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EQ RESOURCES

MOUNT CARBINE OPERATIONS

REVISED CONCEPTUAL GROUNDWATER MODEL

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1.0 INTRODUCTION

Rob Lait and Associates Pty Ltd (RLA) was engaged by EQ Resources to revise the conceptual groundwater model for the Mount Carbine project. The original conceptual groundwater model was developed by RLA in 2012, and an additional ten years of groundwater level and quality data is available to refine the conceptual groundwater model. Additional groundwater monitoring bores were installed within the last 12 months to further inform groundwater conditions at the site. The installation of the groundwater monitoring bores was completed in conjunction with Natural Resource Assessments Pty Ltd (NRA).

The revised conceptual groundwater model presented is a collaborative assessment between RLA and hydrogeologist.com.au. The revised conceptual model was developed to support an Environmental Authority (EA) amendment and to assist in the assessment of groundwater exceedances.

2.0 PHYSICAL SETTING

2.1 Site features

The township of Mount Carbine is located approximately 70 km north of Mareeba in northern Queensland. The project abuts the northern outskirts of the town.

Figure 1 shows the site infrastructure associated with the Mount Carbine project, which includes:

- An underground portal and associated workings.
- An existing open pit which was mined in the 1970s and 1980s. The pit has slowly filled with water over time from a combination of direct rainfall, rainfall runoff, groundwater seepage and inputs from other water management structures at the site. Measurements provided by EQ Resources indicate that the pit lake currently has an elevation of 350 mAHD (EQ Resources, 2022a).
- Tailings storage facilities (TSF) and associated water impoundments.
- Low-grade ore stockpiles.
- A rejects stockpile.

Figure 1: EQ Resources site infrastructure features and layout (figure courtesy of Natural Resource Assessments Pty Ltd)

2.2 Topography and drainage

The regional topography is dominated by the floodplain of the Mitchell River and a range that separates the Mitchell River and Daintree River catchments. The foothills of the range rise approximately 150 m above the elevation of the floodplain. The elevation of the site varies from 350 mAHD to 500 mAHD.

The catchment to the immediate north of the open pit (Carbine Hill) and within the pit crest is locally diverted to the open pit (pers comm.; T Bainbridge, EQ Resources). Otherwise, surface waters around the open pit flow towards Manganese Creek, while surface waters around the low-grade stockpile flow towards Holmes Creek. Holmes Creek and Manganese Creek both discharge downstream to the Mitchell River (Figure 2).

Typically, drainage features are controlled by the development of faults and fracture zones. A dendritic drainage pattern is evident in the range to the north of the project, however the pattern rapidly loses definition at the base of the slope. This drainage pattern suggests that the path of Manganese Creek is structurally controlled by a system of conjugate joints in the underlying Hodgkinson Formation.

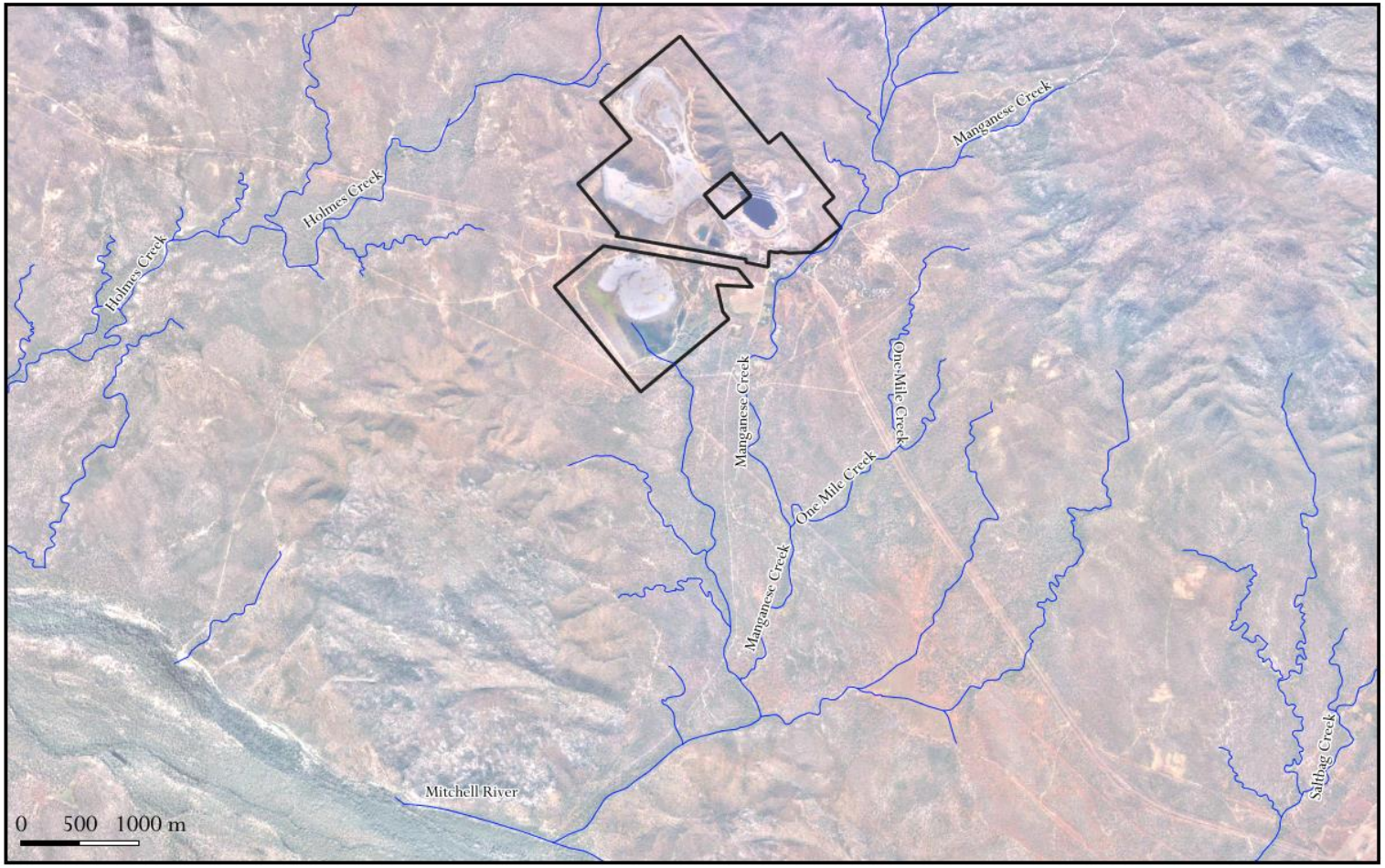


Figure 2: Watercourses

2.3 Geology

The mapped geology is shown in Figure 3 and includes reference to the following geological units:

- Cainozoic sediments, including colluvium, weathered sediments, and poorly consolidated sediments;
- early Permian Mount Carbine granitoid intrusives; and
- Silurian to Devonian aged Hodgkinson Formation.

No developed alluvium is present within the vicinity of the Mount Carbine project.

The Mount Carbine project is covered with a laterally extensive regolith of in-situ weathered Hodgkinson Formation. The regolith is typically up to 10 m thick on-site, however in the elevated terrain the regolith is thin and rocky. The depth of regolith cover (CSIRO, 2015) indicates a general thickness of between 0 m to 10 m over the project site, consistent with site observations. The depth of regolith is shown in Figure 4.

The project lies within the Hodgkinson Formation. This is an extensive sequence of marine silici-clastic rocks, dominated by deep water turbidite sequences (Bultitude *et al.*, 1990). The formation is commonly described as 'shale' by drilling contractors. Subordinate chert layers and metabasalt lenses occur locally, and muddy sandstone (or 'greywacke') is common. Where granitoid intrusives occur, the Hodgkinson Formation is locally metamorphosed to hornfels. RLA (2012) describes a well-developed slaty cleavage within the Hodgkinson Formation, which generally strikes in a northwest-southeast direction and dips towards the southwest at angles of 70° to 90° (Bultitude *et al.*, 1990).

Permian granitoid intrusives are mapped approximately 300 m southeast of the Mount Carbine open pit, adjacent to and beneath Manganese Creek. At Mount Carbine, the ore deposit sits within the hornfels occurring adjacent to the margin of the Mount Carbine Granite. Several felsic dykes cut through the project site (EQ Resources, 2022). Figure 3 shows a mapped felsic dyke adjacent to the western margin of the open pit. The felsic dykes generally strike in a north-northeast orientation, consistent with the orientation of the mapped granitoid.

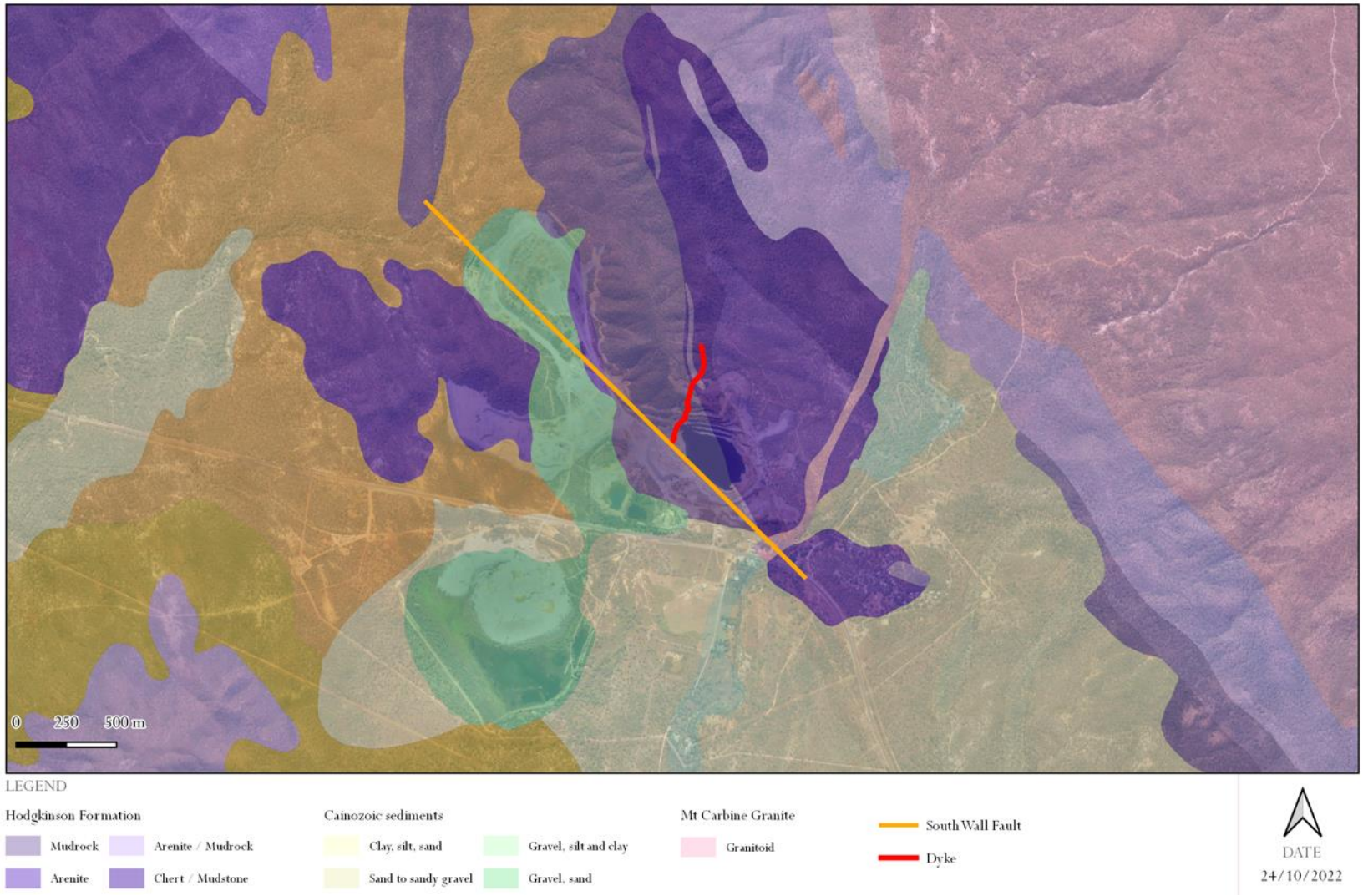


Figure 3: Geology map

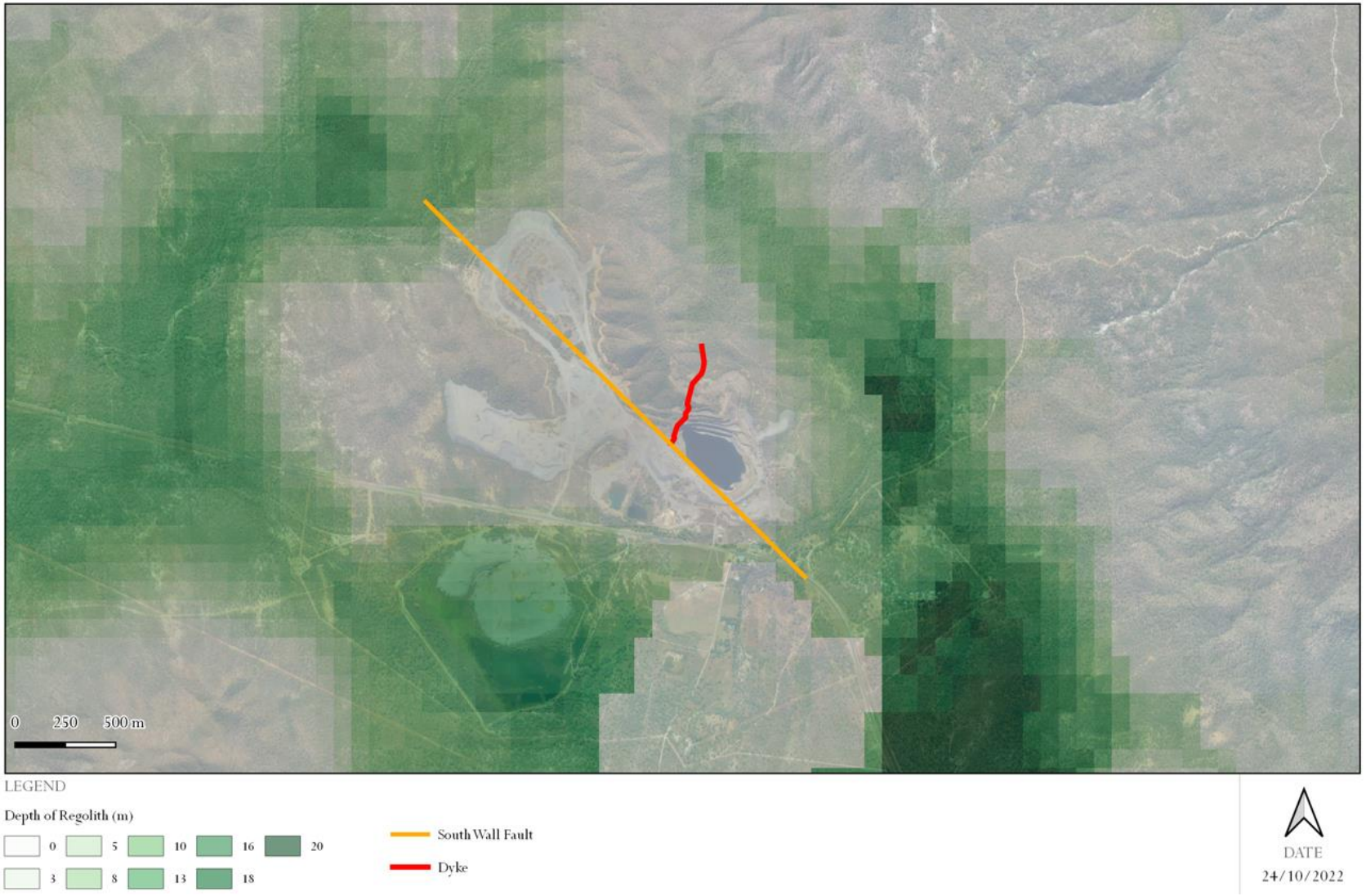


Figure 4: Depth of regolith

A review of the geology and structure at the site was undertaken by EQ Resources in October 2021 (EQ Resources, 2021) and describes the primary lithologies observed in the open pit as:

- ***Metasediments*** *– the major rock unit within the pit, this unit consists of hornfelsed mudstones and interbedded rudites, with a prominent cleavage. Alteration within the unit varies from pervasive silicification to hornfelsed cordierite chlorite. Breaks along cleavage and schistosity planes.*
- ***Metavolcanics*** *– located on the eastern end of the pit and on the south side of the South Wall Fault (SWF) this unit is pale green with greenschist facies alteration and contains locally hard siliceous chert bands.*
- ***Quartz Veins*** *– this unit consists of white, bucky quartz, typically less than 20 cm in width. Quartz veins can be barren or contain tungsten.*
- ***Dyke Material*** *– two types of dykes are observed - a pale, uniform fine-grained felsic dyke that is present as a 10 to15 m wide dyke at the western end of the pit; and a dark green/grey basic dyke that is present as a 0.5 to 1 m wide dyke cross-cutting the pit.*

Geological structure

Structural features have a major influence on the geology of the project site. EQ Resources (2021) discusses the dominant structural feature of the site as follows:

"Mount Carbine sits at a spur on a major arc parallel fault called the South Wall Fault (SWF). The SWF is a thrust that appears to be a long-lasting fault forming at the time of compression and the district scale isoclinal folding of the basement rock… The SWF truncates the tungsten orebody at an angle of 70 degrees to the grid north. It forms a boundary fault on the south-west side of the mineralisation (deposit). Evidence suggests it is a reverse thrust fault… Other minor faults occur, orientated in a northerly direction and show less severe movement."

