 · 3 · 1 92 *30 min 560 18 · 9 363 · 578 6 · 19 2 · 1 0 · 19 3 · 1 | Pump intake: m PURGING MEASUREMENTS ² Vol. Purged Elapsed EC Temp. (°C) TDS pH DO %Sat DO Eh (mV) Water Level | | | | | | | | | | | | | |
| IL 4 min. 786 18.6 \$09.03) 6.59 \$.3 0.49 -54.2 2L 8 min. 662 18.5 428.350 6.37 3.5 0.32 -31.8 3L 12 min. 620 18.4 403.000 6.30 2:8 0.26 -21.6 4L 16 min 605 18.5 392.486 6.26 2.2 0.20 -110.9 5t 20 s91 18.6 384.486 6.24 1.8 0.16 -8.6 91 30 min 560 18.9 363.598 6.19 2.1 0.19 -3.1 91 30 min 560 18.9 363.598 6.19 2.1 0.19 -3.1 92 30 min 560 18.9 363.598 6.19 2.1 0.19 -3.1 93 50 18.9 363.598 6.19 2.1 0.19 -3.1 50 50 18.9 363.598 6.19 2.1 0.19 | PURGING MEASUREMENTS 2 Vol. Purged (L) Elapsed Time (min) EC (μS/cm) Temp. (°C) TDS (ppm mg/L) pH DO %Sat DO (ppm mg/L) Eh (mV) Water Level (m b TOC) AS 5667.11: 1998 (<+/-) | | | | | | | | | | | | | |
| 2 L 8 min. 622 18.5 428.350 6.37.3.5 0.32 -31.8 3 L 12 mm. 620 18.4 403.000 6.30 2.8 0.26 -21.6 4 L 16 min 605 18.5 392.486 6.26 2.20 0.20 -110.9 5 L 20 min. 591 18.6 384.286 6.24 2.20 0.20 -110.9 5 L 20 min. 560 18.9 363.578 6.19 2.1 0.16 -8.6 9 L -30 min 560 18.9 363.578 6.19 2.1 0.19 -3.1 Comments (e.g. condition of headworks, sheen, colour, odour, sediment load): SAMPLING DETAILS Sample ID: Time: Vol. Removed: L No of Sample Containers: Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): Tield Filtered 0 Duplicate Samples Duplicate Sample ID: | PURGING MEASUREMENTS 2 Vol. Purged (L) Elapsed Time (min) EC (μ S/cm) Temp. (°C) TDS (ppm mg/L) pH DO %Sat ($ppm mg/L)$ DO ($ppm mg/L)$ Eh (mV) Water Level (m b TOC) AS 5667.11: 1998 (<+/-) | | | | | | | | | | | | | |
| 3L $12 min$, 620 $18-4$ $4(03.000 6.30 2:8)$ 0.26 -21.6 $4L$ $16 min$ 605 $18-5$ 392.486 6.26 2.2 0.200 -149.9 $5L$ $20 min$ 591 $18-6$ 384.286 6.242 2.2 0.16 -8.6 $9L$ $30 min$ 560 18.9 363.598 6.19 2.1 0.19 -3.1 $9L$ $30 min$ 560 18.9 363.598 6.19 2.1 0.19 -3.1 $9L$ $30 min$ 560 18.9 363.598 6.19 2.1 0.196 -3.1 $9L$ $30 min$ 560 18.9 363.598 6.19 2.1 0.196 -3.1 Comments (e.g. condition of headworks, sheen, colour, odour, sediment load): 18.9 18.9 18.9 18.9 18.9 18.9 18.9 18.9 18.9 18.9 18.9 18.9 18.9 18.9 18.9 18.9 18.9 18.9 18.9 | AS 5667.11: 1998 (<+/-) 10% 0.2°C - 10% 10% | | | | | | | | | | | | | |
| 3L $12 min$, 620 $18-4$ $4(03.000, 6.30, 2:8)$ 0.26 -21.6 $4L$ $16 min$ 605 $18-5$ 392.486 6.26 2.2 0.200 -149.9 $5L$ $20 min$ 591 $18-6$ 384.286 6.24 2.2 0.16 -8.6 $9L$ $30 min$ 560 18.9 363.598 6.19 2.1 0.19 -3.1 $9L$ $30 min$ 560 18.9 363.598 6.19 2.1 0.19 -3.1 $9L$ $30 min$ 560 18.9 363.598 6.19 2.1 0.196 -3.1 $9L$ $30 min$ 560 18.9 363.598 6.19 2.1 0.196 -3.1 Comments (e.g. condition of headworks, sheen, colour, odour, sediment load): 18.9 18.9 18.9 18.9 18.9 18.9 18.9 18.9 18.9 18.9 18.9 18.9 18.9 18.9 18.9 18.9 18.9 18.9 18.9 <td>ΣС</td> <td>8 min.</td> <td>662</td> <td>18:5</td> <td>428.3</td> <td>50</td> <td>6.37</td> <td>3.5</td> <td>0.3</td> <td>2</td> <td>-31.8</td> <td>r -</td> <td></td> | ΣС | 8 min. | 662 | 18:5 | 428.3 | 50 | 6.37 | 3.5 | 0.3 | 2 | -31.8 | r - | | |
| 4 L 16 min 605 18-5 39 2-486 6-26 2.2 0.20 -149.9 5L 20 min 59 18-6 384.286 6-24 1.8 0.16 -8.6 9 L 30 min 560 18.9 363.598 6-19 2.1 0.19 -3.1 Comments (e.g. condition of headworks, sheen, colour, odour, sediment load): 560 18.9 Sample ID: SAMPLING DETAILS Sample ID: 560 18.9 Sample Containers: Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): 560 19.2 10.19 Field Filtered Duplicate Samples Duplicate Sample ID: 560 10.10 10.10 | 3L | 12 min. | 620 | 18-4 | | | | 2.8 | | | -21.6 | | | |
| 9 ⊥ 30 mm 560 18:9 363.598 6-19 2-1 0.19 -3.1 Comments (e.g. condition of headworks, sheen, colour, odour, sediment load): SAMPLING DETAILS Sample ID: Time: Vol. Removed: L No of Sample Containers: Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): Field Filtered □ Duplicate Samples □ | 46 | lto min. | 605 | 18.5 | 392.48 | 36 | 6.26 | 2.2 | 0.2 | D | [] | | | |
| 9 ⊥ 30 mm 560 18:9 363.598 6-19 2-1 0.19 -3.1 Comments (e.g. condition of headworks, sheen, colour, odour, sediment load): SAMPLING DETAILS Sample ID: Time: Vol. Removed: L No of Sample Containers: Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): Field Filtered □ Duplicate Samples □ | 5L | 20 min | 591 | 18.6 | 384.4 | 86 | 6.24 | 1-8 | 0.1 | 6 | -8.6 | | | |
| SAMPLING DETAILS Sample ID: Time: Vol. Removed: L No of Sample Containers: Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): Field Filtered Duplicate Samples | 91- | v30 min | 560 | 18.9 | | | | | 0.10 | <u>î</u> | 1 1 | | | |
| SAMPLING DETAILS Sample ID: Time: Vol. Removed: L No of Sample Containers: Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): Field Filtered Duplicate Samples | | | | | | | | | | | | | | |
| SAMPLING DETAILS Sample ID: Time: Vol. Removed: L No of Sample Containers: Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): Field Filtered Duplicate Samples | | | | | | | | | | | | | | |
| Time: Vol. Removed: L No of Sample Containers: Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): Field Filtered Duplicate Samples | Comments (e | .g. condition of | f headwork | s, sheen, col | our, odour, s | edi | ment load): | <u> </u> | | | 1 1 | | | |
| Time: Vol. Removed: L No of Sample Containers: Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): Field Filtered Duplicate Samples | | | | | | | | | | | | | | |
| Time: Vol. Removed: L No of Sample Containers: Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): Field Filtered Duplicate Samples | | | | | | | | | | | | | | |
| Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): Field Filtered Duplicate Samples Duplicate Samples Duplicate Sample ID: | SAMPLING D | ETAILS | | | | | Sample IE |): | | | | | | |
| Field Filtered 🗖 Duplicate Samples 🗆 Duplicate Sample ID: | Time: Vol. Removed: L No of Sample Containers: | | | | | | | | | | | | | |
| | Type of Sample | Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): | | | | | | | | | | | | |
| Comments: | Field Filtered 🗇 Duplicate Samples 🗇 Duplicate Sample ID: | | | | | | | | | | | | | |
| | Comments: | omments: | | | | | | | | | | | | |
| | | <u>.</u> | | | | | | | | | | | | |
| CoC Number: Date: Bores to be purged dry, until pH, T and EC readings stabilise or a minimum of 3 to 5 times the water column volumes. Water column volumes can be calculated | | | | | - | | a Patrice of | | | | 11 | | | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID - 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



| Client: | | - | | | | | | BORE II |): J | RORRN | INI3 | | |
|--|-----------------------|--------------|-------------------|----------------|-------|------------------|-------------------|------------|----------|--------------|---------------------|--|--|
| Project: | | | | | | | | Job No. | : 6 | 613704 | ١ | | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | 21 | 110/19 | | | |
| BORE CONS | TRUCTION | | | | | | | | | | | | |
| | YFlush- □ ount Mon | | □ Casing only | | | easuremen int | t □ Top Casing | o of PVC | Тс | otal Depth: | 4.578 m | | |
| BORE DEVEL | LOPMENT | | | | - | | | | | | | | |
| Method: | | Da | ate: | | ι | Jndertaken | ι By: | , | Vol. R | emoved: | L | | |
| Comments (e | e.g. sediment c | ontent): | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| PURGING DE | TAILS (measu | ement poi | nts in meters | below top of | f cas | ing as indi | icated abov | e) | | | | | |
| Method: ρ_U | n-pump | Water C | uality Meter | used: 6 | 151 | Pro | | | Und | ertaken By | EEIDS | | |
| Depth to wate | er: 0.748 m | Water C | olumn: | m | Re | q Purge Vo | ol. 1: | L | Flov | v Rate: | L/min | | |
| Presence of I | | Presend | e of DNAPL | | Thi | ickness of | NAPL: | cm | Dep | th to NAPL | : m | | |
| Pump intake: | : m | | | | | | | | | | | | |
| PURGING ME | | | | | | | | | | | | | |
| PURGING MEASUREMENTS 2 Vol. Purged (L) Elapsed Time (min) EC (μS/cm) Temp. (°C) TDS (ppm mg/L) pH DO %Sat (ppm mg/L) DO (ppm mg/L) Eh (mV) Water Level (m b TOC) AS 5657 11: 1998 (<t a=""> 10% 0.2% - 10% 10% - - -</t> | | | | | | | | | | | | | |
| (L) Time (min) (μS/cm) (ppm mg/L) (ppm mg/L) (m b TOC) AS 5667.11: 1998 (<+/-) | | | | | | | | | | | | | |
| AS 5667.11: 1998 (++/-) 10% 0.2°C 10% 10% 10% 10% 10% 11L Swin 777 17.9 502.92 6.45 10.7 1.01 96.7 \$0.748 | | | | | | | | | | | | | |
| 2L | 6min | 737 | 17.8 | 478. | 189 | 6.37 | 6.5 | 0.6 | 0 | 92.9 | ~0.75 | | |
| 31- | 9 min | 725 | 17.8 | 470. | .859 | 9 6.34 | 5.4 | 0.5 | } | 89.1 | ~0.75 | | |
| 4 L | 12min | 717 | 17.8 | 466.4 | 35 | 6.31 | 4.8 | 0.4 | 5 | 66.0 | ~0.75 | | |
| 5L | 15min | 720 | 8. רו | 467.9 | 221 | 6.31 | 3.9 | 0.31 | 7 | 55.0 | 20.75 | | |
| 64 | 18min | 721 | 17.8 | 468.27 | ٢١ | 6.31 | 3.6 | 0.35 | _ | 54.2 | ~0.75 | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Comments (e | e.g. condition o | f headwork | s, sheen, col | our, odour, s | edin | nent load): | t. | ••• | | | | | |
| clear, | slight s | salfur | odour | , no she | eev | <u>, lo</u> | n sed | | | | | | |
| SAMPLING D | ETAILS | | | | | Sample iD |): | | | | | | |
| Time: | | Vol. Remov | ved: | | L | No of Sam | ple Container | rs: 8 | | | | | |
| Type of Sample | e Containers (i.e. | P = Plastic/ | G = Glass/V = | Vial, volume a | nd p | = preserved | d/up = unpres | | | | | | |
| Field Filtered | | Duplicate S | Samples 🗆 | Duplica | ate S | ample ID: | | | | | | | |
| Comments: | | | | I | | | | | | | | | |
| | | | | | | | | | | | ******* | | |
| CoC Num | | | | cked by: | | | | Date: | | | | | |
| Boree to be | e purged dry, until p | 1 Dand EC | roadinge efabilie | o or a minimum | 10821 | to 5 times the | water column | wolumee We | iter col | lump volumoo | أمماما ببمامم مطامع | | |

from the following casing volumes per unit length: 40 mm D - 1 L/m; 50 mm D - 2 L/m; 100 mm D 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



| Client: | | | | | | | | BORE II | D: 6 | ORR M | WIS - | | | |
|--|--|--------------|---------------|---------------|---------|-----------|-------------|---------|--------|-------------|---------|----------|--|--|
| Project: | Image: Construction is in meters below top of casing as indicated above) Job No.: 6 [3 7041 Image: Construction is in meters below top of casing as indicated above) Image: Construction is in meters below top of casing as indicated above) Image: Construction is in meters below top of casing as indicated above) Image: Construction is in meters below top of casing as indicated above) Image: Construction is in meters below top of casing as indicated above) Image: Construction is in meters below top of casing as indicated above) Image: Construction is in meters below top of casing as indicated above) Image: Construction is in meters below top of casing as indicated above) Image: Construction is in meters below top of casing as indicated above) Image: Construction is in meters below top of casing as indicated above) Image: Construction is in meters below top of casing as indicated above) Image: Construction is in meters below top of casing as indicated above) Image: Construction is in meters below top of casing as indicated above) Image: Construction is in meters below top of casing as indicated above) Image: Construction is in meters below top of casing as indicated above) Image: Construction is in meters below top of casing as indicated above) Image: Construction is in meters below top of casing as indicated above) Image: Construction is in meters below top of casing as indicated above is | | | | | | | | | | | | | |
| Location: | Project: Job No.: £ (2 - 10 + 1) Location: Casing diameter: 50 mm Date: 2.1 10 19 BORE CONSTRUCTION Head- mark GFush- af Fush- mork Incoment Incoment Incoment Total Depth: 3.72.% m BORE DEVELOPMENT Method: Date: Undertaken By: Vol. Removed: L Comments (e.g. sediment content): Date: Undertaken By: Vol. Removed: L PURGING DETAILS (measurament points in meters below top of casing as indicated above) Undertaken By: Ef (05) Method: P2/- P nonp Water Quality Meter used: '9.51 P/ro Undertaken By: Ef (05) Date: main Req Purge Vol. 1: L Flow Rate: Umin Presence of LNAPL Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: m Purginitake: m 10% 10% 10% . . PURGING MEASUREMENTS 2 Vol. Removed: 10% 10% 10% . . . PURGING MEASUREMENTS 2 10 120 . 85 6 . 3 7.2 | | | | | | | | | | | | | |
| BORE CONS | TRUCTION | | | | | | | | | | | | | |
| | | | ÷ | Locked | | | | | To | otal Depth: | 3.728 | m | | |
| BORE DEVE | LOPMENT | | | | | | | | | | | | | |
| Method: | | Da | ate: | | Un | dertaken | n By: | ' | Vol. F | Removed: | | L | | |
| Comments (e | e.g. sediment c | ontent): | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| PURGING DE | ETAILS (measu | rement poi | nts in meters | below top of | i casin | g as indi | icated abov | e) | | | | | | |
| Method: Pe | M-pnmp | Water C | uality Meter | used: | SIP | 10 | | | Und | lertaken By | : EE105 | | | |
| Depth to water: 1.235 m Water Column: m Req Purge Vol. 1: L Flow Rate: L/min Presence of LNAPL Presence of DNAPL Thickness of NAPL: Depth to NAPL: m Pump intake: m Pump intake: m m PURGING MEASUREMENTS 2 Temp. (°C) TDS (ppm mg/L) pH DO %Sat DO (ppm mg/L) Eh (mV) Water Level (m b TOC) | | | | | | | | | | | | | | |
| Project: Job No.: £1537041 Location: Casing diameter: 50 mm Date: £110119 BORE CONSTRUCTION Head: @Fhish: □ Casing Locked Measurement: □ Top of PVC Total Depth: 3.72.% m BORE CONSTRUCTION Head: @Fhish: □ □ Cop of PVC Total Depth: 3.72.% m BORE DEVELOPMENT Method: Date: Undertaken By: Vol. Removed: L PURGING DETAILS (measurement points in meters below top of casing as indicated above) Method: £6/7-p.mnp Water Quality Meter used: 151 Pro Undertaken By: £7 [05] Depth to water: 1.335 Water Column: m Reg Purge Vol. 1: L Flow Rate: L/min Presence of DNAPL Presence of DNAPL Thickness of NAPL: m Depth to NAPL: m PURGING MEASUREMENTS 2 Vol. Removed: L Kornin (KS: 10% 10% 10% 10% 10% 10% 10% 10% 10% 10% 10% 10% 10% 10% 10% 10% 10% 10% | | | | | | | | | | | | | | |
| PURGING MEASUREMENTS ² Vol. Purged Elapsed EC Temp. (°C) TDS pH DO %Sat DO Eh (mV) Water Level | | | | | | | | | | | | | | |
| PURGING ME | PURGING MEASUREMENTS 2 | | | | | | | | | | | | | |
| Vol. Purged (L)Elapsed Time (min)EC (μS/cm)Temp. (°C)TDS (ppm mg/L)pHDO %SatDO (ppm mg/L)Eh (mV)Water Level (m b TOC) | | | | | | | | | | | | | | |
| AS 5667.11 | Vol. Purged (L) Elapsed Time (min) EC (μS/cm) Temp. (°C) TDS (ppm mg/L) pH DO %Sat DO (ppm mg/L) Eh (mV) Water Level (m b TOC) AS 5667.11: 1998 (<+/-) | | | | | | | | | | | | | |
| 1L | PURGING MEASUREMENTS 2Vol. Purged (L)Elapsed Time (min)EC (μ S/cm)Temp. (°C)TDS (ppm]mg/L)pHD0 %Sat ($ppm]mg/L$)DO ($ppm]mg/L$)Eh (mV)Water Level (m b TOC)AS 5667.11: 1998 (<+/-) | | | | | | | | | | | | | |
| 1L 3nun 1972 19.2 127.26 6.13 9.8 0.89 9.9 ~1.335 2L 6min 185.9 19.0 120.85 6.03 7.2 0.66 -5.5 ~1.335 | | | | | | | | | | | | | | |
| 22 6min 185.9 19.0 120.85 6.03 7.2 0.66 -5.5 ~1.335 932 9min 185.9 19.0 120.87 5.98 5.9 0.54 -29.4 ~1.335 | | | | | | | | | | | | | | |
| 4L | | | 19.0 | 121.75 | | 5.97 | 4.4 | 0.41 | | -49.4 | ~1.335 | > | | |
| 52 | 15min | 187.9 | 19.0 | 122.16 | S | .98 | 4.0 | 0.37 | | -56.8 | ~1.335 | <u>-</u> | | |
| | | | | | | | | | | | | | | |
| | Presence of LNAPL Presence of DNAPL Thickness of NAPL: Cm Depth to NAPL: m Pump intake: m m m m m m m PURGING MEASUREMENTS 2 m m m m m m m Vol. Purged (L) Elapsed Time (min) EC (µS/cm) Temp. (°C) TDS (ppm mg/L) pH D0 %Sat DO (ppm mg/L) Eh (mV) Water Level (m b TOC) AS 5667.11: 1998 (*H) 10% 0.2*C 10% 10% 10% . 1L 3/µin 197.2 127.726 6.13 9.8 0.89 9.9 ~ 1.3355 2L 6 min (85.9 19.0 120.855 6.03 7.2 0.66 ~5.5 ~ 1.3355 4L 12min 187.3 19.0 120.87 5.97 9.44 0.41 ~49.4 ~ 1.3355 5L 15min 187.9 19.0 122.16 5.98 4.0 0.827 ~ 56.8 ~ 1.3355 5L 15min 187.9 19.0 122.16 5.98 4.0 | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| Comments (e | e.g. condition o | f headwork | s, sheen, col | our, odour, s | edime | nt load): | | | | | | | | |
| Clear, | 1000 + 10 | med s | sul, s | ulfur o | dou | r, ng | 9 Shee | n | | | | • | | |
| SAMPLING D | ETAILS | | | | S | ample ID |): | | | | | | | |
| Time: Vol. Removed: L No of Sample Containers: 8 | | | | | | | | | | | | | | |
| Type of Sampl | | | | | | | | | | | | | | |
| Field Filtered | ۲. ۲ | Duplicate \$ | Samples 🗆 | Duplica | ate San | nple ID: | | | | | | | | |
| Comments: | | | | · · · · · · | | | | | | | | | | |
| | | | | ····· | | | | | | | | | | |
| CoC Num | iber: | | | cked by: | | | | Date: | | | | | | |

Bores to be purged dry, until pH, T and EC readings stabilise or a minimum of 3 to 5 times the water column volumes. Water column volumes can be calculated from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID - 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument -specific calibration book, or in field notes as required by local procedures.



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2

Groundwater Monitoring – Field Sheet

| Client: | | | | BORE II | D: ල | ORR:n N | am 18 | _ | | | | |
|--|-----------------------|---------------|---------------|------------------|------------------------------|--------------|--------------|---------------|---------------|-------------|--------------------------|----|
| Project: | | | | | | | | Job No. | : (| 6137041 | | |
| Location: | | | Casing | g diameter: | | | 50 mm | Date: | 21 | 10/19 | | |
| BORE CONS | TRUCTION | | | | | | | | | | | |
| | | | | Locked | | | | | T | otal Depth: | 3.965 | m |
| BORE DEVE | LOPMENT | | | | | | | | | | | |
| Method: | | Da | ite: | • | | Undertaken | By: | . 1 | Vol. R | emoved: | | L |
| Comments (e | e.g. sediment c | ontent): | | | | | | I | | | | |
| | | | | | | | | | | | | |
| PURGING DE | TAILS (measu | rement poi | nts in meters | below top of | fcas | sing as indi | icated above | e) | | | | |
| Method: Pl | n-pump | Water C | uality Meter | used: | 5 | SI Pro | | | Und | lertaken By | ELDS | |
| Depth to wate | er: 1.721 m | Water C | olumn: | m | Re | eq Purge Vo | ol. 1: | L | | | | in |
| Presence of | LNAPL | Presend | e of DNAPL | | Th | ickness of | NAPL: | cm | Dep | th to NAPL | : 1 | m |
| Pump intake: | : m | | | | | | | | | | | _ |
| PURGING MEASUREMENTS ² | | | | | | | | | | | | |
| Vol. Purged (L) | Elapsed Time (min) | EC (µS/cm) | Temp. (°C) | TDS (ppmjmg/L | .) | рН | DO %Sat | DO (ppm mg | /L) | Eh (mV) | Water Level (m b TOC) | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | - | - | |
| 1 | 3min | 210.0 | 19.5 | (3).518 | 5 | 5.56 | 81.5 | 7,40 | | 160.1 | ~1.7 | |
| 2 | bmin | 199.2 | 18.4 | 129.8 | 86 | 5.00 | 72.8 | 6.82 | - | 178.Z | ~1.7 | |
| 3 | 9min | 225.6 | 18.2 | 147.35 | - | 467 | 65.6 | 6.17 | | 193.4 | ~1.7 | |
| 4 | 12 min | 245.9 | | 159.02 | | 5.70 | 61.2 | 5.76 | | 196.6 | ~1.7 | |
| S | Ismin | 252.3 | 18-2 | 164.8 | 3 | 4.56 | 59.0 | 5.55 | 2 | 199.3 | ~1.7 | |
| 6 | Bnin | 260.2 | 18.Z | 169.98 | | 4:55 | 56.4 | 5 .31 | | 200.1 | -11- | |
| | | | | L | | | | | | | | |
| | | | | | | | | | | | | |
| Comments (e | e.g. condition o | f headwork | s, sheen, col | lour, odour, s | edir | ment load): | Г Г. | | | I I | | |
| NORN. | no ode | NV V | 4 She | 2n. 10 | ∩ - | to nø | Sed. | | | | | |
| | | | S | | | | | | | ******* | | |
| SAMPLING D | ETAILS | | | | | Sample ID |): | | | | | |
| Time: | | Vol. Remov | ved: | | L No of Sample Containers: Q | | | | | | | |
| Project: Job No: G3GOL1 Location: Casing diameter: 50 mm Date: 110 [10] BORE CONSTRUCTION mount Manument only Encercent Total Depth: 3.945 BORE DEVELOPMENT Menument only Date: Undertaken By: Vol. Removed: L Comments (e.g. sediment content): Date: Undertaken By: Vol. Removed: L PURGING DETAILS (messurement points in meters below top of casing as indicated above) Method: Method: Mater Quality Meter used: 151 f /r. PURGING MEASUREMENTS: Presence of DNAPL m Reg Purge Vol. 1: L Flow Rate: L/min Presence of LNAPL Presence of DNAPL Thickness of NAPL: m Depth to NAPL: m PURGING MEASUREMENTS * Vol. Engent 02*C 10% 10% 10% . . . Vol. Engent Lisses Tespence of PAC Total Papel No Purp Intake: m Water Couling Meter Used | | | | | | | | | | | | |
| Field Filtered | <u>ا</u> | Duplicate S | Samples 🗆 | Duplic | ate S | Sample ID: | | | | | | |
| Comments: | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | 4. E A | | | - 4 - · · · · | | can be calculated | |

from the following casing volumes per unit length: 40 mm ID - 1 μ m; 50 mm ID - 2 μ m; 100 mm ID 8 μ m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



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Groundwater Monitoring – Field Sheet

| Client: | | | | | | | | BORE | ID: (2 | JORR N | WA | |
|--|------------------------|----------------|------------------|-----------------|--------|----------------------|-------------------|----------|--------|-------------|-----------------|------|
| Project: | | | | | | | | Job No | | 137041 | | |
| Location: | | | Cas | ing diameter: | | | 50 mm | Date: | 21/1 | 0/19 | | |
| BORE CONS | TRUCTION | | | | | | | | | | | |
| | ÍFlush- □ iount Mon | ument | □ Casing only | Locked | | Measurement Point | t 🗆 Top Casing | o of PVC | T | otal Depth: | 2.529 | m |
| BORE DEVE | LOPMENT | | | | | | | | | | | |
| Method: R | Anopun | | Date: | | | Undertaken | By: | | Vol. F | Removed: | | L |
| Comments (| e.g. sediment c | ontent): | | | | | | | | | | |
| | | | | | | | | | | | | |
| PURGING DE | ETAILS (measu | rement p | oints in met | ers below top | of ca | asing as indi | icated abov | e) | | | | |
| Method: Pl | vi-pump | Wate | r Quality Met | er used: | JS | .1 Pro | | | Unc | lertaken By | : EEK | |
| Depth to wat | er: 1.187 m | Wate | r Column: | n | n R | Req Purge Vo | ol. 1: | L | Flo | w Rate: | L | min |
| Presence of | LNAPL 🗆 | Pres | ence of DNA | PL 🗆 | Т | hickness of | NAPL: | cm | Dep | oth to NAPL | | m |
| Pump intake | : m | 1 | | | | | | | | | | |
| PURGING ME | EASUREMENTS | 3 ² | | | • | | | | | | | |
| Vol. Purged (L) Elapsed Time (min) EC (μS/cm) Temp. (°C) TDS (ppm[mg/L) pH DO %Sat DO (ppm[mg/L) Eh (mV) Water Level (m b TOC) | | | | | | | | | | | | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | - | - | |
| 11_ | Brin | 1465 | 6 19.2 | | | 6.75 | 4.2 | 0.3 | 6 | -1363 | ~1.187 | |
| 22 | 6 min | 11131 | 19.3 | 7102 | .95 | 5 6.74 | 4.6 | 0.47 | 2 | -115.7 | ~1.087 | - |
| -3L | Arrin | | 19.4 | | | | | | | | ra.80 | |
| * ne | ran du | y at | NZL. | waite | 1 2 | onin | s ano | . 100 K | V LO | ding a | end san | pied |
| BL | 29 rin | 14985 | 5 20.7 | 97775 | .55 | 5 6.68 | 14.7 | 1.21 | | -81.7 | ~ <i>o .</i> 80 | |
| | | | | | | | | | | | | |
| | _ | | ſ | | | | | | | | | |
| | | | | | | | | | | | | |
| Comments (e | e.g. condition o | f headw | orks, sheen, | colour, odou | r, sed | liment load): | | | | I | I | |
| | id not 3 | | | | | | | a 1 | | | | |
| | | | | | | <u>vg</u> , v | | J | | | | |
| SAMPLING D | ETAILS | | | | | Sample ID |); | | | | | |
| Time: | | Vol. Rei | moved: | | L | No of Sam | ple Containe | rs: 🙎 | | | | |
| Type of Sampl | le Containers (i.e | . P = Plas | tic/G = Glass/ | / = Vial, volum | e and | p = preserved | d/up = unpre | served): | | | | |
| Field Filtered | e | Duplica | te Samples | 🗆 Dup | licate | Sample ID: | | | | | | |
| Comments: | | | | 1 | | | | | | | | |
| | | | | | | | | | | | | |
| CoC Num | | | | hecked by: | _ | | | Date | | | | |

Bores to be purged dry, until pH, T and EC readings stabilise or a minimum of 3 to 5 times the water column volumes. Water column volumes can be calculated from the following casing volumes per unit length: 40 mm ID - 1 μ m; 50 mm ID - 2 μ m; 100 mm ID 8 μ m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



| Client: | | | | | | BORE |): | BORR 1 | UNAL | | | |
|--------------------|-----------------------|----------------|---------------------|-----------------------------|------------|-------------------|-------------------|----------------|------------|-------------------|--------------------------|-----|
| Project: | | | | | | | | Job No.: | | 613704 | (| |
| Location: | | | Casing | g diameter: | | | 50 mm | Date: | 21 | 110/19 | | |
| BORE CONS | | | | | | | | | | | | |
| · | VFlush- □ ount Mor | | Casing Only | | | easuremen bint | t □ Top Casing | of PVC | To | otal Depth: | 12.118 | n |
| BORE DEVE | LOPMENT | | | | | | | | | | 127 - 21000775 | |
| Method: | | Da | ate: | | l | Undertaker | ı By: | \ | /ol. R | temoved: | | L |
| Comments (| e.g. sediment c | ontent): | | | | | | | | | | |
| | | | | | | | | | | | | |
| | TAILS (measu | rement poi | nts in meters | below top of | cas | sing as indi | icated above | e) | | | | |
| Method: <i>fl</i> | n-pump | Water G | Quality Meter | used: 산 | <u>120</u> | fro | | | Und | lertaken By | EE/DS | |
| Depth to wat | er: 0. 877 m | Water C | olumn: | m | Re | eq Purge Vo | ol. 1: | L | Flov | v Rate: | L/m | ۱ir |
| Presence of | | Presen | ce of DNAPL | | Th | ickness of | NAPL: | cm | Dep | th to NAPL | : | m |
| Pump intake | | - | | | | | | | | | | |
| | | | T | | | | J | | | 1 | | |
| Vol. Purged (L) | Elapsed Time (min) | EC (µS/cm) | Temp. (°C) | TDS (ppm mg/L |) | рН | DO %Sat | DO (ppm mg) | /L) | Eh (mV) | Water Level (m b TOC) | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | | | 10% | 10% | 10% | | - | | |
| 11 | Bruin | 2487 | 19.9 | 1613.5 |) | 5.94 | 5.1 | 0.45 | 5 | -44·3 | ~0.877 | |
| 21- | brin | 2448 | 10.0 | 1590.75 | | | 3.0 | 0,27 | | -47.3 | ~0.87 | 7 |
| 3L | 9nin | 2445 | 20.0 | 1589.9 | i0 | 5.84 | 2-7 | 0.25 | 1 | - 48.0 | ~0.87 | |
| | | | | | | | | | | | | |
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| | | | | | | | | , | | | | |
| | | | | | | | | | | | | |
| | | | | | | | _ | | | | | |
| Comments (e | l e.g. condition o | f headwork | l (s. sheen. col | lour. odour. s | edin | ment load): | | | | ا <u>ا</u> ر ر | | |
| | J | | ed, no | | | | <u> </u> | en, n | <u>0</u> 0 | <u>dour, (</u> | <u>ow-no</u> | |
| | | 2 | xo, ro | sneen, | | | | | | | ••••• | |
| SAMPLING D | ETAILS | | | | | Sample IC |): | | | | | |
| Time: | | Vol. Remo | ved: | | L | No of Sam | ple Container | s: 8 | | | | |
| Type of Sampl | e Containers (i.e | . P = Plastic/ | G = Glass/V = | Vial, volume a | nd p | = preserved | i/up = unpres | erved): | | | | |
| Field Filtered | | Duplicate \$ | Samples 🗆 | Duplica | ate S | Sample ID: | | | | | | |
| Comments: | | | | <u></u> | | | | | | | | |
| | | | | | | | ······ | | | ······ | | |
| CoC Num | | | | cked by: se or a minimum | | | | Date: | | | | _ |

Bores to be purged dry, until pH, I and EC readings stabilise or a minimum of 3 to 5 times the water column volumes, water column the following casing volumes per unit length: 40 mm ID - 1 μ m; 50 mm ID - 2 μ m; 100 mm ID 8 μ m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



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Groundwater Monitoring – Field Sheet

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| Client: | Project: Job No:: GC3PC41 Location: Casing diameter: 50 mm Date: g1 g1 1 SORE CONSTRUCTION Measurement □ Top of PVC Total Depth: 14, 291 m Mead- more mound Monument only □ Casing □ Locked Measurement □ Top of PVC Total Depth: 14, 291 m SORE CONSTRUCTION Measurement □ Top of PVC Total Depth: 14, 291 m SORE CONSTRUCTION Measurement □ Casing indicated above total Depth: 14, 291 m SORE COVELOPMENT Date: Undertaken By: Vol. Removed: L Comments (e.g. sediment content): Date: Undertaken By: total Depth: min PURGING DETAILS (measurement points in meters below top of casing as indicated above) Indertaken By: total Depth: min PURGING MEASUREMENTS: Mater Column: m Req Purge Vol. 1: L Flow Rate: Lmmin PURGING MEASUREMENTS 2 Vol. Purged EBpeed EC 10% 10% 10% . . 11 Sumin <t< th=""></t<> | | | | | | | | | | | | | | | | |
|--|---|----------------|-------------------|-----------------|-------|----------------|---------------|-------------|---------|---------------|--------------------|--|--|--|--|--|--|
| Project: | Project: Job No: G(2,72,4) Location: Casing diameter: 50 mm Date: 21 µ0 1 4 BORE CONSTRUCTION Head. GFLush. Image: Casing Image: Ca | | | | | | | | | | | | | | | | |
| Location: | Project: Job No:: $G(2PCA)$ Location: Casing diameter: 50 mm Date: $g(1 g)$ (1 BORE CONSTRUCTION Measurement D of OPVC Total Depth: 14, 291 m Mead- own Total Date: Undertaken By: Vol. Removed: L BORE DEVELOPMENT Date: Undertaken By: Vol. Removed: L Comments (e.g. sediment content): Puster Quality Meter used: $g(S)$ ρ_{VO} Undertaken By: E PURGING DETAILS (measurement points in meters below top of casing as indicated above) Undertaken By: E E Method: $\rho_{Mater Quality Meter used: g(S) \rho_{VO} Undertaken By: E PURGING MEASUREMENTS 2 Mater Column: m Req Purge Vol. 1: L Flow Rate: Lmin PURGING MEASUREMENTS 2 Vol. Purged E E Temp (*C) TDS pH D0 %sat DD \rho_{Min} \sigma_{Mater Column:} m \sigma_{Mater Column:} \sigma_{M$ | | | | | | | | | | | | | | | | |
| BORE CONS | TRUCTION | | | | | | | | | | | | | | | | |
| | Project: Job No:: GC37041 Joccation: Casing diameter: 50 mm Date: 21 0 1 1 SORE CONSTRUCTION Measurement □ Top of PVC Total Depth: 14, 291 m Aead- months Date: Undertaken By: Vol. Removed: L SORE DEVELOPMENT Date: Undertaken By: Vol. Removed: L Comments (e.g. sediment content): Date: Undertaken By: Vol. Removed: L Comments (e.g. sediment content): m Req Purge Vol. 1: L Flow Rate: Lmmin Presence of LNAPL Presence of DNAPL Thickness of NAPL: m Depth to NAPL: m PURGING MEASUREMENTS 2 Vol. Purged EBigeed EC 10% | | | | | | | | | | | | | | | | |
| BORE DEVEL | opject: Job No: $(C_2^{-1}C_1^{-1})$ coation: Casing diameter: 50 mm Date: $2 [D] $ coation: Measurement Top of PVC Total Depth: 14, 291 m coation: Mourment only Measurement Top of PVC Total Depth: 14, 291 m DRE CONSTRUCTION Measurement Total Depth: 14, 291 m DRE DEVELOPMENT Date: Undertaken By: Vol. Removed: L comments (eg. sediment content): Date: Undertaken By: Else Else Undertaken By: Else Else Undertaken By: Else Else Undertaken By: Else Else Else Else Immin m Reg Purge Vol. 1: Else Flow Rate: Umin 1// Burle (H) Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: m m Measurement Else Els Else Else <t< td=""></t<> | | | | | | | | | | | | | | | | |
| Method: | roject: Job No:: G(Z,Z)G(1) ocation: Casing diameter: 50 mm Date:: g(1 g)(1) ORE CONSTRUCTION Date:: 01 0 1 Idead- off mount Casing Locked Measurement D top of PVC Flush- memetis Date: Undertaken By: Vol. Removed: L ORE DEVELOPMENT Date: Undertaken By: Vol. Removed: L umments (e.g. sediment content): Date: Undertaken By: Vol. Removed: L URGINO DETAILS (measurement points in meters below top of casing as indicated above) Undertaken By: £% \DS Ethod: Flow Rate: Umin ump intake: m Req Purge Vol. 1: L Flow Rate: Umin URGING MEASUREMENTS 2 O Date: 10% 10% 10% m or of 0.80 1L Bruin: 44/72 (1.7, 2.91/9.92) 5.73 6.1 0.55 74.0 ~0.93 2L 6 win: µ+F57 19.6 2.873.74 5.73 4.0 0.326 76.7 ~0.93 34 2L 6 win: µ+F57 19.6 2.87 | | | | | | | | | | | | | | | | |
| Comments (e | rksmountMonumentonlyPointCasing14.291RE DEVELOPMENTthod:Date:Undertaken By:Vol. Removed:Lmments (e.g. sediment content):RGING DETAILS (measurement points in meters below top of casing as indicated above)thod: $p_{M-}-p_{M-M}$ Water Quality Meter used: $y_{S1} \ P_{MO}$ Undertaken By: $p \in [0S]$ pthoUndertaken By: $p \in [0S]$ pthoUndertaken By: $p \in [0S]$ pth to water: $0.31 \ m$ Req Purge Vol. 1:LFlow Rate:L/minsence of DNAPLIntickness of NAPL:cmDepth to NAPL:mmp intake:mRGING MEASUREMENTS 211. PurgedElapsed Time (min)EC (µS/cm)Temp. (°C) (ppm/mg/L)pHD0 %Sat (ppm/mg/L)DO (ppm/mg/L)Eh (mV) (m b TOC)A 55667.11: 1998 (<++) | | | | | | | | | | | | | | | | |
| | roject: Job No: 6(2304) preation: Casing diameter: 50 mm Date: 21 (p) (1 ORE CONSTRUCTION BFlush- Casing Locked Measurement Top of PVC Total Depth: 14. 291 m ORE DEVELOPMENT Date: Undertaken By: Vol. Removed: L point Casing Bate: Undertaken By: Vol. Removed: L point Casing Water Quality Meter used: YSI P/vo Undertaken By: EVELOPMENT ethod: fbm-purpt Water Quality Meter used: YSI P/vo Undertaken By: EVELOPMENT pit howater: 0, 7,3 m Water Quality Meter used: YSI P/vo Undertaken By: EVELOP pit howater: 0, 7,3 m Water Quality Meter used: YSI P/vo Undertaken By: EVENCS pit howater: mp Presence of DNAPL Thickness of NAPL: m Dopth to NAPL: m mp intake: m mp Casing pit howater Level (nb 700) (nb 700) Assesstrit: EBapsed EC< | | | | | | | | | | | | | | | | |
| PURGING DE | ETAILS (measu | rement poir | nts in meters | below top of | fca | sing as indi | cated above | e) | | | · · · · · | | | | | | |
| Method: Pe | Project: Job No.: GC3PC41 Location: Casing diameter: 50 mm Date: J [[b] [1 BORE CONSTRUCTION Measurement D op of PVC Total Depth: Total Depth: Metad- more Marking D ate: Undertaken By: Vol. Removed: L BORE DEVEL OPMENT Metro Casing Undertaken By: Vol. Removed: L Comments (e.g. sediment content): Date: Undertaken By: Vol. Removed: L PURGING DETAILS (measurement points in meters below top of casing as indicated above) Undertaken By: ES [DS Depth to water: 0.731 m Water Column: m Req Purge Vol. 1: L Flow Rate: L/min Presence of LNAPL Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: m PURGING MEASUREMENTS 2 Vol. Purged EE Temp. (*C) TO% 10% 0.43.5 74.6 0.43.1 2L 6.m.in 244/52 19.4 22.4 9.4 0.4.2 74.6 0.0.3.3 2L 6.m.in 24.4 0.4 0.3.2 74.6 0. | | | | | | | | | | | | | | | | |
| Depth to wate | Project: Job No: 6(2,724) Location: Casing diameter: 50 mm Date: 21 0] 1 BORE CONSTRUCTION Total Depth: Head: Date: Indertaken By: Total Depth: 0 my BORE DEVELOPMENT Date: Undertaken By: Vol. Removed: L Comments (e.g. sediment content): Date: Undertaken By: Vol. Removed: L PURGING DETAILS (measurement points in meters below top of casing as indicated above) Method: (primulation) PURGING MEASUREMENTS: VOLRENDERASUREMENTS: VOLRENDERASUREMENTS: VOLRENDERASUREMENTS: VOLPUIGNO Elapsed (L) Undertaken ID Presence of DNAPL Thickness of NAPL: m Durginatik: m UNGINING MEASUREMENTS: VOLPUIGNO VOLPUIGNO Elapsed (L) EC Uncernite (in bio) 0.2*C 10% 10% Assert: 10% 0.2*C 74.0 0.5% 12. 6 min 10% 0.2*S 73.0 | | | | | | | | | | | | | | | | |
| Presence of I | Project: Job No: 6(2/2/24) Location: Casing diameter: 50 mm Date: _21 [0] 1 Borner: Date: _21 [0] 1 DORE CONSTRUCTION Measurement Dop of PVC Total Depth: _14, -291 m DORE DEVELOPMENT Date: Undertaken By: Vol. Removed: L Comments (e.g. sediment content): Date: Undertaken By: Vol. Removed: L Comments (e.g. sediment content): Date: Undertaken By: Vol. Removed: L PURGING DETAILS (measurement points in meters below top of casing as indicated above) Undertaken By: £€ (DS PURGING MEASUREMENTS: Water Coulinn: m Req Purge Vol. 1: L Flow Rate: Umin Purgent intereming (pasing) PH DO %Sat Do (m if TOC) Purgent MEASUREMENTS: Vol. Purged Elapsed EC Temp. (*C) ToB pH DO %Sat Do (m if TOC) 1L Bruin: 14/472 P12 2/3 S. 73 G. 1 0.55 73.0 .0 | | | | | | | | | | | | | | | | |
| Pump intake: | Project: Job No.: GC37041 Location: Casing diameter: 50 mm Date: _91 0 1 SORE CONSTRUCTION Measurement □ Top of PVC Total Depth: 14, 291 m Method: Date: Undertaken By: Vol. Removed: L Comments (e.g. sediment content): Date: Undertaken By: Vol. Removed: L PURGING DETAILS (measurement points in meters below top of casing as indicated above) Undertaken By: E E VOL Removed: L Flow Rate: Lmmin Presence of LNAPL Presence of DNAPL Thickness of NAPL: m Depth to NAPL: m PURGING MEASUREMENTS 2 Vol. Purged Elspeed EC 10% 10% 10% 40% - 1L Bruin: M D2 10% 10% 10% - | | | | | | | | | | | | | | | | |
| Project: Job No:: 6(2,30,41) Location: Casing diameter: 50 mm Date: 01 [10] (1 BORE CONSTRUCTION Measurement □ Top of PVC Total Depth: 14, 2, 91 m Mead @Flush □ □ Casing □ Locked Measurement □ Top of PVC Total Depth: 14, 2, 91 m BORE CONSTRUCTION meters Date: Undertaken By: Vol. Removed: L Comments (e.g. sediment content): Date: Undertaken By: Vol. Removed: L PURGING DETAILS (measurement points in meters below top of casing as indicated above) Method: 0, 2, 3 Method: Undertaken By: QE [0S] Depth to water: 0, 31 m Water Caulity Meter used: 13, 1 Pro- Undertaken By: Depth to NAPL: m Purplicitak: m Presence of DNAPL Thickness of NAPL: m Depth to NAPL: m Purgink MEASUREMENTS> Vol. Purged Elapsed EC Temp. (*O) Total Depth: (m b TOC) AS 683714: 1082 (eH) 19% 0.2 10% 10% | | | | | | | | | | | | | | | | | |
| Head- works D / Bush- mount D casing only D Locked Measurement Point D Top of PVC Casing Total Depth: L A. 291 m BORE DEVELOPMENT Date: Undertaken By: Vol. Removed: L Comments (e.g. sediment content): Date: Undertaken By: Vol. Removed: L PURGING DETAILS (measurement points in meters below top of casing as indicated above) Method: Undertaken By: E PURGING DETAILS (measurement points in meters below top of casing as indicated above) Method: Undertaken By: E PURGING DETAILS (measurement points in meters below top of casing as indicated above) Method: Undertaken By: E PURGING DETAILS (measurement) measurement) measurement F F PURGING MEASUREMENTS * Water Column: m Req Purge Vol. 1: L Flow Rate: Undertaken By: 9/URGING MEASUREMENTS * Vol. Purged Eapsed E E Do %Sat DO (ppm[mgL) Eh (mV) (water Level (m b Coc)) 11 Sum 4/472 (P.4.7 2/919.%2 C. 76 P.0 0.80 74.6 ~0.931 2 L | | | | | | | | | | | | | | | | | |
| AS 5667.11 | Project: Job No: 6(2/P/4) Location: Casing diametor: 50 mm Date: 21 0] 1 SORE CONSTRUCTION Total Depth: tead: Date: Indertaken By: Total Depth: 0.21 0] 1 SORE CONSTRUCTION Measurement Top of PVC Total Depth: 0.21 0] 1 SORE DEVELOPMENT Date: Undertaken By: Vol. Removed: L Comments (e.g. sediment content): Date: Undertaken By: £€ [05] PURGING DETAILS (measurement points in meters below top of casing as indicated above) Undertaken By: £€ [05] Alethod: £ 0: | | | | | | | | | | | | | | | | |
| 11 | SORE CONSTRUCTION tead- Ba Flush- mount Monument only Casing □ Locked Measurement □ Top of PVC Total Depth: 14, 291 m SORE DEVELOPMENT dethod: Date: Undertaken By: Vol. Removed: L onuments (e.g. sediment content): URGING DETAILS (measurement points in meters below top of casing as indicated above) dethod: 'Date: URGING DETAILS (measurement points in meters below top of casing as indicated above) dethod: 'Date: Undertaken By: Vol. Removed: L onuments (e.g. sediment content): URGING MEASUREMENTS Vol. Removed: L Nonuments (e.g. sediment content): URGING MEASUREMENTS | | | | | | | | | | | | | | | | |
| 2L | SORE CONSTRUCTION Image: Sore Construction Image: Sore Construction Image: Sore Construction Image: Sore Construction Total Depth: 14. 2.91 Image: Sore Construction NORE DEVELOPMENT Image: Sore Construction Image: Sore Construction <t< td=""></t<> | | | | | | | | | | | | | | | | |
| 36 | Head- works Drivestion only □ Casing □ Locked Measurement □ Top of PVC Casing Total Depth: 14. 2.91 m SIGRE DEVEL OPMENT Date: Undertaken By: Vol. Removed: L Somments (e.g. sediment content): Date: Undertaken By: Vol. Removed: L Somments (e.g. sediment content): Water Quality Meter used: ¥SI PYO Undertaken By: Else Value (a), Content (a), Content (b); Water Column: m Req Purge Vol. 1: L Flow Rate: L/min Presence of LNAPL Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: m Ungintake: m m Req Purge Vol. 1: L Flow Rate: L/min Ungintake: m m me(m)mg/L) PH D0 %Sat DD Mater Level (h) fn b TOC) 1L Bayed EC Temp. (*C) TDB pH D0 %Sat DD (b b m/n) Water Level (h) h b TOC) Action 444/D2 | | | | | | | | | | | | | | | | |
| 42 | ORE CONSTRUCTION Casing Locked Measurement □ Top of FVC Total Depth: 14, 2.91 m ORE DEVELOPMENT Date: Undertaken By: Vol. Removed: L URGING DETAILS (measurement points in meters below top of casing as indicated above) Undertaken By: Ethod: L How Rete: Lmin URGING DETAILS (measurement points in meters below top of casing as indicated above) Undertaken By: Ethod: Ethod: Presence of DNAPL Indertaken By: Ethod: Indertaken | | | | | | | | | | | | | | | | |
| | ORR Distance Only Form Outring IORE DEVELOPMENT Date: Undertaken By: Vol. Removed: L Identified Date: Undertaken By: Vol. Removed: L URGING DETAILS (measurement points in meters below top of casing as indicated above) Undertaken By: $E \in [0, \infty]$ Nethod: PM Water Quality Meter used: YSI P_{VO} Undertaken By: $E \in [0, \infty]$ Nethod: PM Water Column: m Req Purge Vol. 1: L Flow Rate: Lminin resence of LNAPL Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: m URGING MEASUREMENTS * 70. $PREOR Elapsed (ppmlmg/L) PH D0 %Sat DO Eh (mV) Water Level (L) Time (min) (µSlem) Temp. (*C) TDS pH D0 %Sat DO A. (m) 7. (m + 0, 0, 0, 3, 0, 7, 4, 3, 2, 0, 3, 5, 7, 3, 4, 2, 0, 2, 3, 7, 4, 3, 2, 0, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3,$ | | | | | | | | | | | | | | | | |
| | Project: Job No: G(Z PC4) Location: Casing diameter: 50 mm Date: J 0 1 BORE CONSTRUCTION Head: Bifush □ Casing □ Locked Measurement □ Top of PVC Total Depth: Head: Difush □ Date: Undertaken By: Vol. Removed: L Date: Undertaken By: Vol. Removed: L Comments (e.g. sediment contant): DURING MEASUREMENTS UNDERLS (measurement points in meters below top of casing as indicated above) Method: Date: Undertaken By: Vol. Removed: L Downarts (e.g. sediment contant): DURING MEASUREMENTS UNDERLS (measurement points in meters below top of casing as indicated above) Method: Provide the sediment contant): DURING MEASUREMENTS Vol.Parence of DNAPL □ Thickness of NAPL: cm Depth to NAPL: m Pump intake: m Durgen MEASUREMENTS * Vol.Purged Elapsed (G, G) m V 10 (G, G) (G, | | | | | | | | | | | | | | | | |
| | ject: atton: Casing diameter: Casing diameter: Casing diameter: Casing diameter: Casing diameter: Somm Date: Da | | | | | | | | | | | | | | | | |
| Project: Job No: G(Z ⇒ D4) Location: Casing diameter: 50 mm Date: J[10]11 BORE CONSTRUCTION Measurement: Total Depth: (4, 29) Head: GF/Lish- Date: Undertaken By: Total Depth: (4, 29) BORE DEVELOPMENT Mathematic only Date: Undertaken By: Vol. Removed: L Comments (e.g. sediment content): Date: Undertaken By: Vol. Removed: L PURGING DETAILS (measurement points in meters below top of casing as indicated above) Method: Purget Vol. 1: L Flow Rate: L/min PURGING BEALSUREMENTS* Water Quality Motor used: Y S) P/YO Undertaken By: PECIOS PURBING MEASUREMENTS** Wol. Purged Elapsed EC Temp, (*C) Total point | | | | | | | | | | | | | | | | | |
| Comments (e | e.g. condition o | f headwork | s, sheen, col | our, odour, s | edi | ment load): | -` | | | | | | | | | | |
| c l eeu | r light | ovonn | , low t | o nosci | d., | no sh- | een, v | ro odo | чr | ~ | | | | | | | |
| SAMPLING D | Image: Presence of DNAPL m Req Purge Vol. 1: L Flow Rate: L/min resence of LNAPL Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: m ump intake: m m Inickness of NAPL: cm Depth to NAPL: m URGING MEASUREMENTS 2 for Purged Elapsed EC Temp. (%C) TDS pH D0 %Sat DO (ppm(mg/L) Eh (mV) Water Level (m b TOC) AS 5667.11: 1998 (**/) 10% 0.2 ** 10% 10% 10% . | | | | | | | | | | | | | | | | |
| Time: | | Vol. Remov | /ed: | - | L | No of Sam | ole Container | s: 8 | | | | | | | | | |
| Type of Sample | e Containers (i.e. | . P = Plastic/ | G = Glass/V = | Vial, volume a | nd p |) = preserved | l/up = unpres | erved): | | | | | | | | | |
| Field Filtered | Ø | Duplicate S | Samples 🗆 | Duplic | ate S | Sample ID: | | | | | | | | | | | |
| Comments: | | | | • | | | | | | | | | | | | | |
| | | | | | | | | ····· | | | | | | | | | |
| | | | | | | to Estima - H | | | | | ana ha cataulata d | | | | | | |
| Dores to De | = purgea ary, until | pri, rand EG i | reaunigs stabilis | se or a minimum | 1013 | to a times the | water column | volumes. Wa | ater CO | iumin voiumes | can be calculated | | | | | | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID - 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument -specific calibration book, or in field notes as required by local procedures.



| DRE CONSTRUCTION Casing Locked Measurement Top of PVC Total Depth: 3_073 m bad- orks Monument only Point Casing Casing Total Depth: 13_073 m | | | | | | | | | | | | |
|---|----------|--|--|--|--|--|--|--|--|--|--|--|
| Location: Casing diameter: 50 mm Date: 24/16/19 | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| BORE CONSTRUCTION | | | | | | | | | | | | |
| | 13.073 m | | | | | | | | | | | |
| BORE DEVELOPMENT | | | | | | | | | | | | |
| Method: Date: Undertaken By: Vol. Removed: | L | | | | | | | | | | | |
| Comments (e.g. sediment content): | | | | | | | | | | | | |
| · | | | | | | | | | | | | |
| PURGING DETAILS (measurement points in meters below top of casing as indicated above) | | | | | | | | | | | | |
| Method: Peri-pump Water Quality Meter used: YSLPro. Undertaken B | : EE/PY | | | | | | | | | | | |
| Depth to water: 2.640 m Water Column: m Req Purge Vol. 1: L Flow Rate: | L/min | | | | | | | | | | | |
| Presence of LNAPL D Presence of DNAPL D Thickness of NAPL: cm Depth to NAP | L: m | | | | | | | | | | | |
| Pump intake: m | | | | | | | | | | | | |
| PURGING MEASUREMENTS 2 | | | | | | | | | | | | |
| PURGING MEASUREMENTS 2 Vol. Purged L(L) Elapsed EC (\muS/cm) Elapsed (\muS/cm) ED (\muS/cm) ED (\muS/cm) DO %Sat DO (\muS/m) DO (\muS/m) Bh (\muS/m) DO %Sat (\muS/m) DO (\muS/m) Bh (\muS/m) DO (\muS/m) Bh (\muS/m) DO %Sat (\muS/m) Bh | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| 21 6 min. 13858 20.7 9006.42 5-42 3-1 0-26 -33. | 'n | | | | | | | | | | | |
| 3L 9 min. 13814 20.7 \$976.91 5.49 2.3 0.19 -33.8 | | | | | | | | | | | | |
| 4L 12 min. 13740 20.8 8930.74 5.56 2.0 0.17 -28. | f | | | | | | | | | | | |
| 51 Vimin 13720 20.8 8918.38 5,55 1.8 0-15 -24.5 | 3-250m | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Comments (e.g. condition of headworks, sheen, colour, odour, sediment load): | | | | | | | | | | | | |
| Clear, slight sulfur oclour, no gheen, low sediments | | | | | | | | | | | | |
| SAMPLING DETAILS Sample ID: | | | | | | | | | | | | |
| Time: Vol. Removed: L No of Sample Containers: 🔗 | | | | | | | | | | | | |
| Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): | | | | | | | | | | | | |
| Field Filtered 🗹 Duplicate Samples 🗆 Duplicate Sample ID: | | | | | | | | | | | | |
| Doutto to Law | | | | | | | | | | | | |
| Comments: Slow recharge rate. End of nonitory reading: 3-250. | -1. | | | | | | | | | | | |
| CoC Number: Checked by: Date: | | | | | | | | | | | | |

Bores to be purged dry, until pH, T and EC readings stabilise or a minimum of 3 to 5 times the water column volumes. Water column volumes can be calculated from the following casing volumes per unit length: 40 mm ID - 1 J/m; 50 mm ID - 2 J/m; 100 mm ID 8 J/m. Calibration details to be recorded in the instrument -specific calibration book, or in field notes as required by local procedures.



