Water Management Assessment

Miralga Creek DSO Project

180-DEV-HY-REP-0001

Revision 0

Authorisation

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1. Introduction

Atlas Iron is proposing to develop the Miralga Creek Direct Shipping Ore (DSO) Project (the Project), located approximately 100 km south-east of Port Hedland near the now inactive Abydos Project (Figure 1-1).

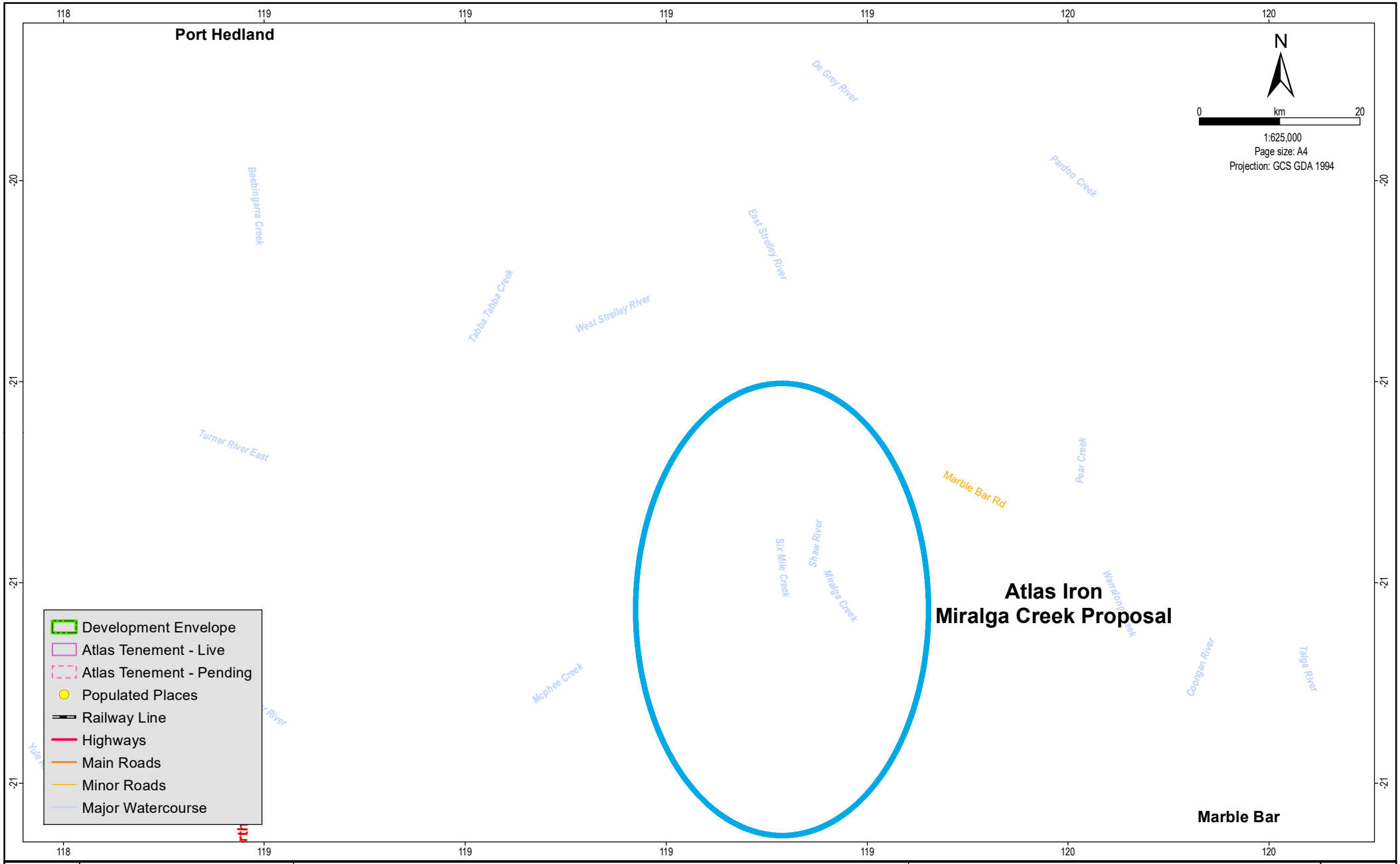
The Project comprises the mining of iron ore from five pits within three discrete mining areas, spread over 30 km, as follows (Figure 1-2):

1. **Miralga East** (3 pits), 35 km north-east of the now closed Abydos Mine, with the three pits located along an east to west trending ridge.
2. **Miralga West** (1 large pit), 22 km north-east of Abydos, with the pit on a northeast to southwest trending ridge.
3. **Sandtrax** (1 small pit), 7 km north-east of Abydos; the pit lies along an east west ridge.