The general alignment of the SWF is shown in Figure 3. EQ Resources (2022b) provides further discussion on the SWF:

"The SWF truncates the ore body and forms the southern boundary of the pit. This is a steep (75 degrees) reverse fault… The fault typically occurs as one central 0.5 to 1.0 m zone of intense clay crushed rock or, less frequently, in two parts separated by 1 to 2 m of fractured rock. The clay is greasy dense montmorillonite clay with 20-30% ground-up, but visible, rock particles of mostly metavolcanic rock. It is a clastic fault of high elasticity due to the clay content. The orientation and extent of the fault is well known … and it is seen to be very consistent in its 75° dip to the grid north direction… The fault has a fractured footwall for 1 to 5 m in width with only minor extra fracturing observed in the hanging wall."

There is generally little evidence of faulting at the surface as the regolith obscures any geological structure.

Further information on the SWF is included in Appendix A.

3.0 UPDATED GROUNDWATER INFORMATION SINCE 2012

3.1 Groundwater monitoring bores

Table 1 summarises the groundwater monitoring bores that were installed by Carbine Tungsten in November 2011. The Rural Fire Brigade (RFB) bore is also used by EQ Resources for groundwater quality monitoring. The bore locations are shown in Figure 5.

Table 1: 2011 GROUNDWATER MONITORING BORES

Bore ID	*Easting*	*Northing*	*Depth drilled (mBGL)*	*Screened zone (mBGL)*	*Airlift yield (L/s)*	*Surface elevation * (mAHD)*
MB1A	299177	8171929	36.5	Not reported	Not reported	364.54
MB1B	299177	8171929	74	44-74	5.5	364.91
MB3A	301004	8172643	60	30-60	0.5	376.50
MB3B	301004	8172643	90	72-90	0.4	376.89
MB4A	299994	8170776	30	18-30	5.8	353.49
MB4B	299994	8170776	61	37-61	25.0	353.30
MB5A	298226	8172597	30	18-30	3.0	357.30
MB5B	298226	8172597	60	42-60	Not reported	357.41
MB6A	300597	8171181	31	19-31	1.7	357.19
MB6B	300597	8171181	62.5	44.5-62.5	2.0	357.28
RFB	301144	8171764	Not reported	Not reported	Not reported	360.87

Note: mBGL – metres below ground level
Coordinates in GDA94, Zone 55
* It is not clear whether this elevation represents ground level or the top of the bore monument. For the purposes of this assessment, it is assumed that this elevation represents ground level.

The groundwater monitoring bore network installed in 2011 comprises the current EA monitoring network. Groundwater level and quality data is regularly measured to monitor groundwater conditions at the site.

Table 1 shows that two aquifer intervals were targeted by the 2011 groundwater monitoring bores - one at a depth of 30 m or less, and a deeper interval at a depth of 60 m to 90 m. Geology logs for the monitoring bores indicate that the bores all intersected shale, which has been interpreted as the Hodgkinson Formation as described in RLA (2012).

3.2 Surficial bores

Table 2 summarises the surficial bores (SB bores) that were installed by EQ Resources in December 2021. The bores were installed to assess the extent and behaviour of groundwater within the regolith (i.e. at depths generally less than 10 m), and to identify any recharge that may occur within the regolith over the wet season. The SB bores are further discussed in NRA (2022b). The locations of the SB bores are shown in Figure 5. Bore logs for the SB bores are also presented in NRA (2022b).

Table 2: 2021 SURFICIAL BORES						
Bore ID	***Easting***	***Northing***	***Depth drilled (mBGL)***	***Screened zone (mBGL)***	***Static water level (mBTOC)***	***Top of monument elevation (mAHD)***
SB02	299217	8171190	9.5	5.7 – 8.7	Dry	358.78
SB03	299579	8170806	9.5	5.9 – 8.9	8.58	356.71
SB04	299849	8170898	10.0	6.0 – 9.7	5.86	353.98
SB05	300056	8171184	16.5	5.5 – 9.0	4.34	355.35
SB07	299346	8172108	10.0	6.1 – 9.1	Dry	365.07
SB08	299964	8171852	9.0	5.9 – 8.9	Dry	363.63
SB09	300331	8171786	10.0	6.1 – 9.1	Dry	363.47
SB10	299633	8171923	9.7	6.2 – 9.2	Dry	362.01
SB11	299458	8173194	10.0	6.0 – 9.0	3.53	370.94

Note: mBGL – metres below ground level
mBTOC – metres below top of casing
Coordinates in GDA94, Zone 55

SB02, SB07, SB08, SB09 and SB10 did not intersect groundwater during drilling, and these bores have remained dry since installation. SB03, SB04, SB05 and SB11 all record a groundwater level and are monitored for groundwater levels only.

3.3 Investigation bores

Table 3 summarises the investigation bores (IB bores) that were installed by EQ Resources in January 2022. The bores were installed to expand the groundwater monitoring network, assessing groundwater levels and quality across the site. IB01, IB02 and IB08 were located to assess the groundwater characteristics of the SWF, while IB03, IB05 and IB06 assess the metasediments, IB04 assesses the metavolcanics and IB07 assesses the granite. The locations of the IB bores are shown in Figure 5. Bore logs for the IB bores are shown in Appendix B.

Table 3: 2022 INVESTIGATION BORES								
Bore ID	***Easting***	***Northing***	***Depth drilled (mBGL)***	***Top of monument elevation (mAHD)***	***Airlift yield (L/s)***	***Static water level (mBTOC)***	***EC (µS/cm)***	***Perf. zone (mBGL)***
IB01	299429	8173222	23	369.00	0.2; 0.8	0.5	4400	17-23
IB02	300180	8172487	72	391.63	0.1; 0.4; 0.2	11	350	44-50
IB03	300569	8171746	30	364.06	1.5	17.5	9200	24-30
IB04	301030	8172127	30	368.26	0.6	19	1800	24-30
IB05	299916	8171748	30	361.02	0.6	12.2	3100	24-30
IB06	298743	8171345	24	363.13	0.4	15.8	5300	20-24
IB07	299574	8170830	53	Unknown	4.5	13.5	4000	18-53
IB08	300894	8171793	54	364.10	0.3	15	1700	20-26

Note: mBGL – metres below ground level
mBTOC – metres below top of casing
Coordinates in GDA94, Zone 55

The IB bores generally exhibited similar airlift yields of less than 1 L/s, with the exception of IB03 (at 1.5 L/s) and IB07 (at 4.5 L/s). Groundwater electrical conductivity (EC) is relatively high for the majority of the bores (with the exception of IB02). This is due to the low hydraulic conductivity of the aquifer resulting in a high groundwater residence time. This consequently creates greater opportunity for groundwater chemistry to equilibrate with the aquifer matrix, resulting in an elevated EC.

IB07 was assessed for potential use as a groundwater supply bore for the project. With IB07 returning an airlift yield of 4.5 L/s with an EC of 4,000 µS/cm, the bore was deemed inadequate for groundwater supply purposes.

An unnamed test hole was drilled near MB4 to assess the airlift yield at that site. The test hole was drilled to a depth of 75 m and yielded 15 L/s with an EC of 2,000 µS/cm. The unnamed test hole was abandoned and was not constructed as a water supply bore.

3.4 Hydraulic conductivity

Hydraulic testing was carried out in all monitoring bores where reasonably practical to do so. The bores were tested by either falling or rising head methods and analysed using the Bouwer and Rice method (for falling head tests) or the Theis method (for rising head tests). Table 4 summarises the hydraulic conductivity values determined from the hydraulic testing.

The hydraulic conductivity of the regolith, where saturated, is low with estimated values between 0.001 m/d to 0.056 m/d.

The hydraulic conductivity of the Hodgkinson Formation is low to moderate with hydraulic conductivity values ranging from 0.038 m/d to 0.58 m/d.

The unnamed test hole drilled near MB4 yielded 15 L/s, which is indicative of a high hydraulic conductivity zone within the Hodgkinson Formation.

The hydraulic conductivity of the SWF is nominally low with estimated values between 0.015 m/d to 0.088 m/d. Hydraulic testing was not able to be practically carried out at IB01 as the water level in the bore casing was only 0.15 m below the top of the casing and was too high to effectively introduce a ‘slug’ of water.

IB07 has a nominal airlift yield of 4.5 L/s. The bore intersected fractured granite, and, on this basis, it can be concluded that the granite has localised zones of high hydraulic conductivity.

In addition to the above data, data has been made available from a number of historic geotechnical piezometers installed within the Hodgkinson Formation in the vicinity of the SWF in the open pit (Piteau & Associates, 1982). This hydraulic conductivity data is in the range of 0.033 m/d to 2.3×10^{-5} m/d. The historic hydraulic conductivity data is generally lower than the data collected from the MB, IB and SB bores. This lower hydraulic conductivity reflects the rationale of the geotechnical holes to target a specific rock mass within a spatial zone of the open pit, whereas monitoring bores are typically drilled and constructed within water bearing zones.

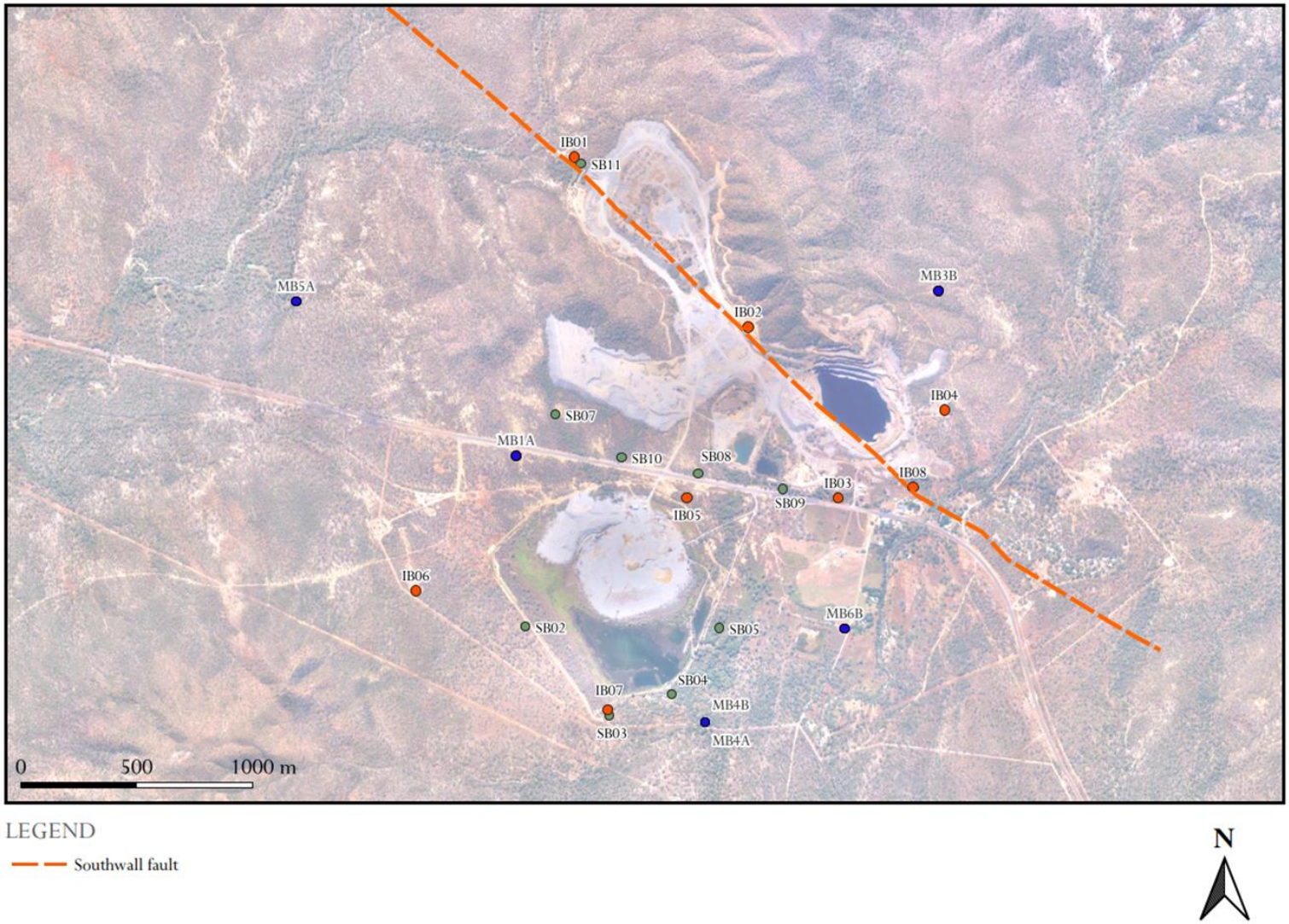


Figure 5: Bore locations

Table 4: NOMINAL HYDRAULIC CONDUCTIVITY VALUES			
Bore ID	***k (m/d)***	***k (m/s)***	***Tested lithology***
MB1A	4.0×10^{-1}	4.6×10^{-6}	Metasediments
MB1B	2.2×10^{-1}	2.5×10^{-6}	Metasediments
MB3A	3.6×10^{-1}	4.2×10^{-6}	Metasediments
MB3B	3.8×10^{-2}	4.4×10^{-7}	Metasediments
MB4A	5.8×10^{-1}	6.8×10^{-6}	Metasediments
MB5A	3.7×10^{-1}	4.3×10^{-6}	Metasediments
MB5B	3.7×10^{-1}	4.3×10^{-6}	Metasediments
MB6B	1.8×10^{-1}	2.0×10^{-6}	Metasediments
IB02	1.5×10^{-2}	1.7×10^{-7}	SWF
IB03	1.1×10^{-1}	1.2×10^{-6}	Metasediments
IB04	1.6×10^{-1}	1.8×10^{-6}	Metavolcanics
IB05	4.9×10^{-2}	5.7×10^{-7}	Metasediments
IB06	4.6×10^{-2}	5.3×10^{-7}	Metasediments
IB08	8.8×10^{-2}	1.0×10^{-6}	SWF
SB03	3.6×10^{-2}	4.2×10^{-7}	Regolith
SB04	1.0×10^{-3}	1.2×10^{-8}	Regolith
SB05	2.6×10^{-2}	3.0×10^{-7}	Regolith
SB11	5.6×10^{-2}	6.5×10^{-7}	Regolith

Notes: SWF – South Wall Fault

3.5 Groundwater level and quality data

EQ Resources has carried out groundwater level and quality monitoring in accordance with their EA conditions. The site has been actively monitored for over 10 years. Additional monitoring outside of the EA conditions is carried out where required.

In addition to the recent data from the monitoring bore network, data has been made available from a number of historic piezometers installed within the Hodgkinson Formation in the vicinity of the SWF in the open pit (Piteau & Associates, 1982). This groundwater level data is from 1982, prior to expansion of the open pit, and indicates groundwater elevations in the range of 359 mAHD to 365 mAHD.

4.0 REVISED HYDROGEOLOGY

4.1 Hydro-stratigraphic units

There is little or no development of alluvial sediments within the Mount Carbine project site. As such the alluvium is not regarded as a hydro-stratigraphic unit within the project site.

Regolith

Groundwater is present as an unconfined aquifer where it occurs within the regolith.

SB series bores SB03, SB04 and SB05 show that there is groundwater development in the regolith where water from the TSF has caused localised mounding. Within the vicinity of the TSF the regolith is only saturated where surface infiltration has been sufficient to develop a groundwater table.

The other SB series bore that has developed a groundwater table is SB11, which is co-located with IB01 (screened into the SWF). The groundwater table in the regolith at SB11 is likely influenced by elevated groundwater levels within Carbine Hill to the southeast (Figure 1 and Figure 5). Further discussion on the groundwater levels at SB11 is provided in Section 4.2.

Based on the evidence from the remaining SB series bores it is concluded that the regolith is typically unsaturated across the site.

Hodgkinson Formation

The primary hydro-stratigraphic unit at Mount Carbine occurs within the Hodgkinson Formation. The fractured rocks of the Hodgkinson Formation comprise a secondary porosity aquifer. Drilling within the Hodgkinson Formation indicates discrete zones of moderate to high hydraulic conductivity within a generally low hydraulic conductivity rock mass. Groundwater within the Hodgkinson Formation is interpreted to be semi-confined at shallow depths and confined at deeper depths.

The Hodgkinson Formation has a slaty cleavage which is regionally pervasive. This cleavage would provide a heterogenous environment which is assessed to influence the preferential direction of groundwater flow within the hydro-stratigraphic unit. That is, the horizontal hydraulic conductivity within the Hodgkinson Formation will be higher in a northwest-southeast alignment compared with the horizontal hydraulic conductivity in a southwest-northeast alignment. A representation of the magnitude of horizontal hydraulic conductivity is shown in Figure 6.

In the vicinity of the open pit the Hodgkinson Formation has been locally metamorphosed and altered to hornfels (EQ Resources, 2021). This would result in a localised reduction of the hydraulic conductivity of the Hodgkinson Formation. However, there are no direct hydrogeological observations from the hornfels to confirm this.

South Wall Fault

Investigation bores IB01, IB02 and IB08 were located to assess groundwater occurrence in the SWF. Each of these bores intercepted small volumes of groundwater in a sticky grey clay. The sticky grey clay was identified by Mr. Tony Bainbridge (EQ Resources geologist) as characteristic of the SWF. As discussed in Section 2.3, the SWF typically occurs as one central 0.5 m to 1.0 m zone of intense clay crushed rock or, less frequently, in two parts separated by 1 m to 2 m of fractured rock. Further, the fault has a fractured footwall for 1 m to 5 m in width, with only minor extra fracturing observed in the hanging wall.

The airlift yields from IB01, IB02 and IB08 were 0.8, 0.2 and 0.3 L/s respectively. Given the bores construction, these airlift yields are representative of the SWF, and the Hodgkinson Formation immediately above and below the SWF.

The clay layer associated with the SWF lines the hanging wall of the SWF and acts as a local confining layer.