| Location: Casing diameter: 50 mm Date: 221014 BORE CONSTRUCTION Image: Definition only Image: Definition only Total Depth: 2.567. BORE DEVELOPMENT Monument only Image: Definition only Total Depth: 9.543. m SORE DEVELOPMENT Manument only Image: Definition only Image: Definition only Vol. Removed: L Somments (e.g. sediment content): Date: Undertaken By: Vol. Removed: L Somments (e.g. sediment content): Water Couling Meter used: S1 P/2 Undertaken By: 25 P/2 Somments (e.g. sediment content): m Req Purge Vol. 1: L Flow Rate: 0:.125 L/min Supplicit to water: The Req Purge Vol. 1: L Flow Rate: 0:.125 L/min Supplicit to water: The Req Purge Vol. 1: L Flow Rate: 0:.125 L/min Supplicit to water: m Posence of DNAPL Thickness of NAPL: m Dot Mate Supplicit to water: m Piter 10% 10% 0: .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 | Client: | | | | | | | | BORE I | D: | BORK | MW24 | Ή | | |
|---|---|--|-------------|---------------|--------------|-------|--------------|-------------|---------|------------|-------------|--|-------|--|--|
| SORE CONSTRUCTION □ Casing □ Locked Measurement □ Top of PVC Total Depth: Q. ScH3 m BORE DEVELOPMENT Method: □ Date: Undertaken By: Vol. Removed: L Comments (e.g. sediment content): Date: Undertaken By: Vol. Removed: L PURGING DETALLS (measurement points in meters below top of casing as indicated above) Method: Casing Undertaken By: E PV Purge thot: Q.A. Water Quality Meter used: SL P/A Undertaken By: E PV Purge thot: Presence of DNAPL Presence of NAPL: cm Depth to NAPL: m Purge intake: m UURGINA MEASUREMENTS 2 Vol. Removed: m m Viol:Reinore ditakes E C Tomp. (*C) TDS pH D0 %sat D0 (m to C) As 5667.11: 198 (eW) 10% D2*C 10% 10% 2.65 253.0 ~8.6752 1.5 1.5 1.2 Measurement [k.St] 2.1 122.5 .15 4.35 2.1.4 2.7 M.8 ~8.0744 .2 .2 | Project: | | | | | | | | Job No. | : | 613704 | 1 | | | |
| Head- works DY/Lish- mount Casing □ Locked Measurement □ Top of PVC Casing Total Depth: 9.543 m BORE DEVELOPMENT Date: Undertaken By: Vol. Removed: L Domments (e.g. sediment content); Date: Undertaken By: Vol. Removed: L Developments (e.g. sediment content); Water Quality Meter used: SJ P/a Undertaken By: E P.9 Depth to water: 7,80 km Water Column: m Req Purge Vol. 1: L Flow Rate: 0.125 L/25 L/min Presence of LNAPL Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: m PURGING MEASUREMENTS 2 Vol. Purged Elapsed EC Temp. (*C) (ppm/mg/L) pH D0 %sat D0 (ppm/mg/L) m m C.5 253.0 ~8.652 10% 10% 0.24C 10% 10% 10% 10% - | Location: | | | Casing | g diameter: | | | 50 mm | Date: | <u>)</u> 2 | 1019 | | | | |
| SORE DEVELOPMENT Date: Undertaken By: Vol. Removed: L Comments (e.g. sediment content): | BORE CONS | TRUCTION | | | | | | | | | | | | | |
| Method: Date: Undertaken By: Vol. Removed: L Comments (e.g. sediment content): E E Undertaken By: Vol. Removed: L PURGING DETAILS (measurement points in meters below top of casing as indicated above) Method: f(M- pump Water Quality Meter used: S1 f(M) Undertaken By: ES (P //) Aethod: f(M- pump Water Quality Meter used: S1 f(M) Undertaken By: ES (P //) Undertaken By: ES (P //) Depth to water: 7.5 0 gm Water Column: m Req Purge Vol. 1: L Flow Rate: 0.12.5 L/// min Purge Intervent Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: m UP RUROM MEASUREMENTS : VOI. Purged Elapsed EC Temp. (*C) TDS pH D0 %sat D0 (bn mV) Water Level (in b TOC) AS \$567.11: 1998 (*/+) 10% 0.2*C - 10% 10% - - QL Bouin: R&S 21.0 122.5 .1.5 4.3.8 24.4.3 2.1.4 2.6.5 2.5.0 ~8.652 1.5 L 12 R&S 21.0 122.2.8.9 <td< td=""><td></td><td></td><td></td><td>Ý</td><td></td><td></td><td></td><td></td><td></td><td>T</td><td>otal Depth:</td><td>9.873</td><td>> m</td></td<> | | | | Ý | | | | | | T | otal Depth: | 9.873 | > m | | |
| Comments (e.g. sediment content): PURGING DETAILS (measurement points in meters below top of casing as indicated above) Alethod: $f_{CM} - \rho_{UMMp}$ Water Quality Meter used: $\int S I \rho_M$ Undertaken By: $\mathcal{E} P f_M$ Depth to water: $\frac{1}{2}$, $S O g_M$ Water Column: m Req Purge Vol. 1: L Flow Rate: $O.125$ L/min Presence of LNAPL Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: m VID, Purget Elapsed EC Temp. (+C) TDS (ppm)mg/L) Eh (mV) (water Level (u) (m b TOC) As 5867.11: 1996 (+4) 16% 0.2*C 10% 10% - - QL Bankin If SS 21.0 122.5 .1.5 4.3.8 27.0 3.3.9 2.06.0 7 8.6.5.2 1.5 L 12 L min ISS2 21.0 122.5 .1.5 4.3.8 24.3 2.1.14 277.8 \sim 8.074 2 L 16 min ISS1 21.0 122.7.8.9 4.3.8 23.5 2.06 50.7.4 \sim 8.0.74 2 L 16 min ISS1 21.0 122.7.8.9 4.3.8 23.5 2.06 50.7.4 \sim 8.0.74 2 L | BORE DEVE | LOPMENT | | | | | | | | | | | | | |
| PURGING DETAILS (measurement points in meters below top of casing as indicated above) Method: PUNAP Water Quality Meter used: \SL P/A Undertaken By: ES P Y Depth to water: 7.8,0 g/m Water Column: m Req Purge Vol. 1: L Flow Rate: 0.12.5 L/min Presence of LNAPL Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: m Punp Intake: m n n PURGING MEASUREMENTS 2 Voil. Purged Elapsed EC Temp. (°C) TBS pH D0 %Sat DO (bpm/mg/L) Eh (mV) Water Level (L) Time (min) (µSfcm) 02.°C - 10% 10% - <t< td=""><td>Method:</td><td></td><td>Da</td><td>te:</td><td></td><td>ļ</td><td>Undertaker</td><td>By:</td><td></td><td>Vol. F</td><td>Removed:</td><td></td><td>L</td></t<> | Method: | | Da | te: | | ļ | Undertaker | By: | | Vol. F | Removed: | | L | | |
| Method: $Purp$ Water Quality Meter used: $SI PJ$ Undertaken By: $EP PJ$ Depth to water: $+SO \ M$ Water Column: m Req Purge Vol. 1: L Flow Rate: $O.125$ L/min Presence of INAPL Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: m Purp Intake: m m Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: m PURGING MEASUREMENTS 2 m m m DO %5st DO (ppm[mgl.) Eh (mV) Water Level (m b TOC) AS 5667.11: 1996 (4+) 10% 0.2*C . 10% 10% . . QL Sample D1.1 $EL T275.15$ 4.38 27.0 2.37 2.46.0 $R 8.552$ 1.5 L 12 min 18%2 21.0 1225.15 4.38 24.3 2.1.14 279.8 $R 8.074$ 2 L 16 min 18%2 21.0 1222.89 4.38 23.5 2.06 502.7 $N 8.074$ 2 L 16 min 18%1 21.0 1222.89 4.38 | Comments (| e.g. sediment c | ontent): | | | 1 | | | l | | | | | | |
| Method: $Purp$ Water Quality Meter used: $S \ P \ P$ Undertaken By: $E \ P \ P$ Depth to water: $+ S \ O \ Column$: m Req Purge Vol. 1: L Flow Rate: $O \cdot 12 \le Umin$ Presence of INAPL Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: m Purp Intake: m m Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: m PURGING MEASUREMENTS 2 m m m DO %5at DO (ppm[mg]L) Eh (mV) Water Level (m b TOC) AS 5667.11: 1986 (++) 10% 0.2*C 10% | | | | | | | | | | | | | | | |
| Depth to water: $\frac{1}{7}$, $\frac{8}{3}0$, $\frac{1}{10}$, $\frac{1}{100}$, | PURGING DE | TAILS (measu | rement poir | nts in meters | below top of | cas | sing as indi | icated abov | e) | | | | | | |
| presence of LNAPL Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: m pump intake: m m m m m m m PURDING MEASUREMENTS 2 Vol. Purged Elopsed EC Temp. (°C) TDS pH D0 %Sat DO (ppming/L) Eh (mV) Water Level (m b TOC) AS 5667.11: 1998 (~44) 10% 0.2 °C - 10% 10% 10% . . C. 5L A1987A 102 C Q 21.1 #L 1212 F. 87 24.3 S 29.9 2.65 253.0 ~8.0794 1.5L 12 min 1882 21.0 1225.15 4.38 24.0 3.39 266.0 ~8.0552 1.5L 12 min 1882 21.0 1222.89 4.38 23.3 2.06 502.7 ~ 8.0744 2L 16 min 1681 21.0 1222.89 4.38 23.3 2.06 502.7 ~ 8.0744 2L 16 min 1681 21.0 1222.89 4.38 23.5 2.06 502.7 ~ 8.0744 < | Method: 위관 | ri-pump | Water Q | uality Meter | used: YS | 51 # | vo. | | | Und | lertaken By | : EE P | Y | | |
| Dump intake: m PURGING MEASUREMENTS 2 Vol. Purged Elapsed EC Temp. (°C) TDS pH D0 %Sat D0 Eh (mV) Water Level (n b TOC) AS 5667.11: 1998 (~++) 10% 0.2~C - 10% 10% 10% . . C. 51 478RA 102CP 21.1 10 1225.15 4-38 27.0 2.37 2.66.0 ~ 8.6751 1 8 nuin 1885 21.0 1225.15 4-38 24.0 2.37 2.66.0 ~ 8.6752 1.5 12 nuin 1882 21.0 1225.15 4-38 2.4.3 2.1.14 277.8 ~ 8.0744 21 16 nuin 1881 21.0 1222.87 4-38 2.3.3 2.06 502.7 n.8.0744 22 16 nuin 1881 21.0 1222.87 4-38 2.3.3 2.06 502.7 n.8.0744 24 16 nuin 1881 21.0 1222.87 4-38 2.3.3 2.06 502.7 n.8.0744 20 100 nuin 68 21.0 | Depth to wat | er: 7.808m | Water C | olumn: | m | Re | eq Purge Vo | ol. 1; | L | Flo | w Rate: 🕜 | .125 | L/min | | |
| URGING MEASUREMENTS 2 Vol. Purged Elapsed EC Temp. (°C) TDS pH DO %Sat DO Eh (mV) Water Level (m b TOC) AS \$667.11: 1998 (~4/-) 10% 0.2~C . 10% 10% 10% . . C. \$1 1986 (~4/-) 10% 0.2~C . 10% 10% . . Q. \$1 No. 1225 .15 4-38 27.0 3.37 206.0 $r 8.6$ 252 1 R. 1223 .15 4-38 24.3 2.14 279.8 $r 8.6$ 252 1.5 12 min 1882 21.0 1223 .47 4.38 24.3 2.14 279.8 $r 8.0744$ 2 L 16 min 1881 21.0 1222 .87 4.38 23.3 2.06 502.7 $n 8.0744$ 2 L 16 min 1881 21.0 1222 .87 4.38 23.3 2.06 502.7 $n 8.0744$ 2 L 16 min 16 min 100 min $10.222.87$ 4.38 23.3 2.06 502.7 $n 8.0744$ | Presence of | | Presenc | e of DNAPL | | Th | ickness of | NAPL: | cm | Dep | oth to NAPL | : | m | | |
| Vol. Purged (L)Elapsed Time (min)EC (µS/cm)Temp. (°C) (µS/cm)TDS (ppm)mg/L)pHDO %Sat (ppm)mg/L)DO (ppm)mg/L)Eh (mV)Water Level (m b TOC)AS 5667.11: 1998 (~H)10%0.2~c.10%10%C. 5 L10%10%0.2~c.10%10%10%.C. 5 L10%10%10%10%C. 5 L10%10%10%10%C. 5 L10%10%10%10%C. 5 L10%10%10%10%C. 5 L10%10%1225.154.3824.02.392.46.0~8.62291.5 L12 min188221.01225.154.3824.32.114279.8~8.07442 L16 min188121.01222.894.3823.32.06502.7 N 8.07442 L16 min188121.01222.894.3823.32.06502.7 N 8.07442 L16 min188121.01222.894.3823.32.06502.7 N 8.07442 L16 min188121.01222.894.3823.32.06502.7 N 8.07442 L16 min188121.01222.894.3824.01010102 Min10%10%10%10%10%10%10% <t< td=""><td colspan="13"></td></t<> | | | | | | | | | | | | | | | |
| (L) Time (min) (µS/cm) (ppm mg/L) (ppm mg/L) (m b TOC) AS 5667.11: 1998 (++) 10% 0.2 °C 10% 10% . C. 5 L A/S/SA 10/20 (20 (20 (20 (20 (20 (20 (20 (20 (20 (| PURGING ME | EASUREMENTS | 2 | | | | | | | | | | | | |
| C. 5.L 11089 21.1 11.1 | (L) Time (min) (μS/cm) (ppm mg/L) (m b TOC) (m b TOC) | | | | | | | | | | | | | | |
| 1 1881 21.0 1225.15 438 27.0 0.39 266.0 r8.552 1.51 12 min 1882 21.0 1223.47 438 24.3 2.14 27.8 ~ 8.074 21 16 min 1882 21.0 1222.89 4.38 23.3 2.06 302.7 N 8.074 21 16 min 1881 21.0 1222.89 4.38 23.3 2.06 302.7 N 8.074 21 16 min 1881 21.0 1222.89 4.38 23.3 2.06 302.7 N 8.074 21 16 min 1881 21.0 1222.89 4.38 23.3 2.06 302.7 N 8.074 21 16 min 1881 21.0 1222.89 4.38 23.3 2.06 302.7 N 8.074 21 16 min 1881 21.0 1222.89 4.38 23.3 2.06 302.7 N 8.074 21 10 min 1222.89 4.38 23.4 10.1 10.1 10.1 10.1 10.1 10.1 10.1 | AS 5667.11 | (L) Time (min) (μS/cm) (ppm mg/L) (ppm mg/L) (m b TOC) AS 5667.11: 1998 (<+/-) | | | | | | | | | | | | | |
| 2L 8 min 1885 21.0 1225.15 4.58 27.0 3.59 266.0 ~ 8.552 1.5L 12 min 1882 21.0 1223.47 4.38 24.3 2.14 279.8 ~ 8.074 2L 16 min 1881 21.0 1222.89 4.38 23.3 2.06 302.7 m.8.074 2L 16 min 1881 21.0 1222.89 4.38 23.3 2.06 302.7 m.8.074 3.0 1.0 1222.89 4.38 23.3 2.06 302.7 m.8.074 3.0 1.0 1.222.89 4.38 23.4 1.0 1.223.4 1.0 1.0 1.0 Somments (e.g. condition of headworks, sheen, colour, odour, sediment load): 1.0 1.0 1.0 1. | | | | | | | | | | | | | | | |
| $1.5L$ $12nin$ 1882 21.0 1223.47 4.38 24.3 2.14 279.8 ~ 8.074 $2L$ $16nin$ 1881 21.0 1222.89 4.38 23.3 2.06 502.7 $n.8,074$ $2L$ $16nin$ 1881 21.0 1222.89 4.38 23.3 2.06 502.7 $n.8,074$ a < | 21 | | | 21.0 | 1225.15 | > | 4.38 | 27.0 | J.39 | | 266.0 | ۵.8~ | 52 | | |
| Comments (e.g. condition of headworks, sheen, colour, odour, sediment load): Comments (e.g. condition of headworks, sheen, colour, odour, sediment load): Milky - Clayty brown, no odour, no Sheen, law to madged, mader Mampling DETAILS Sample ID: ime: Vol. Removed: L No of Sample Containers: ype of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): ield Filtered Duplicate Samples | 1.56 | | 1882 | 21.0 | 1223.4 | F7 | 4:38 | 24.3 | 2.14 | | 279.8 | ~ 8.0 | 74 | | |
| Milky - Clay Ly brown, no odour, no Sheen, low to mode ed, mod AMPLING DETAILS ime: Vol. Removed: L No of Sample Containers: ype of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): ield Filtered Duplicate Samples | 22 | 16nin | 1881 | 21.0 | 1222.8 | 9 | 4.38 | 23.3 | 2.04 | > | \$02.7 | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | 574 | | |
| Milky - Clay Ly brown, no odour, no Sheen, low to mode ed, mod AMPLING DETAILS ime: Vol. Removed: L No of Sample Containers: ype of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): ield Filtered Duplicate Samples | | | | | | | | | | | | | | | |
| Milky - Clay Ly brown, no odour, no Sheen, low to mode ed, mod AMPLING DETAILS ime: Vol. Removed: L No of Sample Containers: ype of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): ield Filtered Duplicate Samples | | · · · · · | | | | | | | | | | | | | |
| Milky - Clay Ly brown, no odow, no Sheen, low to modged, mod MAMPLING DETAILS ime: Vol. Removed: L No of Sample Containers: ype of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): ield Filtered Duplicate Samples | | | | | | | | | | | | | | | |
| AMPLING DETAILS Sample ID: ime: Vol. Removed: L No of Sample Containers: < | | | | | | | | | | | | | | | |
| AMPLING DETAILS Sample ID: ime: Vol. Removed: L No of Sample Containers: S ype of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): | milky- | -clayly | bhown | , NO 01 | dour n | 0 | Sheer | , low | tome | LS | ed, n | nd | | | |
| ime: Vol. Removed: L No of Sample Containers: © ype of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): | | | | | | j | | | | | +(| 1/12a(-4 |) | | |
| ype of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): | | ETAILS | | | | | • | | | | | | | | |
| ield Filtered 🖸 Duplicate Samples 🗆 Duplicate Sample ID: | Time: | | | | | | | | | | | | | | |
| | Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): | | | | | | | | | | | | | | |
| comments: | Field Filtered | | Duplicate S | amples 🗆 | Duplica | nte S | Sample ID: | | - | | | | | | |
| | Comments: | | | | · | | | | | | | · | | | |
| | | | | | | | | | | | · | | | | |
| CoC Number: Date: Bores to be purged dry, until pH, T and EC readings stabilise or a minimum of 3 to 5 times the water column volumes. Water column volumes can be calculated | | | | | - | | | | | | | | | | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID - 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument -specific calibration book, or in field notes as required by local procedures.

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| Client: | | | | | | | | BORE I |): £ | ORRIM | W25_ | | | |
|--|--|-------------|---------------|---------------|----------|--------------------|-------------------|----------|--------|-------------|----------|-----|--|--|
| Project: | | | | | | | | Job No. | | 137041 | | | | |
| Location: | | | Casing | j diameter: | | | 50 mm | Date: | 23 | 10/19 | | | | |
| BORE CONS | | | | | | | | | | | | | | |
| | Flush- □ ount Mon | | Casing Conly | Locked | | easurement bint | t ⊡ Top Casing | o of PVC | T | otal Depth: | 13.125 | m | | |
| BORE DEVEL | LOPMENT | | | | | | | | | | | | | |
| Method: | | Da | ite: | | l | Undertaken | By: | N | Vol. F | Removed: | | L | | |
| Comments (e | e.g. sediment c | ontent): | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| PURGING DE | TAILS (measu | ement poir | nts in meters | below top of | cas | sing as indi | cated abov | e) | | | | | | |
| Method: | ipump | Water C | uality Meter | used: V | 15 | 1 Pio | | | Unc | lertaken By | : EE /PY | | | |
| Depth to wate | er: 6.802m | Water C | olumn: | m | Re | q Purge Vo | N. ¹: | L | Flo | w Rate: | Lí | min | | |
| Comments (e.g. sediment content): PURGING DETAILS (measurement points in meters below top of casing as indicated above) Method: $f_{M} \rightarrow p_{M} \rightarrow p_{M}$ Water Quality Meter used: $f_{M} \rightarrow p_{M} \rightarrow p_{M}$ Water Quality Meter used: $f_{M} \rightarrow p_{M} \rightarrow p_{M}$ Water Column: m Req Purge Vol. 1: L Flow Rate: L/min Presence of LNAPL Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: m Pump intake: m PURGING MEASUREMENTS 2 Vol. Purged Elapsed EC Temp. (°C) TDS (ppm mg/L) PH D0%Sat DD (ppm mg/L) Eh (mV) Water Level (m b TOC) AS 5667.11: 1998 (~H) 10% 0.2~C · 10% 10% 10% 10% · · · · · · · · · · · · · · · · · · · | | | | | | | | | | | | | | |
| Pump intake: | : m | | | | | | | | | | - | | | |
| PURGING ME | PURGING MEASUREMENTS ² Vol. Purged Elapsed EC Temp. (°C) TDS pH DO %Sat DO Eh (mV) Water Level | | | | | | | | | | | | | |
| Vol. Purged (L)Elapsed Time (min)EC (μS/cm)Temp. (°C)TDS (ppm]mg/L)pHDO %SatDO (ppm]mg/L)Eh (mV)Water Level (m b TOC) | | | | | | | | | | | | | | |
| AS 5667.11 | PURGING DETAILS (measurement points in meters below top of casing as indicated above)Method: $f(M' - p_U m_p)$ Water Quality Meter used: (JS) f_U Undertaken By: $PE / f'Y$ Depth to water: $6, 802 m$ Water Column:mReq Purge Vol. 1:LFlow Rate:L/minPresence of LNAPLPresence of DNAPLThickness of NAPL:cmDepth to NAPL:mPump intake:mThickness of NAPL:cmDepth to NAPL:mPURGING MEASUREMENTS?Vol. PurgedElapsedECTemp. (°C)TDS (ppm!mg/L)pHD0 %SatDO (ppm!mg/L)Eh (mV)Water Level (m b TOC)AS 5667.11:1986 (~H)10%0.2 °C.10%10%1L4 min393317.42556.565.8554.90.455-23.42.6m:387919.72553.275.764.20.38-15.32.112 min387719.52531.675.793.40.31-20.43.416 min.387619.52531.675.713.40.31-20.43.42.0min387219.52529.865.813.30.30-15.3 | | | | | | | | | | | | | |
| 1 L | AS 5667.11: 1998 (<+/-) 10% 0.2°C . 10% 10% 10% 1 L 4 min · 3933 19.4 2556.56 5.85 4.9 0.45 -23.4 | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| 2. 15. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. | | | | | | | | | | | | | | |
| 256 8 mm. 3899 19.7 2553.27 5.76 4.2 0.38 -15.3 26 12 mm 3897 19.5 2533.27 5.81 3.3 0.30 -19.8 5466 16 min. 3896 19.5 2531.67 5.79 3.4 0.31 -20.4 | | | | | | | | | | | | | | |
| 31 | 20 min. | 3892 | 19.5 | 2529.8 | :6 | 5.81 | 3.3 | 0-30 |) | -20.3 | | | | |
| 3.5L | 25 mm | 3900 | 19-5 | 2535.2 | 8 | 5-81 | 27 | 0.28 | 5 | -21.1 | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| Comments (e | .g. condition of | headwork | s, sheen, col | our, odour, s | edir | ment load): | | | | | | | | |
| cloudy | white, | nod | OUV, K | ro shee | <u>n</u> | , low | sed. | | | | | | | |
| SAMPLING D | ETAILS | | | | | Sample ID |): | | | | | | | |
| Time: Vol. Removed: L No of Sample Containers: | | | | | | | | | | | | | | |
| Type of Sample | ype of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): | | | | | | | | | | | | | |
| Field Filtered | | Duplicate S | amples 🗆 | Duplica | ate S | ample ID: | | | | | | | | |
| Comments: | I | | <u>.</u> | 1 | | | | | • | | | | | |
| | | | | | | | | | | | | | | |
| CoC Num | | | | cked by: | | | | Date: | | | | | | |

irged dry, until pH, 1 and EC readings a minimum of 3 time i the wai olumn imn volumes (from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID - 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



| Client: | | | | | | | | BORE II |): B(| d <u>RR</u> r | NWZa | 1 |
|--|-----------------------|----------------|---------------|------------------|-------------------|--------|--------------------|---------------|-----------|---------------|-------------------------|-------------|
| Project: | | | | | | | | Job No. | : 61 | | | , <u> </u> |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | 24 | 10/19 | j | |
| BORE CON | STRUCTION | | | | | - | | | | | | |
| | - | | - | Locked | Measurer Point | ment | | | Tot | al Depth: | 8.42 | γ ∕m |
| BORE DEV | ELOPMENT | | | | | | | | | | | |
| Method: | | Da | te: | | Underta | aken | By: | 1 | Vol. Re | moved: | - | L |
| Comments | (e.g. sediment c | ontent): | | | | | | | | | | |
| | ETAILS (measur | rement poin | ts in meters | helow top of | casing as | indi | cated above | a) | | | | |
| | | 1 | | | | | | | Unde | rtaken Bv: | | |
| | ater: (ST 2 m | | • | | Rea Pura | ie Vo | ol. ¹ : | Ĺ | | | | /min |
| | | | | | | | | | | | | m |
| | | | | | | | | | | | | |
| - | | ; 2 | | | | | | | | | | |
| Vol. Purged (L) | Elapsed Time (min) | EC (μS/cm) | Temp. (°C) | TDS (ppm mg/L | | ! | DO %Sat | DO (ppm mg | /L) | Eh (mV) | Water Leve (m b TOC) | l |
| Project: Job Na: $\begin{bmatrix} 0 & 3 \\ 0 & 4 \end{bmatrix}$ Location: Casing diameter: 50 mm Date: $24 \\ f_0 \\ 19 \end{bmatrix}$ BORE CONSTRUCTION Head. Works mount Manument Only Total Depth: $37 \\ 42 \\ 57 \\ 57 \\ 57 \\ 57 \\ 57 \\ 57 \\ 57 \\ 5$ | | 10% | | | | | | | | | | |
| Project: Job No: 61 3 70 cpl Location: Casing diameter: 50 mm Date: 24 / [0]19 BORE CONSTRUCTION Head- ØFIUSh- □ Casing □ Locked Measurement □ Top of PVC Total Depth: §: 42.5 m Method: Date: Undertaken By: Vol. Removed: L Comments (e.g. sediment content): Date: Undertaken By: Vol. Removed: L PURGING DETAILS (measurement points in meters below top of casing as indicated above) Method: Undertaken By: Indertaken By: Depth to water: S (2, 2, m) Water Quality Meter used: Undertaken By: How Rate: L/min Purgointake: m Presence of DNAPL Thickness of NAPL: m Purgointake: PURGING MEASUREMENTS 2 Vol. Presence of DNAPL Thickness of NAPL: model (pertimp), (pol) Ph 00 %Sat D0 (pertimp), (pol) model (per | | | | | | | | | | | | |
| 2L | 6 min. | 870 | 19.7 | 565.87 | | | 2.5 | 0.23 | | -29:7- | | |
| 3(_ | 9min | 867 | 19.8 | 563.7 | 0 5.2 | 0 | 2.0 | 0.18 | | -32-7 | <u>-</u> | |
| 4L | 12 min. | 862 | 19.7 | 560.5 | 8 5.1 | 9 | 1.7 | 0-15 | | | | |
| 5-L | [5 min. | 860 | 19.7 | 559.0 | 2 5.1 | 9 | 1.5 | 0.1 | <u>4</u> | -42.8 | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Comments | (e.g. condition o | f headwork | s, sheen, co | lour, odour, s | ediment lo | oad): | I | | I | | | |
| Ŝł | rong Sul | fur od | lour, | clean | light | ł " | rellow | NO |) 50 | heen | | |
| | | | | | ,, | | J | ' | | | | |
| SAMPLING | DETAILS | | | | Samp | ole IE | D: | | | | | |
| Time: | | Vol. Remov | /ed: | | L No of | Sam | ple Containe | rs: \$ | | | | |
| Type of Sam | ple Containers (i.e | . P = Plastic/ | G = Glass/V = | Vial, volume a | nd p = pres | erve | d/up ≃ unpres | served): | | | | |
| Field Filtered | | Duplicate S | Samples 🛛 | Duplic | ate Sample | ID: | | | | | | |
| Comments | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | pH. T and EC I | | | of 3 to 5 tim | es the | e water columr | | ater colu | umn volumes | can be calcul | ated |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID - 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



| Client: | | | | | | | | BORE ID |): f | ORRN | INSI | |
|--|-----------------------|----------------|--------------------------|--------------------|--------|--------------------|-------------------|---------------|----------|--------------|-------------------------|----------|
| Project: | | | <u> </u> | | | | | Job No.: | <u> </u> | 213704 | { | |
| Location: | | | Casing | g diameter: | | | 50 mm | Date: | 24 | 4/10/19 | | - |
| BORE CONS | TRUCTION | | | | r | | | | r | | | |
| | IFlush- □ ount Mor | | □ Casing on ly | Locked | | easurement pint | t 🛛 Top Casing | of PVC | То | tal Depth: | 6.021 | m |
| BORE DEVE | LOPMENT | | | | | | | | | | | |
| Method: | | Da | te: | | | Undertaken | By: | \ | Vol. R | emoved: | | L |
| Comments (| e.g. sediment c | ontent): | | | | | | | | | | |
| PURGING DI | ETAILS (measu | rement poir | its in meters | below top of | fcas | sing as indi | cated above | e) | | | | |
| Method: Pa | in-pump | Water Q | uality Meter | used: y | 151 | Pro | | | Und | ertaken By: | EIN | 1 |
| Depth to wat | er: 3,413 m | Water C | olumn: | m | Re | eq Purge Vo | bi. 1: | L | Flow | v Rate: | ι | L/min |
| Presence of | | Presenc | e of DNAPL | | Th | nickness of | NAPL: | cm | Dep | th to NAPL | 1 | m |
| Pump intake | : n | 1 | | | | | | | | | | |
| PURGING M | EASUREMENT | S ² | | | | | | | | | | |
| Vol. Purged (L) | Elapsed Time (min) | EC (µS/cm) | Temp. (°C) | TDS (ppmjmg/L | .) | pН | DO %Sat | DO (ppm mg | /L) | Eh (mV) | Water Leve (m b TOC) | |
| (L) Time (min) (μS/cm) (ppn/mg/L) (ppn/mg/L) (n b FOC) AS 5667.11: 1998 (<+/-) | | | | | | | | | | | | |
| IL | 3 min | 271.5 | 18.8 | 176.4 | Î | 5.35 | 34 | 0.31 | | -133 | | |
| 2 L | 6 min. | 270.6 | 18-8 | 175.8 | S | 5.33 | 2.z | 0.21 | | -14.7 | | |
| 3L | 9 min. | 267.3 | 18.7 | 173.7 | 2_ | 5.33 | 1.9 | 0.18 | , | -20.7 | | |
| AL_ | 12min | 264, S | 18.7 | 172.0 | 8 | 5.33 | 1.7 | 0.16 | | ~23.5 | - | |
| | · · · · · | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Comments (| e.g. condition o | f headwork | s, sheen, col | our, odour, s | sedi | ment load): | | | | | | |
| Clea | r light | yellow | Sulf | m odu | w | , No 1 | sheen | lom | to | nøder | te sec | l.a |
| SAMPLING [| DETAILS | | | | | Sample II |): | | | | | <u> </u> |
| Time: | | Vol. Remov | ved: | | L | No of Sam | ple Containe | rs: 🔇 | | | | |
| Type of Samp | le Containers (i.e | . P = Plastic/ | G = Glass/V = | Vial, volume a | and p | o = preserve | d/up = unpres | served): | | | | - |
| Field Filtered | | Duplicate S | amples 🗆 | Duplic | ate | Sample ID: | | | | | | - |
| Comments: | | ····· | | | | | | | | | | |
| CoC Nun | iher: | | Cho | cked by: | | | | Date: | | | | |
| | e purged dry, until | nH T and EC (| | - | n of 3 | to 5 times the | water column | | ater co | lumn volumes | can be calcu | liated |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



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2

Groundwater Monitoring – Field Sheet

***** 1

| Client: | | | | | | | | BOREI |): f | <u>JORR N</u> | 1W 32 | | |
|--|--|-----------------|---------------------------------------|----------------|--------|--------------------|-------------------|-------------|---------|---------------|------------------|----|--|
| Project: | | | | | | | | Job No. | : (| 613704 | +{ | | |
| Location: | | | Casing | g diameter: | | | 50 mm | Date: | , e | 24/10/1 | 9 | | |
| BORE CONS | TRUCTION | | | | | | | | | | | | |
| | Flush- □ punt Mon | | □ Casing only | | | easurement oint | t □ Top Casing | of PVC | T | otal Depth: (| 5.038 | m | |
| BORE DEVEL | OPMENT | | | | | | | | | | | | |
| Method: | | Da | ite: | | | Undertaken | By: | N | Vol. F | Removed: | | L | |
| Comments (e | .g. sediment co | ontent): | | | | | | I | | | | | |
| | | | | | | | | | | | | | |
| PURGING DE | TAILS (measur | ement poir | nts in meters | below top of | f ca: | sing as indi | cated above | e) | | | | | |
| PURGING DETAILS (measurement points in meters below top of casing as indicated above) Method: feri-pump Water Quality Meter used: YSI ArO Undertaken By: EE/PY | | | | | | | | | | | | | |
| Depth to water: 2.185 m Water Column: m Req Purge Vol. 1: L Flow Rate: L/min | | | | | | | | | | | | | |
| Presence of L | Presence of LNAPL Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: m | | | | | | | | | | | | |
| Pump intake: m | | | | | | | | | | | | | |
| PURGING ME | ASUREMENTS | 2 | | | | | | | | | | | |
| Vol. Purged (L) Elapsed Time (min) EC (μS/cm) Temp. (°C) TDS (ppm mg/L) pH DO %Sat DO (ppm mg/L) Eh (mV) Water Level (m b TOC) | | | | | | | | | | | | | |
| AS 5667.11 | 1998 (<+/-) | 10% | 0.2°C | • | | 10% | 10% | 10% | | - | - | | |
| гL | 3 min | 438.5 | 18.3 | 284.49 | 8 | 5-58 | 3.9 | 0.36 | , | -11-1 | | | |
| 2 L | 6 min. | 370-1 | 18.7 | 239-7 | -8 | 5.58 | 2.8 | 0.26 | > | -15-8 | | | |
| 2 L | 9 min. | 313.9 | 18.7 | 202.9 | | 1 | 2-4 | 0.2 | 3 | - 15:3 | | | |
| ΨĹ | 12 min. | 297.5 | 18.8 | | | | 2.6 | 0-2 | 4 | -14-6 | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | · | | | | |
| Comments (e | .g. condition of | headwork | s, sheen, col | our, odour, s | edi | ment load): | ł. | | | ·I | | | |
| Clear | yellen, | Super | <u>rada</u> | IK, NO! | SI | ren, | , Low | Stel | | | | | |
| SAMPLING D | ETAILS | | | | | Sample ID |): | | | | | | |
| Time: | | | | | | | | | | | | | |
| Type of Sample | e Containers (i.e. | P = Plastic/ | G = Glass/V = | Vial, volume a | nd p |) = preserved | l/up ≕ unpres | Ų | | | | | |
| Field Filtered 🗹 Duplicate Samples 🗆 Duplicate Sample ID: | | | | | | | | | | | | | |
| Comments: | omments: | | | | | | | | | | | | |
| | | | · · · · · · · · · · · · · · · · · · · | | | | | | | | | | |
| CoC Num | ber: purged dry, until p | U T and CO | | cked by: | | 40 5 41 | | Date: | | | | | |
| Dores to be | բայցես այչ, այսոր | ייק ו מווט בע ו | caunys staulits | ου α πιοπούδια | . 01 3 | to a miles me | water column | volumes. Wa | itel CO | iunin voiumes | can be calculate | cu | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



| Client: | | | | | | | | BORE ID |): { | BORRI | MN46 | |
|--------------------|---------------------------------------|----------------|------------------|------------------|----------------|-------------|-------------------|---------------|---------|--------------|--------------------------|---------|
| Project: | · · | | | | | | | Job No.: | | <u>13704</u> | | |
| Location: | 1 | | Casing | diameter: | | | 50 mm | Date: | 24 | 10/19 | | |
| BORE CON | ISTRUCTION [®] | | | | | | | | | | | |
| | GIFlush- □ mount Mon | | □ Casing only | Locked | Measi Point | urement | t □ Top Casing | of PVC | То | tal Depth: | 5.984 | m |
| BORE DEV | ELOPMENT | | | | | | | | | | | |
| Method: | | Da | te: | | Und | lertaken | By: | \ | Vol. R | emoved: | | L |
| Comments | (e.g. sediment c | ontent): | | | | | | | | | | |
| | | | | | | | | | | | | |
| PURGING | DETAILS (measu | ement poir | ts in meters | below top of | f casing | j as indi | cated above | e) | | | | |
| Method: 4 | Peri-puon | 9 Water Q | uality Meter | used: U | <u>151 P</u> | 'ro | | | Und | ertaken By: | EP/PY | |
| Depth to wa | ater: <u>3.5-2.3</u> m | Water C | olumn: | m | Req P | Purge Vo | ol. 1: | L | Flow | v Rate: | Li | lmin |
| Presence o | of LNAPL | Presenc | e of DNAPL | | Thick | ness of | NAPL: | cm | Dept | th to NAPL: | : | m |
| Pump intak | | | | | | | | | | | | |
| | MEASUREMENTS | | | r | | | | | | | | |
| Vol. Purged (L) | Elapsed Time (min) | EC (μS/cm) | Temp. (°C) | TDS (ppm mg/L | .) | рН | DO %Sat | DO (ppm mg | /L) | Eh (mV) | Water Level (m b TOC) | |
| AS 5667. | .11: 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | - | • | |
| ۱L | 4min. | 467.9 | 20.2 | 304.58 | 5 | .51 | 5.4 | 0.4 | r | 61.2 | | |
| 26 | 8 min. | 5030 | 20.3 | 326.8 | 4 S | .55 | 38 | 0.3 | 5 | 59.3 | | |
| 36 | 12min | 524,0 | 20.2 | 341.7 | 75 | .55 | 3.2 | 0-2 | 9 | 59.7 | | |
| <u>A</u> L | 16 min. | 535.0 | 20.3 | 347.80 | 0 5. | 56 | 3.0 | 0.2 | 7- | 58.0 | | |
| | · · · · · · · · · · · · · · · · · · · | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Comments | e.g. condition o | f headwork | s, sheen, co | lour, odour, s | sedimer | nt load): | | | | | | |
| <u>(</u> Lei | ar Ligint | yellon | 1, NIO | d sed, | Ng | ocle | UK, N | she | en | | | 7. |
| SAMPLING | | ~ | | | S | ample IC |); | | ÷ | | | <u></u> |
| Time: | | Vol. Remov | /ed: | | | - | ple Container | s: 8 | | | | |
| Type of Sam | ple Containers (i.e | . P = Plastic/ | G = Glass/V = | Vial, volume a | and p = p | preserved | d/up = unpres | served): | | • | | |
| Field Filtered | d 🗹 | Duplicate S | amples 🗆 | Duplic | ate Sam | ıple ID: | | | | | | |
| Comments | ; | • | | | | | | | | | | |
| | | | | | | | | - | | | | |
| CoC Nu Bores to | ımber: be purged dry, until | nH T and EC | | cked by: | n of 3 to 4 | 5 times the | e water column | Date: | afer co | lumn volumes | can be calcula | ted |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



| Client: | | | · | | | | BORE II | D: (2 | toll-N | W37 | | |
|--|-------------------------------------|-------------|--------------------|----------------|---------------------|--------------------|----------|----------|-------------|----------|-----|--|
| Project: | | | | | | | Job No. | <u> </u> | 613704 | | | |
| Location: | | | Casing | g diameter: | | 50 mm | Date: | 2 | 3/10/19 | ้า | | |
| BORE CONS | TRUCTION | | | | | | | | | | | |
| i | PFlush- □ Iount Mon | | Casing Casing Only | | Measuremei Point | nt 🗆 Top Casing | o of PVC | To | otal Depth: | 11.555 | m | |
| BORE DEVE | LOPMENT | | | | | | | | | | | |
| Method: | | D | ate: | | Undertake | n By: | , | Vol. R | temoved: | | L | |
| Comments (| e.g. sediment c | ontent): | | | | | | | | | | |
| | | | | | | | | | | | | |
| PURGING DETAILS (measurement points in meters below top of casing as indicated above) | | | | | | | | | | | | |
| Method: Peri-pump Water Quality Meter used: YSI PVO Undertaken By: EE 199 | | | | | | | | | | | | |
| Depth to wat | er: 4.47fm | Water C | Column: | m | Req Purge V | /ol. 1: | L | Flov | v Rate: | U | min | |
| Presence of | | Presen | ce of DNAPL | | Thickness o | f NAPL: | cm | Dep | th to NAPL | • | m | |
| Pump intake | Pump intake: m | | | | | | | | | | | |
| PURGING ME | EASUREMENTS | S 2 | | | | | | | | | | |
| Vol. Purged (L) Elapsed Time (min) EC (μS/cm) Temp. (°C) TDS (ppm mg/L) pH DO %Sat DO (ppm mg/L) Eh (mV) Water Level (m b TOC) | | | | | | | | | | | | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | • | 10% | 10% | 10% | | - | - | | |
| IL | 3 min | 3602 | 20.1 | 2342.1 | 5 5.46 | 4.1 | 0.36 | | 42.7 | | | |
| 21 | Gmin. | 3581 | 20.0 | 2327.0 | 4 5.46 | 3-0 | 0.27 | - | 55-1 | | | |
| 3L | 9 min | 3567 | 20.0 | 2318.4 | 8 5.49 | 2.6 | 0.2 | S | 49.2 | | | |
| 4L | 12 min. | 3562 | 19.9 | 2315,19 | 1. 1. | 2.3 | 0.21 | | 44.Z | • | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | 4 - | - | | | | | | |
| | | | | | | | · | | | | | |
| Comments (e | e.g. condition o | f headwork | s, sheen, col | lour, odour, s | ediment load) |): | | | | | | |
| Clear | , slight | organ | ic odou | 11, 40 | sheen | low t | onos. | حط | • | | | |
| | | V | | · | , | | | | | | | |
| SAMPLING D | ETAILS | | | | Sample ! | D: | | | | | | |
| Time: Vol. Removed: L No of Sample Containers: Q | | | | | | | | | | | | |
| Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): | | | | | | | | | | | | |
| Field Filtered 🗹 Duplicate Samples 🗹 Duplicate Sample ID: FDO2 | | | | | | | | | | | | |
| Comments: | Comments: Internal lab QA/QC sample | | | | | | | | | | | |
| 0-0 No. | hor | | | | | | Dete | | | <u> </u> | | |
| CoC Num | Der: e purged dry, until (| NU T and EC | | cked by: | of 2 to 5 times th | | Date: | | | | | |

from the following casing volumes per unit length: 40 mm ID - 1 μ m; 50 mm ID - 2 μ m; 100 mm ID 8 μ m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



| Client: | | | | | | | | BORE II | D: E | OLR | MN | 39 | |
|--|-----------------------|-------------|---|----------------|------------|--------------------|-------------------|---------|--------|------------------|-----------|--|--|
| Project: | | | | | | | | Job No. | : 61 | 13704 | | | |
| Location: | | | Casing | g diameter: | | | 50 mm | Date: | 2 | 3/10/19 | | | |
| BORE CONS | | | | · · · <u>-</u> | r | | | | | | | | |
| • | VFlush- □ ount Mon | | Casing Casing | Locked | | easurement pint | t □ Top Casing | of PVC | То | ₋tal Depth: ا | ₹ 3.∓¢ | 13 ^m | |
| BORE DEVEL | LOPMENT | | | | | | | | | | | | |
| Method: | | Da | ate: | | ι | Jndertaken | ı By: | | Vol. R | emoved: | | L | |
| Comments (e | e.g. sediment c | ontent): | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| PURGING DETAILS (measurement points in meters below top of casing as indicated above) | | | | | | | | | | | | | |
| Method: fl | ni-pump | Water C | uality Meter | used: ყ | 51 | Pro | | | Und | ertaken By | : EE | fy | |
| Depth to wate | er: 7.452 m | Water C | olumn: | m | Re | q Purge Vo | ol. 1: | L | Flow | Rate: | | L/min | |
| Presence of I | | Presend | e of DNAPL | | Th | ickness of | NAPL: | cm | Dept | th to NAPL | : | m | |
| Pump intake: m PURGING MEASUREMENTS ² | | | | | | | | | | | | | |
| PURGING ME | ASUREMENTS | 2 | | | | | | | | | | | |
| Vol. Purged Elapsed EC Temp. (°C) TDS pH DO %Sat DO (ppm mg/L) PH DO %Sat DO (ppm mg/L) (m b TOC) | | | | | | | | | | | | | |
| (L) Time (min) (μS/cm) (ppm[mg/L) (ppm[mg/L) (m b TOC) AS 5667.11: 1998 (<+/-) | | | | | | | | | | | | | |
| ιL | 4min | 312-2 | 19.8 | 202.8 | 4 | 5.44 | 4.0 | 0.35 | 5 | 186.3 | 7. | | |
| 2 L | 8 min | 306.1 | 19.8 | 198.97 | $\dot{+}$ | 5-39 | 2.8 | 0.2 | 6 | 196.7 | ~7. | 452 | |
| 3L | 12 min | 298.1 | 19.8 | 193.60 | 5 | 5.37 | 2.6 | 0.24 | 4 | 202.8 | ~7. | 452 | |
| 4L | 16 min. | 295.0 | 20.2 | 191.75 | - | 5.36 | 2.7 | 0.2 | / | 206.4 | ~ ^ ^ | - - | |
| 5[| 20mm | 294.5 | 20.2 | 191.4 | 5 | 5-35 | 2-6 | 0.21 | 4 | 208.3 | \sim | <u>~ </u> | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | .g. condition o | | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | | | | | | | | | | |
| clardi | 1 white, | noo | doing v | ville | <u>1</u> 7 | , low | Sed | | | .,,, | | | |
| SAMPLING D | ETAILS | | | | | Sample ID |): | | | | | | |
| Time: Vol. Removed: L No of Sample Containers: 8 | | | | | | | | | | | | | |
| Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): | | | | | | | | | | | | | |
| Field Filtered | | Duplicate S | amples 🛛 | Duplica | ate S | ample ID: | | | | | | | |
| Comments: | Comments: | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| CoC Num | | | | cked by: | | to E times the | | Date: | | | | | |

Bores to be purged dry, until pH, T and EC readings stabilise or a minimum of 3 to 5 times the water column volumes. Water column from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures. olumn volumes. Water column volumes can be calculated

.



| Client: | | | | | | | | BORE I | D: 1 | ARMV | V05 | |
|---|---|---------------|------------------|-------------------|----------|--------------------|-------------------|--------------|---------|---------------|----------------|-----|
| Project: | | | | | | | | Job No. | : | <u>613701</u> | +{ | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | Ś | 28/10/1 | 9 | |
| BORE CONS | TRUCTION | | | | | | | | | . <u> </u> | | |
| | Flush- □ ount Mon | | □ Casing only | Locked | | easurement pint | t □ Top Casing | of PVC | T | otal Depth: | 4.886 | m |
| BORE DEVEL | LOPMENT | | | | | | | | | | | |
| Method: | | Da | ite: | | | Undertaken | By: | \ | Vol. F | Removed: | | L |
| Comments (e | e.g. sediment c | ontent): | | | | | | | | | | |
| | | | | | | | | | | | | |
| PURGING DETAILS (measurement points in meters below top of casing as indicated above) | | | | | | | | | | | | |
| Method: | Method: $f_{W} - f_{UMP}$ Water Quality Meter used: $Y_{S1} P_{VO}$ Undertaken By: $\mathbb{E}[DS]$ | | | | | | | | | | | |
| Depth to water: 2.23 m Water Column: m Req Purge Vol. 1: L Flow Rate: L/min | | | | | | | | | | | | |
| | Presence of LNAPL Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: m | | | | | | | | | | | |
| Pump intake: | Pump intake: m | | | | | | | | | | | |
| PURGING ME | EASUREMENTS | ; 2 | | | | | | | | | | |
| PURGING MEASUREMENTS 2 Vol. Purged (L) Elapsed Time (min) EC (μS/cm) Temp. (°C) TDS (ppm mg/L) pH DO %Sat (ppm mg/L) DO (ppm mg/L) Eh (mV) Water Level (m b TOC) | | | | | | | | | | | | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | - | - | |
| 16 | Brin | 23866 | 18.8 | 5476: | 77 | 5,77 | 9.2 | 0.77 | | ~~, | ~2.231 | ł |
| 22 | brin | 23776 | 18.7 | 5453. | 32 | 5.77 | 6.2 | 0.53 | | -8.8 | ~2.231 | 1 |
| 31 | 9 rin | 23758 | 188 | 5441. | 07 | 5.77 | 5.2 | 0.45 | > | -13.4 | ~2.23 | 51 |
| 46 | 12 min | 23746 | 18.7 | 5435. | 51 | 5.77 | 5.3 | 0.45 | Ś | -13.9 | ~2.23 | 31 |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | - | | | | · | | | | | | | |
| | | | | | | | | | | | | |
| Comments (e | e.g. condition o | f headwork | s, sheen, co | ı lour, odour, | sedi | ment load): |]. | | | 1 | I | |
| doud | ly, slig | intsu | lura | tour, | νç | sheen | , (on i | sed | | | | |
| SAMPLING D | ETAILS | | | | | Sample ID |): | | | | | |
| Time: Vol. Removed: L No of Sample Containers: Q | | | | | | | | | | | | |
| Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): | | | | | | | | | | | | |
| Field Filtered | Ø | Duplicate S | Samples 🗆 | Dupl | icate \$ | Sample ID: | | | | | | |
| Comments: | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| CoC Num | | | | cked by: | | | | Date: | | | | |
| Bores to be | e purged dry, until | pri, i and EC | readings stabili | se or a minimu | im ot 3 | o to the times the | ; water column | i volumes. W | ater co | Autor volumes | can be calcula | uea |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID - 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument -specific calibration book, or in field notes as required by local procedures.

2



| Client: | | | · · · · · · · · · · · · · · · · · · · | | | | · · · · · | BORE I |): BH19.2 | - |
|--------------------|-----------------------|-----------------|---------------------------------------|----------------|----------|--------------------|-------------------|---------------|-------------------|--------------------------|
| Project: | | | | | | | | Job No. | : 613701 | +1 |
| Location: | | | Casing | g diameter | : | | 50 mm | Date: | 19/11/19 | |
| BORE CONS | STRUCTION | | | | | | | | | |
| | Flush- 🛛 Nount Mor | | □ Casing only | | | easurement oint | t 🗆 Top Casing | of PVC | Total Depth | °8.855 " |
| BORE DEVE | LOPMENT | | | | | | | | | |
| Method: | | Da | ite: | | | Undertaken | By: | \ \ | Vol. Removed: | I |
| Comments (| e.g. sediment c | ontent): | | - | | | | | | |
| | | | | | | | | | | |
| PURGING D | ETAILS (measu | rement poir | nts in meters | below top | o of ca | sing as indi | cated above | e) | | |
| Method: fe | n-pump | Water Q | uality Meter | used: | 951 | pro. | | | Undertaken E | W: EE DS |
| | ter: 2. 773m | Water C | olumn: | r | | eq Purge Vo | ol. 1: | L | Flow Rate: | L/mir |
| Presence of | | Presenc | e of DNAPL | | TI | hickness of | NAPL: | cm | Depth to NAP | 'L: n' |
| Pump intake | : n | 1 | | | | | | | | |
| PURGING M | EASUREMENT | S 2 | | | | | | | | |
| Vol. Purged (L) | Elapsed Time (min) | EC (µS/cm) | Temp. (°C) | TDS (ppm m | | рH | DO %Sat | DO (ppm mg | Eh (mV) /L) | Water Level (m b TOC) |
| AS 5667.1 | 1: 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | - | - |
| 11_ | 3nin. | 8251 | 19.6 | 5364 | F | 4.06 | 8.3 | 0.60 | 211.8 | |
| 21 | 6min. | 8258 | 19.4 | 5367 | ┝ | 4.09 | .3.8 | 0.34 | 1 207.5 | 5 |
| 31 | 9 min | 87.58 | 19.3 | 536- | 7 | 4.10 | 3.2 | 0.20 | 7 207.0 | c |
| 46 | 12 ruin | 8259 | 19.3 | 5368 | | 4.10 | 3.0 | 0.27 | . 206. | 8 |
| | | | | | | | | | | |
| | | | | | | | | - | | |
| | · | - | | | | | | | | |
| Comments (| e.g. condition of | of headwork | s, sheen, co | our. odou | ır, sedi | ment load): | | | | <u> </u> |
| | , mod s | | •••• | | | | | | | |
| | , | | | | | | | | | |
| SAMPLING I | DETAILS | | | | | Sample IE |): | | | |
| Time: 11:0 | Ban | Vol. Remo | ved: | | L | No of Sam | ple Containe | rs: 8 | | |
| Type of Samp | le Containers (i.e | e. P = Plastic/ | G = Glass/V = | Vial, volum | ne and | p = preserved | d/up = unpres | served): | | |
| Field Filtered | | Duplicate \$ | Samples 🗆 | Duj | plicate | Sample ID: | | | | |
| Comments: | | | | | | | | | | |
| | | | | | | | | | | |
| CoC Nur | | nH T and EC | | cked by: | num of ' | 3 to 5 times the | water column | Date: | ater column volum | es can be calculated |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.

