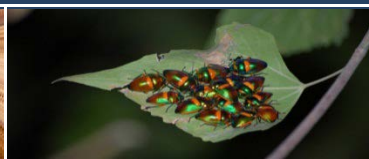




Appendix C Commitments



Sherwin Iron (NT) Pty Ltd
Sherwin Creek Iron Ore Project
Environmental Impact Statement



2013



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1 Commitments

Component	Aspect/Impact	Commitment/Safeguard	Section in EIS
Human health and safety	Food hygiene	Food supplied by Sherwin Iron will be transported, stored and prepared in accordance with the NT Food Act and national Food Safety Standards.	Section 3.2
Human health and safety	Biological hazards	Gloves and other protective equipment will be worn by first aid personnel when treating injuries to protect against infectious diseases from bodily fluids.	Section 3.2
Human health and safety	Biological hazards	Safe operating procedures will be developed for working on or near the waste water treatment facility, including the use of appropriate PPE and hygiene practices (e.g. thoroughly washing hands during and after working in these areas). Maintenance of this facility will be conducted in accordance to the manufacturer's specifications.	Section 3.2
Human health and safety	Air emissions	Respirable crystalline silica monitoring will be routinely conducted to ensure exposure is within acceptable limits. Levels of crystalline silica will be measured in accordance with the methodology in the <i>Australian Standard Workplace Atmospheres – Method for Sampling and Gravimetric Determination of Respirable Dust AS2985-2004</i> .	Section 3.2
Human health and safety	Air emissions	Procedures will be implemented to ensure that employees and contractors do not suffer adverse health effects in the work environment from particulates or gas/vapours, either used or generated by the mining activities. These procedures will include a dust control/monitoring program and use of respiratory protection devices where necessary.	Section 3.2
Human health and safety	Air emissions	Dust from heavy machinery will be controlled by dust suppression measures such as polymer sprays and watering of roads and work areas.	Section 3.2
Human health and safety	Noise	Noise in the workplace can cause permanent hearing loss. Mining operations will comply with the <i>NOHSC: 1007 National Standard for Occupational Noise</i> .	Section 3.2
Human health and safety	Noise	All equipment (both fixed and mobile) will be maintained in accordance with the <i>AS1269 Occupational Noise Management Series</i> and the <i>Mining Management Act 2001</i> .	Section 3.2
Human health and safety	Noise	Hearing protection will also be used when needed.	Section 3.2
Human health	Hazardous	All hazardous substances will be managed and stored in accordance with relevant	Section 3.2

Component	Aspect/Impact	Commitment/Safeguard	Section in EIS
and safety	substances	standards: • NOHSC: 1015 National Standard for the Storage and Handling of Workplace Dangerous Goods • NOHSC: 1005 National Model Regulation for the Control of Workplace Hazardous Substances • NOHSC: 1008 Approved Criteria for Classifying Hazardous Substances • Australian Standard 1940: 2004 The Storage and Handling of Flammable and Combustible Liquids.	
Human health and safety	Hazardous substances	A register of all approved hazardous substances will be maintained.	Section 3.2
Human health and safety	Hazardous substances	Fuels will be stored and handled in accordance with the relevant standards. Diesel is the predominant fuel to be stored on-site and presents a low risk of combustion.	Section 3.2
Human health and safety	Hazardous substances	PPE (e.g. gloves, face shields or respiratory-protection devices) and first-aid equipment (e.g. emergency showers and eye-wash stations), will be maintained and available for use	Section 3.2
Human health and safety	Hazardous substances	Awareness training will be provided to all personnel with regard to the correct handling and storage of hazardous substances and the procedures to follow in the event of a spill.	Section 3.2
Human health and safety	Drinking water supply	Where water is required for human consumption (drinking or washing) it would receive primary treatment in the form of ultra-violet treatment and reverse osmosis filtration. Raw water will be stored at the camp area in tanks prior to treatment. All potable water will need to be tested against the Australian Drinking Water Guidelines.	Section 3.2
Human health and safety	Pest management and disease	Where possible any constructed earthworks that will collect water (sediment traps, garbage pits) will be designed to be free draining within five days. Where these structures will hold water for more than five days, they will be steep sided, have a sloping base to one end and kept free of vegetation. Natural drainage patterns will be maintained wherever possible.	Section 3.2
Human health and safety	Pest management and disease	Artificial containers and receptacles will be managed to prevent mosquito breeding. Depending on the container this management might include:	Section 3.2