Ore will be transported by truck to the Utah Point port facility in Port Hedland via the existing Abydos Link Road East (ALRE) and the sealed Marble Bar Road. New supporting infrastructure includes stockyards to the south of Marble Bar Road and a new haul road between Miralga East and Miralga West (the Miralga Haul Road).

This report provides the results of Atlas Iron's assessment to:

- Confirm that all proposed pits will be above water table and that no pit dewatering will be required (apart from any incident rainfall or surface water inflows).
- Outline baseline data including groundwater and surface water quality (field and laboratory analysis) and groundwater levels.
- Identify potential risks (both from and to the Project) related to surface water features and/ or groundwater systems.
- Provide a water supply plan based on existing water supply bores.



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	Date: 3/04/2020			
	Author: Heath.Maconachie			

PROJECT NAME *Atlas*

2. Objectives

The objective of this report is to support the environmental impact assessment (EIA) and approval process under state legislation managed by the Department of Water and Environmental Regulation (DWER) and the Department of Mines and Industry Regulation (DMIRS). To do this, the report:

- Presents background/ baseline information on the regional and local setting, based on broad-scale and Project-specific information.
- Describes the Project's water needs (i.e. inputs).
- Describes the potential impacts to ground and surface waters.

3. Site Visit

A site visit was completed by Atlas Iron's David Nyquest (Principal Hydrogeologist) and Ashley Price (Hydrogeologist) on 29 and 30 May 2019 to:

- Locate existing groundwater bores identified through the Department of Water and Environmental Regulation (DWER) database. Bores were sampled and dipped where possible (Figure 3-1).
- Check for water in existing exploration holes at the three deposits.
- Make observation of potential risks to surface water features such as sediment runoff or other contamination risks.

A selection of photos is included in Appendix A. Water quality results and observations are provided in Appendix B and Appendix C.

4. Regional Setting

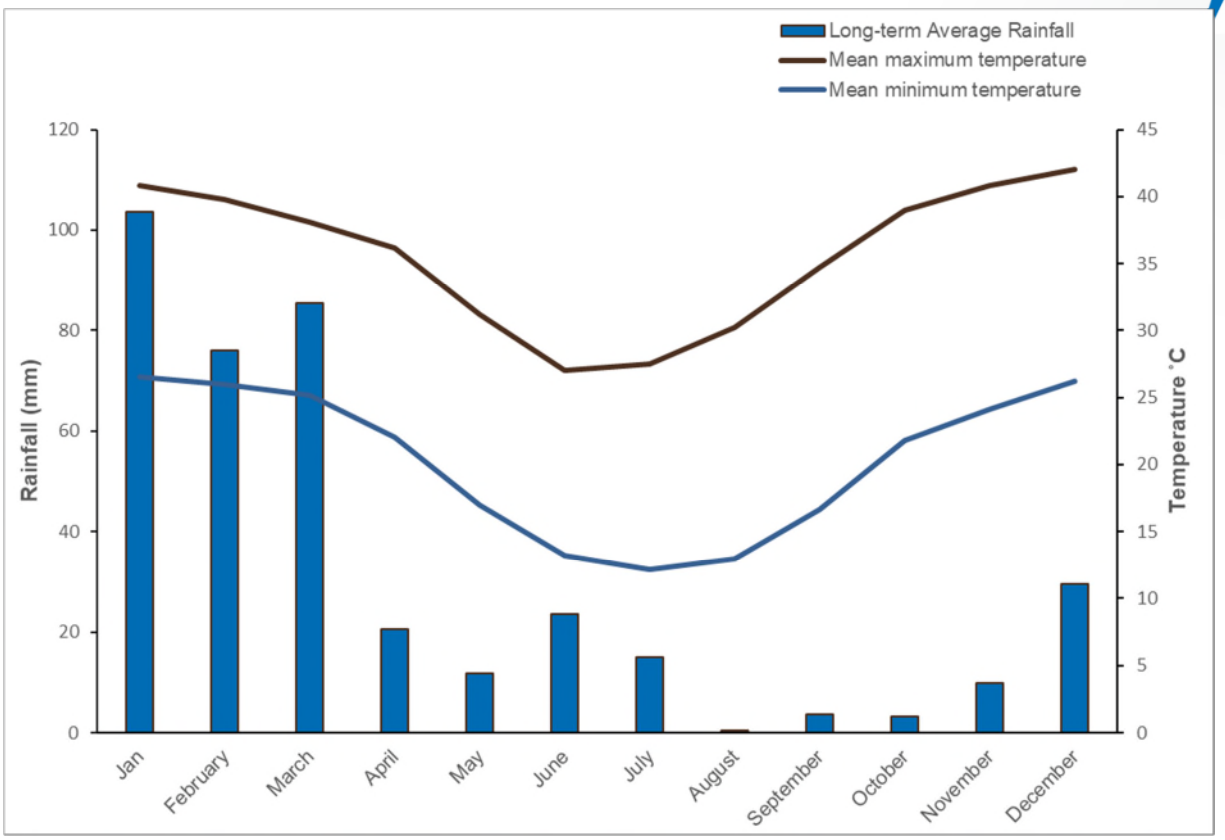
The Project is located in the Proclaimed Pilbara Groundwater Area. Groundwater in the area lies in two types of aquifers (MWH, 2012):

