1. ENVIRONMENTAL IMPACT STATEMENT

This Environmental Impact Statement provides a summary of the actual and potential impacts of the mining activities on the environment, taking into account the implementation of management and mitigation measures. It specifically addresses the nature, duration, likelihood, and significance of these impacts.

ASSESSMENT CRITERIA – GEOLOGY	
Impact Description	The operations will permanently alter the surface and sub-surface geology
Potential Impact/s	Θ Alteration of the existing topography. Θ Potential increase in runoff from denuded areas and associated erosion. Θ Erosion of returned topsoil after rehabilitation.
Project Phase	Operational & Decommissioning
Magnitude	Very High
Extent	Site Only
Reversibility	The creation of the mine pit is irreversible (recovery is not possible, despite action) unless at closure it becomes a managed waste deposition facility that will be systematically filled and rehabilitated.
Duration	Permanent
Probability of Occurrence	Very High

ASSESSMENT CRITERIA – TOPOGRAPHY	
Impact Description	Θ The excavations will have a permanent impact on the topography. Θ The mine infrastructure surface area and stockpiles will be rehabilitated to reflect the surrounding topography.
Potential Impact/s	Θ Alteration of the existing topography. Θ Potential increase in runoff from denuded areas and associated erosion. Θ Erosion of returned topsoil after rehabilitation.
Project Phase	Operational & Decommissioning
Magnitude	Very High
Extent	Local (within specific activity area)
Reversibility	Θ Mine surface infrastructure area: recoverable (recovery resulting from specific mitigation or action)

ASSESSMENT CRITERIA – TOPOGRAPHY	
	Θ Mine quarry area: Irreversible (recovery is not possible, despite action).
Duration	Θ Mine infrastructure area: Long term (ceases after operational phase) Θ Mine quarry: Permanent
Probability of Occurrence	Θ Mine infrastructure area: Low to Very Low Θ Mine quarry: Very High

ASSESSMENT CRITERIA – SOILS	
Impact Description	The removal of topsoil and the impact of mine infrastructure may destroy the soil integrity of the area.
Potential Impact/s	Θ Alteration of the existing topography. Θ Potential increase in runoff from denuded areas and associated erosion. Θ Erosion of returned topsoil after rehabilitation.
Project Phase	Operational & Decommissioning
Magnitude	High – Very High
Extent	Site Only
Reversibility	Θ Mine surface infrastructure area: recoverable (recovery resulting from specific mitigation or action) Θ Mine quarry area: Irreversible (recovery is not possible, despite action).
Duration	Θ Mine infrastructure area: Long term (ceases after operational phase) Θ Mine quarry: Permanent
Probability of Occurrence	Very High

ASSESSMENT CRITERIA – LAND CAPABILITY AND USE	
Impact Description	Mining operations alter natural use. During the life of mine no additional uses for the land is possible thereby diminishing its productive capacity.
Potential Impact/s	Θ Alteration of the existing topography. Θ Potential increase in runoff from denuded areas and associated erosion. Θ Erosion of returned topsoil after rehabilitation.
Project Phase	Operational & Decommissioning
Magnitude	Θ Mine surface infrastructure area: Low Θ Mine quarry – Very High
Extent	Local (within specific activity area)

ASSESSMENT CRITERIA – LAND CAPABILITY AND USE	
Reversibility	Θ Mine surface infrastructure area: recoverable (recovery resulting from specific mitigation or action) Θ Mine quarry area: Irreversible (recovery is not possible, despite action).
Duration	Θ Mine infrastructure area: Long term (ceases after operational phase) Θ Mine quarry: Permanent
Probability of Occurrence	Very High