Component	Aspect/Impact	Commitment/Safeguard	Section in EIS
		Screening of inlets Storage under cover Provided with drainage holes Emptied weekly Treated with appropriate pesticides Removed off site.	
Human health and safety	Pest management and disease	Rehabilitation of the site will ensure that the area is contoured to be free draining with no surface depressions collecting pooled water.	Section 3.2
Human health and safety	Pest management and disease	Personnel will wear hats, socks, long-sleeved shirts and long pants while on the mine site. Head nets and gloves, if required, will also be worn. Where possible, personnel will avoid peak biting times, specifically at dusk. Employees, contractors and visitors will be supplied with insect repellent. The workforce will be educated on mosquito and midge health risks and mitigating measures. On-site office areas will be screened.	Section 3.2
Human health and safety	Wildlife hazards	During the staff induction process, mine personnel will be made aware of the potential wildlife hazards and the best methods to avoid negative encounters. Appropriate training for the treatment of snake bite will also be provided to all staff. First-aid facilities will be equipped to respond to incidents of this type and provide appropriate treatment.	Section 3.2
Human health and safety	Wildlife hazards	To provide protection against snake and spider bite, PPE such as boots, trousers and long sleeves will be required on the mine site. Gloves will also be provided for use during relevant tasks.	Section 3.2
Human health and safety	Waste	Clearly labelled bins will be placed in appropriate locations to segregate and collect the waste materials generated on-site. Perishable waste will be removed from the mine site by staff on a daily basis. General and recyclable waste will be transported off-site by a licensed contractor for disposal at a licensed general waste facility.	Section 3.2
Human health and safety	Waste	Regulated or hazardous wastes will be stored in accordance with relevant Australian Standards. They will be collected from site and disposed of by a licensed waste	Section 3.2

Component	Aspect/Impact	Commitment/Safeguard	Section in EIS
		management firm.	
Human health and safety	Waste	Clinical waste such as drug and alcohol testing kits will be disposed of in accordance with the <i>Remote Health Atlas</i> (NT Department Health and Families 2006). Clinical waste is also classified as hazardous waste under the <i>Dangerous Goods Act</i> .	Section 3.2
Human health and safety	Heat	All employees and contractors will be required to wear long-sleeve shirts, trousers and hats to help reduce sun exposure. Sunscreen will also be made available to all employees.	Section 3.2
Human health and safety	Heat	To mitigate the risk of heat stress, all personnel will be made aware during staff induction training of the signs and symptoms of overexposure to heat and its effects, including dehydration. Drinking water will be readily available to all staff.	Section 3.2
Human health and safety	Fire	Fire safety devices such as emergency exit lighting, smoke detector alarms, fire extinguishers and fire blankets etc. will be installed in all buildings and outdoor areas as is required by the Building Code of Australia and the NT Fire and Emergency regulations 2011.	Section 3.2
Human health and safety	Alcohol and drug	Secure alcohol storage area will be constructed into the “wet mess” entertainment area and managed under the direction of the camp manager. A strict Fitness For Work (FFW) policy will be implemented and enforced. Daily alcohol screening and monthly drug screening will be undertaken to ensure compliance with the FFW policy.	Section 3.2
Human health and safety	Manual handling	In order to minimise the health risks training will be provided to all personnel. Advice such as that listed below will be provided: • Eliminate or minimise the degree of handling required where ever possible • If working with a bent back: take short breaks to straighten your back and stretch • If lifting repeatedly: take regular breaks, particularly in hot weather when you fatigue faster • If continuously sitting: stand and walk occasionally • If standing for long periods: occasionally sit on a high stool or a sit/stand chair • When you need to position a load in another direction: turn with your whole body.	Section 3.2