The SWF is exposed in the southwestern wall of the open pit where the clay layer has been removed by mining.

If the SWF was a significant conduit for groundwater flow, the groundwater levels at IB02 would be similar to those observed in the open pit void (as the fault is exposed in the open pit). However, the groundwater levels at IB02 are elevated and are the highest observed in the project site.

It is therefore assessed that the SWF is an aquitard or a leaky barrier to groundwater flow. This implies that there is limited opportunity for groundwater flow across the SWF owing to the retarding effect of the clay layer that lines the fault plane. It does not however imply total exclusion of groundwater flow across and along the SWF.

Similarly, it is assessed that the felsic dykes that are within the vicinity of the open pit also behave as aquitards or a leaky barriers to groundwater flow. This assessment is based upon the steep groundwater flow contours interpreted to occur to the west and northwest of the open pit. However, there are no direct hydrogeological observations from the dykes to confirm this assessment.

4.2 Groundwater levels and flow

Groundwater levels have been measured within the dedicated groundwater monitoring bores since they were installed in November 2011 and in the IB and SB series bores (that were not dry) since they were installed. While no pre-mine groundwater levels available, groundwater levels pre-expansion of the open pit in 1982 are available as discussed in Section 3.5.

The groundwater levels in MB4A and MB4B are relatively higher that the groundwater levels in the rest of the groundwater monitoring bore suite. The groundwater levels in MB4A and MB4B are highly likely to be influenced by the standing water in the TSF4 water storage, which has been a more or less permanent water storage for a number of years. The SB series bores (SB3, SB4 and SB5) installed around the footprint of the TSF confirm this assessment of localised mounding.

The groundwater level in IB02 is some 12 m higher than the groundwater levels in other bores to the north of SWF. The mechanism for this elevated groundwater level is interpreted to be the ridge immediately to the north of IB02. It is probable that the ridge has a low hydraulic conductivity core and a veneer of permeable, shallow, and thin regolith (akin to a clayey gravel). Infiltrating rainfall on the ridge is likely to be held up in this elevated terrain. The lower salinity observed at IB02 confirms this concept.

Water levels within the open pit void have recently been measured by EQ Resources at 357 mAHD (July 2021) to 350 mAHD (January 2022). The reduction (7 m) in the elevation of the pit lake is in response to pumping by EQ Resources. Groundwater level data for IB08 (installed in January 2022) indicates a groundwater elevation of 350 mAHD. This suggests very similar elevations (and a flat hydraulic gradient) between the open pit void and IB08. However, it is not known whether there has been a corresponding change in groundwater level at IB08 in response to the lowering of the pit lake level. Available data shows little to no response, this may be due to the time of installation of IB08 and available monitoring record, or the low to moderate hydraulic conductivity measured at IB08 (0.088 m/d).

Local artesian conditions are observed at IB01 i.e., the groundwater level is slightly above ground surface. The hydraulic gradient for this artesian condition is most likely driven by the elevated outcrop of Hodgkinson Formation to the east and southeast along the SWF. This local groundwater flow would preferentially follow the SWF and cleavage partings within the Hodgkinson Formation. At IB01, the co-located surficial bore, SB11 is sub-artesian yet exhibits a similar groundwater elevation (368.98 mAHD at IB01 and 368.66 mAHD at SB11) due to topographic effect. This suggests a slight upward gradient from the SWF / Hodgkinson Formation groundwater to the regolith groundwater at this location. This upward gradient is more reflective of groundwater movement along the SWF and within the cleavage partings of the Hodgkinson Formation, rather than shallow groundwater flow from the low-grade stockpile.

The SWF and felsic dykes are regarded as leaky barriers to groundwater flow and "hold groundwater up" locally. Hydraulic gradients are much steeper to the northeast of the SWF than those to the southwest of SWF, reinforcing the concept that the SWF inhibits groundwater flow to the south. As discussed, the steep hydraulic gradient to the west and northwest of the open pit is likely a result of the felsic dyke that is mapped immediately adjacent (to the west) to the open pit.

A potentiometric surface contour map of groundwater elevations (representative of February 2022) is shown in Figure 6. Figure 6 also shows the location of the SWF and its influence on groundwater elevations. The contours have been prepared based on the groundwater elevations of all bores summarised in Table 1, Table 2 and Table 3. The pit lake elevation has also been used to define the potentiometric contours.

The potentiometric contours are considered to be valid based on the following assumptions:

1. There is generally sufficient hydraulic connectivity within the bedding planes and cleavage fractures of the Hodgkinson Formation to permit regional groundwater flow.
2. Groundwater will flow from more elevated areas to less elevated areas.
3. The SWF is an aquitard or a leaky barrier to groundwater flow. This implies that there is limited groundwater flow across the SWF. It does not imply total exclusion of groundwater flow across the SWF.
4. The felsic dykes are aquitards or leaky barriers to groundwater flow. As above this implies limited groundwater flow but does not imply total exclusion of groundwater flow across the dykes.

The potentiometric contours potentially indicate the presence of separate hydro-stratigraphic units on either side of the SWF. To the southwest of the SWF, the contours are flatter, and the hydraulic gradient is lower. To the northeast of the SWF the contours are steeper, and the hydraulic gradient is higher.

These separate hydro-stratigraphic units relate primarily to the bulk rock mass hydraulic conductivity of the Hodgkinson Formation, that is likely to be influenced by the presence of the SWF and also by the presence of the felsic dykes to the north of the SWF and adjacent to the open pit. There is also expected to be a topographic influence, with the region to the northeast of the SWF having higher elevation than the area to the southwest.

Two hydrogeological cross-sections are presented to illustrate the shape of the potentiometric surface contour profile at the site. These hydrogeological cross-sections are shown in Figure 7 and Figure 8. Figure 7 extends from the northwest to the southeast, whereas Figure 8 extends in a general northeast to southwest alignment. Figure 8 shows the retarding effect of the SWF on the potentiometric levels to the south of the SWF.

It is also apparent from the potentiometric surface contours (Figure 6) that the TSF is leaking, and a localised groundwater mound has formed.

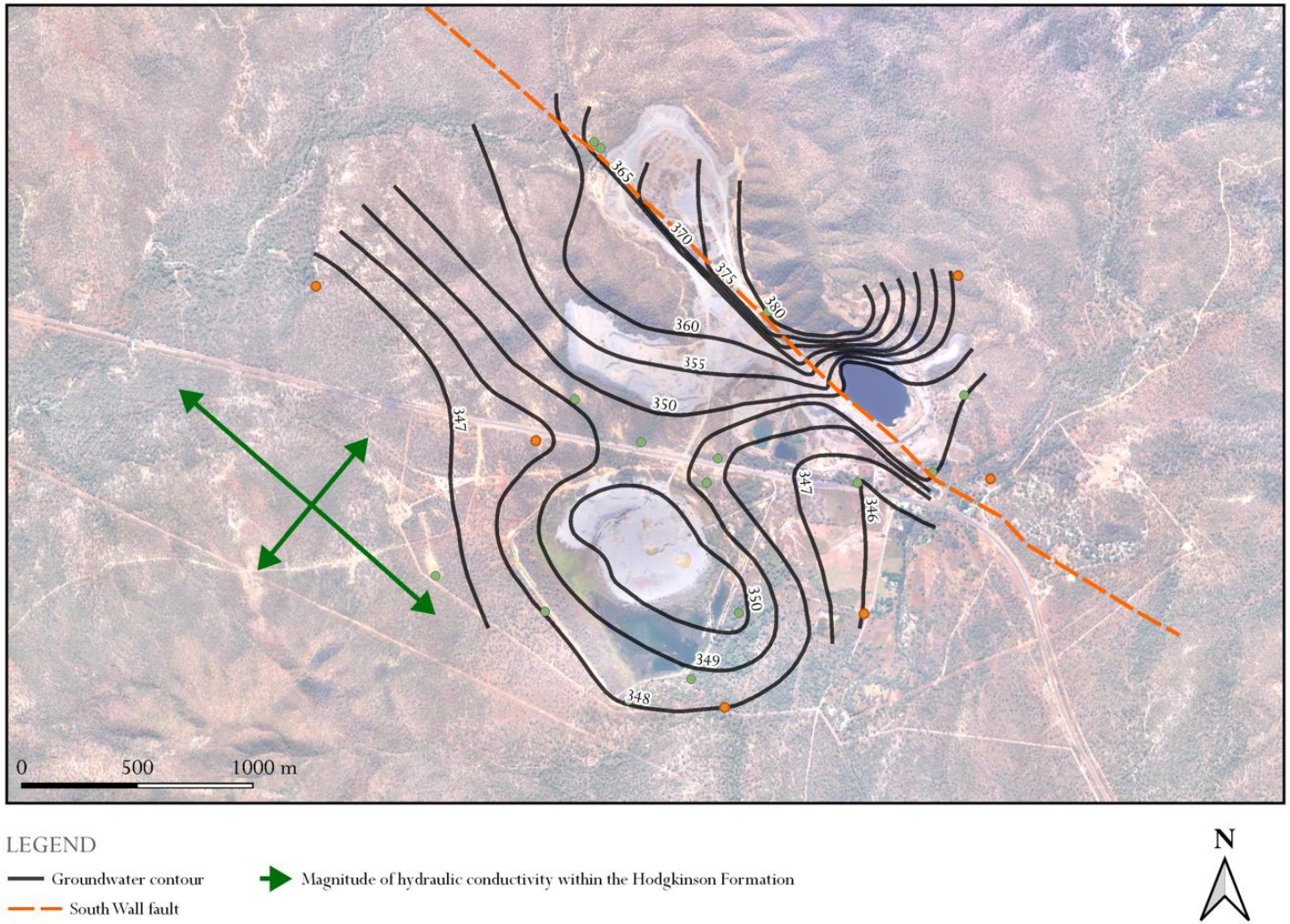


Figure 6: Potentiometric contour map

Note: Contours are at a 5 m interval above 350 mAHD and at a 1 m interval below 350 mAHD.

4.3 Groundwater recharge

The primary mechanism for recharge to the aquifers in the area is the direct infiltration of rainfall. Recharge to the Hodgkinson Formation will be rapid in areas where open cleavage partings are both exposed at the surface and persist to depth. There are significant areas to the north of the Mulligan Highway where such conditions exist.

There is little or no evidence of exposed Hodgkinson Formation to the south of the Mulligan Highway.

A secondary mechanism for recharge to the aquifers at Mount Carbine is episodic or runoff recharge. During a major rainfall event, a significant percentage of water will occur as surface runoff. The maximum opportunity for recharge to these aquifers will occur where cleavage partings are exposed in ephemeral gullies that traverse the site and flow during the wet season.

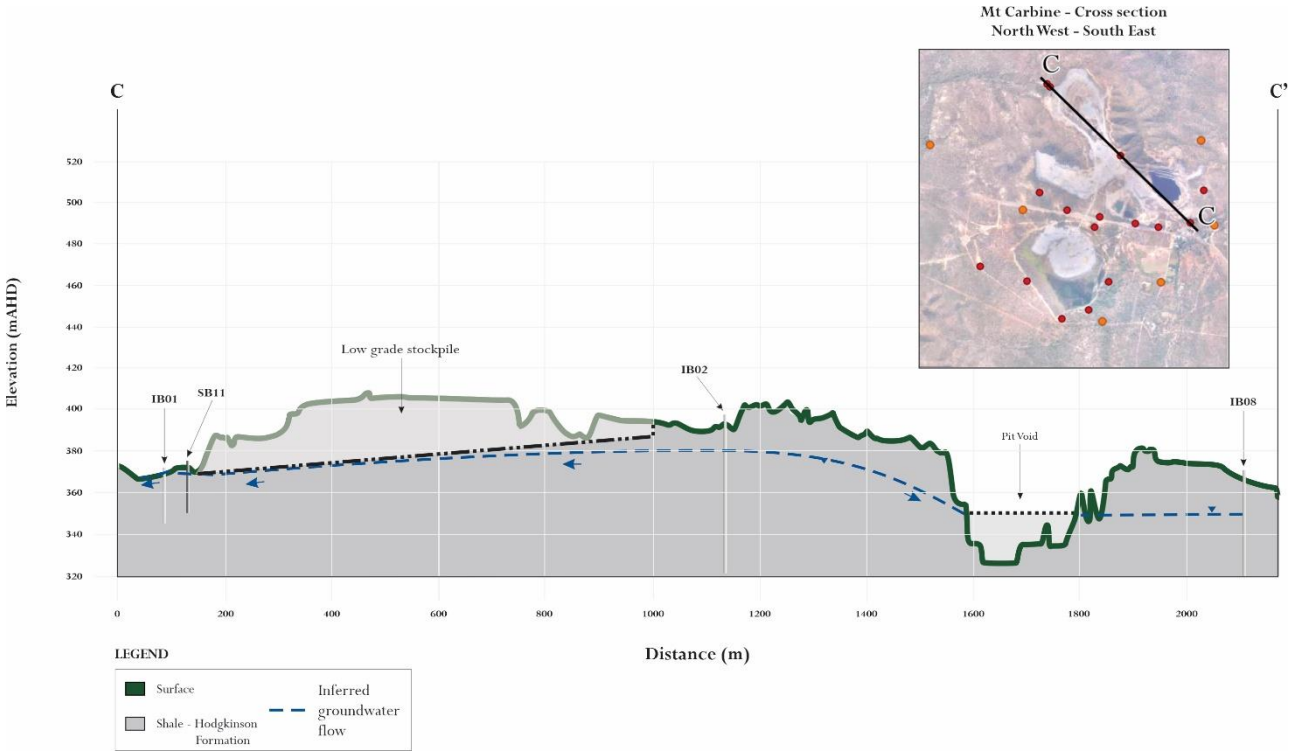


Figure 7: Northwest – southeast cross section

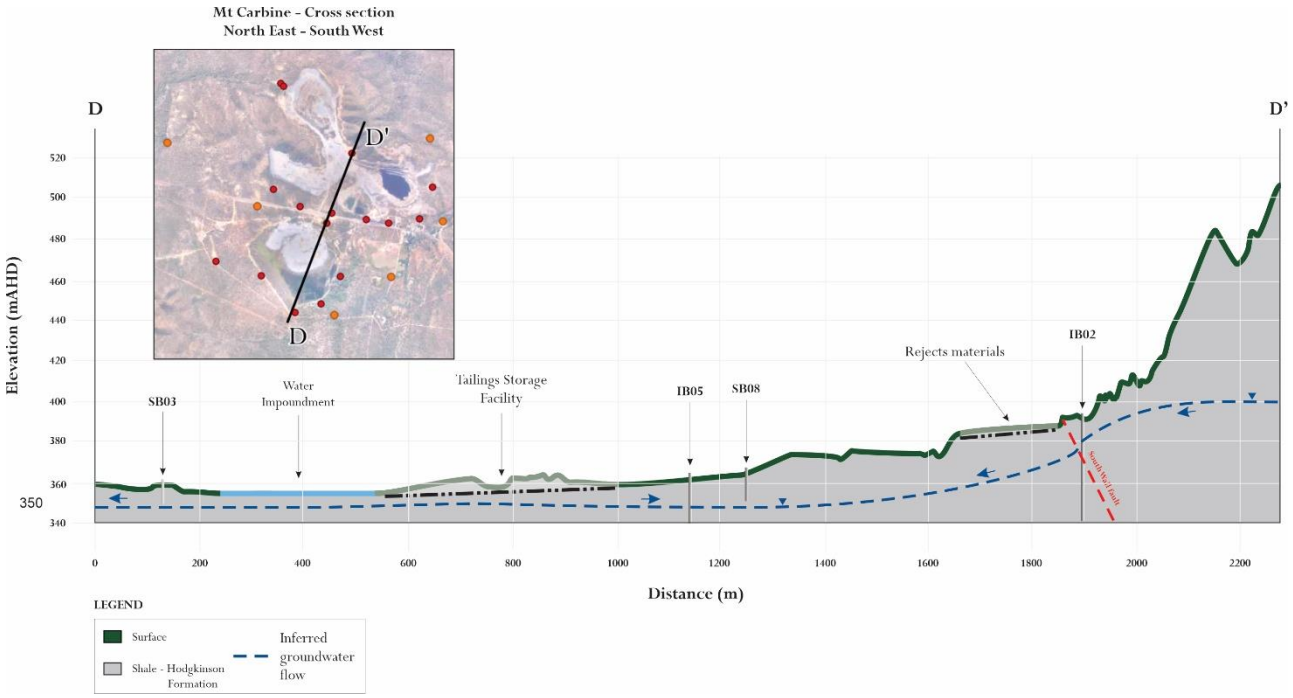


Figure 8: Northeast – southwest cross section

4.4 Groundwater discharge

Groundwater discharge is potentially occurring between the low-grade stockpile and Holmes Creek. It is understood that the Receiving Environment Monitoring Program (REMP) assessment at SW20 is reported to show Pandanus vegetation which is indicative of wet soil conditions. There is not necessarily any physical discharge of groundwater seepage occurring at this site rather the potential for sub-surface seepage. There is also evidence of potential salt scalding in this area.

There are minor surface water expressions at the toe of the rejects stockpile (Figure 1), however this is not assessed to be a natural expression of groundwater.

5.0 GROUNDWATER CHEMISTRY

Water chemistry is monitored at the EQ Resources site at a number of surface water sites as well as in the dedicated groundwater monitoring bores.

In a spatial context, the groundwater salinity (EC) does not present any obvious pattern or distribution of increasing or decreasing salinity over the project area. There is however a general pattern of increased salinity with depth which is confirmed by the majority of the paired monitoring bore sites.

Major ion groundwater chemistry data has been assessed to determine the overall geochemical signatures of groundwaters as part of the conceptual model development. These geochemical signatures allow the origin, evolution, and mixing processes to be interpreted.

