Happy Valley Titanium Minerals Proposal

Water Resources Management Plan

DRAFT

Prepared jointly with
Bemax Resources
by Strategen

April 2009

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Client: Bemax Resources

Report	Version	Prepared by	Reviewed by	Submitted to Client	
				Copies	Date
Preliminary Draft Report	1	Bemax	Bemax		
Draft Report	3	Bemax/Strategen	LC	Part of Draft ERMP	
Final Report					

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1. OVERVIEW

1.1 PURPOSE

The purpose of this Water Resources Management Plan (WRMP) is to describe management actions to be implemented prior to, during and post mining of the Happy Valley Mineral Sands Mining Proposal, necessary to:

- maintain the quantity and quality of water so that existing and potential environmental values, including ecosystem maintenance, are protected
- maintain the integrity, ecological functions and environmental values of groundwater dependent ecosystems (GDEs), wetlands, and rivers.

This WRMP includes a monitoring program to assess the effectiveness of the management actions and to ensure that changes to the availability and/or quality of local water resources are detected, reported and, if appropriate, acted upon.

1.2 SCOPE

This WRMP applies to the Happy Valley Proposal during the phases of mine planning, construction, commissioning, operation and rehabilitation.

It specifically addresses:

- management of impacts to surface water that may be directly or indirectly related to mining
- management of drainage on the mining lease to minimise impacts on surrounding users and ecosystems
- operating strategy for production bore abstraction from the Yarragadee formation
- monitoring of discharges from the site.

Monitoring focuses on neighbouring water users, the receiving environment and impacts to the groundwater table. The WRMP will be updated prior to the commencement of operations and will incorporate experiences obtained during operation of the adjacent Gwindinup mine site and results of ongoing monitoring. Relevant government agencies and other stakeholders will be provided with copies of the updated plan for review, prior to its implementation.

1.3 STRUCTURE AND CONTENT

This WRMP consists of the following sections:

- **Section 2 –** gives a brief description of surface water and groundwater resources and lists potential impacts
- **Section 3** – lists environmental objectives, targets and indicators, management and monitoring actions, and contingency actions in the event that targets are not met
- **Section 4 –** details compliance auditing and reporting procedures.

1.4 RELATIONSHIP TO OTHER DOCUMENTS

The WRMP has been prepared as part of the Happy Valley Environmental Review and Management Program (ERMP), which describes the background setting and assesses the potential impacts to water resources that are managed under the WRMP. The ERMP bases its assessment on the independent hydrological reviews conducted by Parsons Brinckerhoff (PB 2008a; 2008b), previous studies conducted in relation to the existing Gwindinup mine and results of groundwater monitoring conducted to date.

The restoration of landforms following completion of mining including hydrological features is described in the Happy Valley Integrated Mining and Rehabilitation Plan (IMRP). The protection of vegetation surrounding the project area, including potential impacts from changes to hydrology will be addressed in the Environmental Management and Monitoring Program (EMMP).

1.5 DOCUMENT REVISIONS

The WRMP will be subject to further review and amendments as part of the environmental impact assessment process under Part IV of the *Environmental Protection Act 1986*. In addition, amendments may also be required to accommodate conditions of operating licences issued under Part V of the Environmental Protection Act and/or the *Rights in Water and Irrigation Act 1914*.

The WRMP will be reviewed annually as part of the Bemax Environmental Management System (EMS), which is accredited to AS/NZS 14001 standard.

2. WATER RESOURCES ENVIRONMENT AND HAZARDS

2.1 OVERVIEW

This section describes the environmental investigations that were used for the risk assessment that forms the basis for this management plan.

2.2 SURFACE WATER ENVIRONMENT

There are three significant watercourses within the Happy Valley project area which are shown in Figure 1. These are:

- GWSW2: a seasonal stream that flows northwest from State Forest through the Happy Valley North deposit, under Gavins Road, through a gully dam on Loc. 215 and into another gully dam on Lot 217, where it terminates.
- HVSW2 and HVSW3: two seasonal tributaries that flow northwest from State Forest, through cleared blue gum plantations on which the Happy Valley South deposit is partially situated, and then combining to flow down through the current Gwindinup South mining area, after which it infiltrates into the sandy soils where it contributes to the recharge of the Leederville aquifer.

These three watercourses are described in the Gynudup Brook and Tren Creek River Action Plan (GeoCatch 2004). The mine plan has been specifically amended to retain a mining separation distance of 50 m from the centreline for GWSW2, and 30 m from the centreline for HVSW2 and HVSW3. Relatively minor disturbances associated with the construction of vehicle crossings will still be required for each of the three watercourses.