Component	Aspect/Impact	Commitment/Safeguard	Section in EIS
		Do not twist your trunk • Store loads close to where you need them to save double handling • Return mechanical aids to where they should be stored so others can locate them easily and not take risks lifting heavy equipment unassisted • Alternate heavy jobs with light jobs • Use assistance to move heavy or awkward loads.	
Human health and safety	Vehicle collisions	All vehicles will be maintained in a roadworthy condition. All mine personnel operating vehicles on-site will be trained and appropriately licensed.	Section 3.2
Human health and safety	Vehicle collisions	Speed limits around the site will be imposed both for safety and to reduce the amount of dust generated.	Section 3.2
Human health and safety	Vehicle collisions	Dust control, in the form of polymers and road watering will be implemented to improve driver visibility.	Section 3.2
Human health and safety	Vehicle collisions	All mine vehicles will be regularly inspected and fitted with two-way radios.	Section 3.2
Human health and safety	Vehicle collisions	Pedestrian access will be limited, and all staff and site visitors will be made aware of the dangers of heavy trucks and machinery operating in their surrounding environment. It is important that machinery operators are aware of any situations where there are likely to be persons on the ground in their vicinity.	Section 3.2
Human health and safety	Vehicle collisions	Risk mitigation measures employed on the Roper Highway will include: • Upgrading of identified sections of the highway • Installation of vehicle activated warning signs at the approaches to single-lane bridges • Limiting operations to those periods when there are no restrictions on the use of the highway (~310 days/year).	Section 3.2
Human health and safety	Vehicle collisions	A Fatigue Management Plan will also be developed.	Section 3.2

Component	Aspect/Impact	Commitment/Safeguard	Section in EIS
Human health and safety	Interaction with machinery	Implementation of standard work practices will mitigate these risks. To minimise this risk, the following strategies will be implemented: • High visibility clothing and direct radio contact when working alongside or within range of heavy machinery • Coordination of activities • Fixed plant will have appropriate safety and avoidance structures included in their design and construction, and • Barricades will be erected around temporary or disabled plant or machinery to reduce the risk of interaction between people and machinery.	Section 3.2
Human health and safety	Lighting	To reduce the health and safety risks associated with poor lighting, the following will be installed: • Task lighting where required to complete a specific task safely e.g. in offices and in operation areas • Access and stair lighting • Emergency lighting in the Administration Building and selected staff common areas.	Section 3.2
Human health and safety	Lighting	A minimum interior lighting level of 160 lux for general work areas and 40 lux for walkways and access areas will be installed in accordance with the AS1680 Interior Lighting. Emergency lighting will be installed in accordance with the <i>AS2293 Emergency Escape Lighting and Exit Signs for Buildings</i> .	Section 3.2
Human health and safety	Lighting	Orange, red or yellow low pressure sodium vapour lamps will be used for exterior lighting, except where safety considerations require otherwise. Where other coloured lights are used, the light spilt will be restricted with shades (to prevent sky glow) or orientation. Pathway lights will be low to the ground and shaded where possible.	Section 3.2
Human health and safety	Electrical energy	Australian Standards (i.e. <i>AS3000 Electrical Installations</i> and <i>AS3007 Electrical Installations for Surface Mines</i>) will be adhered to when designing, installing and maintaining electrical systems.	Section 3.2

