

**Blasting**

IMPACT DESCRIPTION				Pre-Mitigation							Post Mitigation							Priority Factor Criteria					
Identifier	Impact	Alternative	Phase	Nature	Extent	Duration	Magnitude	Reversibility	Probability	Pre-mitigat	Nature	Extent	Duration	Magnitude	Reversibility	Probability	Post-mitiga	Confidence	Cumulative Impact	Irreplaceab	Priority Fac	Final score	
8.1	Ground Vibration	Alternative 1	Operation		-1	3	4	4	3	4	-14	-1	3	4	2	3	3	-9	High	2	2	1.25	-11.25
8.2	Air Blast	Alternative 1	Operation		-1	3	4	4	3	4	-14	-1	3	4	2	3	3	-9	High	2	2	1.25	-11.25
8.3	Fly Rock	Alternative 1	Operation		-1	3	4	4	3	4	-14	-1	3	4	2	3	3	-9	High	2	2	1.25	-11.25

**Hydrogeology**

IMPACT DESCRIPTION				Pre-Mitigation							Post Mitigation							Priority Factor Criteria					
Identifier	Impact	Alternative	Phase	Nature	Extent	Duration	Magnitude	Reversibility	Probability	Pre-mitigat	Nature	Extent	Duration	Magnitude	Reversibility	Probability	Post-mitiga	Confidence	Cumulative Impact	Irreplaceab	Priority Fac	Final score	
Open Cast	Loss Hydrogeological Flow Paths	Alternative 1	Planning		-1	2	1	1	1	2	-2.5	-1	2	1	1	1	2	-2.5	High	3	1	1.25	-3.13
Open Cast	Loss Hydrogeological Flow Paths	Alternative 1	Construction		-1	4	4	4	4	4	-16	-1	4	4	4	4	4	-16	High	3	2	1.38	-22.00
Open Cast	Loss Hydrogeological Flow Paths	Alternative 1	Operation		-1	4	4	4	4	4	-16	-1	4	4	4	3	4	-15	High	3	2	1.38	-20.63
Open Cast	Loss Hydrogeological Flow Paths	Alternative 1	Decommissioning		-1	2	2	3	3	3	-7.5	-1	2	2	2	3	3	-6.75	High	3	2	1.38	-9.28
Open Cast	Loss Hydrogeological Flow Paths	Alternative 1	Rehab and closure		-1	2	4	1	1	2	-4	-1	2	4	1	1	2	-4	High	3	1	1.25	-5.00
Underground	Loss Hydrogeological Flow Paths	Alternative 2	Planning		-1	2	1	1	1	2	-2.5	-1	2	1	1	1	2	-2.5	High	3	1	1.25	-3.13
Underground	Loss Hydrogeological Flow Paths	Alternative 2	Construction		-1	2	2	2	2	3	-6	-1	2	2	2	2	3	-6	High	3	2	1.38	-8.25
Underground	Loss Hydrogeological Flow Paths	Alternative 2	Operation		-1	2	3	3	2	3	-7.5	-1	2	3	3	2	3	-7.5	High	3	2	1.38	-10.31
Underground	Loss Hydrogeological Flow Paths	Alternative 2	Decommissioning		-1	2	2	2	2	3	-6	-1	2	2	2	2	3	-6	High	3	2	1.38	-8.25
Underground	Loss Hydrogeological Flow Paths	Alternative 2	Rehab and closure		-1	2	4	1	1	2	-4	-1	2	4	1	1	2	-4	High	3	1	1.25	-5.00