2

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| BORE DEVELOPMENT Method: Date: Undertaken By: Vol. Removed: L Comments (e.g. sediment content): L PURGING DETAILS (measurement points in meters below top of casing as indicated above) Method: Undertaken By: EE [DS Depth to water: 2.4% m Water Quality Meter used: 9 S 1 Pro Undertaken By: EE [DS Depth to water: 2.4% m Water Quality Meter used: 9 S 1 Pro Undertaken By: EE [DS Depth to water: 2.4% m Water Quality Meter used: 9 S 1 Pro Undertaken By: EE [DS Depth to water: 2.4% m Water Column: m Req Purge Vol. %: L Flow Rate: L/min PURGING MASUREMENTS > Thickness of NAPL: mode NAPL: method: m | Client: | | | | | | | | BORE II |): f | <u>+111.1</u> | | |
|--|----------------|---------------------|---------------|----------------|----------------|-------|--------------|--------------|----------|----------|-----------------------|----------|---------|
| BORE CONSTRUCTION Image: | Project: | | | | | | | | Job No. | : 61 | 37041 | | |
| Head- mount Diffush- mount □ Casing □ Locked Measurement Point □ Top of PVC Casing Total Depth: S.o.77 m BORE DEVELOPMENT Date: Undertaken By: Vol. Removed: L Comments (e.g. sediment content): Date: Undertaken By: Vol. Removed: L PURGING DETAILS (measurement points in meters below top of casing as indicated above) Undertaken By: EE [DS] Depth to water: 2.94 µm Water Column: m Req Purge Vol. 1: L How Rate: L/min Presence of DNAPL Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: m Purge Vol. 1: L How Rate: L/min PURGING MEASUREMENTS 2 Vol. Purged EE [DS] EE [DS] Do(free finit) (min 10% 0.2.0 110.8 6.50 15.8 1.33 (4.7) 2. 2 Gm:n: 1.70.4 20.0 110.9 6.50 15.8 1.33 (4.7) 2. 3 9 1.70.4 20.0 110.9 6.50 4.8 0.42 -50.8 . 4 1.70.4 | Location: | | | Casing | g diameter: | | | 50 mm | Date: | 191 | 11/19 | | |
| works mount Monument only Point Casing 5.071 BORE DEVELOPMENT Method: Date: Undertaken By: Vol. Removed: L Comments (e.g. sediment content): Date: Undertaken By: Vol. Removed: L PURGING DETAILS (measurement points in maters below top of casing as indicated above) Method: Undertaken By: CE [DS] Puth to water: 2.9(1, m) Water Column: m Req Purge Vol. 1: L Flow Rate: L/min Presence of LNAPL D Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: m PURGING MEASUREMENTS? Vol. Purged Elapsed CC 10% 10% 0.577 -38.9 2 Genin 1703 20.0 1103 6.50 15.8 1.33 (4, -7) 2 Genin 1704 20.0 1103 6.50 52 0.49 -90.8 3 9in 10.2 0.0 110.8 6.50 4.4 0.43 -50.8 | BORE CON | STRUCTION | | | | | | | | | | | |
| Method: Date: Undertaken By: Vol. Removed: L Comments (e.g. sediment content): L PURGING DETAILS (measurement points in meters below top of casing as indicated above) Undertaken By: EE [DS Depth to water: 2444 m Water Quality Meter used: 9 S I ℓ YO Undertaken By: EE [DS Depth to water: 2444 m Water Quality Meter used: 9 S I ℓ YO Undertaken By: EE [DS Depth to water: 2444 m Water Quality Meter used: 9 S I ℓ YO Undertaken By: EE [DS Depth to water: 2444 m Water Column: m Req Purge Vol. ½ L Flow Rate: L/min PURGING MASUREMENTS 2 Thickness of NAPL: cm D0 %Sat D0 Eh (mV) Water Level (m b TOC) 1 3 min 1704 202 110.8 650 15 ⁻ .8 1.33 14 ⁻ - 2 6 min 1708 200 110.8 650 48 043 -50.8 - 3 9 min 17 | | | | • | | | | | | То | | 77 | m |
| Comments (a.g. sediment content): PURGING DETAILS (measurement points in meters below top of casing as indicated above) Method: {?/>Purped Depth to water: 2. 44 U m Water Coulity Meter used: 451 f rD Undertaken By: EE DS Depth to water: 2. 44 U m Water Column: m Req Purge Vol. 1: L Presence of LNAPL Presence of DNAPL Thickness of NAPL: cm Dupititake: m PURGING MEASUREMENTS? Vol. Purged Elapsed (L) Time (min) (gs/cm) 1 3 min 2 6 min 2 6 min 3 1704 20.0 1108 4 12 min 4 12 min 4 12 min 4 10% 500.0 1108 6.50 5.2 9 10.8 4 12 min 100 108 2 6 min 2 6 min 3 9 min 100 10. | BORE DEV | ELOPMENT | | | | | | | | | | | |
| PURGING DETAILS (measurement points in meters below top of casing as indicated above) Method: Qm - Qump Water Quality Meter used: Y S I P ro Undertaken By: EE ISS Depth to water: 2.446 m Water Column: m Req Purge Vol. 1: L Flow Rate: L/min Presence of LNAPL Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: m Pump intake: m m Flow Rate: L/min Metro Column: m Req Purge Vol. 1: L Flow Rate: L/min PURGING MEASUREMENTS? m m metro: model flow Rate: L/min model flow Rate: L/min flow Rate: L/min flow Rate: L/min model flow Rate: L/min flow Rate: </td <td>Method:</td> <td>_</td> <td>Da</td> <td>ite:</td> <td></td> <td></td> <td>Undertaken</td> <td>By:</td> <td>١</td> <td>Vol. R</td> <td>emoved:</td> <td></td> <td>L</td> | Method: | _ | Da | ite: | | | Undertaken | By: | ١ | Vol. R | emoved: | | L |
| Method: ℓ/m - pump Water Quality Meter used: y ≤ 1 ℓ/0 Undertaken By: EE DS Depth to water: 2.49 µ m Water Column: m Req Purge Vol. 1: L Flow Rate: L/min Presence of LNAPL Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: m Pump Intake: m Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: m PURGING MEASUREMENTS * Vol. Purged Elapsed EC Temp. (*C) TDS pH D0 %Sat DD0 Eh (*V) Water Level (m b TOC) AS 5687.11: 1998 (*/+) 10% 0.2*C 10% 10% 10% 10% . . 1 3 min 1704 20.2 110.8 6.50 15.8 1.33 14.7 . 2 6 min 1708 20.0 110.8 6.50 5.2 0.440 . . . 4 12 min 1704 20.0 110.8 6.50 4.8 0.42.3 -50.8 | Comments | (e.g. sediment c | ontent): | | | | | | | , | | | |
| Method: ℓ/third = μump Water Quality Meter used: y ≤ 1 μro Undertaken By: EE DS Depth to water: 2.49 μm Water Column: m Req Purge Vol. 1: L Flow Rate: L/min Presence of LNAPL □ Presence of DNAPL □ Thickness of NAPL: cm Depth to NAPL: m Pump Intake: m m Elapsed EC Temp. (*C) TDS pH D0 %Sat D0 Eh (*V) Water Level (m b TOC) AS 5667.11: 1998 (*/+) 10% 0.2*C 10% 10% 10% 10% . . 1 3 min 1704 20.2 110.8 6.50 15.8 1.33 14.7 . 2 6 min 1708 20.0 110.8 6.50 5.2 0.46 49.1 . 4 12 min 1704 20.0 110.8 6.50 5.2 0.46 -49.1 . 4 12 min 1704 20.0 110.8 6.50 4.8 0.42.3 -50.8 . 3 9 | | | | | | | | | | | | | |
| Depth to water: 2.94 \mbox{G} Water Column: m Req Purge Vol. 1: L Flow Rate: L/min Presence of LNAPL Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: m Pump Intake: m Thickness of NAPL: cm Depth to NAPL: m PURGING MEASUREMENTS 2 Vol. Purged Elapsed EC Temp. (*C) TDS pH D0 %Sat DO Eh (mV) Water Level (m b TOC) AS 5667.11: 1998 (*H) 10% 0.2*C 10% 10 | PURGING D |)ETAILS (measu | ement poi | nts in meters | below top o | f ca | sing as indi | icated abov | e) | | | | |
| Presence of LNAPL Presence of DNAPL Thickness of NAPL: Cm Depth to NAPL: m PUmp intake: m | Method: | en-pump | Water C | uality Meter | used: | yS | 1 Pro | | | Und | ertaken By | : EE 1 | 25 |
| Pump intake: m PURGING MEASUREMENTS ? Vol. Purged (L) Elapsed Time (min) EC (µS/cm) Temp. (°C) TDS (ppm/ing/L) pH D0 %Sat D0 (ppm/ing/L) Eh (mV) Water Level (m b TOC) AS 5687.41: 1998 (<+/td> 10% 0.2 °C 10% 10% 10% 10% | Depth to wa | ater: 2-946 m | Water C | olumn: | m | Re | eq Purge Vo | ol. 1: | L | Flow | Rate: | | L/min |
| PURGING MEASUREMENTS ? Vol. Purged (L) Elapsed Time (min) EC (µS/cm) Temp. (°C) TDS (ppm/mg/L) pH DO %Sat DO (ppm/mg/L) Eh (mV) Water Level (m b TOC) AS 5667.11: 1998 (~H) 10% 0.2 °C 10% 10% 10% 10% | Presence o | f LNAPL | Present | e of DNAPL | | Th | ickness of | NAPL: | cm | Dep | th to NAPL | : | m |
| Vot. Purged (L) Elapsed Time (min) EC (µS/cm) Temp. (°C) TDS (ppm/mg/L) pH D0 %Sat D0 (ppm/mg/L) Eh (mV) Water Level (m b TOC) A8 5667.11: 1998 (~/·) 10% 0.2 °C 10% 10% 10% . . 1 3 min 1704 20.2 1108 6.50 157.8 (1.33 (4.7) . 2 6 min 1708 20.0 1100 6.44 6.4 0.57 -38.9 . 3 9 min 1704 20.0 1109 6.50 5.2 0.46 -49.1 . 4 12 min 1704 20.0 1108 6.50 4.8 0.43 -50.8 . 4 12 min 1704 20.0 110.8 6.50 4.8 0.43 -50.8 . 4 12 min 1704 20.0 110.8 5.62 </td <td>Pump intak</td> <td>ie: m</td> <td></td> | Pump intak | ie: m | | | | | | | | | | | |
| Image: Non-State (I) Time (min) (µS(cm)) (µpm/mg/L) (µpm/mg/L) (µpm/mg/L) (m b TOC) AS 5667.11: 1998 (%+) 10% 0.2 °C 10% | PURGING N | EASUREMENTS | 2 | | | | | | | | | | |
| 1 3 min 1704 20.2 1108 6.50 15.8 1.33 14.7 2 6 min 1708 20.0 1100 6.49 6.4 0.57 -38.9 3 9 min 1706 20.0 1109 6.50 5.2 0.46 -49.1 4 12 min 1704 20.0 1109 6.50 4.8 0.43 -50.8 4 12 min 1704 20.0 1108 6.50 4.8 0.43 -50.8 4 12 min 1704 20.0 1108 6.50 4.8 0.43 -50.8 4 12 min 1704 20.0 1108 6.50 4.8 0.43 -50.8 4 12 min 1704 20.0 1108 6.50 4.8 0.43 -50.8 4 12 min 1704 20.0 1108 6.50 4.8 0.43 -50.8 Comments (e.g. condition of headworks, sheen, colour, odour, sediment load): c)eart.shown, nod. sed SAMPLING | | | | Temp. (°C) | | -) | рH | DO %Sat | | /L) | Eh (mV) | | |
| 2 6 min 1708 20.0 1110 6.49 6.4 0.57 -38.9 3 9 min 1706 20.0 1109 6.50 5.2 0.46 -49.1 4 12 min 1704 20.0 1108 6.50 4.8 0.43 -50.8 4 12 min 1704 20.0 1108 6.50 4.8 0.43 -50.8 4 12 min 1704 20.0 1108 6.50 4.8 0.43 -50.8 4 12 min 1704 20.0 1108 6.50 4.8 0.43 -50.8 4 12 min 1704 20.0 1108 6.50 4.8 0.43 -50.8 4 12 min 1704 20.0 1108 6.50 4.8 0.43 -50.8 4 12 min 1704 20.0 1108 6.50 4.8 0.43 -50.8 5 2 10.8 10.8 10.8 10.8 10.8 10.8 10.8 10.8 Sample ID: | AS 5667. | 11: 1998 (<+/-) | 10% | 0.2°C | | | 10% | 10% | 10% | | - | •. | |
| 2 $Gmin 1100 20.0 1100 6.50 5.2 0.46 -49.1 3 9 min 1704 20.0 1108 6.50 5.2 0.46 -49.1 4 12 min 1704 20.0 1108 6.50 4.8 0.43 -50.8 4 12 min 1704 20.0 1108 6.50 4.8 0.43 -50.8 4 12 min 1704 20.0 1108 6.50 4.8 0.43 -50.8 4 12 min 104 108 6.50 4.8 0.43 -50.8 5 100 108 108 108 108 108 6 100 108 108 108 108 108 10 100 100 100 100 100 100 100 100 $ | Į | 3 min | 1704 | 20.2 | 1108 | | 6.50 | 15.8 | 1.33 | | { 4 . 7 | | |
| 4 12 min 1704 20.0 1108 6.50 4.8 0.43 - 50.8 4 12 min 1704 20.0 1108 6.50 4.8 0.43 - 50.8 4 12 min 1704 20.0 1108 6.50 4.8 0.43 - 50.8 4 12 min 1704 20.0 1108 6.50 4.8 0.43 - 50.8 5 1 1 1 1 1 1 1 1 6 1 1 1 1 1 1 1 1 Comments (e.g. condition of headworks, sheen, colour, odour, sediment load): c)ear-brown, no cdour, no cdour, no sheen, mod.sed | 2 | 6 min | 1708 | 20.0 | 1110 | | 6.49 | 6.4 | 0.5 |) | - 38 .9 | | |
| Image: State of the state | 3 | 9 min | 1706 | 20.0 | 1109 | | 6.50 | 5.2 | 0.46 | , | - 49.1 | | ٠ |
| sheen, mod.sed SAMPLING DETAILS Time: 9: 20a Vol. Removed: L No of Sample Containers: Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): Field Filtered Duplicate Samples Duplicate Samples Duplicate Sample ID: Comments: Duplicate Sample ID: | 4 | 12min | 1704 | 20.0 | 1108 | | 6.50 | 4.8 | 0.42 | þ | - 50.8 | <u>.</u> | |
| sheen, mod.sed SAMPLING DETAILS Time: 9: 20a Vol. Removed: L No of Sample Containers: Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): Field Filtered Duplicate Samples Duplicate Samples Duplicate Sample ID: Comments: Duplicate Sample ID: | | | | | | | | | | | | | |
| sheen, mod.sed SAMPLING DETAILS Time: 9: 20a Vol. Removed: L No of Sample Containers: Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): Field Filtered Duplicate Samples Duplicate Samples Duplicate Sample ID: Comments: Duplicate Sample ID: | | | | | | | | | | | | | |
| sheen, mod.sed SAMPLING DETAILS Time: 9: 20a Vol. Removed: L No of Sample Containers: Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): Field Filtered Duplicate Samples Duplicate Samples Duplicate Sample ID: Comments: Duplicate Sample ID: | · | | | | | | | | | | | | |
| sheen, mod.sed SAMPLING DETAILS Time: 9: 20a Vol. Removed: L No of Sample Containers: Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): Field Filtered Duplicate Samples Duplicate Samples Duplicate Sample ID: Comments: Duplicate Sample ID: | | | | | | | | | | | | | |
| SAMPLING DETAILS Sample ID: Time: Q: 2Dan Vol. Removed: L No of Sample Containers: 1 additional Laborange Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): bothe Field Filtered Image: Duplicate Samples Duplicate Sample ID: Comments: Image: Duplicate Sample ID: | Comments | (e.g. condition o | f headwork | s, sheen, co | lour, odour, s | sedi | ment load): | دا | ear.b. | | <u> </u> | , 0907 | <u></u> |
| Time: Q: 2Dan Vol. Removed: L No of Sample Containers: X Additional Lab Orange Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): bothe Field Filtered Image Duplicate Samples Duplicate Sample ID: Comments: Image Image Image | | | | no she | en, no | 0 d | . sea | | | | | | |
| Time: Q: 2Dan Vol. Removed: L No of Sample Containers: X Additional Lab Orange Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): bothe Field Filtered Image Duplicate Samples Duplicate Sample ID: Comments: Image Image Image | | | | | | | | | | | | | |
| Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): Image: Im | SAMPLING | DETAILS | | | | | Sample i | D: | | | | | _ |
| Field Filtered Duplicate Samples Duplicate Sample ID: Comments: | | - | | | | | | - | | ł | addito | nal la | 5 12 |
| Comments: | Type of Sam | ple Containers (i.e | . P = Plastic | /G = Glass/V = | Vial, volume a | and j | o = preserve | d/up = unpre | served): | | | Tool | |
| | Field Filtered | i 🖸 | Duplicate | Samples 🗆 | Duplic | cate | Sample ID: | | | | | | |
| CoC Number: Date: | Comments | | | | I | | | | | | | | |
| CoC Number: Checked by: Date: | | | | | | | | | ······ | | | | |
| Bores to be purged dry, until pH, T and EC readings stabilise or a minimum of 3 to 5 times the water column volumes. Water column volumes can be calculated | | | | | cked by: | | | | Date: | | | | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.

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Groundwater Monitoring – Field Sheet

| Client: | | | | | | . . | | BORE II | D: (| RH32. | 1 | |
|---|---|--------------|-------------------|-----------------|--------|--------------------|---------------------------|----------------|-----------|---------------|---|-----|
| Project: | | | | | | | | Job No. | : 6 | 137041 | | |
| Location: | | | Casing | g diameter: | | | 50 mm | Date: | 18 | 11/19 | | |
| BORE CONS | TRUCTION | | | | | | | | | | | |
| • • | Flush- □ ount Mon | | □ Casing only | Locked | | easurement pint | t □ Top Casing | of PVC | T | otal Depth: | 9.995 | m |
| BORE DEVE | LOPMENT | | | | | | | | | | | |
| Method: | | Da | ate: | | l | Undertaken | By: | , | Vol. F | Removed: | | L |
| Comments (| e.g. sediment c | ontent): | | | | | | | | | | |
| | ******* | | ***** | | | | | | | | | |
| PURGING DE | ETAILS (measu | rement poi | nts in meters | below top of | fcas | sing as indi | icated above |) } | | | | |
| Method: Pen-pump Water Quality Meter used: YSI Pro Undertaken By: EF DS | | | | | | | | | | | | |
| | er: <1.(25 m | | Column: | m | Re | q Purge Vo | 5I. ¹ : | L | | w Rate: | | min |
| Presence of | LNAPL | Presend | e of DNAPL | D | Th | ickness of | NAPL: | cm | Dep | oth to NAPL | : | m |
| Pump intake | : m | 1 | | | | | | | | | | |
| PURGING MI | EASUREMENT | 5 2 | | | | | | | • • • • • | • • | 11 - 1945-19 | |
| Vol. Purged (L)Elapsed Time (min)EC (μS/cm)Temp. (°C)TDS (ppm mg/L)pHDO %SatDO (ppm mg/L)Eh (mV)Water Level (m b TOC) | | | | | | | | | | | | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | • | • | |
| 12 | 3nin | 6610 | 20.6 | 4333 | | 4.14 | 16.2 | 1.4 | 0 | 120.8 | | |
| 26 | 6nin | 6913 | 20.1 | 4494 | | 4.14 | 6.60 | 0.G | • | 132.9 | | |
| 31 | 9 nin | 6901 | 20.1 | 4487 | | 4.13 | 4.90 | 0.42 | | 143.7 | | |
| 46 | 12 min | 6765 | 20.1 | 4392 | | 4.14 | 5.80 | 0.34 | - | 160.2 | | |
| SL | 15nin | 6702 | 20.1 | 4345 | | 4.16 | 3.60 | 0.32 | | 162.5 | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Comments (e | e.g. condition o | f headwork | s, sheen, col | lour, odour, s | edir | ment load): | <u> </u> | | | <u> </u> | | |
| cl ear | , meds | ed, M | etaui | odour |) | noshe | ln. | | | | | |
| SAMPLING D | ETAILS | | | | | Sample ID |): | | | · | | |
| Time: | | Vol. Remo | ved: | | L | - | ple Container | s: 8 | | | | |
| Type of Samp | Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): | | | | | | | | | | | |
| Field Filtered | | Duplicate S | Samples 🗆 | Duplic | ate S | Sample ID: | | | | | | |
| Comments: | <u> </u> | | | I | | | | | | · · · · | · • • • · · · · · · · · · · · · · · · · | |
| | | | | | | | | | | | | |
| CoC Num | | | | cked by: | | | ÷ | Date: | | | | |
| Bores to be | e purged dry, until | pH, T and EC | readings stabilis | se or a minimum | i of 3 | to 5 times the | e water column | volumes. Wa | ater co | olumn volumes | can be calculat | ed |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



| Client: | MRI | | | | | | | BORE ID | : BORL | MW04 |
|--------------------|------------------------------------|---------------|------------------|------------------|--------|--------------------|--------------------|----------------|--------------------|--------------------------|
| Project: | EW. | + 5W 2 | Samplin | 9 | | | | Job No.: | 61370 | 541 |
| Location: | | | | diameter: | | | 50 mm | Date: | 20/11/19 | |
| BORE CON | STRUCTION | | | | _ | | | | | |
| | Na Flush- □ nount Mor | | □ Casing only | | | easurement pint | t 🗆 Top Casing | of PVC | Total Depth: | m 5.209. |
| BORE DEVI | ELOPMENT | | | | | | | | | |
| Method: | | Da | ite: | | | Undertaken | By: | V | ol. Removed: | L |
| Comments | (e.g. sediment c | ontent): | | | | | | | | |
| | | | | | | | | | | |
| PURGING D | ETAILS (measu | rement poi | nts in meters | below top o | fca | sing as indi | cated above | e) | | |
| Method: | 2en-pum | y Water C | uality Meter | used: Y | 51 | Pro | | | Undertaken By | : EE/OS |
| | iter: 4.165m | 1 | olumn: | m | Re | eq Purge Vo | bl. 1: | L | Flow Rate: | L/min |
| Presence of | | Presend | e of DNAPL | | Tł | nickness of | NAPL: | cm | Depth to NAPL | : m |
| Pump intak | e: n | 1 | | | | | | | | |
| PURGING N | EASUREMENT | S 2 | | | | | | | | |
| Vol. Purged (L) | Elapsed Time (min) | EC (µS/cm) | Temp. (°C) | TDS (ppm¦mg/l | _) | pН | DO %Sat | DO (ppm mg/ | Eh (mV) L) | Water Level (m b TOC) |
| AS 5667.1 | 1: 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | • | • |
| ١ | 3min | 4337 | 18.4 | 2823 | | 6.81 | 13.8 | 1.21 | -38.5 | n 4.17 |
| 2 | 6min | 4354 | 18.4 | 2831 | | 6.67 | 6.8 | 0.60 | -36.1 | ~ 4.17 |
| 3 | 9 min | 4355 | 18.7 | 2831 | | 6.61 | 4.5 | 0.41 | - 33.5 | ~4.17 |
| 4 | 12 min | 4361 | 18.8 | 2835 | u | 6.59 | 4./ | 0.37 | -32.5 | ~4.17 |
| 5 | 15min | 4360 | 18.8 | 2834 | | 6.59 | 3.9 | 0.35 | -32.0 | ~ 4.17 |
| | | | | | | | - | | | |
| | | | | | | | | | | |
| Comments | (e.g. condition c | f headwork | s, sheen, col | lour, odour, : | sedi | ment load): | L | | | |
| dou | dy yell | ον, γ | o odo | nr, ne | 5] | len, | 10~1 | Umoc | d sed. | |
| SAMPLING | | • | | | | Sample ID |). | | | <u></u> |
| 1 | | Vol. Remov | | | L | | , ple Container | s: X | | |
| (10 | λη <u>.</u> ble Containers (i.e | | | Vial, volume a | | | | <u> </u> | | |
| Field Filtered | <u>e</u> | Duplicate S | Samples 🗀 | Duplic | ate \$ | Sample ID: | | | | |
| Comments: | | | • — — | | | | | | | · |
| | | | | | | | | | | |
| CoC Nu | | | | cked by: | | | | Date: | | |
| Bores to | be purged dry, until | pH, T and EC | readings stabili | se or a minimur | n of 3 | 3 to 5 times the | water column | volumes. Wa | ter column volumes | s can be calculated |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



| Client: | | | | | | | | BORE II |): f | BORR | NNOS | | |
|---|---|--------------|--------------------|-----------------|--------|--------------------|-------------------|------------|----------|--------------|------------------|----|--|
| Project: | · == . | | | | | | | Job No. | | 13704 | 1 | | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | 20 | 11 19 | | | |
| BORE CONS | TRUCTION | | | | | | | | | | | | |
| | Flush- □ ount Mon | | □ Casing I only | | | easurement pint | t □ Top Casing | of PVC | To | tal Depth: (| 8.00 | m | |
| BORE DEVEL | OPMENT | | | | | | | | | | | | |
| Method: | | Da | ite: | | | Undertaken | By: | , I | Vol. Re | emoved: | | L | |
| Comments (e | .g. sediment co | ontent): | | | | | | | | | | | |
| | PURCING DETAILS (measurement points in maters below top of casing as indicated above) | | | | | | | | | | | | |
| PURGING DETAILS (measurement points in meters below top of casing as indicated above) | | | | | | | | | | | | | |
| Method: Pripump Water Quality Meter used: 151 Pro Undertaken By: EE 15 | | | | | | | | | | | | | |
| Depth to water: 5.689 m Water Column: m Req Purge Vol. 1: L Flow Rate: L/min | | | | | | | | | | | | | |
| Presence of I | Presence of LNAPL Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: m | | | | | | | | | | | | |
| Pump intake: | Pump intake: m | | | | | | | | | | | | |
| PURGING ME | ASUREMENTS | 2 | | | | | | | | | | | |
| PURGING MEASUREMENTS 2 Vol. Purged (L) Elapsed Time (min) EC (μS/cm) Temp. (°C) TDS (ppm mg/L) pH DO %Sat (ppm[mg/L) DO (ppm[mg/L) Eh (mV) Water Level (m b TOC) | | | | | | | | | | | | | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | • | - | | |
| 1L | Brin | 1367 | 20.5 | 887 | | 6.58 | 5.7 | 0.5 | ١ | -694 | 1 | | |
| 22 | 6 ruin | 1338 | 20.4 | 870 | | 6.51 | 4.2 | 0.3 | 7 | -33.4 | | | |
| 3L | 9 nin | 1321 | 20.4 | 858 | | 6.48 | 3.5 | 0.32 | - | -76.5 | | | |
| 4L | 12 min | 1211 | 20.4 | 851 | | 6.46 | 3.3 | 0.30 | > | -76.2 | | | |
| | | | | | | ··· | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | - | | | | | | | |
| | | | | | | | | | | | | | |
| Comments (e | e.g. condition o | f headwork | s, sheen, col | our, odour, s | edi | ment load): | | | | | | | |
| Clear | yellow | , nec | odour, | (000 | S-C | ed, r | 20 sh | een, | L | | | | |
| SAMPLING D | ETAILS | | | | | Sample I |); | | | | | | |
| Time: | | Vol. Remov | ved: | | L | No of Sam | ple Container | rs: 🙎 | | | * 0 | | |
| Type of Sampl | Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): | | | | | | | | | | | | |
| Field Filtered | <u>م</u> | Duplicate \$ | Samples 🗆 | Duplic | ate \$ | Sample ID: | | | | | | | |
| Comments: | 1 | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| CoC Num | | | | cked by: | | | | Date: | | | | | |
| Bores to be | e purged dry, until | H. T and EC | readings stabilis | se or a minimun | n of 3 | to 5 times the | e water column | volumes. W | ater col | umn volumes | can be calculate | eđ | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



| Client: | | | | | | | | BORE II |): (| FORR " | NWOG | |
|--|--------------------------------|---------------|------------------|-------------------|------------|---------------------|-------------------|---------------|-------------|--------------|--------------------------|----------|
| Project: | | | | | | | | Job No. | : | 613701 | Н | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | 2 | 0/11/19 | | |
| BORE CONS | TRUCTION | | | | | | | | | | | |
| | YFlush- □ ount Mon | | □ Casing only | | | easurement oint | t 🗆 Top Casing | of PVC | T | otal Depth: | 7.855 | m |
| BORE DEVE | LOPMENT | | | | | | | | | | | |
| Method: | | Da | ite: | | | Undertaken | By: | \ \ | Vol. F | Removed: | | L |
| Comments (| e.g. sediment co | ontent): | | | | | | | | | | |
| | | | | | | | | | | | | |
| PURGING DE | ETAILS (measur | ement poi | nts in meters | below top o | of ca | sing as indi | cated above | 2) | | | | |
| Method: $ ho_4$ | M-pump | Water C | uality Meter | used: | 45 | 1 Pro | | | Մոգ | lertaken By | : EE/DS | |
| Depth to wat | er: 5.315 m | Water C | olumn: | m | R | eq Purge Vo | ol. 1: | L | Flo | w Rate: | L/n | nin |
| Presence of | | Present | e of DNAPL | | Tł | n ickness of | NAPL: | cm | Dep | th to NAPL | | m |
| Pump intake | : m | | | | | | | | | | | |
| PURGING MI | EASUREMENTS | 2 | | | | | | | | | | |
| Vol. Purged (L) | Elapsed Time (min) | EC (µS/cm) | Temp. (°C) | TD\$ (ppm[mg/i | L) | рН | DO %Sat | DO (ppm mg | /L) | Eh (mV) | Water Level (m b TOC) | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | - | • | |
| 1L | 3min | 1012 | 20.5 | 657 | ~ | 6.75 | 7.2 | 0.6 | 2 | -83.4 | | |
| 26 | bmin | 985 | 20.4 | 639 | | 6.73 | 4.0 | 0.3 | 6 | -87.2 | | |
| 31 | 9 nin | 943 | 20.1 | 612 | | 6.68 | 3,5 | 0.32 | 2 | -85.5 | | |
| 46 | 12 ruin | 921 | 20.0 | 597 | | 6.64 | 3.3 | 0.3C |) | -82.6 | | <u> </u> |
| 51 | 15 min | 882 | 20.1 | 571 | | 6.59 | 3.3 | 0.30 | > | -78.6 | | |
| | | | | | | | | | | | | |
| Commente (| | i baadwarl | a abaan aa | our odour | o o di | mont lond) | | | | | | |
| | e.g. condition of | | | | ••••• | | | | | _ 1 | | |
| Claud | y brown | , nc | 6don, | - <u>^</u> | <u>مار</u> | een, | 10~ T |) MOO | <u></u> | ed - | | |
| SAMPLING D | ETAILS | | | | | Sample ID |): | | | | | |
| Time: Vol. Removed: L No of Sample Containers: S | | | | | | | | | | | | |
| Type of Samp | ie Containers (i.e. | P = Plastic | G = Glass/V = | Vial, volume | and | p = preserved | d/up = unpres | erved): | | | | |
| Field Filtered | | Duplicate | Samples 🛛 | Dupli | cate | Sample ID: | | | | | | |
| Comments: | | | | | | | | | | | | |
| | | | 1 | | | | | | | | | |
| CoC Nurr | tber: e purged dry, until (| H T and EC | | cked by: | m of 3 | 3 to 5 times the | e water column | Date: | ater co | uumn volumes | can be calculate | d |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID - 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



| Client: Mr | RNA | | | | | | | BORE I |): f | ORF MV | VOBA | |
|--|--------------------------------|---------------|---------------|-----------------------------|-----------|-------------------|-------------------|---------------|---------|--------------|--------------------------|----------------|
| | och an | ands | jw. | | | | | Job No. | | 137041 | | |
| Location: | | | | g diameter: | | | 50 mm | Date: | 21 | 11/12 | | |
| BORE CONS | TRUCTION | | | | | | | | | | | |
| 1 | Flush- □ ount Mon | | Casing Conly | Locked | | easurement int | t □ Top Casing | of PVC | To | otal Depth: | 5-84- | ի տ |
| BORE DEVE | LOPMENT | | | | | | | | | | | |
| Method: | | Da | ate: | | ι | Jndertaken | By: | \ \ | Vol. R | temoved: | | L |
| Comments (e | e.g. sediment c | ontent): | | | | | | | | | | |
| | | | | | | | | | | | | |
| PURGING DE | ETAILS (measu | rement poi | nts in meters | below top of | f cas | ing as indi | cated above | e) | | | | |
| Method: Pe | vi-pump | Water C | uality Meter | used: Y | 516 | Pro. | | | Und | lertaken By | : EE /10 | 3 |
| | er: 3 <u>0</u> 88 m | | olumn: | m | Re | q Purge Vo | 5i . 1: | L | Flow | w Rate: | L | ./min |
| Presence of | | Presend | e of DNAPL | | Th | ickness of | NAPL: | cm | Dep | th to NAPL | : | m |
| Pump intake | : m | | | | | | | | | | | |
| PURGING ME | EASUREMENTS | 2 | | 1 | | | ······ | | | 1 | Γ | |
| Vol. Purged (L) | Elapsed Time (min) | EC (µS/cm) | Temp. (°C) | TDS (ppm mg/L | .) | рН | DO %Sat | DO (ppm mg | /L) | Eh (mV) | Water Level (m b TOC) | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | - | - | |
| 1L | Brin | 68 <u>8</u> | 18.6 | 444 | | 6.0B | 6.8 | 0.63 | | -40.9 | | |
| ZL | 6 min | 642 | 18.7 | 417 |] | ğ.B | 6 .96 | 0+46 | | -45.5 | | |
| zi | 9 nin | 634 | 18-7 | 412 | | 5.99 | 4·0 | 0.37 | - | -48.4 | | |
| μL | 12 min | 630 | 18.8 | 409 | \square | 5.77 | 3.4 | 0.32 | | -53-7 | | |
| SL | 15min | 621 | 16.7 | 403 | | 5.75 | 3.1 | 0.2° | 1 | - 56:7 | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Comments (e | e.g. condition o | fheadwork | s, sheen, col | lour, odour, s | sedir | nent load): | | | | | | |
| dou | ay yello | in, si | Ufur a | xair, | <u> </u> | o Shee | ln, lou | \sim to | \sim | od Seo | £ . | |
| SAMPLING D | ETAILS | | | | | Sample ID |): | | | | | |
| Time: Vol. Removed: L No of Sample Containers: 8 | | | | | | | | | | | | |
| Type of Sampl | e Containers (i.e. | . P = Plastic | G = Glass/V = | Vial, volume a | ind p | = preserved | d/up = unpres | erved): | | | | |
| Field Filtered | Ø | Duplicate | Samples 🗆 | Duplic | ate S | ample ID: | | | | | | |
| Comments: | | | | | | | | | | | | |
| | | | | | | | | 1 . | | | | |
| CoC Num Bores to be | iber: e purged dry, until j | pH. T and EC | | cked by: se or a minimum | 1 of 3 | to 5 times the | e water column | Date: | ater co | lumn volumes | can be calcula | ited |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID - 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



| Client: Ma | en Me | (NA | | | | | | BORE | | BORRN | | |
|---|---|----------------|--------------------|----------------|---------------|-----------------|-------------------|---------|--------|--------------|--------------|-------|
| | <u>BORL GNI</u> | and | | | <u>.</u> | | | Job No. | : 6 | s137041 | | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | 21 | 11/19 | | |
| BORE CONS | TRUCTION | | | | | | | | | | | |
| | Flush- □ ount Mon | | □ Casing I only | Locked | Mea Poir | asurement nt | t 🗆 Top Casing | of PVC | To | otal Depth: | 5.476 | m |
| BORE DEVEL | OPMENT | | | | | | | | | | | |
| Method: | | Da | ite: | | ບ | ndertaken | By: | N | Vol. R | lemoved: | | L |
| Comments (e | e.g. sediment c | ontent): | | | | | | | | | | |
| | | | | | | | | | | | • | |
| PURGING DETAILS (measurement points in meters below top of casing as indicated above) | | | | | | | | | | | | |
| Method: ρ_{ℓ} | n-pump | Water Q | uality Meter | used: (| 9. § 1 | Pro | | | Und | lertaken By: | EEI | 10 |
| | er: 3, 423m | | olumn: | m | Req | Purge Vo | ol. 1: | L | Flov | w Rate: | | L/min |
| Presence of l | | Presenc | e of DNAPL | | Thic | ckness of | NAPL: | cm | Dep | th to NAPL: | | m |
| Pump intake: | : m | 1 | | | | | | | | | | |
| PURGING ME | ASUREMENTS | 3 ² | | | | | | | | | | |
| Vol. Purged (L)Elapsed Time (min)EC (μS/cm)Temp. (°C)TDS (ppm mg/L)pHDO %SatDO (ppm mg/L)Eh (mV)Water Level (m b TOC) | | | | | | | | | | | | |
| (L) Time (min) (μS/cm) (ppm mg/L) (ppm mg/L) (m b TOC) AS 5667.11: 1998 (<+/-) | | | | | | | | | | | | |
| 1L | Brin | 246.8 | 19.0 | 160 | | 6.09 | 33.8 | 3.15 | | 30.6 | | |
| 2L | 6 min | 213.3 | 19.0 | 139 | | 6.02 | 42.8 | 400 | C | 39.0 | | |
| 31 | 9 min | | 19.0 | 136 | • | 5.93 | 38.3 | 3.5B | , | 47.1 | | |
| 41 | 12nin | 213.4 | 19.0 | 139 | | 5.92 | 38.4 | 3.59 | | 51.6 | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | - | -+ | | | | | | | |
| Commonte la | a condition - | f boodurari- | c choor col | our oderre - | | المما احم | | | | | | |
| | e.g. condition o | | | | | | | | | | | |
| <u>Olear</u> | neod | <u>our,</u> 1 | reshe | <u>en, lo</u> | <u></u> | 10 no | SCA. | | | | | |
| SAMPLING D | ETAILS | | | | | Sample ID |): | | | | | |
| Time: | | Vol. Remov | /ed: | | L | No of Sam | ple Container | rs: 8 | | | | |
| Type of Sample | e Containers (i.e | . P = Plastic/ | G = Glass/V = | Vial, volume a | and p = | = preserved | d/up = unpres | erved): | | | | |
| Field Filtered | Field Filtered 🗹 Duplicate Samples 🗆 Duplicate Sample ID: | | | | | | | | | | | |
| Comments: | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| CoC Num | ber: purged dry, until | nU T and CC | | cked by: | | o 5 times the | | Date: | | lumn volumee | osa ba oslov | Jatad |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



| Client: M | RWA | | | | | | | BORE II | · · · · | borr 1 | | |
|---|---|--------------|--------------------|-----------------|--------|--------------------|---|---------------|---------|---------------------------------------|---------------|--------|
| Project: | ORR GN | and | SN M | anitori | ng | | | Job No.: | : | 61370 | 11 | |
| Location: | | | Casing | ı diameter: | J | | 50 mm | Date: | Э | 1 119 | | |
| BORE CONS | TRUCTION | | | | | | | | | , | | |
| | IFlush- □ ount Mon | | □ Casing I only | | | easurement vint | t D Top Casing | of PVC | Тс | otal Depth: | 4.082 | - - |
| BORE DEVE | LOPMENT | | | | | | | | | | | |
| Method: | | Da | te: | | l | Jndertaken | By: | ۱. | Vol. R | emoved: | | L |
| Comments (e | e.g. sediment c | ontent): | | | | | | • | | | | |
| | | | | | | | *************************************** | | | | | |
| PURGING DETAILS (measurement points in meters below top of casing as indicated above) | | | | | | | | | | | | |
| Method: PM - PMm P Water Quality Meter used: YSI PM Undertaken By: EE 10 | | | | | | | | | | | | |
| Depth to wat | er: 1.740 m | Water C | olumn: | m | Re | q Purge Vo | ol. 1: | L | Flov | v Rate: | 1 | ./min |
| Presence of | | Presenc | e of DNAPL | | Th | ickness of | NAPL: | cm | Dep | th to NAPL | : | m |
| Pump intake: | : m | 1 | | | | | | | | | | |
| PURGING MEASUREMENTS ² | | | | | | | | | | | | |
| Vol. Purged (L)Elapsed Time (min)EC (μS/cm)Temp. (°C)TDS (ppm mg/L)pHDO %SatDO (ppm]mg/L)Eh (mV)Water Level (m b TOC) | | | | | | | | | | | | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | • | | 10% | 10% | 10% | | | - | |
| 11 | Brin | 489.7 | 18.5 | 318 | | 5.70 | 6.5 | 0,59 | ì | 37.8 | | |
| 2L · | 6 nin | 439.5 | 18.4 | 286 | | 5.69 | 3.4 | 0.31 | | 25.1 | | |
| 3L | 9 nin | 432.0 | 18.4 | 281 | | 5.68 | 2.8 | 0.27 | | 18.4 | | |
| 46 | 12 nin | 489.1 | 18.7 | 285 | | 5.68 | 2.6 | 0.25 | | 16.0 | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | - | | | | | | | | |
| Comments (e | e.g. condition o | f headwork | s, sheen, col | our, odour, s | sedir | nent load): | <u> </u> | | | · · · · · · · · · · · · · · · · · · · | | |
| Clear | , nod | our, | ve she | en, lo | \sim | tom | od see | <u>,</u> l., | | | | |
| | | | | | | | | | | | | |
| SAMPLING D | ETAILS | | | | | Sample IE |): | | | | | |
| Time: | | Vol. Remov | ved: | | L | No of Sam | ple Containe | rs: 8 | | | | |
| Type of Sampl | Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): | | | | | | | | | | | |
| Field Filtered | Field Filtered Duplicate Samples D Duplicate Sample ID: | | | | | | | | | | | |
| Comments: | omments: | | | | | | | | | | | |
| | | | | | | | | | | | | |
| CoC Num | | | | cked by: | | | | Date: | | | | 4. 1 |
| Bores to be | e purged dry, until | pH, T and EC | readings stabilis | se or a minimun | n of 3 | to 5 times the | e water column | i volumes. Wa | ater co | iumn volumes | can be calcul | atêd |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



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Groundwater Monitoring – Field Sheet

| Client: | | | | | | | | BOREII | | BORRI | | |
|--|----------------------|----------------|------------------|-----------------|--------|--------------------------------|-------------------|---------------|---------|-------------|------------------|-------|
| Project: | | | | | | | | Job No. | | 137041 | · | |
| Location: | | | Casing | j diameter: | | | 50 mm | Date: | 2 | 0/11/19 | | |
| BORE CONS | TRUCTION | | | | | | | | _, | | | |
| | Flush- □ ount Mon | | □ Casing only | | | easuremen [.] bint | t □ Top Casing | of PVC | To | otal Depth: | 3.971 | m |
| BORE DEVEL | LOPMENT | | | | | | | | | | | |
| Method: | | Da | nte: | | 1 | Undertaken | ı By: | , | Vol. R | Removed: | | L |
| Comments (e | e.g. sediment c | ontent): | | | | | | | | | | |
| | | | | | | | | | | | | |
| PURGING DETAILS (measurement points in meters below top of casing as indicated above) | | | | | | | | | | | | |
| Method: ρ | in-pump | Water Q | uality Meter | used: U | IS1 | Pro | | | Und | lertaken By | : EE)D | 5 |
| Depth to wate | er: 1.462 m | Water C | olumn: | m | Re | eq Purge Vo | ol. 1: | L | Flov | w Rate: | Ĺ | min |
| Presence of I | | Presenc | e of DNAPL | | Th | ickness of | NAPL: | cm | Dep | th to NAPL | : | m |
| Pump intake: | : m | 1 | | | | | | | | | | |
| PURGING ME | EASUREMENTS | 5 ² | | · | | | | | | | | |
| Vol. Purged (L) Elapsed Time (min) EC (µS/cm) Temp. (°C) TDS (ppm mg/L) pH DO %Sat DO (ppm mg/L) Eh (mV) Water Level (m b TOC) | | | | | | | | | | | | |
| (L) Time (min) (μS/cm) (ppm mg/L) (ppm mg/L) (m b TOC) AS 5667.11: 1998 (<+/-) | | | | | | | | | | | | |
| 1L | 3nin | 20658 | 18.7 | 13452 | | 6.79 | 12.6 | 1.05 | | 59.1 | | |
| 22 | 6 min | - | 18.6 | 13573 | | 6.87 | 7.9 | 06 | 8 | 51.9 | | |
| 36 | 9 min | 20913 | 18.8 | 13595 | | 6.90 | 7.3 | 0.63 | 2 | 56.7 | | |
| 4L | 12 rin | 20925 | 18.9 | 13601 | | 6.91 | 7.1 | 0.61 | | 60.1 | | |
| | _ | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Comments (e | .g. condition o | f headwork | s, sheen, col | lour, odour, s | edi | ment load): | <u> </u> | | | F | · | |
| clear | orang | e-bior | vn, n | o od cu | r | , no S | Leen | , <u>~</u> ec | d.S | jed. | | ••••• |
| SAMPLING D | ETAILS | <u></u> | | | | Sample II |): | | | • | | |
| Time: | | Vol. Remov | ved: | | ٢ | No of Sam | ple Containe | rs: 8 | | | | |
| Type of Sample | e Containers (i.e | . P = Plastic/ | G = Glass/V = | Vial, volume a | nd p |) = preserve | d/up = unpres | | | | | |
| Field Filtered 🖬 Duplicate Samples 🗆 Duplicate Sample ID: | | | | | | | | | | | | |
| Comments: | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| CoC Num | | | | cked by: | | _ | | Date: | | | | |
| Bores to be | e purged dry, until | pH, T and EC : | readings stabili | se or a minimun | 1 of 3 | 8 to 5 times the | e water column | volumes. W | ater co | umn volumes | ; can be calcula | ted |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



a.

| Client: | | | | | | | | | | ORR M | | |
|--|----------------------|---------------|--------------------|----------------|----------|--------------------|-------------------|------------|---------|---|-----------------|----------|
| Project: | | | | | | | | Job No. | | 137041 | | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | 20 | 10 19 | - | |
| BORE CONS | TRUCTION | | - | | | | | | | | | |
| | Flush- 🗆 ount Mon | | Casing Casing Only | Locked | | easurement bint | t 🗇 Top Casing | of PVC | To | otal Depth: 2 | 4.42 | m |
| BORE DEVE | LOPMENT | | | | | | | | | | | |
| Method: | | Da | ate: | | 1 | Undertaken | By: | 1 | Vol. R | emoved: | | L |
| Comments (e | e.g. sediment c | ontent): | | | | | | · | | | | |
| | | | | | | | | | | | | |
| PURGING DETAILS (measurement points in meters below top of casing as indicated above) | | | | | | | | | | | | |
| Method: | n-pump | Water G | Quality Meter | used: V | 151 | Pro | | | Und | lertaken By: | EE/DS | |
| Depth to wat | er: 1 730 m | Water C | Column: | m | Re | eq Purge Vo | ol. 1: | L | Flov | v Rate: | U | min |
| Presence of | LNAPL | Presen | ce of DNAPL | | Th | ickness of | NAPL: | cm | Dep | th to NAPL: | | m |
| Pump intake: m | | | | | | | | | | | | |
| PURGING ME | EASUREMENTS | 3 2 | | | | | | | | | | |
| Vol. Purged (L) Elapsed Time (min) EC (μS/cm) Temp. (°C) TDS (ppm mg/L) pH DO %Sat DO (ppm mg/L) Eh (mV) Water Level (m b TOC) | | | | | | | | | | | | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | • | • | |
| 11 | Brin | 659 | 18.8 | 427 | | 6.41 | 3.6 | 0.33 | Ś | -28.8 | | |
| 2L | 6 rin | | 18.8 | 394 | | 6.29 | 3.1 | 0.28 | 3 | -21.9 | | |
| 31 | 9 min | 589 | 18.8 | 382 | | 6.23 | 2.9 | 0.2 | 7 | -17.7 | | |
| 41 | 12 nuin | 583 | 18.8 | 379 | | 6.21 | 2.8 | 0.26 | , | -16.2 | | |
| | | | | | | | | | | | | |
| | | | | | | | e | | | | | <u> </u> |
| | | | | | | | | | . • | | | |
| | | | | | | | | | | | | |
| Comments (e | e.g. condition o | f headworl | ks, sheen, co | lour, odour, s | sedi | ment load): | | | | | | |
| Clear | , n <u>e odo</u> | ur n | osheen | | <u>D</u> | 1000- | tone | sed. | | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | | |
| SAMPLING E | DETAILS | | | | | Sample i |): | <u>.</u> | | | | |
| Time: Vol. Removed: L No of Sample Containers: 8 | | | | | | | | | | | | |
| Type of Samp | le Containers (i.e | . P = Plastic | /G = Glass/V = | Vial, volume a | ind p |) = preserve | d/up = unpres | served): | | | | |
| Field Filtered | | Duplicate | Samples 🗆 | Duplic | ate \$ | Sample ID: | | | | | | |
| Comments: | | <u> </u> | | | | | | | | | | |
| | | | | | | | | | | | | |
| CoC Num | | | | cked by: | | | | Date: | | | | |
| | e purged dry, until | | | | | | | volumes. W | ater co | lumn volumes | can be calculat | ed |

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from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



| Client: | | | | | | | | BORE II |): f | JORR N | INB | |
|--|----------------------|----------------|-------------------|--------------------|----------|-------------------|-------------------|--------------|---------|---------------|-----------------|-----|
| Project: | | | | | | | | Job No. | : 0 | 137041 | | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | | | | |
| BORE CONS | TRUCTION | | | | | | | | | | | |
| | Flush- □ ount Mon | | Casing I only | Locked | | easuremen bint | t □ Top Casing | of PVC | То | otal Depth: | 4.372 | m |
| BORE DEVE | LOPMENT | | | | | | | | | | | |
| Method: | | Da | ite: | | 1 | Undertaker | ו By: | , | Vol. R | Removed: | | L |
| Comments (e | e.g. sediment c | ontent): | | | | | | | | | | |
| | | | | | | | | | | | | |
| PURGING DE | ETAILS (measu | rement poi | nts in meters | below top o | fcas | sing as ind | icated abov | e) | | | | |
| Method: Pen | n-Dump | Water G | uality Meter | used: V | S | Pro. | | | Und | lertaken By | : EE (DS | > |
| | er: 0.815 m | Water C | olumn: | m | | eq Purge Vo | ol. 1: | L | Flo | w Rate: | Ľ | min |
| Presence of | | Presence | e of DNAPL | | Th | ickness of | NAPL: | cm | Dep | th to NAPL | : | m |
| Pump intake | : m | 1 | | | | | | | | | | |
| PURGING MEASUREMENTS ² | | | | | | | | | | | | |
| Vol. Purged (L) Elapsed Time (min) EC (μS/cm) Temp. (°C) TDS (ppm mg/L) pH DO %Sat DO (ppm mg/L) Eh (mV) Water Level (m b TOC) | | | | | | | | | | | | |
| AS 5667.11 | 1: 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | - | - | |
| 16 | Brin | 739 | 19.2 | 486 | | 6.13 | 2.8 | 0.29 | - | 2S.I | | |
| 22 | 6nin | 753 | 19.1 | 490 | | 6.12 | 2.4 | 0.23 | | 26.2 | | |
| | | 756 | (9.1 | 491 | | 6 B | 2.2 | 0.20 | > | 15.8 | | |
| | | | | | _ | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | · · · | | |
| | | | | | | | | | | | | |
| Comments (e | e.g. condition o | f headwork | s, sheen, col | l our, odour, s | sedi | ment load) | !]. : | | | <u> </u> | | |
| Clear | lught ye | LON, | noshe | en. 10 | <u>w</u> | sel, | ng Ode | iur | | | | |
| SAMPLING D | DETAILS | | | | | Sample II | D: | | | | | |
| Time: Vol. Removed: L No of Sample Containers: 8 | | | | | | | | | | | | |
| Type of Samp | le Containers (i.e | . P = Plastic/ | 'G = Glass/V = | Vial, volume a | and p |) = preserve | d/up = unpre: | <u> </u> | | | | |
| Field Filtered | ы М | Duplicate | Samples 🗆 | Duplic | ate s | Sample ID: | | | | | | |
| Comments: | | | | | | | | | | | <u> </u> | |
| | | | | | ******* | | | ,, | | | | |
| CoC Num | | | | cked by: | | | | Date: | | | | |
| Bores to b | e purged dry, until | pH. T and EC | readings stabilis | se or a minimur | n of 3 | to 5 times th | e water columr | n volumes. W | ater co | aiumn volumes | can be calculat | ed |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID - 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument -specific calibration book, or in field notes as required by local procedures.





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Groundwater Monitoring – Field Sheet

| Client: | | | | | | | | BORE II |): (| BORR | MNIS | | |
|--|-------------------------------|----------------|--------------------|-----------------------------|----------|--------------------|-------------------|---------------------|-------------|--------------|--------------------|-----|--|
| Project: | | | | | | | | Job No. | : 6 | 137041 | <u>.</u> | | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | 19 | 11/19 | | | |
| BORE CONS | TRUCTION | | | | | | | | | | | | |
| | Flush- 🗆 iount Mon | | ⊐ Casing I only | □ Locked | | easurement pint | t ⊡ Top Casing | of PVC | To | otal Depth: | 3.739 . | m | |
| BORE DEVE | LOPMENT | | | | | | | | | | | | |
| Method: | | Da | te: | | 1 | Undertaken | By: | 1 | Vol. R | lemoved: | | L | |
| Comments (| e.g. sediment c | ontent): | | ***** | | | | | | | | | |
| | | | | | | | | | | <u> </u> | | | |
| PURGING DE | ETAILS (measu | ement poir | nts in meters | below top of | fcas | sing as indi | cated above | e) | | | | | |
| Method: fe | m-pump | Water Q | uality Meter | used: y | S١ | Pro. | | | Und | lertaken By | : et (D) | 5 | |
| Depth to wat | ter: 1.4 5 1 m | Water C | olumn: | m | Re | eq Purge Vo | d. 1: | L | ۶lo | w Rate: | L/r | nin | |
| Presence of | | Presenc | e of DNAPL | | Tł | nickness of | NAPL: | cm | Dep | th to NAPL | | m | |
| Pump intake | : m | | | | | | | | | | | | |
| PURGING MI | EASUREMENTS | 2 | | | | | | | | | | | |
| Vol. Purged (L) Elapsed Time (min) EC (μS/cm) Temp. (°C) TDS (ppm mg/L) pH DO %Sat DO (ppm mg/L) Eh (mV) Water Level (m b TOC) | | | | | | | | | | | | | |
| (L) Πιμε (μs/cm) (μs/cm) | | | | | | | | | | | | | |
| 12 | Znin | 8.015 | 20.5 | 137 | | 5.67 | 8.8 | 0.7 | 1 | 17.8 | | | |
| 22 | brin | 205.9 | 20.2 | 134 | | 5.61 | 4.7 | 0.46 |) | 9.4 | | | |
| 3L | 9 min | Roberty | JA . | Party | | | | | | | | | |
| | | 2044 | 20.2 | 133 | | 5.60 | 4.2 | 0.3 | 6 | 5.1 | | | |
| 42 | 12 ruin | 202.7 | 20.1 | 132 | | 5.59 | 3.7 | 0.3 | 3 | 1.2 | | | |
| 5L | 15 min | 202.3 | 20.1 | (3) | | 5.59 | 3.5 | 0.32 | | -1.5 | | | |
| | | | | ÷ | | | | | | | | | |
| | | | | | | | | | | | | | |
| | e.g. condition o | | | | | | | | | | | | |
| Clear | orange | , <i>mo</i> a | t tonj | gh sce | <u>ト</u> | mite | ddy o | donr | -, <u>·</u> | v shee | M, | | |
| SAMPLING [| DETAILS | | | | _ | Sample II |): | | | | | | |
| Time: 2 · | SOPM. | Vol. Remo | ved: | | L | No of Sam | ple Container | s: 8 | | | | | |
| Type of Samp | le Containers (i.e | . P = Plastic/ | G = Glass/V = | Vial, volume a | ind j | p = preserved | d/up = unpres | erved): | | _ | | | |
| Field Filtered | | Duplicate S | Samples 🗆 | Duplic | ate | Sample ID: | | | | | | | |
| Comments: | | | | | | | | | | | - | | |
| | - | | | | | | | 1 - | | | | | |
| CoC Nun Bores to b | nber: De purged dry, until | oH. T and EC | | cked by: se or a minimun | n of 3 | 3 to 5 times the | e water column | Date: volumes. W | ater co | lumn volumes | s can be calculate | ed | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



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Groundwater Monitoring – Field Sheet

| Client: | | | | | | | | BOREI |): B | ORRMI | NIB | |
|--------------------|-------------------------|---|-----------------|----------------|-------------|---------------------|-------------------|---------------|---------|--------------|--------------------------|------|
| Project: | | | | | | | | Job No. | : 61 | 37041 | | |
| Location: | ···· | | Casin | g diameter: | | | 50 mm | Date: | 181 | 11/19 | | |
| BORE CON | ISTRUCTION | | | | | | | | | | | |
| | ⊡∕Flush- □ mount Mor | | Casing Casing | | | leasuremen Point | t □ Top Casing | of PVC | To | otal Depth: | 3.948 | m |
| BORE DEV | ELOPMENT | | | | | | | | | | | |
| Method: | | Da | ate: | | | Undertaker | n By: | <u>\</u> | Vol. R | emoved: | | L |
| Comments | (e.g. sediment c | ontent): | | | | | | | | | | |
| | | | | | | | | | | | | |
| PURGING I | DETAILS (measu | rement poi | nts in meters | s below top | ofca | asing as ind | icated abov | e) | | | | |
| Method: 🕯 | Pen-pump | Water C | uality Meter | used: y | <u>SI</u> | Pro. | | | Und | ertaken By | EEID | 2 |
| | ater: 825 m | Water C | olumn: | m | R | leq Purge Vo | ol. 1: | L | Flov | v Rate: | L | lmin |
| Presence of | of LNAPL | Presend | e of DNAPL | | Т | hickness of | NAPL: | cm | Dep | th to NAPL | | m |
| Pump intal | ke: n | | | | | | | | | | | |
| PURGING | MEASUREMENT | 2 ² | | | | | ,, | | | | | |
| Vol. Purged (L) | l Elapsed Time (min) | EC (µS/cm) | Temp. (°C) | TDS (ppm mg | j/L) | рН | DO %Sat | DO (ppm mg | /L) | Eh (mV) | Water Level (m b TOC) | |
| AS 5667. | .11: 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | - | - | |
| 16 | 3nin | | 20.0 | 208 | | | 52.7 | 4.70 | | 92.9 | | |
| コレ | 6 nin | 316.6 | 1 0.0 | 206 | | 4.44 | 52.5 | 4.78 | | 95.2 | | |
| BL. | 9 min | 316.6 | 20.0 | 206 | | 4.44 | 51.6 | 4.68 | , | 97.1 | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | <u> </u> | | | | |
| | (e.g. condition o | | | | | | | | | 1 | I | |
| | r, 10m | | | | | | | | | | | |
| <u> </u> | <u>, i Or N</u> | <u>, , , , , , , , , , , , , , , , , , , </u> | | ллх г | <i>,</i> 00 | Souch | <u></u> | ***** | | | | |
| SAMPLING | DETAILS | | | | | Sample II |): | | | | | |
| Time: | | Vol. Remo | ved: | | L | | ple Containe | rs: 8 | | - | | |
| Type of Sarr | ple Containers (i.e | . P = Plastic/ | 'G = Glass/V = | · Vial, volume | e and | p = preserve | d/up = unpres | | | | | |
| Field Filtere | d 🗹 | Duplicate ! | Samples 🗆 | Dup | licate | Sample ID: | | | | | | |
| Comments | ~ — | | | 1 244 | | | | | | | | |
| | | ***** | | | | | | | | | | |
| CoC Ni | ımber: | | Che | ecked by: | | | | Date: | | | | |
| Bores to | be purged dry, until | nH T and FC | readings stabil | ise or a minim | um of | 3 to 5 times the | e water colum | volumes. W | ater co | lumn volumes | s can be calcula | ted |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures. 2