- Alluvial Aquifers: Generally, these aquifers are associated with alluvial deposits along coastal plains and within the valleys associated with the drainage lines.
- Fractured Rock Aquifers: Fractured rock aquifers are the predominant type within and around the Project; they are likely to underlie alluvial aquifers. Fractured rock aquifers are generally associated within structural fracture zones or faulting, igneous intrusions, sedimentary rocks and banded iron formations.

Groundwater in the Pilbara is sometimes connected to surface water features (e.g. to create permanent pools). Surface water features may be fed/ recharged by groundwater and/or rainfall within the catchment.

Miralga East is located in the Miralga Creek catchment, a sub-component of the larger Shaw River Catchment (approximately 790,000 ha). Miralga West and both Stockyards are located in the Shaw River Catchment. Sandtrax lies within the separate Strelley River catchment (approximately 280,000 ha). No perennial streams occur in the immediate vicinity of the Project (Figure 4-1).

The Pilbara Region has a semi-desert to tropical climate with highly variable, mostly summer rainfall (McKenzie, 2002) (Leighton, 2004). The Pilbara climate is significantly influenced by tropical cyclones that develop over the Indian Ocean in Australia's north (Leighton, 2004), with typical average annual rainfall occurring predominantly from January to March. The closest official, operating Bureau of Meteorology weather station is located at Marble Bar, approximately 40 km south-east of the Project. The average annual rainfall and average monthly minimum and maximum temperatures are provided in Figure 4-2.



Source: Bureau of Meteorology (2020)

Figure 4-2 – Climate Data Marble Bar Station (004106), 2000–2019

5. Local Setting

5.1 Groundwater

Groundwater quality within and adjacent to the Development Envelope is Fresh to Marginal:

- At the Abydos minesite, groundwater hydrochemistry ranges from near potable to brackish (MWH, 2012).
- Groundwater sampled from the Venturex borefield had a salinity concentration in the range of 308 to 764 mg/L TDS (Fresh to Marginal). The sampled water also has pH values close to neutral (URS [2007], as reported in MWH [2012]).
- ALPB05, ALPB04, ALPB02 and ALB0066 were quite consistent with salinity <1,000 mg/L (i.e. Marginal) and near neutral (field pH 7.38 – 7.66) (Appendix C).
- Groundwater at several bores sampled in May 2019 was near neutral (field pH 6.87 – 8.23) and Fresh to Marginal, with one sample being considered Brackish (Miralga Well).

Groundwater levels in the existing ALRE borefield (ALPB01, 03, 04, 05, and ALB0066) range in depth from 13.98 to 16.84 mbgl. Groundwater levels range from 7.51 to 9.55 mbgl in the existing Venturex borefield (SSWB36, 38, 40). All bores are at low points in the local topography.

A review of the Atlas Iron drill-hole database, investigating 180 Reverse Circulation (RC) holes, showed no water intersections during the mineral exploration program which was focused on pit areas. Follow up interviews with the project geologist confirmed the lack of water, so the expectation is that all pits would be well above the groundwater table and that no dewatering would be required.

To further investigate groundwater levels across the Project, a broad range of existing and open RC holes were checked for water during the site visit 29-30 May 2019. All but one drill hole (MRRC0116) assessed during the site visit were dry. A small amount of water was noted in MRRC0116 at Miralga East at the very base of the hole. This is a shallow hole (30 m) at a somewhat elevated part of the ridge so the small amount of water is most likely remnant drill fluid (drilled in 2019, prior to the site visit), or surface runoff which has seeped down the outside of the surface casing. MRRC0116 is located over 150 m away from the Miralga East Pit 1 and Pit 2, along the inter-pit haul road.

In addition to the site observations described above, below is a summary of knowledge of pit floors versus natural groundwater levels:

- Miralga East: In the absence of drilling intercepts with groundwater during exploration and the absence of water from in-pit drill-holes observed in May 2019, the nearest assumed groundwater levels are two pools located to the south of the pits within Miralga Creek. These pools are within approximately 1-3 km from the Miralga East pits and were considered to be permanent by Biologic (2019) (pools WMRC-14 and -15). The surface elevations of these pools are 125 – 128 mRL. This represents a gap of over 90 m between the deepest planned point in any of the three Miralga East pits and groundwater.
- Miralga West: The maximum planned pit depth is 156 mRL, approximately 20 – 30 m above the relative level of the plains to the west and north, and of the Shaw River to the east. Assuming as a worst case that the water table is at or near the elevation of the Shaw River bed, the pit floor will be a minimum of 30 m above the groundwater level.