ASSESSMENT CRITERIA – VEGETATION	
Impact Description	The vegetation layer in the mining tenement is permanently impacted on through removal, disturbance, or the impact that invasive and/or alien plant species may have.
Potential Impact/s	Θ Loss of vegetation cover. Θ Potential impact on faunal species. Θ Infestation of the topsoil heaps and mining area with invasive and/or alien plant species. Θ Infestation of the reinstated area with invasive and/or alien plant.
Project Phase	Operational & Decommissioning
Magnitude	High
Extent	Site Only
Reversibility	Θ Mine surface infrastructure area: recoverable (recovery resulting from specific mitigation or action) Θ Mine quarry area: Irreversible (recovery is not possible, despite action).
Duration	Θ Mine infrastructure area: Long term (ceases after operational phase) Θ Mine quarry: Permanent
Probability of Occurrence	Typically Very High

ASSESSMENT CRITERIA – FAUNA	
Impact Description	Destruction of habitat and disturbance due to mining operations will negatively impact on the faunal population of the mining area.
Potential Impact/s	Θ Loss of vegetation cover. Θ Potential impact on faunal species. Θ Infestation of the topsoil heaps and mining area with invasive and/or alien plant species. Θ Infestation of the reinstated area with invasive and/or alien plant.
Project Phase	Operational & Decommissioning
Magnitude	Low

ASSESSMENT CRITERIA – FAUNA	
Extent	Local (within specific activity area)
Reversibility	Θ Mine surface infrastructure area: recoverable (recovery resulting from specific mitigation or action) Θ Mine quarry area: Irreversible (recovery is not possible, despite action).
Duration	Θ Mine infrastructure area: Long term (ceases after operational phase) Θ Mine quarry: Permanent
Probability of Occurrence	High

ASSESSMENT CRITERIA – SURFACE WATER	
Impact Description	Potential for pollution of surface water.
Potential Impact/s	Θ Potential contamination of footprint area and surface runoff because of hydrocarbon spillages. Θ Soil contamination from hydrocarbon spills and/or littering. Θ Potential impact associated with litter/hydrocarbon spills left at the mining area (after closure).
Project Phase	Operational & Decommissioning
Magnitude	Medium
Extent	Local (within specific activity area)
Reversibility	Recoverable (recovery resulting from specific mitigation or action)
Duration	Long term (ceases after operational phase)
Probability of Occurrence	Low

ASSESSMENT CRITERIA – GROUNDWATER	
Impact Description	Pollution of groundwater resources through mining operations.
Potential Impact/s	Θ Potential contamination of footprint area and surface runoff because of hydrocarbon spillages. Θ Soil contamination from hydrocarbon spills and/or littering. Θ Potential impact associated with litter/hydrocarbon spills left at the mining area (after closure).
Project Phase	Operational & Decommissioning
Magnitude	Typically High
Extent	Typically Regional (outside activity area but localised)

ASSESSMENT CRITERIA – GROUNDWATER	
Reversibility	Recoverable (recovery resulting from specific mitigation or action)
Duration	Typically Long term (ceases after operational phase)
Probability of Occurrence	Moderate

ASSESSMENT CRITERIA – AIR QUALITY	
Impact Description	The greatest environmental impact from the mining operations is dust emissions into the atmosphere.
Potential Impact/s	Θ Dust nuisance due to the movement of the soil. Θ Dust nuisance caused by blasting activities. Θ Dust nuisance caused by earthmoving machinery and mining related vehicles.
Project Phase	Operational & Decommissioning
Magnitude	Typically Medium – High
Extent	Regional (outside activity area but localised)
Reversibility	Recoverable (recovery resulting from specific mitigation or action)
Duration	Typically Long term (ceases after operational phase)
Probability of Occurrence	High

ASSESSMENT CRITERIA – NOISE	
Impact Description	Noise generation from operations affecting communities in the area.
Potential Impact/s	Θ Noise nuisance caused by earthmoving machinery and mining related vehicles. Θ Noise nuisance caused by blasting activities. Θ Noise nuisance because of the mining activities.
Project Phase	Operational & Decommissioning
Magnitude	Medium – High
Extent	Regional (outside activity area but localised)
Reversibility	Recoverable (recovery resulting from specific mitigation or action)
Duration	Typically Long term (ceases after operational phase)
Probability of Occurrence	High