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Groundwater Monitoring – Field Sheet

| Client: | | | | | | | BORE II | D: BORR M | W19 |
|--------------------|-----------------------|------------------|------------------|------------------|---------------------|---------------------|---------------|---------------|--------------------------|
| Project: | | | | | | | Job No. | | |
| Location: | - | | Casing | diameter: | | 50 mm | Date: | 18/11/19 | ··· ·· |
| BORE CONS | TRUCTION | | | | | | | | |
| | Flush- □ Iount Mor | | □ Casing only | | Measuremen Point | t □ Top Casing | of PVC | Total Depth: | 2.541 |
| BORE DEVE | LOPMENT | | | | | | | | |
| Method: | | Da | ite: | | Undertaker | n By: | | Vol. Removed: | |
| Comments (| e.g. sediment c | ontent): | | | | | | | |
| PURGING DI | ETAILS (measu | rement poi | nts in meters | below top of | casing as ind | icated abov | e) | | |
| Method: ρ_e | rí-pump | Water C | uality Meter | used: y | SI Pro. | | | Undertaken By | : EE IDS |
| | ter: 1.395 m | | olumn: | m | Req Purge V | ol. 1: | L | Flow Rate: | L/mi |
| Presence of | | Presenc | e of DNAPL | | Thickness of | NAPL: | cm | Depth to NAPL | : r |
| Pump intake | : n | n | | | | | | | |
| PURGING M | EASUREMENT | S 2 | | 1 | | | | | |
| Vol. Purged (L) | Elapsed Time (min) | EC (µS/cm) | Temp. (°C) | TDS {ppm mg/L |) pH | DO %Sat | DO (ppm mg | I/L) | Water Level (m b TOC) |
| AS 5667.1 | 1: 1998 (<+/-) | 10% | 0.2°C | - | 10% | 10% | 10% | • | - |
| 11 | Snin | 14210 | 22.2 | 9226 | 6.57 | 6.0 | 0.50 | 9.2 | |
| 26 | 6 min | 13732 | 22.5 | 8884 | 6.63 | 4.9 | 0.41 | -36.6 | |
| 36 | 9 min | 712842 | 22.8 | 8310 | 6.66 | 4.8 | 0.40 |) -80.7 | |
| 4L | 12min | 12343 | 22.7 | 7990 | 6.69 | 4.8 | 0.40 | -98.7 | |
| | | | | | | | | | |
| _ | | | | | | | | | |
| | | | | | | | | | |
| Comments (| e.g. condition of |) of headwork | s, sheen, co | lour, odour, s | ediment load) | : | | <u> </u> | |
| doue | en light | bow | n, no | Sheen | , low | to mo | d sed | 2, Sulpro | adour |
| | | <u></u> | | | | | | | |
| SAMPLING I | | Vol. Remo | ved: | | Sample I | D: Iple Containe | re. 0 | | |
| | le Containers (i.e | | | Vial, volume a | | • | 0 | | |
| Field Filtered | দ্র | Duplicate | Samples 🗹 | Duplic | ate Sample ID: | FDO | | <i>يا</i> | |
| Comments: | | • <u> </u> | | | | | , <u></u> | | |
| 0+0 N | , . | | <u></u> | akad hu | | | Dofo | | |
| CoC Nur | | | readings stabili | cked by: | | | Date: | | |



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Groundwater Monitoring – Field Sheet

| Module Monument Only Decodering Decodering <th< th=""><th>Client:</th><th></th><th></th><th></th><th>····<u></u></th><th></th><th></th><th></th><th>BORE II</th><th>D: {</th><th>ZORRI</th><th>MV196</th><th></th></th<> | Client: | | | | ···· <u></u> | | | | BORE II | D: { | ZORRI | MV196 | |
|---|----------------|---------------------|---------------|---------------|----------------|-------|--------------|-------------|----------|--------|-------------|-----------|-----|
| BORE CONSTRUCTION Head- mount Image: Casing only Locked only Measurement casing only Total Depth: 12,001 Total Depth: 12,001 Total Depth: 12,001 Notal Depth: 12,001 <th< td=""><td>Project:</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>Job No.</td><td>: 6</td><td>137041</td><td></td><td></td></th<> | Project: | | | | | | | | Job No. | : 6 | 137041 | | |
| Head- works Image: Temp only Image: Casing only Image: Casing only Image: Casing only Total Depth: 12.001 Total Depth: 12.001 Image: Casing only BORE DEVELOPMENT Method: Date: Undertaken By: Vol. Removed: Image: Casing only Vol. Removed: Image: Casing only </td <td>Location:</td> <td></td> <td></td> <td>Casing</td> <td>diameter:</td> <td></td> <td></td> <td>50 mm</td> <td>Date:</td> <td>18</td> <td>5/11/19</td> <td></td> <td></td> | Location: | | | Casing | diameter: | | | 50 mm | Date: | 18 | 5/11/19 | | |
| works mount Monument only Point Casing 12.031 BORE DEVELOPMENT Method: Date: Undertaken By: Vol. Removed: I Comments (e.g. sediment content): Date: Undertaken By: Vol. Removed: I PURGING DETAILS (measurement points in meters below top of casing as indicated above) Method: £0/- £1/000 Undertaken By: Æ[OS Puth to water: 1.1/2 m Water Quality Meter used: (JS.1 Pro) Undertaken By: Æ[OS Depth to water: 1.1/2 m Water Column: m Req Purge Vol. 1: L Flow Rate: Umbrit Presence of LNAPL Presence of DNAPL I Thickness of NAPL: cm Depth to NAPL: n PURGING MEASUREMENTS * Völ. Purged Elapsed (Les/cm) Temp. (*C) TDS pH D0 %Sat DO (In fm/Y) Water Level (L) 5.0 | BORE CONS | STRUCTION | | | | | | | | | | | |
| Method: Date: Undertaken By: Vol. Removed: I Comments (e.g. sediment content): | | • | | Ŷ | | | | | | То | otal Depth: | 12.001 | m |
| Comments (e.g. sediment content): PURGING DETAILS (measurement points in meters below top of casing as indicated above) Method: Point Plump Water Quality Meter used: US1 Pro Undertaken By: EE(DS) Depth to water: 1.146 m Presence of LNAPL Presence of DNAPL Thickness of NAPL: cm Pump Intake: m PURGING MEASUREMENTS ² Völ, Purged Elapsed Liptic (L) Time (min) (L) Time (min) (L) Statistic 11 Samin 2355 21.0 14 Samin 2355 21.0 1517 S.74 2.1 6 min 2.1.2 1504 5.75 3.2 9 min 2355 21.0 1517 5.74 3.5 9 min 2375 2.1.0 1473 9 min 2375 12 17 13 2.1.2 14 12.2 | BORE DEVE | | | | | | | | | | | | |
| PURGING DETAIL S (measurement points in meters below top of casing as indicated above) Method: $PU'_{1} = PU'_{1} = $ | Method: | | Da | ite: | | | Undertaken | By: | 1 | Vol. R | lemoved: | | L |
| Method: P(m) - p() mp Water Quality Meter used: YS1 Pro Undertaken By: EE(D) Depth to water: 1.1146 m Water Column: m Req Purge Vol. 1: L Flow Rate: L/min Presence of LNAPL Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: m Pump Intake: m m Presence of DNAPL m PURGING MEASUREMENTS ² Do %Sat Do monomality Eh (mV) Water Level (m b TOC) As 5657.11: 1998 (evi) 10% 0.2*C 10% 10% 0.37 -72.7 2L 6 runin 2358 21.3 (532 5.76 4:3 0.37 -72.7 2L 6 runin 2358 21.0 IS17 5.74 3.5 0.21 -78.3 3L 9 runin 2314 21.2 ISO# 5.75 3.2 0.28 -83.9 4L 12 runin 2298 21.0 1493 5.75 2.4 0.21 -86.4 Comments (e.g. condition of headworks | Comments (| (e.g. sediment c | ontent): | | | | | | | ł | | | |
| Method: PCN - PUMP Water Quality Meter used: YS1 Pro Undertaken By: EE[DS Depth to water: 1.1L/6 m Water Column: m Req Purge Vol. 1; L Flow Rate: L/min Presence of LNAPL Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: n Pump Intake: m Depth to NAPL: cm Depth to NAPL: n PURGING MEASUREMENTS 2 Do %Sat Do (ppmingfL) Eh (mV) Water Level (m b TOC) As 5657.11:1998 («H) 10% 0.2.°C . 10% 10% . . . 1L 3 min 2355 2.1.3 (532 5.76 4.3 0.37 -72.7 . 2L 6 min 2335 2.1.0 IS17 5.74 3.5 0.21 -78.3 3L 9 min 2314 21.2 ISOH 5.75 3.2 0.2 -78.4 . 4L 12 min 21.0 1493 5.75 2.4 0.2 . . <td></td> <td>=</td> <td></td> | | | | | | | | | | | | = | |
| Depth to water: 1.146 m Water Column: m Req Purge Vol. 1: L Flow Rate: Limit Presence of LNAPL Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: m Pump Intake: m Depth to NAPL: m PURGING MEASUREMENTS * * Do %Sat DO (ppm/mg/L) Eh (mV) Water Level (m b TOC) AS \$567.11: 1998 (10% 0.2 °C 10% 10% 0.3 7 -72.7 2L 6 min 2355 21.0 IST7 5.74 3.5 0.3 7 -78.3 3L 9 min 21.2 ISO/H 5.75 3.2 0.2 L -86.44 12 nin 229R 21.0 14/43 5.75 2.4 0.2 L -86.44 4L 12 min 229R 21.0 14/43 5.75 2.4 0.2 L -86.44 6 10 10 10 10 10 | PURGING D | ETAILS (measu | rement poi | nts in meters | below top o | f cas | sing as indi | cated above | ə) | | | | |
| Depth to water: 1. 146 m Water Column: m Req Purge Vol. 1: L Flow Rate: L/min Presence of LNAPL Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: m Pump Intake: m Thickness of NAPL: cm Depth to NAPL: m PURGING MEASUREMENTS * m M Mater Level (m b TOC) AS 5657.11: 1998 (xH) 10% 0.2xC . 10% 10% 0.37 -72.7 2L 6 runin 235S 21.0 1517 5.74 3.5 0.31 -78.3 3L 9 runin 7314 21.2 1504 5.75 3.2 0.28 -88.9 4L 12 ruin 229R 21.0 1443 5.75 2.4 0.2.1 -86.44 10 10 10 10 10 10 10 10 2.1 0.1443 5.75 2.4 0.2.1 -86.44 10 10 | Method: $ ho$ | eri-pump | Water C | uality Meter | used: yS | 51 | Pro | | | Und | lertaken By | ELDS | |
| Pump intake: m PURGING MEASUREMENTS ² Völ. Purged Elepsed (µ, stcm) EC (µ, stcm) Temp. (°C) (µ, stcm) TDS (µpm mg/L) pH D0 %Sat (µpm mg/L) D0 (µpm mg/L) Eh (mV) Water Level (m b TOC) AS 5667.11: 1998 (*/h) 10% 0.2*C - 10% 10% 0.377 -72.7 1L 3 min 2355 21.0 ISTF 5.74 3.5 0.31 -78.3 3L 9 min 2355 21.0 ISTF 5.74 3.5 0.21 -78.3 3L 9 min 2314 21.2 ISOH 5.75 3.2 0.28 -83.9 4L 12 min 229R 21.0 1493 5.75 2.4 0.21 -86.4 0 0 0 0 0 0 0 0 0 2 0.0 1 12 1.0 1493 5.75 2.4 0.21 -86.4 0 0 0 0 0 0 0 0 0 Comments (e.g. condition of headworks, | | | | olumn: | m | Re | eq Purge Vo | ol. 1: | L | Flov | w Rate: | LI | min |
| PURGING MEASUREMENTS 2 Voil. Purged (L) Elapsed Time (min) EC (µSicm) Temp. (°C) (µSicm) TDS (ppm]mg/L) PH DO %Sat (ppm]mg/L) DO (ppm]mg/L) Eh (mV) Water Level (m b TOC) AS 5667.11: 1998 (+1/) 10% 0.2*C 10% 10% 10% 0 - 1L 3 min 23558 2.1 .3 (53 2 5.76 4.3 0.377 -72.7 2L 6 min 2335 2.1 .0 15.17 5.74 3.5 0.31 -78.3 3L 9 min 73.14 21.2 150H 5.75 3.2 0.28 -83.9 4L 12 min 2298 21.0 1493 5.75 2.4 0.21 -86.4 1 1 1 1 1 1 1 1 1 4L 12 min 2298 21.0 1493 5.75 2.4 0.21 -86.4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | Presence of | | Presend | e of DNAPL | | Th | nickness of | NAPL: | cm | Dep | th to NAPL | | m |
| Vol. Purged (L) Elapsed Time (min) EC (µS/cm) Temp. (°C) TDS (ppm mg/L) pH D0 %Sat DO (ppm mg/L) Eh (mV) Water Level (m b TOC) AS 5667.11: 1998 (%) 10% 0.2°C - 10% 10% 10% - - 1L 3 min 235% 2.1 .3 (153 2 5.76 4.3 0.377 -72.7 - 2L 6 min 235% 2.1 .0 1517 5.74 3.5 0.21 -78.3 3L 9 min 2314 21.2 1504 5.75 3.2 0.28 -88.9 4+L 12 min 229% 21.0 1493 5.75 2.4 0.21 -86.4 1 12 min 229% 21.0 1493 5.75 2.4 0.21 -86.4 1 12 min 229% 21.0 1493 5.75 2.4 0.21 -86.4 1 10 10 10 10 10 10 10 10 1 10 10 10 10 10 10 | Pump intake | ə: m | | | | | | | | | | | |
| (L) Time (min) (LSCm) (ppm/mg/L) (ppm/mg/L) (m b TOC) AS 5667.11: 1998 (st-1) 10% 0.2°C - 10% 10% 10% - 1L 3.n.in 2358 2.1.3 (532 5.76 4.3 0.377 -72.7 2L 6 m.in 2355 2.1.0 1517 5.74 3.5 0.31 -78.3 3L 9 m.in 2314 2.1.2 1504 5.75 3.2 0.78 -83.9 4L 12 m.in 2298 21.0 1473 5.75 2.4 0.21 -86.4 10 12 m.in 2298 21.0 1473 5.75 2.4 0.21 -86.4 11 12 m.in 2298 21.0 1473 5.75 2.4 0.21 -86.4 12 13 14 21.0 1473 5.75 2.4 0.21 -86.4 12 10 1473 5.75 2.4 0.21 -86.4 - 13 14 10 1473 5.75 14. | PURGING M | EASUREMENT | S 2 | | | | | | | | | | |
| 1L 3nun 2358 21.3 1532 5.76 4.3 0.37 -72.7 2L 6 min 2335 21.0 1517 5.74 3.5 0.21 -78.3 3L 9 min 2314 21.2 1504 5.75 3.2 0.28 -83.9 4L 12 min 2298 21.0 1443 5.75 2.4 0.21 -86.4 4L 12 min 2298 21.0 1443 5.75 2.4 0.21 -86.4 4L 12 min 2298 21.0 1443 5.75 2.4 0.21 -86.4 4L 12 min 2298 21.0 1443 5.75 2.4 0.21 -86.4 4L 12 min 2298 21.0 1443 5.75 2.4 0.21 -86.4 4L 12 min 2298 21.0 1443 5.75 2.4 0.21 -86.4 4L 12 min 20.4 14.0 14.0 14.0 14.0 14.0 Comments (e.g. condition of headworks, sheen, col | | | | Temp. (°C) | | -) | pH | DO %Sat | | r/L) | Eh (mV) | | |
| 2L 6 min 2335 21.0 ISI7 5.74 3.5 0.31 -78.3 3L 9 min 2314 21.2 ISOH 5.75 3.2 0.28 -83.9 4L 12 min 2298 21.0 1493 5.75 2.4 0.21 -86.4 4L 12 min 2298 21.0 1493 5.75 2.4 0.21 -86.4 4L 12 min 2298 21.0 1493 5.75 2.4 0.21 -86.4 4L 12 min 2298 21.0 1493 5.75 2.4 0.21 -86.4 4L 12 min 2298 21.0 1493 5.75 2.4 0.21 -86.4 4L 12 min 2298 21.0 1493 5.75 2.4 0.21 -86.4 4L 12 min 2298 21.0 1493 5.75 2.4 0.21 -86.4 Comments (e.g. condition of headworks, sheen, colour, odour, sediment load): | AS 5667.1 | 1: 1998 (<+/-) | 10% | 0.2°C | • | | 10% | 10% | 10% | | - | • | |
| 3L 9 nuin 2314 21.2 150+ 5.75 3.2 0.28 -83.9 4L 12 nuin 2298 21.0 1493 5.75 2.4 0.21 -86.4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | 11 | 3nin. | 2358 | 21.3 | 1532 | | 5.76 | 4.3 | 0.3 | 7 | -72.7 | | |
| 3L 9 min 2314 21.2 150+ 5.75 3.2 0.28 -83.9 4L 12 min 2298 21.0 1493 5.75 2.4 0.21 -86.4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | 21 | 6 min | 2335 | 21.0 | 1517 | | 5.74 | 3.5 | 0.2 | | -78.3 | | |
| 4L $12 num$ 2298 21.0 1493 5.75 2.4 0.21 -86.4 Image: Second String S | | 9 nin | 2314 | 21.2 | 1504 | | 5.75 | 3.2 | 0.28 | , | -83.9 | | |
| Clear, low Sed, no sheln, Suffur colour. SAMPLING DETAILS Sample ID: Time: Vol. Removed: L No of Sample Containers: 8 Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): Field Filtered Duplicate Samples | | 12 nuin | 2298 | | 1493 | | 5.75 | | 0.21 | l | -86.4 | | |
| Clear, low Sed, no sheln, Suffur colour. SAMPLING DETAILS Sample ID: Time: Vol. Removed: L No of Sample Containers: 8 Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): Field Filtered Duplicate Samples | | | | | | | | | | | | | |
| Clear, low Sed, no sheln, Suffur colour. SAMPLING DETAILS Sample ID: Time: Vol. Removed: L No of Sample Containers: 8 Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): Field Filtered Duplicate Samples | | | | | | | | | | | | | |
| Clear, low Sed, no sheln, Suffur colour. SAMPLING DETAILS Sample ID: Time: Vol. Removed: L No of Sample Containers: 8 Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): Field Filtered Duplicate Samples | | | | | | | | | | | | | |
| Clear, low Sed, no sheln, Suffur od our. SAMPLING DETAILS Sample ID: Time: Vol. Removed: L No of Sample Containers: 8 Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): Field Filtered Duplicate Samples | | | | | | | | | | | | | |
| Clear, low Sed, no sheln, Suffur od our. SAMPLING DETAILS Sample ID: Time: Vol. Removed: L No of Sample Containers: 8 Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): Field Filtered Duplicate Samples | Comments (| e.g. condition o | f headwork | s, sheen. col | lour, odour. : | sedi | ment load): | <u> </u> | | | I . | I <u></u> | |
| SAMPLING DETAILS Sample ID: Time: Vol. Removed: L No of Sample Containers: g Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): Field Filtered Duplicate Samples Field Filtered Duplicate Samples Duplicate Sample ID: FD01, FW:or FS01 | | | | | | | | | | | | | |
| Time: Vol. Removed: L No of Sample Containers: g Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): Field Filtered Duplicate Samples Duplicate Sample ID: FD01, FW:or FS01 | CIERV | 1 1000 0 | uer j V | y sht | <u>x , s</u> v | | tur a | | | | | | |
| Time: Vol. Removed: L No of Sample Containers: g Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): Field Filtered ☑ Duplicate Samples ☑ Duplicate Sample ID: F_DO1 FMOD FSO1 | SAMPLING I | DETAILS | | | | | Sample II |): | | | | | |
| Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): Field Filtered Duplicate Samples Duplicate Samples Duplicate Sample ID: | | | Vol. Remo | ved: | | L | | | rs: 🕅 | | | | |
| | Type of Samp | ble Containers (i.e | . P = Plastic | G = Glass/V = | Vial, volume a | and p | | | | | | | |
| | Field Filtered | | Duplicate | Samples 🗹 | Duplic | ate | Sample ID: | FNO | I FA | 10 | FSOI | | |
| | Comments: | | l · | - | I` | | - | | <u> </u> | | | _ | |
| | | | | | | | | | | | | | |
| CoC Number: Checked by: Date: | CoC Nur | mber: | <u> </u> | Che | cked by: | _ | | | Date: | | | | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID - 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument -specific calibration book, or in field notes as required by local procedures.



| Client: | | | | | | | | BORE I | D: _(| BORRN | VN20 |) |
|--|---|----------------|---------------------------------------|-----------------|------------|-----------------|----------------------------|------------|---------|--------------|--------------|--------|
| Project: | <u> </u> | | | | | | | Job No. | | 013704 | | |
| Location: | | | Casing | diameter: | | • | - 50 mm | Date: | | 21/11/19 | | |
| BORE CONS | TRUCTION | | • | | | | | <u> </u> | | | | |
| | Flush- 🗆 ount Mon | | □ Casing [only | Locked | Mea Poi | asurement nt | : D Top Casing | of PVC | Тс | tal Depth: | 14.30 | š m |
| BORE DEVEL | OPMENT | | | | • • • • | | | | | | | |
| Method: | | Da | ite: | | U | ndertaken | By: | , | Vol. R | emoved: | | L |
| Comments (e | .g. sediment c | ontent): | | | | | | | | | | |
| | | | | | | | | | | | | |
| PURGING DE | TAILS (measu | rement poir | nts in meters | below top of | f casi | ing as indi | cated above | e) | | | | |
| Method: Pen | n-pump | Water Q | uality Meter | used: 95 | 51 8 | 'n | | | Und | ertaken By | : EEl | 10 |
| | er: 1.323m | Water C | olumn: | m | 1 | q Purge Vo |) I. ¹ : | L | Flov | v Rate: | | L/min |
| Presence of L | | Presenc | e of DNAPL | | Thie | ckness of | NAPL: | cm | Dep | th to NAPL | | m |
| Pump intake: | r m | | | | | | | | | | | |
| PURGING ME | ASUREMENTS | 2 2 | | | | | | | | | | |
| Vol. Purged (L) Elapsed Time (min) EC (μS/cm) Temp. (°C) TDS (ppm mg/L) pH DO %Sat DO (ppm mg/L) Eh (mV) Water Level (m b TOC) | | | | | | | | | | | | |
| AS 5667.11: | : 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | • | - | |
| 11_ | Brin | 4392 | 20.4 | 2810 | | 5.66 | 4.2 | 0.30 | 10 | 55.1 | | |
| 22 | brin | 4277 | 20.1 | 2780 | 1 | 5.61 | 2.9 | 0.26 | 5 | 62.4 | | |
| 31 | 9 rin | 4279 | 20.3 | 2782 | | 5.59 | 2.5 | 0.2 | Ś | 67.1 | | |
| 42 | 12 min | 47295 | 20.1 | 2778 | | 5.59 | 2.5 | 0.2 | 2 | ଜ .4 | | |
| | | | | | | | _ | | | | | |
| | | | , | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Comments (e | e.g. condition o | f headwork | s, sheen, col | our, odour, s | sedim | ient load): | E | | | <u> </u> | | |
| dard | ly, no | odou | r, no | sheen, | , <u> </u> | ow to | o noe | 1,500 | el . | | | |
| SAMPLING D | ETAILS | | · · · · · · · · · · · · · · · · · · · | | | Sample ID |); | | | | | |
| Time: | | Vol. Remo | ved: | | L | No of Sam | ple Container | rs: 8 | | | | |
| Type of Sample | e Containers (i.e | . P = Plastic/ | G = Glass/V = | Vial, volume a | and p | = preserved | l/up = unpres | served): | | | | |
| Field Filtered | Field Filtered Duplicate Samples D Duplicate Sample ID: | | | | | | | | | | | |
| Comments: | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| CoC Num | | | | cked by: | | | | Date: | | | | |
| Bores to be | purged dry, until | pH. T and EC | readings stabilis | se or a minimun | n of 3 t | to 5 times the | e water column | volumes. W | ater co | Iumn volumes | ; can be cal | ulated |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID - 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument -specific calibration book, or in field notes as required by local procedures.



| Client: | me | -WA | | | | | | BORE II | D: M | BORRN | NW22 | |
|--------------------|--------------------------------|---------------|------------------|------------------|-------|-------------------|---|---------------|---------|--------------------|--------------------------|----------|
| Project: | BC | RR G | W/SW | Samplin | 7 | | | Job No. | | 013704 | | |
| Location: | | | Casing | j diameter: 🔾 | | | 50 mm | Date: | 18 | 11/19 | | |
| BORE CO | ISTRUCTION | | | | | | | | | | | |
| Head- works | I Flush- □ mount Mor | | □ Casing only | Locked | | easuremen oint | t D Top Casing | of PVC | T | otal Depth: I・3 | 47 | m |
| BORE DEV | ELOPMENT | | | | | | | | | | | |
| Method: | | Da | ate: | | | Undertaker | n By: | · | Vol. F | Removed: | | L |
| Comments | (e.g. sediment o | ontent): | | | | | | | - | | | |
| | | | | | | | | | | | | |
| PURGING | DETAILS (measu | rement poi | nts in meters | below top of | fcas | sing as indi | icated above | e) | | | | |
| Method: | en-pump | Water G | Quality Meter | used: (| 55 | IPro. | | | Unc | lertaken By | : EE[DS | |
| Depth to w | ater: 1, 193 n | Water C | olumn: | m | Re | eq Purge Vo | ol. ¹ : | L | Flor | w Rate: | L | /min |
| Presence of | of LNAPL | Presen | e of DNAPL | | Th | nickness of | NAPL: | cm | Dep | oth to NAPL | ; | m |
| Pump intal | ke: n | 1 | | | | | | | | | | |
| PURGING | MEASUREMENT | S 2 | | | | · | | | | | | |
| Vol. Purgeo (L) | Elapsed Time (min) | EC (µS/cm) | Temp. (ºC) | TDS (ppm/mg/L | .) | рН | DO %Sat | DO (ppm mg | /L) | Eh (mV) | Water Level (m b TOC) | |
| AS 5667 | .11: 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | • | - | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
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| i • • | | | | | | | | | | | | <u> </u> |
| | - | | | | | | | | | | | |
| i | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Comments | (e.g. condition o | of headwork | s, sheen, col | lour, odour, s | edi | ment load): | -randr | <u>́ч —</u> | | | | |
| | | | | | | | ••••••••••••••••••••••••••••••••••••••• | J | | | | |
| <u></u> | | | | <u></u> | | | | | | | • | |
| SAMPLING | DETAILS | | | | | Sample II | D: | | | | | |
| Time: | | Vol. Remo | ved: | | L | No of Sam | ple Container | 'S: | | | | |
| Type of San | nple Containers (i.e | . P = Plastic | /G = Glass/V = | Vial, volume a | ind p | p = preserve | d/up = unpres | erved): | | | | |
| Field Filtere | d 🗆 | Duplicate | Samples 🗆 | Duplic | ate S | Sample ID: | | | | | | |
| Comments | * | | | | | | | | | | | |
| | | | | | | | | | | | | |
| CoC Ni Bores fr | Imber: be purged dry, until | nii Tand CA | | cked by: | 1053 | to 5 times the | e water column | Date: | ater or | alumn volumes | can be calcula | ted |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID - 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.

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| Client: | | MRWA | | | | | | BORE I |): B | ORR MI | NZ26 | |
|--------------------|-------------------------------|----------------|--------------------|---|-------|--------------------|-------------------|---------------|---------------|-------------|--------------------------|-----|
| Project: | Bor | R GW, | sw Sam | pling | | | | Job No. | : | 613704 | L | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | 18. | 11.19 | | |
| BORE CON | STRUCTION | | | | | | | | | | | |
| | ⊐ Flush- □ nount Mon | | □ Casing I only | Locked | | easurement bint | t □ Top Casing | of PVC | То | i3.00 | 5 | m |
| BORE DEVE | | | | | | | | | | | | |
| Method: | | Da | te: | | 1 | Jndertaken | By: | , | Vol. R | emoved: | | L |
| Comments | (e.g. sediment c | ontent): | | | | | | | | | | |
| | ETAILS (measu | rement noir | ute in motore | below top of | cas | sing as indi | cated above | <u></u> | | | | |
| Method: Pe | | | | used: YS1 | vut | | | | Und | lertaken By | : | |
| • | ter: 2_924 m | | | | Re | eq Purge Vo | ol. 1: | L | | w Rate: | | min |
| Presence of | | | e of DNAPL | | | ickness of | | cm | | th to NAPL | | m |
| Pump intak | | | | | | | | | | | | |
| | EASUREMENTS | <u>5</u> 2 | | | | | | | | | | |
| Vol. Purged (L) | Elapsed Time (min) | EC (μS/cm) | Temp. (°C) | TDS (ppm mg/L |) | рН | DO %Sat | DO (ppm mg | /L) | Eh (mV) | Water Level (m b TOC) | |
| AS 5667.1 | 1: 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | • | - | |
| 1 | 3min | 13439 | 22.6 | 8739 | | 5.47 | 14.5 | 1.09 | | -83.9 | ~2.9 | |
| 2 | 6 min | 13419 | 21.9 | 8723 | | 5.37 | 6.0 | 0.54 | | -84.6 | ~2.9 | |
| 3 | 9 min | 13395 | 21.7 | 8706 | | 5.34 | 4.6 | 0.38 | | -84.6 | ~2.9 | |
| 4 | 12min | 13385 | 21.6 | 8703 | | 5.33 | 4.1 | 0.34 | • | -84.4 | ~2.9 | |
| 5- | 15 | 13387 | 21.5 | 8700 | | 533 | 3.9 | 0.33 | | -84.0 | ~2.9 | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Comments | (e.g. condition o | f headwork | s, sheen, col | lour, odour, s | edi | ment load): | C | lear- a | $\frac{1}{2}$ | 1, no | 0000 | |
| | | | | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | | no s | sheen, | د درم) | | | | , |
| SAMPLING | DETAILS | <u> </u> | | | | Sample I |): | | | <u></u> | | |
| Time: | | Vol. Remov | /ed: | | L | No of Sam | ple Containe | rs: 🖁 | | | | |
| Type of Sam | ole Containers (i.e | . P = Plastic/ | G = Glass/V = | Vial, volume a | nd p |) = preserve | d/up = unpres | served): | | | | |
| Field Filtered | | Duplicate \$ | amples 🛛 | Duplic | ate S | Sample ID: | | | | | | |
| Comments: | | | | | | | | | | | | |
| | | | | - land 1 | | | | Dete | | | | |
| CoC Nu | mber: be purged dry, until | nH T and EC | | cked by: | of 3 | to 5 times the | e water colum | Date: | ater co | dumo volume | s can be calculat | ed |

from the following casing volumes per unit length: 40 mm lD - 1 L/m; 50 mm lD - 2 L/m; 100 mm lD 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



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| Client: | | | | | | | | BORE I | | BOKR N | 10124 | |
|---|--|----------------|---------------|----------------|-------|---|-------------------|---------------|---------|---------------|-------------|----------------|
| Project: | | | | | | | | Job No. | | 137041 | | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | 20 | 0/11/19 | | |
| BORE CONS | TRUCTION | | | | | | | | | | | |
| | rFlush- □ ount Mon | | Casing Casing | | | easuremen pint | t □ Top Casing | of PVC | T | otal Depth: | 9.83 | 7 ^m |
| BORE DEVEL | LOPMENT | | | | | | | | | | | |
| Method: | | Da | ate: | | | Undertaken | ı By: | 1 | Vol. F | Removed: | | L |
| Comments (e | e.g. sediment c | ontent): | | | | | | | | | | |
| | | | | | | | | | | | | |
| PURGING DETAILS (measurement points in meters below top of casing as indicated above) | | | | | | | | | | | | |
| Method: Pen-pump Water Quality Meter used: YSI Pro Undertaken By: EE DS | | | | | | | | | | | | |
| Depth to wate | er: 7,940m | Water C | olumn: | m | Re | eq Purge Vo | ol. 1: | L | Flo | w Rate: | | L/min |
| Presence of LNAPL Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: m | | | | | | | | | | | | |
| Pump intake: m | | | | | | | | | | | | |
| PURGING ME | ASUREMENTS | 3 2 | | | | | | | | | | |
| PURGING MEASUREMENTS 2 Vol. Purged (L) Elapsed Time (min) EC (μS/cm) Temp. (°C) TDS (ppm mg/L) pH DO %Sat (ppm mg/L) DO (ppm mg/L) Eh (mV) Water Level (m b TOC) | | | | | | | | | | | | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | - | | |
| 16 | Brin | 1829 | 20.7 | 1189 | | 4.34 | 19.5 | 1.73 | > | 222.2 | | |
| 22 | 6 nin | 1830 | 21.0 | 1189 | | 4.28 | 18.0 | 1.60 |) | 228.1 | | |
| 31 | 9 min | 1831 | 20.9 | 1830119 | 59 | 4.28 | 217.6 | 1.56 | , | 248.5 | | |
| 4L | 12nin | 1831 | 20.9 | 1189 | | 4.28 | 17.4 | 1.55 | > | 253.6 | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Comments (e | .g. condition o | f headwork | s, sheen, col | lour, odour. s | edi | ment load): | | | | | | |
| · · · · | | | | | | | **** | | +~ | nad s | ed. | |
| <u> </u> | <u>ly lígh</u> | 1 010 | , V (| <u>- Ouou</u> | r., | , | 1 men | | | | <u> </u> | |
| SAMPLING D | ETAILS | | | | | Sample ID |): | | | | | |
| Time: | Time: Vol. Removed: L No of Sample Containers: | | | | | | | | | | | |
| Type of Sample | e Containers (i.e | . P = Plastic/ | G = Glass/V = | Vial, volume a | nd p | o = preserved | d/up = unpres | served): | | | | |
| | | | | | | | | | | | | |
| Field Filtered | ত | Duplicate \$ | Samples 🗆 | Duplic | ate S | Sample ID: | | | | | | |
| Comments: | Comments: | | | | | | | | | | | |
| | | | | | | | | | | | | |
| CoC Num | ber: e purged dry, until | H Tand EC | | cked by: | of? | to 5 times the | water column | Date: | ater or | | can be cale | ulated |
| | e purgeo ary, unui Ilowing casing vol | | | | | | | i volumes. Wi | a.ci 60 | aanin votumes | van De Galu | ulaicu |

Calibration details to be recorded in the instrument -specific calibration book, or in field notes as required by local procedures.



| Client: | | | | | | | | BORE ID |): 4 | SORRA | 1W25 | | |
|---|-------------------------------|----------------|------------------|----------------|-------------|--------------------|-------------------|----------|--------------|---------------|-----------------|-----|--|
| Project: | | | | | | | | Job No.: | | 137041 | | | |
| Location: | | | Casing | , diameter: | | | 50 mm | Date: | 19 | 111/19 | | | |
| BORE CONS | STRUCTION | | | | | | | | | | | | |
| 1 | TFlush- □ nount Mor | | ⊐ Casing only | | | easurement pint | t 🖸 Top Casing | of PVC | To | otal Depth: | 12.900 | m | |
| BORE DEVE | | | | | | | | | | | | | |
| Method: | | Da | te: | | | Undertaken | By: | 1 | /ol. R | emoved: | | L | |
| Comments (| (e.g. sediment c | ontent): | | | | | | | | - | | | |
| | | | | | | | _ | | | | | | |
| PURGING D | ETAILS (measu | rement poir | nts in meters | below top o | of cas | sing as indi | cated abov | e) | | | | | |
| Method: P_0 | eri-phm | P Water Q | uality Meter | used: Y | <u>S) (</u> | Pro | | | Und | lertaken By | EEK | | |
| Depth to wa | ter: 7.177 m | Water C | olumn: | m | Re | eq Purge Vo | ol. 1: | L | Flov | v Rate: | L/I | min | |
| Presence of | | Presenc | e of DNAPL | | T۲ | nickness of | NAPL: | cm | Dep | th to NAPL | : | m | |
| Pump intake: m | | | | | | | | | | | | | |
| PURGING M | EASUREMENT | 5 ² | | | | , <u></u> . | · | | • | | r | | |
| Vol. Purged (L)Elapsed Time (min)EC (μS/cm)Temp. (°C)TDS (ppm mg/L)pHDO %SatDO (ppm mg/L)Eh (mV)Water Level (m b TOC) | | | | | | | | | | | | | |
| AS 5667.1 | 1: 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | - | • | | |
| 1L | 3nin | 3730 | 19.2 | 2421 | | 5.53 | 8.1 | 071 | | 14.7 | | | |
| 2L | brin | 3662 | 19.1 | Z380 | | 5.52 | 4.1 | 0.37 | } | -3.5 | | | |
| 3L | 9 min | 3655 | 19.0 | 2375 | | 5.52 | 3.4 | 0.31 | | -14.1 | | | |
| 4L | 12 min | 3647 | 19.0 | 2370 | | 5.53 | 3.2 | 0.29 | l | -19.9 | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | - | | | | | | | | | | | | |
| Comments (| (e.g. condition c | f headwork | s, sheen, co | lour, odour, : | sedi | ment load): | | | | | | | |
| dau | ay, lon | , to magnetic | od sed | ., slig | μv | 10.gxn | ic od | ar, | no | Sheen | -, f | | |
| SAMPLING | DETAILS | | | | | Sample I |); | | | | | | |
| Time: {{ ` | 20am . | Vol. Remo | ved: | · | L | No of Sam | ple Containe | rs: 8 | | | | | |
| Type of Samp | ole Containers (i.e | . P = Plastic/ | G = Glass/V = | Vial, volume a | and j | p = preserved | d/up = unpres | served): | | | | | |
| Field Filtered | ⊊∕ | Duplicate | Samples 🗆 | Duplic | cate : | Sample ID: | | | | | | | |
| Comments: | | t | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| CoC Nur | mber: be purged dry, until | | | cked by: | | to E finance alter | | Date: | | lunan saluara | oon he celeviet | | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



| Client: | | <u></u> | | | | - | | BORE II | | SORFN | NW29 | | |
|---|---|---------------|-------------------|-----------------|------------|--------------------|-------------------|------------|----------|---------------|-------------------|--|--|
| Project: | | | | | | | | Job No. | | 61370 | | | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | Ł | 19/11/1 | 19 | | |
| | STRUCTION | | | | | | | | | | | | |
| | ZÍFlush- □ nount Moni | | □ Casing I nly | Locked | 1 | easurement pint | t □ Top Casing | of PVC | Тс | otal Depth: | 8.441 m | | |
| BORE DEVE | LOPMENT | | | | | | | | | | | | |
| Method: | | Da | te: | | 1 | Undertaken | By: | | Vol. R | emoved: | L | | |
| Comments | (e.g. sediment co | ontent): | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| PURGING D | PURGING DETAILS (measurement points in meters below top of casing as indicated above) | | | | | | | | | | | | |
| Method: flri-pump Water Quality Meter used: 51 Pro Undertaken By: EE DS | | | | | | | | | | | | | |
| Depth to water: 5.575m Water Column: m Req Purge Vol. 1: L Flow Rate: L/min | | | | | | | | | | | | | |
| Presence of LNAPL Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: m | | | | | | | | | | | | | |
| Pump intake: m | | | | | | | | | | | | | |
| PURGING N | EASUREMENTS | 2 | | | | | | | | | | | |
| PURGING MEASUREMENTS 2 Vol. Purged (L) Elapsed Time (min) EC (µS/cm) Temp. (°C) TDS (ppm mg/L) pH DO %Sat DO (ppm mg/L) Eh (mV) Water Level (m b TOC) | | | | | | | | | | | | | |
| AS 5667. | 11: 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | - | • | | |
| 12 | 3n in | 787 | 19.9 | 51 | | 5.15 | 6.1 | 0.5 | 4 | -45.0 | | | |
| 26 | 6 min. | 785 | 19.6 | 510 | | 5.13 | 4.5 | 0.41 | | -52.7 | | | |
| 3L | 9 min | 783 | 19.5 | 509 | | 5.12 | 4.0 | 0.36 | | -57.1 | | | |
| 44 | 12 min | 782 | 19.5 | 508 | | 5.12 | 3.7 | 0.33 | | -58.9 | · ···· | | |
| | | | | | | | | | | | | | |
| Υ | | | | | | | | | | | | | |
| | | | | | | | | | | | 4 | | |
| | | | | | | | | | | | | | |
| Comments | (e.g. condition o | f headwork | s, sheen, col | lour, odour, s | sedi | ment load): | · ! : | | | | | | |
| orang | e-brown | , <u>n</u> oc | tscd, | sulfu | <u>v</u> C | xlour | , NOSL | un. | | | | | |
| SAMPLING | DETAILS | | - | | | Sample II | D: | | | | | | |
| | | | | | | | | | | | | | |
| Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): | | | | | | | | | | | | | |
| Field Filtered | | Duplicate S | Samples 🗆 | Duplic | ate (| Sample ID: | | | | | | | |
| Comments | Comments: | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| CoC Nu | | | | cked by: | | | | Date: | | | | | |
| Bores to | be purged dry, until | pH, T and EC | readings stabili | se or a minimur | n of 3 | 3 to 5 times th | e water column | volumes. W | later co | olumn volumes | can be calculated | | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.

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| Client: | | | | | | | | | | | | | |
|---|-------------------------|----------------|------------------|----------------|----------|--------------------|-------------------|----------|--------|-------------|---------------------------------------|-----|--|
| Project: | | | | | | | | Job No.: | : (| 0137041 | | | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | 19 | 1/11/19 | | | |
| BORE CONS | TRUCTION | | | | , | | | | | | | | |
| | a/Flush- □ nount Mor | | □ Casing only | Locked | | easurement vint | t 🗆 Top Casing | of PVC | To | otal Depth: | 6.030 | m | |
| BORE DEVE | LOPMENT | | | | | | | | | | | | |
| Method: | | Da | te: | | l | Undertaken | By: | <u> </u> | Vol. R | Removed: | | L | |
| Comments (| e.g. sediment c | ontent): | | , | | | | | | | | | |
| | | | | | | | | | | | | | |
| | ETAILS (measu | | | | | | cated above | *) | | | | | |
| | n-pump | | uality Meter | used: 9 | <u> </u> | 210 | | | | lertaken By | <u> </u> | | |
| | er: 3.521 m | | | m | | eq Purge Vo | | L | | w Rate: | | min | |
| Presence of | | | e of DNAPL | | Th | ickness of | NAPL: | cm | Dep | oth to NAPL | · · · · · · · · · · · · · · · · · · · | m | |
| Pump intake: m PURGING MEASUREMENTS ² | | | | | | | | | | | | | |
| Vol. Purged Elapsed EC Temp. (°C) TDS pH DO %Sat DO Eh (mV) Water Level | | | | | | | | | | | | | |
| (L) Time (min) (μS/cm) (ppm mg/L) (m b TOC) | | | | | | | | | | | | | |
| AS 5667.1 | 1: 1998 (<+/-) | 10% | 0.2°C | · • | | 10% | 10% | 10% | | - | • | | |
| 11 | Brin | 272.4 | 19.9 | 177 | | 5.27 | 6.5 | 0.56 | 0 | -58.3 | | | |
| ZL | bnin | 272 | 19.B | 177 | | 5.26 | 4.4 | 0.39 | | -62.0 | | | |
| 32 | 9 min | 271.5 | 19.8 | 176 | | 5.25 | 3.7 | 0.33 | 3 | -64.0 | | | |
| 42 | 12 min | 271.2 | 19.7 | 176 | | 5.25 | 3.2 | 0.24 | 1 | -66.0 | | | |
| SL | 15 min | 271 | 19.7 | 176 | | 5.25 | 2.ግ | 0.28 | 1 | -66.0 | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Comments (| e.g. condition c | f headwork | s, sheen, col | lour, odour, s | edi | ment load): | | | | | | | |
| Clear | brown | lon | to Moc | l sed, | Ω | shle | H, Sh | lfurox | dCu | <u>K</u> | | | |
| SAMPLING [| DETAILS | | | | | Sample ID |): | | | | | | |
| Time: 12: | 30pm. | Vol. Remov | ved: | | L | No of Sam | ple Container | rs: 8 | | | | | |
| | le Containers (i.e | . P = Plastic/ | G = Glass/V = | Vial, volume a | Ind p |) = preserved | :/up = unpres | served): | | | | | |
| Field Filtered | 5 | Duplicate S | Samples 🛛 | Duplic | ate S | Sample ID: | | | | | <u>-</u> | | |
| Comments: | | <u> </u> | | | | - | | | | | | | |
| | | | •••••• | | | | | ,, | | | | , | |
| | | | | | | | | | | | | | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



| Client: | | | | | | | | BORE I | | BORRN | NN 32 | | |
|---|---|--------------|--------------------|-----------------|--------|--------------------|-------------------|------------|---------|--------------|-----------------|-----|--|
| Project: | | | | | | | | Job No.: | 0 | 13704 | l | | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | 19 | 11 19 | <u>-</u> . | | |
| BORE CONS | TRUCTION | | | | | | | | | | | | |
| ~ | Flush- 🗆 ount Mon | | □ Casing I only | 🗆 Locked | | easurement oint | t ⊡ Top Casing | of PVC | То | otal Depth: | 3.001 | m | |
| BORE DEVEL | OPMENT | | | | | | | | | | | | |
| Method: | | Da | ite: | | 1 | Undertaken | By: | 1 | Vol. R | emoved: | | L | |
| Comments (e | .g. sediment c | ontent): | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| PURGING DETAILS (measurement points in meters below top of casing as indicated above) | | | | | | | | | | | | | |
| Method: Pin pump Water Quality Meter used: 481 Pro Undertaken By: EE/DS | | | | | | | | | | | | | |
| Depth to wate | er: 2.218m | Water C | olumn: | m | Re | eq Purge Vo | ol. 1: | L | Flow | v Rate: | ្រ | min | |
| Presence of L | | Presenc | e of DNAPL | | Th | ickness of | NAPL: | cm | Dept | th to NAPL: | | m | |
| Pump intake: m | | | | | | | | | | | | | |
| PURGING ME | ASUREMENTS | 2 | | | | | | | | | | | |
| PURGING MEASUREMENTS 2 Vol. Purged (L) Elapsed Time (min) EC (μS/cm) Temp. (°C) TDS (ppm mg/L) pH DO %Sat DO (ppm mg/L) Eh (mV) Water Level (m b TOC) | | | | | | | | | | | | | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | - | - | | |
| 11 | Brin | 411.4 | 20.3 | 267 | | 5.64 | 8.2 | 0.72 | | -71.9 | <u> </u> | | |
| 21 | 6min | 400.6 | 20.3 | 260 | | 5.62 | 5,6 | 0.50 | > | -72.9 | · | | |
| 3L- | 9 min | 390.8 | 20.3 | 253 | | 5,60 | 4.6 | 0.41 | | -73.4 | | 1 | |
| 41 | 12 nin | 377.9 | 20.4 | 245 | | 5.59 | 4.1 | 0.37 | - | -74.3 | | | |
| 5L | 15 Min | 370.0 | 20.4 | 240 | | 5.59 | 4.0 | 0.36 | > | -74.6 | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Comments (e | .g. condition o | f headwork | s, sheen, col | our, odour, s | edi | ment load): | <u> </u> | | | | | | |
| | brown | | | | | | | +0 m | nd | sed | | | |
| | JIOIVV | , Gurn | pur we | <u>Jury</u> 1. | l | Jicken | , | 10 10 | | | | | |
| SAMPLING D | ETAILS | | | | | Sample II | D: | | | | | | |
| Time: [20 m Vol. Removed: L No of Sample Containers: K | | | | | | | | | | | | | |
| Type of Sample | Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): | | | | | | | | | | | | |
| Field Filtered | | Duplicate \$ | Samples 🗆 | Duplic | ate S | Sample ID: | | | | | | | |
| Comments: | | | - | I | | - | | | | | | | |
| | | | •••••• | | | | | | | | | | |
| CoC Num | | | | cked by: | | | | Date: | | | | | |
| Bores to be | e purged dry, until | pH, T and EC | readings stabilis | se or a minimun | n of 3 | to 5 times the | e water column | volumes. W | ater co | lumn volumes | can be calculat | ted | |



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Groundwater Monitoring – Field Sheet

| Client: | | | | κ. | | | | BORE I | ה: נ | ORR N | NN146 | | |
|---|-------------------------------|----------------|------------------|----------------|--------|-------------------|-------------------|---------|---------|---------------|-------------------|-----|--|
| Project: | | | | | | | | Job No. | : 6 | 13706 | -t ¹ | | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | 20 | 11/19 | | | |
| BORE CON | STRUCTION | | | | | | | | | | | | |
| | Flush- D nount Mor | | □ Casing only | Locked 🗆 | | easuremen oint | t □ Top Casing | of PVC | T | otal Depth: | 5.975 | m | |
| BORE DEVE | | | | | | | | | | | | | |
| Method: | | Da | te: | | | Undertaker | ı By: | | Vol. F | Removed: | | L | |
| Comments | e.g. sediment c | ontent): | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| PURGING D | ETAILS (measu | rement poir | nts in meters | below top o | fca | sing as indi | icated above | e) | | | | | |
| Method: | ni-pump | Water Q | uality Meter | used: (| 151 | lpn | | | Unc | lertaken By | : EE/AS | | |
| | ter: 3.572m | Water C | olumn: | m | R | eq Purge Vo | ol. 1: | L | Flow | w Rate: | L/i | min | |
| Presence of | LNAPL | Presenc | e of DNAPL | | T۲ | nickness of | NAPL: | cm | Dep | oth to NAPL | • | m | |
| Pump intake: m | | | | | | | | | | | | | |
| PURGING M | EASUREMENT | 5 ² | | | | | | | | | | | |
| Vol. Purged (L) Elapsed Time (min) EC (μS/cm) Temp. (°C) (ppm/mg/L) TDS (ppm/mg/L) pH DO %Sat (ppm/mg/L) DO (ppm/mg/L) Eh (mV) (m b TOC) Water Level (m b TOC) | | | | | | | | | | | | | |
| AS 5667.1 | 1: 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | - | - | | |
| 1L | Brin | 376.8 | 20.0 | 246 | | 5.90 | 23.0 | 2.07 | - | 30.0 | | | |
| 21 | Gnin | 406-4 | 20.1 | 265 | | 5.87 | 19.9 | 1.81 | | 81.5 | | | |
| 32 | 9 min | 425.9 | 20.1 | 277 | | 5.86 | 18.1 | 1.64 | | 32.5 | | | |
| 4L | 12 nin | 432.2 | 20.1 | 281 | | 5.85 | 17.9 | 1.63 | | 33.S | | | |
| <u>-</u> . | | | | | | | | | | | - | | |
| | | | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | |
| Comments (| e.g. condition o | f headwork | s, sheen, co | our, odour, s | sedi | ment load): | | | | | | | |
| k d e | av over | ge, v | v oda | ir, no | | <u>s)-een</u> | | 1 tome | sd | Sed. | | | |
| SAMPLING | DETAILS | | | | | Sample II |): | | | | | | |
| Time: | | Vol. Remov | ved: | | L | No of Sam | ple Container | rs: 8 | | | | | |
| Type of Samp | ole Containers (i.e | . P = Plastic/ | G = Glass/V = | Vial, volume a | and į | p = preserve | d/up = unpres | erved): | | | | | |
| Field Filtered | | Duplicate S | Samples 🗆 | Duplic | ate | Sample ID: | | | | | | | |
| Comments: | | | | | | | | | | | | | |
| CoC Nur | nhor | | Cha | cked by: | | | | Date: | - | | | | |
| | nder. De purged dry, until | pH. T and FC | | | n of 3 | 3 to 5 times the | e water column | | ater co | olumn volumes | s can be calculat | ed | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID - 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument -specific calibration book, or in field notes as required by local procedures.



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Groundwater Monitoring – Field Sheet

| Client: | | | | | | | | BOREI | D: (| PORR- | UW37 | | |
|---|--|----------------|-------------------|-----------------|-------|-------------------|-------------------|-------------|---------|----------------------|--|--|--|
| Project: | | | | | | | | Job No. | .: | 63701 | tl | | |
| Location: | | | Casin | g diameter: | | | 50 mm | Date: | 19 | 11/19 | | | |
| | STRUCTION | | | | | | | | | • | | | |
| | ⊠ Flush- □ nount Mor | | □ Casing only | Locked | | easuremen oint | t 🗆 Top Casing | o of PVC | T | otal Depth: //. 5 | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | | |
| BORE DEVE | LOPMENT | | | | | | | | | | | | |
| Method: | | Da | ate: | | | Undertaker | By: | | Vol. F | Removed: | L | | |
| Comments | e.g. sediment c | ontent): | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| PURGING D | ETAILS (measu | rement poi | nts in meters | below top of | ca | sing as indi | icated abov | e) | | | | | |
| Method: Ren-Pump Water Quality Meter used: 951 Pro Undertaken By: EEDS. | | | | | | | | | | | | | |
| Depth to wa | ter: _{U-} qı/ m | Water C | olumn: | m | Re | eq Purge Vo | ol. 1: | L | Flo | w Rate: | L/min | | |
| Presence of | Presence of LNAPL Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: m | | | | | | | | | | | | |
| Pump intake: m | | | | | | | | | | | | | |
| PURGING M | EASUREMENTS | 3 2 | | | | | | | | | | | |
| PURGING MEASUREMENTS 2 Vol. Purged (L) Elapsed Time (min) EC (μS/cm) Temp. (°C) TDS (ppm mg/L) pH DO %Sat (ppm mg/L) DO (ppm mg/L) Eh (mV) Water Level (m b TOC) | | | | | | | | | | | | | |
| AS 5667.1 | 1: 1998 (<+/-) | 10% | 0.2°C | • | | 10% | 10% | 10% | | - | - | | |
| 11 | 3nin | 3456 | 21.1 | 2247 | - | 5.30 | 7.2 | 0.6 | 0 | 108.7 | | | |
| JL | bruin | 3453 | 20.8 | 2244 | | 5.32 | 3.9 | 0.34 | | 89.1 | | | |
| 3L | 9nin | 3450 | 20.8 | 22.43 | | 5.33 | 3.6 | 0.32 | | 83.7 | | | |
| 41 | 12 min | 3451 | 20.8 | 2243 | | 5.33 | 3.5 | 0.31 | | 80.4 | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | _ | | | | | | |
| | | | | | | | | | | | | | |
| Comments (| e.g. condition o | f headwork | s, sheen, col | our, odour, s | edi | ment load): | clea | ν, Ora | an | ic 00001 | no sheen | | |
| | | | | | | | l | 0w_~ | . 90 | sect | , no sheen | | |
| | | | | | | | | | | | | | |
| SAMPLING I | DETAILS | | | | | Sample IE |); | | | | | | |
| Time: Vh | an 10:30an | Vol. Remov | ved: | | ٤ | No of Sam | ple Container | rs: 🖇 | | | | | |
| Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): | | | | | | | | | | | | | |
| Field Filtered | | Duplicate S | Samples 🗗 | Duplica | ate S | Sample ID: | FNN | 2. | | | | | |
| Comments: | | | | I . | | | | <u>ر</u> | | | | | |
| | | | | | | | | | | | | | |
| CoC Nun | | | | cked by: | | | · | Date: | | | | | |
| Bores to b | e purged dry, until j | oH, T and EC i | readings stabilis | se or a minimum | of 3 | to 5 times the | water column | volumes. Wa | ater co | lumn volumes | can be calculated | | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID - 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures. 2



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Groundwater Monitoring – Field Sheet

| Client: | | | | | | | | BORE II |): L | ORR-1 | NWS9 | | |
|--|---|---------------|---------------|-----------------------------|------------|------------------------------|-------------------|---------|---------|--------------|----------------------|--|--|
| Project: | | | | | | | | Job No. | \sim | 15704 | | | |
| Location: | | | Casing | j diameter: | | | 50 mm | Date: | | (11)19 | | | |
| BORE CON | STRUCTION | | | | | | | | | | | | |
| | GFlush- □ mount Mon | | Casing Conly | Locked | Mea Poi | asuremen [.] int | t □ Top Casing | of PVC | То | tal Depth: | 13.672. ^m | | |
| BORE DEV | ELOPMENT | | | | | | | | | | | | |
| Method: | | Da | ite: | | U | Indertaken | By: | | Vol. R | emoved: | L | | |
| Comments | (e.g. sediment c | ontent): | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| PURGING |)ETAILS (measu | rement poi | nts in meters | below top of | f casi | ing as indi | icated above | e) | | | | | |
| Method: 🖗 | en-pump | Water C | uality Meter | used: Y | 151 | Pro | | | Und | ertaken By | : EE (DS - | | |
| | ater: 7.669 m | | olumn: | m | Red | q Purge Vo | ol. 1: | L | Flow | Rate: | L/min | | |
| Presence of | | Present | e of DNAPL | | Thi | ickness of | NAPL: | cm | Dept | th to NAPL | : m | | |
| Pump intal | Pump intake: m | | | | | | | | | | | | |
| PURGING | | S 2 | | | 1 | | | | | | | | |
| Vol. Purged (L) Elapsed Time (min) EC (μS/cm) Temp. (°C) TDS (ppm/mg/L) pH DO %Sat (ppm/mg/L) DO (ppm/mg/L) Eh (mV) Water Level (m b TOC) | | | | | | | | | | | | | |
| AS 5667 | 11: 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | - | • | | |
| 11 | 3nin | 331.6 | 20.5 | 214 | | 5.27 | 11.2 | 0.91 | 4 | 80.6 | | | |
| 22 | 6 min | 310.9 | 20.4 | 202 | | 5.14 | 5.Z | 0.4 | 6 | 106.1 | | | |
| 36 | 9nin | 307.4 | 20.4 | 200 | | 5.11 | 4.5 | 0.40 | > | 17.0 | | | |
| 4L | 12 ruin | 306.3 | 20.4 | 199 | | 5.10 | 44 | 0.39 | | (20.2 | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Comments | (e.g. condition o | f headwork | s, sheen, co | lour, odour, s | sedin | nent load): | | | | | | | |
| Cloue | ty ora ngi | <u>v-brov</u> | vh, no | sheen, | , <u>^</u> | o <i>odo</i> | iur, 10 | N SC | d. | | | | |
| SAMPLING | DETAILS | | | | | Sample II | D: | | | | | | |
| Time: 10 | ۱m | Vol. Remo | ved: | | L | No of Sam | ple Container | rs: 8 | | | | | |
| Type of Sam | Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): | | | | | | | | | | | | |
| Field Filtere | . <u>.</u> | Duplicate | Samples 🗆 | Duplic | ate S | ample ID: | | | | | | | |
| Comments | : | | | | | | | | | | | | |
| 0.01 | | | 01- | alrad bur | | | | Date: | | <u> </u> | | | |
| CoC Nu Bores fo | be purged dry, until | pH. T and EC | | cked by: se or a minimun | n of 3 i | to 5 times th | e water column | - +-+ | ater co | lumn volumes | s can be calculated | | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument --specific calibration book, or in field notes as required by local procedures.

