Ref.	Source of Impact	Consequence	Discussion	Mitigation	Consequence	Likelihood	Residual Risk	Alteration to Draft EIS Risk Assessment
Social and Economic								
SE01	Development and operation of the mine including the requirement for a construction workforce of up to 225 persons (peak) during the 2 year construction period and an operational workforce of up to 170 full-time positions.	Potential draw of existing workers from other industries into better paying resource jobs leading to personnel and skills shortfalls in other industries.	The Project could attract some workers from the local communities. Most would come from further afield.	Developing a Workforce Management Strategy to manage the Project workforce, maximise benefits for local employment and manage cumulative impacts on demand for local workers. TNG is committed to long term employment, skills training and mentoring of Aboriginal people for the Mount Peake Project. Collaboration between TNG, McMahon Services Australia, Intract Australia and the Central Desert Regional Council has created more skilled potential employees by running a Certificate III in Civil Construction Plant Operations course. Training is expected to though to commencement of construction to help provide more skill creation than skill drawdown in the region.	2	3	M	Mitigation updated to refer to Workforce Management Strategy and outlining training for potential employees from local communities.
SE03		Increased demand for community infrastructure and utilities leading to local / regional shortfalls including increased demand on health facilities.	Due to the remote location of the mine, the medical facilities available on site, and with the workforce predominantly housed at the mine accommodation village, minimal impacts on local housing and social infrastructure services are expected.	Establish Community Benefit Fund to recognise the long-term relationship with the regional communities by providing support for social infrastructure or other suitable development activities in the regional area. Engage local stakeholders in the nomination of activities the fund is to support. Provide support for local health services through the Community Benefit Fund at Ti-Tree prior to establishment of on-site facilities if the need arises.	3	1	L	Mitigation updated to refer to the Community Benefit Fund.
SE04		Impacts on community values and conditions including: • decline in community, health, safety and wellbeing • increase in incidence of anti-social behavior. • impacts on vulnerable groups such as women and Indigenous groups.	Most of the construction and operation workforce will be accommodated in an onsite accommodation village. Personnel drawn from the surrounding district will continue to live in their own homes. No impacts on local community values, lifestyle and amenity are expected.	Establish a complaints and feedback register as part of a Grievance Management Procedure for tracking and appropriately responding to any community issues raised. Develop an overall Indigenous Community Engagement and Workforce Management Strategy including workforce sources, management, health and wellbeing and appropriate behavior.	3	1	L	Mitigation updated to refer to Community Engagement and Workforce Management Strategy.
SE05		Indigenous resources, values and aspirational impacts including: • potential for community conflict • traditional Owner cultural heritage and resources.	Sacred site clearance surveys and archaeological surveys have been conducted over the Project area to understand indigenous values. TNG will have a target 15% of its workforce being indigenous.	Establish clear mechanisms for ongoing consultation and communication with local Indigenous groups –contained within Indigenous Community Engagement and Workforce Management Strategy. Implement and monitor a Cultural Heritage Management Plan. Cultural awareness training to make TNG staff aware of different language groups and cultural sensitivities relevant to the Traditional Owners of the Project area and surrounding language groups and Indigenous communities.	3	1	L	Mitigation updated to refer to Community Engagement and Workforce Management Strategy and the provision of Cultural Heritage Training for TNG employees.
SE06		Potential business development opportunities, employment opportunities and flow on benefits experienced in the area.	This is certain to happen and will result in positive outcomes.	Develop opportunities for local communities to benefit from employment and business prospects with the Project. Conduct a 'Opportunities for local businesses' expo at Wilora, Ti Tree, Barrow Creek and Alice Springs.	3	5	H	Mitigation updated to include expo to highlight opportunities for local businesses.

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SE07	Upgrade of Ti Tree airport.	Local expenditure and employment during upgrade. Local employment during operations (check in, baggage handlers, cleaners). Increase in traffic through the airport. Increased opportunities for travel.	Potential noise and social impacts from increased frequency of flights from Ti Tree airport. Passengers at Ti Tree airport causing negative social relations within Ti Tree.	Flights scheduled so as to cause minimum disruption to Ti Tree residents. Staff will be picked up and dropped off at the Ti Tree airport in order to alight and board flights. Time in Ti Tree will be minimised and predominantly restricted to the airport. Establish a complaints and feedback register as part of a Grievance Management Procedure for tracking and appropriately responding to any community issues raised.	2	5	H	Mitigation updated to reduce negative impacts associated with flight schedules, passengers in Ti-Tree and to establish a complaints register.