- Sandtrax: SSWB40 is located approximately 1 km to the north and has a standing water level in the order of 185 mRL, approximately 70 m below the planned pit depth. If it is assumed that at its shallowest the water level in the Sulphur Springs Creek sediments 500 m to the east of the mining area is at the approximate elevation of the creek bed, it would be in the order of 203 – 205 mRL. This represents a minimum a 50 m gap between the base of the planned Sandtrax pit and the surrounding groundwater level.

Based on the available information, all pits will have at least a 30 m gap to groundwater at the completion of mining.

All of the proposed mining areas are located atop high, narrow ridges. As such surface runoff into the pits will be minimal. Sump pumping to remove incident rainfall accumulation from within the pit boundaries will be required from time to time during mining. Pit volumes are significantly larger than any potential volume of surface water inflow. Stormwater accumulations in the pits post closure are expected to dissipate quickly through evaporation and infiltration. The narrow ridges would also be unlikely to support infiltration of significant amounts of surface water, so any mounding of the underlying local water table would likely be subdued.

Based on all data available to date, Atlas Iron concludes that there will be no intercept between the base of each pit and the groundwater table. Dewatering of aquifers beneath all pits will not be required.

5.2 Surface Water

5.2.1 Miralga East

The Miralga East mining area runs along the northern side of Miralga Creek (Figure 5-1). A number of pools are evident within the creek which are likely maintained by saturated alluvials within the drainage channel. WMRC-14 and -15 were considered to be permanent by Biologic (2019) and are 1-3 km from the three mine pits at Miralga East. These pools likely receive runoff from the Miralga West Ridge. All other pools in the area have at times been observed to be dry, or otherwise considered non-permanent (Biologic, 2019).

Runoff to the north of the ridge occurs though several small drainages which flow in a northerly direction for approximately 1.5 km before intersecting a westerly trending creek line, which in turn eventually intersects Miralga Creek. Drainage from the north will include runoff from the three pit areas and the proposed waste dump location. The northerly drainages will also be intersected by the proposed Miralga Haul Road.

The Miralga East ROM pad is proposed to be located approximately 2 – 3 km to the north-west of the mining area and is situated at the head of a minor drainage channel.

The Miralga Haul Road between the Miralga East ROM pad and the ALRE will cross Miralga Creek and the Shaw River.

5.2.2 Miralga West

Drainage from the Miralga West ridge flows both to the south, directly to the Shaw River, and along some minor drainage lines which flow to the north and north-west before intersecting a minor tributary of the Shaw River some 1.5 km to the north of the mining area (Figure 5-2). The pit will essentially remove the upper portion of the ridge so will not be impacted by surface flow.

5.2.3 Sandtrax

The Sandtrax pit and waste dump are relatively small (Figure 5-3). Runoff from both the mining area and waste dump flows down a narrow valley in a south-westerly direction, before intersecting a drainage which flows to the east and then intersects with the northerly flowing Sulphur Springs Creek. At the time of the site visit in May 2019 there were areas of surface water along Sulphur Springs Creek, however these are not permanent. One pool (upstream of Sandtrax) was initially considered to be permanent Biologic (2020; observed in early 2019) but was determined in a later survey to be non-permanent Biologic (2019; observed in late 2019).

6. Surface Water Management

Business as usual surface water management will be required to manage sediment run-off from disturbed surfaces including internal roads and waste dumps. This section focuses on the main mining areas and Miralga Haul Road.

6.1 Miralga East

Controls will be put in place for the following:

- Run-off from the Waste Dump and three mining pits towards the north.
- Run-off towards Miralga Creek and the two permanent pools WMRC-14 and -15.
- The haul road heading out from Miralga East toward the Miralga East ROM was initially designed with three primary drainage crossings. Redesign of the haul road has reduced these to two crossings. Each will need either appropriately sized culverts or floodways to enable flow to be maintained. The catchments upstream from the Miralga East haul road are not large; periods of flow are anticipated to be relatively short following rainfall events.
- It is likely that surface runoff from the Miralga East ROM can be managed by simple bunding and ditch drains with appropriate sediment control.

These are standard controls, routinely deployed by Atlas Iron and others in the management of surface water on mine sites.

6.2 Miralga West

Controls will be required to capture sediment in runoff from the mining area and ramp down to the waste dump and Miralga West ROM located to the north of the mining area. Minimal other surface water controls for Miralga West will be required beyond flood protection of lower lying infrastructure close to the Shaw River.

Similar to Miralga East, these are standard controls, routinely deployed by Atlas Iron and others in the management of surface water on mine sites.