All three streams are ephemeral, being highly dependent on local rainfall events and therefore only flow every 2 – 3 years for a maximum period of 2 – 3 months.

The Happy Valley North project area includes a small portion of the catchment for a farm dam on an adjoining property (Location 214).

2.2.1 Wetlands and groundwater dependent ecosystems

The closest wetlands to the Proposal are the paluslope wetlands at the base of the Whicher Scarp at Gwindinup, 1.5 km from the edge of mining. Paluslope-type wetlands are seasonally waterlogged wetlands with a gentle topographic gradient (Semeniuk and Semeniuk 2004). These wetlands have been described by Bennett (2003), Cable Sands (WA) Pty Ltd (2004), John (2005) and PB (2008a). The wetlands are wet all year round but become increasingly inundated in winter and spring.

The presence of localised areas of saturated sands over shallow laterite/clay has been recorded within the tenements, but not within the mine footprint to any significant extent. There are several plant taxa that are known to be associated with damp sands (Keighery et al. 2008) and these are known to be widespread across the Happy Valley project area and the study area, generally.

2.2.2 Potential hazards

The following aspects of the operation may affect the surface water values in the area:

- **stormwater runoff from operational areas** – removal of vegetation from the catchment areas may increase runoff and sediment loading
- **discharge of water** – excess water from the mining operation may need to be discharged in the event of an emergency over the course of the mining operation. There is the potential for the quantity and quality of this water to affect the receiving environment
- **water harvesting and disruption of natural runoff and drainage** – diversion of runoff around stockpiles and mine pits and its possible collection for re-use in the process water circuit may reduce quantity of water running into the streams and tributaries in the catchment
- **spillage of potentially hazardous substances** – use of hydrocarbons in the workshop, plant and machinery as well as chemicals utilised for water treatment raises the potential for spillage and contamination of surrounding watercourses
- **acid sulphate soils** – the Happy Valley site has been identified as having a "low risk of acid generation associated with the topsoil, Ridge Hill Shelf and clay lithologies" (PB 2008b).

