

Rietvlei Opencast Mine - EIA and Mining Right Application

Air Quality

Significance Rating Table

Construction Phase

Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)	Status (+ve or -ve)	Confidence
Impact due to the generation of particulate matter (dust)	Nature of impact:	The generation of particulate matter as a result of construction of the roads, clearing of vegetation, drilling and blasting, material handling,						
	without	3	1	8	4	48	Medium	-
	with	3	1	4	3	24	Low	-
	degree to which impact can be reversed:	All mitigation measures have been included in the Environmental Impact Report. Some of these mitigation measures include: - watering, chemical stabilization, and the reduction of surface wind speed through the use of windbreaks and source						
	degree of impact on irreplaceable resources:	These activities can contribute to irreplaceable loss of fresh and clean air present in the area.						
Impact due to the generation of gases	Nature of impact:	The generation of emissions produced from construction vehicles and blasting.						
	without	2	1	4	4	28	Low	-
	with	2	1	2	3	15	Low	-
	degree to which impact can be reversed:	Mitigation measures can be implemented as an attempt to reduce the production of gases from both vehicles use and surface blasting. Catalytic converters can be fitted to construction vehicles to aid in the reduction of gases produced. Regular maintenance of construction vehicles can also reduce the gases produced. Well planned blasting						
	degree of impact on irreplaceable resources:	N/A						

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Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)	Status (+ve or -ve)	Confidence
Impact as a result of the increase in fugitive dust emissions	Nature of impact:	Fugitive dust can have an impact on the environment as a result of drilling and blasting activities, materials handling and transfer, bulldozing,						
	without	3	4	8	4	60	Medium	-
	with	2	4	4	3	30	Low	-
	degree to which impact can be reversed:	All mitigation measures have been included in the Environmental Impact Report. Some of these mitigation measures include: - watering, chemical stabilization, and the reduction of surface wind speed through the use of windbreaks and source						
	degree of impact on irreplaceable resources:	These activities can contribute to irreplaceable loss of fresh and clean air present in the area.						

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Significance Rating Table

Decommissioning Phase								
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)	Status (+ve or -ve)	Confidence
Impacts created as a result of the generation of TSP and PM10	Nature of impact:	TSP and Pm 10 has an impact on air quality as a result of unpaved road usage, recovery of topsoil from stockpiles as an attempt to re-						
	without	2	1	6	4	36	Medium	-
	with	2	1	4	3	21	Low	-
	degree to which impact can be reversed:	Due to the generally high existing background particulate air concentrations in the region, it is recommended to control major contributing sources. Wind erosion of exposed areas should be kept to a minimum through watering programs and avoiding unnecessary disturbance of stabilised areas.						
	degree of impact on irreplaceable resources:	These activities can contribute to irreplaceable loss of fresh and clean air present in the area.						
Impact due to the generation of gases	Nature of impact:	The generation of gases such as emissions produced from construction vehicles and blasting.						
	without	2	1	4	4	28	Low	-
	with	2	1	2	3	15	Low	-
	degree to which impact can be reversed:	Mitigation measures can be implemented as an attempt to reduce the production of gases from both vehicles use and surface blasting. Catalytic converters can be fitted to construction vehicles to aid in the reduction of gases produced. Regular maintenance of construction vehicles can also reduce the gases produced. Well planned blasting						
degree of impact on irreplaceable resources:	N/A							

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Significance Rating Table

Cumulative Impacts

Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)	Status (+ve or -ve)	Confidence
Impact on air quality as a result the combined emissions from other coal mines in the area	Nature of impact:	The region is dominated by a number of coal reserves which have now started to be mine. The emissions from these multiple coal mines						
	without	3	4	6	4	52	Medium	-
	with	3	4	4	3	33	Medium	-
	degree to which impact can be reversed:	Mitigation measures can be implemented as an attempt to reduce the production of gases from both vehicles use and surface blasting. Catalytic converters can be fitted to construction vehicles to aid in the reduction of gases produced. Regular maintenance of construction vehicles can also reduce the gases produced. Well planned blasting						
	degree of impact on irreplaceable resources:	Loss in fauna species due to the degradation of air quality and dust fallout						