Component	Aspect/Impact	Commitment/Safeguard	Section in EIS
Human health and safety	Working at heights and falling objects	Where ever possible, work will be performed at ground level. Where this is not possible, work shall be performed from either a fixed, temporary or elevated platform. Alternatively, a person restraint system can be used. Fall protection equipment must be worn at all times and be connected to an appropriate anchor point when undertaking a task at a height. Personnel working at heights must be trained to do so.	Section 3.2
Human health and safety	Working at heights and falling objects	Items falling from height can also present a safety risk. PPE that protects against objects falling from height include steel-capped boots and hard hats; these will be worn at all times while on-site. No personnel should be underneath another employee working at a height.	Section 3.2
Erosion and Sediment Control Plan	Control devices	The ESCP control devices such as diversion drains, diversion bunds, catch drains, level spreaders, rock filter dams, culverts, sediment weirs, sediment basins, channelization controls, sediment fences, stockpile covers will be installed as per ESCP or as per updates in the MMP.	Appendix E
Erosion and Sediment Control Plan	Preserving existing batters	Throughout the mine lease area, there are a number of existing batters with proposed works near or adjacent to steep sections of earth. During construction, the earthmoving works will be monitored closely at these areas as to not disturb the natural batter and cause rutting that would induce future scour of the natural surfaces. Constant supervision of all interface areas will be included in the daily report and monitoring programs.	Appendix E
Erosion and Sediment Control Plan	Sodic Soils	Any sodic soils encountered on site will need to be managed by the application of Gypsum. Application rates can be determined at a later stage after testing of the expected soils has been undertaken.	Appendix E
Dust Monitoring Report	Generation of dust	Watering of unsealed roads and uncovered stockpiles to minimise the generation of dust.	Appendix M
Dust	Generation of dust	Dust mitigation polymer is to be utilised at site whenever possible.	Appendix D
Dust Monitoring Report	Stockpiles	Stockpiles will be kept to a low profile so wind is less likely to spread dust.	Appendix M
Biting Insect Management Plan	Water pooling	Prevent the potential of increasing mosquito populations through appropriate water storage	Appendix N

Component	Aspect/Impact	Commitment/Safeguard	Section in EIS
Biting Insect Management Plan	Contact	Reduce the potential for contact between personnel and mosquitoes	Appendix N
Biting Insect Management Plan	Outbreaks	Monitor for mosquito outbreaks and respond to severe outbreaks or incidence of disease.	Appendix N
Archaeological Assessment Report	Buffer zones	A 100m conservation buffer zone will be implemented around all rock art sites recorded in the survey as well as around the stone artefact scatter, SHER13_02.	Appendix O
Archaeological Assessment Report	Ground disturbance	Archaeological surveys will be conducted prior to any other ground disturbance works.	Appendix O
Archaeological Assessment Report	Baseline Survey	A baseline survey sampling representative landforms will be conducted across the Sherwin Iron leases, to address the lack of regional archaeological data and assist in the development of a regional predictive model for site location.	Appendix O
Archaeological Assessment Report	Consultation with TO group	The Traditional Owner group will be consulted on the mitigation of impacts on archaeological sites located in the tenement.	Appendix O
Noise and Vibration Report	Noise Management Plan	Develop and register a Noise Management Plan with the NT EPA.	Appendix P
Noise and Vibration Report	General	Quieter and silenced equipment will be used where available over louder equipment.	Appendix P
Noise and Vibration Report	General	All equipment used on site will be in good condition and good working order	Appendix P
Noise and Vibration Report	Drop heights	As far as possible, material drop heights into or out of trucks will be minimised.	Appendix P
Noise and Vibration Report	Various equipment	All combustion engine plant, such as generators, compressors and welders will be checked to ensure they produce minimal noise with particular attention to residential grade	Appendix P