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| Client: MRNA BORE ID: MRMW05 | | | | | | | | | | | | | | |
|--|--|----------------|------------------|----------------|------------|------------------|-------------------|----------|-----------|-------------|----------|----------------|--|--|
| | LORR GU | sand | SM N | vonitor | ing | | | Job No. | : 6 | 13704 | H | | | |
| Location: | - | | Casing |) diameter: | J | | 50 mm | Date: | JI | 111/19 | | | | |
| BORE CON | STRUCTION | | | | | | _ | | | | | | | |
| | ☑ Flush- □ mount Mor | | □ Casing only | Locked | Mea Poi | asurement int | t □ Top Casing | of PVC | Тс | otal Depth: | 5.056 | ⇒ ^m | | |
| BORE DEVE | ELOPMENT | | | | | | | | | | | | | |
| Method: | | Da | ite: | | U | Indertaken | ı By: | , | Vol. R | emoved: | | L | | |
| Comments | (e.g. sediment c | ontent): | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| PURGING D | ETAILS (measu | rement poir | nts in meters | below top o | f casi | ing as indi | icated above | e) | | | | | | |
| Method: P | eri-pump | Water Q | uality Meter | used: Y | 12 | Pro | | | Und | ertaken By: | : EE / 1 | 0 | | |
| Depth to wa | iter: 2.393 m | Water C | olumn: | m | Rec | q Purge Vo | ol. 1: | L | Flov | v Rate: | | L/min | | |
| Presence of | Presence of LNAPL Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: m | | | | | | | | | | | | | |
| Pump intake: m | | | | | | | | | | | | | | |
| Pump Intake: m PURGING MEASUREMENTS ² | | | | | | | | | | | | | | |
| Vol. Purged (L) Elapsed Time (min) EC (μS/cm) Temp. (°C) TDS (ppm mg/L) pH DO %Sat DO (ppm mg/L) Eh (mV) Water Level (m b TOC) | | | | | | | | | | | | | | |
| AS 5667.1 | 1: 1998 (<+/-) | 10% | 0.2°C | - | · | 10% | 10% | 10% | | - | • | | | |
| 1L | Enin | 22827 | 18.7 | 14842 | | 5.69 | 4.3 | 0.37 | 4 | 5.8 | | | | |
| 2L | 6 min | 22764 | 18.8 | 14794 | + | 5.66 | 2.7 | 0.23 | > | -18.5 | | | | |
| SL | anin | 22656 | 18.5 | 14723 | , | 5.64 | 2,5 | 0.22 | _ | -22.9 | | | | |
| 4L | 12 nin | 22555 | 18.5 | 14658 | , ' | 5.62 | 2.1 | 0.19 | | -25.7 | | | | |
| 56 | 15min | 22500 | 18.6 | 14623 | | 5.61 | 2.1 | 0.18 | | -26.0 | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| Comments | (e.g. condition c | f headwork | s, sheen, co | lour, odour, s | sedin | nent load): | | | | | | | | |
| Clau | dy, sl | ight s | ulfur | odour | | mod | sed, | ing SI | <u></u> { | <u>~</u> | | , | | |
| SAMPLING | DETAILS | <u> </u> | | | | Sample II |): | · | | | | | | |
| Time: | | Vol. Remov | ved: | | L | No of Sam | ple Containe | rs: 8 | | | | | | |
| Type of Sam | ple Containers (i.e | . P = Plastic/ | G = Glass/V = | Vial, volume a | and p | = preserved | d/up = unpres | served): | | | | | | |
| Field Filtered | Ø | Duplicate \$ | Samples 🛛 | Duplic | cate Sa | ample ID: | | | | | | | | |
| Comments: | | | | r | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| CoC Nu | mber: be purged dry, until | | | cked by: | | | | Date: | | | | -42 | | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID - 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.

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| Client: | | | | | | | | BORE II | D: | BH9.2 | • | | |
|---|---|---------------|------------------|-----------------|--------|--------------------|-------------------|---------------|---------|------------------|----------------|--------|--|
| Project: | | | | | | | | Job No. | : 6 | 13702 | 4 | | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | 1= | 7/12/19 | | | |
| BORE CONS | TRUCTION | | | | | | | | | | | | |
| | YFlush- □ ount Mon | | □ Casing only | Locked | | easurement bint | t □ Top Casing | of PVC | Т | otal Depth: | F.8.8 | ල " | |
| BORE DEVEL | LOPMENT | | | | | | | | | | | | |
| Method: | | Da | ite: | | | Undertaken | By: | Ň | Vol. R | lemoved: | | L | |
| Comments (e | e.g. sediment c | ontent): | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| PURGING DE | TAILS (measu | rement poir | nts in meters | below top of | fcas | sing as indi | cated above | e) | | | | · | |
| Method: ρ | | | | | | | | | | | | | |
| | er: 3_444 m | 0 | olumn: | m | Re | eq Purge Vo | ol. 1: | L | Flov | w Rate: | | L/min | |
| Presence of | Presence of LNAPL D Presence of DNAPL D Thickness of NAPL: cm Depth to NAPL: m | | | | | | | | | | | | |
| Pump intake: m | | | | | | | | | | | | | |
| PURGING ME | PURGING MEASUREMENTS ² | | | | | | | | | | | | |
| PURGING MEASUREMENTS 2 Vol. Purged (L) Elapsed Time (min) EC (μS/cm) Temp. (°C) TDS (ppm/mg/L) pH DO %Sat DO (ppm/mg/L) Eh (mV) Water Level (m b TOC) | | | | | | | | | | | | | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | - | - | | |
| 11 | Brin | 7899 | 20.5 | 5134.39 | 5 | | 2.0 | 0.(8 | 2 | | ~ 3.1 | 444 | |
| 26 | brin | 7883 | 20.3 | 5123.9 | \leq | | 1.5 | 0.13 | | | ~3.4 | 44 | |
| - JL | 9 min | 7886 | 20.4 | 5125.9 | 0 | | 1.3 | 0.11 | | | N3.6 | քելել | |
| 41 | 12nin | - | 20.5 | 5124.6 | 0 | 4.02 | 1.2 | 0.10 |) | 204.8 | ~3.4 | 144 | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Comments (e | g. condition o | f headwork | s, sheen, co | lour, odour. s | sedi | ment load): | I | | | <u> </u> | L | | |
| | dalat | | mic or | A | | <u>،</u> مەر | Jan Se | ٦ | | Leen | | | |
| | 3000- | ورجاه | | | | y read | عر مور | a, k | د ر | / C | | | |
| SAMPLING D | ETAILS | | | | | Sample ID |): | | | | | | |
| Time: Vol. Removed: L No of Sample Containers: 8 | | | | | | | | | | | | | |
| Type of Sampl | Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): | | | | | | | | | | | | |
| Field Filtered | Field Filtered 🗹 Duplicate Samples 🗆 Duplicate Sample ID: | | | | | | | | | | | | |
| Comments: | Comments: | | | | | | | | | | | | |
| | | | ······ | | | | | | | | | | |
| CoC Num | | | | cked by: | | | | Date: | 4 | | | | |
| Bores to be | e purged dry, until | pri, i and EC | reaungs stabili | se or a minimun | 1013 | to plumes the | e water column | i volumes. Wa | ater CO | INTITLA AOIMINES | o call be call | ulated | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



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Groundwater Monitoring – Field Sheet

| Client: | · | | | | | | | BORE II | D: | BHI | .1 | |
|---|---|----------------|---------------|---------------|-------|-------------------|-------------------|---------|--------|-------------|--------------------|--|
| Project: | | | | | | | | Job No. | | 137041 | | |
| Location: | | | Casing | j diameter: | | | 50 mm | Date: | 18 | 12/19 | | |
| BORE CONS | TRUCTION | | | | | | | | | | | |
| | Flush- 🗆 ount Mon | | Casing Casing | | | easuremen pint | t □ Top Casing | of PVC | То | otal Depth: | ≤.081 ^m | |
| BORE DEVE | LOPMENT | | | | | | | | | | | |
| Method: | | Da | ate: | | | Undertaken | ı By: | ١ | √ol. R | emoved: | L | |
| Comments (e | e.g. sediment c | ontent): | | | | | | | | | | |
| | | | | | | | | | | | | |
| PURGING DETAILS (measurement points in meters below top of casing as indicated above) | | | | | | | | | | | | |
| Method: Plin-pump Water Quality Meter used: YSLPPO Undertaken By: EE PK | | | | | | | | | | | | |
| Depth to wat | er: 954 m | Water C | olumn: | m | Re | eq Purge Vo | ol. 1: | L | Flov | v Rate: | L/min | |
| Presence of | | Presend | e of DNAPL | | Th | nickness of | NAPL: | cm | Dep | th to NAPL: | : m | |
| Pump intake: m | | | | | | | | | | | | |
| PURGING ME | EASUREMENTS | 3 ² | | . <u> </u> | | | | | | | | |
| PURGING MEASUREMENTS 2 Vol. Purged (L) Elapsed Time (min) EC (μS/cm) Temp. (°C) TDS (ppm mg/L) pH DO %Sat (ppm mg/L) DO (ppm mg/L) Eh (mV) Water Level (m b TOC) | | | | | | | | | | | | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | - | • | |
| 16 | Brin | 1629 | 20.4 | 1058.85 | | | 4.0 | 0.34 | F | | ~1.954 | |
| 22 | 6 min | 1608 | 20.1 | 1045.2 | 0 | | 22 | 0.24 | 9 | | ~1.954 | |
| 3L | 9 rin | 560 | 20.3 | 1014.0 | C | | 1.7 | 0.15 | | | ~1.954 | |
| 41 | 12 min | 1544 | 20.0 | 1003.60 | | | 1.5 | 0.13 | | | NI.954 | |
| 51 | 15 min | 1533 | 19.9 | 996.45 | | | 1.3 | 0.12 | | | ~1.954 | |
| 66 | 18min | 1522 | 19.7 | 989.30 | | | 1.2 | 0.(0 | | | ~1.954 | |
| H | 21 min | 1521 | 19.7 | 988.65 | | 6.74 | 1.(| 0.10 | | -103.0 | 21.954 | |
| | | | | | | | | | | | | |
| Comments (e | e.g. condition o | f headwork | s, sheen, col | our, odour, s | edi | ment load): | | | | | | |
| lou | rsed, c | loor, | xre o | dans, | | no sl | reen | | | | | |
| SAMPLING D | ETAILS | | | | | Sample ID |): | | | | | |
| Time: | | Vol. Remov | ved: | | L | No of Sam | ple Container | s: 8 | | | | |
| Type of Sampl | Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): | | | | | | | | | | | |
| Field Filtered | e I | Duplicate S | Samples 🗆 | Duplic | ate S | Sample ID: | | | | | | |
| Comments: | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| CoC Num | ber: • purged dry, until | oH T and EC | | cked by: | of 2 | to 5 times the | water column | Date: | tor co | | can be calculated | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID - 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument -specific calibration book, or in field notes as required by local procedures.



| Client: | | | | | | | | BORE I | D: | BH37 | 2.1 | |
|--|---|-----------|---------------|----------------|--------|--------------------|-------------------|----------|--------|-------------|-------------------|--|
| Project: | | | | | | | | Job No. | | 01370 | | |
| Location: | | | Casing | g diameter: | | | 50 mm | Date: | 16 | 0/12/19 | | |
| BORE CONS | TRUCTION | | | | | | | | | | | |
| | l∕Flush- □ iount Mon | | Casing Casing | Locked | | easurement oint | t □ Top Casing | o of PVC | To | otal Depth: | 10.190 m | |
| BORE DEVE | LOPMENT | * | | | | | | | | | | |
| Method: | | D | ate: | | | Undertaken | By: | | Vol. R | Removed: | L | |
| Comments (| e.g. sediment c | ontent): | | | | | | | | | | |
| | | | | | | | | | | | | |
| PURGING DE | ETAILS (measu | ement poi | nts in meters | below top of | cas | sing as indi | cated abov | e) | | | | |
| Method: fe | n-Rimp | Water C | Quality Meter | used: 식 | S | (pro. | | | Und | lertaken By | : EE/PK | |
| Depth to wat | er: 4,215 m | Water C | olumn: | m | Re | eq Purge Vo |) l. 1: | L | Flow | w Rate: | L/min | |
| Presence of | LNAPL 🗆 | Presen | ce of DNAPL | | Th | nickness of | NAPL: | cm | Dep | th to NAPL | : m | |
| Pump intake: m | | | | | | | | | | | | |
| PURGING MEASUREMENTS ² | | | | | | | | | | | | |
| Vol. Purged (L) Elapsed Time (min) EC (µS/cm) Temp. (°C) TDS (ppm mg/L) pH DO %Sat (ppm mg/L) DO (ppm mg/L) Eh (mV) Water Level (m b TOC) | | | | | | | | | | | | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | - | - | |
| 1L | 3nin | 12.03 | 20.3 | 781.95 | > | | 2.2 | 0.20 | 0 | | ~4.215 | |
| 26 | 6nin | 1169 | 20.2 | 759.85 | 5 | | 1.5 | 0.11 | ł | | N4.215 | |
| 3L | 9 nin | 1170 | 20.1 | 760.5 | 0 | | ι.ι | 0.0 | ז | | N4.25 | |
| 46 | Izmin | 1167 | 19.9 | 758.5 | 5 | | 0.9 | 0.08 | 2 | | N4.215 | |
| 51 | 15 min | 1166 | 19.9 | 757.9 | 0 | 5.57 | 0.9 | 0.08 | 5 | 62.7 | ~4.215 | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Comments (e | e.g. condition of | headwork | s, sheen, col | our, odour, s | edir | ment load): | | | | · · · · · · | | |
| ~ | Coord | [wal | nad e | sed 1 | \sim | she | en < | light | 5 | alfor | - odour | |
| | | | | , , | F | . | ····· , | <u> </u> | \sim | ettall | .c | |
| SAMPLING D | ETAILS | | | | | Sample ID |): | | | | | |
| Time: 11-4 | 20am | Vol. Remo | ved: | | L | No of Samp | ole Containe | rs: 🦧 | | | | |
| Type of Sampl | Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): | | | | | | | | | | | |
| Field Filtered 🖸 Duplicate Samples 🗆 Duplicate Sample ID: | | | | | | | | | | | | |
| Comments: | | | | | | | | | | | | |
| | | | | | | | | •••••• | | | | |
| CoC Num | ber: | | Che | cked by: | | | | Date: | | | | |
| | | | | e or a minimum | -60 | | | | | | can be calculated | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID - 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



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| | Client: BORE ID: BORE MW04 | | | | | | | | | | | |
|--|---|---------------|----------------|----------------|-------|--------------------------------|---------------|------------------|--------|--------------|----------|--|
| I | | · · · | | | | | | | | 1 | | |
| Project: Location: | , | | Coning | diameter: | | | 50 mm | Job No. Date: | ~ | 013704 | | |
| | TRUCTION | | Gasing | j ulameter. | | | 50 11111 | Date. | ļ (| 6/12/19 | ļ | |
| BORE CONS | Flush- | | | | | | • 🗆 Ton | of DVC | Тт | otal Depth: | 0 - 0 m | |
| | | | Casing only | | | easuremen [:] pint | Casing | of PVC | | stal Deptil. | 13.285 " | |
| BORE DEVE | LOPMENT | | | | | | | | | | | |
| Method: | | D | ate: | | | Undertaken | ı By: | , | Vol. R | Removed: | L | |
| Comments (| e.g. sediment c | ontent): | | | | | | | | | | |
| | | | | | | | | | | | | |
| PURGING DETAILS (measurement points in meters below top of casing as indicated above) | | | | | | | | | | | | |
| Method: Peri-pump Water Quality Meter used: YSI Pro Undertaken By: EF/PK | | | | | | | | | | | | |
| Depth to wat | er: 4,380m | Water C | Column: | m | Re | eq Purge Vo | ol. 1: | L | Flow | w Rate: | L/min | |
| Presence of | | Presen | ce of DNAPL | | Th | lickness of | NAPL: | cm | Dep | th to NAPL | : m | |
| Pump intake | : n | ı | | | | | | | | | | |
| PURGING M | PURGING MEASUREMENTS 2 | | | | | | | | | | | |
| Vol. Purged (L) Elapsed Time (min) EC (µS/cm) Temp. (°C) TDS (ppm[mg/L) pH DO %Sat DO (ppm[mg/L) Eh (mV) Water Level (m b TOC) | | | | | | | | | | | | |
| AS 5667.11 | AS 5667.11: 1998 (<+/-) 10% 0.2°C - 10% 10% 10% - | | | | | | | | | | | |
| 1L | | | | | | | | | | | | |
| 2L | 6 min | 4272 | 19.3 | 2776. | ço | | 2.0 | 0.18 | • | | ~4.38O | |
| 3L | 9 min | 4261 | 19.2 | 2769.0 | Š | | 1.4 | 0.13 | > | | ~4.380 | |
| 41 | 12min | <u>ч</u> оз | 19-1 | 2731.99 | , n | | 1.1 | 0.10 | Ø | | ~4-380 | |
| 5L | 15min | 4120 | 19.1 | 2678.0 | 0 | | 1.0 | 0.0 | 9 | | ~4.380 | |
| 6L | 18min | 4040 | 19.2 | 2626.0 | 0 | 6.68 | 1-0 | 0.0 | 7 | -63.7 | ~4-380 | |
| | | | | | | | | | | | | |
| | | | | | | | | | : | | | |
| Comments (e | e.g. condition o | f headwork | s, sheen, col | our, odour, s | edi | ment load): | I | | | . 1 | | |
| | cland | | lan | امسار | ~~~ | od ced | علز | A.F. | د سا | for a | 2 don | |
| | | 50 | , | | | | no | shee | ~ | V | | |
| | ETAILS | | | | | Sample ID |): | | | | | |
| Time: | Time: Vol. Removed: L No of Sample Containers: | | | | | | | | | | | |
| Type of Sampl | e Containers (i.e | . P = Plastic | /G = Glass/V = | Vial, volume a | nd p |) = preserved | l/up = unpres | erved): | | | | |
| Field Filtered | <u>.</u> | Duplicate | Samples 🗆 | Duplic | ate S | Sample ID: | | | | | | |
| Comments: | | | - | 1 | | | | | | | | |
| | | | | | | | | | | | | |
| | CoC Number: Checked by: Date: | | | | | | | | | | | |
| | COC NUMBER: Checked by: Date: Date: Bores to be purged dry, until pH, T and EC readings stabilise or a minimum of 3 to 5 times the water column volumes. Water column volumes can be calculated from the following casing volumes per unit length: 40 mm ID - 1 L(m; 50 mm ID - 2 L(m; 100 mm ID 8 L/m) | | | | | | | | | | | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID - 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument -specific calibration book, or in field notes as required by local procedures.

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| Client: | oject: Job No.: 6(37041 | | | | | | | | | | |
|--|-------------------------|---------------|----------------|---------------------|-------------------|---------|---------------------------------------|-------------------|--|--|--|
| Project: | | | | | | Job No. | | | | | |
| Location: | | Casing | g diameter: | | 50 mm | Date: | 16/12/19 | | | | |
| BORE CONSTRUCTION | | ····· | | | | | · · | | | | |
| | | Casing only | | Measuremen Point | t □ Top Casing | of PVC | Total Depth: | 8.055 " | | | |
| BORE DEVELOPMENT | | | | | | | | | | | |
| Method: | Da | ate: | | Undertaker | n By: | v | Vol. Removed: | L | | | |
| Comments (e.g. sedimer | nt content): | | | | | | | | | | |
| | | | | | | | | | | | |
| PURGING DETAILS (mea | asurement poi | nts in meters | below top of | casing as ind | icated above | 2) | | | | | |
| Method: PM-Phmp | Water G | uality Meter | used: y | SI Pro | | | Undertaken By | E E / PK | | | |
| Depth to water: 5.97 | m Water C | olumn: | m | Req Purge Vo | ol. 1: | L | Flow Rate: | L/min | | | |
| Presence of LNAPL | l Presen | e of DNAPL | | Thickness of | NAPL: | cm | Depth to NAPL | : m | | | |
| Pump intake: | m | | | | | | | | | | |
| PURGING MEASUREMENTS ² | | | | | | | | | | | |
| Vol. Purged (L) Elapsed Time (min) EC (µS/cm) Temp. (°C) TDS (ppm mg/L) pH DO %Sat DO (ppm mg/L) Eh (mV) Water Level (m b TOC) | | | | | | | | | | | |
| AS 5667.11: 1998 (<+/-) 10% 0.2°C - 10% 10% 10% | | | | | | | | | | | |
| AS 5667.11: 1998 (<+/-) 10% 0.2°C 10% 10% 10% 10% 10% 11% 10% 10% 10% 10% | | | | | | | | | | | |
| JL 6mi | ~ 1248 | 20.9 | 811.20 | | 1.4 | 0.12 | | ~5.778 | | | |
| 3L 9ni | n 1143 | 20.8 | 742.0 | 15 | 1.2 | 0.11 | | ~5.778 | | | |
| 4L 12 mi | ~ 1134 | 20.7 | 737.10 | 6-67 | 1.2 | D.U | -82.4 | ~5.776 | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| Comments (e.g. conditio | n of headworl | s, sheen, co | Iour, odour, s | ediment load): | | | | | | | |
| Jear. | Jellas | shal | It sul | Iw od | law. | no si | en la |) sed | | | |
| | 0 | , | | 0 | | | · · · · · · · · · · · · · · · · · · · | | | | |
| SAMPLING DETAILS | | | | Sample II | D: | | | | | | |
| Time: Vol. Removed: L No of Sample Containers: & | | | | | | | | | | | |
| Type of Sample Containers | (i.e. P = Plastic | G = Glass/V = | Vial, volume a | nd p = preserve | d/up = unpres | erved): | | | | | |
| Field Filtered | Duplicate | Samples 🗆 | Duplic | ate Sample ID: | | | | | | | |
| Comments: | <u> </u> | | | | | | | | | | |
| | | | | | | | | | | | |
| CoC Number: Bores to be purged dry, u | Intil nU T and EC | | cked by: | of 3 to 5 times the | e water column | Date: | ater column volumer | can be calculated | | | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID - 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



| Client: | oject: Job No.: 613-704H | | | | | | | | | | | |
|--|--|----------------|-------------------|-----------------|-------------|--------------------|-------------------|---------------------------------------|----------|---------------|---------------------------------------|--|
| Project: | | | | | | | | Job No. | | | | |
| Location: | | | Casing | g diameter: | | | 50 mm | Date: | 16 | 112/19 | | |
| BORE CONS | TRUCTION | | | | | | | | , | • | | |
| | Flush- 🗆 ount Mon | | □ Casing only | Locked | | easurement oint | t D Top Casing | of PVC | T | otal Depth: - | 7.875 ^m | |
| BORE DEVEI | LOPMENT | | | | | | | | | | | |
| Method: | | Da | ate: | | | Undertaken | ı By: | , | Vol. R | Removed: | L | |
| Comments (e | e.g. sediment c | ontent): | | | • | | | | | | | |
| | | | | | | | | | | | | |
| PURGING DE | TAILS (measu | rement poi | nts in meters | below top of | fca | sing as indi | cated abov | e) | | | | |
| Method: | n-pump | Water C | uality Meter | used: Y | J É | 210 | | | Und | lertaken By | EEPK | |
| | er: 5.505 m | Water C | olumn: | | Í | eq Purge Vo | ol. 1: | L | Flov | w Rate: | L/min | |
| Presence of I | | Presen | e of DNAPL | | Tł | nickness of | NAPL: | cm | Dep | oth to NAPL | : m | |
| Pump intake: | : m | 1 | | | | | | | | | | |
| PURGING ME | PURGING MEASUREMENTS 2 | | | | | | | | | | | |
| Vol. Purged (L) Elapsed Time (min) EC (µS/cm) Temp. (°C) TDS (ppm mg/L) pH DO %Sat DO (ppm mg/L) Eh (mV) Water Level (m b TOC) | | | | | | | | | | | | |
| AS 5667.11 | AS 5667.11: 1998 (<+/-) 10% 0.2 °C - 10% 10% 10% | | | | | | | | | | | |
| 1L | | | | | | | | | | | | |
| 21 | brin | 1002 | 21.0 | 651.30 |) | | 1.2 | 0. | | | 25,500 | |
| 31 | 9 min | 902 | 20.9 | 586.3 | 0 | | 1.1 | 0.09 | | | N5.505 | |
| | 12 min | 846 | 20.9 | 549.9 | 0 | 6.58 | 1.1 | 0.09 | | -76.8 | ~5.505 | |
| | | | - | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | · · · · · · · · · · · · · · · · · · · | |
| Commonte /c | a condition o | fhandwork | a abaan aal | | | moné loodh- | | | | | | |
| | e.g. condition o | | Λ Λ | | •••••• | | | t 1 | | ι Λ | | |
| مل | udy ye | للصح , | sulfor | r odou | <u>ר</u> יי | no s | heen, | | <u>~</u> | d sed | | |
| SAMPLING D | ETAILS | | | | | Sample ID |): | · · · · · · · · · · · · · · · · · · · | | | | |
| Time: Vol. Removed: L No of Sample Containers: | | | | | | | | | | | | |
| Type of Sample | e Containers (i.e | . P = Plastic/ | G = Glass/V = | Vial, volume a | nd p | p = preserved | J/up = unpres | | | | | |
| Field Filtered | | Duplicate \$ | Samples 🗆 | Duplic | ate \$ | Sample ID: | | | | | | |
| Comments: | | | | <u>l</u> | | | | | | | | |
| | | | | | | | | | | | | |
| CoC Num | | | | cked by: | | | | Date: | | | | |
| Bores to be | e purged dry, until | pH, T and EC | readings stabilis | se or a minimum | of 3 | 3 to 5 times the | water column | volumes. Wa | ater co | lumn volumes | can be calculated | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.

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Groundwater Monitoring – Field Sheet

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| Client: | | | | | | | | BORE I | D: , | BORRI | UN108a | |
|--|---|--------------|---------------|-----------------|--------|-------------------|--------------------|----------|--------|-------------|--|--|
| Project: | | | | | | | | Job No. | | 61370 | | |
| Location: | | | Casing | g diameter: | | | 50 mm | n Date: | ľ | 7/12/19 | | |
| BORE CONS | STRUCTION | | | | | | | | | • | | |
| | Z Flush- D nount Mor | | Casing Only | Locked | | easuremen pint | it □ Toj Casing | p of PVC | T | otal Depth: | 5.734 " | |
| BORE DEVE | LOPMENT | | | | | - | | | | | | |
| Method: | | Đ | ate: | | | Undertaker | ו By: | | Vol. F | Removed: | L | |
| Comments (| e.g. sediment c | ontent): | | | | | | | | | | |
| | | | | | | _ | | | | | | |
| PURGING DI | PURGING DETAILS (measurement points in meters below top of casing as indicated above) | | | | | | | | | | | |
| Method: Pen - pump Water Quality Meter used: YSIPD Undertaken By: ECPL | | | | | | | | | | | | |
| Depth to wat | ter: <u>3</u> .333 m | Water C | Column: | m | Re | eq Purge Vo | ol. ¹ : | L | Flo | w Rate: | L/min | |
| Presence of | | Presend | ce of DNAPL | | Th | nickness of | NAPL: | cm | Dep | th to NAPL | : m | |
| Pump intake | : <u>'</u> m | 1 | | | | | | | | | | |
| PURGING MI | PURGING MEASUREMENTS 2 | | | | | | | | | | | |
| Vol. Purged (L) Elapsed Time (min) EC (μS/cm) Temp. (°C) TDS (ppm[mg/L) pH DO %Sat DO (ppm[mg/L) Eh (mV) Water Level (m b TOC) | | | | | | | | | | | | |
| AS 5667.11 | AS 5667.11: 1998 (<+/-) 10% 0.2°C - 10% 10% 10% | | | | | | | | | | | |
| 11_ | 12 63rin 604 18.8 392.60 3.2 0.29 N3.383 | | | | | | | | | | | |
| ZL | brin | 608 | 18.6 | 395.2 | 0 | | 1.5 | 0,14 | | | ي جي جن | |
| 36 | 9 min | 604 | 18.5 | 392.60 | > | | 1.(| 0.10 | | | ~3.333 | |
| 41 | 12 min | 603 | 18.5 | 391.99 | 5 | | 0.9 | 0.09 | | | ~3.333 | |
| 51 | 15 min | 602 | 18.5 | 391.30 | 2 | 5.98 | 0.9 | 0.08 | | -39.4 | | |
| | | | | • • • • | | | | | | | | |
| - <u></u> | | | | | | | | | | | | |
| Comments (e | .g. condition of | f headwork | s, sheen, col | our, odour, s | ed in | ment load): | I. | | | | ······································ | |
| d | man ye | llow, | slight | - ngan | | odane, | 1 7 | mod Se | d, | no sh | een | |
| | | | U | 0 | T | | | |) | | | |
| SAMPLING DETAILS Sample ID: Time: Vol. Removed: L No of Sample Containers: X | | | | | | | | | | | | |
| Time: Type of Sample | e Containers (i.e. | | | Vial, volume ar | ud p | | | | | | | |
| Field Filtered | | Duplicate S | amples 🗆 | Duplica | te S | ample ID; | | | | | | |
| Comments: | I | | ••• | | | | | | | | | |
| | | | | | | | | | | | | |
| CoC Numi | ber: purged dry, until p | U T and EC - | | ked by: | of 2 4 | to 5 times the | unter estimation | Date: | | | | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID - 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



| Client: | Project: Job No.: 6137041 | | | | | | | | | | | | | | | |
|--|--|---------------|------------------|----------------|-------|--------------------|-------------------------------|----------|--------|-------------|----------|----|--|--|--|--|
| Project: | | | | | | | | Job No | .: 6 | 137041 | | | | | | |
| Location: | | | Casing | ı diameter: | | | 50 mm | Date: | 10 | 1 12 19 | <u></u> | | | | | |
| BORE CONS | TRUCTION | | - | | | | | | | 1 | | | | | | |
| r 1 ' | Flush- □ ount Mon | | □ Casing only | | | easurement pint | t □ Top Casing | o of PVC | To | otal Depth: | 5.329 | m | | | | |
| BORE DEVE | LOPMENT | | | | | | | | | | | | | | | |
| Method: | | Da | ate: | | | Undertaken | By: | ĺ | Vol. F | lemoved: | | L | | | | |
| Comments (e | e.g. sediment c | ontent): | | | | | | | | | · | | | | | |
| | | | | | | | | | | | | | | | | |
| PURGING DETAILS (measurement points in meters below top of casing as indicated above) | | | | | | | | | | | | | | | | |
| Method: fin-pimp Water Quality Meter used: YSIPD Undertaken By: EE/PK | | | | | | | | | | | | | | | | |
| | er: 3 . 4443m | | olumn: | m | Re | eq Purge Vo |). ¹ : | L | Flow | w Rate: | L/m | in | | | | |
| Presence of | | Presen | ce of DNAPL | | T٢ | ickness of | NAPL: | cm | Dep | th to NAPL | : | m | | | | |
| Pump intake: | Pump intake: m | | | | | | | | | | | | | | | |
| PURGING MEASUREMENTS ² | | | | | | | | | | | | | | | | |
| Vol. Purged (L)Elapsed Time (min)EC (μS/cm)Temp. (°C) (mp. (°C)TDS (ppm mg/L)pHDO %SatDO (ppm mg/L)Eh (mV)Water Level (m b TOC) | | | | | | | | | | | | | | | | |
| AS 5667.11 | (L) I ime (min) (μS/cm) (ppm/mg/L) (m b IOC) AS 5667.11: 1998 (<+/-) | | | | | | | | | | | | | | | |
| 11_ | | | | | | | | | | | | | | | | |
| ZL | brin | 269.30 | 21.2 | 175.0 | 5 | | 12.7 | 1-14 | | | ~ 3.443 | , | | | | |
| 3L | quin | 235,80 | L1.0 | 153.27 | | | 18.2 | 1.63 | | | ~3.443 | , | | | | |
| 46 | 12nin | 217.20 | 20.6 | 141.18 | | | 19.4 | 1.75 | , | | ~3.443 | | | | | |
| 5L | 15 min | | | 140.9 | | | 19.2 | 1.72 | | | ~ 3.443 | | | | | |
| 61 | 18 min | 216.40 | 20.7 | 140.6 | 0 | | 19.0 | 1.70 | | | ~3.443 | | | | | |
| FL | 21 min | 216.30 | 20.6 | 140.5 | 0 | 6.07 | 18.8 | 1.69 | | 70.6 | ~3.443 | Ś | | | | |
| | | | | | | | | | | | | | | | | |
| Comments (e | .g. condition o | f headwork | s, sheen, col | our, odour, s | edi | ment load): | | | | | ******** | | | | | |
| clea | er, low | (no s | ed, no | sheen. | n | s od | ons | ••••••• | | ••••• | ****** | | | | | |
| SAMPLING D | ETAILS | | | | | Sample ID |); | | | | | | | | | |
| Time: | | Vol. Remo | ved: | | L | No of Sam | ple Containe | rs: 8 | | | i | | | | | |
| Type of Sampi | e Containers (i.e | , P = Plastic | G = Glass/V = | Vial, volume a | nd p | o = preserved | l/up = unpre | served): | | | | | | | | |
| Field Filtered | Ø | Duplicate | Samples 🛛 | Duplic | ate (| Sample ID: | | | | | | - | | | | |
| Comments: | comments: Internal 1ab QA/OC | | | | | | | | | | | | | | | |
| | | | | | | | Ţ | | | | | | | | | |
| CoC Num | ber: | | Che | cked by: | | | CoC Number: Checked by: Date: | | | | | | | | | |

Bores to be purged dry, until pH, T and EC readings stabilise or a minimum of 3 to 5 times the water column volumes. Water column volumes can be calculated from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID - 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



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Groundwater Monitoring – Field Sheet

| Client: | roject: Job No.: 6137041 | | | | | | | | | | | | |
|---|---|-------------|---------------|----------------|-------|-------------------|-------------------|----------|--------|-------------|---------|--|--|
| Project: | | | | | | | | Job No. | : | 61370 | 141 | | |
| Location: | | | Casing | g diameter: | | | 50 mm | Date: | 19 | 1/12/19 | | | |
| BORE CON | STRUCTION | | | | | | | | | | | | |
| | Z Flush- □ nount Mor | | Casing Casing | Locked | | easuremen pint | t 🗆 Top Casing | o of PVC | T | otal Depth: | 3.946 " | | |
| BORE DEVE | | | | | | | | | | | _ | | |
| Method: | | Da | ate: | | | Undertaker | ı By: | 7 | Vol. F | Removed: | L | | |
| Comments | (e.g. sediment c | ontent): | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| PURGING DETAILS (measurement points in meters below top of casing as indicated above) | | | | | | | | | | | | | |
| Method: Pen-pump Water Quality Meter used: YSI Pro Undertaken By: EEPk | | | | | | | | | | | | | |
| | ter: 1.823 m | | olumn: | m | Re | eq Purge Vo | ol. 1: | L | Flow | w Rate: | L/min | | |
| Presence of | | Presend | e of DNAPL | | ۲ŀ | nickness of | NAPL: | cm | Dep | oth to NAPL | : m | | |
| Pump intake | e: n | 1 | | | | | | | | | | | |
| PURGING MEASUREMENTS 2 | | | | | | | | | | | | | |
| Vol. Purged (L)Elapsed Time (min)EC (μS/cm)Temp. (°C)TDS (ppm mg/L)pHDO %SatDO (ppm mg/L)Eh (mV)Water Level (m b TOC) | | | | | | | | | | | | | |
| AS 5667.1 | AS 5667.11: 1998 (<+/-) 10% 0.2 °C - 10% 10% | | | | | | | | | | | | |
| 1L | | | | | | | | | | | | | |
| 2L | brin | 741.0 | 19.4 | 481.6 | 5 | | 1.2 | 0.11 | | | ~1.823 | | |
| 31 | gnin | 612.0 | 19.2 | 397.8 | | | 1.0 | 0.0 | 1 | | ~1-823 | | |
| 41 | 12 ruin | 545.0 | 19.4 | 354. 2 | 5 | | 0.8 | 0.08 | | | ~1.823 | | |
| 56 | | 485.3 | • | 315.4 | 5 | | 0.7 | 0.07 | - | | ~1.823 | | |
| 6L | 18min | 468.1 | 19.6 | 304.2 | 27 | 5.79 | 0.8 | 0.07 | | -8.1 | ~1.823 | | |
| | | | | | | | | | | - | | | |
| | | | | | | | | | | | | | |
| Comments (| e.g. condition o | f headwork | s, sheen, col | lour, odour, s | edi | ment load): | | | | | | | |
| di | iar 1 | on | s sed | \sim | C | don | <u>, vo</u> | shee | \sim | | | | |
| | , | ţ | , | | | | · | | | | | | |
| SAMPLING I | DETAILS | | | | | Sample ID |): | | | | | | |
| Time: | Time: Vol. Removed: L No of Sample Containers: | | | | | | | | | | | | |
| Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): | | | | | | | | | | | | | |
| Field Filtered | | Duplicate S | Samples 🗆 | Duplic | ate S | Sample ID: | | | | | | | |
| Comments: | · · | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| СоС Мил | | | | cked by: | | | | Date: | | | | | |
| | Coc Number: Date: | | | | | | | | | | | | |

Calibration details to be recorded in the instrument -specific calibration book, or in field notes as required by local procedures.



| Client: | roject: Job No.: 6137041 | | | | | | | | | | | | |
|--|---|--|------------------|----------------|----------|--------------------------------|-------------------|-------------|-------------|---------------|--------------------|--|--|
| Project: | | | | | | | | | : (| 013701 | +1 | | |
| Location: | | | Casing | g diameter: | | ı | 50 mm | Date: | [| 9/12/19 | 3 | | |
| BORE CONS | | | | | | | | | | | | | |
| | lvFlush- □ ount Mon | | □ Casing only | Locked | | easuremen [:] pint | t □ Top Casing | of PVC | To | otal Depth: | 3.952 ^m | | |
| BORE DEVE | LOPMENT | | | | | | | | | | | | |
| Method: | | Da | ate: | | | Undertaken | By: | ' | /ol. R | Removed: | L | | |
| Comments (| e.g. sediment c | ontent): | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| PURGING DE | PURGING DETAILS (measurement points in meters below top of casing as indicated above) | | | | | | | | | | | | |
| Method: Peri-pump Water Quality Meter used: YSI Pro Undertaken By: EE PK | | | | | | | | | | | | | |
| | er: 1.557m | | olumn: | m | | eq Purge Vo | ol. 1: | L | Flov | w Rate: | L/min | | |
| Presence of | | Present | e of DNAPL | | Th | nickness of | NAPL: | cm | Dep | oth to NAPL: | : m | | |
| Pump intake | : m | 1 | | | | | | | | | <u> </u> | | |
| PURGING ME | PURGING MEASUREMENTS 2 | | | | | | | | | | | | |
| Vol. Purged (L) Elapsed Time (min) EC (μS/cm) Temp. (°C) TDS (ppm/mg/L) pH DO %Sat DO (ppm/mg/L) Eh (mV) Water Level (m b TOC) | | | | | | | | | | | | | |
| AS 5667.11 | AS 5667.11: 1998 (<+/-) 10% 0.2°C - 10% 10% | | | | | | | | | | | | |
| 1 | 16 Juin 23892 19.1 15529.80 2.0 0.17 ~1.557 | | | | | | | | | | | | |
| 21 | brin | 23913 | 19.1 | 15543. | 45 | | 2.1 | 0.18 | | | ~1.557 | | |
| SL | gnin | 23917 | 19.2 | 15546. | 05 | 7.21 | 2.2 | 0.19 | | -16.3 | ~1.357 | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | · | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Commente (e | .g. condition o | f headwork | s sheen col | lour adour e | edi | ment load): | | | | | | | |
| | | | | | | | <u> </u> | | | | | | |
| ciear | - yelloi | یما _ت ا | <u>n U</u> r in | oser, | <u>۷</u> | von | een, r | 60 1 | <u>.001</u> | <u> </u> | | | |
| SAMPLING D | ETAILS | | | | | Sample ID |); | | | | | | |
| Time: | | Vol. Remov | /ed: | | L | No of Sam | ple Container | s: 8 | | | | | |
| Type of Sampl | e Containers (i.e. | P = Plastic/ | G = Glass/V = | Vial, volume a | nd p |) = preserved | l/up = unpres | erved): | | | _ | | |
| | | | | | | | | | | | | | |
| Field Filtered | | Duplicate S | Samples 🗆 | Duplica | ate S | Sample ID: | | | | | | | |
| Comments: | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| CoC Num Bores to be | iber: e purged dry, until (| oH T and EC | | cked by: | 012 | to 5 times the | water column | Date: | tor co | lumn volumos | can be calculated | | |
| | e purged dry, until llowing casing volu | | | | | | | volumes, wa | net CO | iumin volumes | vali ne calculated | | |

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Calibration details to be recorded in the instrument -specific calibration book, or in field notes as required by local procedures.



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Groundwater Monitoring – Field Sheet

| Client: | | | | | | | | BORE | ID: | BORK | MWI | 2 |
|---|---|----------------|------------------|-----------------|------------|-----------------|-------------------|--------|----------|-------------|--|-----------------|
| Project: | | | | | | | | Job No | | 61370 | 41 | |
| Location: | <u> </u> | | Casing | j diameter: | | | 50 mm | Date: | 1 | 3/12/19 | | |
| BORE CONS | TRUCTION | | | | | | | | | | | |
| , | Flush- 🗆 ount Mon | | □ Casing only | | Mea Poi | asuremen int | t □ Top Casing | of PVC | To | otal Depth: | 4.4 | (9 ^m |
| BORE DEVE | LOPMENT | | | | | | | | | | | |
| Method: | | Da | ate: | | U | Indertaken | By: | | Vol. R | Removed: | | L |
| Comments (e | e.g. sediment c | ontent): | | | | | | | | | | |
| | | | | | | | | | | | | |
| PURGING DE | TAILS (measu | rement poi | nts in meters | below top of | f casi | ing as indi | cated above | e) | | | | |
| Method: ρ_{d} | in-pamp | Water G | uality Meter | used: V | 151 | PID | | | Und | lertaken By | : E | PŁ |
| Depth to wat | er: 1.9() m | Water C | olumn: | m | Rec | q Purge Vo | ol. ¹: | L | Flow | w Rate: | ······································ | L/min |
| Presence of | LNAPL | Presend | e of DNAPL | | Thi | ckness of | NAPL: | cm | Dep | th to NAPL | : | m |
| Pump intake | : m | | | | | | | | | | | |
| PURGING ME | ASUREMENTS | ; ² | | | | | | | | | | |
| Vol. Purged (L)Elapsed Time (min)EC (μS/cm)Temp. (°C)TDS (ppm]mg/L)pHDO %SatDO (ppm[mg/L)Eh (mV)Water Level (m b TOC) | | | | | | | | | | | | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | - | - | |
| 16 | 3 min | 546 | 19.7 | 354.9 | 0 | | 1.8 | 01 | 6 | | ، ا س | 911 |
| 22 | \$ rin | 539 | 19.7 | 350.34 | 5 | | 1.3 | 0.12 | • | | ~ as | h1.9 11 |
| 36 | 9 min | 537 | 19.7 | 349.09 | 5 | | 1.1 | 0.(0 | þ | | ~1.4 |) 1 |
| 4L | 12 nin | 5 34 | 19.7 | 347.10 | > | 6.46 | 1.0 | 0.0 | 9 | -21.5 | N1.9 | ill |
| | | | | | | | | | | | | |
| <u> </u> | | | | | | | | | | | | <u> </u> |
| | | | | | | ×. | - | | | | - | |
| | | | | | | | | | | | | |
| Comments (e | e.g. condition o | f headwork | s, sheen, col | our, odour, s | sedim | ent load): | | | | | | |
| | | | | | | | | | | | | |
| SAMPLING D | | | | | 1 | Sample ID |). | | <u>.</u> | | | |
| Time: Vol. Removed: L No of Sample Containers: S | | | | | | | | | | | | |
| | e Containers (i.e. | | | Vial. volume a | | | - | | | | | |
| 13be of equily. | / | | 0 010001 | riai, roidino a | ina p | produtio | nab aubiod | | | | | |
| Field Filtered | | Duplicate S | Samples 🛛 | Duplic | ate Sa | ample ID: | *. | | | | | |
| Comments: | | | | | | **** | | | | | | ' |
| | | | • | | | | | | | | | |
| | CoC Number: Checked by: Date: Bores to be purged dry, until pH T and EC readings stabilise or a minimum of 3 to 5 times the water column volumes. Water column volumes can be calculated | | | | | | | | | | | |

Bores to be purged dry, until pH, T and EC readings stabilise or a minimum of 3 to 5 times the water column volumes. Water column volumes can be calculated from the following casing volumes per unit length: 40 mm ID - 1 μ ; 50 mm ID - 2 μ ; 100 mm ID 8 μ . Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures. 2



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| | | | | | | | | 1 | | -1 | |
|--|---|--------------|------------------|----------------|----------|--------------------|-------------------|--------|-------------|---|---------------|
| Client: | oject: Job No.: 6137041 | | | | | | | | | | |
| Project: | | | | 11 | | | <i>c</i> o | | <u> </u> | | |
| Location: | | | Casinç | g diameter: | | | 50 mm | Date: | ١ | 61211 | 9 |
| BORE CONS | | | | | | | | | | | |
| | iount Mon | ument | □ Casing only | Locked | | easurement pint | t □ Top Casing | of PVC | | ptal Depth: - 4、 | -0-95 m 39 |
| BORE DEVE | LOPMENT | | | | | | | | | | |
| Method: | | | Date: | | | Undertaken | By: | | Vol. F | lemoved: | L |
| Comments (| e.g. sediment c | ontent): | | | | | | | | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | |
| | | | | | | | | | | | |
| PURGING D | ETAILS (measu | rement po | oints in meters | below top of | ca | sing as indi | cated above | :) | | | |
| Method: | ri-pump | Water | Quality Meter | used: 4 | SI | PVD. | | | Und | lertaken By | : EFPK |
| Depth to wa | ter: 🐠 😋 5m | Water | Column: | m | Re | eq Purge Vo | ol. 1: | L | Flov | w Rate: | L/min |
| Presence of | | Preser | nce of DNAPL | | Tł | nickness of | NAPL: | cm | Dep | th to NAPL | : m |
| Pump intake | :: m | | | | | | | | | | |
| PURGING MEASUREMENTS ² | | | | | | | | | | | |
| Vol. Purged (L) Elapsed Time (min) EC (µS/cm) Temp. (°C) TDS (ppm mg/L) pH DO %Sat DO (ppm mg/L) Eh (mV) Water Level (m b TOC) | | | | | | | | | | | |
| AS 5667.11: 1998 (<+/-) 10% 0.2 °C - 10% 10% - - | | | | | | | | | | | |
| 1L Bruin 783 21.2 508.95 2.9 0.25 ~0.95 | | | | | | | | | | | |
| 2L | 6 min | 795 | 21.0 | 516.7 | 5 | | 2.1 | ٨. ٥, | 9 | | N0.95 |
| 31 | quin | 800 | 21.2 | 520 | | | 1.8 | O. \ | 6 | | r0.95 |
| HL | 12min | 802 | 20.9 | 521.3 | | | 1.5 | 0.1 | 3 | | ~0.95 |
| 5L | 15min | 804 | 20.8 | 533.6 | | | 1.2 | 0.1 | 0 | | N0.95 |
| 61 | 1824 | 804 | 20.7 | 522.6 |) | 6.27 | 1.1 | 3.0 | 9 | -42.1 | NO.95. |
| | | | | | | : | | | | | |
| | | | | | | | | | | | |
| | e.g. condition o | | | | | | | 1 | 1 | | |
| cle | ar life | 5 k | record | no oda | <u> </u> | , loi | J nod | ل جدر | <u>لى ز</u> | no she | èn |
| SAMPLING [| DETAILS | | | | | Sample ID |): | | | | |
| Time: 10 - 20am Vol. Removed: L No of Sample Containers: | | | | | | | | | | | |
| | le Containers (i.e | . P = Plasti | c/G = Glass/V = | Vial, volume a | nd p | p = preserved | l/up = unpres | | | | |
| Field Filtered | M | Duplicate | Samples 🗆 | Duplic | ate \$ | Sample ID: | | | | | |
| Comments: | | | | I · · | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | Date | | | |
| Bores to b | CoC Number: Date: Bores to be purged dry, until pH, T and EC readings stabilise or a minimum of 3 to 5 times the water column volumes. Water column volumes can be calculated | | | | | | | | | | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



| Client: | | | | | | | | | | | | |
|--|---|--------------|-------------------|-----------------|-------|--------------------|-------------------|-------------|----------|--------------|-------------------|--|
| Project: | | | | | | | | | | | | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | 16 | 12/19 | | |
| BORE CONS | TRUCTION | | | | | | | | | | | |
| | Flush- □ ount Mon | | Casing | Lo c ked | | easurement pint | t □ Top Casing | of PVC | T | otal Depth: | 3.736 " | |
| BORE DEVEL | LOPMENT | | | | | | | | | | | |
| Method: | | Da | ate: | | | Undertaken | By: | 1 | Vol. F | Removed: | L | |
| Comments (e | e.g. sediment c | ontent): | | | | | | | | | | |
| | | | | | | | | | | | ***** | |
| PURGING DE | TAILS (measu | ement poi | nts in meters | below top of | cas | sing as indi | cated abov | e) | | | | |
| Method: Peri-puwp Water Quality Meter used: YSI Pro Undertaken By: EE(P)K | | | | | | | | | | | | |
| | er: [.628 m | Water C | olumn: | m m | | eq Purge Vo | 51 . 1: | L | Flo | w Rate: | L/min | |
| Presence of I | | | e of DNAPL | | Th | ickness of | NAPL: | cm | Dep | th to NAPL | : m | |
| Pump intake: | : m | | | | | | | | | | | |
| PURGING ME | PURGING MEASUREMENTS 2 | | | | | | | | | | | |
| Vol. Purged (L) Elapsed Time (min) EC (μS/cm) Temp. (°C) TDS (ppm[mg/L) pH DO %Sat DO (ppm[mg/L) Eh (mV) Water Level (m b TOC) | | | | | | | | | | | | |
| AS 5667.11: 1998 (<+/-) 10% 0.2 °C 10% 10% 10% 10% | | | | | | | | | | | | |
| AS 5667.11: 1998 (<+/-) 10% 0.2°C 10% 10% 10% . 1L 3min 195.0 21.9 126.75 2.0 0-17 ~1.628 | | | | | | | | | | | | |
| 21 | brin | 192.4 | 21.7 | 125.0 | 6 | | 1.5 | 0.13 | | | ~1.628 | |
| 36 | 9 mi | 1.89.0 | 21.9 | (22.89 | 5 | | 14 | 0.10 |) | | ~1-628 | |
| 42 | 12min | 186.7 | 22.0 | 121.36 | 0 | | 0.9 | 0.08 | • | | ~1.628 | |
| 52 | 15m | 184.7 | 22 C | 120.05 | 5 | 5.86 | 09 | 0.07 | | -35.4 | ~.628 | |
| | s | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Comments (e | e.g. condition o | f headwork | s, sheen, col | our, odour, s | edi | ment load): | \sim | | | 1 | | |
| د لو | a h | jut 1 | Ongron | , <u>s</u> li | A | t sn | Hinr , | ydou | <u> </u> | low s | ed | |
| | | J | h | o she | ž | | | | | | | |
| SAMPLING D | ETAILS | | | | | Sample II |): | | | | | |
| Time: Vol. Removed: L No of Sample Containers: | | | | | | | | | | | | |
| Type of Sampl | Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): | | | | | | | | | | | |
| Field Filtered | M | Duplicate \$ | Samples 🗆 | Duplic | ate S | Sample ID: | | | | | | |
| Comments: | | | | | | | | | | | - | |
| | | | | | | | | | | | | |
| CoC Num | | | | cked by: | • • | | | Date: | | | | |
| Bores to be | e purged dry, until j | DH, 1 and EC | readings stabilis | se or a minimum | 013 | to 5 times the | e water column | volumes. Wa | ater co | oumn volumes | can be calculated | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID - 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



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Groundwater Monitoring – Field Sheet

| Client: | <u> </u> | | | | | | | BORE | ID: | KOERN | MIS | |
|--|---|----------------|------------------|----------------|------------|--------------------|-------------------|----------|------|-------------|--------------------|--|
| Project: | | | | | | | | Job No | 0.: | 613704 | | |
| Location: | | | Casing | g diameter: | | | 50 mm | Date: | ť | 7/12/19 | | |
| BORE CON | STRUCTION | | | | | | | | | | | |
| | ∎vFlush- □ nount Mor | | □ Casing only | | | leasuremen oint | t □ Top Casing | of PVC | T | otal Depth: | 3.973 ^m | |
| BORE DEVE | | | | | _ | | | | | | | |
| Method: | | Da | ate: | | | Undertaker | n By: | | Vol. | Removed: | L | |
| Comments | (e.g. sediment c | ontent): | | | | | | | | | | |
| | | | | | | | | | | | | |
| PURGING D | ETAILS (measu | rement poi | nts in meters | below top o | f ca | sing as ind | icated abov | e) | | | | |
| Method: 🎧 | Un-pump | Water G | uality Meter | used: y | 121 | 1 Pro | | | Un | dertaken By | : EPK | |
| Depth to wa | ter: 2,,035m | Water C | olumn: | m | R | eq Purge Vo | ol. 1: | L | Flo | w Rate: | L/min | |
| Presence of | | Presend | ce of DNAPL | | Tł | hickness of | NAPL: | cm | De | pth to NAPL | : m | |
| Pump intake | e: n |) | | | | | | | | | | |
| PURGING MEASUREMENTS 2 | | | | | | | | | | | | |
| Vol. Purged (L) Elapsed Time (min) EC (µS/cm) Temp. (°C) TDS (ppm mg/L) pH DO %Sat DO (ppm mg/L) Eh (mV) Water Level (m b TOC) | | | | | | | | | | | | |
| (L) I Ime (min) (μS/cm) (ppm mg/L) (ppm mg/L) (m b I OC) AS 5667.11: 1998 (<+/-) | | | | | | | | | | | | |
| 12 Bruin 296.4 20.9 192.66 35.9 3.20 ~2.035 | | | | | | | | | | | | |
| XL | bruin | 316.2 | 20.7 | 205.53 | 5 | | 32.0 | 2.8 | 57 | | ~2.035 | |
| 31 | 9 nin | 320.6 | 20.5 | 108.39 | | | 30.4 | 2.7 | 3 | | ~2.055 | |
| 46 | 12 nin | 321.8 | 20.6 | 209.17 | - | | 30.0 | 2.3 | ю | | ~2.035 | |
| 51 | 15 rin | 322.7 | 20.5 | 209.71 | 0 | 5.12 | 29.8 | 2.6 | 9 | 183.7 | ~2.035 | |
| | | | - | | | | | | | | | |
| | | | - | | | | | | | | | |
| Comments (| e.g. condition o | f headwork | s, sheen, co | lour, odour, s | sedi | ment load): | | | | | | |
| dear, | low to p | resed | L, 10 | odour | . . | nosh | een. | | | | | |
| SAMPLING I | DETAILS | | | | | Sample II | D: | | | | | |
| Time: Vol. Removed: L No of Sample Containers: 2 | | | | | | | | | | | | |
| Type of Samp | le Containers (i.e | . P = Plastic/ | 'G = Glass/V = | Vial, volume a | ınd p | p = preserve | d/up = unpres | served): | | | | |
| Field Filtered | Ø | Duplicate \$ | Samples 🗆 | Duplic | ate | Sample ID: | | | | | | |
| Comments: | | | | | | | | | | | | |
| CoC Nur | Co C Number | | | | | | | | | | | |
| | CoC Number: Checked by: Date: Bores to be purged dry, until pH, T and EC readings stabilise or a minimum of 3 to 5 times the water column volumes. Water column volumes can be calculated | | | | | | | | | | can be calculated | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID - 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument -specific calibration book, or in field notes as required by local procedures.