SE08	Use of hazardous materials on site such as use of ammonium nitrate for blasting, transport of magnetite concentrate across properties with the potential for spills of concentrate and diesel, use of chemical suppressants for dust management, potential leaks of waste and sewage from the accommodation village.	Potential risk to the organic certification of Anningie Station and future certification of Stirling Station.	Potential risk to the organic certification is unlikely due to project design features such as physical separation and the choice of chemicals to be used.	Appropriate drainage design and containment along roads and around the mine and accommodation village to provide appropriate separation from the Project activities and the remainder of Stirling Station and Anningie Station. Ammonium nitrate use in blasting to be confined to the pit area, contained in a magazine and transported in accordance with legislative requirements. All hazardous materials (primarily diesel) will be transported and stored in compliance with regulations. Diesel to be stored in self-bunded tanks. All waste to be appropriately treated and disposed on-site. Chemicals are not proposed to be used for dust suppression. The mine site and haul/ access road will be fenced to prevent vehicle access to Station lands not associated with the Project.	3	2	M	Mitigation updated to address appropriate transport, storage and handing of potentially hazardous materials.
SE09	Existing road access to Stirling Station on the eastern side of railway line may be impacted by the haul/ access road.	Restricted access to parts of Stirling Station.		Discussions will be held with station owner during detailed design of the road to ensure that access can be maintained to strategic areas of the property. Locating transport corridor predominantly along the southern boundary of Stirling Station to minimise disruption to the operation of the property.	3	2	M	Mitigation updated to include location transport corridor.

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Health and Safety								
HS05	Interaction of concentrate trucks with vehicles using Stuart Highway.	Vehicle collision resulting in injury or death.	Up to 100 concentrate truck movements per day between the mine site and rail loadout facility. An underpass of Stuart Highway will be constructed to separate concentrate trucks from highway traffic.	Construction of underpass of Stuart Highway. At-grade intersection will be established between Stuart Highway and haul/ access road to the mine site, designed in consultation with NT Department of Transport. Intersection will include acceleration and deceleration lanes and incorporation of appropriate signposting to avoid or minimise any impact on other road users.	5	1	M	Mitigation updated to include intersection details.
HS06	Increased vehicle movements to and from the mine site	Major single vehicle or vehicle to vehicle accident leading to a fatality.	The Project is expected to generate 66 and 30 one-way vehicle movements per day during construction and operation respectively. Vehicle movements on Stuart Highway will increase to around 3% of the highway's design capacity. A new intersection will be constructed to allow ingress and egress from the highway to the haul/ access road.	At-grade intersection will be established between Stuart Highway and haul/ access road to the mine site, designed in consultation with NT Department of Transport. Intersection will include acceleration and deceleration lanes and incorporation of appropriate signposting to avoid or minimise any impact on other road users. Prepare Road Transport Management Plan. Use of pooled vehicles such as buses where practical to minimise exposure. Develop Emergency Response Plan.	5	1	M	Mitigation updated to include intersection details.
HS09	Mine dewatering or groundwater abstraction to provide Project water supply.	Groundwater drawdown at the mine or borefield affecting bores supplying potable water.	There are no potable water supplies near to the Project. The closest potable water supply is 50 km up groundwater gradient from the borefield and no impact to a potable supply is expected from borefield abstraction.	Model groundwater level drawdown at the mine and borefield. Monitor groundwater level drawdown at the mine and borefield.	3	1	L	Mitigation updated to include modelling groundwater drawdown
HS10	Storage and use of diesel at the borefield to power generators.	Contamination of groundwater supply at the borefield from leaks or spills of diesel.		Bore pumps will be powered by a powerline reticulating power from the mine site power station, thereby removing any requirement to store diesel at the borefield.	1	1	VL	Mitigation and residual risk updated (reduced) as a result of reticulating power rather than having diesel generators to power pumps at the borefield.