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Aquatic

Significance Rating Table

Construction Phase								
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)	Status (+ve or -ve)	Confidence
Heavy metal contamination	Nature of impact:	The Impacts on habitat for floral species is as a result of:						
	without	4	4	8	4	64	High	-
	with	3	4	6	4	52	Medium	-
	degree to which impact can be reversed:	All mitigation measures have been included in the Environmental Impact Report. Some of these mitigation measures include: -Ensure that as far as possible all infrastructures are placed outside of wetland, riparian, drainage and stream areas.						
	degree of impact on irreplaceable resources:	Irreplaceable loss of aquatic habitats due to heavy metal contamination that will be experienced when the mine beings the construction activity.						
Impacts on loss of aquatic habitat	Nature of impact:	The Impacts on aquatic habitat is as a result of:						
	without	3	4	8	4	60	Medium	-
	with	3	4	6	4	52	Medium	-
	degree to which impact can be reversed:	All mitigation measures have been included in the Environmental Impact Report. Some of these mitigation measures include: -Ensure that as far as possible all infrastructures are placed outside of wetland, riparian, drainage and stream areas.						
	degree of impact on irreplaceable resources:	Irreplaceable loss of aquatic habitat will be experienced when the mine beings the construction activity.						
Impacts on loss of aquatic biodiversity and sensitive taxa	Nature of impact:	The Impacts on the loss of f aquatic biodiversity and sensitive taxa that are of conservational concern is as a result of:						
	without	3	4	8	4	60	Medium	-
	with	3	4	6	4	52	Medium	-
	degree to which impact can be reversed:	All mitigation measures have been included in the Environmental Impact Report. Some of these mitigation measures include: - Ensure that as far as possible all infrastructure is placed outside of sensitive wetland areas, streams and rivers;						

	degree of impact on irreplaceable resources:	Irreplaceable loss of aquatic biodiversity and sensitive taxa will be experienced when the mine begins the construction activity.						
Impacts on loss of in stream flow	Nature of impact:	The impacts on the loss of in stream flow as a result of:						
	without	4	5	8	4	68	High	-
	with	3	4	6	4	52	Medium	-
	degree to which impact can be reversed:	All mitigation measures have been included in the Environmental Impact Report. Some of these mitigation measures include: - Ensure that as far as possible all infrastructures are placed outside of drainage and river areas.						
	degree of impact on irreplaceable resources:	Irreplaceable loss of instream flow will be experienced when the mine begins the construction activity.						

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Aquatic

Significance Rating Table

Operational Phase								
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)	Status (+ve or -ve)	Confidence
Heavy metal contamination	Nature of impact:	The Impacts on habitat for floral species is as a result of:						
	without	4	4	8	4	64	High	-
	with	3	4	6	4	52	Medium	-
	degree to which impact can be reversed:	All mitigation measures have been included in the Environmental Impact Report. Some of these mitigation measures include: -Ensure that as far as possible all infrastructures are placed outside of wetland, riparian, drainage and stream areas.						
	degree of impact on irreplaceable resources:	Irreplaceable loss of aquatic habitats due to heavy metal contamination that will be experienced during the construction phase of the mine						
Impacts on loss of aquatic habitat	Nature of impact:	The Impacts on aquatic habitat is as a result of:						
	without	3	4	8	4	60	Medium	-
	with	3	4	6	4	52	Medium	-
	degree to which impact can be reversed:	All mitigation measures have been included in the Environmental Impact Report. Some of these mitigation measures include: - Ensure that as far as possible all infrastructures are placed outside of wetland, riparian, drainage and stream areas.						
	degree of impact on irreplaceable resources:	Irreplaceable loss of aquatic habitat will be experienced during the construction phase of the mine						
Impacts on loss of aquatic biodiversity and sensitive taxa	Nature of impact:	The Impacts on the loss of aquatic biodiversity and sensitive taxa that are of conservational concern is as a result of:						
	without	3	4	8	4	60	Medium	-
	with	3	4	6	4	52	Medium	-
	degree to which impact can be reversed:	All mitigation measures have been included in the Environmental Impact Report. Some of these mitigation measures include: - Ensure that as far as possible all infrastructure is placed outside of sensitive wetland areas, streams and rivers;						
	degree of impact on irreplaceable resources:	Irreplaceable loss of aquatic biodiversity and sensitive taxa will be experienced during the construction phase of the mine						

	degree of impact on irreplaceable resources:	Irreplaceable loss of aquatic biodiversity and sensitive taxa will be experienced during the construction phase of the mine						
Impacts on loss of instream flow	Nature of impact:	The impacts on the loss of instream flow as a result of:						
	without	4	5	8	4	68	High	-
	with	3	4	6	4	52	Medium	-
	degree to which impact can be reversed:	All mitigation measures have been included in the Environmental Impact Report. Some of these mitigation measures include: - Monitor all affected riparian systems for moisture stress;						
	degree of impact on irreplaceable resources:	Irreplaceable loss of instream flow will be experienced when the mine begins the construction activity.						