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Groundwater Monitoring – Field Sheet

| Client: | | | | | | | | BOREI | D: ホ | preo | MW19 |
|--------------------|---|----------------|------------------|------------------|----------|-------------------|-------------------|---------------|---------|---------------|--------------------------|
| Project: | • ••••••• | | | | | | | Job No. | | 13704 | - |
| Location: | | | Casing | g diameter: | | | 50 mm | Date: | | + 12 10 | |
| BORE CONS | TRUCTION | | | | | | | | | | |
| | Plush- □ ount Mor | | □ Casing only | | | easuremen pint | t ⊡ Top Casing | o of PVC | То | otal Depth: | 2,530 |
| BORE DEVEL | OPMENT | | | | | | | | | | |
| Method: | | Da | ate: | | 1 | Undertaken | a By: | | Vol. R | emoved: | |
| Comments (e | .g. sediment c | ontent): | | | | | | | | | ***** |
| | | | | | | | | | | | |
| | TAILS (measu | rement poi | nts in meters | below top of | fca | sing as indi | icated abov | e) | | | |
| Method: 🖓 | en-primp | Water C | Quality Meter | used: 92 | <u> </u> | pro | | | Und | ertaken By | : Æ/PK |
| | er: i_\$90 m | Water C | Column: | m | - | eq Purge Vo | | L | | v Rate: | L/ |
| Presence of L | | Presend | ce of DNAPL | | Th | nickness of | NAPL: | cm | Dep | th to NAPL | : |
| Pump intake: | | - | | | | | | | | | |
| | ASUREMENTS | ſ | Tarm (10) | 700 | | | | | | CL /10 | Mada |
| Vol. Purged (L) | Elapsed Time (min) | EC (μS/cm) | Temp. (°C) | TDS (ppm mg/L | .) | рH | DO %Sat | DO (ppm mg | j/L) | Eh (mV) | Water Level (m b TOC) |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | • | l | 10% | 10% | 10% | | - | • |
| 1L | 4min | 1324B | 24.0 | 8607.9 | 5 | | 7.2 | 0.51 | 3 | | ~1.890 |
| 2L | 8 min | 12907 | 23.9 | 8389.5 | | | 7.1 | 0.5 | } | | ~1.890 |
| 3L | 12 nin | 12772 | 24.0 | 8301.80 |) | | 8.0 | 0.66 | | | ~1.89 |
| 46 | 16 min | | | 8250.2 | tS | | 4.6 | 1.14 | | | ~1.890 |
| • | 1 not rec | | | cours | | | ano | 0 | | | |
| | | | | | <u> </u> | | arry | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| Commente (e | .g. condition o | f headwork | s sheen co | | iho: | ment load): | | | | | |
| | - | | | | | | | | •••••• | | |
| y COU | ldnot | Jan | PIK- | NRU | Y.e | anan | 3 | | | | |
| SAMPLING D | ETAILS | | | | | Sample ID |): | | | | |
| Time: | | Vol. Remo | ved: | | L | No of Sam | ple Containe | rs: M | / | | |
| Type of Sample | e Containers (i.e | . P = Plastic/ | /G = Glass/V = | Vial, volume a | ind p | o = preserveo | d/up = unpre | served): | | | |
| | $\sim \sim$ | | | | | | _ | | | | |
| Field Filtered | ₩r | Duplicate \$ | Samples 🛛 | Duplic | ate \$ | Sample ID: | · | | | | |
| Comments: | | | | | | - | | | | | |
| CoC Num | ber: | | Che | cked by: | | | | Date: | | | |
| Bores to be | purged dry, until llowing casing vol | | readings stabili | · · · · | n of 3 | to 5 times the | e water colum | n volumes. W | ater co | lumn volumes | can be calculate |



| Client: | | | | | | | | BORE I |): <u>β</u> | ORLA | INIAP |
|-----------------------|-------------------------------|---------------|------------------|------------------|--------|--------------------|-------------------|---------------|-------------|-------------|--------------------------|
| Project: | | | | | - | | | Job No. | : 6 | 13704 | ١ |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | 17 | 4/12/19 | 1 |
| BORE CONS | STRUCTION | | | | | | | | | | |
| | ZiFlush- □ nount Mon | | □ Casing only | | | easurement pint | t D Top Casing | of PVC | To | otal Depth: | 12.224 m |
| BORE DEVE | LOPMENT | | | | | | | | | | |
| Method: | | Da | ite: | | 1 | Undertaken | By: | \ \ | Vol. R | emoved: | L |
| Comments (| e.g. sediment c | ontent): | | | | | | | | | |
| | | | | | | | | | | | |
| PURGING D | ETAILS (measu | rement poi | nts in meters | below top of | f cas | sing as indi | cated above | e) | _ | | |
| Method: ρ_{ℓ} | en pump | Water C | uality Meter | used: Y | 151 | Pro | | | Und | lertaken By | : EE/PK |
| | ter: 1.567m | Water C | olumn: | m | Re | eq Purge Vo | ol. 1: | L | Flov | v Rate: | L/min |
| Presence of | | Presenc | e of DNAPL | | Th | nickness of | NAPL: | cm | Dep | th to NAPL | : m |
| Pump intake | e: n | 1 | | | | | | | | | |
| PURGING M | EASUREMENT | 5 2 | | | • | | | | - | | |
| Vol. Purged (L) | Elapsed Time (min) | EC (µS/cm) | Temp. (°C) | TDS (ppm mg/L | .) | pН | DO %Sat | DO (ppm mg | ı/L) | Eh (mV) | Water Levei (m b TOC) |
| AS 5667.1 | 1: 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | - | - |
| 12 | Brin | 2178 | 21.4 | 1415.7 | | | 2.6 | 0.27 | 2 | | ~1.567 |
| 26 | 6min | 2022 | 21.1 | 1314.3 | 0 | | 1.5 | 0.13 | | | N1.507 |
| 3L | 9 rin | 1969 | 21.3 | 1279.8 | 35 | | 1.3 | 0.11 | | | ~1.567 |
| 42 | 12min | 1952 | 213 | 1268.8 | ζO | | 1-1 | 0.0 | 9 | | 1.567 |
| SL | 15min | [968 | 21.2 | 1279.2 | 2 | 5.93 | 5.0 | 0.0 | 8 | 14.3 | ~1.367 |
| - | | | | | | | | | | | |
| | - | | | | | | | | | | |
| Comments (| e.g. condition c | f headwork | us, sheen, co | lour, odour, s | sedi | ment load): | 11 ; | | | L | l |
| | dy, no | | | | | | | <u>, 10v</u> | vs | ed. | |
| SAMPLING | | | | - • | | Sample II |): | | | <u></u> | |
| Time: | DETAILO | Vol. Remo | ved: | | L | · · · | ple Containe | rs: 8 | | | |
| | ble Containers (i.e | | | Vial, volume a | | <u>L</u> . | - | <u> </u> | | | |
| Field Filtered | | Duplicate | Samples ঢ় | Duplic | ate | Sample ID: | FDOI | | | | |
| Comments: | | | | | | | | | | | |
| | - <u>-</u> | | | 1 | | <u>.</u> | | 5.4 | | | |
| CoC Nui Bores to I | mber: be purged dry, until | nH T and FC | | cked by: | n of 3 | 3 to 5 times the | e water column | Date: | later co | lumn volume | s can be calculated |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.

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Groundwater Monitoring – Field Sheet

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| Project: Job No:: 6132044 Location: Casing diameter: 50 mm Date: 17/12/19 BORE CONSTRUCTION Head Casing Locked Measurement Casing Total Depth: 77/12/19 BORE DEVELOPMENT Method: Date: Undertaken By: Vol. Removed: L Comments (e.g. sediment content): Date: Undertaken By: Vol. Removed: L PURGING DETAILS (measurement points in meters below top of casing as indicated above) Undertaken By: EE PL Detector PURGING DETAILS (measurement points in meters below top of casing as indicated above) Undertaken By: EE PL Detector PURGING DETAILS (measurement points in meters below top of casing as indicated above) Undertaken By: EE PL Immediate By: EE PL PURGING MEASUREMENTS 2 Presence of DNAPL Thickness of NAPL: m Depth to NAPL: m PURGING MEASUREMENTS 2 Vol. Purged Elspeed (L) 10% 10% . . Vol. Purged Elspeed (L) 10% 02*C . 10% 10% . . Vol. Purged Elspeed (L) 10% 02*C . 10% | 0114 141 | | | | | | | | DODE " | <u>,</u> | -00. | | |
|---|--|-------------------|---------------|----------------|----------------|-----------|----------------|----------------|----------|----------|--------------|-------------------|--|
| Location: Casing diameter: S0 mm Date: (7/12)[1] BORE CONSTRUCTION Head Boffush- mount Cosing Locked Measurement Top of PVC Total Depth: m BORE DEVELOPMENT Date: Undertaken By: Vol. Removed: L Comments (e.g. sediment content): Date: Undertaken By: Vol. Removed: L PURGING DETAILS (measurement points in meters below top of casing as indicated above) Undertaken By: ED (PK) Puth to water: 1.494/m Water Column: m Req Purge Vol. 1: L Flow Rate: Lmin Presence of DNAPL Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: m Purp Intake: m Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: m PURGING MEASUREMENTS * Vol. Purged Eagesed EC Temp. (*C) TDS PH D0 %Sat DO ~1.4714 2.L Grain 4046 21.7.2 2651.85 1.5 0.13 ~1.47144 < | Client: Project: | | | | | | | | | | | | |
| BORE CONSTRUCTION Head- works D/Lish- mount Casing only Cosing Cosing Total Depth: Point Total Depth: Casing Total Depth: (4.230 m BORE DEVELOPMENT Method: Date: Undertaken By: Vol. Removed: L Comments (e.g. sediment content): Date: Undertaken By: Vol. Removed: L PURGING DETAILS (Main content): meters below top of casing as indicated above) Undertaken By: E/P/L Pint PURGING DETAILS (measurement points in meters below top of casing as indicated above) Undertaken By: E/P/L P/L Putry Mater Column: m Rea Purge Vol. 1: L Flow Rate: L/min Purgointake: m m Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: m Purgointake: m m epining/L PH D0%Sst D0 Eh (mV) Water Level (m b Too) Assert.113998 (er/l) 10% 02-C 10% 10% 10% 0.1.4714 2.L Gradie 4046 21.3 2627.90 2.1 0.18 ~1 | • | | , | Casing | n diameter: | | | 50 mm | | Ľ | | | |
| Head- mount D/Lush- mount Casing Locked Measurement Top of PVC Casing Total Depth: (4.230 m BORE DEVELOPMENT Date: Undertaken By: Vol. Removed: L Comments (e.g. sediment content): Date: Undertaken By: Vol. Removed: L PURGING DETAILS (measurement points in meters below top of casing as indicated above) Undertaken By: E) P/L Method: fl/m^ - fl/m/m Water Quality Meter used: S) fl/s Undertaken By: E) P/L Depth to wate: fl/m/m Water Coulinn: m Rea Purge Vol. 1: L Flow Rate: Umin Purgeint distance m m Rea Purge Vol. 1: L Flow Rate: Umin Purgeint distance m m Rea Purge Vol. 1: L Flow Rate: Umin Purgeint distance m measurement for NAPL: m Depth to NAPL: m Depth to NAPL: m Depth to NAPL: m No PURGING MEASUREMENTS 2 Comins (LSCm) 10% | | STRUCTION | | | Jalamoton | | | | | 17 | 114/11 | | |
| works mount Monument only Point Casing (4.230) BORE DEVELOPMENT Method: Date: Undertaken By: Vol. Removed: L Comments (e.g. sediment content): Date: Undertaken By: Vol. Removed: L PURGING DETAILS (measurement points in meters below top of casing as indicated above) Undertaken By: EF (PK) Undertaken By: EF (PK) Depth to water: 1.494.m Water Column: m Req.Purge Vol. 1: L Flow Rate: L/min Presence of LNAPL Presence of DNAPL Temp. (*C) TDS (ppm(mg/L)) PH D0 %Sat DO (u) (u) (u) (u) Mater Level (m) 10% 10% 10% 10% 10% | | _/ | | | | Me | asurement | t 🗆 Ton | of PVC | Т | otal Depth: | m | |
| Method: Date: Undertaken By: Vol. Removed: L Comments (e.g. sediment content): | | | | • | | | | | | | | | |
| Comments (e.g. sediment content): PURGING DETAILS (measurement points in meters below top of casing as indicated above) Method: $f_{MA} - \rho_{UA}\rho_{M}$ Water Quality Meter used: $S \downarrow f_{PD}$ Undertaken By: $E j_{PL}$ Depth to water: $j_{A} \downarrow_{A} \downarrow_{M}$ Water Column: m Req Purge Vol. 1: L Flow Rate: Lumin Presence of DNAPL Thickness of NAPL: m Depth to NAPL: m Purp intake: m PURGING MEASUREMENTS 2 Vol. Purged Eageed EC Temp. (°C) TDS pH D0 %Sat DO Notice of DNAPL Thickness of NAPL: m PURGING MEASUREMENTS 2 Vol. Purged Eageed EC (pm/mg/L) PH D0 %Sat DD (En (mV) Water Level (L) Sot for G O NI Sot for G NI Sot for G NI Math | BORE DEV | ELOPMENT | | | | | | | | | | | |
| PURGING DETAILS (measurement points in meters below top of casing as indicated above) Method: fminor points in meters below top of casing as indicated above) Method: fminor points in meters below top of casing as indicated above) Undertaken By: Elippic Depth to water: i.g. graph Water Column: m Req Purge Vol. 1: L Flow Rate: L/min Presence of INAPL Presence of DNAPL Thickness of NAPL: Depth to NAPL: m Depth to NAPL: m PURGING MEASUREMENTS? Vol. Purged Elapsed EC Temp. (°C) TDS pH D0 %Sat D0 Eh (mV) Water Level (m b TOC) As 5667.11: 1998 (c+/) 10% 0.2-C . 10% 10% . . 1L Sruch 4046 21.73 2629.90 2.1 0.18 . . . 1L Sruch 4046 21.72 2632.50 1.5 0.13 . . . 1L Sruch 4046 21.0 2640.75 0.9 0.08 | Method: | | Da | ate: | | L | Jndertaken | By: | , | Vol. R | Removed: | L | |
| Method: $f_{MA} - \rho_{UVVP}$ Water Quality Meter used: $G \subseteq I$ f_{OO} Undertaken By: $E \subseteq P \not L$ Depth to water: $I = 494^{m}$ Water Column:mReq Purge Vol. 1:LFlow Rate:L/minPresence of LNAPLImage: Presence of DNAPLImage: Thickness of NAPL:mDepth to NAPL:mPump intake:mPresence of DNAPLImage: Thickness of NAPL:mDepth to NAPL:mPURGING MEASUREMENTS 2mPHD0 %SatDO (ppm/mg/L)DO (ppm/mg/L)Eh (mV)Water Level (m 5 TOC)AS 5667.11:10%0.2*C10%10%0.0*C10%10%.1 L3 vuin404621.332629.902.10.18~1.47142 L6 vuin405021.22632.501.50.13~1.47143 L9 vuin405321.02640.750.90.08~1.47144 L12 wuin406321.02652.650.90.07~1.49144 L13 wuin408221.22633.305.730.80.0771.3~1.49146 L18 wuin408221.22653.305.730.80.0771.3~1.49146 L18 wuin408221.22653.305.730.80.0771.3~1.49146 L18 wuin408221.22653.305.730.80.0771.3~1.49146 L18 wuin408221.2 | Comments | (e.g. sediment c | ontent): | | | | | | | | | | |
| Method: $f_{MA} - \rho_{LAYAP}$ Water Quality Meter used: GSI f_{CO} Undertaken By: EI PK Depth to water: $I.494^{m}$ Water Column:mReq Purge Vol. 1:LFlow Rate:L/minPresence of LNAPLImage: Presence of DNAPLThickness of NAPL:cmDepth to NAPL:mPump intake:mPresence of DNAPLThickness of NAPL:cmDepth to NAPL:mPURGING MEASUREMENTS ² Vol. PurgedEC (LSCm)Temp. (°C)TDS (ppm/mg/L)pHDO %SatDO (ppm/mg/L)Eh (mV)Water Level (m & TOC)AS 5667.11:1998 (~H)10%0.2~c10%10%10%1LSvuin404621.332629.902.10.18~1.47142LGruin40502122632.501S0.13~1.47142LGruin405321.02640.9750.90.08~1.49444L12.min408321.02652.650.80.07~1.494GL15.min408221.22653.305.730.80.07~1.494GL15.min408221.22653.305.730.80.07~1.494GL15.min408221.22653.305.730.80.0771.3~1.494GL15.min408221.22653.305.730.80.0771.3~1.494GL15.min408221.2 | | | | | | | | | | | | | |
| Depth to water: 1.494 m Water Column: m Req Purge Vol. 1: L Flow Rate: L/min Presence of LNAPL Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: m Pump intake: m Thickness of NAPL: cm Depth to NAPL: m PURGING MEASUREMENTS? m Fersence of DNAPL Temp. (°C) TDS pH D0 %Sat DO Eh (mV) Water Level (m b TOC) AS 5667.11: 1998 (*/) 10% 0.2 *C 10% 10% 10% . | | ETAILS (measu | rement poi | nts in meters | below top of | f cas | ing as indi | cated above | e) | | | | |
| Presence of LNAPL Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: m Pump intake: m | | ╧┹━┺╼┼┉┈┉╸┾ | | uality Meter | used: 5 | <u>S1</u> | Pro | | | Und | lertaken By | E PK | |
| Pump intake: m PURGING MEASUREMENTS 2 Vol. Purged (L) Elapsed Time (min) EC (µS/cm) Temp. (°C) TDS (ppm mg/L) pH D0 %Sat DO (ppm mg/L) Eh (mV) Water Level (m b TOC) AS 5667.11: 1998 (*/·) 10% 0.2 °C · 10% 10% · · 1L Svn.in 4046 21.3 26.29.90 2.1 0.18 ~ · · 1L Svn.in 4046 21.3 26.29.90 2.1 0.18 ~ · < | | | Water C | olumn: | m | | | | L | · | | | |
| PURGING MEASUREMENTS 2 Vol. Purged (L) Elapsed Time (min) EC (µS/cm) Temp. (°C) TDS (ppm mg/L) pH DO %Sat DO (ppm mg/L) Eh (mV) Water Level (m b TOC) AS 5667.11: 1998 (*/-) 10% 0.2*C - 10% 10% 0 - - 1L Sruin 4046 21.73 2629.90 2.1 0.18 ~1.4714 2L Gruin 405D 21.72 2632.550 1.5 0.13 ~1.4944 3L Gruin 4049 21.2 2631.855 1.1 0.10 ~1.4944 4L 12.min 4063 21.0 2640.915 0.9 0.08 ~1.4944 4L 12.min 4081 21.0 2652.65 0.5 0.07 ~1.4944 6L 18.min 4082 21.2 2653.30 5.73 0.8 0.07 71.3 ~1.4944 6L 18.min 4082 21.72 2653.30 5.73 0.8 0.07 71.3 ~1.494 6L 18.min 4082 n.4 sed | | | Presend | e of DNAPL | | Thi | ickness of | NAPL: | cm | Dep | th to NAPL | : m | |
| Vol. Purged (L) Elapsed Time (min) EC (µS/cm) Temp. (°C) TDS (ppm mg/L) pH D0 %Sat D0 (ppm mg/L) Eh (mV) Water Level (m b TOC) AS 5667.11: 1998 (*H) 10% 0.2°C - 10% 10% 10% - - 1L Sruin 4046 21.3 2629.90 2.1 0.18 ~1.494 2L Gruin 4050 21.2 2632.50 1.5 0.13 ~1.494 3L Gruin 4049 21.2 2631.85 1.1 0.10 ~1.494 4L 12 min 4063 21.0 2640.95 0.9 0.08 ~1.494 4L 12 min 4081 21.0 2652.65 0.9 0.07 ~1.494 GL 15 min 4082 21.2 2653.30 5.73 0.8 0.07 ~1.494 GL 18 min 4082 21.2 2653.30 5.73 0.8 0.07 ~1.494 GL 18 min 4082 21.2 2653.30 5.73 0.8 0.07 71.3 .494 < | | | | | | | | | | | | | |
| (L) Time (min) (µS/cm) (ppm/mg/L) (ppm/mg/L) (m b TOC) AS 5667.11: 1998 (*4') 10% 0.2 °C 10% 10% 10% · 1L 3ruin 4046 21.3 2629.90 2.1 0.18 ~1.4714 2L 6ruin 4050 21.2 2632.50 1.5 0.13 ~1.4944 3L 9ruin 4049 21.2 2631.85 1.1 0.10 ~1.4944 4L 12 min 4063 21.0 2640.95 0.9 0.08 ~1.494 4L 12 min 4081 21.0 2652.65 0.8 0.07 ~1.494 6L 18min 4082 21.2 2653.30 5.73 0.8 0.07 ~1.494 6L 18min 4082 21.2 2653.30 5.73 0.8 0.07 ~1.494 6L 18min 4082 21.2 2653.30 5.73 0.8 0.07 71.3 ~1.494 6L 18min 4082 n.4 samin n.4 1.4 1 | | 1 | | . | | | | DOM: C + | | | | | |
| 1L 3ruin 4046 21.3 2629.90 2.1 0.18 ~1.474 2L 6ruin 4050 21.2 2632.50 1.5 0.13 ~1.494 3L 9ruin 4049 21.2 2631.85 1.1 0.10 ~1.494 4L 12 min 4063 21.0 2640.95 0.9 0.08 ~1.494 5L 15 min 4081 21.0 2652.65 0.8 0.07 ~1.494 6L 18min 4082 21.2 2653.30 5.73 0.8 0.07 ~1.494 6L 18min 4082 21.2 2653.30 5.73 0.8 0.07 71.3 ~1.494 6L 18min 4082 21.2 2653.30 5.73 0.8 0.07 71.3 ~1.494 6L 18min 4082 21.2 2653.30 5.73 0.8 0.07 71.3 ~1.494 6L 18min 4082 n.4 n.4 1 1 1<.4 | <td></td> <td></td> <td></td> <td>Temp. (°C)</td> <td></td> <td>)</td> <td>рН</td> <td>DO %Sat</td> <td></td> <td>/L)</td> <td>⊢EN (MV)</td> <td></td> | | | | Temp. (°C) | |) | рН | DO %Sat | | /L) | ⊢EN (MV) | |
| 21 6min 4050 21.2 2632.50 1.5 0.13 ~1.494 32 9min 4049 21.2 2631.85 1.1 0.10 ~1.494 42 12min 4063 21.0 2640.95 0.9 0.08 ~1.494 52 15min 4081 21.0 2652.65 0.8 0.07 ~1.494 62 15min 4082 21.2 2653.30 5.73 0.8 0.07 ~1.494 62 18min 4082 21.2 2653.30 5.73 0.8 0.07 71.3 ~1.494 62 18min 4082 21.2 2653.30 5.73 0.8 0.07 71.3 ~1.494 64 18min 4082 21.2 2653.30 5.73 0.8 0.07 71.3 ~1.494 65 18min 4082 21.7 2653.30 5.73 0.8 0.07 71.3 ~1.494 66 18min 9.000 9.000 9.000 9.000 9.000 9.000 9.000 9.000 | AS 5667. | 11: 1998 (<+/-) | 10% | 0.2°C | • | | 10% | 10% | 10% | | • | • | |
| 3L 9min 4049 21.2 2631.85 1.1 0.10 ~1.494 4L 12min 4063 21.0 2640.95 0.9 0.08 M1.494 5L 15min 4081 21.0 2652.65 0.8 0.07 ~1.494 6L 18min 4082 21.2 2653.30 5.73 0.8 0.07 ~1.494 6L 18min 4082 21.2 2653.30 5.73 0.8 0.07 71.3 ~1.494 6L 18min 4082 21.2 2653.30 5.73 0.8 0.07 71.3 ~1.494 6L 18min 4082 21.2 2653.30 5.73 0.8 0.07 71.3 ~1.494 6L 18min 4082 21.7 2653.30 5.73 0.8 0.07 71.3 ~1.494 6L 18min 1.8 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 <td< td=""><td>16</td><td>Snin</td><td>4046</td><td>21.3</td><td>2629.9</td><td>0</td><td></td><td>2,1</td><td>0.18</td><td>, ,</td><td></td><td>~1.494</td></td<> | 16 | Snin | 4046 | 21.3 | 2629.9 | 0 | | 2,1 | 0.18 | , , | | ~1.494 | |
| HL 12 min 4063 21.0 2640.95 0.9 0.08 ~1.494 5L 15 min 4081 21.0 2652.65 0.8 0.07 ~1.494 6L 18min 4082 21.2 2653.30 5.73 0.8 0.07 ~1.494 6L 18min 4082 21.2 2653.30 5.73 0.8 0.07 71.3 ~1.494 6L 18min 4082 21.2 2653.30 5.73 0.8 0.07 71.3 ~1.494 6L 18min 4082 21.2 2653.30 5.73 0.8 0.07 71.3 ~1.494 6L 18min 4082 21.2 2653.30 5.73 0.8 0.07 71.3 ~1.494 6L 18min 4082 21.2 2653.30 5.73 0.8 0.07 71.3 ~1.494 6L 18min 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 | 26 | 6 min | 4050 | 21.2 | · | | | 1.5 | 0.13 | S | | ~1.494 | |
| HL 12 min 4063 21.0 2640.95 0.9 0.08 ~1.494 5L 15 min 4081 21.0 2652.65 0.8 0.07 ~1.494 6L 18min 4082 21.2 2653.30 5.73 0.8 0.07 ~1.494 6L 18min 4082 21.2 2653.30 5.73 0.8 0.07 71.3 ~1.494 6L 18min 4082 21.2 2653.30 5.73 0.8 0.07 71.3 ~1.494 6L 18min 4082 21.2 2653.30 5.73 0.8 0.07 71.3 ~1.494 6L 18min 4082 21.2 2653.30 5.73 0.8 0.07 71.3 ~1.494 6 1 0.0 1 | 36 | 9nuin | 4049 | 21.2 | 2631.8 | 5 | | 1.1 | 0.10 | 2 | | ~1.494 | |
| 5L 15 min 4081 21.0 2652.65 0-8 0.07 ~1.494 6L 18min 4082 21.2 2653.30 5.73 0.8 0.07 71.3 ~1.494 6L 18min 4082 21.2 2653.30 5.73 0.8 0.07 71.3 ~1.494 6L 18min 4082 21.2 2653.30 5.73 0.8 0.07 71.3 ~1.494 6L 18min 4082 21.2 2653.30 5.73 0.8 0.07 71.3 ~1.494 6L 18min 4082 21.2 2653.30 5.73 0.8 0.07 71.3 ~1.494 6L 18min 4082 21.2 2653.30 5.73 0.8 0.07 71.3 ~1.494 Comments (e.g. condition of headworks, sheen, colour, odour, sediment load): clandy, land sed, vo dram, slight organic odour SAMPLING DETAILS Sample ID: Time: 11= 30an Vol. Removed: L No of Sample Containers: 8 8 <td></td> <td>12 min</td> <td>4063</td> <td>21.0</td> <td>2640.0</td> <td>15</td> <td></td> <td>0.9</td> <td>0.08</td> <td></td> <td></td> <td>~1.494</td> | | 12 min | 4063 | 21.0 | 2640.0 | 15 | | 0.9 | 0.08 | | | ~1.494 | |
| Comments (e.g. condition of headworks, sheen, colour, odour, sediment load): clandy, law Sed, no sheen, slight organic odown SAMPLING DETAILS Time: 11= 30an Vol. Removed: L No of Sample Containers: 8 | SL | 15 min | | 21-0 | 2652.(| 55 | | | 0.07 | 1 | | ~1,494 | |
| Comments (e.g. condition of headworks, sheen, colour, odour, sediment load): clandy, law Sed, vo steen, slight organic odow SAMPLING DETAILS Time: 11= 30an Vol. Removed: L No of Sample Containers: 8 | 61 | | 4082 | 21.Z | 2653.3 | ,0 | 5.73 | | 0.07 | 7 | 71-3 | ~.494 | |
| clandy, law sed, no sheen, slight organic adam SAMPLING DETAILS Time: 11=30an Vol. Removed: L No of Sample Containers: | | | | | | | | | | | | | |
| SAMPLING DETAILS Sample ID: Time: 1/= 30an Vol. Removed: L No of Sample Containers: 8 | _ | | | : | | | | | | | | | |
| SAMPLING DETAILS Sample ID: Time: 1/2 30am Vol. Removed: L No of Sample Containers: 8 | Comments | (e.g. condition c | | | | | | | E | | - | | |
| Time: 1=30am Vol. Removed: L No of Sample Containers: 8 | | cloudy | , la | J Sed | no she | m | , sh | ght or | Janne | 00 | lour | | |
| Time: 1=30am Vol. Removed: L No of Sample Containers: 8 | SAMPLING | DETAILS | | | | | Sample II |): | | | | | |
| | Time: \/ | 30am | Vol. Remo | ved: | | L | | | rs: 8 | | | | |
| Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): | | | . P = Plastic | 'G = Glass/V = | Vial, volume a | nd p | = preserved | d/up = unpres | erved): | | | | |
| Field Filtered 🖸 Duplicate Samples 🗆 Duplicate Sample ID: | Field Filtered | | Duplicate | Samples 🗆 | Duplic | ate S | ample ID: | | | | | | |
| Comments: | Comments: | | I | - | | | | | | | | | |
| CoC Number: Checked by: Date: | CoC Nu | mher: | | Che | cked by: | | | | Date | | | | |
| Bores to be purged dry, until pH, T and EC readings stabilise or a minimum of 3 to 5 times the water column volumes. Water column volumes can be calculated | | | pH, T and EC | | | of 3 | to 5 times the | e water column | | ater co | lumn volumes | can be calculated | |

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| Client: | | | | | | | BORE II | D: 4 | SORR 1 | MW 22 | _ |
|---------------------------------------|------------------|-------------------|---------------------|--------|-------------------|-------------------|---------------|--------|-------------|-------------------------|-------|
| Project: | | | | | | | Job No. | : 6 | 30RR 1 | (| |
| Location: | | Casing | g diameter: | | | 50 mm | Date: | (- | 7/12/19 | | |
| BORE CONSTRUCTION | | | | | | | | | | | |
| Head- ⊡ Flush- ⊑ works mount M | | □ Casing only | Locked | | easuremen oint | t □ Top Casing | of PVC | T | otal Depth: | 1.359 | m |
| BORE DEVELOPMENT | | | | | | | | | | | |
| Method: | Di | ate: | | | Undertaker | ı By: | 1 | Vol. F | Removed: | | L |
| Comments (e.g. sedimen | content): | | | | | | | | | | |
| | | | | | | | | | | | |
| PURGING DETAILS (mea | urement poi | nts in meters | below top of | fca | sing as indi | icated above | e) | - | | | |
| Method: | Water C | Quality Meter | used: | | | | | Unc | lertaken By | : E I | PK |
| Depth to water: 1/16539 | m Water C | Column: | m | Re | eq Purge Vo | ol. 1: | L | Flov | w Rate: | • | L/min |
| Presence of LNAPL | Presen | ce of DNAPL | | T | nickness of | NAPL: | cm | Dep | th to NAPL | ; | m |
| Pump intake: | m | | | | | | | | | | |
| PURGING MEASUREMEN | | · · · · | | | | , | | | | (| |
| Vol. Purged Elapsed (L) Time (min) | EC (μS/cm) | Temp. (°C) | TDS (ppm mg/L | .) | рН | DO %Sat | DO (ppm mg | /L} | Eh (mV) | Water Leve (m b TOC) | |
| AS 5667.11: 1998 (<+/-) | 10% | 0.2°C | | , | 10% | 10% | 10% | | - | - | |
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| | | | | | | | | | | | |
| Comments (e.g. condition | of headwork | l (s. sheen co | l Iour. odour is | ihea | ment load). | | | | l | l | |
| WELL DRY | | | ieury suour, s | | | | | | | | |
| rich VKy | | ••••• | | | | | | | | | |
| SAMPLING DETAILS | | | | | Sample II |): | <u> </u> | | | | |
| Time: | Vol. Remo | ved: | | L | · | ple Container | 'S: | | | | |
| Type of Sample Containers | i.e. P = Plastic | /G = Glass/V = | Vial, volume a | nd p | | | | | | | |
| Field Filtered | Duplicate | Samples 🗆 | Duplic | ate \$ | Sample ID: | | | | | | |
| Comments: | | | 1 | | | | | | | | |
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Calibration details to be recorded in the instrument -specific calibration book, or in field notes as required by local procedures.



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Groundwater Monitoring – Field Sheet

| Client: | | | | | | | | BORE | D: (| BORKN | NN226 | |
|---|---|---------------|------------------|----------------------------|----------|-------------------|-------------------|---------------|---------|--------------|--------------------------|----------------|
| Project: | | | | | | | | Job No. | | 613704 | | |
| Location: | | | Casin | g diameter: | | | 50 mm | Date: | (| 7/12/1 | າ | |
| BORE CONS | | | | | | | | | | | | |
| | TFlush- □ Iount Mor | | □ Casing only | Locked Locked | | easuremen oint | t 🗆 Top Casing | of PVC | T | otal Depth: | 13.050 | с ^т |
| BORE DEVE | LOPMENT | | | | | | | | | | | |
| Method: | | Da | ate: | | | Undertaker | By: | | Vol. F | Removed: | | Ľ |
| Comments (| e.g. sediment c | ontent): | | | | | | | | | | |
| PURGING DE | ETAILS (measu | rement poi | nts in meters | below top of | f ca | sing as indi | cated above | e) | | | | |
| Method: ρ_{ℓ} | in-pimp | Water G | uality Meter | used: 45 | il P | 'n | | | Unc | dertaken By | EELP | 1८ |
| | er: 3. 123 m | | olumn: | m | 1 | eq Purge Vo | ol. 1: | L | Flo | w Rate: | | ./min |
| Presence of | | Presend | e of DNAPL | Ċ | Tł | nickness of | NAPL: | cm | Dep | oth to NAPL | : | m |
| Pump intake | : n | 1 | | | | | | | | | | |
| PURGING MI | EASUREMENT | S 2 | | , | | | | | | | | |
| Vol. Purged (L) | Elapsed Time (min) | EC (µS/cm) | Temp. (°C) | TDS (ppm mg/L | .) | pH | DO %Sat | DO (ppm mg | j/L) | Eh (mV) | Water Level (m b TOC) | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | - | • | |
| 1L | 3 min | 12689 | £1.9 | 8234.8 | š5 | | 2.4 | 0.20 |) | | ×3.123 | 3 |
| 21 | 6 nin | 12650 | 21.4 | 8222.50 | <u> </u> | | <i>(.</i> 3 | 0.(1 | | | ~3,12 | ડ |
| 36 | 9 ruin | 12536 | 22:5 | 8148.4 | 0 | | (.8 | 0.15 | | | ~3.12 | 3 |
| 41 | 12 ruin | 12544 | 22.6 | 8153.60 | | | 1.5 | 0.12 | | | N3.12 | 3 |
| SL | 15 rin | | · · · · | 8151.0 | 0 | 5.61 | (.4 | 0.1 | | -36.1 | ~3.12 | 3 |
| | ļ | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Commonte la | | f hooduus di | o obser a- | | المح | montless | | | | | | |
| | e.g. condition o | ••••••• | | | | | | 1 - | | | | |
| CHOOL | d clear | C, SN | (fur o | aour, | N | she | 21, M | ed s | Å | <u> </u> | | |
| SAMPLING D | ETAILS | | | | | Sample ID |): | | | | | |
| Time: Vol. Removed: | | | | L No of Sample Containers: | | | | | | | | |
| Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume an | | | | | nd p |) = preserved | l/up = unpres | erved): | | | | |
| Field Filtered | ₽ ₽ | Duplicate § | Samples 🛛 | Duplic | ate S | Sample ID: | | | | | | |
| Comments: | | | | | | | | | | | | |
| CoC Num | ber: | | Che | cked by: | | | | Date: | | | 1 | |
| | e purged dry, until flowing casing vol | | | | | | | volumes. Wa | ater co | lumn volumes | can be calculat | ted |



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| Client: | | | | | | | BORE ID: PORPINW24 | | | | |
|--------------------|---|-----------------|------------------|------------------|---------------------|-------------------|--------------------|---------------------|--------------------------|--|--|
| Project: | | | | | | | JOB NO .: 6127041 | | | | |
| Location: | | | Casing | g diameter: | | 50 mm | Date: | 18/12/19 | | | |
| BORE CON | STRUCTION | | | | | | 1 | | | | |
| Head- | 🛛 Flush- 🗆 | | Casing | Locked | Measuremen Point | t 🗆 Top Casing | of PVC | Total Depth: | [0.986 | | |
| BORE DEVE | LOPMENT | | | | | | | | | | |
| Method: | | Da | ite: | | Undertaker | n By: | · · · · | Vol. Removed: | | | |
| Comments | (e.g. sediment d | content): | | | | | ····· | | | | |
| PURGING D | ETAILS (measu | irement poi | nts in meters | below top of | f casing as ind | icated above | e) | | | | |
| Method: P | li-pump | Water C | uality Meter | used: V | SIPRO | | | Undertaken By: | E/PK | | |
| | iter: 🕱 O 2411 | n Water C | olumn: | m | Req Purge V | ol. 1: | L | Flow Rate: | L/mi | | |
| Presence of | | Presend | e of DNAPL | | Thickness of | NAPL: | cm | Depth to NAPL: | : | | |
| Pump intake | e: r | n | | | | | | | | | |
| PURGING M | EASUREMENT | S ² | | | | | | | | | |
| Vol. Purged (L) | Elapsed Time (min) | EC (μS/cm) | Temp. (°C) | TDS (ppm[mg/L | .) pH | DO %Sat | DO (ppm mg | Eh (mV) | Water Level (m b TOC) | | |
| AS 5667.1 | 1: 1998 (<+/-) | 10% | 0.2°C | - | 10% | 10% | 10% | - | | | |
| | Brin | 1772 | 23.0 | 1151.80 | > | 11.4 | 0.9- | 7 | N 8.021 | | |
| 24 | bruin | 1778 | 22.7 | 1(55.7 | 0 | 11.8 | 10,] | | ~ 8.024 | | |
| 8L | anin | 1764 | 22.7 | 1146.6 | .0 | (].0 | 0.95 | S | ~ 8.021 | | |
| 4L | | 1766 | 22.9 | 1147.9 | 0 4-47 | 11-0 | 0.90 | 4 i90.8 | ~ 8.026 | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| Comments (| e.g. condition of | of headwork | | * | | | | | | | |
| milt | y ligt | proisn | -, ~ | sdow | , <u>tou</u> | sed . | , <u>vo</u> | seen | | | |
| SAMPLING I | DETAILS | | | | Sample II |): | | | | | |
| Time: | | Vol. Remo | ved: | | L No of Sam | ple Containe | rs: Q | | | | |
| Type of Samp | ole Containers (i.e | e. P = Plastic/ | G = Glass/V = | Vial, volume a | nd p = preserve | d/up = unpres | served): | | | | |
| Field Filtered | \$ | Duplicate | Samples 🗆 | Duplic | ate Sample ID: | | | | <u></u> | | |
| Comments: | | , | | | | | | | | | |
| CoC Nur | nber: | | Che | cked by: | | | Date: | | | | |
| | be purged dry, until following casing yo | | readings stabili | se or a minimun | | | volumes. W | ater column volumes | can be calculated | | |

Calibration details to be recorded in the instrument -specific calibration book, or in field notes as required by local procedures.



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| Project: Job No.: 6137041 Location: Casing diameter: 50 mm Date: (7/12/19) BORE CONSTRUCTION V V V V | | | | | | | | | | | | | |
|--|-----|--|--|--|--|--|--|--|--|--|--|--|--|
| BORE CONSTRUCTION | | | | | | | | | | | | | |
| BORE CONSTRUCTION | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Head- works mount Monument only Locked Measurement D Top of PVC Total Depth: 12.922 | m | | | | | | | | | | | | |
| BORE DEVELOPMENT | | | | | | | | | | | | | |
| Method: Date: Undertaken By: Vol. Removed: | L | | | | | | | | | | | | |
| Comments (e.g. sediment content): | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| PURGING DETAILS (measurement points in meters below top of casing as indicated above) | | | | | | | | | | | | | |
| Method: Pen-pump Water Quality Meter used: 451 Pro Undertaken By: EPIPK | - | | | | | | | | | | | | |
| Depth to water: 7.528m Water Column: m Req Purge Vol. 1: L Flow Rate: L | min | | | | | | | | | | | | |
| Presence of LNAPL Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: | m | | | | | | | | | | | | |
| Pump intake: m | | | | | | | | | | | | | |
| PURGING MEASUREMENTS 2 | | | | | | | | | | | | | |
| Vol. Purged (L) Elapsed Time (min) EC (μS/cm) Temp. (°C) TDS (ppm mg/L) pH DO %Sat DO (ppm mg/L) Eh (mV) Water Level (m b TOC) | | | | | | | | | | | | | |
| AS 5667.11: 1998 (<+/-) 10% 0.2 °C - 10% 10% 10% | - | | | | | | | | | | | | |
| 1L Brin 3678 20.0 2390.70 5.1 0.45 77.52 | 3 | | | | | | | | | | | | |
| 21 6min 3639 20 1 2365.35 2.4 0.22 ~7 52 | 8 | | | | | | | | | | | | |
| 3L 9min 3613 20.4 2348.45 1.9 0.16 ~7.52 | 8 | | | | | | | | | | | | |
| 4L 12min 3601 20.4 2340.65 (.5 0.13 ~7.52 | | | | | | | | | | | | | |
| 52 15min 3587 20.3 2331.55 1.3 0.12 N7.52 | 8 | | | | | | | | | | | | |
| 6L 18mm 3612 20-3 2347.00 579 1.3 0.12 -70.6 7.52 | 8 | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Comments (e.g. condition of headworks, sheen, colour, odour, sediment load): | | | | | | | | | | | | | |
| clady, low sed no shear, slight suffer adams | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| SAMPLING DETAILS Sample ID: | | | | | | | | | | | | | |
| Time: Vol. Removed: L No of Sample Containers: 8 | | | | | | | | | | | | | |
| Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): | | | | | | | | | | | | | |
| Field Filtered 🖬 Duplicate Samples 🗆 Duplicate Sample ID: | | | | | | | | | | | | | |
| Comments: | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| CoC Number: Date: Bores to be purged dry, until pH, T and EC readings stabilise or a minimum of 3 to 5 times the water column volumes. Water column volumes can be calcula | od | | | | | | | | | | | | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



| Casing diameter:50 mmDate: $ S /2- 19 $ BORE CONSTRUCTIONHead-worksDeflush- mountCasingLocked onlyMeasurement PointTop of PVC CasingTotal Depth: 8.4445BORE DEVELOPMENTBORE DEVELOPMENTDate:Undertaken By:Vol. Removed:Comments (e.g. sediment content):PURGING DETAILS (measurement points in meters below top of casing as indicated above)Method: $\mathcal{P}n' \mathcal{P}n' \mathcal{P}$ PURGING DETAILS (measurement points in meters below top of casing as indicated above)Method: $\mathcal{P}n' \mathcal{P}n' \mathcal{P}$ PURGING MEASUREMENTS:Vol. Pure points in meters below top of casing as indicated above)Method: $\mathcal{P}n' \mathcal{P}n' \mathcal{P}$ Water Column: mmReq Purge Vol. 1:LFile PhiPURGING MEASUREMENTS?Vol. Purged (L)Elapsed (L)EC (ppm[mg/L)PHD0 %Sat (ppm[mg/L)PHD0 %Sat (ppm[mg/L)PHD0 %Sat (ppm[mg/L)PHD0 %Sat (ppm[mg/L)PHPURGING MEASUREMENTS?Vol. Purged (L)Elapsed (L)CC (ppm[mg/L)PHD0 %Sat (ppm[mg/L)PH <th>Client: Project:</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>BORE II Job No.</th> <th></th> <th></th> <th>MN29</th> | Client: Project: | | | | | | | | BORE II Job No. | | | MN29 |
|--|---------------------|-------------------|-------------------|-----------------------|----------------|---------|-------------------|------------------|--------------------|--------|--|---------|
| BORE CONSTRUCTION Head- mount Casing □ Looked Measurement □ Top of PVC Total Depth: & & BORE DEVELOPMENT Menument only □ Date: Undertaken By: Vol. Removed: Comments (e.g. sediment content): Date: Undertaken By: Vol. Removed: PURGING DETAILS (measurement points in meters below top of casing as indicated above) Method: Difter Construction PURGING DETAILS (measurement points in meters below top of casing as indicated above) Method: Elef Pic PURGING DETAILS (measurement points in meters below top of casing as indicated above) Method: Elef Pic Purging Depth to water: 5.53 m Water Column: m Req Purge Vol. 1: L Flow Rate: L/P Purging Montants: m Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: Purging Elepsed Elepsed: frame (min) (EC Tomp. (°C) TDS pH D0 %Sat D0 (m to: 0) 1L 3in 74.8 20.7 4.86.20 24 0.24 ~5.85 10 01 ~5.85 2L 6in < | | <u> </u> | | Casing | diameter: | | | 50 mm | | e e | | |
| Head- works Drewint Drewint Drop of PVC Casing Total Depth: 8,4445 BORE DEVELOPMENT | ` | DUCTION | | Casing | j uldineter. | | | J 0 IIIII | Date. | 18 | <u> </u> | (|
| Method: Date: Undertaken By: Vol. Removed: Comments (e.g. sediment content): | Head- 🗳 | Flush- | | • | Locked | | | | | To | tal Depth: | 8.445 |
| Comments (e.g. sediment content): PURGING DETAILS (measurement points in meters below top of casing as indicated above) Method: Peri Purp Water Quality Meter used: IS Pro Undertaken By: EF Pro Depth to water: 5.853 m Water Column: m Req Purge Vol. 1: L Flow Rate: L/n Presence of LNAPL Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: Pump intake: m P PURGING MEASUREMENTS 2 Vol. Purged Elapsed EC Temp. (°C) TDS pH D0 %Sat DO (ppm/mg/L) Eh (mV) Water Level 1/L 3nuin 74.8 20.7 486.20 2.4 0.2.4 ~5.85 2L 6nuin 72.7 19.7 442.55 1.7 0.11 ~5.85 3L 9 nún 7.19 19.7 4465.40 0.9 0.08 ~5.85 5L 15 min 7.11 19.7 4465.40 0.9 0.08 ~5.85 5L 15 min 7.11 19.7 4465.40 0.9 0.08 ~5.85 5L 15 min < | BORE DEVEL | OPMENT | | | • | • | | | | | | |
| PURGING DETAILS (measurement points in meters below top of casing as indicated above) Method: Periodic Periodi Periodi Periodic Periodic Periodic Periodic Periodic | Method: | | Da | ite: | | l | Jndertaker | By: | · ا | Vol. R | emoved: | |
| Method: Pari - pump Water Quality Meter used: Ist if to be a constraint of the adverse of the adv | Comments (e | .g. sediment c | ontent): | , | | | | | | | | |
| Depth to water: 5.953 m Water Column: m Req Purge Vol. 1: L Flow Rate: L/n Presence of LNAPL Presence of DNAPL Thickness of NAPL: cm Depth to NAPL: Pump intake: m m Presence of LNAPL Depth to NAPL: cm Depth to NAPL: Vol. Purged Elapsed fcpming/L pming/L pH D0 %Sat DO Eh (mV) Water Level (L) Time (min) EC Temp. (°C) TDS pH D0 %Sat DO (ppming/L) Eh (mV) Water Level (L) Satisfield 10% 0.2 °C 10% 10% 10% ^ ^ 1L 3ncin 7448 20 · 7 486.20 2.4 0.2 A ~ 5.85 2L 6ncin 72.7 M · 7 442.55 1 · 2 0 · 1 1 ~ 5.85 3L 9 min 7.16 19 · 7 4465 · 40 0 · 9 0 · 0.08 ~ 5.85 5L 15 min 7.11 19 · 7 4465 · 40 0 · 9 0 · 0.8 ~ 5.85 5L 15 min 7.11 19 · 7 465 · 40 0 | PURGING DE | TAILS (measu | rement poi | nts in meters | below top of | fcas | ing as ind | icated abov | e) | | | |
| Presence of LNAPL Presence of DNAPL Thickness of NAPL: Cm Depth to NAPL: Pump intake: m m m m m m PURGING MEASUREMENTS ² Vol. Purged Elapsed EC Temp. (°C) TDS pH D0 %Sat DO Eh (mV) Water Level (m b TOC) AS 5667.11: 1998 (*+) 10% 0.2°C 10% 10% 10% m m m m m Sate Sate m | Method: Per | i-pump | Water G | uality Meter | used: ບ | 1S I | fro | | | Und | ertaken By | : EE/PK |
| Pump intake:mPURGING MEASUREMENTS 2Vol. Purged (L)Elapsed Time (min)EC (μ S/cm)Temp. (°C) (μ)TDS ($ppm mg/L)$ pHDO %Sat ($ppm mg/L)$ DO ($ppm mg/L)$ Eh (mV) (m b TOC)AS 5667.31: 1998 (4+)10%0.2 °C10%10%10%13 nuin74.820.74.86.202.440.24 $N \leq .85$ 2L6 nuin72.7M74.472.551.720.11 $N \leq .85$ 32L9 nuin71.919.74.67.351.000.071 $N \leq .85$ 3L19 nuin71.619.74.65.400.90.08 ~ 5.85 5L15 nun71.119.74.62.155.730.90.08 ~ 5.85 5L15 nun71.119.74.62.155.730.90.08 ~ 5.85 5L15 nun71.119.74.62.155.730.90.08 ~ 5.85 5L15 nun71.119.74.62.155.730.90.08 ~ 5.85 5L16.710.710.710.7Comments (e.g. condition of headworks, sheen, colour, odour, sediment load): Ulaar yyllaar, strong sulfur odaunodar-de sed, no strongSAMPLING DETAILSSample ID:Time:Vol. Removed:LNo of Sample Containers: | Depth to wate | er: 5.853 m | Water C | olumn: | m | Re | eq Purge Vo | ol. 1: | L | Flov | / Rate: | L/m |
| PURGING MEASUREMENTS ² Vol. Purged (L) Elapsed Time (min) EC (µS/cm) Temp. (°C) TDS (ppm/mg/L) pH DO %Sat DO (ppm/mg/L) Eh (mV) Water Level (m b TOC) AS 5667.11: 1998 (~H) 10% 0.2°C 10% 10% 0.0% Eh (mV) Water Level (m b TOC) AS 5667.11: 1998 (~H) 10% 0.2°C 10% 10% 0.0% Eh (mV) Water Level (m b TOC) AS 5667.11: 1998 (~H) 10% 0.2°C 10% 10% 0.0% N 5.85 1L 3 n in 74.8 2 0.7 4.866.20 2.44 0.21 N 5.85 2L 6 n in 72.7 M -7 4.472.55 1.7 0.11 N 5.85 3L 9 n in 7.10 19.7 4.657.35 1.00 0.08 ~5.85 5L 15 nn 71.1 19.7 4.62.15 5.23 0.9 0.08 ~5.85 5L 15 nn 71.1 19.7 4.62.15 5.73 0.9 0.08 ~5.85 6 10 10 10 10.7 nodocr </td <td>Presence of L</td> <td></td> <td>Presend</td> <td>e of DNAPL</td> <td></td> <td>Th</td> <td>ickness of</td> <td>NAPL:</td> <td>cm</td> <td>Dep</td> <td>th to NAPL</td> <td></td> | Presence of L | | Presend | e of DNAPL | | Th | ickness of | NAPL: | cm | Dep | th to NAPL | |
| Vol. Purged (L) Elapsed Time (min) EC (LS/cm) Temp. (°C) TDS (ppm/mg/L) pH D0 %Sat DO (ppm/mg/L) Eh (mV) Water Level (m b TOC) AS 5667.11: 1998 (*++) 10% 0.2 °C . 10% 10% 10% . . 1L 3 nuin 74.8 20.7 4.86.20 2.4 0.2.1 ~5.85 2L 6 nuin 72.7 M7 4.72.55 1.2 0.11 ~5.85 3L 9 nuin 7.19 19.7 4.67.35 1.0 0.07 ~5.85 4L 12 win 7.16 19.7 4.65.40 0.9 0.08 ~5.85 5L 15 min 7.11 19.7 4.62.15 5.23 0.9 0.08 ~5.853 5L 15 min 7.11 19.7 4.62.15 5.733 0.9 0.08 ~5.853 5L 15 min 7.11 19.7 4.62.15 5.733 0.9 0.08 ~5.853 6.9 10 10 10 10 10 10 10 10 | Pump intake: | n | ı | | - | | | | | | | |
| (L) Time (min) (μ S/cm) ($ppm mg/L$) ($ppm mg/L$) ($ppm mg/L$) ($m b TOC$) AS 5667.11: 1998 (*/+) 10% 0.2°C . 10% 10% . . 1L 3 n L in 748 20.7 486.20 2.4 0.2 . . . 1L 3 n L in 748 20.7 472.55 1.2 0.11 . . . 2L 6 n L in 72.7 19.7 472.55 1.2 0.11 . | PURGING ME | ASUREMENT | S 2 | | | | . | · | | | | 1 |
| AS 5667.11: 1998 (*++) 10% 0.2°C 10% 10% 10% 10% 10% 1L 3nuin 748 20.7 486.20 2.4 0.21 ~5.85 2L 6nuin 727 19.7 472.55 1.7 0.11 ~5.85 3L 9 min 719 19.7 467.35 1.00 0.07 ~5.85 4L 12 min 716 19.7 465.40 0.9 0.08 ~5.85 5L 15 min 711 19.7 465.40 0.9 0.08 ~5.85 5L 15 min 711 19.7 465.40 0.9 0.08 ~5.85 5L 15 min 711 19.7 462.15 5.33 0.9 0.08 ~24.6 ~5.853 5L 15 min 711 19.7 462.15 5.33 0.9 0.08 ~24.6 ~5.853 6 10.4 10.7 462.15 5.33 0.9 0.08 ~24.6 ~5.853 Comments (e.g. condition of headworks, sheen, colour, odour, sediment load): <td></td> <td></td> <td></td> <td>Temp. (°C)</td> <td></td> <td>.,</td> <td>рН</td> <td>DO %Sat</td> <td></td> <td>/L)</td> <td>Eh (mV)</td> <td></td> | | | | Temp. (°C) | | ., | рН | DO %Sat | | /L) | Eh (mV) | |
| $\begin{array}{c ccccccccccccccccccccccccccccccccccc$ | | | | 0.2°C | - | , | 10% | 10% | | | - | |
| 3L 9 min 719 19.7 467.35 1.0 0.07 ~5.85 4L 12 min 716 19.7 465.40 0.9 0.08 ~5.85 5L 15 min 711 19.7 462.15 5.33 0.9 0.08 ~5.85 5L 15 min 711 19.7 462.15 5.33 0.9 0.08 ~5.853 6 0 9 0.08 -5.853 0.9 0.08 ~5.853 6 0 9 0.08 -24.6 ~5.853 6 0 9 0.08 -24.6 ~5.853 6 0 9 0.08 -24.6 ~5.853 7 19.7 462.15 5.33 0.9 0.08 -24.6 ~5.853 6 0 | 1L | 3 nin | 748 | 20.7 | | | | 2.4 | 0.21 | | | ~5.85 |
| 4L 12.min 7.16 19.7 465.40 0.9 0.08 ~5.85 5L 15.min 7.11 19.7 462.15 5.33 0.9 0.08 ~5.85 5L 15.min 7.11 19.7 462.15 5.33 0.9 0.08 ~246 ~5.853 Comments (e.g. condition of headworks, sheen, colour, odour, sediment load): Lear yellow, trong suffix odour, modorate sed, us than SAMPLING DETAILS Sample ID: Time: Vol. Removed: L No of Sample Containers: § | 2L | 6 nin | 727 | 19-7 | | | | 1.2 | 0.(| ۱. | | ~5.85 |
| 4L 12min 716 19.7 465.40 0.9 0.08 ~5.85 5L 15min 711 19.7 462.15 5.33 0.9 0.08 ~246 ~5.85 0 0 0 0 0 0 0 0 0 ~5.85 0 0 0 0 0 0 0 0 ~5.85 0 0 0 0 0 0 0 0 ~5.85 0 0 0 0 0 0 0 0 0 0 ~5.85 0 | 32 | 9 nin | 719 | 19.7 | 467.39 | 5 | | 1.0 | 0.0 | 1 | | ~5.853 |
| 5L 15 min 711 19.7 462.15 5.33 0.9 0.08 2460 ~5.853 Comments (e.g. condition of headworks, sheen, colour, odour, sediment load): Comments (e.g. condition of headworks, sheen, colour, odour, sediment load): Comments (e.g. condition of headworks, sheen, colour, odour, sediment load): Comments (e.g. condition of headworks, sheen, colour, odour, sediment load): Comments (e.g. condition of headworks, sheen, colour, odour, sediment load): Comments (e.g. condition of headworks, sheen, colour, odour, sediment load): Comments (e.g. condition of headworks, sheen, colour, odour, sediment load): Comments (e.g. condition of headworks, sheen, colour, odour, sediment load): Comments (e.g. condition of headworks, sheen, colour, odour, sediment load): Comments (e.g. condition of headworks, sheen, colour, odour, moderate sed, no drawn SAMPLING DETAILS Sample ID: Time: Vol. Removed: L No of Sample Containers: | | | 716 | 19.7 | 465.4 | ٥ | | 0.9 | 0.08 | S | | ~5.853 |
| SAMPLING DETAILS Sample ID: Time: Vol. Removed: L No of Sample Containers: 8 | | | 1 | 19.7 | 462.15 | | 5.33 | 0.9 | 0.0 | 8 | -246 | ~5.853 |
| ilear yellow, strong sulfur odour, moderate sed, us shown SAMPLING DETAILS Sample ID: Time: Vol. Removed: L No of Sample Containers: 8 | | | | | | | | | | | | |
| ilear yellow, strong sulfur odour, moderate sed, us shown SAMPLING DETAILS Sample ID: Time: Vol. Removed: L No of Sample Containers: 8 | | | | | | | - | | | | | |
| Time: Vol. Removed: L No of Sample Containers: X | Comments (e | er yel | t headwork لمن | s, sheen, co Franz | slfr | | A | <u> </u> | odera | le. | sed, v | s shoon |
| | SAMPLING D | ETAILS | | | U | | Sample II | D: | | | | |
| | Time: | | Vol. Remo | ved: | | L | | | rs: X | | | |
| | Type of Sample | e Containers (i.e | . P = Plastic | /G = Glass/V = | Vial, volume a | and p |) = preserve | d/up = unpre | served): | | | |
| Field Filtered 🗹 Duplicate Samples 🗆 Duplicate Sample ID: | Field Filtered | ы | Duplicate | Samples 🗆 | Duplic | ate S | Sample ID: | | | | | |
| Comments: | Comments: | | | | | | *** 11 *** 11 *** | | | | | |
| CoC Number: Date: Bores to be purged dry, until pH, T and EC readings stabilise or a minimum of 3 to 5 times the water column volumes. Water column volumes can be calculated | | | | | | <u></u> | | | | | | |



| Client: | · · · · · · · · · · · · · · · · · · · | ····· | ** | | | | | BORE | י ים | Lapo | 1 1/012 1 |
|--------------------|---------------------------------------|---------------|------------------|------------------|--|--------------------|--------------------|-------------------------|----------|---|--------------------------|
| Project: | _ <u> </u> | | | | | | | Job No | ¥ | 61370L | MW3[|
| Location: | | | Casino | g diameter: | | | 50 mm | <u> </u> | | 215702 2112/19 | rl |
| | STRUCTION | | | , | | | | | 12 | | |
| Head- I | Flush- | | □ Casing only | Locked | [| easurement pint | t 🗆 Top Casing | of PVC | T | otal Depth: | 5.976 " |
| BORE DEVI | ELOPMENT | | | | | | | | · | | |
| Method: | | Da | nte: | | | Undertaken | By: | | Vol. R | Removed: | |
| Comments | (e.g. sediment c | ontent): | | | <u>. </u> | | | | | | |
| | | | | | | | | *********************** | | | |
| PURGING D | ETAILS (measu | rement poi | nts in meters | below top of | fca | sing as indi | cated abov | e) | | | |
| <u> </u> | in-promp | | uality Meter | | | Pro | | · | Und | lertaken By | : EE/PK |
| | iter: 3.667m | | - | <u>/</u> `m | | eq Purge Vo | ol. 1: | L | + | w Rate: | L/mir |
| Presence of | | | e of DNAPL | | Tł | nickness of | NAPL: | cm | Dep | th to NAPL | : m |
| Pump intak | e: n | n | | | | | | | | | |
| | EASUREMENT | <u>3</u> 2 | | | ۱ ــــــ | | | | J | | |
| Vol. Purged (L) | Elapsed Time (min) | EC (µS/cm) | Temp. (°C) | TDS (ppm mg/L | .) | рH | DO %Sat | DO (ppm)m | g/L) | Eh (mV) | Water Level (m b TOC) |
| AS 5667. | I1: 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | - | • |
| 11 | 3 min | 269.3 | 20-1 | 175.05 | | | 2.8 | O.Z | 5 | | |
| 21 | 6 min | 266.9 | 20,1 | 173.49 | · | | 1:4 | 0.13 | 3 | | |
| 31 | quin | | | 172.90 | | 5.41 | 1.5 | 0.14 | ļ | -26.1 | |
| | | | | | | | | | | | |
| | | | | · · · · · · | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | . |
| | | | | | | | | | | | |
| Comments | (e.g. condition of | f headwork | s, sheen, co | lour, odour, s | sedi | ment load): | ·I | • | \sim | shee | \sim |
| Ja | ar yell | ω, | las/" | ~od s | se a | l str | ang s | ulfur | <u>o</u> | low | |
| SAMPLING | | <u></u> | | | | Comela I | | - | | | |
| | DETAILS | Vol. Remo | uod- | | | Sample II |): ple Containe | rs: Ø | <u> </u> | | |
| Time: | ple Containers (i.e | | | Vial volume a | | | - | 0 | | | |
| rype or ball | | . F - FIØSUC | U - G1025/4 - | viai, voiunie a | | h - hieseiaei | arah – anhisi | | | | |
| Field Filtered | | Duplicate | Samples 🗆 | Duplic | ate | Sample ID: | | | | | |
| Comments: | | | | I | | | | | | | |
| | | | | | | | | | | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | |
| CoC Nu | | | | cked by: | | | | Date | | | |
| Bores to | be purged dry, until | pH, T and EC | readings stabili | ise or a minimun | n of 3 | 3 to 5 times the | e water colum | 1 volumes. V | vater co | olumn volume: | s can be calculated |