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Groundwater								
GW02	Groundwater abstraction.	Impact on water supply for human or livestock consumption.	Groundwater from the area of the borefield is not used for human consumption. Drawdown is predicted at several stock bores with groundwater levels expected to experience a drop in water level of greater than 3.0 m, which may lead to water supply problems.	Model re-runs to confirm yield and drawdown extent. Base-line assessment of potentially impacted bores. Make good agreement developed with the owners prior to the development of the borefield. This could involve deepening of the existing bore, lowering the pump setting, drilling another bore next to the existing bore, or supplying the required water demand from external sources (e.g. pipeline offtake).	2	4	M	Mitigation updated to include model re-runs to confirm yield and drawdown extent.
GW03		Impact on phreatophytic vegetation in the area of borefield groundwater drawdown.	Groundwater extraction from the borefield will lower existing water table levels by up to approximately 9 m.	Flora survey to identify presence and distribution of phreatophytic vegetation. Establish monitoring network for groundwater drawdown. Monitor health of phreatophytic vegetation within the area of groundwater drawdown during operations. Consider modifying extraction (the rate of extraction and distribution of operating bores) if significant impacts to vegetation occur.	2	5	H	Discussion updated to reflect borefield drawdown model re-runs that change potential drawdown from 12 to 9 metres.
GW04	Pit development.	Reduction in groundwater flow from the Mineral Lease to local creeks, rivers and / or groundwater dependent ecosystems.	Groundwater drawdown impact would be limited to the Mineral Lease and unlikely to affect any potentially groundwater dependent ecosystems.	Model re-runs to confirm yield and drawdown extent. Monitoring of bores surrounding the pit that are potentially influenced by groundwater drawdown. Data to be assessed and summarised within the Water Management Plan. Exploration drill holes that may act as conduits interacting with mine features will be rehabilitated.	3	1	L	Mitigation updated to include model re-runs to confirm yield and extent.
GW05		Groundwater drawdown affects Mud Hut Swamp.	Modelling indicates that drawdown contours from the pit do not encroach on Mud Hutt Swamp.	Model re-runs to confirm drawdown extent. Establish monitoring network for groundwater drawdown.	3	1	L	Mitigation updated to include model re-runs to confirm yield and extent
GW06		Reduction in local water supply.	Modelling indicates that drawdown contours from the pit do not encroach on any stock bores.		2	5	H	
GW07	Seepage from the TSF.	Localised increase in groundwater levels. Seepage of AMD causing contamination. Increased long term risk to groundwater.	Tailings will be dry stacked within the Waste Rock Landform, thereby negating seepage from a tailings storage facility.	Dry stacking of tailings within the Waste Rock Dump. Recovery of water from tails to the process water pond.	1	1	VL	Discussion, mitigation and residual risk updated to reflect change to Integrated Waste Landform
GW08	Seepage from the WRD.	Release of AMD causing contamination.	Waste rock does not contain material with significant acid forming potential.	Periodic testing of waste rock to confirm the absence of Potentially Acid Forming (PAF) material. Selective handling / treatment of waste if PAF material identified (e.g. encapsulation and / or neutralisation). Managed in accordance with the AMD Management Plan.	3	2	M	Mitigation updated to refer to AMD Management Plan instead of WRD Management Plan. Residual risk updated to reflect waste materials charactisation.

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GW09	Concentrate storage at the mine site and Adnera.	Groundwater contamination.	Concentrate is inert and benign.	Sediment pond/sump installed adjacent to stockpile to contain surface run-off. Water to be reused to manage dust of concentrate stockpiles.	1	2	VL	Mitigation updated to include sediment pond/sump.
Surface Water								
SW01	Sediment runoff from disturbed areas.	Adverse impacts on downstream water quality, aquatic environment, and downstream users.	There are no downstream users from the Project area.	Construction of retention ponds consistent with an Erosion and Sediment Control Plan. Rehabilitation of disturbed areas. Surface water sites to be monitored for a suite of water quality parameters.	2	3	M	Mitigation updated to include surface water monitoring.
SW04	Erosion of the Integrated Waste Landform due to significant rainfall events.	Capacity of sedimentation basins exceeded, reducing their efficiency and leading to sediments and contaminants entering waterways.	Tailings Storage Facility is no longer part of the Project design.	Appropriate Integrated Waste Landform geotechnical design that considers potential rainfall events, and materials characteristics. Ongoing stabilisation and rehabilitation of embankments. Regular inspections and maintenance. Monitoring in accordance with Water Monitoring Plan.	2	3	M	Discussion and mitigation to reflect changed Project design – no Tailings Storage Facility, now an Integrated Waste Landform.