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Aquatic

Significance Rating Table

Decommissioning Phase								
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)	Status (+ve or -ve)	Confidence
Heavy metal contamination	Nature of impact:	The Impacts on habitat for floral species is as a result of:						
	without	4	4	8	4	64	High	-
	with	3	4	6	4	52	Medium	-
	degree to which impact can be reversed:	All mitigation measures have been included in the Environmental Impact Report. Some of these mitigation measures include: -Ensure that as far as possible all infrastructures are placed outside of wetland, riparian, drainage and stream areas.						
	degree of impact on irreplaceable resources:	Irreplaceable loss of aquatic habitats due to heavy metal contamination that will be experienced during the construction phase of the mine						
Impacts on loss of aquatic habitat	Nature of impact:	The Impacts on aquatic habitat is as a result of:						
	without	3	4	8	4	60	Medium	-
	with	3	4	6	4	52	Medium	-
	degree to which impact can be reversed:	All mitigation measures have been included in the Environmental Impact Report. Some of these mitigation measures include: -Ensure that as far as possible all infrastructures are placed outside of wetland, riparian, drainage and stream areas.						
	degree of impact on irreplaceable resources:	Irreplaceable loss of aquatic habitat will be experienced during the construction phase of the mine						
Impacts on loss of aquatic biodiversity and sensitive taxa	Nature of impact:	The Impacts on the loss of aquatic biodiversity and sensitive taxa that are of conservational concern is as a result of:						
	without	3	4	8	4	60	Medium	-
	with	3	4	6	4	52	Medium	-
	degree to which impact can be reversed:	All mitigation measures have been included in the Environmental Impact Report. Some of these mitigation measures include: -Ensure that as far as possible all infrastructures are placed outside of wetland, riparian, drainage and stream areas.						

	degree of impact on irreplaceable resources:	Irreplaceable loss of aquatic biodiversity and sensitive taxa will be experienced during the construction phase of the mine						
Impacts on loss of instream flow	Nature of impact:	The impacts on the loss of instream flow as a result of:						
	without	4	5	8	4	68	High	-
	with	3	4	6	4	52	Medium	-
	degree to which impact can be reversed:	All mitigation measures have been included in the Environmental Impact Report. Some of these mitigation measures include: -Ensure that as far as possible all infrastructures are placed outside of drainage and river areas.						
	degree of impact on irreplaceable resources:	Irreplaceable loss of instream flow will be experienced when the mine begins the construction activity.						

Rietvlei Opencast Mine - EIA and Mining Right Application

Fauna

Significance Rating Table

Construction Phase								
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)	Status (+ve or -ve)	Confidence
Impact on faunal habitat and ecological structure	Nature of impact:	The Impacts on habitat for floral species is as a result of:						
	without	2	5	8	5	75	High	-
	with	3	5	4	5	60	Medium	-
	degree to which impact can be reversed:	<ul style="list-style-type: none"> <li>Development should be excluded from the riparian habitat, as indicated on the sensitivity map.</li> <li>No areas falling outside of the subject property may be cleared for construction purposes.</li> <li>Areas of increased ecological importance and sensitivity, such as the river and wetland habitat areas,</li> </ul>						
	degree of impact on irreplaceable resources:	Irreplaceable loss of floral habitats and ecological structure will be experienced when the mine beings the construction activity.						
Impact on faunal diversity and ecological integrity	Nature of impact:	The Impacts on floral diversity is as a result of:						
	without	3	5	6	5	70	High	-
	with	3	5	4	3	36	Medium	-
	degree to which impact can be reversed:	<ul style="list-style-type: none"> <li>The proposed development footprint areas should remain as small as possible and where possible be confined to already disturbed areas.</li> <li>Sensitivity map needs to be taken into consideration during the construction phase.</li> </ul>						
	degree of impact on irreplaceable resources:	Irreplaceable loss of floral diversity and ecological integrity will be experienced when the mine beings the construction activity.						
Impact on faunal species of conservational concern	Nature of impact:	The Impacts on the loss of floral species that are of conservational concern is as a result of:						
	without	3	5	4	3	36	Medium	-
	with	2	5	2	2	18	Low	-
	degree to which impact can be reversed:	<ul style="list-style-type: none"> <li>All areas of increased ecological sensitivity should be marked as such and be off limits to all unauthorised construction and operational vehicles and personnel.</li> <li>No trapping or hunting of fauna is to take place.</li> </ul>						
	degree of impact on irreplaceable resources:	Irreplaceable loss of floral species of conservational concern will be experienced when the mine beings the construction activity.						

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Fauna

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Operational Phase								
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)	Status (+ve or -ve)	Confidence
Impact on faunal habitat and ecological structure	Nature of impact:	The Impacts on habitat for floral species is as a result of:						
	without	2	5	8	5	75	High	-
	with	3	5	4	5	60	Medium	-
	degree to which impact can be reversed:	<ul style="list-style-type: none"> <li>Development should be excluded from the riparian habitat, as indicated on the sensitivity map.</li> <li>No areas falling outside of the subject property may be cleared for construction purposes.</li> <li>Areas of increased ecological importance and sensitivity, such as the river and wetland habitat areas,</li> </ul>						
	degree of impact on irreplaceable resources:	Irreplaceable loss of floral habitats and ecological structure will be experienced when the mine beings operating						
Impact on faunal diversity and ecological integrity	Nature of impact:	The Impacts on floral diversity is as a result of:						
	without	3	5	6	5	70	High	-
	with	3	5	4	3	36	Medium	-
	degree to which impact can be reversed:	<ul style="list-style-type: none"> <li>The proposed development footprint areas should remain as small as possible and where possible be confined to already disturbed areas.</li> <li>Sensitivity map needs to be taken into consideration during the construction phase.</li> </ul>						
	degree of impact on irreplaceable resources:	Irreplaceable loss of floral diversity and ecological integrity will be experienced when the mine beings operating.						
Impact on faunal species of conservational concern	Nature of impact:	The Impacts on the loss of floral species that are of conservational concern is as a result of:						
	without	3	5	4	3	36	Medium	-
	with	2	5	2	2	18	Low	-
	degree to which impact can be reversed:	<ul style="list-style-type: none"> <li>All areas of increased ecological sensitivity should be marked as such and be off limits to all unauthorised construction and operational vehicles and personnel.</li> <li>No trapping or hunting of fauna is to take place.</li> </ul>						
	degree of impact on irreplaceable resources:	Irreplaceable loss of floral species of conservational concern will be experienced when the mine beings operating.						