**Heritage**

IMPACT DESCRIPTION				Pre-Mitigation							Post Mitigation							Priority Factor Criteria					
Identifier	Impact	Alternative	Phase	Nature	Extent	Duration	Magnitude	Reversibility	Probability	Pre-mitigat	Nature	Extent	Duration	Magnitude	Reversibility	Probability	Post-mitiga	Confidence	Cumulative Impact	Irreplaceab	Priority Fac	Final score	
1.1.1	Burial grounds and graves Damage or destruction - Alternative 1, Planning Phase	Alternative 1	Planning		-1	2	4	5	5	4	-16	-1	2	3	3	3	3	-8.25	Medium	3	3	1.50	-12.38
	Damage or destruction - Alternative 1, Planning Phase	Alternative 1	Planning		-1	2	4	2	5	3	-9.75	1	1	2	1	2	2	3	High	1	2	1.13	3.38
	Damage or destruction - Alternative 1, Construction Planning	Alternative 1	Construction		-1	2	5	5	5	4	-17	-1	2	3	3	3	3	-8.25	Medium	3	3	1.50	-12.38
	Damage or destruction - Alternative 1, Construction Construction	Alternative 1	Construction		-1	2	5	2	5	3	-10.5	1	1	2	1	2	2	3	High	1	2	1.13	3.38

**Air Quality**

IMPACT DESCRIPTION				Pre-Mitigation							Post Mitigation							Priority Factor Criteria					
Identifier	Impact	Alternative	Phase	Nature	Extent	Duration	Magnitude	Reversibility	Probability	Pre-mitigat	Nature	Extent	Duration	Magnitude	Reversibility	Probability	Post-mitiga	Confidence	Cumulative Impact	Irreplaceab	Priority Fac	Final score	
1.1.1	Erosion - Alternative 1, Planning Phase	Alternative 1	Planning		-1	3	4	5	2	2	-7	-1	3	3	3	3	3	-9	Medium	3	3	1.50	-13.50
	Wetland Degradation - Alternative 1, Construction Planning	Alternative 1	Construction		-1	4	2	3	5	2	-7	-1	3	3	3	5	5	-15	High	3	3	1.50	-22.50
	Air Quality - Alternative 1, Construction	Alternative 1	Construction		-1	2	2	3	3	3	-7.5	-1	2	2	2	3	3	-6.75	Medium	2	3	1.38	-9.28
	Air Quality - Alternative 1, Operation	Alternative 1	Operation		-1	4	4	4	3	4	-15	-1	3	4	3	3	3	-9.75	Medium	3	3	1.50	-14.63
	Air Quality - Alternative 1, Decommissioning	Alternative 1	Decommissioning		-1	1	2	3	3	3	-6.75	-1	1	2	2	3	3	-6	Medium	2	3	1.38	-8.25
	Air Quality - Alternative 1, Rehab and closure	Alternative 1	Rehab and closure		-1	1	4	1	3	2	-4.5	-1	1	4	1	3	2	-4.5	Medium	1	3	1.25	-5.63

**Groundwater**

IMPACT DESCRIPTION				Pre-Mitigation							Post Mitigation							Priority Factor Criteria					
Identifier	Impact	Alternative	Phase	Nature	Extent	Duration	Magnitude	Reversibility	Probability	Pre-mitigat	Nature	Extent	Duration	Magnitude	Reversibility	Probability	Post-mitiga	Confidence	Cumulative Impact	Irreplaceab	Priority Fac	Final score	
1.1.1	Impact on the groundwater quantity and change in the regional phreatic/ piezometric levels due to mine dewatering.	Alternative 1	Operation		-1	3	3	2	2	4	-10	-1	3	2	1	2	4	-8	Medium	2	2	1.25	-10.00
1.1.2	A depletion in aquifer storage and formation of a depression zone may potentially lead to a reduction in groundwater contribution to baseflow of local drainages and/or groundwater supported wetlands.	Alternative 1	Operation		-1	3	3	4	2	4	-12	-1	3	3	4	2	4	-12	Medium	2	2	1.25	-15.00
1.1.3	Impact on groundwater quality due to leachate of contaminants from waste facilities	Alternative 1	Operation		-1	3	4	4	3	4	-14	-1	2	4	3	2	3	-8.25	Medium	2	2	1.25	-10.31
1.1.4	Impact on groundwater quality due to hydrocarbon contamination caused by mine heavy vehicles and machinery.	Alternative 1	Operation		-1	2	4	4	4	3	-10.5	-1	2	4	2	2	2	-5	Medium	2	2	1.25	-6.25
1.1.5	Post-operational water level rebound and flooding of mine voids	Alternative 1	Rehab and closure		1	3	3	2	1	4	9	1	3	2	1	2	4	8	Medium	2	1	1.13	9.00