SW05	Flooding of the mine pit.	Loss of production. Loss of life.	A preliminary flood risk assessment indicates that the mine site is not expected to experience any significant flooding for events up to the 50-year ARI. However, the bench of lower lying topography in the vicinity of the proposed pit may be prone to flooding during more extreme events.	Pit flood protection bund designed and constructed adjacent to the pit to prevent any ingress of surface water flows to the extent of a 1 in 100 year, 72 hour Average Return Interval rain event. Regular inspections of bunds and maintenance as necessary.	5	1	M	Mitigation updated to include flood protection bund.
SW06	Construction of the haul/ access road across the Hanson River, Murray Creek and smaller drainage lines.	Upstream flooding due to retention of flood waters.		At-grade floodways established across the Hanson River and Murray Creek. Installation of appropriately sized culverts where the haul/ access road crosses small defined drainages.	2	3	M	Mitigation updated to include floodways and installation of appropriately sized culverts where appropriate.
SW07	Concentrate storage at the mine site and Adnera.	Contamination of surface waters from stockpile erosion.	Concentrate is inert and benign. Stockpiles are not located near to any significant watercourses.	Sediment pond/sump installed adjacent to stockpile to contain surface run-off. Water to be reused to manage dust of concentrate stockpiles.	1	3	L	Mitigation updated to install sediment pond/sump.
SW10	Use of mine waste for construction purposes around the site.	Release of AMD causing contamination.	Waste rock does not contain significant Potentially Acid Forming material.	Use of waste rock that has been identified by materials characterisation as Non Acid Forming. Collection of runoff from disturbed areas in sediment ponds.	3	3	M	Mitigation updated to use waste that is characterized as Non-Acid Forming and collection of run-off in sediment ponds.

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General Flora and Fauna								
GFF01	Clearing of Native Vegetation	Reduction of flora, vegetation, fauna and fauna habitat from the removal of vegetation for construction.	Construction of the project will result in the clearing of 735 ha of native vegetation. This constitutes just under 6% of native habitat available in the Mount Peak Project area for fauna. Given the outcomes of the biological impact assessment surveys (i.e. the recording of mostly common species) and targeted threatened species searches (i.e. no definitive records of targeted threatened species) it is unlikely that there are going to be significant impacts to individuals or populations that are not well represented elsewhere regionally.	• Prior to clearing, a Ground Disturbance Permit is required to be issued by the Environmental Manager. The system is to be developed prior to the construction phase. • Clearing and ground disturbance will be minimised wherever possible. • Clearly mark areas of land to be cleared and areas to be retained (No-Go areas), so that impacts do not extend any further than necessary into important habitat. • Clear vegetation areas progressively and incrementally as needed, rather than large-scale clearing in advance. • A pre-clearance survey for Bilby and Mulgara will be undertaken by a qualified ecologist in areas of optimal habitat no longer than one month prior to forecast clearing.	3	2	M	Rewritten – this supersedes all previous risk assessments
GFF 02	Habitat Fragmentation	Fragment or damage habitat important for the conservation of biological diversity.	The haul/access road corridor will pass through 54 units of vegetation potentially utilised by a range of fauna and occupied by a diverse array of flora. The construction of the road will result in each of these units being split into two. It is not possible to reduce this number of fragmented habitats without simply increasing the distance of the haul/ access road and the overall net impact of clearing. Fragmentation of habitat will not compromise the genetic integrity of the vast majority of local populations as the haul/ access road will not present a complete barrier to movement between adjacent areas of suitable habitat. Monitoring on the Cape Leveque Road (Dampier Peninsula, W.A.) has shown that shy and agile threatened fauna such as the Bilby can persist even where the frequency of traffic is high, provided the habitat adjacent to the road maintains its integrity (GHD, Ref). However, the fragmentation of habitat increases the likelihood that individuals will cross the haul/access road and this will have a direct impact on the number of individuals in the population due to ongoing fauna strikes (also see Impacts from Vehicles/Transport). As the species is alert and agile, slight reductions in speed can significantly reduce the likelihood of vehicle strikes. Fragmentation has the potential to degrade the quality of habitat and the value of that habitat to fauna due to edge effects contributing to the overall reduction in available habitat to the species.	• Selection of an alignment that minimizes, where practicable, disturbance to vegetation and habitat, with particular consideration given to minimizing impacts to threatened species habitat. • Employing best management practices to maintain the quality of fragmented habitat and reduce edge effects • TNG will commence occupancy modelling studies as detailed in the TNG Mount Peake Project Threatened Species Monitoring Programs. • Progressive reinstatement of cleared land as activities are completed, to reconnect habitat fragments and the extension of monitoring transects into rehabilitated land to monitor any recruitment should it occur.	1	3	L	Rewritten – this supersedes all previous risk assessments