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Decommissioning Phase								
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)	Status (+ve or -ve)	Confidence
Impact on faunal habitat and ecological structure	Nature of impact:	The Impacts on habitat for floral species is as a result of:						
	without	2	5	8	5	75	High	-
	with	3	5	4	5	60	Medium	-
	degree to which impact can be reversed:	<ul style="list-style-type: none"> <li>Development should be excluded from the riparian habitat, as indicated on the sensitivity map.</li> <li>No areas falling outside of the subject property may be cleared for construction purposes.</li> <li>Areas of increased ecological importance and sensitivity, such as the river and wetland habitat areas,</li> </ul>						
	degree of impact on irreplaceable resources:	N/A						
Impact on faunal diversity and ecological integrity	Nature of impact:	The Impacts on floral diversity is as a result of:						
	without	3	5	6	5	70	High	-
	with	3	5	4	3	36	Medium	-
	degree to which impact can be reversed:	<ul style="list-style-type: none"> <li>The proposed development footprint areas should remain as small as possible and where possible be confined to already disturbed areas.</li> <li>Sensitivity map needs to be taken into consideration during the construction phase.</li> </ul>						
	degree of impact on irreplaceable resources:	N/A						
Impact on faunal species of conservational concern	Nature of impact:	The Impacts on the loss of floral species that are of conservational concern is as a result of:						
	without	3	5	4	3	36	Medium	-
	with	2	5	2	2	18	Low	-
	degree to which impact can be reversed:	<ul style="list-style-type: none"> <li>All areas of increased ecological sensitivity should be marked as such and be off limits to all unauthorised construction and operational vehicles and personnel.</li> <li>No trapping or hunting of fauna is to take place.</li> </ul>						

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Flora

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Construction Phase

Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)	Status (+ve or -ve)	Confidence
Impacts on habitat for floral species	Nature of impact:	The Impacts on habitat for floral species is as a result of:						
	without	3	5	6	4	56	Medium	-
	with	3	4	4	3	33	Medium	-
	degree to which impact can be reversed:	<ul style="list-style-type: none"> <li>- All sensitive areas that have been identified must be considered throughout all development phases. No activities are to infringe upon these sensitive areas or associated buffer zones.</li> <li>- The boundaries of the development footprint areas are to be clearly defined and it should be ensured</li> </ul>						
	degree of impact on irreplaceable resources:	Irreplaceable loss of floral habitats will be experienced when the mine beings the construction activity.						
Impacts on floral diversity	Nature of impact:	The Impacts on floral diversity is as a result of:						
	without	3	5	6	4	56	Medium	-
	with	3	3	4	3	30	Low	-
	degree to which impact can be reversed:	<ul style="list-style-type: none"> <li>- A sensitivity map has been developed for the subject property, indicating wetland areas which are considered to be of increased ecological importance. It is recommended that this sensitivity map be considered during all development phases to aid in the conservation of floral habitat within the subject</li> </ul>						
	degree of impact on irreplaceable resources:	Irreplaceable loss of floral diversity will be experienced when the mine beings the construction activity.						
Impact on floral species of conservational concern	Nature of impact:	The Impacts on the loss of floral species that are of conservational concern is as a result of:						
	without	1	5	2	3	24	Low	-
	with	2	4	2	2	16	Low	-
	degree to which impact can be reversed:	<ul style="list-style-type: none"> <li>- A sensitivity map has been developed for the subject property, indicating wetland areas which are considered to be of increased ecological importance. It is recommended that this sensitivity map be considered during all development phases to aid in the conservation of floral habitat within the subject</li> </ul>						
	degree of impact on irreplaceable resources:	Irreplaceable loss of floral species of conservational concern will be experienced when the mine beings the construction activity.						