1.1.6	Decanting of poor water quality caused by leachate of sulphide bearing minerals such as pyrite in the presence of oxygen and water to create an acidic environment (i.e. acid rock drainage).	Alternative 1	Rehab and closure	-1	3	4	4	3	4	-14	-1	2	3	3	3	3	-8,25	Medium	2	2	1,25	-10,31
1.1.7	Seepage of poor water quality from waste facilities	Alternative 1	Rehab and closure	-1	3	4	4	3	4	-14	-1	2	3	3	3	3	-7,5	Medium	2	2	1,25	-9,38

**Soil**

IMPACT DESCRIPTION		Pre-Mitigation									Post Mitigation						Priority Factor Criteria					
Identifier	Impact	Alternative	Phase	Nature	Extent	Duration	Magnitude	Reversibility	Probability	Pre-mitigat	Nature	Extent	Duration	Magnitude	Reversibility	Probability	Post-mitiga	Confidence	Cumulative Impact	Irreplaceab	Priority Fac	Final score
Open Cast	Loss/Degradation of Agricultural Potential	Alternative 1	Planning	-1	2	1	1	1	2	-2,5	-1	2	1	1	1	2	-2,5	High	3	1	1,25	-3,13
Open Cast	Loss/Degradation of Agricultural Potential	Alternative 1	Construction	-1	4	2	4	4	4	-14	-1	4	2	4	3	4	-13	High	3	2	1,38	-17,88
Open Cast	Loss/Degradation of Agricultural Potential	Alternative 1	Operation	-1	4	4	4	4	4	-16	-1	4	4	4	3	4	-15	High	3	2	1,38	-20,63
Open Cast	Loss/Degradation of Agricultural Potential	Alternative 1	Decommissioning	-1	2	2	3	3	3	-7,5	-1	2	2	2	3	3	-6,75	High	3	2	1,38	-9,28
Open Cast	Loss/Degradation of Agricultural Potential	Alternative 1	Rehab and closure	-1	2	4	1	1	2	-4	-1	2	4	1	1	2	-4	High	3	1	1,25	-5,00
Underground	Loss/Degradation of Agricultural Potential	Alternative 2	Planning	-1	2	1	1	1	2	-2,5	-1	2	1	1	1	2	-2,5	High	3	1	1,25	-3,13
Underground	Loss/Degradation of Agricultural Potential	Alternative 2	Construction	-1	2	2	2	2	3	-6	-1	2	2	2	2	3	-6	High	3	2	1,38	-8,25
Underground	Loss/Degradation of Agricultural Potential	Alternative 2	Operation	-1	2	3	3	2	3	-7,5	-1	2	3	3	2	3	-7,5	High	3	2	1,38	-10,31
Underground	Loss/Degradation of Agricultural Potential	Alternative 2	Decommissioning	-1	2	2	2	2	3	-6	-1	2	2	2	2	3	-6	High	3	2	1,38	-8,25
Underground	Loss/Degradation of Agricultural Potential	Alternative 2	Rehab and closure	-1	2	4	1	1	2	-4	-1	2	4	1	1	2	-4	High	3	1	1,25	-5,00