6.3 Sandtrax

As the Sandtrax pit and waste dump are relatively small they will require minimal surface water management other than sediment control infrastructure. Revision of the ROM position has simplified water and sediment controls for this area.

6.4 Miralga Haul Road

The Shaw River and Miralga Creek crossings will require careful consideration to ensure minimal disruption to operations during and following flow events, and to maintain flows to the downstream environment during occasional periods of stream flow.

7. Project Water Needs

With the absence of pit-dewatering, all Project-required water will be obtained from production bores. Water use will include:

- Dust suppression for earthworks and construction purposes.
- Dust suppression on haul road.
- Earthworks and construction purposes.
- General campsite purposes.
- Mineral ore processing and other mining purposes.
- Potable water supply purposes.

The Miralga East, Miralga West and Sandtrax pits require a water supply to support dust suppression in the pit areas and haul roads, dust suppression water is required for the existing ALRE which will be utilised for the Project. Supply is also required for the ore stockyard which will be located at the northern end of the ALRE, close to the sealed Marble Bar Road, as well as for washdown facilities and potable water needs. Water infrastructure and storage facilities (turkey's nests) are already in place (Figure 7-1).

A summary of estimated monthly water demand over the life of the project is presented in Table 7.1.

Table 7.1 – Monthly Project Water Demand (kL)

Supply/Use Point	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12	Month 13	Month 14	Month 15	Month 16	Month 17	Month 18	Month 19	Month 20	Month 21	Month 22	Month 23	Month 24	Month 25	Month 26	Month 27	Month 28	Month 29	Month 30	Month 31	Month 32	Month 33	Month 34	Month 35	Month 36	Month 37	Month 38	Month 39	Month 40	Month 41	Month 42	Month 43	Month 44	Month 45	Month 46	Month 47	Month 48	Month 49	Month 50	Month 51
Camp	409	396	409	409	370	409	396	409	396	409	409	396	409	396	409	409	370	409	396	409	396	409	409	396	409	396	409	409	370	409	396	409	396	409	409	396	409	396	409	409	383	409	396	409	409	409	396	409	409	396	409
Plant	11,557	11,185	11,557	11,557	10,442	11,557	11,185	11,557	11,185	11,557	11,557	11,185	11,557	11,185	11,557	11,557	10,442	11,557	11,185	11,557	11,185	11,557	11,557	11,185	11,557	11,185	11,557	11,557	10,442	11,557	11,185	11,557	11,185	11,557	11,557	11,185	11,557	11,185	11,557	11,557	10,814	11,557	11,185	11,557	11,185	11,557	11,185	11,557	11,185	11,185	11,557
TN0	8,680	8,400	8,680	8,680	7,840	8,680	8,400	5,580	5,400	5,580	5,580	5,400	5,580	5,400	5,580	8,680	7,840	8,680	8,400	5,580	5,400	5,580	5,580	5,400	5,580	5,400	5,580	8,680	7,840	8,680	8,400	5,580	5,400	5,580	5,580	5,400	5,580	8,400	8,680	8,680	8,120	8,680	8,400	8,680	8,400	8,680	5,580	4,500	4,650	4,500	4,650
TN1	9,300	9,000	9,300	9,300	8,400	9,300	9,000	6,200	6,000	6,200	6,200	6,000	6,200	6,000	6,200	9,300	8,400	9,300	9,000	6,200	6,000	6,200	6,200	6,000	6,200	6,000	6,200	9,300	8,400	9,300	9,000	6,200	6,000	6,200	6,200	6,000	6,200	9,000	9,300	9,300	8,700	9,300	9,000	9,300	9,000	9,300	6,200	4,500	4,650	4,500	4,650
TN2	37,200	36,000	37,200	37,200	33,600	37,200	36,000	55,800	54,000	55,800	55,800	54,000	55,800	54,000	55,800	37,200	33,600	37,200	36,000	55,800	54,000	55,800	55,800	54,000	55,800	54,000	55,800	37,200	33,600	37,200	36,000	55,800	54,000	55,800	55,800	54,000	55,800	36,000	37,200	37,200	34,800	37,200	36,000	37,200	36,000	37,200	55,800	19,500	20,150	19,500	20,150
TN3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18,900	19,530	18,900	19,530
Total kl pm	**67,146**	**64,981**	**67,146**	**67,146**	**60,652**	**67,146**	**64,981**	**79,546**	**76,981**	**79,546**	**79,546**	**76,981**	**79,546**	**76,981**	**79,546**	**67,146**	**60,652**	**67,146**	**64,981**	**79,546**	**76,981**	**79,546**	**79,546**	**76,981**	**79,546**	**76,981**	**79,546**	**67,146**	**60,652**	**67,146**	**64,981**	**79,546**	**76,981**	**79,546**	**79,546**	**76,981**	**79,546**	**64,981**	**67,146**	**67,146**	**62,816**	**67,146**	**64,981**	**67,146**	**64,981**	**67,146**	**79,546**	**58,981**	**60,946**	**58,981**	**60,946**