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GFF 03	Altered hydrology	Alteration of the natural surface water flow, extent and direction.	The construction of the haul/ access road will significantly alter the hydrology of the receiving environment.	• Implementation of a Water Management Plan. • Implementation of a Drainage, Erosion and Sediment Control Plan.	4	2	M	Rewritten – this supersedes all previous risk assessments
GFF04	Water quality impacts	Deleterious impacts on water quality due to factors relating to construction of mining, such as hydrocarbon leaks to the water table.	Deleterious changes in water quality as a result of the Project are unlikely to impact on general flora and fauna as most species are adapted to life without any water over and above that which falls seasonally. If the changes in water quality are severe (e.g. marked increase in soil salinity along the haul/ access road from watering with saline water) the impact on vegetation health would have a secondary impact on all fauna through a reduction in available habitat.	• Implementation of a Water Management Plan. • Implementation of a Drainage, Erosion and Sediment Control Plan. • Implementation of a Hydrocarbon and Hazardous Substances Management Plan. • Implementation of Spill Procedures. • Appropriate installation of drainage along the road to capture run-off.	4	1	L	Rewritten – this supersedes all previous risk assessments
GFF05	Erosion and Sedimentation	Erosion and sedimentation changes the structure of the soil profile which, in turn, influences the vegetation.	The majority of the landscape over which the Project occurs si relatively flat. However, although loosely defined for the most part, there is significant overland flow of water in times of high localized rainfall. Movement of water over the landscape generally does not result in significant erosion and sedimentation. However, disturbed or modified ground coupled with newly engineered features (e.g. the haul/ access road) will redirect and focus water moving over disturbed substrates resulting in significant erosion in high flow areas and sedimentation in areas of deposition. Where litter accumulates around the base of trees and shrubs, invertebrates are prevalent and a number of species are known to forage. Therefore an increase in erosion and the removal of detritus from accretion or the burying of detritus under sediment could reduce the foraging value within vegetation that would be otherwise deemed suitable these species.	• Implementation of a Water Management Plan. • Implementation of a Drainage, Erosion and Sediment Control Plan. • Design landforms and infrastructure to minimize erosion from slopes and batters. • Construction of sedimentation ponds in relevant areas to capture sediment run-off. • Design culverts to slow the flow of water through them	1	2	VL	Rewritten – this supersedes all previous risk assessments
GFF 06	Soil compaction	Increased soil compaction in areas of construction and vehicle operation.	Soil compaction as a result of the Project is not expected to specifically impact flora or fauna as this will only occur in areas within the construction footprint and the anthropogenic activity in these areas preclude their use by native fauna species over the life of the project. These areas would be ripped as part of mine closure going some way to remediate soil compaction.	• Adequately rip and rehabilitate disturbance areas. • Implementation of a Rehabilitation and Mine Closure Plan.	1	1	VL	Rewritten – this supersedes all previous risk assessments

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GFF 07	Lowering or contamination of the water table	Water drawn from the borefield is expected to lower the ground water levels within the immediate vicinity of the bores.	Lowering or contamination of the water table as a result of the Project is not expected to directly impact general flora and fauna. However, there are five facultative phreatophytic tree species that may suffer some degree of impact as water drawdown increase over the life of the mine.	• Monitor impacts of groundwater drawdown on phreatophytic vegetation at the borefield. • Implementation of a Water Management Plan. • Implementation of a Borefield Management Plan.	3	3	M	Rewritten – this supersedes all previous risk assessments