The interpretation is made from the MB series bores which have a long-term (ten year) dataset. The IB series bores have had ten monitoring rounds within the last 12 months which is considered an adequate dataset for the purposes of assessment. The SB series bores have had only field water quality parameters (EC and pH) measured. No quality assurance process has been carried out on the client provided laboratory data.

Figure 9 and Figure 10 show Piper diagrams for the MB and IB groundwaters respectively. Figure 11 and Figure 12 show Durov diagrams for the MB and IB groundwaters respectively.

The data shows a notable shift in groundwater chemistry at both MB1B and MB3B. The shift at MB1B (located to the northwest of the TSF4) appears to be sudden, however the shift at MB3B (located to the northeast and upgradient of the open pit) appears gradual. MB1B exhibited a sudden increase in the proportion of Ca, Mg, and bicarbonate alkalinity and Cl, whereas MB3B is gradually increasing in salinity yet reducing in sulfate concentration.

These trends potentially relate to the sampling methodology. MB3B is a deep bore and is upgradient of the open pit and is unlikely to be related to direct mining impact. MB3B may not have been purged adequately during historical sampling. The change at MB1B is assessed as too sudden and is unlikely to be related to groundwater processes.

The Durov diagram shows that bores MB6A and MB6B have significantly higher salinity than the other MB bores.

The IB dataset shows a further spread of water quality types with IB02 (located to the northwest of the SWF, and with an elevated groundwater level) showing a distinctive high percentage of bicarbonate, generally associated with recharge when combined with low salinity. IB02 also shows low chloride and low sulfate, consistent with the site being elevated, well above any potential influence from mining activities.

The pH of the MB groundwaters is generally recorded between 6 and 9 with the occasional outlier. The pH of the IB groundwaters is generally between 6.5 and 8.0.

Figure 13 and Figure 14 show scattergrams of bicarbonate alkalinity vs sulfate for the MB and IB groundwaters respectively. Increased sulfate concentrations are typically used as an indicator of interaction with mineralised rock.

Data from MB4A and MB4B show elevated concentrations of sulfate and potential influence of seepage from TSF4 and its associated water storage. This is consistent with the groundwater level data which shows evidence of a localised groundwater mound beneath this site infrastructure. However, the influence of TSF4 on MB4A groundwater quality is confounded by sulfate concentrations in the bore that are greater than contemporary values from TSF4. Figure 13 also shows a large range (up to 150 mg/L) in sulfate concentrations at both MB4A and MB4B when compared to other bores. The change in water quality at MB1B resulting from varying bicarbonate alkalinity concentrations is also evident.

Sites MB1, MB5 and MB6 are generally higher in bicarbonate alkalinity, whereas site MB3 and the RFB bore are lower in bicarbonate alkalinity. This suggests a potential clustering of lower bicarbonate water to the northeast of the SWF, and higher bicarbonate water to the southwest of the SWF.

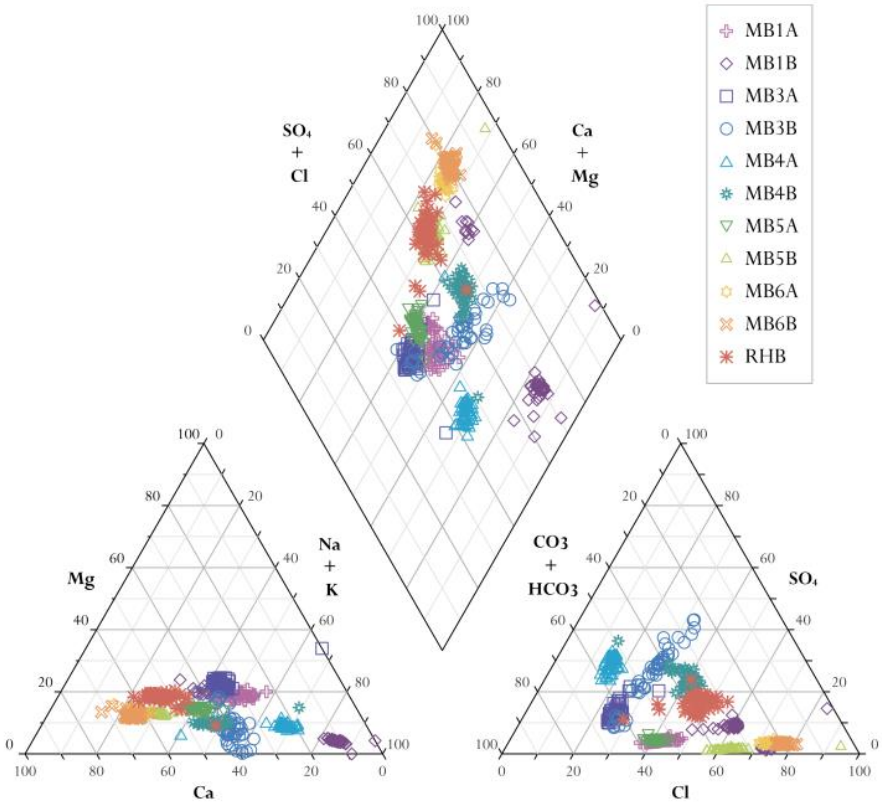


Figure 9: Piper diagram – MB series bores

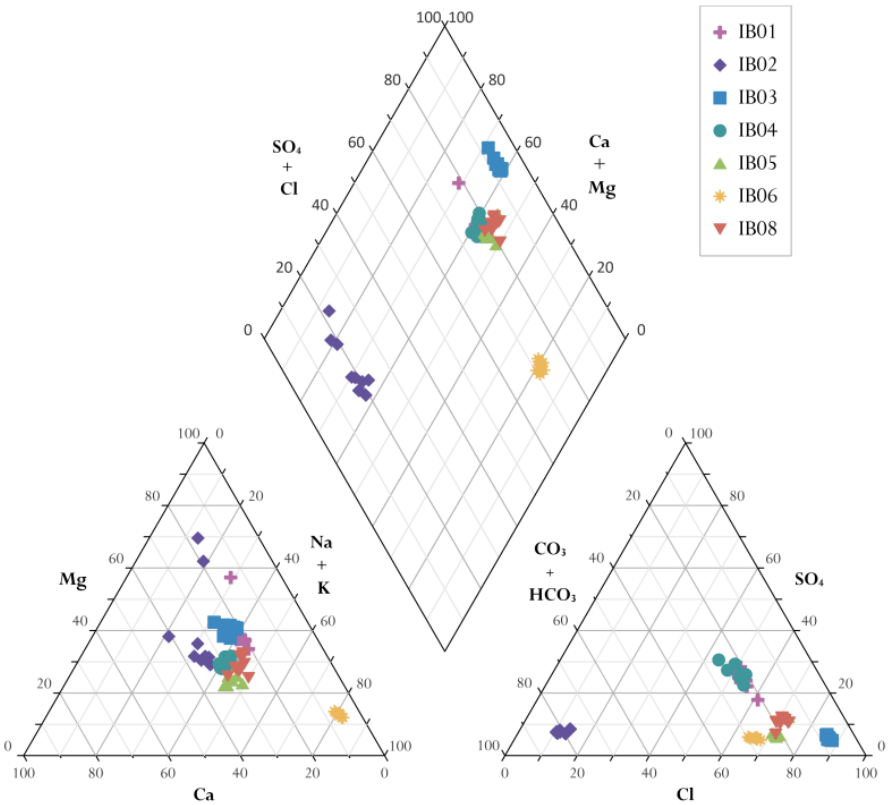


Figure 10: Piper diagram – IB series bores

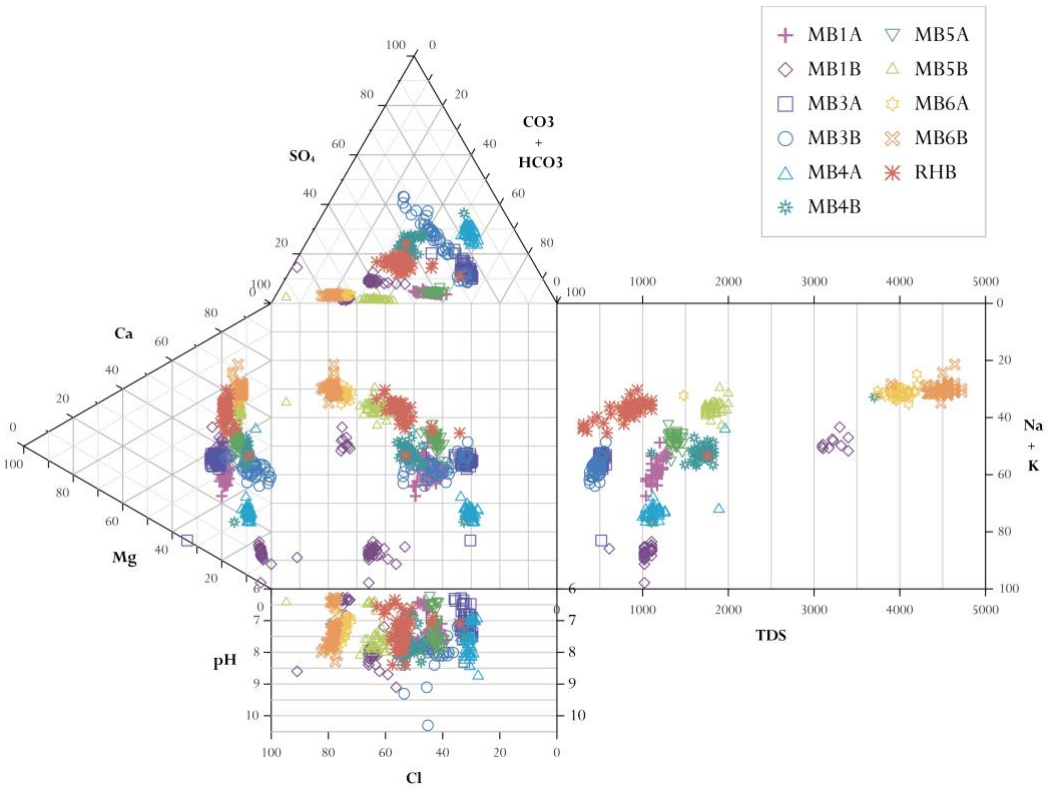


Figure 11: Durov diagram – MB series bores

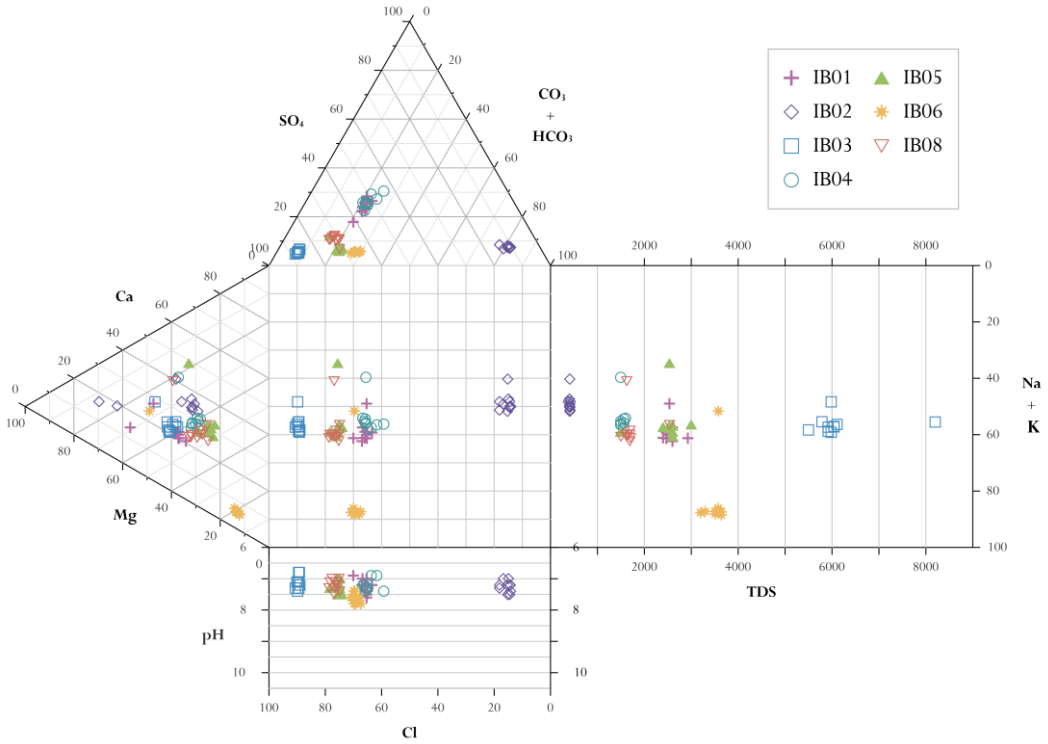


Figure 12: Durov diagram – IB series bores

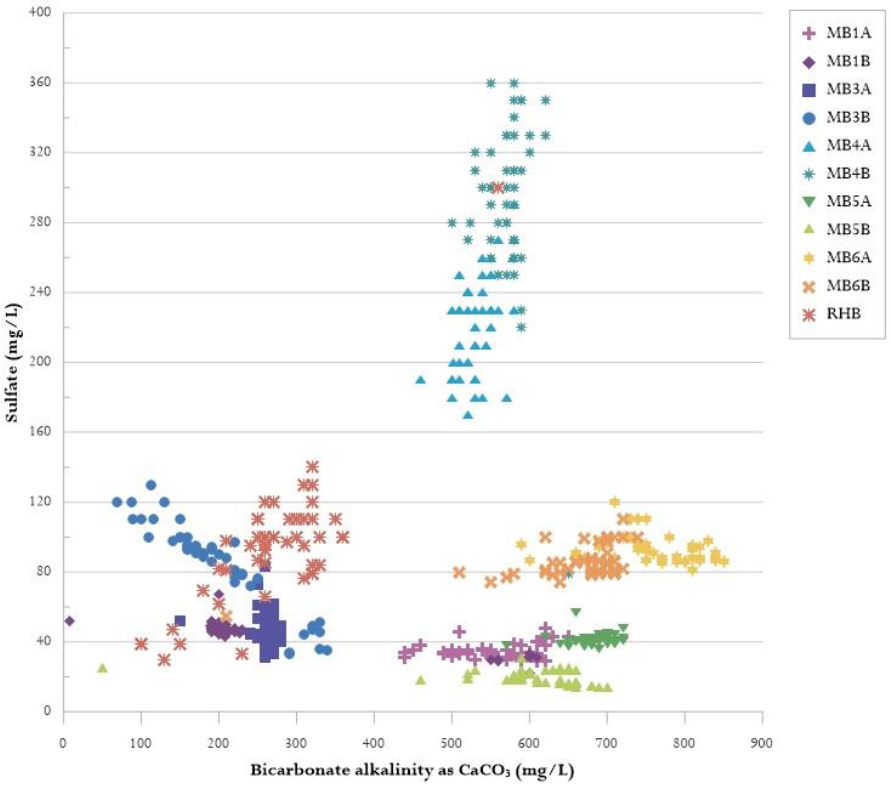


Figure 13: Scattergram - MB bores – bicarbonate alkalinity vs sulfate

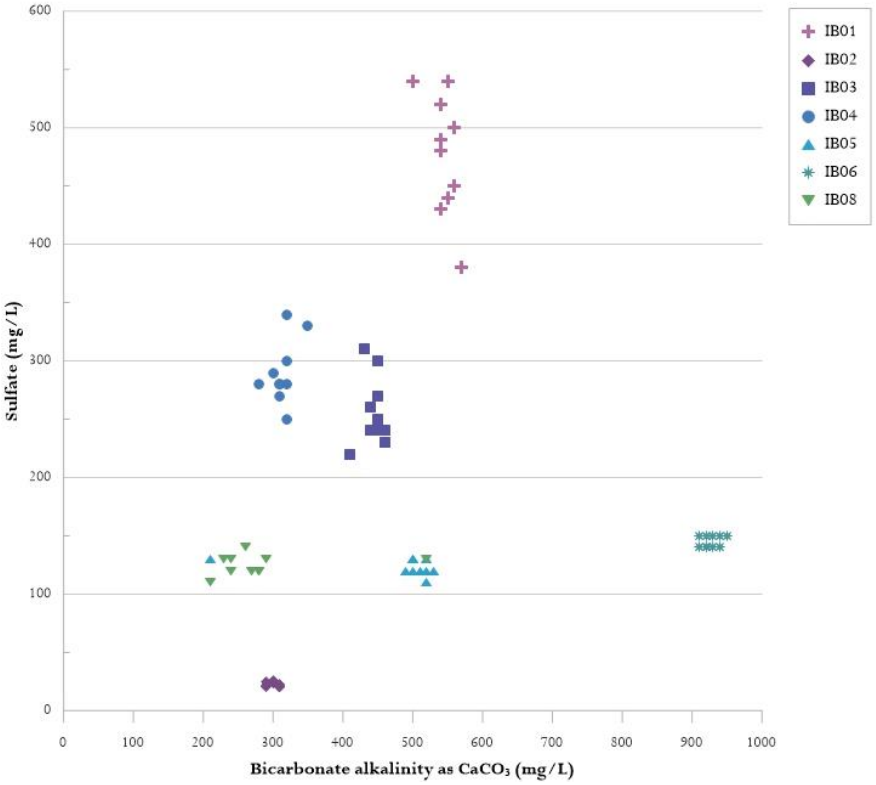


Figure 14: Scattergram - IB bores – bicarbonate alkalinity vs sulfate

Data from IB01 shows elevated concentrations of sulfate and potential influence of seepage from the mineralised rock. This mechanism is consistent with the groundwater level contours, which show the spatial potential for low-grade stockpile seepage to enter the SWF and Hodgkinson Formation in this area, also the area to the east and southeast of IB01 is consistent with the ore body and mineralisation.