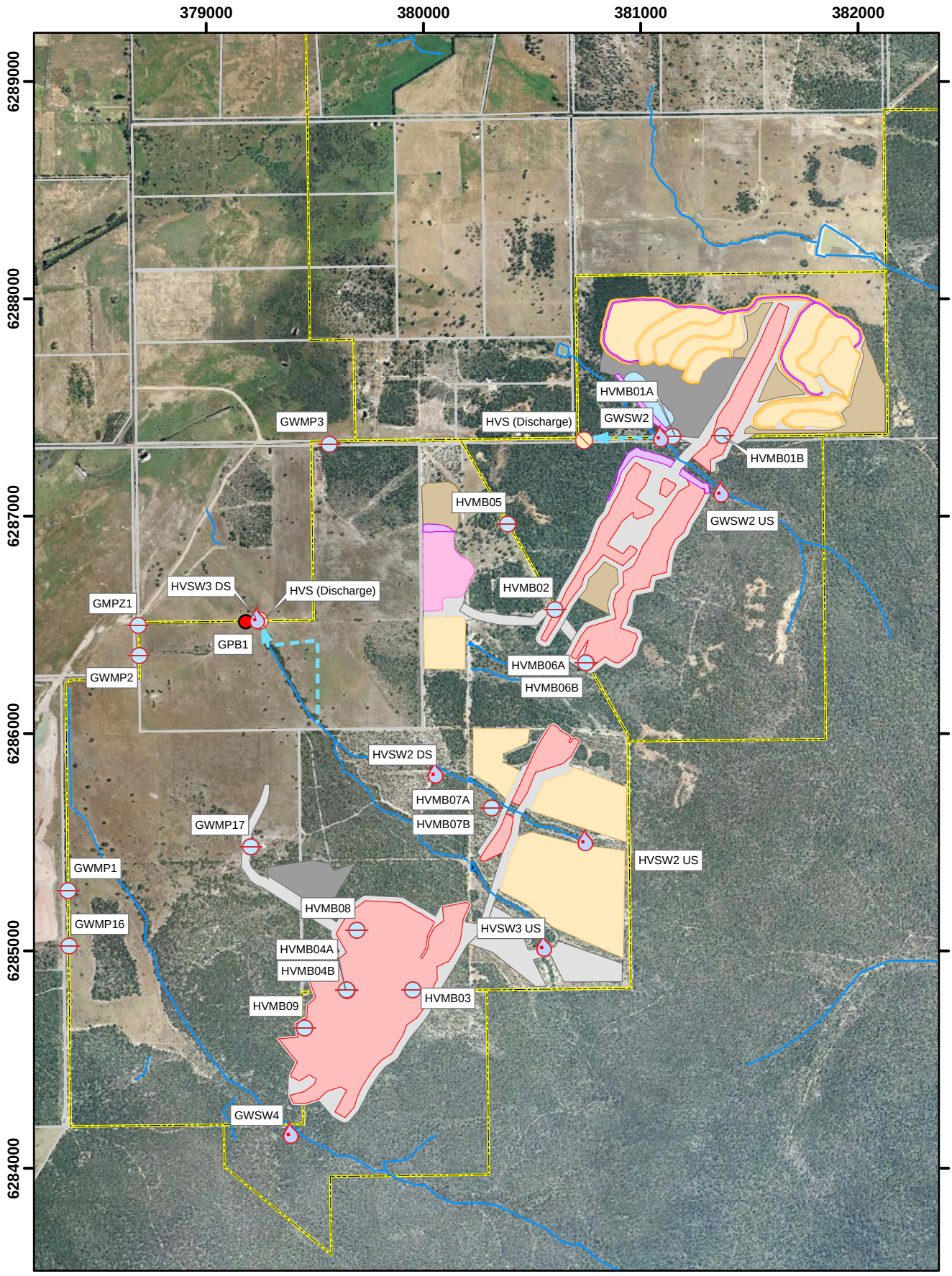

Figure 1
Location of streams and monitoring bores

Legend

- Production Bore
- Discharge
- Surface Water
- Monitoring Bore
- Creeks
- Discharge Drainage
- Tenement Boundaries
- Cadastral Boundaries
- Disturbance
- Fines
- Fines (Wall)
- Noise Bund
- OB
- Pit
- Plant Site
- TS
- Water Dam

0 250 500 1,000
Meters

Datum: GDA 1994 MGA Zone 50
Drawn: DH
Date: 9/4/08

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2.3 GROUNDWATER

Three major hydrogeological formations exist in the regional area of the Proposal:

1. Superficial formation, including Ridge Hill Shelf: where it exists, the aquifer associated with this formation is seasonal, thin and unconfined. Flow is generally in a westerly direction. This formation contains the Happy Valley orebodies and is completely unsaturated within the Proposal area.
2. Leederville formation: underlies the Superficial formation and extends downwards from approximately 9 – 18 mbgl[1] to the top of the Yarragadee (approximately 215 – 360 mbgl). Flow is in a northwest direction. This formation is responsive to seasonal recharge and the top of the aquifer represents water table level within the Proposal area.
3. Yarragadee formation: underlies the Leederville formation and is approximately 600 – 1200 m thick. Flow is in a north to northwest direction. This formation is responsive to seasonal recharge from the Blackwood Plateau and leakage from the Leederville aquifer.

2.3.1 Intersection of water tables

It has been shown that the Happy Valley deposits do not intersect a superficial or perched water table (PB 2008a), with no evidence of localised perching or water table level observed in any of the bores or pits installed at Happy Valley (Figure 1):

- two 8 m deep pits excavated at Happy Valley North in 2003
- one 10 m deep pit excavated at Happy Valley South
- four test pits excavated to laterite (1 – 6 m below ground level) at Happy Valley North and Happy Valley South in May 2008
- five groundwater monitoring bores installed to the basement of the orebody (generally 86 mAHD), monitored monthly from March 2006 onwards (PB 2008a)
- seven groundwater monitoring bores (4 – 26 m deep) to the west of the Happy Valley deposits, monitored monthly from May 2008 onwards (PB 2008a).

Bore HVMB6B, installed in April 2008 by PB (2008a) indicated a water table level of 26.43 mbgl in June 2008. Observations at two Department of Water bores in October 2007 indicated a water table level of 26.04 mbgl in Happy Valley North and 21.93 mbgl in Happy Valley South. The water table levels observed are considered to represent regional groundwater levels associated with the Leederville Formation rather than perched or superficial water tables. As mining is only anticipated to extend to 18 mbgl, the regional groundwater table is also unlikely to be intersected during mining.

Significant groundwater inflow to the mine pits is therefore unlikely. However, the proposed mine pits may intersect one or more seasonal perched aquifers that may cause minor, localised pit inflows, particularly following periods of high rainfall. Such inflows are not expected to impact the regional groundwater system, neighbouring groundwater users, or groundwater dependent ecosystems (PB 2008a).

[1] metres below ground level

2.3.2 Abstraction

Two production bores, GPB1 and GPB2, have been installed within the Yarragadee Formation to provide water for the wet separation of heavy mineral content and lesser uses for dust suppression and general services on-site (Figure 1). A determination on which production bore will be utilised for the Happy Valley project has not yet been made.