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Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)	Status (+ve or -ve)	Confidence
Impacts on habitat for floral species	Nature of impact:	The Impacts on habitat for floral species is as a result of:						
	without	3	5	6	4	56	Medium	
	with	3	4	4	3	33	Medium	
	degree to which impact can be reversed:	<ul style="list-style-type: none"> <li>- All sensitive areas that have been identified must be considered throughout all development phases. No activities are to infringe upon these sensitive areas or associated buffer zones.</li> <li>- The boundaries of the development footprint areas are to be clearly defined and it should be ensured</li> </ul>						
	degree of impact on irreplaceable resources:	Irreplaceable loss of floral habitats will be experienced during the operation of the mine.						
Impacts on floral diversity	Nature of impact:	The Impacts on floral diversity is as a result of:						
	without	3	5	6	4	56	Medium	-
	with	3	3	4	3	30	Low	-
	degree to which impact can be reversed:	<ul style="list-style-type: none"> <li>- A sensitivity map has been developed for the subject property, indicating wetland areas which are considered to be of increased ecological importance. It is recommended that this sensitivity map be considered during all development phases to aid in the conservation of floral habitat within the subject</li> </ul>						
	degree of impact on irreplaceable resources:	Irreplaceable loss of floral diversity will be experienced during the operation of the mine.						
Impact on floral species of conservational concern	Nature of impact:	The Impacts on floral diversity is as a result of:						
	without	1	5	2	3	24	Low	-
	with	2	4	2	2	16	Low	-
	degree to which impact can be reversed:	<ul style="list-style-type: none"> <li>- A sensitivity map has been developed for the subject property, indicating wetland areas which are considered to be of increased ecological importance. It is recommended that this sensitivity map be considered during all development phases to aid in the conservation of floral habitat within the subject</li> </ul>						
	degree of impact on irreplaceable resources:	Irreplaceable loss of floral species of conservational concern will be experienced during the operation of the mine.						

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Decommissioning Phase

Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)	Status (+ve or -ve)	Confidence
Impacts on habitat for floral species	Nature of impact:	The Impacts on habitat for floral species is as a result of:						
	without	3	5	6	4	56	Medium	-
	with	3	4	4	3	33	Medium	-
	degree to which impact can be reversed:	<ul style="list-style-type: none"> <li>- All sensitive areas that have been identified must be considered throughout all development phases. No activities are to infringe upon these sensitive areas or associated buffer zones.</li> <li>- The boundaries of the development footprint areas are to be clearly defined and it should be ensured</li> </ul>						
	degree of impact on irreplaceable resources:	N/A						
Impacts on floral diversity	Nature of impact:	The Impacts on floral diversity is as a result of:						
	without	3	5	6	4	56	Medium	-
	with	3	3	4	3	30	Low	-
	degree to which impact can be reversed:	<ul style="list-style-type: none"> <li>- A sensitivity map has been developed for the subject property, indicating wetland areas which are considered to be of increased ecological importance. It is recommended that this sensitivity map be considered during all development phases to aid in the conservation of floral habitat within the subject</li> </ul>						
	degree of impact on irreplaceable resources:	N/A						
Impact on floral species of conservational concern	Nature of impact:	The Impacts on floral diversity is as a result of:						
	without	1	5	2	3	24	Low	-
	with	2	4	2	2	16	Low	-
	degree to which impact can be reversed:	<ul style="list-style-type: none"> <li>- A sensitivity map has been developed for the subject property, indicating wetland areas which are considered to be of increased ecological importance. It is recommended that this sensitivity map be considered during all development phases to aid in the conservation of floral habitat within the subject</li> </ul>						
	degree of impact on irreplaceable resources:	N/A						



Rietvlei Opencast Mine - EIA and Mining Right Application

Geochemical

Significance Rating Table

Operational Phase								
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)	Status (+ve or -ve)	Confidence
Acid Mine Drainage	Nature of impact:	The impact that acid mine drainage can have on fresh groundwater sources i.e. pollution.						
	without	3	5	8	2	32	Medium	-
	with	2	5	4	2	22	Low	-
	degree to which impact can be reversed:	Continuous monitoring and sampling of the water quality must be implemented to ensure that the water remains neutral. Lime stone can be used to neutralise the water to prevent the generation of acid water.						
	degree of impact on irreplaceable resources:	N/A						

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Geochemical

Significance Rating Table

Decommissioning Phase

Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)	Status (+ve or -ve)	Confidence
Acid Mine Drainage	Nature of impact:	The impact that acid mine drainage can have on fresh groundwater sources i.e. pollution.						
	without	3	5	8	2	32	Medium	-
	with	2	5	4	2	22	Low	-
	degree to which impact can be reversed:	Continuous monitoring and sampling of the water quality must be implemented even after the operational has ceased to ensure that the water remains neutral and does not contaminate any groundwater through seepage. Lime stone can be used to neutralise the water to prevent the generation of acid water. Water can be pumped out once the mine has closed however this is depended on whether it is feasible to do so.						
	degree of impact on irreplaceable resources:	N/A						

Rietvlei Opencast Mine - EIA and Mining Right Application

Geology

Significance Rating Table

Construction Phase

Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)	Status (+vet or -vet)	Confidence
Removal of overburden and rock for infrastructure development.	Nature of impact:	The removal of rocks so that infrastructure for the development of mining infrastructure can have an impact on the natural geology of the						
	without	3	3	6	5	60	Medium	-
	with	2	3	4	5	45	Medium	-
	degree to which impact can be reversed:	Formulate and implement a blasting design that will ensure the least impact on the environment. The minimal amount of soils will be stripped on the sections to be blasted in order to reduce the potential for air blasts.						
	degree of impact on irreplaceable resources:	The underlying geology of the area will be permanently altered						
Blasting and subsequent removal of geology.	Nature of impact:	Blasting will be required in order make the ground level which will allow the construction of the mine and all necessary structures. Ground						
	without	3	3	6	5	60	Medium	-
	with	2	3	4	5	45	Medium	-
	degree to which impact can be reversed:	Formulate and implement a blasting design that will ensure the least impact on the environment. The minimal amount of soils will be stripped on the sections to be blasted in order to reduce the potential for air blasts.						
	degree of impact on irreplaceable resources:	The underlying geology of the area will be permanently altered						