Component	Aspect/Impact	Commitment/Safeguard	Section in EIS
		exhaust silencers.	
Noise and Vibration Report	Engine covers	All engine covers will be kept closed while equipment is operating.	Appendix P
Noise and Vibration Report	Vehicles	Vehicles will be kept properly serviced and fitted with appropriate mufflers.	Appendix P
Noise and Vibration Report	Exhaust brakes	Use of exhaust brakes will be eliminated, where practicable.	Appendix P
Noise and Vibration Report	Operating of machines	Where practical, machines will be operated at low speed or power and will be switched off when not being used rather than left idling for prolonged periods.	Appendix P
Noise and Vibration Report	Excessive noise from machines	Machines found to produce excessive noise will be removed from the site or stood down until repairs or modifications can be made.	Appendix P
Noise and Vibration Report	Roads	Roads will be kept smooth and free of potholes and bumps	Appendix P
Noise and Vibration Report	Awareness	All site workers will be made aware of the potential for noise impacts and encouraged to take practical and reasonable measures to minimise the impact during the course of their activities, including: • avoiding the use of loud radios • avoiding shouting and slamming doors • informing truck drivers of designated vehicle routes, parking locations and delivery hours • minimising reversing • avoiding metal to metal contact on material • closing engine covers while equipment is operating.	Appendix P
Noise and Vibration	Blasting	Blasting at the mine is to only take place between 7am and 7pm Monday to Saturday and 9am and 6pm on a Sunday or public holiday. Blasting activities are to be advertised at least 48 hours before the commencement of blasting	Appendix D
Transport	Unsecured Loads /	Iron Ore being transported from the mine site to Darwin will be secured and located in	Section 3.8

Component	Aspect/Impact	Commitment/Safeguard	Section in EIS
	Destabilised vehicle, Crushed vehicle cabin, Debris on road	covered trailers.	
Transport	Poor driving Standards / Vehicle collision, Speeding, Unauthorised drivers	Sherwin Commits to travel in convoys along the Roper Highway – with lead vehicles warning other road users.	Section 3.8
Transport	Poor driving standards	Sherwin commits to company branding on all ore carrying vehicles.	Section 3.8
Transport	Poor driving standards	Sherwin commits to having IVMS in all road trains	Section 3.8
Transport	No rest breaks, long working hours, inadequate rest, shift cycles, Inappropriate nutrition	Sherwin commits to developing a fatigue management plan	Section 3.8
Transport	Vehicle noise	Sherwin commit to schedule vehicles to reduce traffic volumes within the Mataranka and Katherine areas between 9pm and 7am, and will adhere to existing legal requirements with regard to engine and compressions braking	Section 3.8
Transport	Vehicle breakdown	Sherwin will ensure the haulage contractor has an action plan for dealing with vehicle breakdowns	Section 3.8
Transport	Traffic Management Plan	Sherwin commit to develop a traffic management plan that will be agreed upon with the Department of Transport	Section 3.8
Transport	Fauna Strikes , Driving standards, breakdown,	Sherwin commit to induct all new drivers, including training in route familiarisation	Section 3.8

Component	Aspect/Impact	Commitment/Safeguard	Section in EIS
Transport	Haulage procedures	Sherwin commit to follow the standard heavy haulage operator's procedures, including the reporting of any accidents to both the police and Sherwin Iron, while notifiable incidents will also reported to NT WorkSafe.	Section 3.8
Transport	Road maintenance Poor driving standards	Sherwin commits to upgrading the existing intersection between the Roper Highway and the Mine Site to the approval of the Department of Transport	Section 3.8
Transport	Explosives	Sherwin Iron commits to ensuring that they and their contractors will transport dangerous goods in compliance with the Transport of Dangerous Goods by Road and Rail Act and Regulations.	Section 3.8
Transport	Overweight vehicles	Sherwin Iron will install a weighbridge to ensure that all vehicles are under the legal axle weight limit	Section 3.8
Transport	Road maintenance	Sherwin will start an asset management program with all stakeholders involved in the management and continued function of the Roper Highway	Section 3.8
Transport	Road maintenance	Sherwin Iron will only operate road trains during the period when the Roper Highway has non restricted opening of the road.	Section 3.8
Transport	Inadequate Sight Distance along curves, and near bridges	Sherwin commit to making road improvements and/or installing Vehicle Activated Warning signs to warn drivers of approaching traffic along the Roper Highway.	Section 3.8
Transport	Culverts close to road seal	Sherwin propose to move culvert heads along the Roper Highway to a minimum of 2.5m from the edge of the road seal, and install 4 guideposts each side of the carriageway to highlight the location of culvert headwalls	Section 3.8
Transport	Lack of overtaking opportunities	Sherwin will upgrade the Roper Highway in consultation with the Department of Transport	Section 3.8
Pest and Weed	Weed survey	Carry out a pre-mine construction weed survey and produce a detailed map of weed infestations	Appendix I
Pest and Weed	Cooperation with landholders and	Cooperation with landholders and stakeholders in assessing pest and weed risks, developing strategies and setting priorities.	Appendix I