2.3.3 Potential hazards

The following aspects of the Happy Valley operation may affect the groundwater values in the area:

- **interception and dewatering of superficial aquifers** may disrupt the hydrology of the local area
- **spillage of potentially hazardous substances** – use of hydrocarbons in workshop, plant and machinery as well as use of chemicals for water treatment processes raises the potential for spillage which may in turn contaminate the superficial formation
- **abstraction from the Yarragadee aquifer** will result in some drawdown of the Yarragadee and Leederville aquifers which may affect users in the surrounding area. Impacts to users within a 20 km radius are not expected to be significant (URS 2000, Aquaterra 2005); however, a number of neighbouring windmills and shallow bores are located in the upper extent of the Leederville and, as such, could be affected by drawdown (Figure 2)
- **recharge of the Leederville** may be limited by low infiltration rates within the minesite area. The risk of the Happy Valley mines affecting Leederville recharge is considered low, as the two deposits, collectively, do not account for a significant proportion of the recharge zone. Rehabilitation will also focus on retaining soil infiltration characteristics (see IMRP).

Further hazards may include poor rehabilitation of the disturbed areas which could change the historical stream flows and groundwater recharge system. This aspect has been incorporated into rehabilitation planning, outlined in the Happy Valley Integrated Mining and Rehabilitation Plan (CD915).

2.4 LOCAL WATER USERS

Bemax Resources began its Happy Valley public consultation process in 2000 as part of the Gwindinup operations and identified the protection of water resources as a key concern. A stakeholder consultation database has been prepared which includes both landowners and neighbours within two kilometres of the project site and those positioned along identified haulage roads. Figure 2 identifies all local land owners and domestic and agricultural water users within the Happy Valley area. To date, no landowner has been identified whose water availability will be significantly affected by the Happy Valley project.

2.4.1 Potential hazards

The following aspects of the Happy Valley operation may affect the local water users:

- **Contamination of dam water on Loc. 214** via seepage from fines drying dams on Loc. 215. Potential for impact on the dam situated on Location 214 is minimal as only 4 ha of the 160 ha dam catchment will be affected by the Proposal, with an internal separation distance of 100 m to the tenement boundary and a total separation distance of 180 m. Dams are constructed in accordance with an engineered design plan and a 0.5 m freeboard is always maintained. The

process water quality will be closely linked to the Yarragadee water supply quality, and hence is expected to be of good quality.

- **Emergency discharge via HVSW3** may result in temporary inundation of the infiltration site on Location 3818. Inundation is likely to be short lived due to the highly permeable nature of the substrate.
- **Disruption to the flow or quantity of water in GWSW2** as it flows through Loc. 215 and into Location 217. A 50 m buffer shall be established along the drainage line and no discharge to GWSW2 shall occur from the mine without prior consultation with landowners and the Department of Water (DoW).