Groundwaters at IB04 and IB03 also show more elevated sulfate concentrations when compared with the MB series groundwaters. The elevated sulfate levels at IB03 and IB04 may be due to the interaction with mineralised rock in the regional flow paths.

Sites IB01, IB03, IB05 and IB06 are generally higher in bicarbonate alkalinity , whereas sites IB04 and IB08 are lower in bicarbonate alkalinity . As per the MB groundwaters, this suggests a potential clustering of lower bicarbonate water to the northeast of the SWF, and higher bicarbonate water to the southwest of the SWF.

Figure 15 and Figure 16 shows a scattergram of chloride vs sulfate for the MB and IB groundwaters respectively. As per Figure 13, MB4A and MB4B show elevated concentrations of sulfate. The presentation of chloride vs sulfate shows more distinct grouping for each monitoring bore. Once again there is a potential clustering of lower chloride groundwater to the northeast of the SWF (MB3 and RHB), and higher chloride groundwater to the southwest of the SWF (MB1, MB5 and MB6).

Bores MB6A and MB6B have higher chloride than the other MB bores, consistent with the salinity data. There are subtle differences in the water types between MB5A and MB5B. MB5B exhibits slightly higher chloride and slightly lower sulfate. Further, MB4B has slightly higher chloride and higher sulfate than MB4A. The majority of sites show slightly higher chloride concentrations in the deeper monitoring bore.

The significant and sudden change in groundwater quality at MB1B is evident in the chloride concentrations.

MB5B exhibits slightly higher chloride and slightly lower sulfate. Further, MB4B has slightly higher chloride and higher sulfate than MB4A. The majority of sites show slightly higher chloride concentrations in the deeper monitoring bore.

Bores IB01, IB03 and IB04 show elevated concentrations of sulfate. IB03 has comparatively higher chloride concentrations than the other IB groundwaters.

There are subtle differences in the water types between the IB groundwaters.

Figure 17 and Figure 18 shows a scattergram of fluoride vs sulfate for the MB and IB groundwaters respectively. As per the scattergrams for chloride vs sulfate for the MB and IB groundwaters presented in Figure 15 and Figure 16, MB4A and MB4B show elevated concentrations of sulfate. The presentation of fluoride vs sulfate show grouping for both the MB and IB series groundwaters.

NRA are currently undertaking related work associated with the groundwater quality at the project site. The results of this work will be reported in conjunction with this assessment.

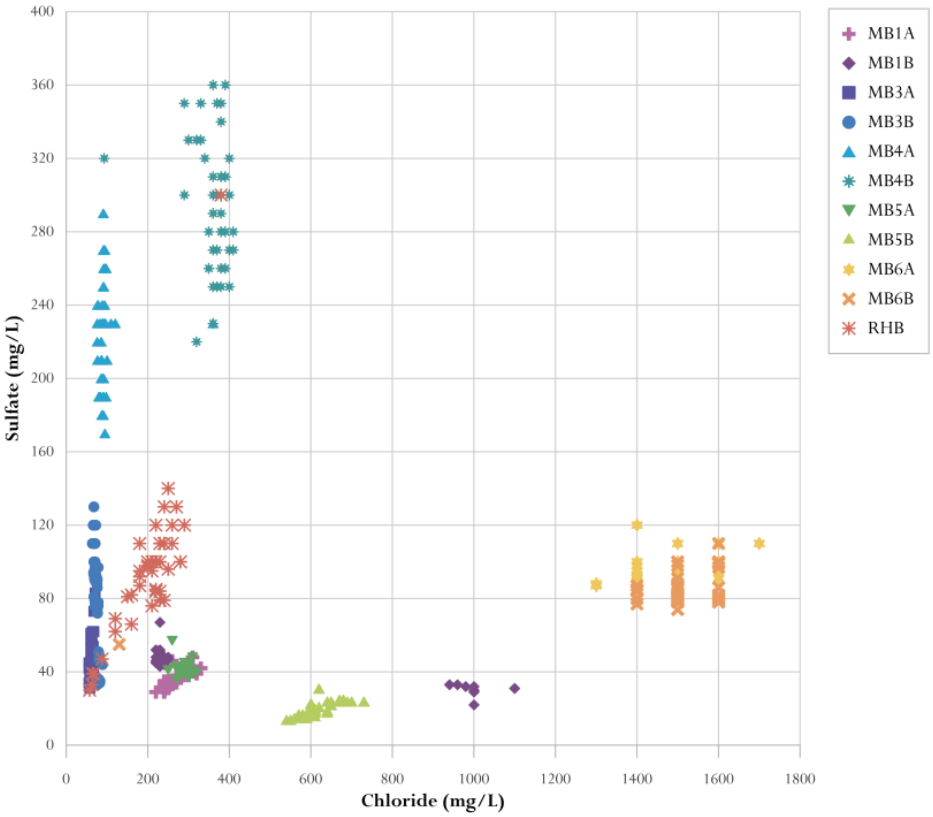


Figure 15: Scattergram – MB bores – chloride vs sulfate

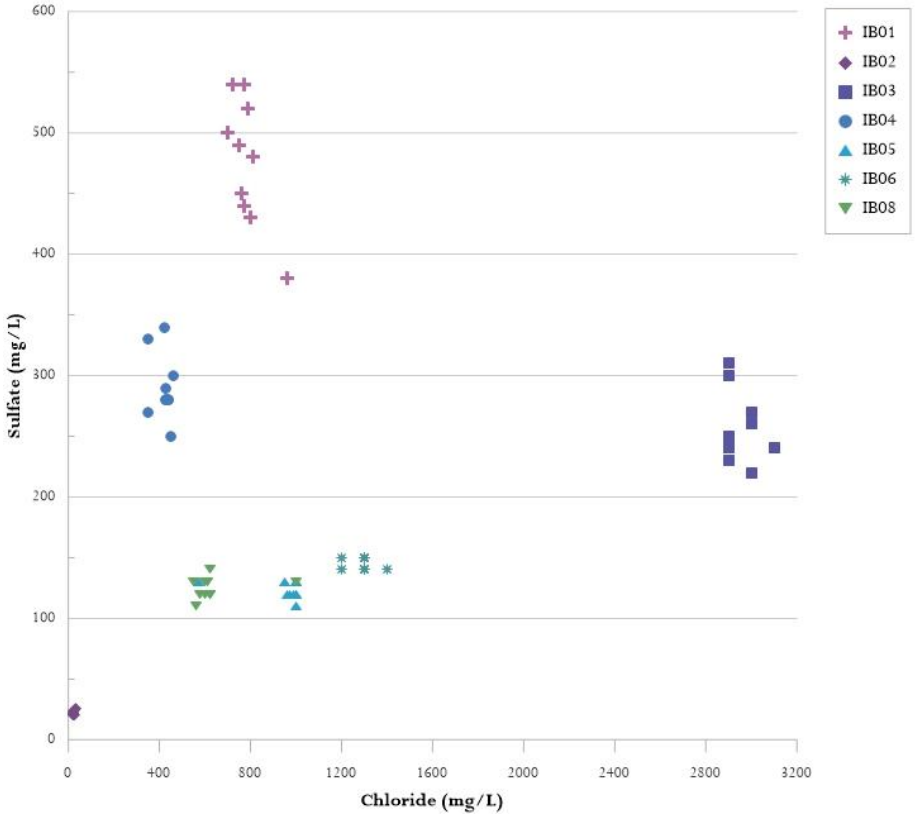


Figure 16: Scattergram IB bores – chloride vs sulfate

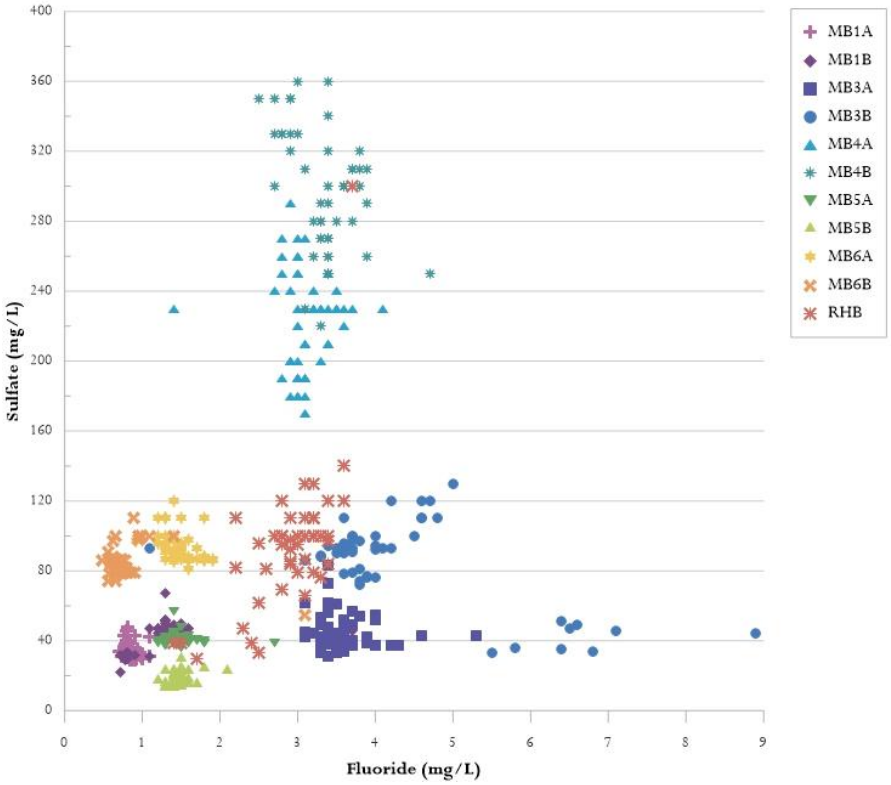


Figure 17: Scattergram MB bores – fluoride vs sulfate

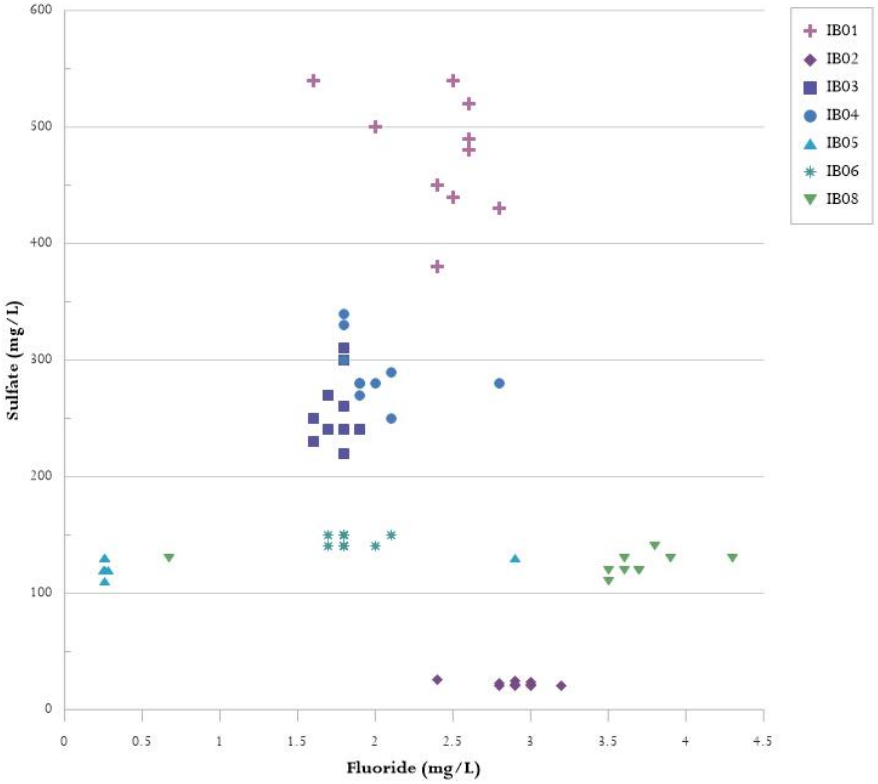


Figure 18: Scattergram IB bores – fluoride vs sulfate

6.0 GROUNDWATER - SURFACE WATER INTERACTION

Mining development is assessed as impacting groundwater levels beneath the TSF4 and associated water storages (localised mounding). The downgradient TSF4 monitoring bores MB4A and MB4B have observed groundwater levels approximately 4 mbGL to 7 mbGL. The downgradient TSF4 monitoring bores are located within a drainage feature, and the observed data suggests minimal interaction between groundwaters and surface waters downgradient of the TSF4.

Groundwater is likely discharging to the sub-surface between the low-grade stockpile and Holmes Creek, with vegetation suggesting wet soil conditions. Based on the available data there is potential for groundwater surface water interaction to be occurring in the upper catchment of Holmes Creek. The groundwater level data, presence of established vegetation (Pandanus at SW20) and the monitoring carried out under the REMP suggests this potential shallow groundwater interaction is a natural, established occurrence rather than an impact of mining.

Elsewhere, there is minimal interaction between watercourses and groundwater at the Mount Carbine project site RLA (2012). The 2022 REMP (NRA, 2022a) report concluded that there is no discernible impact on the aquatic ecosystem and human use environmental values (EVs) associated with the contemporary mining activities.

7.0 REVISED CONCEPTUAL GROUNDWATER MODEL

Following a review of all the groundwater information available for the EQ Resources site, the following statements regarding the conceptual groundwater model have been derived:

1. There is little or no development of alluvial sediments within the Mount Carbine project site. As such the alluvium is not regarded as a hydro-stratigraphic unit within the project site.
2. There is no significant groundwater in the regolith (i.e., at depths <10 m) within the project site. Where groundwater in the regolith does occur, this is primarily associated with leakage from the TSF4 and associated water storage. The other known occurrence of groundwater in the regolith is at SB11. This occurrence at SB11 is driven by the upward gradient from the SWF / Hodgkinson Formation groundwater to the shallow regolith groundwater and supported by the regional groundwater flow conditions to the northeast of the SWF.
3. The Mount Carbine granitoid intrusives occur proximal to the open pit void and the project site. Several felsic dykes cut through the project site. These felsic dykes are likely to have a low hydraulic conductivity bulk rock mass, however drilling indicates discrete zones of moderate to high hydraulic conductivity are likely.
4. The primary hydro-stratigraphic unit at Mount Carbine occurs within the Hodgkinson Formation. The fractured rocks of the Hodgkinson Formation comprise a secondary porosity aquifer.
5. Groundwater within the Hodgkinson Formation is typically semi-confined to confined and drilling indicates discrete zones of moderate to high hydraulic conductivity within a generally low hydraulic conductivity bulk rock mass.
6. The potentiometric surface southwest of the SWF is relatively flat with a low hydraulic gradient. The potentiometric surface northeast of the SWF is relatively steep with a high hydraulic gradient. This suggests separate hydro-stratigraphic domains either side of the SWF, the groundwater chemistry data supports this concept.
7. The SWF is an aquitard or a leaky barrier to groundwater flow. This implies that there is limited opportunity for groundwater flow across the SWF owing to the retarding effect of the clay layer that lines the fault plane. It does not however imply total exclusion of groundwater flow across and along the SWF.
8. The felsic dykes are also leaky barriers for groundwater flow and locally “hold groundwater up”.
9. The potentiometric surface contours southwest of the SWF show that the TSF4 (and associated water storage) is leaking, and a localised groundwater mound has formed around this site infrastructure.
10. The salinity and groundwater chemistry across the site is variable and does not readily present any spatial trends or obvious water types. There is a potential clustering of lower chloride / lower bicarbonate groundwater to the northeast of the SWF, and higher chloride / higher bicarbonate groundwater to the southwest of the SWF, which supports the separate hydro-stratigraphic domain concept.

8.0 REVISED EA MONITORING NETWORK

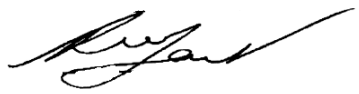
Table 5 below summarises the recommended EA monitoring network. The recommended EA monitoring network is supported by the current understanding of the groundwater system and is suggested for the short-term inclusion in the EA.

Due to the compartmentalised nature of the hydrogeology, the complex geology and anisotropic properties of the groundwater system, no bores within the monitoring network are suitable for use as reference bores. As such, it is recommended that all bores within the recommended EA monitoring network as classified as compliance bores.

Table 5: RECOMMENDED EA MONITORING NETWORK

Bore ID	***Classification***	***Parameters***	***Rationale***
MB1A	Compliance	Level and quality	Site is located to the northwest (downgradient) of TSF4. Monitoring to assess potential water quality change from TSF4 seepage.
MB4A	Compliance	Level and quality	Site is located to the southeast (downgradient) of TSF4. Monitoring to assess potential water quality change from TSF4 seepage.
MB7	Compliance	Level and quality	New monitoring bore proposed to the east (downgradient) of TSF4. Monitoring to assess potential water quality change from TSF seepage. Proposed coordinates 300350 mE, 8171260 mE. Nominal depth of 30 mBGL.
IB03	Compliance	Level and quality	Site is located to the south (downgradient) of the open pit. Monitoring to assess potential water quality change from pit seepage, and interaction with pit lake level.
IB04	Compliance	Level and quality	Site is located to the east (potentially downgradient) of the open pit. Monitoring to assess potential water quality change from pit seepage, and interaction with pit lake level.
IB06	Compliance	Level and quality	Site is located to the west (downgradient) of TSF4. Monitoring to assess potential water quality change from TSF4 seepage.
IB08	Compliance	Level and quality	Site is located to the southeast (potentially downgradient) of the open pit. Monitoring to assess potential water quality change from pit seepage, and interaction with pit lake level.
SB03	Observation	Level	Site is located to the south (downgradient) of TSF4. Monitoring to assess potential influence of TSF4 on groundwater table.
SB04	Observation	Level	Site is located to the south (downgradient) of TSF4. Monitoring to assess potential influence of TSF4 on groundwater table.
SB05	Observation	Level	Site is located to the south-east (downgradient) of TSF4. Monitoring to assess potential influence of TSF4 on groundwater table.
MB8	Compliance	Level and quality	New monitoring bore proposed to the northwest (downgradient) of the low-grade stockpile. Monitoring to assess potential water quality change from seepage. Proposed coordinates 299180 mE, 8173275 mE. Nominal depth of 30 mBGL.