**Wetlands**

IMPACT DESCRIPTION		Pre-Mitigation									Post Mitigation						Priority Factor Criteria					
Identifier	Impact	Alternative	Phase	Nature	Extent	Duration	Magnitude	Reversibility	Probability	Pre-mitigat	Nature	Extent	Duration	Magnitude	Reversibility	Probability	Post-mitiga	Confidence	Cumulative Impact	Irreplaceab	Priority Fac	Final score
Open Cast	Loss/Degradation of Wetlands	Alternative 1	Planning	-1	2	1	1	1	2	-2,5	-1	2	1	1	1	2	-2,5	High	3	1	1,25	-3,13
Open Cast	Loss/Degradation of Wetlands	Alternative 1	Construction	-1	4	2	4	4	4	-14	-1	3	2	4	3	3	-9	High	3	2	1,38	-12,38
Open Cast	Loss/Degradation of Wetlands	Alternative 1	Operation	-1	4	4	4	4	4	-16	-1	3	4	4	3	3	-10,5	High	3	2	1,38	-14,44
Open Cast	Loss/Degradation of Wetlands	Alternative 1	Decommissioning	-1	3	2	3	3	4	-11	-1	2	2	2	3	4	-9	High	3	2	1,38	-12,38
Open Cast	Loss/Degradation of Wetlands	Alternative 1	Rehab and closure	-1	2	1	1	1	2	-2,5	-1	2	1	1	1	2	-2,5	High	3	1	1,25	-3,13
Underground	Loss/Degradation of Wetlands	Alternative 2	Planning	-1	2	1	1	1	2	-2,5	-1	2	1	1	1	2	-2,5	High	3	1	1,25	-3,13
Underground	Loss/Degradation of Wetlands	Alternative 2	Construction	-1	3	2	3	3	3	-8,25	-1	3	2	3	2	3	-7,5	High	3	2	1,38	-10,31
Underground	Loss/Degradation of Wetlands	Alternative 2	Operation	-1	3	4	3	3	3	-9,75	-1	3	4	3	2	3	-9	High	3	2	1,38	-12,38
Underground	Loss/Degradation of Wetlands	Alternative 2	Decommissioning	-1	2	2	2	2	3	-6	-1	2	2	2	2	3	-6	High	3	2	1,38	-8,25
Underground	Loss/Degradation of Wetlands	Alternative 2	Rehab and closure	-1	2	1	1	1	2	-2,5	-1	2	1	1	1	2	-2,5	High	3	1	1,25	-3,13

**Terrestrial Biodiversity**

IMPACT DESCRIPTION		Pre-Mitigation									Post Mitigation						Priority Factor Criteria					
Identifier	Impact	Alternative	Phase	Nature	Extent	Duration	Magnitude	Reversibility	Probability	Pre-mitigat	Nature	Extent	Duration	Magnitude	Reversibility	Probability	Post-mitiga	Confidence	Cumulative Impact	Irreplaceab	Priority Fac	Final score
10.3.1	Destruction, further loss and fragmentation of the vegetation community.	Alternative 1	Construction	-1	3	4	5	4	4	-16	-1	3	3	3	3	3	-9	Medium	3	3	1,50	-13,50
10.3.2	Introduction of alien species, especially plants	Alternative 1	Construction	-1	4	4	3	4	4	-15	-1	3	3	3	3	3	-9	High	3	3	1,50	-13,50
10.3.3	Erosion due to storm water runoff	Alternative 1	Construction	-1	4	4	4	4	4	-16	-1	2	3	3	3	2	-5,5	Medium	3	2	1,38	-7,56
10.3.4	Displacement of faunal community due to habitat loss, direct mortalities and disturbance (road collisions, noise, dust, vibration and poaching).	Alternative 1	Construction	-1	3	4	4	3	4	-14	-1	2	3	3	2	2	-5	Medium	2	2	1,25	-6,25
10.4.1.1	Continued removal and fragmentation of EN vegetation communities, CBA: Irreplaceable and CBA: Optimal habitats and a Highest biodiversity importance area due to the creation of new open cast pits	Alternative 1	Operation	-1	3	4	5	5	5	-21,25	-1	2	4	4	3	4	-13	High	3	3	1,50	-19,50
10.4.1.2	Vegetation loss due to erosion and encroachment by alien invasive plant species	Alternative 1	Operation	-1	3	4	4	4	4	-15	-1	2	3	3	3	3	-8,25	High	2	2	1,25	-10,31
10.4.1.3	Potential leaks, discharges, pollutant from mining activities leaching into the surrounding environment	Alternative 1	Operation	-1	4	4	4	4	4	-16	-1	3	3	3	3	3	-9	Medium	2	2	1,25	-11,25