Rietvlei Opencast Mine - EIA and Mining Right Application

Geology

Significance Rating Table

Operational Phase								
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)	Status (+ve or -ve)	Confidence
Permanent loss in a natural, non-renewable resource and associated geology.	Nature of impact:	The Rietvlei opencast operation will consist of one pit. The pit will be divided into northern and southern Sections by a single box cut						
	without	3	3	6	5	60	Medium	-
	with	2	3	6	5	55	Medium	-
	degree to which impact can be reversed:	Formulate and implement a blasting design that will ensure the least impact on the environment. The minimal amount of soils will be stripped on the sections to be blasted in order to reduce the potential for air blasts.						
	degree of impact on irreplaceable resources:	The underlying geology of the area will be permanently altered						

Rietvlei Opencast Mine - EIA and Mining Right Application

Groundwater

Significance Rating Table

Construction Phase								
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)	Status (+ve or -ve)	Confidence
Decreasing of the soils buffering capacity and increasing of infiltration rates	Nature of impact:	The clearing of topsoil for footprint areas associated with the waste site construction can increase infiltration rates of water to the						
	without	1	2	2	5	25	Low	-
	with	1	2	2	5	25	Low	-
	degree to which impact can be reversed:	Mitigation is not possible. Construction phase should be carried out under the supervision of an accredited or recognised professional civil engineer, as approved by the designer						
	degree of impact on irreplaceable resources:	N/A						
Altered Flow systems due to probable dewatering (if required)	Nature of impact:	During construction phase, it would be necessary to construct the berms to prevent storm water runoff to enter working area within the						
	without	2	2	4	5	40	Medium	-
	with	2	2	4	5	40	Medium	-
	degree to which impact can be reversed:	Mitigation is not possible. Construction phase should be carried out under the supervision of an accredited or recognised professional civil engineer, as approved by the designer						
	degree of impact on irreplaceable resources:	N/A						
Deterioration of water quality due to construction waste (Chemical in construction material)	Nature of impact:	Contamination of groundwater can occur as a result of groundwater seeps standing in the footprint area. The construction activities are						
	without	2	1	6	5	45	Medium	-
	with	1	1	2	2	8	Low	-
	degree to which impact can be reversed:	Any waste and spills (especially during construction and closure) need to be cleaned up immediately according to the departmental minimum requirements.						

construction material)	degree of impact on irreplaceable resources:	The determination of water quality as a result in the accidental spills of hydrocarbons as a result of vehicles and chemical spills.						
Deterioration of water quality due to hydrocarbon spills from storage (organic contaminants)	Nature of impact:	Contamination of groundwater can occur as a result of groundwater seeps standing in the footprint area. The construction activities are						
	without	2	3	6	5	55	Medium	-
	with	1	2	2	3	15	Low	-
	degree to which impact can be reversed:	Any waste and spills (specially during construction and closure) need to be cleaned up immediately according to the departmental minimum requirements;						
Groundwater contamination due to groundwater seeps standing in the construction's footprint area.	degree of impact on irreplaceable resources:	The determination of water quality as a result in the accidental spills of hydrocarbons and chemical spills.						
	Nature of impact:	Contamination of groundwater can occur as a result of groundwater seeps standing in the footprint area. The construction activities are						
	without	1	3	6	5	50	Medium	-
	with	1	1	2	2	8	Low	-
degree to which impact can be reversed:	Groundwater seeps must be dewatered and contained in dirty water dams.							
degree of impact on irreplaceable resources:	N/A							