ASSESSMENT CRITERIA – VISUAL	
Impact Description	The processing plant, buildings and stockpiles have a negative impact from the N12, while the quarry has a negative impact from the immediate adjacent areas.
Potential Impact/s	Visual intrusion because of the activities.
Project Phase	Operational & Decommissioning
Magnitude	Very High
Extent	Local (within specific activity area)
Reversibility	Θ Mine surface infrastructure area: recoverable (recovery resulting from specific mitigation or action) Θ Mine quarry area: Irreversible (recovery is not possible, despite action).
Duration	Θ Mine infrastructure area: Long term (ceases after operational phase) Θ Mine quarry: Permanent
Probability of Occurrence	Very High

ASSESSMENT CRITERIA – SOCIO-ECONOMIC ASPECTS (POSITIVE IMPACTS)	
Impact Description	Θ The continuation of the mining operations will not only create wealth for the local communities and towns through job opportunities but also for the region as a whole through direct and indirect taxation. (Positive Impact) Θ The Quarry has a positive effect on the socio-economic structure in the area since valuable materials are supplied to the building and construction areas in and around Kimberley. (Positive Impact) Θ The Quarry further contribute to the community through the implementation of the Social and Labour Plan (SLP). (Positive Impact)
Project Phase	Operational
Magnitude	High Positive
Extent	Site
Duration	Short Term
Probability of Occurrence	Definite

2. ENVIRONMENT IMPACT ASSESSMENT METHODOLOGY

The following terms of reference was used in the 2011 impact assessment:

Significance

The significance rating scale is as follows:

Very High	Of the highest order possible within the bounds of impacts which could occur. In the case of negative impacts, there would be no possible mitigation and / or remedial activity to offset the impact at the spatial or time scale for which it was predicted. In the case of positive impacts, there is no real alternative to achieving the benefit.
High	Impacts of a substantial order. In the case of negative impacts, mitigation and / or remedial activity would be feasible but difficult, expensive, time-consuming or some combination of these. In the case of positive impacts, other means of achieving this benefit would be feasible, but these would be more difficult, expensive, time-consuming or some combination of these.
Moderate	Impact would be real but not substantial within the bounds of those, which could occur. In the case of negative impacts, mitigation and / or remedial activity would be both feasible and fairly easily possible, In case of positive impacts; other means of achieving these benefits would be about equal in time, cost and effort.
Low	Impact would be of a low order and with little real effect. In the case of negative impacts, mitigation and / or remedial activity would be either easily achieved of little would be required, or both. In case of positive impacts alternative means for achieving this benefit would likely be easier, cheaper, more effective, less time-consuming, or some combination of these.
Very Low	Impact would be negligible. In the case of negative impacts, almost no mitigation and or remedial activity would be needed, and any minor steps, which might be needed, would be easy, cheap and simple. In the case of positive impacts, alternative means would almost all likely be better, in one or a number of ways, than this means of achieving the benefit.

No Effect — There would be a no impact at all – not even a very low impact on the system or any of its parts.

Certainty

RATING	DESCRIPTION
Definite	More than 90% sure of a particular fact. Substantial supportive data exists to verify the assessment.
Probable	Over 70% sure of a particular fact, or of the likelihood of that impact occurring.
Possible	Only over 40% sure of a particular fact or of the likelihood of an impact occurring.
Unsure	Less than 40% sure of a particular fact or of the likelihood of an impact occurring.

Duration

RATING	DESCRIPTION
Short Term	0 – 2 years
Medium Term	3 – 20 years
Long Term	More than 20 years

Magnitude

RATING	DESCRIPTION
Site	Within the mine boundaries
Local	Within the relevant district
Regional	Within the relevant province or region

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