GFF08	Waste material – Domestic and Industrial	Poor management of waste can rapidly influence the prevalence of feral fauna in the local area	Industrial waste material on its own is not expected to result in direct impacts flora, vegetation, fauna or fauna habitat. However, the need to transport waste materials has the potential to contribute to the chance of fauna strikes on the haul/ access road due to the additional number of vehicle route (see GFF13: Vehicle movements). Domestic waste products (in the form of garbage/refuse) placed in a well-managed landfill facility will not directly impact native fauna species. However, secondary impacts are highly likely where the creation of landfill will attract feral fauna. A higher than average number of predators moving through the surrounding habitat towards the landfill on a regular basis would greatly increase the risk of predation on native fauna. If feral fauna can access waste there is expected to be a dramatic increase in feral species such as the black rat that increase pressure on native competing species.	• Management of waste in accordance with a Domestic and Industrial Waste Management Plan. • Restrict colonisation or access to putrescible waste by introduced fauna, including Dingoes (e.g. fencing, covering bins and landfill). • Manage feral fauna onsite through the implementation of the Biodiversity Management Plan.	2	2	L	Rewritten – this supersedes all previous risk assessments

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GF09	Noise	Noise generated by mine processing, blasting and vehicle movements has the capacity to disturb native fauna and prevent recruitment from areas of undisturbed vegetation proximal to the mine impact footprint and haul/ access road corridor.	Numerous noise studies have demonstrated either lower animal density and/or species richness near highways (Shaub et al. 2008; Dorrance et al. 1975; Forman et al. 2002; Reijnen et al. 1995; Reijnen et al. 1996; Rudolph et al. 1999), which suggests that noise is a major deterrent for wildlife. Noise generated by the mine is likely to preclude movements of native fauna through and around the Mine Site area. Depending on the level, noise around the mine site may directly impact the value and utility of native vegetation surrounding the site, further reducing the net habitat available for occupation of this species. Noise around the processing area will be constant over the long term and there is the possibility that animals moving into the area may become accustom to the noise once they determine that the noise is not associated with a threat. Noise from blasting will cause a brief and immediate disturbance to individuals around the mine site. However, the frequency of blasting is not expected to be high enough to cause significant impact to individuals. Vehicle noise is likely to have some impact on the movement of fauna around the haul/ access road, and may limit the frequency of movement across the haul/ access road, contributing to the impact of fragmentation. The GHD 2015 Noise and Vibration report indicates that at the proposed mine camp (5 km from mine site), the noise levels would be at predicted level of up to 34.3 dBA. Maximum internal noise levels of 50-55 dBA is recommended for human sleep. Monitoring along the Cape Leveque road north of Broome shows that this species will occupy areas where anthropogenic noise is occurring.	• Management of noise in accordance with an Air and Dust Management Plan. • Limit high-impact noise (e.g. blasting) to daylight hours as far as possible. • Maintain equipment such that all noise emitting equipment is fully serviceable and working to the correct specifications. • Schedule all non-essential movement along the haul/ access road to take place during the day.	2	2	L	Rewritten – this supersedes all previous risk assessments
GFF 10	Dust	Mining and the movement of vehicles generates dust that could settle on and decrease the quality of vegetation in and around the mine site and haul/ access road alignment.	The Mount Peake Project occurs in a low rainfall environment. Dust generated from blasting, digging and dumping and the movement of vehicles has the potential to degrade native vegetation around the site. A decrease in the quality and health of vegetation increases the overall loss of vegetation and fauna habitat.	• Management of dust in accordance with an Air and Dust Management Plan including: – Use of water trucks operating with adequate frequency; – Covering of exposed loads where practicable; – Maintaining moisture levels in bulk loose construction materials.	2	4	M	Rewritten – this supersedes all previous risk assessments

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GFF 11	Light	Light emitted from the proposed mine and from vehicle moving along the haul/ access road could adversely impact on the behavior of bilby	Light emitted from the proposed mine could essentially decreases the value of uncleared habitat immediately adjacent developed areas, hence, reducing available habitat in the local area. However, this impact is expected to be very minor.	• Avoid the flood of light into natural habitats and limit the escape of light into surrounding areas of fauna habitat (i.e. using shields/deflectors); • Ensure that artificial lighting is not directed upwards or laterally (i.e. direct lights towards the ground); • Use lower (i.e. closer to the ground) rather than higher lighting installations; • Use lower wavelengths of light wherever possible i.e. red/yellow lights; and • Use light intensities that are as low as possible without reducing safety or efficiency.	1	2	VL	Rewritten – this supersedes all previous risk assessments