8. Water Supply

8.1 Existing Infrastructure and Licences

The Project's water supply will include existing groundwater bores and an existing ground water license associated with Atlas Iron's Abydos Project and the ALRE. New production bores are not anticipated to be required. The Project requires up to approximately 0.9 GL per annum, with water demand anticipated to be approximately 60,000-80,000 kL per month. The existing ALRE groundwater licence is for 1,198,368 kL per annum and is valid until 29 July 2025. There is additional capacity in the Venturex borefield (near Sandtrax). Atlas Iron has existing agreement with Venturex to take water from this borefield. Water licensing is managed by DWER under the RIWI Act, and as there are existing licences and the bores have previously been used for mining water supply a simple amendment to existing licences is underway.

Drawdown has been modelled for the life of mine, and drawdown levels after four years of operation are provided in Figure 8-1. As would be expected, given the low volume of water demand, and the nature of the aquifer, drawdown contours are tightly linked to bore locations and dissipate to 0.2 m within approximately 1.1 – 3.4 km from the bores themselves.

Details of all existing production and monitoring bores are provided in Table 8.1.

Water supply for the pit areas will be provided by the existing ALRE bores, with water to be trucked or piped from existing turkey's nests (Figure 7-1). Current planning indicates that turkey's nests TN0 and TN1 will be the source points for road dust suppression water for the northern parts of the ALRE, TN2 will be the source point for dust suppression water for the Miralga Haul Road, Miralga East, Miralga West, and central and southern portions of the ALRE. TN3 will be the source point for the Sandtrax mining area and associated haul roads. Water for the crushing facility and ore stockyard will be pumped from TN0, TN1 and TN2.

Table 8.1 – Existing Bore Details

Bore Name	Previous Bore Name	Coordinates (GDA94, Zone 50)		Total Depth (mbgl)	Nominal Casing Dia. (mm)	Screen Interval (mbgl)	Static Water Level (mbtoc)	Recommended Rate (L/sec)	Recommended Pump Inlet Depth (mbgl)
		Easting	Northing						
Abydos Link Road East (GWL176408-4)									
Northern Production Bores									
ALB0006	ALPB01	741873	7705352	79.7	200	7.7 - 79.7	8.37	4	40
ALB0007	ALPB02	738829	7682534	71.4	200	5.4 - 71.4	7.51	0.5	30
ALB0008	ALPB03	738787	7680305	29.3	200	5.3 - 29.3	8.27	2.3	27
ALB0009	ALPB04	741792	7703621	29.2	200	5.2 - 29.2	8.70	10.5	27
ALB0010	ALPB05	741172	7699140	35.3	200	5.3 - 35.3	9.55	15	32
ALB0066	ALB0066	741489	7700936	66.0	200	6.0 – 65.0	8.15	5.0	50
Venturex Production Bores									
ALB0038	SSWB36	727199	7666652	75	100	12 - 75	14.32	5.5	36
ALB0039	SSWB38	727171	7665457	72	100	12 - 72	18.25	1.6	51
ALB0041	SSWB40	727496	7664976	48	100	14.75 - 48	14.75	4.5	36
Northern Monitoring Bores									
ALB0001	ALMB01	741879	7705335	23.7	50	5.7 - 23.7	8.29	n/a	n/a
ALB0002	ALMB02	738836	7682525	30	50	6 - 30	7.47	n/a	n/a
ALB0003	ALMB03	738803	7680260	29.8	50	5.8 - 29.8	8.44	n/a	n/a
ALB0004	ALMB04	741798	7703603	30.9	50	5.9 - 30.9	8.31	n/a	n/a
ALB0005	ALMB05	741172	7699108	29.9	50	5.9 - 29.9	9.44	n/a	n/a
Venturex Monitoring Bores									
	SSWB39	727123	7665911	48	100	12-48	9.15	n/a	n/a
	PAN59	731890	7666616	48	50	42-48	1.71	n/a	n/a
Regional Monitoring Bores									
ALB0044	SSWB52	736602	7670142	85.8	50	1.0-85.8	18.93	n/a	n/a
ALB0045	SSWB53	736452	7670057	96	50	78-96	16.6	n/a	n/a
ALB0011	PAN54	733535	7668283	54	50	48-54	10.21	n/a	n/a