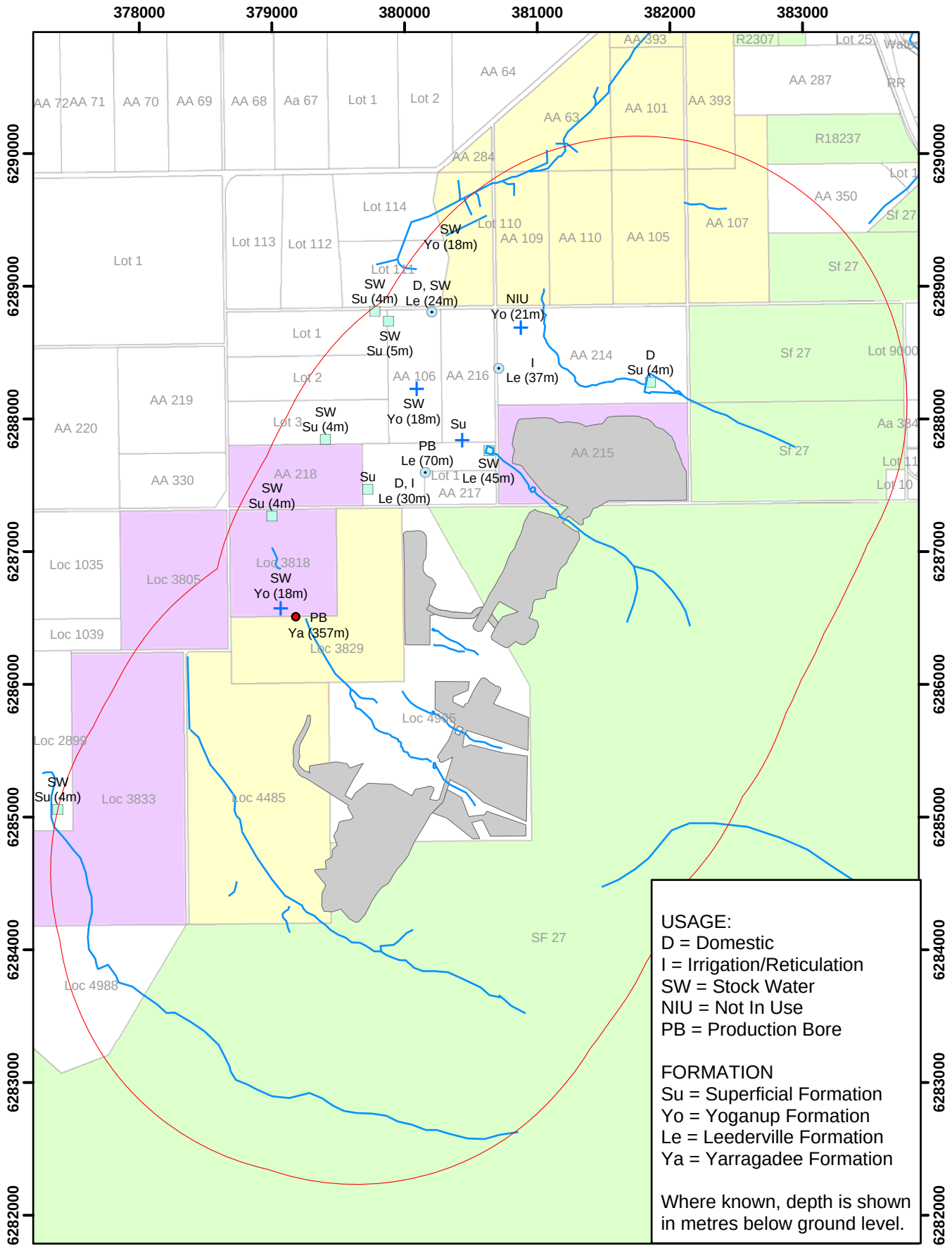

Figure 2:
Identified local water users

Legend

- Bore
- Production Bore
- 2Km Buffer
- Dam
- Windmill
- Disturbance
- Creeks

Landowner

- Bemax Land
- State Forest/Reserve
- Iluka Land

0 375 750 1,500
Meters

Datum: GDA 94 MGA Zone 50
Drawn: DH
Date: 9/4/09

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3. MANAGEMENT ACTIONS

3.1 ENVIRONMENTAL OBJECTIVES, TARGETS AND INDICATORS

The environmental objectives, targets and key performance indicators (KPIs) for water resources management are detailed in Table 1 below.

Table 1 Environmental objectives, targets and indicators for water resources management

Objective	Target	KPI
Maintain the quantity and quality of water so that existing and potential environmental values, including ecosystem maintenance are protected.	No increase in groundwater salinity	EC of groundwater samples prior to and during mining
	No increase in total acidity (TA) of groundwater	TA of groundwater samples prior to and during mining
	No increase in solids (total dissolved solids [TDS] and total suspended solids [TSS]) content of groundwater	TDS and TSS of groundwater samples prior to and during mining
	Water quality to be consistent with ANZECC Guidelines (NWQMS 2000) in the event that controlled discharge is required	pH, EC, TA, and TSS of discharge water
	No discharge of mine water to occur to GWSW2 without prior consultation with downstream landowners and DoW	Controlled discharge records Emergency discharge records Stakeholder consultation
Maintain the integrity, ecological functions and environmental values of wetlands and rivers.	No increase in erosion	Site inspection records Photographs from fixed monitoring points
	Establish and maintain buffers around seasonal streams and tributaries (50 m GWSW2, 30 m HVSW2 and HVSW3)	Site inspection records
	On-site abstraction from the Yarragadee aquifer not to exceed 1.5 GL/yr and 4100 m^3/day	Bore abstraction records

3.2 MANAGEMENT ACTIONS

Specific management actions have been identified to assist in achieving the water resources management objectives (Table 2). Additional detail on the management actions is provided below.