Bores to be purged dry, until pH, T and EC readings stabilise or a minimum of 3 to 5 times the water column volumes. Water column from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID - 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures. 2



1

2

Groundwater Monitoring – Field Sheet

| Project: Job No.: GI 34041 Location: Casing diameter: 50 mm Date: 12 19 BORE CONSTRUCTION Head- works If Flush- mount Image: Casing Locked Measurement Point Top of PVC Casing Total Depth: Image: Casing | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|
| BORE CONSTRUCTION Head- works Image: Casing | | | | | | | | | |
| Head-works Image: Flush-mount Image: Casing only Locked only Measurement only Top of PVC Casing Total Depth: Image: Casing Ima | | | | | | | | | |
| BORE DEVELOPMENT Method: Date: Undertaken By: Vol. Removed: L Comments (e.g. sediment content): PURGING DETAILS (measurement points in meters below top of casing as indicated above) Method: PURGING DETAILS (measurement points in meters below top of casing as indicated above) Method: PURGING DETAILS (measurement points in meters below top of casing as indicated above) | | | | | | | | | |
| BORE DEVELOPMENT Method: Date: Undertaken By: Vol. Removed: L Comments (e.g. sediment content): PURGING DETAILS (measurement points in meters below top of casing as indicated above) Method: PURGING DETAILS (measurement points in meters below top of casing as indicated above) Method: PURGING DETAILS (measurement points in meters below top of casing as indicated above) | | | | | | | | | |
| Comments (e.g. sediment content): PURGING DETAILS (measurement points in meters below top of casing as indicated above) Method: PURGING DETAILS (measurement points in meters below top of casing as indicated above) Method: PURGING DETAILS (measurement points in meters below top of casing as indicated above) | | | | | | | | | |
| PURGING DETAILS (measurement points in meters below top of casing as indicated above) Method: PCM-pump Water Quality Meter used: YSI Pro Undertaken By: EE(PK | | | | | | | | | |
| Method: Pen-pump Water Quality Meter used: YSI Pro Undertaken By: EE (PK | | | | | | | | | |
| Method: Pen-pump Water Quality Meter used: YSI Pro Undertaken By: EE (PK | | | | | | | | | |
| | | | | | | | | | |
| Depth to water: 2.4/4m Water Column: m Req Purge Vol. 1: L Flow Rate: L/min | | | | | | | | | |
| | | | | | | | | | |
| Presence of LNAPL D Presence of DNAPL D Thickness of NAPL: cm Depth to NAPL: m | | | | | | | | | |
| Pump intake: m | | | | | | | | | |
| PURGING MEASUREMENTS 2 | | | | | | | | | |
| Vol. Purged (L) Elapsed Time (min) EC (μS/cm) Temp. (°C) TDS (ppm mg/L) pH DO %Sat DO Eh (mV) Water Level (m b TOC) | | | | | | | | | |
| AS 5667.11: 1998 (<+/-) 10% 0.2°C - 10% 10% | | | | | | | | | |
| 12 3nin 435.8 19.9 283.27 310 3.0 0.26 ~2.414 | | | | | | | | | |
| 26 min 41477 19.5 269.56 1.9 0.17 ~2.414 | | | | | | | | | |
| 31 9 min 3967 19.5 257.86 1.6 0.14 ~2.414 | | | | | | | | | |
| 4L 12 min 337.7 19.3 219.51 1.2 0.11 ~2.414 | | | | | | | | | |
| 5L 15min 314.1 19.4 204.17 5.64 1.2 0.11 -22.3 ~2.414 | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| Comments (e.g. condition of headworks, sheen, colour, odour, sediment load): | | | | | | | | | |
| ilear yellow, silfer odour, low/mod sed, us cheen | | | | | | | | | |
| SAMPLING DETAILS Sample ID: | | | | | | | | | |
| Time: Vol. Removed: L No of Sample Containers: 8 | | | | | | | | | |
| Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): | | | | | | | | | |
| / | | | | | | | | | |
| Field Filtered 🖾 Duplicate Samples 🗆 Duplicate Sample ID: | | | | | | | | | |
| Comments: | | | | | | | | | |
| | | | | | | | | | |
| CoC Number: Date: Bores to be purged dry, until pH, T and EC readings stabilise or a minimum of 3 to 5 times the water column volumes. Water column volumes can be calculated | | | | | | | | | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



| Client: | | | | | | | | BORE II |): F | ORR-1 | NN37 |
|----------------------|-----------------------|----------------|----------------|------------------|--------|--------------------|-------------------|---------------|---------|--------------|----------------------------|
| Project: | | | | | | | | Job No. | | 61370 | 41 |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | ١Ÿ | 5/12/19 | |
| BORE CONS | TRUCTION | | | | | | | | | | |
| | Flush- 🗆 ount Mon | | Casing Casing | | | easurement bint | t 🗆 Top Casing | of PVC | То | otal Depth: | 11,564 ^m |
| BORE DEVEL | OPMENT | | | | | | | | | | |
| Method: | | Da | ate: | | 1 | Undertaken | By: | , | Vol. R | emoved: | L |
| Comments (e | e.g. sediment c | ontent): | | | | | | | | | |
| | | | | | | | | | | | |
| PURGING DE | TAILS (measu | rement poi | nts in meters | below top of | cas | sing as indi | icated abov | e) | | | |
| Method: $\rho_{0,h}$ | n-pump | Water C | uality Meter | used: Y | SU | pro | | | Und | lertaken By | : EE/PK |
| | er: 5_346m | Water C | olumn: | m | Re | eq Purge Vo | ol. 1: | L | Flov | w Rate: | L/min |
| Presence of I | | Presend | e of DNAPL | | Th | ickness of | NAPL: | cm | Dep | th to NAPL | : m |
| Pump intake: | : m | | | | | · | | | | | |
| PURGING ME | ASUREMENTS | 3 ² | | | | | | | | | |
| Vol. Purged (L) | Elapsed Time (min) | EC (µS/cm) | Temp. (°C) | TDS (ppm[mg/L |) | рН | DO %Sat | DO (ppm mg | /L) | Eh (mV) | Water Levei (m b TOC) |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | • | • |
| 1L | 3min | 3387 | 20.7 | 2201.5 | 5 | | 2.4 | 0.21 | | | ~5.346 |
| 22 | 6 min | 3391 | 20.8 | 2204. | ۱S | | 1.7 | 0.15 | | | ~5.346 |
| 34 | 9 nin | 3392 | 207 | J204. | 70 | | 1.5 | 51.0 | | | ~5.346 ~5.346 ~5.346 |
| 44 | 12 min | ડરકડ | 20.7 | 2198.9 | | | 1.3 | 0.11 | | | NG.346 |
| 5 | 15min | 3384 | 20.7 | 2199.6 | _ | | [.] | 0.10 |) | | ~5346 |
| 6L | 18min | 3381 | 20.7 | 2197.6 | 5 | 5 .5 3 | 1.1 | 0.10 | | 49.2 | ~5.346 |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| Comments (e | .g. condition o | f headwork | s, sheen, col | our, odour, s | edi | ment load): | | | | | |
| CI BAN | (, no o | olour | , 1au | to no s |)e | d, no | sheer | ۱. | | ••••• | |
| SAMPLING D | ETAILS | | | | | Sample ID |); | | | | |
| Time: | | Vol. Remo | ved: | | L | No of Sam | ple Containe | rs: g | | | |
| Type of Sampl | e Containers (i.e | . P = Plastic/ | 'G = Glass/V = | Vial, volume a | ind p |) = preserved | d/up = unpre: | served): | | | |
| Field Filtered | | Duplicate \$ | Samples 🗆 | Duplic | ate S | Sample ID: | | | | | |
| Comments: | | | | | | | | | | | |
| | | | | | | | | | | | |
| CoC Num | | nu Tand CO | | cked by: | 1 01 2 | to 5 times the | water column | Date: | ator oc | lumn volumes | s can be calculated |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID - 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



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Groundwater Monitoring – Field Sheet

| Client: | | | | | | | | BOREI | D: / | BOKR-1 | NW39 | | |
|--------------------|---|---------------|------------------|------------------|------------|----------------------------|---------------------------|---------------|--------|---------------|--------------------------|----|--|
| Project: | | | | | | | | Job No. | | 37041 | | | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | 18 | 12 19 | | | |
| BORE CONS | TRUCTION | | | | | | | | | | | | |
| | a Flush- □ Iount Mor | | □ Casing only | Locked | Mea Poi | asuremen: nt | t □ Top Casing | of PVC | To | otal Depth: | 13.760 | | |
| BORE DEVE | LOPMENT | | | | | | | | | | | | |
| Method: | | Da | ite: | | U | ndertaken | ı By: | | Vol. R | lemoved: | . <u> </u> | | |
| Comments (| e.g. sediment c | ontent): | | | | | | | | | | | |
| AL 4 - | | | | | | | | | | | | _ | |
| PURGING DE | ETAILS (measu | rement poi | nts in meters | below top of | fcasi | ing as indi | cated above | e) | | | | | |
| Method: P(| wi-pump | Water C | uality Meter | used: <u>US</u> | <u>(</u> | ho | | | Und | lertaken By | EEPK | - | |
| Depth to wat | ter: 7924.m | Water C | olumn: | m | Rec | Purge Vo | ol. ¹ : | L | Flov | w Rate: | L/r | n | |
| Presence of | | Presend | e of DNAPL | | Thi | ckness of | NAPL: | cm | Dep | th to NAPL | : | | |
| Pump intake | | | | | | | | | | | | _ | |
| | EASUREMENT | | [_ | I | —— r | | | | - | _ | | | |
| Vol. Purged (L) | Elapsed Time (min) | EC (µS/cm) | Temp. (°C) | TDS (ppm mg/L | .) | рН | DO %Sat | DO (ppm]mg | g/L) | Eh (mV) | Water Level (m b TOC) | | |
| AS 5667.11 | 1: 1998 (<+/-) | 10% | 0.2°C | • | | 10% | 10% | 10% | | - | - | - | |
| 11_ | Brin | 358.4 | 21.3 | 232-9 | 6 | _ | 3.7 | 0.32 | · | | ~7.921 | ł | |
| 21 | 6nin | | | 218.14 | | | 2,7 | 0,21 | + | | ~7.92 | 4 | |
| 36 | quin | | | 206.18 | 5 | | 2.2 | 0.20 | > | | ~7.92 | 2 | |
| 46 | 12 nuin | | 20.8 | 202.3 | 5 | | 2.1 | 0.19 | | | N7.92 | | |
| 51 | ISnin | 309.0 | | 200.85 | | | 2.0 | 0.17 | - | | N7.92 | 4 | |
| 6L | 18min | | | 201-18 | | 5.32 | 1.9 | 0.17 | | 1801 | ~7.924 | f | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Comments (| e.g. condition c | fheadwork | s, sheen, co | lour, odour, s | sedin | nent load): | • | | | | | | |
| J | landy, | لم | no s | ed n | 0 | oda | | s sh | een | <u>~</u> | | | |
| SAMPLING E | DETAILS | | | | | Sample II | D: | | | | | - | |
| | | | | | | L No of Sample Containers: | | | | | | | |
| Type of Samp | le Containers (i.e | . P = Plastic | /G = Glass/V = | Vial, volume a | ind p | = preserve | d/up = unpres | served): | | | | | |
| Field Filtered | E | Duplicate : | Samples 🗆 | Duplic | ate Sa | ample ID: | | | | | | | |
| Comments: | | ····· | | I | | | | | | | | | |
| CoC Nun | nber: | | Che | cked by: | | • | | Date: | | | | | |
| Bores to b | e purged dry, until blowing casing vol | pH, T and EC | readings stabili | se or a minimun | n of 3 t | to 5 times the | e water columr | | | olumn volumes | s can be calculate | 90 | |

| G H | 5 |
|------------|---|
| | / |

| Client: | | | | | | | | BORE I | BORE ID: BORFMW46 | | | | |
|---|------------------------|-----------------------|---------------|------------------------|--------------|--------------------------|-------------------------|---------------|-------------------|--------------------|--------------------------|-----|--|
| Project: | | | | | | | JOB NO.: 6137041 | | | | | | |
| Location: | | | | Casing diameter: 50 mm | | | | | Date: 19/12/19 | | | | |
| BORE CONSTRUCTION | | | | | | | | | | | | | |
| Head- DE Flush- Carrow | | | | | | easuremen pint | of PVC Total Depth: 5.4 | | | 5.99 | 3 ^m | | |
| BORE DEVELOPMENT | | | | | | | | | | | | | |
| Method: Date: | | | | | 1 | Undertaken By: | | Vol. Removed: | | | | L | |
| Comments (e.g. sediment content): | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| PURGING DETAILS (measurement points in meters below top of casing as indicated above) | | | | | | | | | | | | | |
| Method: Pe | n pamp | Water | Quality Meter | used: Y | 51 | Pro | Pp | | | Undertaken By: EPK | | | |
| Depth to water: 3,891 m Water Colum | | | Column: | m | Re | eq Purge Vo | L | Flow Rate: | | | L/min | | |
| Presence of I | | Preser | ce of DNAPL | | Th | hickness of NAPL: | | cm | Dep | th to NAPL | : | m | |
| Pump intake: | : m | | | | | | | | | | | _ | |
| PURGING ME | PURGING MEASUREMENTS 2 | | | | | | | | | | | | |
| Vol. Purged (L) | Elapsed Time (min) | EC (µS/cm) | Temp. (°C) | C) TDS (ppm mg/L | | рН | DO %Sat | DO (ppm mg | /L) | Eh (mV) | Water Level (m b TOC) | | |
| AS 5667.11: 1998 (<+/-) 10% | | | 0.2°C | - | | 10% | 10% | 10% | | - | | | |
| 11_ | <u>3</u> nin 6min | 398-1 | 1.0 | 258.9 | 6 | | 8.3 | 0.Ŧ | 3 | | ~3.891 | | |
| JL | 6min | 411.6 | 21.0 | 267.50 | 7 | | 6.5 | 0.5 | 7 | | ~3.5 | 291 | |
| 3L | gnin | | | 171.96 | | 5.97 | 6.1 | 0-54 | ł | 8.2 | ~3.891 | | |
| | • | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | _ | | | | | | | | |
| Commonte /a | | 6 h a a daaraa | | | | wowt lood). | | | | | | | |
| Comments (e | .g. condition o | r neadwor M | | | | | * | | 1 | | | | |
| dondy yellow, low/mod sed, us abour, no sheen | | | | | | | | | | | | | |
| SAMPLING DETAILS | | | | | | Sample ID: | | | | | | | |
| Time: Vol. Removed: L | | | | | L | No of Sample Containers: | | | | | | | |
| Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): | | | | | | | | | | | | | |
| Field Filtered 🗹 Duplicate Samples 🗆 Duplicate S | | | | | Sample ID: | | | | | | | | |
| Comments: | | | | ' | | | | | | | | | |
| | | | | | | | | | | | | | |
| CoC Number: Date: Bores to be purged dry, until pH, T and EC readings stabilise or a minimum of 3 to 5 times the water column volumes. Water column volumes can be calculated | | | | | | | | | | | | | |



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Groundwater Monitoring – Field Sheet

| Client: | | | | | | _ | | BORE II | | | | |
|--|---|-----------------|---------------------|----------------|-----------|--------------------|-------------------|--------------|---------------------|---------------------|--|--|
| Project: | | | | | | | | Job No. | | | | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | 19/12/19 | | | |
| BORE CONS | TRUCTION | | | | | | | | | | | |
| - | Flush-□ ount Mon | | l Casing 🛛 I Ily | | | easurement pint | t □ Top Casing | of PVC | Total Depth: | 4.870 m | | |
| BORE DEVE | OPMENT | | | | | | | | | | | |
| Method: | | Date | e: | | l | Undertaken | By: | 1 | Vol. Removed: | L | | |
| Comments (e | .g. sediment c | ontent): | | | | | | | | | | |
| | | | | | | | ******* | | | | | |
| | TAILS (measu | ement point | s in meters | below top of | cas | sing as indi | cated abov | e) | | | | |
| Method: Pe | n-primp | Water Qu | ality Meter | used: Y | <u>Sı</u> | Pro | | | Undertaken By | E /PK | | |
| Depth to wat | er: 2.231 m | Water Co | lumn: | m | Re | eq Purge Vo | oł. 1: | L | Flow Rate: | L/min | | |
| Presence of | LNAPL 🗆 | Presence | of DNAPL | | Th | ickness of | NAPL: | cm | Depth to NAPL | : m | | |
| Pump intake | : m | · | | | | | | | | | | |
| PURGING MEASUREMENTS 2 | | | | | | | | | | | | |
| Vol. Purged (L) Elapsed Time (min) EC (μS/cm) Temp. (°C) TDS (ppm mg/L) pH DO %Sat DO (ppm mg/L) Eh (mV) Water Level (m b TOC) | | | | | | | | | | | | |
| AS 5667.11 | AS 5667.11: 1998 (<+/-) 10% 0.2 °C - 10% 10% 10% | | | | | | | | | | | |
| 1L | Brin | 21437 | 18:5 | 13934.0 | 5 | | 3.3 | 0.2 | 8 | 2.231 | | |
| JL | bruin | 21385 | 18.5 | 13900.0 | 25 | | 2.7 | 0.23 | 3 | ~2.231 | | |
| 3L | 9 min | 1 | 18.5 | 14028. | | | 1.8 | 0.16 | | N2.231 | | |
| 4L | IZnin | | 18.5 | 13995.8 | φ | 5.78 | 1.9 | 21.0 | -43.5 | ~2.231 | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Comments (e | e.g. condition o | f headworks | , sheen, col | lour, odour, s | sedir | ment load): | · I | | ······· | | | |
| Clou | dy, lon | to m | nd Se | iel, sn | 4 | ur oa | dour, | no sl | len. | | | |
| SAMPLING D | ETAILS | | | | | Sample II |): | | | | | |
| Time: Vol. Removed: L No of Sample Co | | | | | | | | rs: 👌 | | | | |
| Type of Sampl | Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): | | | | | | | | | | | |
| Field Filtered | | Duplicate Sa | imples 🗆 | Duplic | ate S | Sample ID: | | | <u> </u> | . | | |
| Comments: | | | | P | | | | | | , , | | |
| | | | | | | | | | | | | |
| CoC Num | | | | cked by: | | | | Date: | | | | |
| Bores to be | e purged dry, until | pH, T and EC re | adings stabili | | | to 5 times the | | n volumes. W | ater column volume: | s can be calculated | | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID - 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument -specific calibration book, or in field notes as required by local procedures.

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Groundwater Monitoring – Field Sheet

| Client: | | | | | | | | | | 149.2 | | | |
|------------------------|---|--------------|----------------|-----------------------------|----------|-------------------|-------------------|----------|--------|---------------|-----------|----------|--|
| Project: | | | | | | | | Job No | | | | | |
| Location: | | _ | Casing | diameter: | | | 50 mm | Date: 2 | 21,1 | 1.20 | | | |
| BORE CONS | STRUCTION | | | - | | | | | _ | | | | |
| | ∃ Flush- □ nount Monu | | Casing Conly | Locked | Me Po | easurement int | t D Top Casing | of PVC | Te | B · 86 | 1 | m | |
| BORE DEVE | LOPMENT | | | | | | | | | | | | |
| Method: | | Da | ite: | | l | Jndertaken | By: | | Vol. F | Removed: | | L | |
| Comments (| e.g. sediment co | ontent): | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| PURGING D | ETAILS (measur | ement poi | nts in meters | below top of | f cas | ing as indi | cated above | e) | | | | | |
| Method: | | Water G | uality Meter | used: | | | | | Unc | lertaken By | I dAu | PK | |
| Depth to wa | ter: 3,292 m | Water C | olumn: | m | Re | q Purge Vo | ol. 1: | L | Flo | w Rate: | () | L/min | |
| Presence of | LNAPL | Presend | e of DNAPL | | Thi | ickness of | NAPL: | cm | Dep | oth to NAPL | | m | |
| Pump intake | e: m | | | | | | | | | | | | |
| PURGING MEASUREMENTS 2 | | | | | | | | | | | | | |
| Vol. Purged (L) | (L) Time (min) (μS/cm) (ppm mg/L) (m b TOC) | | | | | | | | | | | | |
| AS 5667.1 | 1: 1998 (<+/-) | 10% | 0.2°C | | | 10% | 10% | 10% | | | | • | |
| - | T | 8632 | 20.7 | 5612.9 | 9 | 372 | 16.6 | 1.2 | 6 | 1-68.8 | v3.3 | ,912 | |
| ١ | 4 | 8612 | 20.5 | 5598 | 4 | 3.68 | 4.3 | 0.3 | 7 | 190.7 | | | |
| 1.8 | 7 | 8621 | 20.4 | 5604: | 2 | 3.67 | 2.3 | 0.2 | 20 | 218.8 | | | |
| 2.4 | 10 | 8629 | 20.4 | 5209.1 | 5 | 3.67 | 1.8 | 0.1 | 5 | 229.7 | | | |
| 2.8 | 12 | 8639 | 20.4 | 5615. | - | 3.67 | 1.6 | 0.1 | 4 | 232.0 | | · | |
| 3-1 | 14 | -8634 | 20.5 | 5612.2 | 25 | 3.67 | 1.5 | 0.1 | 3 | 233.5 | 1 | V | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Comments (| e.g. condition of | headwork | s, sheen, col | lour, odour, s | sedin | nent load): | | good | | | | | |
| d | ear, no | oder | r, la | a sed. | · | no. | sheen | 0 | - | | | | |
| SAMPLING | DETAILS | | | | | Sample IE |): | | | | | | |
| Time: | | Vol. Remo | ved: | | L | No of Sam | ple Container | rs: | | | | | |
| Type of Samp | ble Containers (i.e. | P = Plastic | 'G = Glass/V = | Vial, volume a | and p | = preserved | d/up = unpres | served): | | | | | |
| Field Filtered | | Duplicate | Samples 🗆 | Duplic | ate S | Sample ID: | | | | | | | |
| Comments: | | | | | | | | | | | | | |
| | | | | | _ | | | D. | | | | | |
| CoC Nur Bores to b | nber: be purged dry, until (| oH, T and EC | | cked by: se or a minimun | n of 3 | to 5 times the | e water column | Date: | | olumn volumes | can be ca | lculated | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



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Groundwater Monitoring – Field Sheet

| Client: | | | | | BORE II |): 🕞 | H11.1 | | | | | |
|--|--|--------------------------|--------------------------------------|-------------------------------------|------------------|----------------------------------|-----------------------------|-------------|---------|--------------|-----------------|-----|
| Project: | | | | | _ | | | Job No. | | | | |
| Location: | | | Casing | diameter: | _ | | 50 mm | Date: 2 | 2. | 1.20 | | - |
| BORE CONS | TRUCTION | | | | _ | | _ | | _ | | | |
| | I Flush- 🗆 ount Moni | | □ Casing I only | Locked | | easurement bint | t □ Top Casing | of PVC | To | otal Depth: | | m |
| BORE DEVEL | LOPMENT | | | | | | | | | | | |
| Method: | | Da | ate: | | | Undertaken | By: | 1 | Vol. R | emoved: | | L |
| Comments (e | e.g. sediment co | ontent): | | | | | | | | | | |
| | | | | | | 7 | | | | | | |
| PURGING DE | TAILS (measur | ement poir | nts in meters | below top of | fcas | sing as indi | cated above | e) | | | 1 | |
| Method: | | Water G | uality Meter | used: | | | | | Und | lertaken By: | AH PK | |
| Depth to wat | er: 2.700 m | Water C | olumn: | m | Re | eq Purge Vo | ol. 1: | L | Flow | w Rate: | L/ | min |
| Presence of I | | Presend | e of DNAPL | | Th | ickness of | NAPL: | cm | Dep | th to NAPL: | | m |
| Pump intake: | : m | | | | | | | | | | | |
| PURGING ME | ASUREMENTS | 2 | | | | | | | | 8 | | the |
| Vol. Purged (L) Elapsed Time (min) EC (μS/cm) Temp. (°C) TDS (ppm mg/L) pH DO %Sat DO (ppm mg/L) Eh (mV) Water Level (m b TOC) AS 5667.11: 1998 (<+/-) | | | | | | | | | | | | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | • | | 10% | 10% | 10% | | • | • | |
| 1 | 1 | 1900 | 21.7 | 1220 | 21 | 6.59 | 13.9 | 1.1 | 1 | | ~2.7 | |
| 0.8. | 3 | 1804 | 21.1 | 1172. | 03 | 6.53 | 3.7 | 0.3 | 32 | -82.0 |) (| |
| 1.3 | 6 | 1766 | 21.0 | 1147.6 | な | 65 | 32.4 | 0.0 | 2 | -85.6 | | |
| 1.8 | 9 | 1730 | 21.1 | 1124. | 0 | 6:55 | 1.8 | 0.1 | 6 | -89.6 | | |
| 2.3 | 11 | 1703 | | 1106.6 | | | 1.4 | 0.1 | 3 | -92.7 | | |
| 2.7 | 13 | 1689 | 21.4 | 1097 | 16 | 6.56 | 1.3 | 0.13 | 2 | -94.1 | V | |
| | | | | | _ | - | | | | | | _ |
| Commonto (| | boodwork | e choon ool | our odour - | odi | mont load | | | - | | | |
| Comments (e | e.g. condition of | | | | | | | ~ . TY | -, -, | OW | seds | |
| Goa | ,1051 | ree | n, c | lla | N | IVCC | 5 90 | ~~~ | | | | |
| SAMPLING D | ETAILS | | | | | Sample ID |): | | | | | |
| Time: | | Vol. Remov | ved: | | L | No of Sam | ple Container | s: | | | | |
| Type of Sampl | e Containers (i.e. | P = Plastic/ | G = Glass/V = | Vial, volume a | nd p |) = preserved | d/up = unpres | erved): | | | | |
| Field Filtered | | Duplicate S | Samples 🗆 | Duplic | ate S | Sample ID: | | | - | | | |
| Comments: | | | | 1 | | | | | | | | |
| | | | | | | | | | | | | |
| CoC Num | | | | cked by: | | | | Date: | _ | | | |
| Bores to be from the fo | e purged dry, until p llowing casing volu | H, T and EC mes per unit | readings stabilis length: 40 mm l | se or a minimum D - 1 L/m: 50 mr | n of 3 n ID - | to 5 times the - 2 L/m; 100 m | water column m ID 8 L/m. | volumes. Wa | ater co | lumn volumes | can be calculat | ed |

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Calibration details to be recorded in the instrument -specific calibration book, or in field notes as required by local procedures.



| Client: | | | | BORE I | D: 8 | +132.1 | | | | | | |
|--|---|---------------|-------------------|----------------|-------|--------------------|-------------------|-------------|----------|-----------------------|-------------------|--|
| Project: | | | | | | | | Job No. | - | | | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: 🤤 | 10 | 1.2 | 0 | |
| BORE CONS | TRUCTION | | | | | | | | | | | |
| 1 2 1 1 1 2 2 1 1 1 1 2 2 2 1 1 1 2 | I Flush- □ ount Mon | | I Casing I nly | Locked | 1.000 | easurement vint | t □ Top Casing | of PVC | | otal Depth: 10-142 | m | |
| BORE DEVEL | OPMENT | | | | | | | | | | | |
| Method: | | Dat | e: | | ι | Jndertaken | By: | | Vol. R | emoved: | L | |
| Comments (e | e.g. sediment c | ontent): | | | | | | | | | | |
| | | | | | | | | | | | | |
| PURGING DE | TAILS (measu | ement poin | s in meters | below top of | f cas | ing as indi | cated above |) | | | | |
| Method: | | Water Qu | ality Meter | used: | | | | | Und | lertaken By | 10 PK AH | |
| Depth to wat | er: 4.324 m | Water Co | lumn: | m | Re | q Purge Vo | ol. 1: | L | Flov | w Rate: | L/min | |
| Presence of I | | | of DNAPL | | Th | ickness of | NAPL: | cm | Dep | th to NAPL | : m | |
| Pump intake: | : m | | | | | | | | | | | |
| PURGING MEASUREMENTS 2 * | | | | | | | | | | | | |
| Vol. Purged (L) Elapsed Time (min) EC (μS/cm) Temp. (°C) TDS (ppm mg/L) pH DO %Sat DO (ppm mg/L) Eh (mV) Water Level (m b TOC) | | | | | | | | | | | | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | | | 10% | 10% | 10% | | • | ÷ | |
| - | 1 | 1298 | 20.2 | 843.6 | > | 5.44 | 5.8 | 0.51 | | 73.2 | N4.3 | |
| 1 | 4 | 1297 | 20.4 | 843. | 3 | 5.30 | 3.0 | 0.2 | 7 | 104.1 | | |
| 1.8 | 7 | 1297 | 20% | 843. | 5 | 5.28 | 1.7 | 0.16 | | 103.2 | | |
| 2.7 | 10 | 1296 | 20.4 | 842. (| 2 | 5.27 | 1.4 | 0.14 | 4 | 89.2 | Ą | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Comments (e | .g. condition o | f headworks | sheen, col | our, odour, s | sedin | nent load): | | | | | | |
| | • | | | | | | | | | | | |
| quuci, v | 10 sheen, | CACHINO | , Slight | | w, | NOW . | Scn. | | | | | |
| SAMPLING D | ETAILS | | | | | Sample ID |): | | _ | | | |
| Time: | | Vol. Remove | ed: | | L | | ole Containers | s: | | | | |
| Type of Sampl | e Containers (i.e. | P = Plastic/G | = Glass/V = Y | Vial, volume a | ind p | | | | | | | |
| | | | | | | | | | | | | |
| Field Filtered | Field Filtered Duplicate Samples Duplicate Sample ID: | | | | | | | | | | | |
| Comments: | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| CoC Num | | | | cked by: | | | | Date: | | | | |
| | e purged dry, until lowing casing volu | | | | | | | volumes. Wa | ater col | lumn volumes | can be calculated | |

Calibration details to be recorded in the instrument -specific calibration book, or in field notes as required by local procedures.



| Client: | | | | | | | | | | | | |
|---|------------------------------|-------------|--------------------|----------------|-------------|-----------------|----------------|---------------|----------|------------|-------------------|--|
| Project: | | | | | | | | Job No. | : | _ | | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | 20 | .1.2 | 0 | |
| BORE CONS | TRUCTION | | | | _ | | | | | | | |
| | rFlush- □ ount Mor | | □ Casing I only | Locked | Mea Poir | asurement nt | t To Casing | p of PVC g | Tot | al Depth: | m 08 | |
| BORE DEVE | LOPMENT | · · · · · | - | | | | | | | | | |
| Method: | | Da | te: | | U | ndertaken | By: | 3 | Vol. Re | moved: | L | |
| Comments (e | e.g. sediment c | ontent): | | | | | | | | | | |
| | | - | | | | | | | | | | |
| PURGING DE | TAILS (measu | rement poir | nts in meters | below top of | f casi | ng as indi | cated abov | re) | | | | |
| Method: | ons flow | Water Q | uality Meter | used: 4 | 51 | | | | Unde | rtaken By: | 10 PK AH | |
| Depth to wat | er: 4.623 m | Water C | olumn: | m | Req | Purge Vo | ol. 1: | L | Flow | Rate: | L/min | |
| Presence of | | Presenc | e of DNAPL | | Thio | ckness of | NAPL: | cm | Depth | n to NAPL: | m | |
| Pump intake | : m | n l | | | | - | | | | | | |
| PURGING MEASUREMENTS 2 | | | | | | | | | | | | |
| Vol. Purged (L)Elapsed Time (min)EC (µS/cm)Temp. (°C)TDS (ppm mg/L)pHDO %SatDO (ppm mg/L)Eh (mV)Water Level (m b TOC) | | | | | | | | | | | | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | | | 10% | 10% | 10% | | • | | |
| - | 1 | 4703 | 20.5 | 3067. | 5 | 6.42 | 1.3 | 0.12 | | -45.1 | ~4.6 | |
| 0.8. | 3 | 4676 | 20.0 | 3037. | 4 | 6.43 | 1.1 | 0.1 | 0 - | 42.1 | | |
| 1.6 | 7 | 4588 | 19.9 | 2977. | .7 0 | 6.44 | 0.9 | 0.0 | 9- | 42:3 | | |
| 2 | 10 | 4536 | 19.9 | 2941. | 7 | 6.47 | 0.9 | 0.00 | 7 . | -44.1 | 7 | |
| | | | | | - | 94. | - | | | | | |
| | | | | | _ | | | | | | | |
| | | | | | - | | | | | | | |
| Comments (e | e.g. condition o | f headwork | s, sheen, col | our, odour, s | sedim | ent load): | | | | | | |
| good | -no s | heer | r, gre | en/bron | m | ind c | dary (| righ | sed | S | | |
| SAMPLING D | FTAILS | | | | | Sample ID |). | BORR_ | m | 104 | | |
| Time: | | Vol. Remov | ved: | | | | ple Containe | | | 3 | | |
| | e Containers (i.e | | | Vial, volume a | | | | | | - | | |
| Field Filtered | | Duplicate S | amples 🛛 | Duplic | ate Sa | ample ID: | | | | | | |
| Comments: | | | | 1 | | | | | | | | |
| | | | | | | | | | | | | |
| CoC Num | iber: e purged dry, until | nH T and EQ | | cked by: | 10124 | o 5 timos the | water ealure | Date: | ator och | mn volumo- | can be calculated | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



Groundwater Monitoring – Field Sheet

| Client: | | | | | | | BORE II | D: BORR- | MWDS |
|------------------------|----------------------|-------------|------------------|----------------|----------------------|------------------|---------------|--------------------|--------------------------|
| Project: | | | | | | | Job No. | : | |
| Location: | | | Casing | diameter: | | 50 mm | Date: 2 | 20.1.20 |) |
| BORE CONS | TRUCTION | | | | | | - | | |
| a second second second | Flush- 🗆 ount Mon | | □ Casing only | Locked | Measurement Point | t Grop Casing | of PVC | Total Depth: | 8.004 |
| BORE DEVEL | OPMENT | | | | | | | | |
| Method: | • | Da | ate: | | Undertaken | n By: | | Vol. Removed: | |
| Comments (e | e.g. sediment co | ontent): | | | | | | | |
| PURGING DE | TAILS (measur | ement poi | nts in meters | below top of | f casing as indi | icated above | e) | | 1 |
| Method: | LF | Water G | uality Meter | used: | 451 | | | Undertaken By | 1: 10 PK AH |
| Depth to wat | er: 5.874 m | Water C | olumn: | m | Req Purge Vo | ol. 1: | L | Flow Rate: | L/mi |
| Presence of | | Presend | e of DNAPL | | Thickness of | NAPL: | cm | Depth to NAPL | .: r |
| Pump intake | : m | | | | | | | | |
| PURGING ME | ASUREMENTS | 2 | | | | | | 8 | |
| Vol. Purged (L) | | | | | .) pH | DO %Sat | DO (ppm mg | J/L) | Water Level (m b TOC) |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | - | 10% | 10% | 10% | • | |
| 0.4 | 2 | 1365 | 22.2 | 886.2 | 5 6.51 | 4.5 | 0.5 | 8 -30.9 | N5.8 |
| -1.2 | 6 | 1330 | 22.2 | 862.4 | 6.39 | 2.9 | 0.2 | 5 -38-1 | |
| 1-8 | 10 | 1236 | 22.0 | 803.0 | 6.34 | 4.3 | 0.3 | 7 - 29.5 | |
| 2.4 | 12 | 1237 | 21.9 | 804.6 | , 6.32 | 4.3 | 0.3 | 7 -29.9 | 4 |
| | | | | | | | | | |
| Comments (e | e.g. condition o | f headwork | s, sheen, co | lour, odour, s | sediment load): | : | | | |
| good | - clea | s yel | low, f | low de | _d, 10 | shee | n s | light s | lohn dan |
| SAMPLING D | ETAILS | | | | Sample II |): B | DOR A | nwos | |
| Time: | 1 | Vol. Remo | ved: | | L No of Sam | ple Containe | rs: | 8 | |
| Type of Samp | e Containers (i.e | P = Plastic | /G = Glass/V = | Vial, volume a | and p = preserve | d/up = unpres | served): | | |
| Field Filtered | | Duplicate | Samples 🕩 | Duplic | ate Sample ID: | FD | 01 | | |
| Comments: | | | | | | | | | |
| 0.011 | 1 | | | مادميا است | | | Deter | | |
| CoC Nun | | nH T and EC | | cked by: | n of 3 to 5 times th | e water column | Date: | ater column volume | s can be calculated |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



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Groundwater Monitoring – Field Sheet

| Client: | | | | | | | | BORE | ID: 🕻 | BORR- | mwoe | ċ |
|---|-----------------------|--------------|-------------------|-----------------|-------|-------------------|---------------|---------|---------|-----------------------|----------------|-------|
| Project: | | | | | | | | Job No | .: | | | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | 2 | 0.1.2 | 20 | |
| BORE CONS | TRUCTION | | | | | | | | | | | |
| | YFlush- □ ount Mon | | Casing only | Locked | | easuremen pint | t Casing | of PVC | Т | otal Depth: 7 · 83 | 51 | m |
| BORE DEVEL | LOPMENT | | | | | | | | | | | |
| Method: | | Da | ate: | | 1 | Undertaker | n By: | | Vol. F | Removed: | | L |
| Comments (e | e.g. sediment co | ontent): | | | | | | | | | | |
| PURGING DE | TAILS (measur | ement poi | nts in meters | below top o | f cas | sing as indi | icated abov | e) | - | | | _ |
| Method: | LF | Water G | Quality Meter | used: | 15 | 1 | | | Und | dertaken By | : 10 PIL | AH |
| Depth to wate | er: 5.634 m | Water C | olumn: | m | Re | eq Purge Vo | ol. 1: | L | - | w Rate: | 1.1- | L/min |
| Presence of L | | Presend | ce of DNAPL | | Th | ickness of | NAPL: | cm | Dep | oth to NAPL | : | m |
| Pump intake: | m | | | | | | | | 1 | | | |
| PURGING MEASUREMENTS 2 | | | | | | | | | | | | |
| Vol. Purged (L)Elapsed Time (min)EC (μS/cm)Temp. (°C)TDS (ppm mg/L)pHDO %SatDO (ppm mg/L)Eh (mV)Water Level (m b TOC) | | | | | | | | | | | | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | | | |
| - | (| 649 | 22.0 | 371.8 | | 6.81 | 2.8 | 0.2 | 4 | - 108.1 | N5.6 | 2 |
| 1.5 | 6 | 401.1 | 21.7 | 260.1 | 1 | 6.82 | 3.0 | 0.2 | 7 | -65.2 | 1 | |
| 2.4 | (0 | 397.1 | 21.8 | 257.0 | 1 | 6.17 | 2.6 | 0.2 | 3 | -61.1 | | |
| 3 | 13 | 395.2 | 21.9 | 256 | | 6.13 | 1.9 | 0.1 | | -64.2 | | |
| 3.5 | 16 | 395.6 | 22.1 | 257. | 1 | 6.12 | 1.8 | 0.1. | 5 | -65.8 | V | |
| | | | | | | | | | | | | - |
| | | | | | | | | | | | | |
| Comments (e | .g. condition of | headwork | s, sheen, col | our, odour, s | sedi | ment load): | | | | | | |
| good | - clon | dy y | ellow, | la lu | | d sed | , no | deen | | sulfu | s odo | ~ |
| SAMPLING D | ETAILS | | | | | Sample ID |): B | ORR- | m | J06 | | |
| Time: | | Vol. Remov | ved: | | L | No of Sam | ple Container | s: | | 8 | | |
| Type of Sample | e Containers (i.e. | P = Plastic/ | G = Glass/V = | Vial, volume a | and p |) = preserved | d/up = unpres | erved): | | | | |
| Field Filtered | 0 | Duplicate S | Samples 🗆 | Duplic | ate S | Sample ID: | | | | | | |
| Comments: | | | | | | | | | | | | |
| CoC Num | ber: | | Cher | cked by: | - | | | Date: | - | | | _ |
| Bores to be | purged dry, until p | | readings stabilis | se or a minimum | | | | | ater co | lumn volumes | can be calcula | ated |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



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Groundwater Monitoring – Field Sheet

| Client: | | | | | | | | BORE | D: 🖪 | NORR_W | W080 | L |
|--------------------|--|----------------|--------------------|----------------|--------------|-------------------|-------------------|-------------|---------|-----------------------|--------------|--------|
| Project: | | | | | | | | Job No. | : | | | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: 🖇 | 20. | 1.20 | | |
| BORE CONS | TRUCTION | | | | | | | | | | | |
| |] Flush- □ ount Mon | | □ Casing I only | Locked | | easuremen pint | t D Top Casing | o of PVC | T | otal Depth: | 5.741 | m |
| BORE DEVE | LOPMENT | | | | | | | | | | | |
| Method: | | Da | ite: | | | Undertaken | n By: | | Vol. F | Removed: | | L |
| Comments (e | e.g. sediment c | ontent): | | | | | | | | | | |
| PURGING DE | ETAILS (measu | rement poir | nts in meters | below top of | fcas | sing as indi | icated abov | e) | | | 1 | 1 |
| Method: | | | uality Meter | used: | | | | | Und | dertaken By | : 10 PIL | All |
| Depth to wat | er: 3.594 m | Water C | olumn: | m | Re | eq Purge Vo | ol. 1: | L | Flo | w Rate: | | L/min |
| Presence of | LNAPL | Presenc | e of DNAPL | | Th | nickness of | NAPL: | cm | Dep | oth to NAPL | : | m |
| Pump intake | : m | n | | | | | | | | | | |
| | EASUREMENTS | | Temp. (°C) | | | | | _ | | | | |
| Vol. Purged (L) | Elapsed Time (min) | EC (µS/cm) | TDS (ppm mg/L | .) | рН | DO %Sat | DO (ppm mg | /L) | Eh (mV) | Water Lev (m b TOC | | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | | | 10% | 10% | 10% | | | 4 | |
| - | 1 | 589 | 20.6 | 382.7 | 1 | 5.84 | 7.8 | 0.6 | 4 | 27.4 | ~3. | 5 |
| 0.5 | 4 | 589 | 21.2 | 381.6 | | 5.74 | 1.9 | 0.16 | | -3.9 | 1 | |
| 1 | 7 | 583 | 21.5 | 379.5 | 5 | 5.64 | 2.1 | 0.19 | 8 | -23.7 | | |
| 1.5 | 10 | 596 | 21.1 | 387.4 | F | 5.59 | 0.6 | 0.0 | 5 | -29.2 | 2 | |
| 1.8 | 12 | 600 | 21.0 | 389.6 | 0 | 5.58 | 0.7 | 0.0 | 5 | -31.2 | V | |
| | | | | | | | - | | | | | _ |
| Comments (e | e.g. condition o | f headwork | s, sheen, col | our, odour, s | edi | ment load): | 2000 | Ý | | | | |
| L | ift br | nen) | low. | ced, e | 54 | lfor | odan | s, no | 8 | hean | | |
| SAMPLING D | ETAILS | | | | | Sample ID |): | | | | _ | |
| Time: | | | L | No of Sam | ple Containe | rs: | | | | | | |
| Type of Sampl | e Containers (i.e | . P = Plastic/ | G = Glass/V = ` | Vial, volume a | nd p |) = preserved | d/up = unpres | served): | | | | |
| Field Filtered | | Duplicate S | amples 🛛 | Duplic | ate S | Sample ID: | | | | | | |
| Comments: | | | | | | | | | | | | |
| CoC Num | iber: | | Cheo | cked by: | - | | | Date: | | | | |
| Bores to be | e purged dry, until llowing casing volu | | readings stabilis | e or a minimum | | | | volumes. Wa | ater co | lumn volumes | can be calcu | ulated |

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Calibration details to be recorded in the instrument -specific calibration book, or in field notes as required by local procedures.



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Groundwater Monitoring – Field Sheet

| Client: | | | | | | | | BORE I | D: BORR_M | NO9 |
|--------------------|---|----------------|------------------|------------------|-----------|-----------------|-------------------|---------------|---------------------|--------------------------|
| Project: | | | | | | | | Job No. | :. | |
| Location: | | | Casing | g diameter: | _ | | 50 mm | Date: | 21.1.20 | |
| BORE CONS | TRUCTION | | | | | | | | | |
| |] Flush- □ iount Mon | | □ Casing only | Locked | Me Poi | asuremen int | t □ Top Casing | of PVC | Total Depth: | |
| BORE DEVE | LOPMENT | | | | | + | | | | |
| Method: | | Da | ate: | | U | Indertaker | n By: | | Vol. Removed: | L |
| Comments (| e.g. sediment co | ontent): | | | | | | | | |
| | | | | | | | | | | |
| PURGING DI | ETAILS (measu | rement poir | nts in meters | below top of | f casi | ing as ind | icated above | e) | | |
| Method: | | Water G | uality Meter | used: | | | | | Undertaken By | 10 PKAH |
| Depth to wat | er: 3.703 m | Water C | olumn: | m | Red | q Purge Vo | ol. 1: | Ĺ | Flow Rate: | L/min |
| Presence of | | Presend | e of DNAPL | | Thi | ickness of | NAPL: | cm | Depth to NAPL | .: m |
| Pump intake | : m | | | | | | | | | |
| PURGING M | EASUREMENTS | 3 2 | | | - | | | | 8 | |
| Vol. Purged (L) | Elapsed Time (min) | EC (µS/cm) | Temp. (°C) | TDS (ppm mg/L | _) | рН | DO %Sat | DO (ppm mg | Eh (mV) I/L) | Water Level (m b TOC) |
| AS 5667.11 | 1: 1998 (<+/-) | 10% | 0.2°C | | | 10% | 10% | 10% | | • |
| - | 1 | 871 | 22.2 | 555.3 | 3 | 6.99 | (7.4 | 1.4 | 8 14.2 | N3.7 |
| 05 | 4 | 365.4 | 22.0 | 232.9 | | 6.35 | 24.1 | 2.11 | 46.4 | 1 |
| 1.2 | 7 | 250,2 | 22.0 | 163.2 | | 6.19 | 22.5 | 1.96 | o 59.3 | |
| 1.8 | 10 | 238.8 | 21.7 | 154.8 | | 6.12 | 23.3 | 2.05 | 5 69.3 | |
| 2.2 | 13 | 242.4 | 21.6 | 158.1 | - | 6.06 | 21.4 | 1.88 | , 78,9 | Ý |
| | | | | | - | | | | | |
| Comments (| e.g. condition o | f headwork | s, sheen, co | lour, odour, s | sedim | nent load): | Good |) | | |
| d | eac, n | 00 | der, | no | Ş | Lee | (| ~~ | Q a | |
| SAMPLING D | ETAILS | | | | | Sample I | D: | | | |
| Time: | | ved: | | L | No of Sam | ple Container | s: | | | |
| Type of Samp | le Containers (i.e. | . P = Plastic/ | G = Glass/V = | Vial, volume a | and p | = preserved | d/up = unpres | erved): | | |
| Field Filtered | | Duplicate S | Samples 🗆 | Duplic | ate Sa | ample ID: | | | | |
| Comments: | | | | | | | | | | |
| CoC Num | iber: | | Che | cked by: | | | | Date: | | |
| Bores to b | And the state of the | | readings stabili | se or a minimum | n of 3 t | | | | ater column volumes | s can be calculated |

Calibration details to be recorded in the instrument -specific calibration book, or in field notes as required by local procedures.



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Groundwater Monitoring – Field Sheet

| Client: | | | | | | | | BORE I | D: BC | DRA-M | WID | |
|--|---------------------------|----------------|--|----------------|-----------|-----------------|-------------------|-------------|-----------|-------------|-------------|--------|
| Project: | | | | | | | | Job No. | | | | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: 🥱 | 21. | 1-20 | | |
| BORE CONS | TRUCTION | | | | | | | | | | | |
| |] Flush- □ ount Mor | | □ Casing only | Locked | Me Poi | asuremen int | t D Top Casing | of PVC | To | tal Depth: | 52 | m |
| BORE DEVE | LOPMENT | | | | | | | | | | | |
| Method: | 4 | Da | ate: | | U | Indertaker | n By: | | Vol. Re | emoved: | | L |
| Comments (| e.g. sediment c | ontent): | | | | | | | | | | |
| | | | | | | | | | | | | |
| PURGING DE | ETAILS (measu | rement poi | nts in meters | below top o | f casi | ing as indi | icated above | e) | | | | |
| Method: 3 | LIF | Water G | Quality Meter | used: | 45 | 1 | | | Unde | ertaken By | :10/02 | AH |
| Depth to wat | er: 2 . 026m | Water C | olumn: | m | Red | q Purge Vo | ol. 1: | L | Flow | Rate: ' | | L/min |
| Presence of | | Presen | ce of DNAPL | | Thi | ckness of | NAPL: | cm | Dept | h to NAPL | | m |
| Pump intake | : m | 1 | | | | | | | 1 | | | |
| PURGING ME | EASUREMENTS | S 2 | | | | | | | | 8 | | |
| Vol. Purged (L) Elapsed Time (min) EC (μS/cm) Temp. (°C) TDS (ppm mg/L) pH DO %Sat (ppm mg/L) DO (ppm mg/L) Eh (mV) Water Level (m b TOC) | | | | | | | | | | | | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | • | | 10% | 10% | 10% | | • | | |
| 1 | i | 878 | 21.5 | 571.9 | | 5.91 | 11.2 | 0 91 | | -93.7 | ~2 | |
| 0.8 | 4 | 838 | 21.5 | 543.2 | | 5.77 | 4.1 | 0.36 | 2 - | -86.2 | | |
| 1.6 | 7 | 660 | 21.9 | 426.4 | F | 5.71 | 3.3 | 0.20 | 9. | - 64 - 1 | | |
| 2.4 | 10 | 580 | 22:2 | 365.0 | > | 5.69 | 3.2 | 0.2 | 8. | -55.7 | | |
| 2.8 | 12 | 526 | 22.2 | 341.2 | | 5.68 | 3.2 | 0.2 | 8 - | -51.0 | | |
| 3-2 | 14 | SID | 22:0 | 331.5 | > | 5.67 | 3-1 | 0.2 | 7 - | 48.8 | Ż | |
| | | | | | _ | | | | _ | | | |
| Comments (e | .g. condition o | f headwork | s sheen col | our odour s | sedim | ent load): | | | | | | |
| good . | | | odow | | | | mod | seds | | | | |
| | | | | ······ | | | | | | | | |
| SAMPLING D | ETAILS | | | | | Sample ID |): | BORR | 2-0 | nwic |) | |
| Time: | | Vol. Remov | ved: | | L | No of Sam | ple Containers | s: | | B | | |
| Type of Sampl | e Containers (i.e. | . P = Plastic/ | G = Glass/V = | Vial, volume a | and p | = preservec | d/up = unprese | erved): | | | | |
| Field Filtered | C/ | Duplicate S | Samples 🗆 | Duplic | ate Sa | ample ID: | | | | - | | |
| Comments: | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| CoC Num | ber: purged dry, until | oH T and EC | the second s | cked by: | 1 of 2 + | o 5 times the | water column | Date: | tor colu | mn volumee | can be cale | ulated |
| | llowing casing volu | | | | | | | volumes. Wa | iter colu | min volumes | can be calc | nateu |

Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



| Client: | | | | | | | | BORE I | D: Bo | ORR- | mwII | |
|---|--|--------------|--------------------|----------------|-------|-------------------|-------------------|-------------|---------|--------------|------------------|-----|
| Project: | | | | | _ | | | Job No. | : | | | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | 21. | 1.20 | | |
| BORE CONS | TRUCTION | - | | | | | | | | | | |
| | I Flush- □ ount Mon | | □ Casing I only | Locked | | easuremen pint | t □ Top Casing | of PVC | T | otal Depth: | 3.924 | m |
| BORE DEVEL | LOPMENT | | | | | | | | | | | |
| Method: | | Da | ate: | | 1 | Undertaker | n By: | | Vol. F | Removed: | | L |
| Comments (e | e.g. sediment co | ontent): | | | | | | | | | | |
| | | | | | | | | | | | | |
| PURGING DE | TAILS (measur | ement poi | nts in meters | below top of | fca | sing as ind | icated above | e) | | | | |
| Method: | | Water G | Quality Meter | used: | | | | | Und | lertaken By | : | |
| Depth to wate | er: 3721 m | Water C | olumn: | m | Re | eq Purge V | ol. 1: | L | Flow | w Rate: | L/r | min |
| Presence of I | LNAPL | Presen | ce of DNAPL | | Tł | nickness of | NAPL: | cm | Dep | oth to NAPL | : | m |
| Pump intake: | : m | | | | | | | | | | | |
| PURGING ME | EASUREMENTS | 2 | | | | | | | | 8 | | |
| Vol. Purged (L)Elapsed Time (min)EC (µS/cm)Temp. (°C)TDS (ppm/mg/L)pHDO %Sat (ppm/mg/L)DO (ppm/mg/L)Eh (mV)Water Level (m b TOC) | | | | | | | | | | | | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | | | 10% | 10% | 10% | | - | • | |
| | | | | | | | | | | | | |
| | | 110 | | | | | | | | | | |
| 1 | | | | | - | | | • | - | | | - |
| - | | | | | | | | | | | | _ |
| | | | | - | | | | | - | | | _ |
| | | | | | - | - | | | _ | | | _ |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | T | | | | | | | | - | |
| Comments (e | e.g. condition of | headwork | s, sheen, col | our, odour, s | edi | ment load) | | | | | | |
| | WEL | LD | RY-r | VOT P | 2E | CHAF | LAINC | ì | | | | |
| SAMPLING D | ETAILS | | | | 1 | Sample II | D: | | | | | _ |
| Time: Vol. Removed: | | | | | | | ple Container | s: | | | | |
| Type of Sample | e Containers (i.e. | P = Plastic/ | G = Glass/V = ' | Vial, volume a | nd p |) = preserve | d/up = unpres | erved): | | | | |
| Field Filtered | | Duplicate \$ | Samples 🗆 | Duplic | ate S | Sample ID: | | | | | | |
| Comments: | | | an and the second | | | | | | | | | |
| | | | | | | | | | | | | |
| CoC Num | ber: purged dry, until p | U Tard FO | | cked by: | | to E times th | o wotor column | Date: | tor | | ann ha calaulata | 4 |
| | e purged dry, until p llowing casing volu | | | | | | | volumes. Wa | ater co | iumn volumes | can be calculate | u |

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Calibration details to be recorded in the instrument -specific calibration book, or in field notes as required by local procedures.