Bore Name	Previous Bore Name	Coordinates (GDA94, Zone 50)		Total Depth (mbgl)	Nominal Casing Dia. (mm)	Screen Interval (mbgl)	Static Water Level (mbtoc)	Recommended Rate (L/sec)	Recommended Pump Inlet Depth (mbgl)
		Easting	Northing						
ALB0012	PAN57	732674	7667663	50	50	48-54	10.38	n/a	n/a
Abydos Mine Site (GWL168045-7)									
Non-potable Production Bores									
ABY0023	ABPB27	720385	7661340	104	205	20-104	2.94	6	80
ABY0025	ABPB28	720407	7661512	132	205	18-132	4.7	10	80
ABY0022	ABPB29	720459	7661427	140	205	20-140	5.98	10	80
ABY0017	PB84-1	720434	7661472	150	205	12.0-150.0	2.93	15	100
Potable Production Bores									
ABY0008	ABPB01	720386	7662785	96	205	35.7-95.7	32.15	1.5	60
ABY0039	CBPB02	719039	7663547	60	205	9-105	7.8	1.7	80
Monitoring Bores									
ABY0006	ABMB01	720379	7662784	90	n/a	Open hole	32.16	n/a	n/a
ABY0007	ABMB02	721098	7664297	100	n/a	Open hole	15.58	n/a	n/a
ABY0032	ABOB26	719781	7661517	100	n/a	Open hole	0.64	n/a	n/a
ABY0040	CBMB03	718992	7663561	60	50	6-60.0	6.8	n/a	n/a
ABY0011	Obs84-2	720431	7661489	150	50	12.0-150.0	4	n/a	n/a

8.2 Water Balance

Table 8.2 and Figure 8-2 present an estimated water balance showing demand vs available installed capacity, and also which bores supply which turkey's nest. The water balance indicates that installed capacity can meet the estimated demand. Estimates of demand show a peak 12-month usage of approximately 900,000 kL.

Table 8.2 – Water Balance

Water Source Point	Supplying Bores	Peak Demand (L/s)	Capacity (L/s)
TN0	ALB0006, ALB0009	7.6	9.0
TN1	ALB0009, ALB0066	3.5	4.5
Plant and Product Yard and TN2	ALB0066, ALB0010, ALB0008	20.8	22.9
TN3	ALB0038, ALB0039, ALB0041	7.3	8.5
Camp	ABY0008, ABY0039	<0.5	2