Table 2 Management actions for water resources

Activity/ Parameter	Action	Timing	Responsibility
Planning	Establish emergency water discharge points in consultation with DoW	At all times	Mine Engineer
	Develop a drainage design that directs all potentially contaminated water for re-use in processing.	Prior to ground disturbance	Mine Engineer
	Construct all dam and residue areas in accordance with engineering and legal requirements and guidelines to minimise the risk of release of contaminated water	Prior to ground disturbance	Mine Engineer

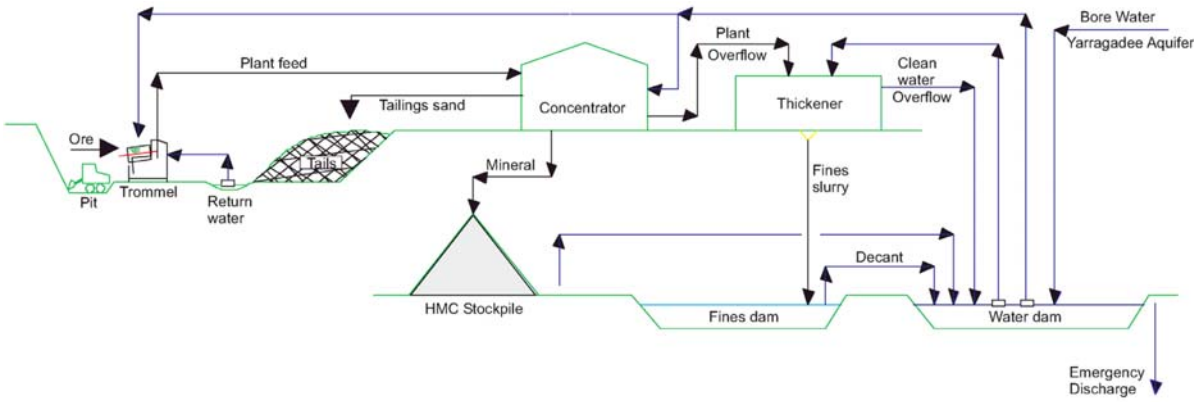
Activity/ Parameter	Action	Timing	Responsibility
	Establish and flag buffers around seasonal streams and tributaries (50 m GWSW2, 30 m HVSW2 and HVSW3)	Prior to ground disturbance	Mine Engineer/ Environmental Officer
Induction	Include an outline of the key issues and management actions of the WRMP in the site induction process.	Prior to personnel commencing work on-site	Environmental Officer
Operations	Establish and maintain bunding and stormwater diversion around stockpiles to ensure runoff from disturbance areas is prevented from entering the natural watercourses	Upon commencement of excavation	Mine Operations Manager/ Environmental Officer
	Install a surface water contaminant management system	Upon commencement of excavation	Mine Operations Manager/ Environmental Officer
	Maintain an up-to-date project schedule to plan operations and minimise rehabilitation delays and the surface area of stockpiles at all times	Ongoing	Mine Operations Manager/ Environmental Officer
	Collect stormwater and potentially contaminated water from mining areas and re-use in process water circuit	Ongoing	Mine Operations Manager
	Ensure maximum recycling of process water by operating the water supply on a largely closed, recirculating system	Ongoing	Mine Operations Manager
	Maintain solar drying (fines dams and water storage dam levels with minimum 1.0 m freeboard	Ongoing	Mine Operations Manager
	Limit abstraction from the production bore to 1.5 GL/annum	Ongoing	Mine Operations Manager

Stormwater reuse

Stormwater and any other potentially contaminated waters (turbidity) will be collected within the mining areas and returned to the process water circuit for re-use. A drainage plan will be prepared as part of detailed mine planning to ensure that stormwater collection is properly designed based on catchment areas and adequate engineering to cope with anticipated flows. This plan will be reviewed annually prior to winter.

Closed process water circuit

Water collected from the processing circuit, tailings drainage and stormwater runoff will be directed into the process water circuit for reuse (Figure 3). A deep-vane thickener and flocculants/coagulants (dosed at approximately 15 ppm) will be used to remove fine sediment from recycled water. The flocculent/coagulant agent is not classified as hazardous according to National Occupational Health and Safety Commission criteria.



Titanium Minerals Dry Mining Flowchart

Figure 3 Overview of mining and separation process

Emergency discharge

In the event of significant rainfall and runoff, water may be temporarily stored in unoccupied parts of the pit before being transferred to the process water circuit for treatment and reuse or in extreme events, discharge. Discharge shall occur from the process water dam to minimise sediment loading in discharged water. The Happy Valley North emergency discharge location is yet to be identified, but will be selected in consultation with the Department of Water (DoW) and potentially affected landowners. The Happy Valley South emergency discharge location is down HVSW3, where it will follow a natural drainage route into Lot 3818 which is owned by Iluka.

Dewatering

In the unlikely event that dewatering is required, a dewatering licence will be sought from the DoW and a Dewatering Management Plan will be drafted in order to manage the potential acid sulphate soil impacts of dewatering.