Component	Aspect/Impact	Commitment/Safeguard	Section in EIS
	stakeholders		
Pest and Weed	Weed management branch	Liaison with Weed Management Branch about control methods	Appendix I
Pest and Weed	Annual surveys	Annual survey of weeds.	Appendix I
Pest and Weed	Induction/awareness	Weeds and pest issues as part of induction for all staff and raised where appropriate at daily toolbox meetings. Weed ID material produce to assist this.	Appendix I
Pest and Weed	Training	Selected staff trained in pest and weed identification and control	Appendix I
Pest and Weed	Identification	Suspect weeds collected and sent to botanist/ Weed Management Branch for identification	Appendix I
Pest and Weed	Disturbance minimised	Limit clearing and ground disturbance to minimum area necessary, and boundaries of areas to be cleared are clearly marked	Appendix I
Pest and Weed	Plant and soil material arriving on site	Plant and soil material purchased from suppliers guaranteeing weed free status and inspected on arrival to site	Appendix I
Pest and Weed	Weed control	Weeds controlled within project area, and particularly around mining and rehabilitation areas	Appendix I
Pest and Weed	Weed disposal	Weeds not disposed of in landfill, but at a designated composting site	Appendix I
Pest and Weed	Fencing	Exclusion fencing erected around project area	Appendix I
Pest and Weed	Fencing	Exclusion fencing erected around and over landfill	Appendix I
Pest and Weed	Waste disposal	Putrescible wastes collected in covered bins, frequently removed to landfill and burnt as necessary	Appendix I
Pest and Weed	Rehabilitation	Rehabilitating disturbed areas as soon as practical to reduce the amount of area prone to weed establishment.	Appendix I
Rehabilitation and Mine Closure	Stakeholder involvement	Implement processes for stakeholder involvement in rehabilitation and closure planning within one year of the commencement of operations.	Appendix J
Rehabilitation and	Detailed RMCP	Develop of a more detailed RMCP within two years of the commencement of mining. This	Appendix J

Component	Aspect/Impact	Commitment/Safeguard	Section in EIS
Mine Closure		plan will be submitted for review and approval by the consent authority.	
Rehabilitation and Mine Closure	Updates	Within a period of not less than four years prior to the completion of mining and intended mine closure, the RMCP will be updated to incorporate previous years' rehabilitation and outcomes. This plan will be again be submitted for review and approval by the consent authority.	Appendix J
Rehabilitation and Mine Closure	Rehabilitation trials	Rehabilitation trials will commence as early as practicable and before the end of two years from the commencement of mining	Appendix J
Rehabilitation and Mine Closure	Fire	Fire will be excluded from rehabilitation areas for several years. The mine site will have fire fighting capacity to assist this.	Appendix J
Rehabilitation and Mine Closure	Conservation of topsoil	Conservation of topsoil and progressive rehabilitation of waste landforms, backfilled pits, and all other disturbed areas will be done as soon as practicable to the appropriate standard and recommended guidelines	Appendix J
Rehabilitation and Mine Closure	Research and site trials	Research and site trials, including investigating analogue areas will be conducted to enable the rehabilitation program to be modified to reflect site-specific parameters.	Appendix J
Rehabilitation and Mine Closure	Closure task register	A Closure Task Register will be immediately developed, to incorporate the closure criteria into the final landform design and the management of key issues.	Appendix J
Rehabilitation and Mine Closure	Analysis of rehabilitation of similar sites	During the first year of operation Sherwin also commit to an analysis of previous rehabilitation of other similar sites to inform their rehabilitation strategy.	Appendix J
Rehabilitation and Mine Closure	Unexpected closure	In the event of unexpected closure, • An environmental audit of the site will be conducted immediately and provided to DME • Mine access and security and will be reviewed • Storage of chemicals and hydrocarbons will be reviewed and removed if necessary • A programme to address incomplete rehabilitation and revegetation works will be developed	Appendix J