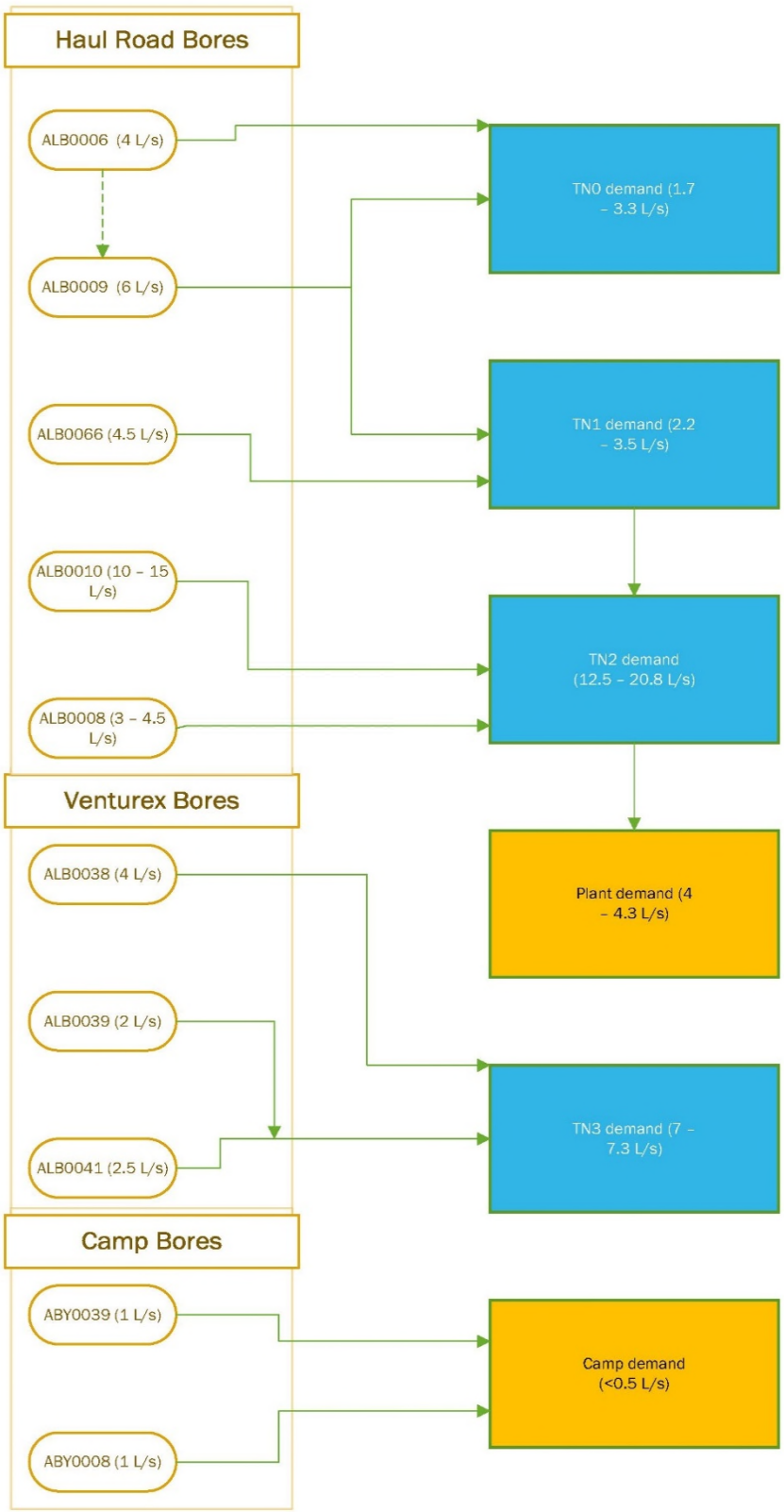


Figure 8-2 – Estimated Water Balance Schematic

9. Forward Work

Future proposed works includes:

- Amendment of the existing Abydos groundwater licences to add the Project water use areas and new water use types
- Ongoing monitoring of local aquifers through the existing monitoring network.

10. References

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Appendix A Site Photos

Mike's Bore

Montey Bore

Miralga Well

Miralga CK-1

MRWB0001

MRRC004

Miralga CK-2

Non-permanent pools in Shaw River near Miralga West

Appendix B Atlas Iron May 2019 Water Quality Results

Table B-1 – Water Sample Site Details

Surface/ Ground Water	Site ID	Easting	Northing	Description
Surface Water	Miralga CK-1	743658	7684944	Pool within Miralga Creek ~9 km downstream of Miralga East. Looks to be either semi-permanent or permanent.
	Miralga CK-2	750449	7678378	Permanent pool located within Miralga Creek ~2 km to the east of the proposed Miralga East mining area.
Ground Water	Mikes Bore	745139	7694717	Old pastoral bore. Bore blocked at 7.23 mbtoc
	Montey Bore	743648	7387153	Operating pastoral bore with wind pump. Water sample taken from trough.
	Miralga Well	742594	7684571	Groundwater well with non-operational wind pump.
	MRWB0001	747687	7678051	Water supply bore installed for Miralga exploration drilling campaign. Blocked just below water table.
	MRC0004	748620	7679217	Constructed as drilling supply bore for Miralga exploration campaign.
	Kim J Bore	739755	7677081	Old pastoral bore located near Shaw River ~3.5 km to the north of Miralga West. Blocked at 11.16 mbtoc.
	CBPB02	719039	7663547	Existing Abydos camp water supply bore fitted with solar powered pump.
	CBMB03	718992	7663561	Existing monitoring bore adjacent to Abydos camp water supply bore CBPB02.
	ABMB01	720379	7662784	Existing monitoring bore adjacent to Abydos camp water supply bore ABPB01.
	SSWB39	727123	7665911	Existing Venturex owned bore. Utilised for dust suppression along southern portion of ALRE.
	SSWB38	727171	7665457	Existing Venturex owned bore. Utilised for dust suppression along southern portion of ALRE.
	SSWB40	727496	7664976	Existing Venturex owned bore. Utilised for dust suppression along southern portion of ALRE.

Table B-2 – Field Sampling Results

Surface/ Ground Water	Site ID	Sample Date	Water Level (mbtoc)	pH	EC (mS/cm)	Temp (°C)
Surface Water	Miralga CK-1	29/5/2019	-	7.99	0.64	22.1
	Miralga CK-2	29/5/2019	-	8.23	0.86	28.3
Ground Water	Montey Bore	29/5/2019	4.93 (pumping)	7.77	0.96	26.2
	Miralga Well	29/5/2019	3.79	7.69	3.54	28.4
	MRWB0001	29/5/2019	9.03	6.87	1.5	30.9
	MRC0004	29/5/2019	2.56	7.65	0.45	33.7
	CBPB02	30/5/2019	8.31	-	-	-
	CBMB03	30/5/2019	8.77	7.21	1.34	30.3
	ABMB01	30/5/2019	26.88	6.95	0.86	29.7
	SSWB39	30/5/2019	14.95	-	-	-
	SSWB38	30/5/2019	10.38	7.09	1.00	30.0
	SSWB40	30/5/2019	7.04	-	-	-

Appendix C DPIRD Data May 2019

Table C-1 – Sampling Results from May 2019, Provided by DPIRD to Atlas Iron in July 2019

Measured	ALPB05	ALPB04	ALPB02	ALPB0066
TDS_grav	770	880	920	720
TDSsum	690	800	870	650
pH	8.1	8.1	8	8
Field pH	7.59	7.66	7.55	7.38
Field EC	139	160	170	130
ECond	133	154	163	125