10.4.1.4	Continued displacement and fragmentation of the faunal community (including threatened or protected species) due to ongoing anthropogenic disturbances (noise, dust and vibrations) and habitat degradation/loss (litter, road mortalities and/or poaching).	Alternative 1	Operation	-1	3	4	4	4	4	-15	-1	2	3	3	3	3	-8,25	Medium	2	3	1,38	-11,34
10.4.2.1	• Subsidence - negative impacts on availability of surface water for fauna. Catchment morphology and resultant modification to surface water baseflow and riverine habitat;	Alternative 2	Operation	-1	3	5	5	5	4	-18	-1	2	4	3	3	3	-9	Medium	2	3	1,38	-12,38
10.4.2.2	Subsidence - detrimental effects to habitat composition (including wetlands) and floral distribution due to changing groundwater dynamics	Alternative 2	Operation	-1	3	4	4	5	4	-16	-1	2	4	3	3	3	-9	Medium	3	3	1,50	-13,50
10.4.2.3	Subsidence - physical alteration of surface-level environment leading to negative impacts on habitats (including CBAs) and associated fauna	Alternative 2	Operation	-1	4	4	3	5	4	-16	-1	2	4	3	3	3	-9	Medium	3	3	1,50	-13,50
10.5.1.1	Continued encroachment of an indigenous and VU vegetation community by alien invasive plant species as well as erosion due to disturbed soils	Alternative 1	Decommissioning	-1	3	5	5	5	4	-18	-1	2	4	3	3	3	-9	Medium	3	3	1,50	-13,50
10.5.1.2	Continued displacement and fragmentation of the faunal community (including threatened or protected species) due to ongoing anthropogenic disturbances (noise, dust and vibrations) and habitat degradation/loss (litter, road mortalities and/or poaching).	Alternative 1	Decommissioning	-1	3	4	4	4	4	-15	-1	2	3	3	3	3	-8,25	Medium	3	3	1,50	-12,38
10.5.2.1	Subsidence - negative impacts on availability of surface water for fauna;	Alternative 2	Decommissioning	-1	4	5	5	5	5	-23,75	-1	2	4	4	4	4	-14	Medium	3	3	1,50	-21,00
10.5.2.2	Subsidence - detrimental effects to habitat composition and floral distribution due to changing groundwater dynamics	Alternative 2	Decommissioning	-1	3	5	4	4	4	-16	-1	2	4	3	3	4	-12	Medium	2	3	1,38	-16,50
10.5.2.3	Subsidence - physical alteration of surface-level environment leading to negative impacts on habitats (including CBAs) and associated fauna.	Alternative 2	Decommissioning	-1	3	4	4	4	4	-15	-1	2	3	3	3	3	-8,25	Medium	2	2	1,25	-10,31
10.2.1	Temporary disturbance of wildlife due to increased human presence and possible use of machinery and/or vehicles.	Alternative 1	Planning	-1	3	2	3	2	2	-5	-1	2	2	2	2	2	-4	Medium	1	2	1,13	-4,50
<b>Air Quality</b>																						
	Air Quality	Alternative 1	Construction	-1	2	2	3	3	3	-7,5	-1	2	2	2	3	3	-6,75	Medium	2	3	1,38	-9,28
	Air Quality	Alternative 1	Operation	-1	4	4	4	3	4	-15	-1	3	4	3	3	3	-9,75	Medium	3	3	1,50	-14,63
	Air Quality	Alternative 1	Rehab and closure	-1	1	2	3	3	3	-6,75	-1	1	2	2	3	3	-6	Medium	2	3	1,38	-8,25
	Air Quality	Alternative 1	Rehab and closure	-1	1	4	1	3	2	-4,5	-1	1	4	1	3	2	-4,5	Medium	1	3	1,25	-5,63