3.3 MONITORING ACTIONS

Bemax monitoring bores installed at the Happy Valley site (HVMB01 to HVMB09) are predominantly screened within the superficial formation (Figure 1).

Regional monitoring bores BUS2S (shallow) and BUS7S (shallow) and BUS7I (intermediate) screen the superficial formations to the west of the Happy Valley deposit (Figure 1). These monitoring bores are included in the Monitoring Program to monitor potential drawdown impacts as a result of abstraction from the Yarragadee Formation.

Standing groundwater levels have been recorded monthly at HVMB01 to 04 since March 2006, and at HVMB05 – 09 since June 2008. Monitoring was expanded over winter 2008 to include groundwater pH and EC on a monthly basis. Baseline values will be calculated from this data, enabling comparison with data collected during operations.

Table 3 provides monitoring actions to enable assessment of the effectiveness of the water resources management actions in place. Responsibility for ensuring that monitoring actions are conducted rests

with Bemax's Environmental Officer. All monitoring records will be collected as per relevant standards or EMS procedures and will be stored at the Bemax North Shore Administration Centre. Monitoring results will be reviewed by Bemax environmental staff as they are recorded, to enable a response to be implemented if required. The results of the entire monitoring programme will be reviewed internally every 3 months as part of the EMS procedures.

Table 3 Monitoring actions for water resources management

Parameter/Activity	Purpose	Timing	Frequency	Location
Initial surface water quality by measuring pH, EC and temperature, TDS and TSS when flowing	To establish baseline surface water quality to assess extent of change in surface water quality during mining	Prior to ground disturbance	Monthly (during flow periods)	HVSW2; HVSW3; GWSW2; GWSW4
Initial surface water quality by measuring total acidity			Once before ground disturbance (minimum)	
Standing water level in piezometers within 200 m of drainage lines*	To identify surface water/groundwater flow paths and hydraulic connection	Prior to ground disturbance	Monthly (already commenced)	HVMB01A; HVMB06A; HVMB07A
Initial groundwater quality by measuring pH, EC and temperature*	To establish baseline groundwater quality to assess extent of change in groundwater quality during mining	Prior to ground disturbance	Monthly (already commenced)	All bores except GPB1 and GPB2
Initial groundwater quality by measuring total acidity*		Prior to ground disturbance	Once before ground disturbance (minimum)	
Initial depth to groundwater by measuring standing groundwater levels in bores*	To establish a baseline to assess drawdown effects	One week prior to commissioning of GPB1	Monthly	All bores except GPB2
			Daily	GPB1 and GPB2
Surface water quality during mining by measuring pH, EC and temperature, TDS and TSS when flowing	To assess extent of change in surface water quality during mining To ensure surface water pH lies within the values 5 – 8.5.	During mining	Monthly during flow periods Daily during discharge events	Upstream and downstream sites for HVSW2, HVSW3 and GWSW2;
Surface water quality during mining by measuring total acidity when flowing			Quarterly during flow periods	
Rainfall by gauge collection	Dataset can be used to interpret other monitoring results		Daily	On-site gauge
Dam water levels by measuring freeboard	To ensure a minimum 0.5 m freeboard in dams is maintained at all times to accommodate storm events		Weekly; daily when raining	All dams on-site
Groundwater quality: pH, EC and temperature*	To assess extent of change in groundwater quality during mining		Monthly	All bores
Groundwater quality: total acidity*	To ensure groundwater quality falls within the following targets: • pH 6.5-8.5 • EC<3000 µS/cm • Total acidity <40 mg/L		Quarterly	All bores except GPB1 and GPB2
Depth to groundwater by measuring standing groundwater levels in bores*	To monitor effects of drawdown in bores during abstraction		Monthly	All bores except GPB1 and GPB2

Parameter/Activity	Purpose	Timing	Frequency	Location
Operational characteristics of newly commissioned bore by recording cumulative flow volumes and operating hours	To assess capacity of newly commissioned production bore To ensure abstraction does not exceed set targets (Table 1) and minimises drawdown	After commencement of abstraction from GPB1	Daily for first week of operation, weekly for first month of operation, monthly thereafter	GPB1
			Monthly	GPB2
Groundwater quality during mining in newly commissioned bore by measuring TDS (gravimetric) Fe, Na, K, Ca, Mg, Cl, CO32-, HCO3-, SO42-, NO3-, Mn, SiO2, Al, total hardness (CaCO3), total alkalinity (CaCO3)	To assess water quality in newly commissioned bore		Annually	GPB1 and GPB2
Monitor controlled discharge water quality (pH, EC, Total acidity and TSS) and flow rates	To ensure consistency with ANZECC Guidelines (NWQMS 2000): • pH 5-8.5 • EC<3000 µS/cm • TA<40 mg/L • TSS<80 mg/L prior to discharge occurring	In the event that controlled discharge is required	Daily, in the event that controlled discharge is required	Process Water Storage Dam
Emergency discharge water quality (pH, EC and TSS) and estimation of flow rates	To assess potential environmental impacts associated with emergency discharge	In the event of emergency discharge	Daily, iIn the event of emergency discharge	Discharge site

* Many of the HV bores are dry. Only those that have water in them will be monitored.