GFF 12	Wildfire	A change in frequency and severity of wildfire can greatly impact flora, vegetation and fauna habitat	The alteration of fire regimes due to cessation of traditional land management over the western desert region has had a significant impact on the species distribution and the occupancy of available habitat. Instead of numerous small patches of varying fire-age vegetation being available to this species as a mosaic, vast areas are now being impacted by a single fire event dramatically reducing the heterogeneity of habitat leaving large areas of vegetation that is too old or too young for recruitment or successful occupation. It is possible that extensive unplanned wildfire as a result of mine activities could have a major impact on native fauna and the persistence of natural vegetation units	• Management of fire in accordance with a Fire Management Plan. • Creation and maintenance of adequate firebreaks around service areas/ high risk areas where hot works is undertaken. • Implement active fire management, using localised cool-season control burns within 100 m of mine activities and roads to reduce fuel loads. • Consider applying a cool, well-managed fuel-reduction burn to all habitats to be cleared immediately prior to clearing, to encourage fauna to flee prior to clearing. The specifics of fuel-reduction burns are to be determined in consultation with relevant stakeholders prior to fires being lit. • Ensure that spot fire control measures are in place and staff are adequately trained in the use of fire extinguishers. • Consider the integration of traditional owner fire management practices (‘Right Way Fire’) to ensure that the landscape is burnt as a mosaic.	2	3	M	Rewritten – this supersedes all previous risk assessments
GFF 13	Vehicle movement	Movement of vehicles around site, in particular, along the haul/ access road results in fauna strikes within the Project area.	There is likely to be an ongoing impact on individuals from movement of vehicles on the haul/ access road (fauna strike). In addition to the possibility of fauna strikes with threatened fauna species, general fauna strikes result in fauna left on the roadside to be scavenged by feral fauna which increases feral fauna population density. Vehicle movements during dawn, dusk and nighttime would result in the highest risk to fauna.	• Implementation of a Traffic Management Plan • Implementation of the Biodiversity Management Plan and Threatened Fauna Monitoring Programs. • Minimise night-time traffic movement where practicable. • Keep the proposed road network to a minimum and upgrade and utilise existing vehicle tracks. • Implement and enforce speed restriction controls for all roads across the entire Project area. • Implement reduced speed limits for all vehicles at night (including sunset and sunrise). • Upgrade high-use areas to be safer for vehicles and fauna (e.g. no blind curves, wider shrub-free verges). • If dead animals are found on/beside roads, the Environmental Officer is to be notified immediately to remove the carcass a minimum of 20 m into adjacent land to prevent subsequent collisions with scavenging animals. • Environmental Officer will establish a Register to document location, date, time of day and species, to understand collision ‘hotspots’, which can then be modified as required (signage, diversion fencing) to further reduce the risk. • Fit all haulage and light vehicles with noise emitting animal deterrents if devices are available that have been proven successful. Otherwise implement the trial of such devices.	3	3	M	Rewritten – this supersedes all previous risk assessments

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GFF 14	Exotic plants and animals	The prevalence of exotic plants throughout the Project area decrease the habitat value of vegetation remaining by changing the structure of the vegetation while exotic animals can degrade the quality of native vegetation also reducing habitat value.	Without adequate management and mitigation, the introduction of exotic plants and animals as a result of mine activities is likely to result in impacts on native fauna. In addition to the introduction of weeds, the disturbance of soils enables weeds to dominate over native flora that are unable to grow and proliferate at the same rate (i.e. weeds outcompete native flora in recently disturbed areas). Exotic plants decrease habitat value where weeds exclude native species and compromise the availability of associated invertebrate prey. Non-predatory exotic animals (e.g. camels, goats and cows) that may be attracted to the mine site due to an increased availability of water cause significant damage to native vegetation also decrease the value of habitat to native fauna. Predatory feral fauna cause significant and immediate local declines in populations of small to medium native mammal fauna.	