		IMPACT DESCRIPTION		Pre-Mitigation							Post Mitigation							Priority Factor Criteria				
Identifier	Alternative	Phase																				
1.1.1 Topsoil stripping - Alternative 1, Construction Phase	Alternative 1	Construction	-1	2	2	3	2	5	-11,25	-1	2	2	1	2	5	-8,75	Medium	2	1	1,13	-9,84	
Construction related pollution - Alternative 1, Construction Construction	Alternative 1	Construction	-1	2	2	2	3	3	-6,75	-1	2	2	2	3	2	-4,5	High	2	1	1,13	-5,06	
Contaminated water discharge - Alternative 1, Operation Construction	Alternative 1	Operation	-1	4	4	3	3	5	-17,5	-1	4	1	3	3	2	-5,5	High	1	1	1,00	-5,50	
Contaminated water discharge - Alternative 1, Operation Operation	Alternative 1	Operation	-1	3	3	4	4	5	-17,5	-1	3	3	2	4	5	-15	Medium	2	3	1,38	-20,63	
Loss of catchment yield - Alternative 1, Operation Operation	Alternative 1	Operation	-1	3	1	2	2	2	-4	-1	3	1	2	2	1	-2	Medium	2	1	1,13	-2,25	
Pollution from wash bays and workshops - Alternative 1, Operation Operation	Alternative 1	Operation	-1	3	2	3	2	4	-10	-1	2	2	2	2	3	-6	Medium	2	1	1,13	-6,75	
Contamination due to burst water pipes - Alternative 1, Operation Operation	Alternative 1	Operation	-1	2	2	2	3	3	-6,75	-1	2	2	2	3	2	-4,5	Medium	1	1	1,00	-4,50	
Vehicle fleet related pollution - Alternative 1, Operation Operation	Alternative 1	Decommissioning	-1	2	2	3	3	5	-12,5	-1	2	2	1	3	5	-10	Medium	2	1	1,13	-11,25	
Removal of surface infrastructure - Alternative 1, Decommissioning Operation	Alternative 1	Rehab and closure	-1	3	5	3	5	5	-20	1	3	4	1	1	5	11,25	High	1	1	1,00	11,25	

Pit decant - Alternative 1, Rehab and closure  
Decommissioning

Pit decant

**Aquatic**

Haul Roads	Water and habitat quality deterioration	Alternative 1	Construction	-1	2	4	2	2	3	-7,5	-1	2	4	2	2	2	-5	Medium	1	1	1,00	-5,00
Overburden Stripping	Water and habitat quality deterioration	Alternative 1	Construction	-1	2	4	4	3	3	-9,75	-1	2	4	4	3	2	-6,5	Medium	1	1	1,00	-6,50
Overburden Stockpiling	Water and habitat quality deterioration	Alternative 1	Construction	-1	2	4	3	3	3	-9	-1	2	4	3	3	2	-6	Medium	1	1	1,00	-6,00
Opencast and Underground Mining	Water and habitat quality deterioration	Alternative 1	Operation	-1	3	4	4	3	4	-14	-1	3	4	4	3	2	-7	Medium	2	1	1,13	-7,88
Opencast and Underground Mining Rehabilitation	Water and habitat quality deterioration	Alternative 1	Decommissioning	-1	3	4	3	3	4	-13	-1	3	4	3	3	3	-9,75	Medium	2	1	1,13	-10,97
Opencast and Underground Mining Closure	Water and habitat quality deterioration	Alternative 1	Rehab and closure	-1	3	4	5	5	4	-17	-1	3	4	5	5	3	-12,75	Medium	3	1	1,25	-15,94