Rob Lait and Associates Pty Ltd



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LIMITATIONS OF REPORT

Rob Lait and Associates Pty Ltd (RLA) has prepared this report for the use of EQ Resources Pty Ltd in accordance with the usual care and thoroughness of the consulting profession. It is based on generally accepted practices and standards at the time it was prepared. No other warranty, expressed or implied, is made as to the professional advice included in this report.

The methodology adopted and sources of information used by RLA are outlined in this report. RLA has made no independent verification of this information beyond the agreed scope of works and RLA assumes no responsibility for any inaccuracies or omissions. No indications were found during our investigations that information contained in this report as provided to RLA was false.

This study was undertaken between September 2021 and November 2022 and is based on the conditions encountered and the information available at the time of preparation of the report. RLA disclaims responsibility for any changes that may occur after this time.

This report should be read in full. No responsibility is accepted for use of any part of this report in any other context or for any other purpose or by third parties. It may not contain sufficient information for the purposes of other parties or other users. This report does not purport to give legal advice. Legal advice can only be given by qualified legal practitioners.

This report contains information obtained by inspection, sampling, testing and other means of investigation. This information is directly relevant only to the points in the ground where they were obtained at the time of the assessment. Where borehole logs are provided, they indicate the inferred ground conditions only at the specific locations tested. The precision with which conditions are indicated depends largely on the frequency and method of sampling, and the uniformity of the site, as constrained by the project budget limitations. The behaviour of groundwater is complex.

Our conclusions are based upon the analytical data presented in this report and our experience.

Where conditions encountered at the site are subsequently found to differ significantly from those anticipated in this report, RLA must be notified of any such findings and be provided with an opportunity to review the recommendations of this report.

Whilst to the best of our knowledge, information contained in this report is accurate at the date of issue, subsurface conditions, including groundwater levels can change in a limited time. Therefore, this document and the information contained herein should only be regarded as valid at the time of the investigation unless otherwise explicitly stated in this report.

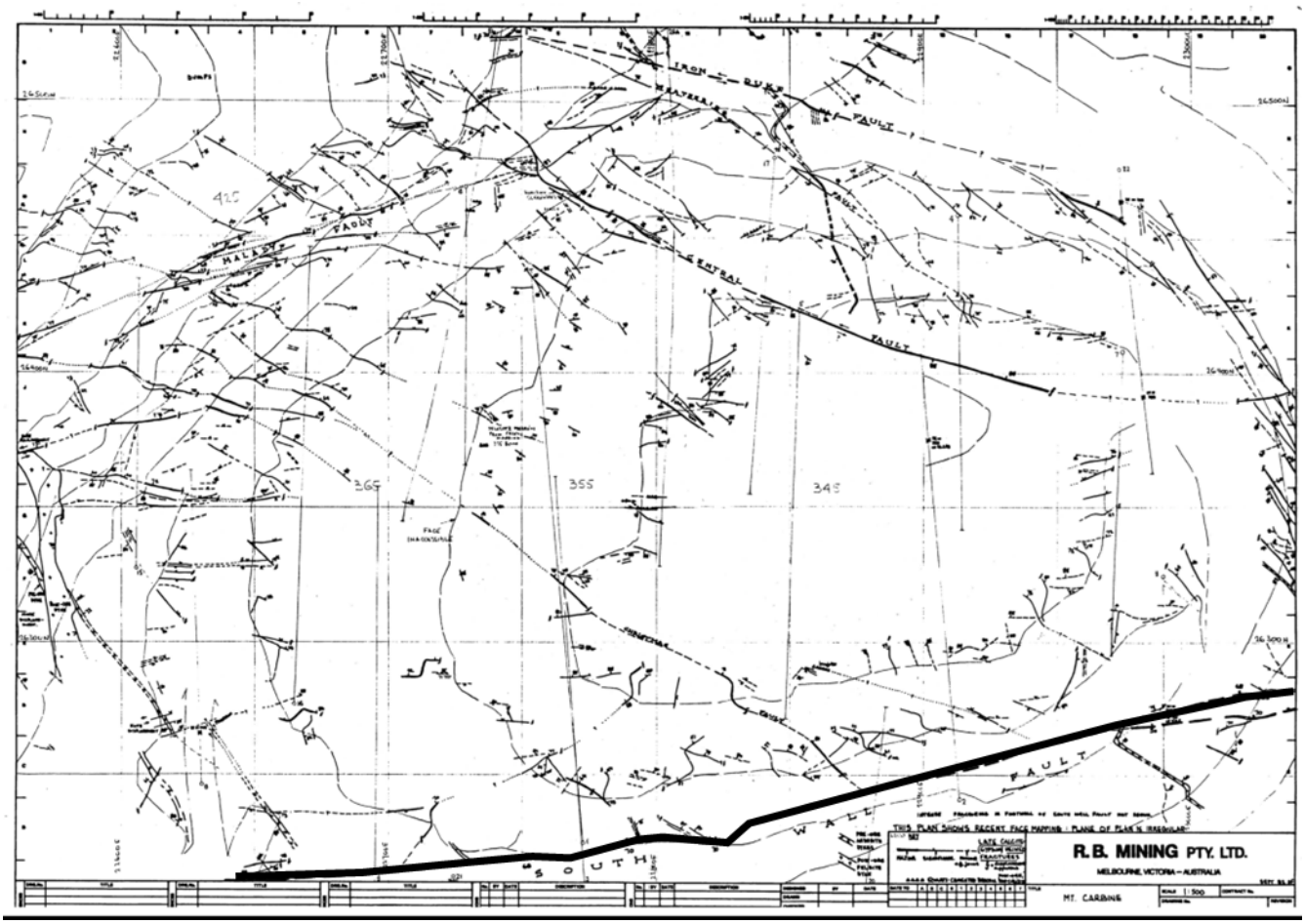
Appendix A - TECHNICAL REVIEW OF PIT STRUCTURES AT MT CARBINE

resourcing the new economy for a better tomorrow

24 June 2022

FILE NOTE - TECHNICAL REVIEW OF PIT STRUCTURES AT MT CARBINE.

At Mt Carbine the ore deposits sits in hornfelsed margins of the Mossman Granite with several granite dykes cutting thru the deposit. The rocks are hard and siliceous in general and in the pit area have a late quartz vein overprint of mineralization that has over 50 veins of 10-700cm width observed forming approximately 10% of the host rock. Geotechnical logging has shown a 96% RQD with only minor fractures observed that typically are parallel to the quartz veins. The single major fault that occurs in the planned pit area is the South Wall Fault.



Historical Pit Mapping of Structures showing the dominance of the fault on the southern extent of the pit known as the South Wall Fault which truncates the mineralization. Other fractures do not move the mineralization.

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SOUTH WALL FAULT

TIMING

The South Wall Fault truncates the ore body and forms the southern boundary of the pit. This is a steep (75 degrees) reverse fault that has been last active in Mid Palaeozoic when extension occurred in this region of the Hodkinson Basin. It was not a source of hydrothermal fluids as no alteration or mineralization exists on the fault of its margins as envelopes to it. Rather the fault is a result of clastic movement represented by 0.5-1.0m clay zone that has been developed due to crushed rock at the time of movement.

CHARACTERISTICS

The south wall fault is here illustrated in drill core from 5 intersections over the length of the planned pit. The fault is clearly seen in each of these intersections and, to date, the company has intersected this fault in over 42 separate intersections. The fault typically occurs as one central 0.5-1.0m zone of intense clay crushed rock or, less frequently, in two parts separated by 1-2m of fractured rock. The clay is greasy dense montmorillonite clay with 20-30% ground-up, but visible, rock particles of mostly metavolcanic rock. It is a clastic fault of high elasticity due to the clay content.
The orientation and extent of the fault is well known from the above 42 intersections and it is seen to be very consistent in its 75° dip to the grid north direction.

TABLE OF INTERCEPTS

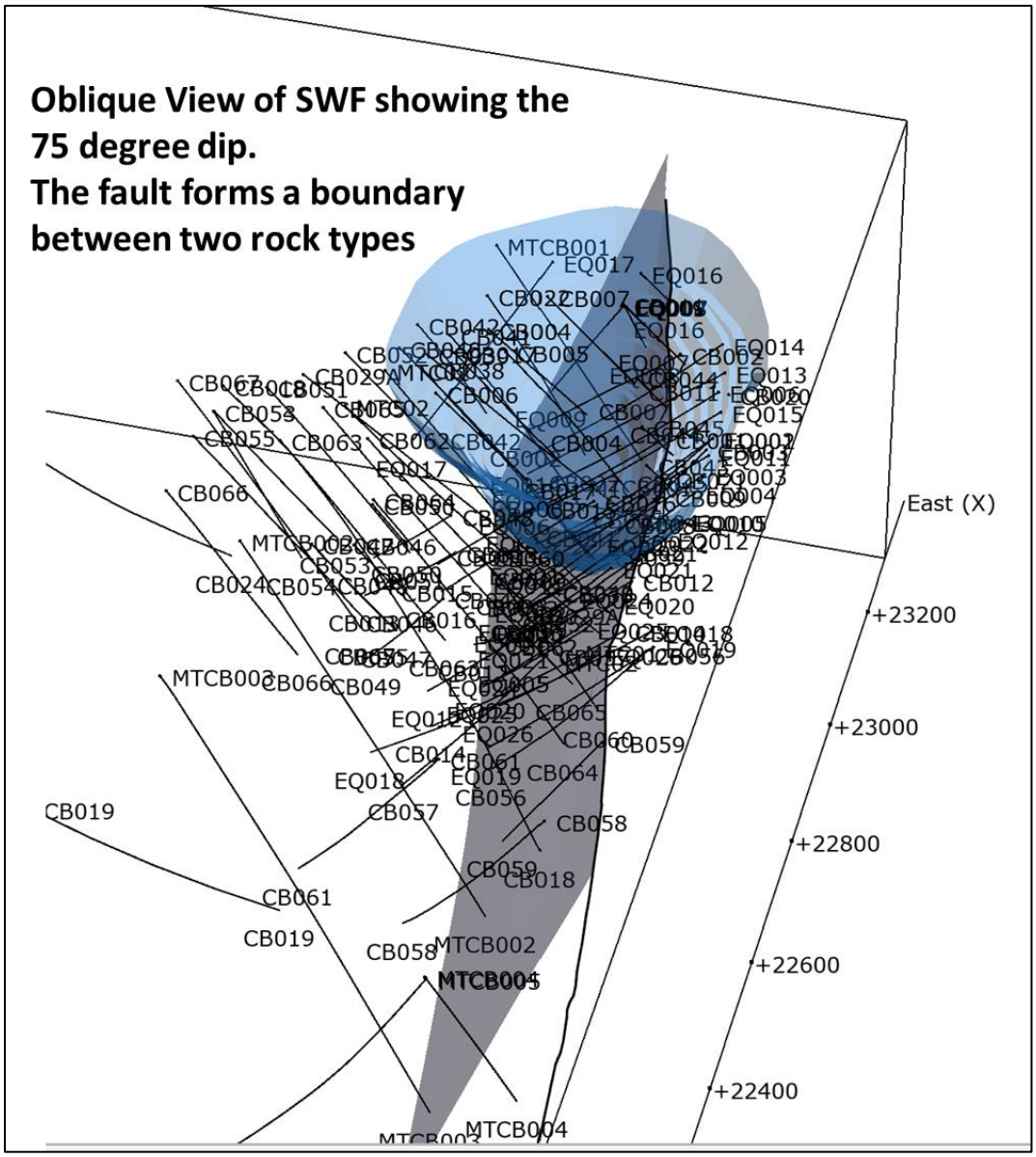
A total of 42 intercepts of SWF as follows:

- 18 intercepts in EQ Resources drilling that are orientated in drilling of 2021/22 era
- 24 intercepts of previous drilling that we have the drill core from historical drilling.

Hole_ID	Hangingwall	Rock
CB002	19	SWF
CB003	161.42	SWF
CB009	17.1	SWF
CB011	57.33	SWF
CB014	12.64	SWF
CB018	576.5	SWF
CB020	140.76	SWF
CB020	140.7	SWF
CB022	240.19	SWF
CB038	303.5	SWF
CB039	275.78	SWF
CB040	323.55	SWF
CB041	272.32	SWF
CB043	12	SWF
CB044	26.41	SWF
CB045	22.08	SWF
CB052	392.76	SWF
CB056	92.5	SWF
CB060	227.1	SWF
CB064	365.9	SWF
CB065	414.53	SWF
EQ001	121.3	SWF
EQ002	158.2	SWF
EQ003	112.7	SWF
EQ004	104	SWF
EQ005	109	SWF
EQ006	107.5	SWF
EQ007	44.35	SWF
EQ008	55.32	SWF
EQ010	67.7	SWF
EQ011	96.2	SWF
EQ012	35	SWF
EQ013	134.53	SWF
EQ014	132.5	SWF
EQ015	112.8	SWF
EQ016	37	SWF
EQ018	66.5	SWF
EQ019	86.7	SWF
MTC01	337	SWF
MTC02	371.5	SWF
MTCB001	244.5	SWF
MTCB002	549	SWF

Along the fault on the ground over the extent of exposure (Drilling area) which is 1.2km there is no wet seepage is seen nor any particular greenery marking that the fault might be a water source for vegetation.

The fault forms a boundary to the two major rock units observed in the extended pit area, namely the metavolcanics (Consisting of lavas and submarine cherts) and the metasediments (Consisting of hornfelsed mudstones and siltstones). Both rock units can be found in fragments in the fault but typically it is the footwall rock type that is most prevalent.



No strike slip movements have been observed in any striations or clay imprints with all showing a dip slip movement to the north east. The fault has a fractured footwall for 1-5m in width with only minor extra fracturing observed in the hanging wall. In fact 3 holes (EQ003,012 and 016) all drilled below the old open cut and at various depths below the existing pit (25,40 and 60m) all were dry holes and required the drillers to continually pump water down them to enable drilling.

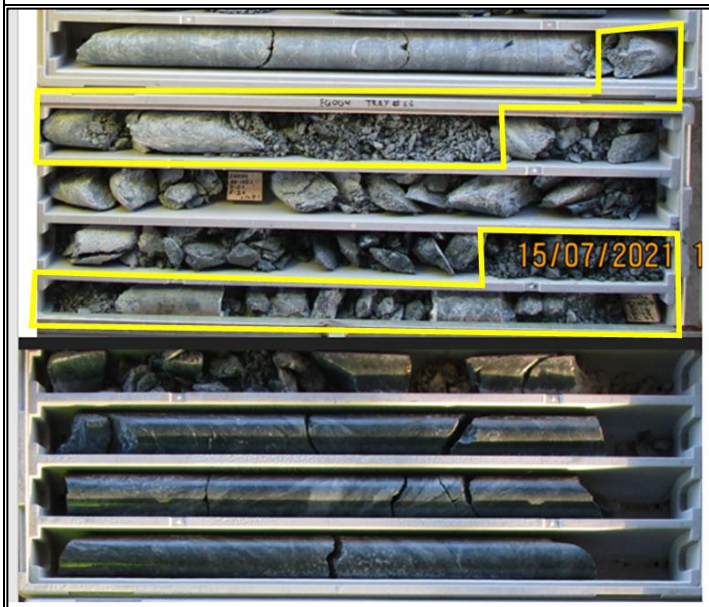
Each of the photos below highlights in yellow the fault and the text referenced on each photo refers to this section of the drill core.

EQ001 - SWF

Tight competent rocks either side of the fault.

EQ002 - SWF

Fracturing observed in footwall of the fault (upper part of photo). The hanging wall, which is represented by the below fault in the photo has only the normal amount of fracturing. The photo is from a hole drilled from footwall thru the fault to hanging wall.



EQ004 – SWF – two sections

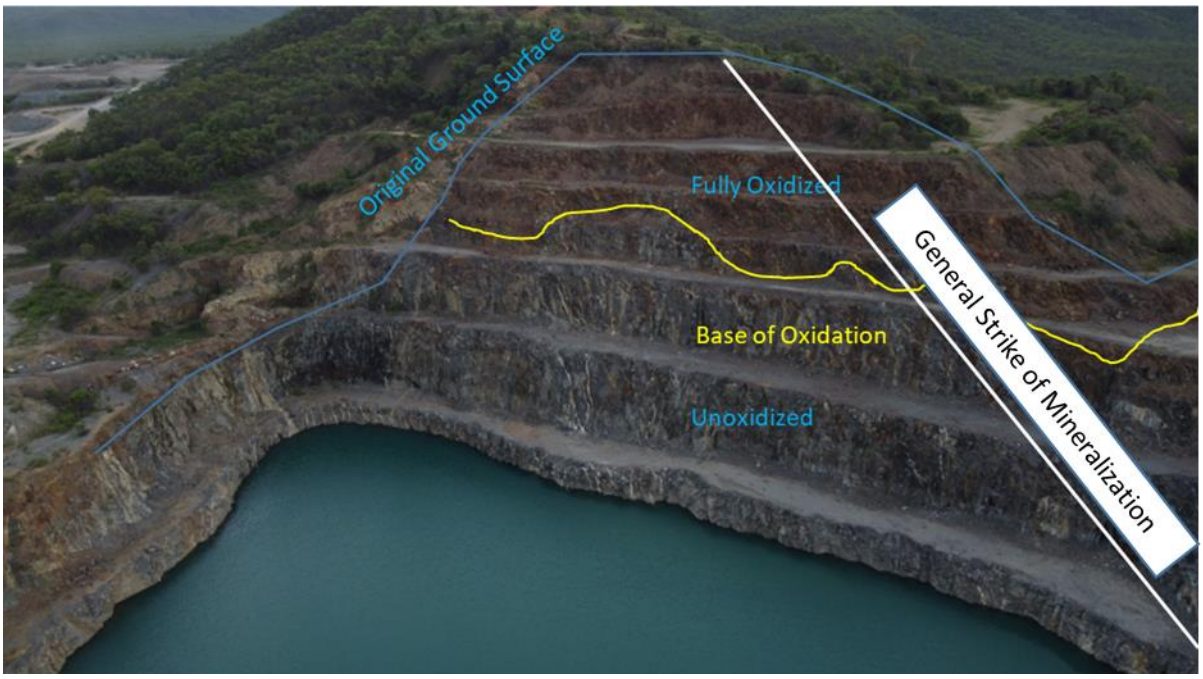
EQ005 – SWF

Fault displayed over two sections (0.8m & 1.2m) with fractured rocks in between. In 3 cases we see the fault bifurcate.	The SWF showing the level of fracturing around it. Clay zone only is 25cm in this case.