3.4 CONTINGENCY ACTIONS

Table 4 identifies the appropriate contingency actions to be initiated in the event that the objectives for water resources management are not met. Responsibility for ensuring that contingency actions are undertaken in a timely and appropriate manner rests with Bemax's Environmental Superintendent.

Table 4 Contingency actions for water resources management

Trigger	Action
Formation of rills, gullies, or other evidence of soil erosion	1. Identify cause.
	2. Investigate strategies to minimise water/wind exposure and increase landform stability.
	3. Implement erosion management strategy.
	4. Monitor success of remedy.
Hydrocarbon spill	1. Identify cause
	2. Implement CD118 Emergency Preparedness and Response Plan
	3. Complete Environmental Incident Report

Trigger	Action
Decrease in groundwater water availability to local users	1. Recharge the affected aquifer with potable water. OR 2. Make available an alternate supply by either installing a new groundwater bore, supplying filled storage vessels such as tanks or dams; or making new storage vessels available to increase capacity.
Increase in groundwater total acidity	1. Identify affected bores. 2. Conduct additional sampling and analysis of waters in affected bores, including sulphate, chloride, and key indicator metals (total and dissolved Fe, Al, Mn). 3. Implement appropriate remediation strategy if cause is identified.
Increase in surface water total acidity or pH drops below 6.5	1. Identify affected waterbodies. 2. Conduct additional sampling and analysis of surface runoff and waters in affected waterbodies, including sulphate, chloride, and key indicator metals (total and dissolved Fe, Al, Mn). 3. Identify cause of acidity and implement appropriate remediation strategy. 4. If cause of acidity is not identified, treat any discharges to the environment which originate from the mine site by lime dosing or other method until cause is identified and remediated.
Controlled or emergency discharge exceeds ANZECC Guidelines: • pH 5-8.5 • EC<3000 µS/cm • TA<40 mg/L • TSS<80 mg/L	1. Contain discharge if possible. 2. If discharge can be contained, re-measure parameters and if they still exceed guidelines, treat the water appropriately to ensure the water quality is acceptable prior to discharge. 3. If discharge cannot be contained, contact Department of Water to report the incident. 4. Monitor water quality of receiving waterbody to determine whether quality has been affected. 5. Determine appropriate mitigation in consultation with DoW.

4. COMPLIANCE AND REPORTING

4.1 COMPLIANCE AUDITING

The auditing of conformance with this management plan and any conditions or commitments related to environmental management will be conducted on a 12-monthly basis throughout the project's life, as part of the Annual Environmental Review. The auditing will be the responsibility of the Senior Environmental Officer – Compliance/Operations.

4.2 NON-COMPLIANCES

Non-compliances identified during the auditing process or through the EMS will be brought to the attention of the Operations Manager and an incident report completed. Non-compliances will be reported to the DEC (see Section 4.3 below), along with any measures that will be or have been taken to prevent recurrence of the conditions leading to the non-compliance.

4.3 REPORTING

Water monitoring results shall be provided to relevant landowners on a monthly basis. A report describing the performance of the WRMP in working towards its objectives, based on monitoring results, and the extent to which it has been complied with, will be submitted to the DEC each twelve months on the 31st March each year. The report will be provided to documented stakeholders and will otherwise be publicly available on request.

5. REFERENCES

5.1 EXTERNAL DOCUMENTS

Aquaterra 2005, *Gwindinup Project – Independent Hydrological Review*. Unpublished report prepared for Bemax Resources Pty Ltd.

Australian and New Zealand Environment and Conservation Council (ANZECC) 2000, *Guidelines for Fresh and Marine Water Quality*. Australian and New Zealand Environment and Conservation Council and the Agriculture and Resource Management Council of Australian and New Zealand, Canberra.

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URS 2000, *Gwindinup Deposit Groundwater Supply Development*. Unpublished report prepared for Bemax Resources Pty Ltd.

5.2 INTERNAL DOCUMENTS

Reference	Title	Type
CD118	Emergency Preparedness and Response Program	Controlled Document
CD915	Happy Valley Integrated Mining and Rehabilitation Plan	Controlled Document