• Manage feral fauna onsite through the implementation of the Biodiversity Management Plan. • Implementation of a Domestic and Industrial Waste Management Plan. • Implementation of a Weed Management Plan, including protocols for vehicle wash-down. • The identification and quarantine of weed free areas particularly where those areas occur within habitats that are poorly represented across the sites, such as drainage lines. • Observe vehicle quarantine practices for vehicles moving between sites, and within sites if required. • Incorporating weed control activities into workforce development programs and the coupling of these programs to Threatened Species Monitoring Programs to promote ownership of threatened species conservation among the workforce. • Annual weed monitoring and mapping, particularly along transport routes, to enable the early identification of problem areas where threatened species habitat is under threat from weed incursion.	1	3	L	Rewritten – this supersedes all previous risk assessments
GFF 15	Poisoning of fauna	Fauna deaths from the consumption of contaminated water	Poisoning of fauna as a result of the Project is not expected occur.	• Reduce attractiveness (to wildlife) of the Sediment Basins and Process Water Ponds through the implementation of Best Practice Guidelines for Reducing Impacts of Tailings Storage Facilities on Avian Wildlife (DME 1998). • Management of hazardous substances in accordance with a Hydrocarbon and Hazardous Substances Management Plan.	1	1	VL	Rewritten – this supersedes all previous risk assessments
GFF 16	Inappropriate rehabilitation or revegetation	Inappropriate or ineffective rehabilitation or revegetation sterilizes the landscape against any future use by native fauna	Inappropriate or ineffective rehabilitation will likely result in the creation of unstable landforms and the progressive spread of weeds. Weed-dominated habitats are less favourable for fauna who are reliant on the correct assemblage of vegetation that generates food items and provides suitable cover during foraging or refuge. Weed also competitively exclude natives	• Management of rehabilitation and closure in accordance with a Rehabilitation and Mine Closure Plan. • Areas not required for ongoing operations will be progressively rehabilitated with local provenance native flora species. • Annual monitoring of rehabilitated areas will be conducted. If monitoring identifies that completion criteria (as outlined in the Rehabilitation and Mine Closure Plan) are not being met, then additional rehabilitation and monitoring will be completed until such criteria are met. • Topsoil will be stripped and stockpiled in a designated area, to prevent erosion or run-off. The duration of stockpiling will be minimise where possible. • As far as possible, seeds collected for the rehabilitation program will be sourced locally (e.g. within a 20 km radius of the Project area). • Seal/cover open holes, pits, trenches (e.g. monitoring bores, production wells, exploration bores) when not manned to prevent ground-dwelling fauna from falling in. • Design landforms to be safe, stable and non-polluting.	2	3	M	Rewritten – this supersedes all previous risk assessments

Ref.	Source of Impact	Consequence	Discussion	Mitigation	Consequence	Likelihood	Residual Risk	Alteration to Draft EIS Risk Assessment
Waste								
WA01	AMD material from mining.	Release of AMD via seepage and / or run-off from Integrated Waste Landform.	No significant Potentially Acid Forming (PAF) materials have been identified within the ore body.	Ongoing waste characterisation. Develop AMD Management Plan. AMD Plan to include the selective handling and storage of any PAF materials if needed.	3	2	M	Consequence updated to reflect change in Project design to an Integrated Waste Landform not a TSF or WRD. Mitigation updated to incorporate AMD Management Plan.
WA02	Generation of sewage.	Release of sewage to the environment.		Treatment of sewage via the WWTP. Use of treated water for landscaping. Untreatable solids collected and disposed of offsite by a licensed waste transporter.	2	2	L	Mitigation updated to WWTP – Waste Water Treatment Plant from STP.
WA03	Storage of waste rock and tailings	Failure of the Integrated Waste Landform resulting in environmental damage.	The waste rock dump will be located to the west of the pit. Tailings will be thickened and water removed prior to stacking.	Geotechnical design of the IWL to ensure a stable landform. Limit the dump height to 40m. Tailings to be dry stacked.	3	1	L	Source of impact updated to storage of waste rock and tailings. Consequence updated to state Integrated Waste Landform. Mitigation updated to geotechnical design.
WA04	Sodic and dispersive material	Dispersion of sediment to surrounding environment.	Sodic material has been identified within waste material	Identification of sodic material within waste schedule. Placement of sodic material internally within the Integrated Waste Landform. Preferentially use waste rock identified as non-sodic for construction activities. Ensure competent (non-sodic) waste material is used on outer slopes of final landforms.	3	2	M	This is a new addition to the Risk Assessment.