Rietvlei Opencast Mine - EIA and Mining Right Application

Groundwater

Significance Rating Table

Operational Phase								
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)	Status (+ve or -ve)	Confidence
Drop of groundwater levels due to open pit dewatering	Nature of impact:	Opencast mining of coal will result in groundwater inflows into the pits, which needs to be pumped out for mine safety. The dewatering of						
	without	3	4	8	5	75	High	-
	with	3	4	8	5	75	High	-
	degree to which impact can be reversed:	Mine needs to agree with affected land owners on friendly solutions for issues related to drawdown cone. This impact needs to be monitored. Application for WULA amendment as per DWA requirements must be made for proposed new abstraction boreholes if any required.						
	degree of impact on irreplaceable resources:	Groundwater levels will drop which can have an irreversible effect on the communities relying on boreholes water for their livelihood and rivers in the areas may become dry as the water level is depleted						
Deterioration of groundwater quality due to rock dumps.	Nature of impact:	Overburden dumping: the exposure of rock dumps, to water and oxygen, may result in dirty water that may contaminate groundwater						
	without	3	4	4	4	44	Medium	-
	with	1	1	2	3	12	Low	-
	degree to which impact can be reversed:	Separate clean water from the dumps area, drain dirty water to dirty water dam. Rock dumps areas must be designed with the appropriate water barrier system if required, and comply with the DWA minimum requirements (1998/2012/2013), with special focus on the R634, R635, R636 of the NEMWA 2008						
	degree of impact on irreplaceable resources:	N/A						
Deterioration of groundwater quality due to open pit mining.	Nature of impact:	Exposure of geological strata to rainfall in the opencast areas will result in deterioration in quality of groundwater flowing into the opencast						
	without	3	4	6	5	65	High	-
	with	2	3	6	4	44	Medium	-
	degree to which impact can be reversed:	Keep contamination to a minimum by keeping the pit as dry (dewatering) as possible to reduce contact time of water and oxygen with exposed strata. Mine water must be contained and/or re used as much as possible. Trucks need to be maintained and capped to minimise loss of coal on roads. Separate clean water from the stockpiling area						

	degree of impact on irreplaceable resources:	Contaminate deep aquifer systems						
Deterioration of groundwater quality due to coal processing	Nature of impact:	Coal processing: coal will be exposed at the washing plant area to water and oxygen, resulting in dirty water, and spills/slurry from the site						
	without	3	4	8	5	75	High	-
	with	2	1	4	2	14	Low	-
	degree to which impact can be reversed:	Spills from the coal processing (crushing, screening and washing) in the plant area needs to be cleaned up immediately according to the DWA minimum requirements and rehabilitation should follow.						
	degree of impact on irreplaceable resources:	N/A						
Deterioration of groundwater quality due to tailings disposal	Nature of impact:	Tailing disposal: residual from coal processing will be disposed of onsite as tailings dam. Tailings constitute a potential source of						
	without	3	4	8	5	75	High	-
	with	3	1	2	4	24	Low	-
	degree to which impact can be reversed:	Tailings dam must be maintained and operated according to design as approved by DWA. Effectiveness of existing monitoring borehole position should be re-evaluated periodically according DWA requirements. Continuous monitoring should implement.						
	degree of impact on irreplaceable resources:	Groundwater Contamination						
Deterioration of groundwater quality due to leaks/spillages from dirty water quality dams and drain	Nature of impact:	Dirty water from any of these activities should be drained, or pumped (where required) to pollution control dams. Pollution control dams,						
	without	3	4	8	4	60	Medium	-
	with	1	1	2	3	12	Low	-
	degree to which impact can be reversed:	Pollution control dams and associated drains should be maintained and operated according design as approved by DWA. Effectiveness of existing monitoring borehole position should be re-evaluated periodically according DWA requirements.						
	degree of impact on irreplaceable resources:	N/A						
Deterioration of groundwater quality due to handling and transport of waste material.	Nature of impact:	Stockpiling and transport: the exposure of stockpiling and transporting of coal, to water and oxygen, together with hydrocarbon spills from						
	without	3	4	6	3	39	Medium	-
	with	1	2	2	3	15	Low	-
	degree to which impact can be reversed:	Waste needs to be discarded and spills cleaned up immediately according to the WULA conditions. DWA should be notified in the event of a spill.						
	degree of impact on irreplaceable resources:	N/A						



Rietvlei Opencast Mine - EIA and Mining Right Application

Groundwater

Significance Rating Table

Decommissioning Phase								
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)	Status (+ve or -ve)	Confidence
During decommissioning handling of waste and transport of building material can cause various types of spills (domestic waste, sewage water, hydrocarbons) which can infiltrate and cause contamination of the groundwater system.	Nature of impact:	Contaminants from the mine (including backfilled opencast pits and return water dams) can seep through the unsaturated zone into the						
	without	3	3	6	4	48	Medium	-
	with	2	3	4	4	36	Medium	-
	degree to which impact can be reversed:	Waste needs to be discarded and spills cleaned up immediately according to the WULA conditions. DWA should be notified in the event of a spill. Rubble from waste or contaminated areas should be dismantled and disposed of accordingly. Regular maintenance of vehicles must be implemented; Trucks need to be capped to minimise spillage						
	degree of impact on irreplaceable resources:	N/A						
Flooding and decanting of open pit	Nature of impact:	Dewatering would be stopped at that stage, and open pit flooding will occur, as recovering of groundwater levels. At this point in time it is						
	without	3	5	8	5	80	High	-
	with	2	3	6	4	44	Medium	-
	degree to which impact can be reversed:	Monitoring should continue, and numerical groundwater model updated on annual basis. Backfill material to be fully compacted and covered, and the entire foot print of waste to be shaped for free-draining, rehabilitation to follow.						
	degree of impact on irreplaceable resources:	N/A						