OXIDATION

The base of oxidation varies from 21-42m in down hole depth reflecting a base of oxidation at approximately 30m deep. This can be seen in the photo of the pit wall of the north high wall of the pit.

One of the most important points that show water is not moving along the SWF is the oxidation. As can be seen in these quite shallow intercepts of the SWF there is no oxidation present. The intercepts are less than 10m below the Base of Oxidation (BOX) and yet no surface water or oxidized pit water is infiltrating the fault. If the faults were open and had water movement and given the fault outcrops at surface there would be a draw down of oxidation on the fault. This is common in most deposits and even the pit wall shows a consistent base of oxidation and doesn't see rain waters oxidizing down faults.



Base of oxidation is consistent and doesn't show drawdown or water flow along structures.

Typical Zone from Oxidation to Fresh rocks in Metavolcanics

Base of Oxidation is sharp and consistent across fault showing no preference for oxidating waters to enter or move along faults

Typical Mineralized Qtz Zone in Metasediments

Weakly fractured core typical of the metasediments where the hole was dry in Hole EQ012 below the historical water filled pit.

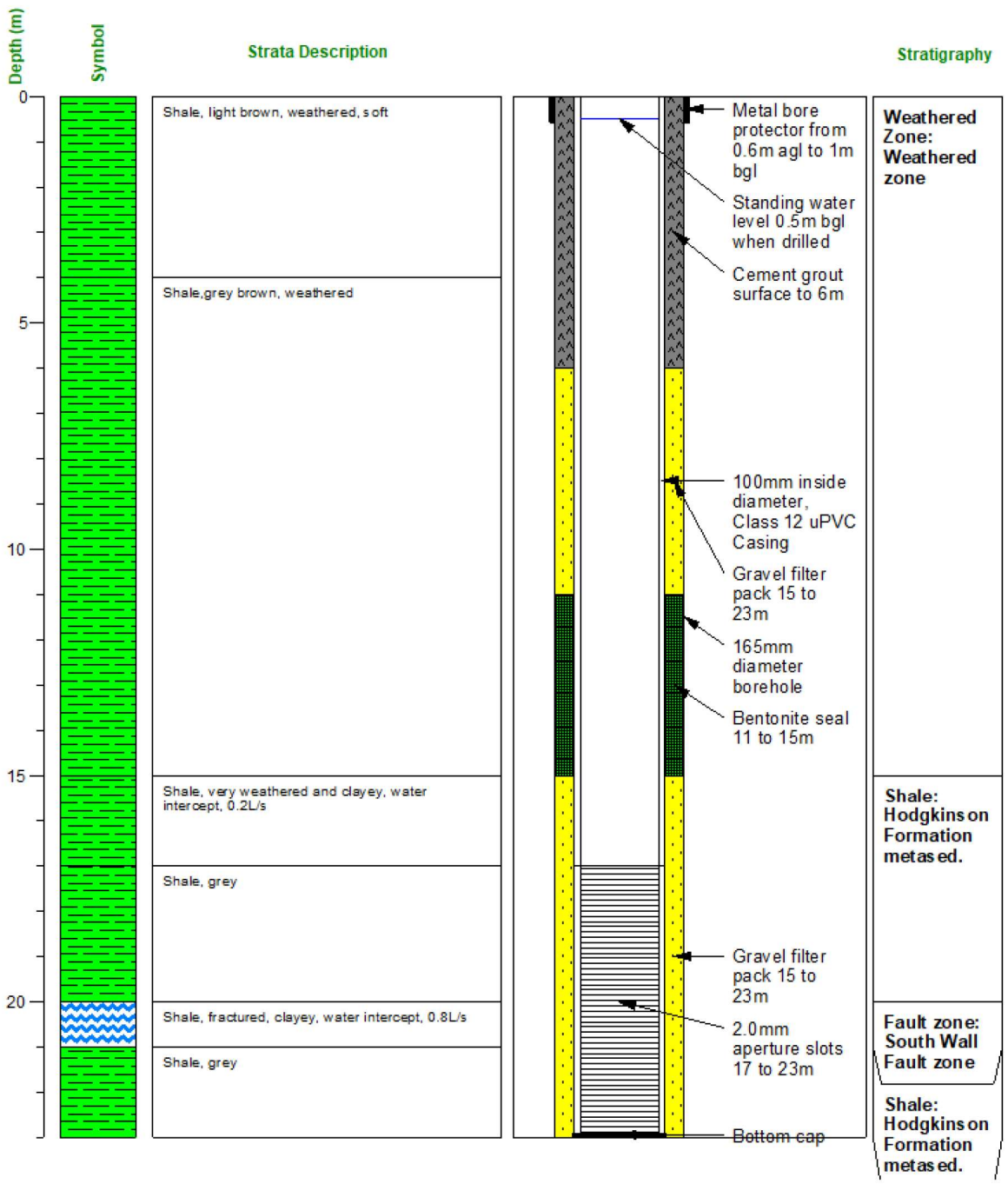
Drill Core – EQ012 40.1-47.1m. The dyke at the western end of the pit is competent and very tight in structures showing if forms a barrier to water flow at this end of the pit. The dyke is post mineralization.

Tony Bainbridge
Chief Geologist
Mt Carbine

Appendix B - IB BORE LOGS

Borehole No: IB01 **Client: EQ Resources**

Location:	Mt Carbine	**Date Drilled:**	**21/1/2022**	**Project No:**	222
Easting:	299429	**Northing:**	8173221	**Elevation (m):**	
Method:	Rotary air	**Driller:**	M Quinn	**Drilling Rig:**	Fraste



Notes:

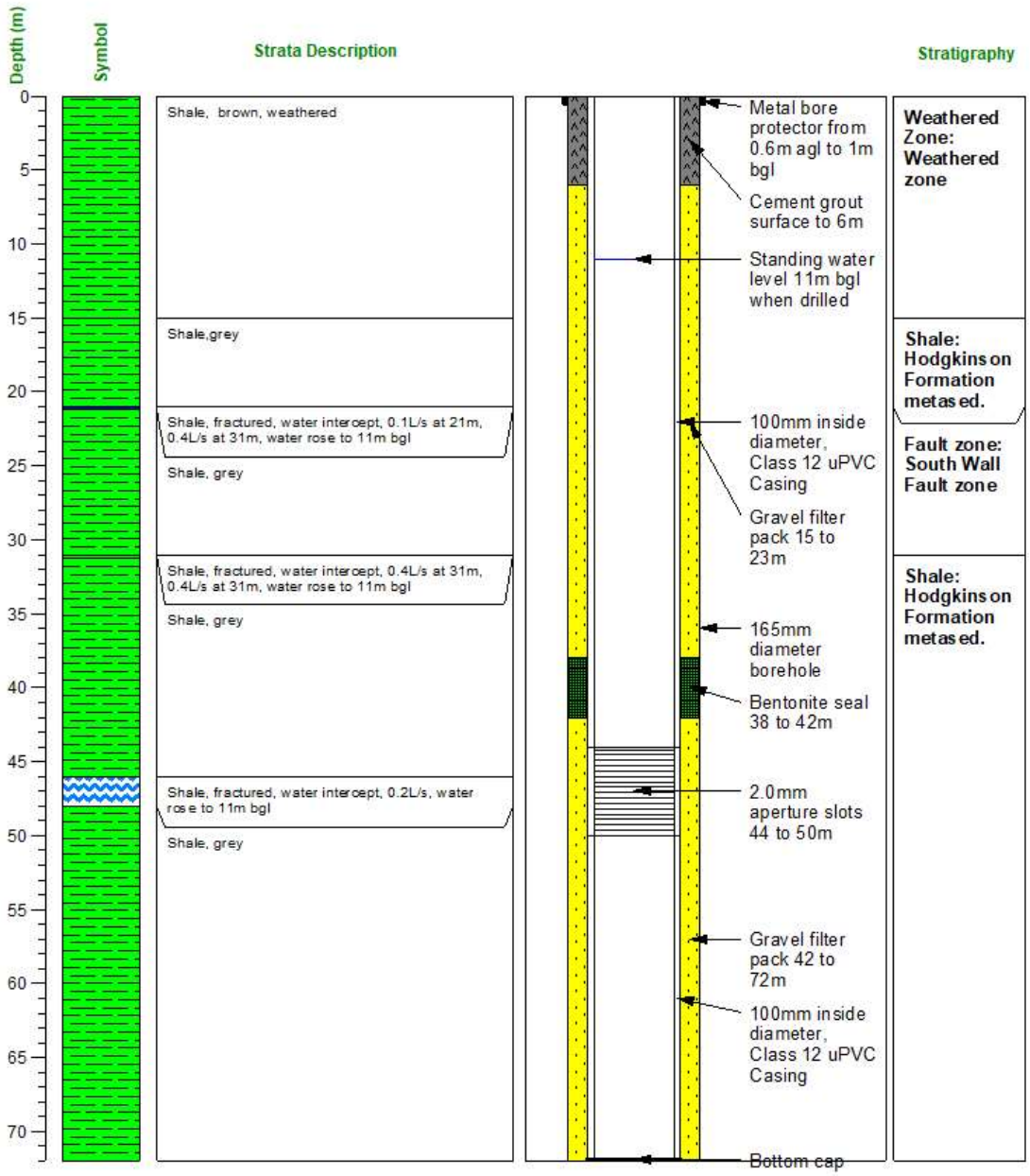
Datum: AHD/MGA

Borehole No: IB02 **Client: EQ Resources**

Location: Mt Carbine **Date Drilled:** 18/1/2022 **Project No:** 222

Easting: 300183 **Northing:** 8172486 **Elevation (m):**

Method: Rotary air **Driller:** M Quinn **Drilling Rig:** Fraste

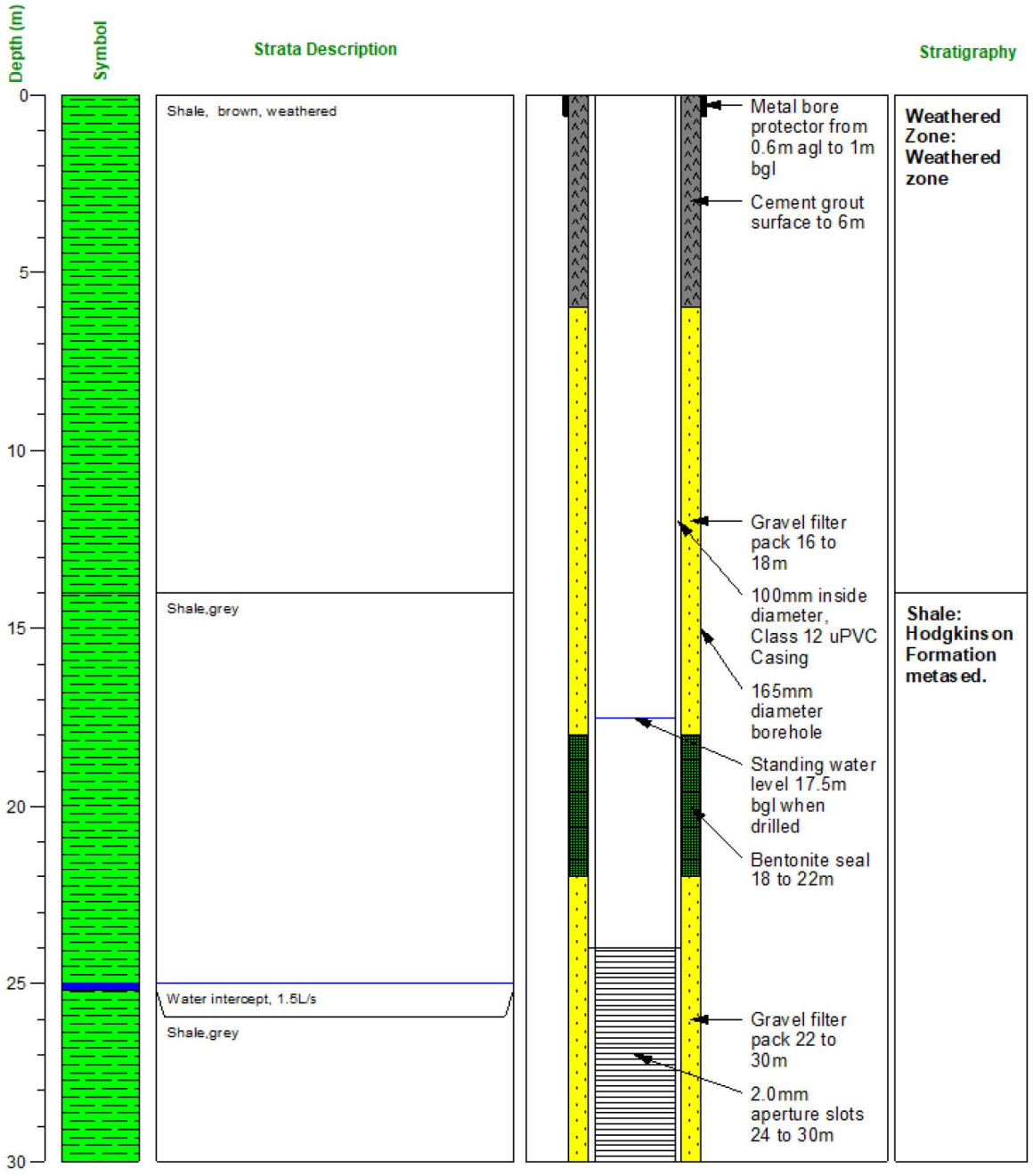


Notes:

Datum: AHD/MGA

Borehole No: IB03 **Client: EQ Resources**

Location:	Mt Carbine	**Date Drilled:**	**20/1/2022**	**Project No:**	222
Easting:	300569	**Northing:**	8171746	**Elevation (m):**	
Method:	Rotary air	**Driller:**	M Quinn	**Drilling Rig:**	Fraste

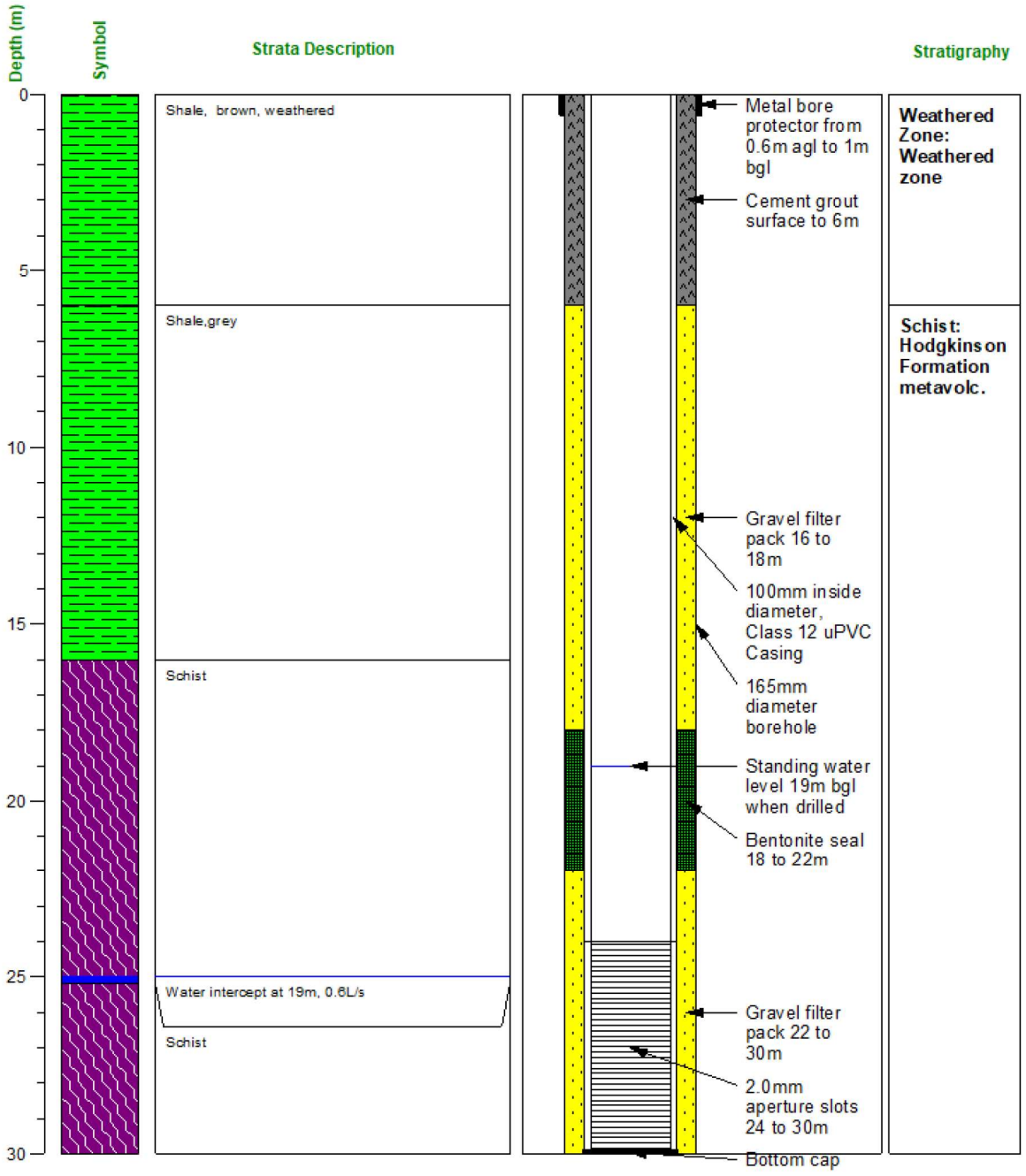


Notes:

Datum: AHD/MGA

Borehole No: IB04 **Client: EQ Resources**

Location:	Mt Carbine	**Date Drilled:**	**18/1/2022**	**Project No:**	222
Easting:	301029	**Northing:**	8172126	**Elevation (m):**	
Method:	Rotary air	**Driller:**	M Quinn	**Drilling Rig:**	Fraste

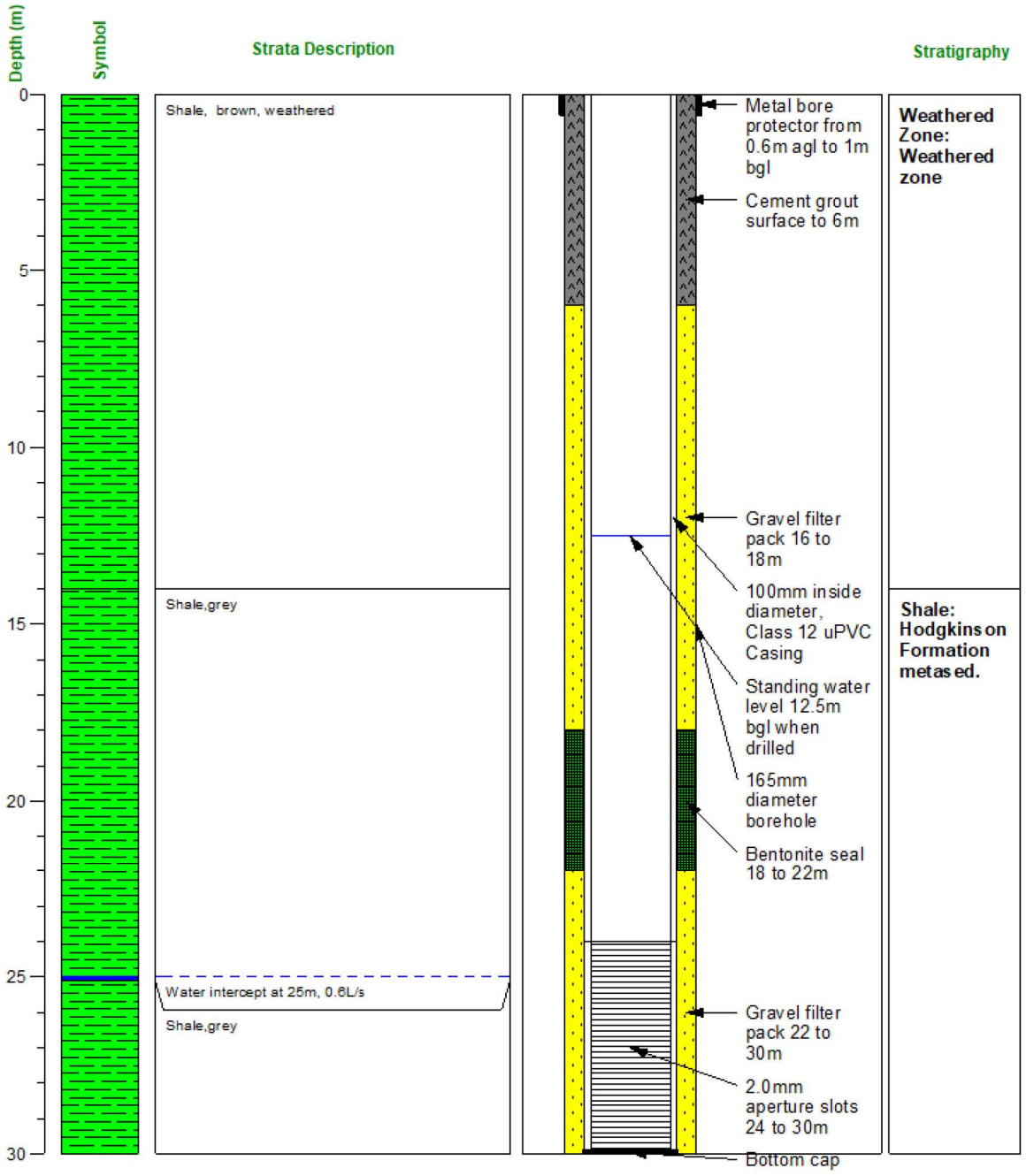


Notes:

Datum: AHD/MGA

Borehole No: IB05 **Client: EQ Resources**

Location:	Mt Carbine	**Date Drilled:**	19/1/2022	**Project No:**	222
Easting:	299915	**Northing:**	8171747	**Elevation (m):**	
Method:	Rotary air	**Driller:**	M Quinn	**Drilling Rig:**	Fraste



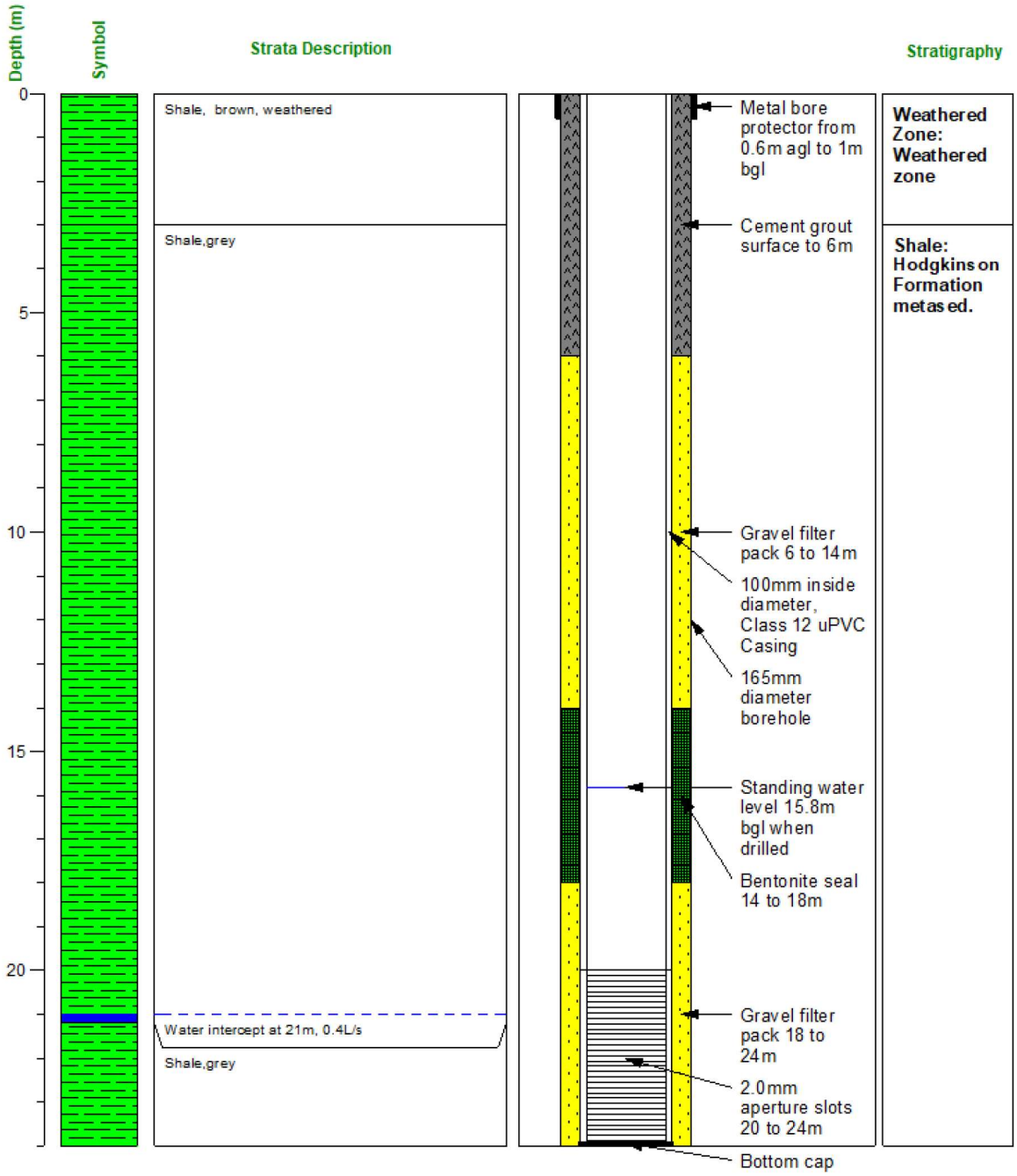
Notes:

Datum: AHD/MGA

Borehole No: IB06

Client: EQ Resources

Location:	Mt Carbine	**Date Drilled:**	19/1/2022	**Project No:**	222
Easting:	298743	**Northing:**	8171345	**Elevation (m):**	
Method:	Rotary air	**Driller:**	M Quinn	**Drilling Rig:**	Fraste



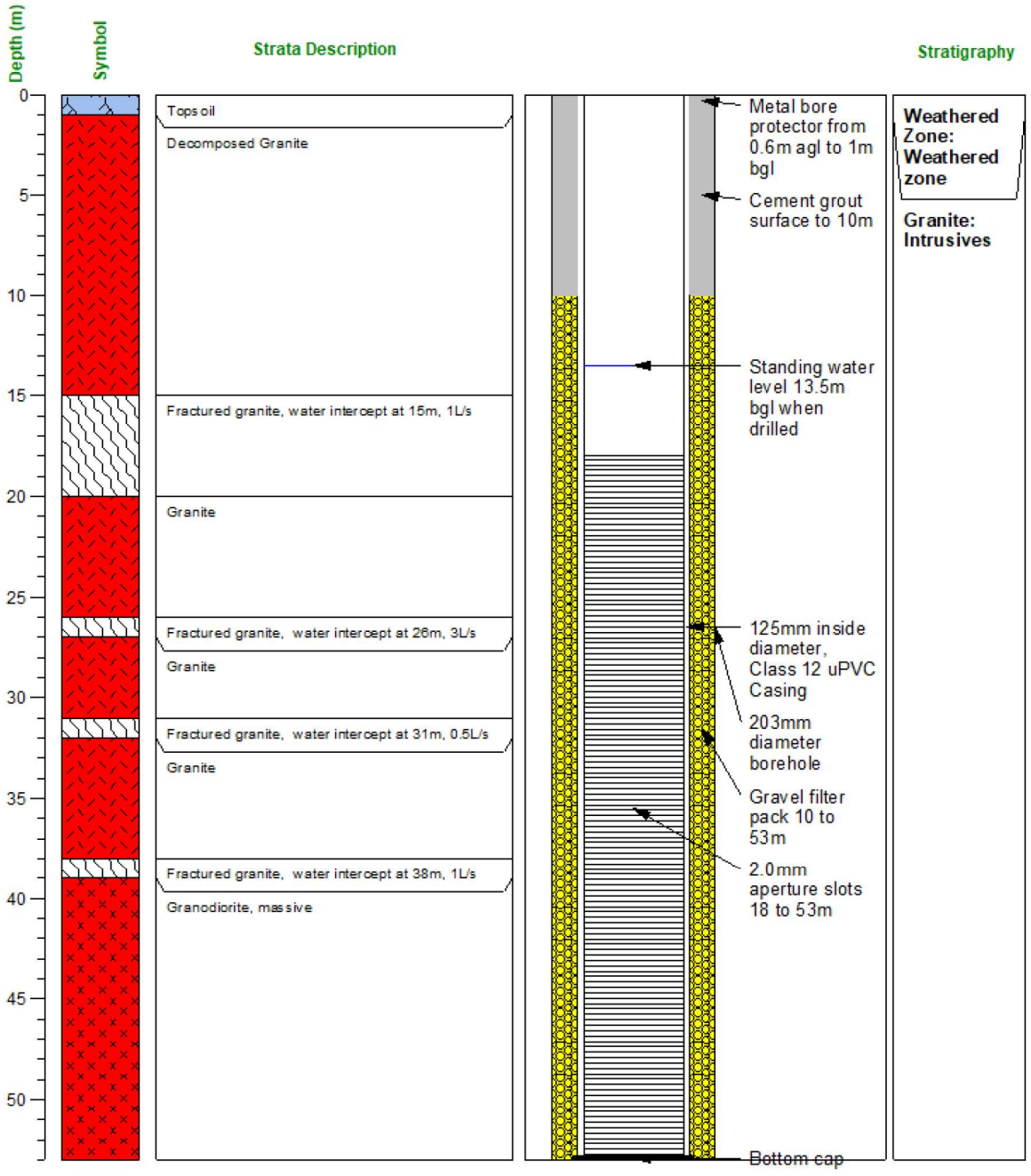
Notes:

Datum: AHD/MGA

Borehole No: IB07

Client: EQ Resources

Location:	Mt Carbine	**Date Drilled:**	**22/6/2022**	**Project No:**	222
Easting:	299574	**Northing:**	8170830	**Elevation (m):**	
Method:	Rotary air	**Driller:**	M Serra	**Drilling Rig:**	T4W



Notes:

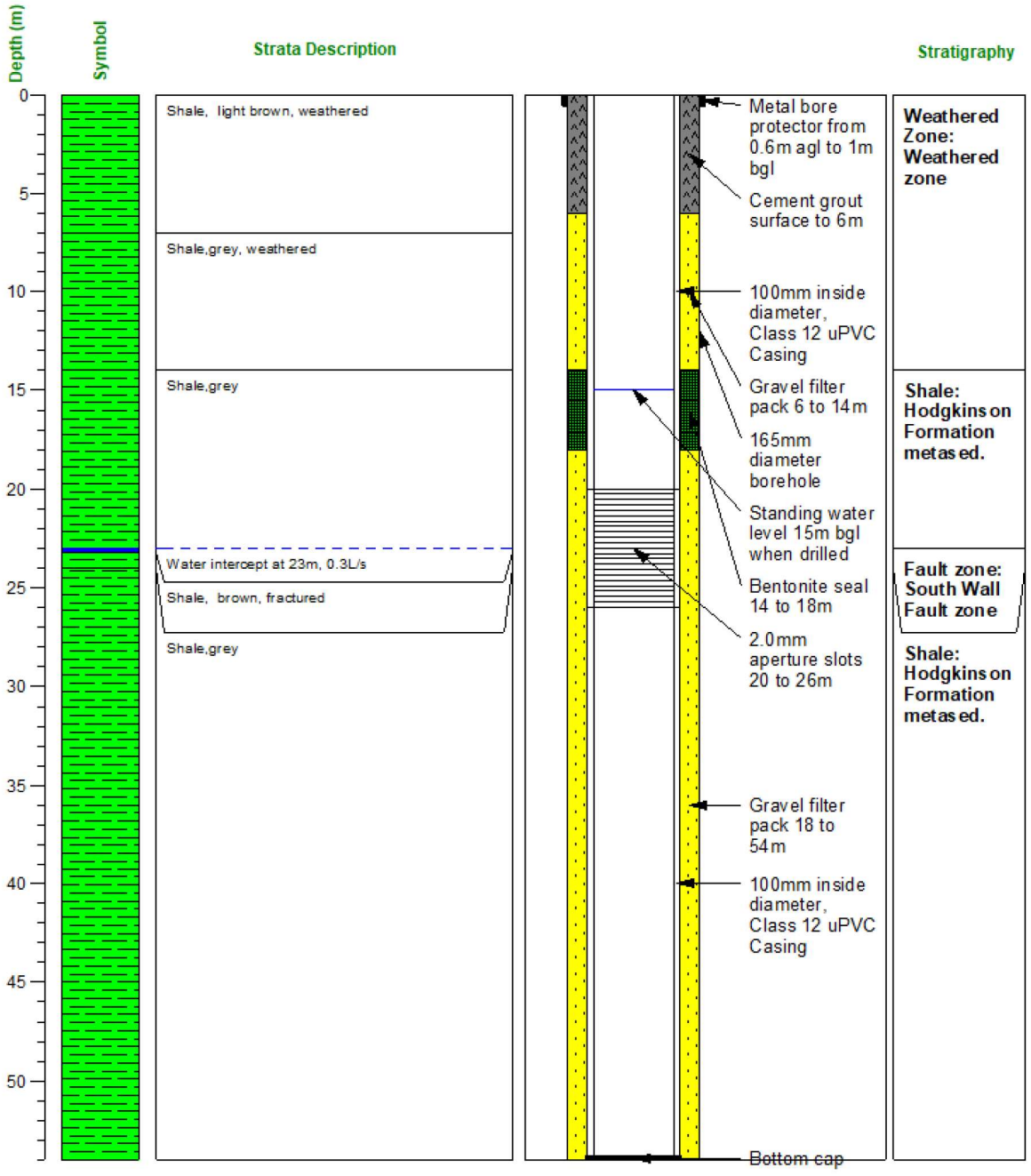
Datum: AHD/MGA

Strata description by driller

Borehole No: IB08

Client: EQ Resources

Location:	Mt Carbine	**Date Drilled:**	**20/1/2022**	**Project No:**	222
Easting:	300893	**Northing:**	8171793	**Elevation (m):**	
Method:	Rotary air	**Driller:**	M Quinn	**Drilling Rig:**	Fraste



Notes:

Datum: AHD/MGA