Groundwater Monitoring – Field Sheet

| Client: | | | | | | | | BORE II | D: B 0 | KK-MI | N12 | |
|--|------------------------|--------------|------------------|----------------|-------------|-----------------|-------------------|---------|---------------|-------------|-----------------|-----|
| Project: | | | | | | | | Job No. | | | | |
| Location: | | | Casing | g diameter: | | | 50 mm | Date: 2 | 22. | 1.20 | | |
| BORE CONS | TRUCTION | | | | | | - | | | | | |
| | I Flush- □ ount Mon | | □ Casing only | Locked | Mea Poir | isurement nt | t D Top Casing | of PVC | То | tal Depth: | 4.412 | m |
| BORE DEVEL | OPMENT | | | | | | | | | | u. | |
| Method: | | Da | ate: | | Ur | ndertaken | By: | | Vol. R | emoved: | | L |
| Comments (e | e.g. sediment co | ontent): | | | | | | | | | | |
| | | | 1 | | | | | | | | | |
| PURGING DE | TAILS (measur | ement poi | nts in meters | below top of | f casir | ng as indi | cated above | e) | | | | |
| Method: | | Water G | Quality Meter | used: | | | | | Und | ertaken By | AHPK | |
| Depth to wate | er: 2116 m | Water C | olumn: | m | Req | Purge Vo | ol. 1: | L | Flow | Rate: | Ĺ | min |
| Presence of L | NAPL | Presend | ce of DNAPL | | Thic | kness of | NAPL: | cm | Dept | th to NAPL: | | m |
| Pump intake: | m | | | | | | | | | | | |
| PURGING MEASUREMENTS 2 | | | | | | | | | | | | |
| Vol. Purged (L) Elapsed Time (min) EC (μS/cm) Temp. (°C) TDS (ppm mg/L) pH DO %Sat DO (ppm mg/L) Eh (mV) Water Level (m b TOC) | | | | | | | | | | | | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | | | 10% | 10% | 10% | | | • | |
|) | 1 | 865 | 21.6 | 561.7 | | 7-21 | 14-4 | 1.24 | | -107.8 | 2.116 | |
| 0.8 | 4 | 726 | 21.7 | 469.3 | . 0 | 6.59 | 4.2 | 0.3- | 7 | -77.3 | | |
| 1.5 | 7 | 632 | 21.8 | 410.2 | | 6.3 | 2.5 | 0.27 | 2 | -63.7 | | |
| 2 | 10 | 607 | 21-8 | 393.80 | 6 | 6.19 | 2.0 | 0.1. | 7 - | -57.8 | | |
| 2.8 | 13 | 606 | 21.8 | 394.1 | 50 | 6.12 | 1.6 | 0.14 | | -54-4 | | |
| 35 | 15 | 599 | 21.9 | 388.8 | 9 | 6.08 | 1.3 | 0.11 | - | -51.2 | | |
| 4.0 | 17 | 590 | 21.9 | 382.0 | 52 (| 6.06 | 1.2 | 0.1 | 1 | -498 | Ð | |
| Comments (e | .g. condition o | f headwork | s, sheen, col | lour, odour, s | sedime | ent load): | | | | | | - |
| | clear | | lair | | | | | go | a d | | | |
| | crea , | no | Corotte | 2 ~~ | < | green | -, 00 | ~ > | ea | | | |
| SAMPLING D | ETAILS | | | | | Sample ID |): | | | | | |
| Time: Vol. Removed: L No of Sample Containers: | | | | | | | | | | | | |
| Type of Sample | e Containers (i.e. | P = Plastic/ | /G = Glass/V = | Vial, volume a | nd p = | e preserved | d/up = unpres | erved): | | | | |
| Field Filtered | | Duplicate S | Samples 🗆 | Duplica | ate Sa | mple ID: | | | | | | |
| Comments: | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| CoC Num | | | | cked by: | | E Alexan II | | Date: | | | and he sate to | |
| | purged dry, until (| oH, T and EC | | | n of 3 to | 5 times the | water column | | ater col | umn volumes | can be calculat | ed |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



| Client: | | | | | | | | | | ORR -1 | 4613 | |
|--------------------|------------------------|----------------|--------------------|------------------|-------|--------------------|-------------------|---------------|---------|--------------|--------------------------|----------|
| Project: | | | | | | _ | | Job No. | | 1.75 | | |
| Location: | | | Casing | diameter: | _ | | 50 mm | Date: 2 | D. | 1.20 | | _ |
| BORE CONS | TRUCTION | | | | | | _ | | - | | | |
| | I Flush- □ ount Mor | | □ Casing I only | Locked | | easurement pint | t □ Top Casing | of PVC | Тс | tal Depth: | 2 | m |
| BORE DEVEL | OPMENT | | | | | | | | | | | |
| Method: | | Da | te: | | l | Jndertaken | By: | | Vol. R | emoved: | | L |
| Comments (e | e.g. sediment c | ontent): | | | | | | | | | | |
| | | | | | | | | | | | | |
| PURGING DE | TAILS (measu | rement poir | nts in meters | below top of | f cas | sing as indi | cated above |) | | | | |
| Method: | | Water Q | uality Meter | used: | | | | | Und | ertaken By: | IO PKA | H |
| Depth to wat | er: (. (% m | Water C | olumn: | m | Re | q Purge Vo | ol. 1: | L | Flov | v Rate: | ¹ L | min |
| Presence of I | | Presenc | e of DNAPL | | Th | ickness of | NAPL: | cm | Dep | th to NAPL: | | m |
| Pump intake: | : n | 1 | | | | | | | | | | |
| PURGING ME | ASUREMENT | S 2 | | | | _ | | | | A | | |
| Vol. Purged (L) | Elapsed Time (min) | EC (µS/cm) | Temp. (°C) | TDS (ppm mg/L | _) | рН | DO %Sat | DO (ppm mg | /L) | Eh (mV) | Water Level (m b TOC) | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | | | 10% | 10% | 10% | | | | |
| - | 1 | 921 | 23.4 | 601.2 | - | 6.54 | 9.3 | 0.7 | 7 | -123-7 | ~ 1.1 | |
| 1 | 4 | 932 | 23.2 | 605. | 7 | 6.18 | 4.9 | 0.4 | -1 | -117.7 | 1 | |
| 1.8 | 7 | 954 | 23.1 | 619.0 | 1 | 6.10 | 2.7 | 0.2 | -3 | -103.8 | | |
| 2.6 | 10 | 961 | 23.1 | 624. | 5 | 6.09 | 2 | 0.1 | 7 | -97.7 | | |
| 3.3 | 13 | 962 | 23.1 | 625. | 1 | 6.08 | 1.8 | 0.1 | 5 | -93.1 | 4 | _ |
| | | | | | - | | | | | | | - |
| | | | | | | | | | - | | | - |
| Comments (e | .g. condition c | f headwork | s, sheen, col | our, odour, s | sedin | ment load): | | | | 1 | | |
| Good | no sh | ren, | stight | ≠ sulfi | JL | odou | r, low | sed | 1,2 | ight h | mour | \ |
| SAMPLING D | ETAILS | | | | | Sample ID | BORK | 2-m1 | N | 3 | | |
| Time: | | Vol. Remov | ved: | | L | No of Sam | ole Container | s: 8 | | | | |
| Type of Sampl | e Containers (i.e | . P = Plastic/ | G = Glass/V = | Vial, volume a | and p | = preserved | l/up = unpres | erved): | | | | |
| Field Filtered | | Duplicate S | Samples 🛛 | Duplic | ate S | Sample ID: | | | _ | | | - |
| Comments: | | | | | | | | | | | | |
| CoC Num | bor: | | Cha | cked by: | _ | | | Date: | _ | | | _ |
| Bores to be | e purged dry, until | | readings stabilis | se or a minimum | | | | | ater co | lumn volumes | can be calculat | ed |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.

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| Client: | | | | | | | | BORE I | | | - MWI | |
|--------------------|---------------------------|---------------|--------------------|------------------|-----------|------------------|---------------------|---------------|--------|--------------------|--------------------------|-----|
| Project: | | | | | | | ~ | Job No. | : 6 | 13701 | +10833 | 2 |
| Location: | | - | Casing | diameter: | | | 50 mm | Date: | 20 | 0.170 |) | |
| BORE CONST | RUCTION | | | | | | | -_ | | | | |
| | Flush- □ ount Mon | | □ Casing I only | □ Locked | Me Poi | asurement int | t Def Top Casing | of PVC | To | otal Depth: る・子 | 35 | m |
| BORE DEVEL | OPMENT | | | | | | | | -14 | | | |
| Method: | | Da | te: | | U | Jndertaken | By: | | Vol. R | Removed: | | L |
| Comments (e | .g. sediment co | ontent): | | | | | | | | | | |
| PURGING DE | TAILS (measur | ement poir | nts in meters | below top o | f cas | ing as indi | cated above |) | - | | | _ |
| Method: | low file ~ | Water Q | uality Meter | used: | 2/5 | 1 | | | Und | lertaken By | PK/10 | |
| Depth to wate | er:].844 m | Water C | olumn: | m | Re | q Purge Vo | ol. 1: | L | Flov | w Rate: | L/i | min |
| Presence of L | NAPL | Presend | e of DNAPL | | Thi | ickness of | NAPL: | cm | Dep | th to NAPL: | | m |
| Pump intake: | m | | | | | | | | | | | |
| PURGING ME | ASUREMENTS | 2 | | | | | | | | * | ji. | |
| Vol. Purged (L) | Elapsed Time (min) | EC (µS/cm) | Temp. (°C) | TDS (ppm mg/L | _) | рН | DO %Sat | DO (ppm mç | g/L) | Eh (mV) | Water Level (m b TOC) | |
| AS 5667.11: | 1998 (<+/-) | 10% | 0.2°C | | | 10% | 10% | 10% | | | • | |
| - | 1 | 242.8 | 24.1 | 156.3 | - | 6.31 | 10.1 | 0.8 | (| -10.2 | ~1.8 | |
| 1 | 4 | 216.1 | 24.0 | 140.4 | | 5.72 | 3.1 | 0.20 | 0 | 31.9 | | |
| 1.5 | 7 | 212.(| 24.0 | 137.7 | | 5.68 | 2.3 | 0.1 | 9 | -3.8 | | |
| 2.1 | 10 | 210.2 | 24.2 | 136.5 | ; | 5.68 | 1.9 | 0.1 | 6 | -29.1 | 4 | |
| | | | | | | | | | | | | |
| | .g. condition o | | | | | | | | | | | |
| SAMPLING D | ETAILS | | | | | Sample I | Bor | R- | nh | 115 | | |
| Time: | | Vol. Remo | ved: | | L | No of Sam | ple Container | s: | | 8 | | |
| Type of Sample | e Containers (i.e | P = Plastic/ | G = Glass/V = | Vial, volume | and p | = preserve | d/up = unpres | erved): | | | | |
| Field Filtered | e | Duplicate \$ | Samples 🗆 | Duplic | cate S | Sample ID: | | | | | | |
| Comments: | | | | | | | | | | | | |
| CoC Num | ber: purged dry, until | | | cked by: | | | | Date: | | | | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



| Client: | | | | | | | | BORE | | JORK. n | 3mm | |
|--------------------|------------------------|---------------|--------------------|------------------|--------|-------------------|-------------------|--------------|----------|---------------|--------------------------|-----|
| Project: | | | | | | | | Job No | | | | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: | 22 | . 1.20 | 0 | |
| BORE CONS | TRUCTION | | | _ | | | | | | | | |
| | I Flush- □ ount Mon | ument | Casing only | Locked | 1.1.1 | easuremen pint | t D Top Casing | of PVC | Т | otal Depth: | 3.974 | m |
| BORE DEVEL | OPMENT | | | | | | | | | | | |
| Method: | | D | ate: | | l | Undertaker | n By: | | Vol. F | Removed: | | L |
| Comments (e | e.g. sediment c | ontent): | | | | | | | | | | |
| | | | | | | | | | | | | - |
| PURGING DE | TAILS (measu | rement po | ints in meters | below top of | fcas | sing as ind | icated above | e) | | | (| |
| Method: | | Water | Quality Meter | used: | | | | | Und | dertaken By | AH PK | |
| Depth to wat | er: 2.244m | Water | Column: | m | Re | eq Purge Ve | ol. 1: | L | Flo | w Rate: | Ĺ | min |
| Presence of | | Presen | ce of DNAPL | | Th | ickness of | NAPL: | cm | Dep | oth to NAPL: | | m |
| Pump intake: | : m | | | | | | | | | | | |
| PURGING ME | ASUREMENTS | 3 2 | | | | | | | _ | 8 | | _ |
| Vol. Purged (L) | Elapsed Time (min) | EC (µS/cm) | Temp. (°C) | TDS (ppm mg/L | .) | рН | DO %Sat | DO (ppm m | g/L) | Eh (mV) | Water Level (m b TOC) | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | | | 10% | 10% | 10% | A. | | • | |
| 1 | 1 | 605 | 22.2 | 388.2 | | 7.6 | 44.6 | 3.8 | 1 | 162.5 | ~2.24 | 4 |
| 0.8 | 14 | 429.1 | 22.0 | 278.3 | 0 | 5.81 | 31.7 | 2.7 | 7 | 239 | T | |
| 1.2 | 7 | 407.1 | 21.9 | 264.6 | 1 | 4.99 | 28.5 | 2.4 | 9 | 257.6 | | |
| 1-8 | 10 | 417.8 | 22.0 | 271.6 | 2 | 4.68 | 25.4 | 2.2 | -1 | 269.3 | | |
| 2.2 | 12 | 411.8 | 22.2 | 267.5 | 2 | 4.59 | 26.0 | 2.2- | 7 | 276.4 | | |
| | | | | | _ | | | | - | | | - |
| | | τ | | | | | | | | | | |
| Comments (e | e.g. condition o | f headwor | ks, sheen, co | lour, odour, s | sedir | ment load) | | | | | | |
| e | jeod, | dear | c, no | sheen, | , | no o | done, | lo | 0 | no se | d | |
| SAMPLING D | ETAILS | | | | | Sample II | D: | | | | | |
| Time: | | Vol. Remo | oved: | | L | No of Sam | ple Container | s: 1 | O | | | |
| Type of Sampl | e Containers (i.e | . P = Plastic | c/G = Glass/V = | Vial, volume a | and p |) = preserve | d/up = unpres | erved): | | | | |
| Field Filtered | | Duplicate | Samples 🛛 | Duplic | ate S | Sample ID: | | | | | | |
| Comments: | | | | | - | | | | | | | |
| | | | | | | | | | | | | |
| CoC Num | | nH T and EC | | cked by: | n of 2 | to 5 times th | e water column | Date: | | alumn volumos | can be calculat | ed |
| Bores to be | e purged dry, until | pH, I and EC | , readings stabili | se or a minimun | 013 | to 5 times th | e water column | volumes. V | vater co | Junin volumes | can be calculat | leu |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



| Client: | | | | | | | | BORE I | | BORR. | -mw19 |
|--------------------|-----------------------|------------------|---------------|------------------|-------|-------------------|--------------------|---------------|---------|--------------------|--------------------------|
| Project: | | | | _ | | | | Job No. | : | | |
| Location: | | | Casing | diameter: | _ | | 50 mm | Date: | 22 | 2-1-2 | 0 |
| BORE CONST | RUCTION | | | | | | _ | | | | |
| | Flush- 🗆 ount Monu | | 0 | □ Locked | 1.00 | easuremer pint | nt □ Top Casing | of PVC | To | otal Depth: 2.3 | m 6 |
| BORE DEVEL | OPMENT | | | | | | | | | | |
| Method: | | Date: | | | | Undertake | n By: | | Vol. R | Removed: | L |
| Comments (e. | .g. sediment co | ntent): | | | | | | | | | |
| | - | | | | | | | | | | |
| PURGING DET | TAILS (measure | ment points | in meters | below top of | fcas | sing as ind | licated above | 2) | | | |
| Method: | | Water Qua | ity Meter u | used: | | | | | Und | lertaken By | : |
| Depth to wate | r:2.36 m | Water Colu | mn: | m | Re | eq Purge V | ol. 1: | L | Flow | w Rate: | L/min |
| Presence of L | NAPL | Presence of | f DNAPL | | Th | nickness of | f NAPL: | cm | Dep | th to NAPL | : m |
| Pump intake: | m | | | | | | | | | | |
| PURGING ME | ASUREMENTS | 2 | | | | | | | | 8 | _ |
| Vol. Purged (L) | Elapsed Time (min) | EC To (µS/cm) | emp. (°C) | TDS (ppm mg/L | .) | рН | DO %Sat | DO (ppm mg | j/L) | Eh (mV) | Water Level (m b TOC) |
| AS 5667.11: | 1998 (<+/-) | 10% | 0.2°C | , | | 10% | 10% | 10% | | | |
| | | | | | | | | | | | |
| | | | | | - | | | | - | | |
| | | | | | - | | | | | | |
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| | | | | | | | | | | | |
| | | | | | | | | - | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| Comments (e. | g. condition of | headworks, s | heen, colo | our, odour, s | sedi | ment load) | : | | | | |
| | | T | DV | | | | | | | | |
| | | D D | KJ | | | | | | | | |
| SAMPLING DE | TAILS | | | | | Sample I | D: | | | | |
| Time: | | Vol. Removed | | | L | No of Sam | ple Container | s: | | | |
| Type of Sample | Containers (i.e.) | P = Plastic/G = | Glass/V = \ | Vial, volume a | ind p | o = preserve | d/up = unpres | erved): | | | |
| Field Filtered | | Duplicate Sam | ples 🗆 | Duplic | ate S | Sample ID: | | | | | |
| Comments: | | | | | - | | | | | | |
| | | | | | | | | | | | |
| CoC Numb | | | | ked by: | | | | Date: | | | |
| Bores to be | purged dry, until pl | H, T and EC read | ings stabilis | e or a minimum | of 3 | to 5 times th | | volumes. W | ater co | lumn volumes | can be calculated |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



| Project: | | | | | | | | | NV | mab | |
|--------------------|----------------------------|---------------|------------------|-------------------|-------------------|-----------------------|----------------|-----------|--------|--------------------------|-----|
| | | | | | | | Job No | .: | | | |
| Location: | | | Casing | g diameter: | | 50 n | nm Date: | 22/1 | 20 | | |
| BORE CONST | RUCTION | | | | | | | 1 | | | |
| Head- | Flush- □ unt Monu | | □ Casing only | Locked | Measurer Point | nent 🗆 T Cas | op of PVC | Total I | | 1.126 | n |
| BORE DEVELO | OPMENT | | | | | | | | | | |
| Method: | | Da | ate: | | Underta | iken By: | | Vol. Remo | oved: | | 1 |
| Comments (e. | g. sediment co | ontent): | | | | | | | | | |
| PURGING DET | AILS (measur | ement poi | nts in meters | below top of | casing as | indicated ab | ove) | - | | | |
| Method: | | Water G | Quality Meter | used: | | | | Underta | ken By | : Ate pic | |
| Depth to water | :1.931 m | Water C | olumn: | m | Req Purg | e Vol. ¹ : | L | Flow Ra | te: | L | mir |
| Presence of LN | | Presen | ce of DNAPL | | Thickness | s of NAPL: | cm | Depth to | NAPL | : | n |
| Pump intake: | m | | | | | | | | | | |
| PURGING MEA | SUREMENTS | 2 | | | | | | | | | |
| Vol. Purged (L) | Elapsed Time (min) | EC (μS/cm) | Temp. (°C) | TDS (ppm mg/L) |) pH | DO %Sa | t DO (ppm m | | n (mV) | Water Level (m b TOC) | |
| AS 5667.11: 1 | 1998 (<+/-) | 10% | 0.2°C | • | 10% | 10% | 10% | | • | | |
| | 1 | 2351 | 22.2 | 1538.1 | | 1 338 | 2.81 | 51 | - 1 | 1.931 | |
| 0.8 = | Ц | 2442 | 20.8 | 1587. | 3 5.6 | 2 4.8 | 0.42 | () | .2 | 1 | |
| 1-4 | 7 | 2345 | 8.06 | 1523.4 | 5.7 | 3 3.0 | 0.20 | - c | 6.4 | | |
| 2.0 | 11 | 2313 | 20.9 | 1502.8 | 5.7 | 6 2.3 | 0.2 | 21 -5 | 8.8 | | |
| 2.4 | 14 | 2276 | 209 | 1480.2 | 9 5.7 | 8 1.9 | 0.1 | 7 - | 11.5 | | |
| 3.0 | 17 | 2276 | 20.9 | 1478.1 | a 5.70 | 1 1.7 | 0.1 | 5 -1 | 3.5 | | |
| 3.2 | 19 | 2275 | 20.9 | 1479.17 | 2 5.7 | 9 1.5 | 0.1 | 3 - | 15 | | |
| 3.8 | 21 | 2300 | 209 | 14966 | ,3 5.7 | 6 1.4 | 0.1 | 12 - | 13.2 | 4 | |
| Comments (e.g | g. condition of | headwork | s, sheen, co | lour, odour, s | ediment lo | ad): | ······ | | | | |
| Sulfi | r odoi | S, V | osheer | n, hid | I ye | llas | low/n | od be | d | | |
| SAMPLING DE | TAILS | | | | Samp | le ID: | | | | | _ |
| Time: | | Vol. Remo | ved: | | L No of s | Sample Conta | ners: | | | | |
| Type of Sample | Containers (i.e. | P = Plastic | /G = Glass/V = | Vial, volume a | nd p = prese | erved/up = unp | preserved): | | | | |
| Field Filtered | | Duplicate | Samples 🛛 | Duplica | ate Sample I | D: | | | | | _ |
| Comments: | | | | 1 | | | | | | | |
| | | | | | | | | | | | |
| CoC Numb | er: ourged dry, until p | | | cked by: | -101- 5" | - 46 | Date: | | ualue | ann ka astautat | ad |

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from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.

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Groundwater Monitoring – Field Sheet

| Client: | | | | | | | | BORE I | D: Be | PR-M | 120 | |
|--------------------|---|---------------|------------------|------------------|--|--------------------------------|-------------------|---------------|----------|-------------|--------------------------|-----|
| Project: | | | | | | | | Job No. | : | | | |
| Location: | | | Casing | g diameter: | | | 50 mm | Date: | 22 | .1.20 | | |
| BORE CONS | TRUCTION | | | | | | | | | | | |
| | l Flush- □ ount Mon | | □ Casing only | Locked | 1. | easuremen [.] oint | t □ Top Casing | of PVC | Тс | ital Depth: | 54 | m |
| BORE DEVEL | OPMENT | | | | | | | | | | | |
| Method: | | Da | ate: | | ι | Jndertaken | n By: | | Vol. R | emoved: | | L |
| Comments (e | e.g. sediment co | ontent): | | | | | | | | | | |
| | | | | | | | | | | | | |
| PURGING DE | TAILS (measur | ement poi | nts in meters | below top of | fcas | ing as indi | icated above |) | | | | |
| Method: | | Water G | Quality Meter | used: | | | | | Und | ertaken By | : PK AH | |
| Depth to wate | er:1.62 m | Water C | olumn: | m | Re | q Purge Vo | ol. 1: | L | Flov | v Rate: | L/ | min |
| Presence of L | NAPL | Presend | ce of DNAPL | | Th | ickness of | NAPL: | cm | Dep | th to NAPL | : | m |
| Pump intake: | m | | | | | | | | | | | |
| PURGING ME | ASUREMENTS | 2 | | | | | | | | 8 | | |
| Vol. Purged (L) | Elapsed Time (min) | EC (μS/cm) | Temp. (°C) | TDS (ppm mg/L | .) | рН | DO %Sat | DO (ppm mg | /L) | Eh (mV) | Water Level (m b TOC) | |
| AS 5667.11: | : 1998 (<+/-) | 10% | 0.2°C | | | 10% | 10% | 10% | | | | |
| 1 | 1 | 4551 | 22.5 | 2957 | 60 | 5.67 | 39.8 | 3.21 | 0 | 92.2 | N1.62 | |
| 0.5 | 3 | 4823 | 21.2 | 2940: | 50 | 5.55 | 7.0 | 0.6 | 0 | 91.7 | 1 | |
| | 6 | 4513 | 20.8 | 2933 | 34 | - 554 | -3.3 | 0.0 | 29 | 89.2 | | |
| 1.7 | 9 | 4518 | 20.7 | 2936 | 70 | -5.54 | 2.5 | 0.0 | 22 | 87.6 | | |
| 2.3 | 12 | 4526 | 20.5 | 2941.0 | Ø | 5.55 | 1.9 | 0.1 | 7 | 86.3 | | |
| 26 | 14 | 4527 | 20.5 | 2942 | .67 | 5.55 | 1-7 | 0.15 | S | 85.8 | X | |
| | | | | | | | | | | | | |
| | 1 | | | | | | ·! | | - | | | |
| Comments (e | .g. condition of | headwork | s, sheen, col | lour, odour, s | edin | nent load): | | | | A | | |
| do | dy, | slight | t mu | ddy od | doi | s, v | o sl | eer, | 'n | od s | jed | |
| SAMPLING D | ETAILS | 0 | | 0 | | Sample ID |): | | | | | - |
| Time: | | Vol. Remov | ved: | | L | | ple Container | s: | | | | - |
| Type of Sample | e Containers (i.e. | P = Plastic/ | G = Glass/V = | Vial, volume a | nd p | | | | | | | |
| Field Filtered | | Duplicate S | Samples 🗆 | Duplic | ate S | ample ID: | | | | | | _ |
| Comments: | | | | 1 | | | | | | | | |
| | | | | | | | | | | | | |
| CoC Num | and the second se | II Tand FO | | cked by: | | to E time - 4 | under eel | Date: | | | oon he calculat | |
| | purged dry, until p | | | | | | | volumes. Wa | ater col | umn volumes | can be calculate | эd |

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Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



| Client: | | | | | | | | BORE I | D:B | ORR-N | WZZ |
|-------------------------------------|------------|---------------|--------------------|---|--------|-------------------|--------------------|---------------|---------|--------------|--------------------------|
| Project: | | | | | | | | Job No. | : | | |
| Location: | | | Casing | diameter: | | | 50 mm | Date: 6 | 13 | 1-20 | |
| BORE CONSTRUCTION | | | | | | | | | | | |
| Head- □ Flush- works mount | □ Monur | | □ Casing I only | □ Locked | | easuremer pint | nt □ Top Casing | of PVC | T | otal Depth: | m |
| BORE DEVELOPMENT | | | | | | | | | - | | |
| Method: | | Da | ate: | | 1 | Undertake | n By: | | Vol. F | Removed: | Ĺ |
| Comments (e.g. sedime | nt cor | ntent): | | | | | | | | 0 | |
| | | | | | | | | | | | |
| PURGING DETAILS (me | asure | ment poir | nts in meters | below top of | fcas | sing as ind | licated above | 2) | | | |
| Method: | | Water Q | uality Meter | used: | | | | | Und | dertaken By | |
| Depth to water: | m | Water C | olumn: | m | Re | eq Purge V | ol. 1: | L | Flo | w Rate: | L/min |
| Presence of LNAPL |] | Presend | e of DNAPL | | Th | ickness of | f NAPL: | cm | Dep | oth to NAPL | : m |
| Pump intake: | m | | | | | | | | | | |
| PURGING MEASUREME | NTS 2 | | | | | | | | | 8 | |
| Vol. Purged Elapsed (L) Time (mi | | EC (µS/cm) | Temp. (°C) | TDS (ppm mg/L | .) | рН | DO %Sat | DO (ppm mg | j/L) | Eh (mV) | Water Level (m b TOC) |
| AS 5667.11: 1998 (<+/-) | | 10% | 0.2°C | | | 10% | 10% | 10% | | | |
| | | | | | | | | | | | |
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| 7 | _ | | | | _ | | | | | | |
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| | | | | | | | | | | | |
| | | | | | | | | | - 1 | | |
| Comments (e.g. conditi | on of h | neadwork | s, sheen, col | our, odour, s | edin | ment load) | : | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| SAMPLING DETAILS | | | | | | Sample I | D: | | | | |
| Time: | 1 | /ol. Remov | ved: | | L | No of Sam | ple Container | s: | | | |
| Type of Sample Container | s (i.e. P | = Plastic/ | G = Glass/V = Y | Vial, volume a | nd p | = preserve | ed/up = unpres | erved): | | | |
| Field Filtered | 1 | Duplicate S | Samples 🗆 | Duplic | ate S | Sample ID: | 1 | | | | |
| Comments: | R | 1 | | | | | | | | | |
| CoC Number: | , | 1 | Cher | ked by: | | | | Date: | _ | | |
| Bores to be purged dry, | until pH | , T and EC | | and the second se | n of 3 | to 5 times th | e water column | | ater co | lumn volumes | can be calculated |

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from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.

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|) | D | H | G |
|---|---|---|---|
| | D | - | G |

Client:

Groundwater Monitoring – Field Sheet

| 22B |
|---------------------|
| BORE ID: BORK_MWB2B |
| Job No.: |
| Date: 23.1.20 |

| Project: | roject: | | | | | | | Job No.: | | | | | |
|--------------------|-------------------------|------------------|--------------------|------------------|-------|--------------------|-------------------|---------------|---------|--------------|--------------------------|------|--|
| Location: | | Casing diameter: | | | | | | Date: | 23. | 1-20 | | | |
| BORE CON | STRUCTION | | | | | | | | | | _ | | |
| | ⊐ Flush- □ nount Mon | | □ Casing I only | □ Locked | 1000 | easurement pint | t D Top Casing | of PVC | To | otal Depth: | 13.047 | (m | |
| BORE DEVE | LOPMENT | | | | | | | | | | | | |
| Method: | | Da | ate: | | 1 | Undertaken | By: | | Vol. R | emoved: | | L | |
| Comments | (e.g. sediment co | ontent): | | | | | | | | | | | |
| | | | _ | | | | | | | | | | |
| PURGING D | ETAILS (measur | ement poir | nts in meters | below top of | cas | sing as indi | cated above |) | | | | | |
| Method: | | Water C | uality Meter | used: | _ | | | | Und | ertaken By | | | |
| Depth to wa | ter: 3-602 m | Water C | olumn: | m | Re | eq Purge Vo | ol. 1: | L | Flov | v Rate: | L | /min | |
| Presence of | LNAPL | Presend | e of DNAPL | | Th | ickness of | NAPL: | cm | Dep | th to NAPL: | | m | |
| Pump intake | e: m | | | | | | | | | | | | |
| PURGING M | EASUREMENTS | 2 | | | | | | | | 8 | | | |
| Vol. Purged (L) | Elapsed Time (min) | EC (µS/cm) | Temp. (°C) | TDS (ppm mg/L |) | рН | DO %Sat | DO (ppm mg | /L) | Eh (mV) | Water Level (m b TOC) | | |
| AS 5667.1 | 1: 1998 (<+/-) | 10% | 0.2°C | • | | 10% | 10% | 10% | | | | | |
| ł | 1 | 13668 | 22.4 | 8894 | SS | 5.80 | 120 | 0.9 | | -26.4 | ~3.60 | | |
| 0.5 | 3 | 13555 | 23.5 | 8829 | .9 | 5.77 | 5.8 | 0.4 | FT | -406 | 1 | | |
| 1 | 6 | 13830 | 22.9 | 8987. | 41 | 5.63 | 3.4 | 0.2 | 8 | -32.8 | - | | |
| 1.6 | 9 | 13780 | 22.2 | 8956 | | 5:61 | 2.5 | 0.8 | 1) | -39.6 | | | |
| 2 | 11 | 13803 | 22.7 | 8973 | 56 | 5.55 | 2.2 | 0.(| 8 | -39.1 | | | |
| 2.5 | 13 | 13869 | 22.6 | 9011-0 | 8 | 5.53 | 2.0 | 0.1 | 1 | 38:5 | - 1 | | |
| | | | | | _ | | | | | | | _ | |
| Commente | | f la a duua du | h | | adi | mant load) | 0 [| 0 0 0 | | | | _ | |
| Comments | (e.g. condition of | | s, sneen, coi | our, odour, s | ean | | dest | toy o | | 0 | | | |
| | sulfur | odar | 1, no | stee | ~, | ml | ey, i | nod | S | ed | | | |
| SAMPLING | DETAILS | | | | - | Sample ID |): | | | | | | |
| Time: | | Vol. Remov | ved: | | L | No of Sam | ple Container | s: | | | | | |
| Type of Samp | ble Containers (i.e. | P = Plastic/ | G = Glass/V = | Vial, volume a | nd p |) = preserved | d/up = unpres | erved): | | | | | |
| Field Filtered | | Duplicate S | Samples 🗆 | Duplic | ate S | Sample ID: | | | | | | | |
| Comments: | | | | | | | | _ | | | | | |
| | | | | | | | | | | | | | |
| CoC Nur | | U T and EQ | | cked by: | | to 5 times the | water column | Date: | ator or | lumn volumes | can be celevite | atod | |
| Dores to t | be purged dry, until p | in, I and EC | caunys stabills | | 013 | to 5 times the | water column | volumes. W | uter CO | unin volumes | can be calcula | neu | |

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from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



| Client: | | | | | | | | | - | ORRI | nw24 | - |
|--------------------|--|---------------|------------------|------------------|--|-------------------|-------------------|---------------|---------|--------------|--|-----|
| Project: | | | | | | | | Job No. | | | 1 | |
| Location: | | | Casing | diameter: | | _ | 50 mm | Date: | 23 | .1.20 |) | |
| BORE CONS | TRUCTION | | | | | | | | | | | |
| | I Flush- □ ount Mon | | □ Casing only | | 1. | easuremen bint | t D Top Casing | of PVC | T | otal Depth: | 9.867 | m |
| BORE DEVEL | OPMENT | | - | | | | | ~ | | | | |
| Method: | | Da | te: | | 1 | Undertaken | By: | | Vol. F | Removed: | | L |
| Comments (e | e.g. sediment co | ontent): | | | | | | | | | | |
| | | | | | | | | | | | | |
| PURGING DE | TAILS (measur | ement poir | nts in meters | below top of | fcas | sing as indi | cated above | e) | | | | |
| Method: | | Water Q | uality Meter | used: | | | | | Unc | lertaken By: | | |
| Depth to wate | er:8-384 m | Water C | olumn: | m | Re | eq Purge Vo | ol. 1: | L | Flo | w Rate: | L/n | nin |
| Presence of l | | Presenc | e of DNAPL | | Th | ickness of | NAPL: | cm | Dep | oth to NAPL: | | m |
| Pump intake: | m | | | | | | | | | | | |
| PURGING ME | ASUREMENTS | 2 | | | | | | | | 8 | | |
| Vol. Purged (L) | Elapsed Time (min) | EC (µS/cm) | Temp. (°C) | TDS (ppmjmg/L | .) | pН | DO %Sat | DO (ppm mg | /L) | Eh (mV) | Water Level (m b TOC) | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | - | | 10% | 10% | 10% | | | | |
| 1 | 1 | 1980 | 21.8 | 1283: | 57 | 454 | 24.9 | 2.1 | 9 | 237.4 | 8.38 | \$4 |
| 0.8 | 3 | 1884 | 21.2 | 1223. | 60 | 4:35 | 16.4 | 1.4 | 5 | 285:3 | [| |
| 1.4 | 7 | 1849 | 21.3 | 1201.9 | Ð | 4.34 | 12.7 | 1.12 | | 302.2 | | |
| 1-8 | 9 | 1857 | 21.2 | 1206.8 | 35 | 4.33 | 11.6 | 1-0 | 3 | 310.5 | | |
| 2.1 | 11 | 1810 | 21.2 | 1215.5 | 51 | 4.29 | (1.) | 0.98 | 1 | 331.1 | | |
| 23 | 13 | 1873 | 21.4 | 1217.4 | 10 | 4-28 | 10.8 | 0.9 | 5 | 352.4 | - | |
| 2.8 | 15 | 1877 | 21.4 | 1219.1 | 50 | 427 | 10.7 | 6.9 | 4 | 3699 | The second secon | |
| | | | | | 1 | | | | | | | |
| Comments (e | .g. condition of | headwork | s, sheen, col | | edir | ment load): | | | | | | |
| Good, r | to she | en,l | ight | brodin | R | in U | stour | ; h | g | Sec | Å | |
| SAMPLING D | ETAILS | | | | | Sample ID |): | | | | | |
| Time: | | Vol. Remov | ved: | | L | No of Sam | ple Container | s: | | | | |
| Type of Sample | e Containers (i.e. | P = Plastic/0 | G = Glass/V = | Vial, volume a | nd p | = preserved | d/up = unpres | erved): | | | | |
| Field Filtered | | Duplicate S | amples 🛛 | Duplic | ate S | Sample ID: | | | | | | |
| Comments: | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| CoC Num | the second s | | | cked by: | | | | Date: | | | | |
| | e purged dry, until p llowing casing volu | | | | | | | volumes. Wa | ater co | lumn volumes | can be calculate | d |

Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



C

Groundwater Monitoring – Field Sheet

| Project: Job No.: Location: Casing diameter: 50 mm Date: 23 . 1 . 2 (2) BORE CONSTRUCTION Measurement Top of PVC Total Depth: m Head- works Image: Casing only Locked only Measurement only Top of PVC Total Depth: m BORE DEVELOPMENT Date: Undertaken By: Vol. Removed: L Comments (e.g. sediment content): Date: Undertaken By: Vol. Removed: L |
|---|
| BORE CONSTRUCTION Head- works Image: Flush- mount Image: Casing Image: Locked only Measurement Point Image: Top of PVC Casing Total Depth: Image: Total Depth: Image: Total Depth: |
| Head-works Image: Flush-mount Image: Casing only Locked only Measurement Point Image: Top of PVC Casing Total Depth: T |
| works mount Monument only Point Casing 13.017 BORE DEVELOPMENT Method: Date: Undertaken By: Vol. Removed: L |
| Method: Date: Undertaken By: Vol. Removed: L |
| |
| Comments (e.g. sediment content): |
| |
| |
| PURGING DETAILS (measurement points in meters below top of casing as indicated above) |
| Method: Water Quality Meter used: Undertaken By: AH PK |
| Depth to water: 7,002 m Water Column: m Req Purge Vol. 1: L Flow Rate: L/min |
| Presence of LNAPL D Presence of DNAPL D Thickness of NAPL: cm Depth to NAPL: m |
| Pump intake: m |
| PURGING MEASUREMENTS 2 |
| Vol. Purged (L) Elapsed Time (min) EC (μS/cm) Temp. (°C) TDS (ppm mg/L) pH DO %Sat DO (ppm mg/L) Eh (mV) Water Level (m b TOC) |
| AS 5667.11: 1998 (<+/-) 10% 0.2°C - 10% 10% |
| - 1 3990 19.1 2591.40 5.60 12.8 1.12 71.9 ~7.9 |
| 1 4 3952 18.9 2568.4 35 36 0.33 36.0 |
| 1.8 7 3954 K.9 2570.17 5.5 2.2 0.20 15.6 |
| 2.2 10 3973 19.0 25856 5.53 1.7 0.16 2.7 |
| 2.8 13 3980 19.0 2587.46 5.55 1.5 0.14 -4.2 |
| 3.2 15 3989 19.0 2593.04 5.55 1.4 0.12 -9.2 |
| 3.6 18 3997 19.0 2898.17 5.58 1.26 0.11 -13.6 7 |
| Comments (e.g. condition of headworks, sheen, colour, odour, sediment load): |
| |
| nalley, nod to the sed, no sleen, slight sulphur odar |
| SAMPLING DETAILS Sample ID: |
| Time: Vol. Removed: L No of Sample Containers: \0 |
| Type of Sample Containers (i.e. P = Plastic/G = Glass/V = Vial, volume and p = preserved/up = unpreserved): |
| Field Filtered Duplicate Samples Duplicate Sample ID: |
| Comments: |
| |
| CoC Number: Checked by: Date: Bores to be purged dry, until pH, T and EC readings stabilise or a minimum of 3 to 5 times the water column volumes. Water column volumes can be calculated |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID - 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



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2

Groundwater Monitoring – Field Sheet

| Client: | | | | | | BORE | D: BOFF_N | IW29 | | | | |
|--|---|--------------------|-----------------------------|-------------------|--------------------------|-----------------------|------------------------|--------------------------|--|--|--|--|
| Project: | | | | | | Job No | Job No.: | | | | | |
| Location: | | Casing | g diameter: | | 50 mm | Date: | 21.1.20 | | | | | |
| BORE CONSTRUCTIO | DN | | | | | | | | | | | |
| Head- □ Flush- works mount | □ Monument | □ Casing only | Locked | Measurem Point | ent □ Top Casing | p of PVC g | Total Depth 8 - 540 | | | | | |
| BORE DEVELOPMEN | Т | | | | | | | | | | | |
| Method: Date: Undertaken By: Vol. Removed: L | | | | | | | | | | | | |
| Comments (e.g. sedin | nent content): | | | | | | | | | | | |
| | | | | | | | | | | | | |
| PURGING DETAILS (n | neasurement | points in meters | below top o | f casing as i | ndicated abov | re) | | | | | | |
| Method: | Wate | er Quality Meter | used: | | | | Undertaken B | Y: 10 PIZ AH | | | | |
| Depth to water: 6-3 | am Wat | er Column: | m | Req Purge | Vol. 1: | L | Flow Rate: | L/min | | | | |
| Presence of LNAPL | D Pres | ence of DNAPL | | Thickness | of NAPL: | cm | Depth to NAP | L: m | | | | |
| Pump intake: | m | | | - | | | | | | | | |
| PURGING MEASURE | MENTS ² | | | | | | 8 | | | | | |
| Vol. Purged Elaps (L) Time (I | | Temp. (°C) | TDS (ppm mg/L | -) pH | pH DO %Sat | | g/L) | Water Level (m b TOC) | | | | |
| AS 5667.11: 1998 (<+/- |) 10% | 0.2°C | | 10% | 10% | 10% | | | | | | |
| - 1 | 865.0 | 0 22.5 | 562.0 | 5.51 | 5.6 | 0.4 | 8 -6.6 | N6.3 | | | | |
| 0.8 4 | 831 | 0 21.1 | 540.1 | 5.16 | 2.2 | 0.1 | 8 2.8 | | | | | |
| 1.5 7 | 813 | 0 21.0 | 528 . | | 11.3 | 0.1 | 1 3.0 | | | | | |
| 2.2 10 | 0. | | | | | 0.1 | 238 | 4 | | | | |
| | | | | | | | | | | | | |
| | | - | | - | | | | | | | | |
| | | | | | | | | | | | | |
| Comments (e.g. cond | ition of headw | orks, sheen, co | lour, odour, s | sediment loa | id): | | | 1 | | | | |
| Good, no | shee | r, she | ght y | jetto | N, sligh | t oclu | our, sh | ght seds | | | | |
| SAMPLING DETAILS | | | | Sampl | e ID: | | | | | | | |
| Time: | Vol. Re | moved: | | L No of S | No of Sample Containers: | | | | | | | |
| Type of Sample Contain | ers (i.e. P = Pla | stic/G = Glass/V = | Vial, volume a | and p = prese | rved/up = unpre | served): | | | | | | |
| Field Filtered | Field Filtered Duplicate Samples Duplicate Sample ID: | | | | | | | | | | | |
| Comments: | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| CoC Number: Bores to be purged dr | v. until pH_T and | | cked by: se or a minimun | n of 3 to 5 times | the water colum | Date: n volumes. W | | es can be calculated | | | | |

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from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



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Groundwater Monitoring – Field Sheet

| Client: | | | | | | | | BORE II | D:BORR_M | W31 | | | |
|--------------------|--|----------------|---------------|---|------------|--------------------------|-------------------|---------------|---------------------------|--------------------------|--|--|--|
| Project: | | | , | | | | | | Job No.: | | | | |
| Location: | | | Casing | diameter: | | 50 mm Date: 21.1.20 | | | | | | | |
| BORE CONS | TRUCTION | | | | | | | | | | | | |
| | I Flush- □ ount Mon | | Casing Casing | Locked | Mea Poi | asuremen nt | t D Top Casing | o of PVC | C Total Depth: m 6.033 | | | | |
| BORE DEVE | LOPMENT | | | | | | | | | | | | |
| Method: | | Da | ate: | | U | ndertaken | n By: | | Vol. Removed: | L | | | |
| Comments (| e.g. sediment c | ontent): | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| PURGING DE | ETAILS (measu | rement poi | nts in meters | below top of | f casi | ng as indi | icated abov | e) | | | | | |
| Method: | | Water G | uality Meter | used: | | | | | Undertaken By | 10 PL AH | | | |
| Depth to wat | er:3.607 m | Water C | olumn: | m | Rec | Purge Vo | ol. 1: | L | Flow Rate: | L/min | | | |
| Presence of | | Presend | e of DNAPL | | Thi | ckness of | NAPL: | cm | Depth to NAPL | .: m | | | |
| Pump intake | : m | i. | | | | | | | | | | | |
| PURGING ME | EASUREMENTS | S 2 | | | | | | | 8 | | | | |
| Vol. Purged (L) | Elapsed Time (min) | EC (μS/cm) | Temp. (°C) | TDS (ppm mg/L | .) | рН | DO %Sat | DO (ppm mg | Eh (mV) | Water Level (m b TOC) | | | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | | | 10% | 10% | 10% | | | | | |
| | 1 | 294.1 | 21.4 | 190.0 | 2 | 5.24 | 8.1 | 0.60 | 1 -3.8 | 2,6 | | | |
| 0.8 | 4 | 291.4 | 21.2 | 189.4 | t i | 5.17 | 2.9 | 0.20 | 0 -11.4 | | | | |
| 1.5 | 8 | 289.4 | 21.1 | 188.0 | | 5.14 | 1.7 | 0.19 | 5 -11.5 | | | | |
| 2.0 | 11 | 287.0 | 21.1 | 186.6 | 0 | 5.14 | 1.5 | 6.1 | 4 -10.2 | | | | |
| 2.5 | 13 | 287.1 | 21.0 | 186.5 | - | 5.13 | (.4 | 0.13 | 3 -9.8 | ÷ | | | |
| | | | | | | | | | | | | | |
| Comments (e | e.g. condition o | f headwork | s, sheen, col | our, odour, s | sedim | ent load): | | | | | | | |
| 3 | 1.0 | odon | r, lie | | | 1 | on, n | o sh | en, la | 2 sed | | | |
| SAMPLING D | ETAILS | | | | | Sample ID |): | | | | | | |
| Time: | | Vol. Remov | ved: | | L | No of Sample Containers: | | | | | | | |
| Type of Sampl | e Containers (i.e | . P = Plastic/ | G = Glass/V = | Vial, volume a | ind p : | = preserved | d/up = unpres | served): | | | | | |
| Field Filtered | | Duplicate \$ | Samples 🗆 | Duplic | ate Sa | ample ID: | | | | | | | |
| Comments: | | | | | | | | | | | | | |
| CoC Num | hor | | Cha | cked by: | _ | | | Date: | | | | | |
| | the second s | pH, T and EC | | and the second se | n of 3 te | o 5 times the | e water column | | ater column volumes | s can be calculated | | | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



Groundwater Monitoring – Field Sheet

| Client: | | | | | | | BORE I | D: BORR-1 | MW32 | | | |
|---|--|---------------|---------------------------------------|------------------------------------|----------------------------|--------------------|---------------|--------------------------------|--------------------------|--|--|--|
| Project: | | | | | | | | Job No.: | | | | |
| Location: | | _ | Casing | g diameter: | | 50 mm | Date: 2 | 21-2.21 | 1.20 | | | |
| BORE CONS | RUCTION | | | | | | | | | | | |
| | Flush- 🗆 ount Moni | | Casing Casing | Locked | Measuremen Point | nt □ Top Casing | o of PVC | Total Depth: | 5.042 m | | | |
| BORE DEVEL | OPMENT | | | | | | | | | | | |
| Method: Date: Undertaken By: Vol. Removed: L | | | | | | | | | | | | |
| Comments (e | .g. sediment co | ontent): | | | | | | | | | | |
| | | | | | | | | | | | | |
| PURGING DE | TAILS (measur | ement poi | nts in meters | below top of | casing as ind | icated abov | e) | | | | | |
| Method: | | Water G | uality Meter | used: | | | | Undertaken By | : 10 PK AH | | | |
| Depth to wate | er:2.519 m | Water C | olumn: | m | Req Purge Ve | ol. 1: | L | Flow Rate: | L/min | | | |
| Presence of L | NAPL | Presend | e of DNAPL | | Thickness of | NAPL: | cm | Depth to NAPL | : m | | | |
| Pump intake: | m | | | | | | | | | | | |
| PURGING ME | ASUREMENTS | 2 | | | | | | 8 | | | | |
| Vol. Purged (L) | Elapsed Time (min) | EC (µS/cm) | Temp. (°C) | TDS (ppm mg/L) | рН) | DO %Sat | DO (ppm mg | Eh (mV) | Water Level (m b TOC) | | | |
| AS 5667.11: | 1998 (<+/-) | 10% | 0.2°C | • | 10% | 10% | 10% | | • | | | |
| 0.5 | 2 | 449.9 | 21.3 | 292.2 | 2 5.49 | 3.2 | 0.2 | 8 -17.1 | ~2.5 | | | |
| 1 | 4 | 442.2 | 22.3 | 287.1 | 5.43 | 3.0 | 0.20 | 5 -24.4 | 1 | | | |
| 1.5 | 7 | 359.9 | | 231.2 | 5.45 | 2.2 | 0.10 | 1 -24.4 | | | | |
| 2 | 10 | 318.6 | 21.7 | 205.7 | 2 5.45 | 1.5 | 0.1- | 3 -20.5 | | | | |
| 2.5 | 12 | 304.3 | 21.6 | 197.3 | 3 5.45 | 1.5 | 0-13 | . -1 8.8 | 4 | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| Comments (e | g. condition of | headwork | s, sheen, col | our, odour, se | ediment load): | 900 | d | | | | | |
| light | yella, | Sul | fur odou | r, la | s sed | no st | een | | | | | |
| SAMPLING DI | ETAILS | | | | Sample ID: | | | | | | | |
| Time: | | Vol. Remov | ved: | | L No of Sample Containers: | | | | | | | |
| Type of Sample | Containers (i.e. | P = Plastic/ | G = Glass/V = ` | Vial, volume ar | nd p = preserved | d/up = unpres | served): | | | | | |
| Field Filtered Duplicate Samples Duplicate Sample ID: | | | | | | | | | | | | |
| Comments: | | | | | | | | | | | | |
| CoC Num | per: | | Cheo | cked by: | | | Date: | | | | | |
| from the foll | purged dry, until p owing casing volu details to be record | mes per unit | readings stabilis length: 40 mm II | e or a minimum D - 1 L/m; 50 mm | ID - 2 L/m; 100 m | nm ID 8 L/m. | | ater column volumes edures. | can be calculated | | | |

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Groundwater Monitoring – Field Sheet

| Client: | | | | | | | BORE ID | : BORR_M | W37 | | | |
|--------------------|---------------------------|----------------|------------------|------------------|--------------------|---------------------|----------------|----------------|--------------------------|--|--|--|
| Project: | | | 1 | - | | | Job No.: | | | | | |
| Location: | | | Casin | g diameter: | | 50 mm Date: 21-1.20 | | | | | | |
| BORE CONS | | | | | | | | 1 | | | | |
| | I Flush- □ ount Mor | | □ Casing only | Locked | Measureme Point | nt D Top Casing | of PVC | C Total Depth: | | | | |
| BORE DEVEL | OPMENT | | | | | | | | | | | |
| Method: | | Da | ate: | | Undertake | en By: | ١ | /ol. Removed: | | | | |
| Comments (e | e.g. sediment c | ontent): | | | | | | | | | | |
| PURGING DE | TAILS (measu | rement poi | nts in meters | s below top of | casing as inc | dicated above | e) | | | | | |
| Method: | | Water G | Quality Meter | used: | | | | Undertaken By | : 10 PK/A+ | | | |
| Depth to wate | er: 5,737 m | Water C | olumn: | m | Req Purge \ | /ol. 1: | L | Flow Rate: L/n | | | | |
| Presence of I | | Presen | ce of DNAPL | | Thickness o | f NAPL: | cm | Depth to NAPL | : | | | |
| Pump intake: | r | 1 | | | | | | | | | | |
| PURGING ME | ASUREMENTS | S 2 | | | | | _ | 8 | | | | |
| Vol. Purged (L) | Elapsed Time (min) | EC (µS/cm) | Temp. (°C) | TDS (ppm mg/L | рН) | DO %Sat | DO (ppm mg/ | L) Eh (mV) | Water Level (m b TOC) | | | |
| AS 5667.11 | : 1998 (<+/-) | 10% | 0.2°C | | 10% | 10% | 10% | • | • | | | |
| _ | I | 3751 | 21.6 | 2437.31 | 5-24 | 17.4 | 1-45 | 139.4 | ~5.737 | | | |
| 0.8 | 4 | 3737 | 21.4 | 2429.1 | 8 5-27 | 39 | 0.34 | 126.5 | 1 | | | |
| 12 | 7 | 3724 | 213 | 2419 7 | 5 5.26 | 2.5 | 0.22 | 119.4 | | | | |
| 1.8 | 10 | 3723 | 212 | 2419 0 | 2 5.26 | 1.9 | 0 16 | 113.7 | | | | |
| 2.2 | 12 | 3709 | 21.2 | 2410.4 | 2 5.27 | 1-6 | 0 (4 | 107.3 | | | | |
| 2.6 | 14 | 3692 | 21-2 | 2399 8 | 1 5.21 | 13 | 0.11 | 99-6 | | | | |
| 2.8 | 16 | 3681 | 21.2 | 2392.3 | 8 5.29 | 1-2 | 0.10 | 94-1 | V2 | | | |
| Comments (e | .g. condition o | f headwork | s, sheen, co | lour, odour, s | ediment load |): | | | | | | |
| | no s | heen | no | odenr | , low | Inod | sed, | clear | - | | | |
| SAMPLING D | ETAILS | | | | Sample I | D: | | | | | | |
| Time: | | Vol. Remov | ved: | | | nple Container | s: | | | | | |
| Type of Sample | e Containers (i.e | . P = Plastic/ | G = Glass/V = | Vial, volume a | nd p = preserve | ed/up = unpres | erved): | | | | | |
| Field Filtered | | Duplicate \$ | Samples 🗆 | Duplica | ate Sample ID: | | | | | | | |
| Comments: | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| CoC Num | ber: purged dry, until | | | cked by: | | | Date: | | | | | |

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from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.



2

Groundwater Monitoring – Field Sheet

| Client: | | | BORE ID: BOPR_MW39 | | | | | | | | | | | |
|--|---|---------------|--------------------|-----------------------------|-----------|------------------------------|--------------------------|---------------------|----------|--------------|---------------------|---------|--|--|
| Project: | | | | | | | | | Job No.: | | | | | |
| Location: | | | Casing | g diameter: | _ | | 50 mm | Date: | 22 | 1.20 | | | | |
| BORE CONST | TRUCTION | | | | | | | | | | | | | |
| | I Flush- □ ount Mon | | □ Casing only | Locked | Me Poi | asuremen [.] int | t D Top Casing | of PVC | То | otal Depth: | 12 | m | | |
| BORE DEVEL | OPMENT | | | | | | | | 1 | | | | | |
| Method: Date: Undertaken By: Vol. Removed: | | | | | | | | | | | | L | | |
| Comments (e.g. sediment content): | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| PURGING DE | TAILS (measur | ement poir | nts in meters | below top of | fcas | ing as indi | icated above | e) | | | 1 | | | |
| Method: | | Water C | Quality Meter | used: | | | | | Und | lertaken By | : AHII | PK | | |
| Depth to wate | er: 8.19 m | Water C | olumn: | m | Re | q Purge Vo | ol. 1: | L | Flov | w Rate: | 1 | L/min | | |
| Presence of L | | Presend | ce of DNAPL | | Thi | ickness of | NAPL: | cm | Dep | oth to NAPL | 2 | m | | |
| Pump intake: | m | | | | | | | | | | | | | |
| PURGING ME | ASUREMENTS | 2 | | | | | | | | 8 | | | | |
| Vol. Purged (L) | Elapsed Time (min) | EC (μS/cm) | Temp. (°C) | TDS (ppm mg/L | .) | рН | DO %Sat | DO (ppm mg/L) | | Eh (mV) | Water Le (m b TO | | | |
| AS 5667.11: | : 1998 (<+/-) | 10% | 0.2°C | | | 10% | 10% | 10% | | | | • | | |
| - | 1 | 341-1 | 22.7 | 221.6 | - | 5.77 | 39.7 | 3.0 |)4 | 161.4 | ~8. | 19 | | |
| 0.5 | 3 | 314.1 | 21.1 | 203.9 | 02 | -5:24 | 7.6 | 0.6 | 6 | 183.0 | 1 | | | |
| 1 | 6 | 309.0 | 20.8 | 200.7 | 11 | 510 | 4.1 | 0.36 | | 1953 | | 7 | | |
| 1.6 | 9 | 333.0 | 20.6 | 215.9 | | 498 | 2.4 | 0.21 196.3 | | | | | | |
| 2 | 11 | 364 | 20.6 | 204.5 | | 4.95 | 2.6 | 0.18 2073 | | 5 | | | | |
| 2.3 | 13 | 305.7 | 20.6 | 198.6 | > | 4.90 | 1-7 | 0.15 214-3 | | | 3 | | | |
| 2.6 | 15 | 363:5 | 20.6 | 197.0 | 2 | 4.88 | 1.55 | 0.14 | | 220. | 4 | 4 | | |
| | | | | | | | | | | | | | | |
| Comments (e | e.g. condition o | f headwork | s, sheen, col | lour, odour, s | sedin | nent load): | | | | | | | | |
| Good, ne | oshee | n, ligi | nt brou | M M | 0) | 10214 | ho é | oda | <u>,</u> | mod | sed | | | |
| SAMPLING D | ETAILS | | | | | Sample ID |): | | | | | | | |
| Time: | Time: Vol. Removed: L | | | | | | No of Sample Containers: | | | | | | | |
| Type of Sample | e Containers (i.e. | P = Plastic/ | /G = Glass/V = | Vial, volume a | ind p | = preserved | d/up = unpres | erved): | | | | | | |
| Field Filtered | Field Filtered Duplicate Samples Duplicate Sample ID: | | | | | | | | | | | | | |
| Comments: | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| CoC Num Bores to be | ber: e purged dry, until | oH, T and EC | | cked by: se or a minimum | 1 of 3 | to 5 times the | e water column | Date: volumes. W | ater co | lumn volumes | can be cal | culated | | |

from the following casing volumes per unit length: 40 mm ID - 1 L/m; 50 mm ID – 2 L/m; 100 mm ID 8 L/m. Calibration details to be recorded in the instrument –specific calibration book, or in field notes as required by local procedures.