Component	Aspect/Impact	Commitment/Safeguard	Section in EIS
		- Any contaminated material will be relocated from hardstand areas to a suitable holding facility, and any PAF material will be placed within an open pit and suitably encapsulated within an appropriate landform - The stability of landforms, water quality and revegetation will be monitored.	
Surface water hydrology	Impeded fish migration	Creek crossing design (culverts) will have limited influence on flows.	Section 3.3
Surface water hydrology	Alteration to natural flow paths and patterns	Natural water flows will be maintained as far as possible and where modification is necessary, resume their natural flow paths as far as possible.	Section 3.3
Surface water quality	Impact on downstream water quality associated with erosion	Control devices such as diversion drains, diversion bunds, catch drains, level spreaders, rock filter dams, culverts, sediment weirs, sediment basins, channelization controls, sediment fences, stockpile covers will be installed as per ESCP and WMP, or as per updates in the MMP.	Appendix E & Appendix F1
Surface & ground-water quality	Monitoring	Monitoring of appropriate on site, downstream and reference (unimpacted) sites will be undertaken in accordance with the program specified in the approved WMP.	Appendix F1
Surface & ground-water quality	Monitoring	Site-specific water quality trigger values will be developed when there is sufficient data available from baseline monitoring and/or upstream reference sites.	Appendix F1
Surface & ground-water quality	Over extraction of Groundwater	To minimise water use and therefore the risk of lowering of groundwater levels, Sherwin will implement of water saving strategies, including (but not limited to) the following: - Minimise use (e.g. education of workers in camp, use of polymers on roads to reduce requirements for dust suppression) - Recycling of wastewater for dust suppression (i.e. sewage treatment plant) - Re-use of rainfall/run-off captured in disturbed areas of the mine site for dust suppression.	Appendix F1
Surface & ground-water	Over extraction of	In order to identify additional groundwater resources to meet mining operational requirements, Sherwin commits to undertake geophysical exploration, bore drilling, testing	Appendix F1

Component	Aspect/Impact	Commitment/Safeguard	Section in EIS
quality	Groundwater	and sampling. Sherwin will assess potential impacts of extraction and sustainable yields from these additional groundwater resources (i.e. potential GDE's, other users, etc).	
Surface & ground-water quality	Over extraction of Groundwater	In order to minimise the operational and environmental risks (if any) associated with depletion of groundwater resources, Sherwin will ascertain/set operational controls for ground water exploitation (i.e. sustainable safe yield, allowable drawdown and distance to zero drawdown) and monitor bore yields, groundwater level behaviour and water quality, in accordance with the Water Management Plan (Appendix F1).	Appendix F1
Surface & ground-water quality	Contamination of downstream surface and/or groundwaters associated with acid mine drainage.	To minimise the risk of impacts to surface and/or groundwater quality associated with AMD, Sherwin commits to the following: • Ongoing characterisation of materials, storage and management methods. • Demarcation and progressive excavation and implementation of immediate remediation measures such as burial, sealing and compaction to prevent oxidisation of PAF materials. • Where PAF is exposed, sealing and compaction of the sides and base of the excavation will be undertaken before backfilling. • Implementation of construction methods to prevent long-term PAF exposure to oxygen (e.g. sheetpiling) will be considered	Appendix G
Surface & ground-water quality	Contamination of downstream surface and/or groundwaters associated with acid mine drainage.	On-going characterisation of materials and storage and management methods. Storage/disposal of any encountered potentially acid forming (PAF) in purpose-designed and built encapsulation cells.	Section 3.3, Appendix G