Rietvlei Opencast Mine - EIA and Mining Right Application

Heritage

Significance Rating Table

Construction Phase									
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)	Status (+ve or -ve)	Confidence	
Destruction of Graveyard	Nature of impact:	As the mine commences the graves located on the site will be impacted upon as a result of construction activities.							
	without	1	5	10	5	80	High	-	High
	with	1	1	2	4	16	Low	-	High
	degree to which impact can be reversed:	The graveyards must be mitigated by means of exhumation and relocation. This task is undertaken by forensic archaeologists or by reputed undertakers who are acquainted with all the administrative procedures and relevant legislation that have to be adhered to whenever human remains are exhumed and relocated.							
	degree of impact on irreplaceable resources:	N/A							

Rietvlei Opencast Mine - EIA and Mining Right Application

Land Capability

Significance Rating Table

Construction Phase								
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)	Status (+ve or -ve)	Confidence
Stripping of topsoil at the initial box cut footprint	Nature of impact:	The land capability at the footprint of the box cut will reduce from mainly arable land to none because there will be no topsoil.						
	without	1	5	10	5	80	High	-
	with	1	5	10	5	80	High	-
	degree to which impact can be reversed:	All mitigation measures applied on soils will mitigate land capability as far as possible						
	degree of impact on irreplaceable resources:	The Impact will result in a partially irreplaceable loss of resources with regards to topsoil						
Possible contamination of soil by spillages of fuel or oil by mechanical equipment	Nature of impact:	Soil physical and chemical properties will be adversely affected and will cause some reduction in land capability .						
	without	1	1	8	4	40	Medium	-
	with	1	1	4	1	6	Low	-
	degree to which impact can be reversed:	All mitigation measures applied on soils will mitigate land capability as far as possible						
	degree of impact on irreplaceable resources:	The impact on natural, cultural and / or social structures, functions and processes is totally reversible with regards to contamination of soil						
Construction of topsoil, soft and hard overburden stockpiles during initial box cuts	Nature of impact:	The land capability at the footprints where topsoil or overburden material are stockpiled will reduce from arable and grazing to none						
	without	1	4	10	5	75	High	-
	with	1	4	10	5	75	High	-
	degree to which impact can be reversed:	All mitigation measures applied on soils will mitigate land capability as far as possible						

	degree of impact on irreplaceable resources:	The impact on natural, cultural and / or social structures, functions and processes is totally reversible with regards to construction of topsoil						
Construction of haul roads	Nature of impact:	The current arable and grazing land capability will cease completely until the structure is removed and the footprint is rehabilitated.						
	without	1	4	10	5	75	High	-
	with	1	4	10	5	75	High	-
	degree to which impact can be reversed:	All mitigation measures applied on soils will mitigate land capability as far as possible						
	degree of impact on irreplaceable resources:	The impact on natural, cultural and / or social structures, functions and processes is totally reversible with regards to construction of haul roads						
Construction of access roads and diversion of existing access road	Nature of impact:	The current arable and grazing land capability will cease completely until the structure is removed and the footprint rehabilitated.						
	without	1	4	10	5	75	High	-
	with	1	4	10	5	75	High	-
	degree to which impact can be reversed:	All mitigation measures applied on soils will mitigate land capability as far as possible						
	degree of impact on irreplaceable resources:	The impact on natural, cultural and / or social structures, functions and processes is totally reversible with regards to construction of access roads						
Construction of Pollution control dam	Nature of impact:	The land capability at the footprint of the dam will reduce from arable land and grazing to none because the structure will occupy the						
	without	2	4	10	5	80	High	-
	with	1	4	10	5	75	High	-
	degree to which impact can be reversed:	All mitigation measures applied on soils will mitigate land capability as far as possible						
	degree of impact on irreplaceable resources:	The impact on natural, cultural and / or social structures, functions and processes is totally reversible with regards to construction of pollution control dam						
Construction of office workshop complex including offices, heavy vehicle workshop, stores, vehicle parking areas	Nature of impact:	The current arable and grazing land capability will cease completely until the structure is removed.						
	without	1	4	10	5	75	High	-
	with	1	4	10	5	75	High	-
	degree to which impact can be reversed:	All mitigation measures applied on soils will mitigate land capability as far as possible						
	degree of impact on irreplaceable resources:	The impact on natural, cultural and / or social structures, functions and processes is totally reversible with regards to construction of an office workshop complex						

Rietvlei Opencast Mine - EIA and Mining Right Application

Land Capability

Significance Rating Table

Operational Phase								
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)	Status (+ve or -ve)	Confidence
Progressive stripping of topsoil at opencast footprint and stockpiling thereof before direct replacing is initiated	Nature of impact:	The land capability at the footprint of the open pit will reduce from mainly arable land to none because there will be no topsoil.						
	without	1	5	10	5	80	High	-
	with	1	5	10	5	80	High	-
	degree to which impact can be reversed:	All mitigation measures applied on soils will mitigate land capability as far as possible						
	degree of impact on irreplaceable resources:	The Impact will result in a partially irreplaceable loss of resources with regards to topsoil						
Expansion of topsoil, soft and hard overburden stockpiles during the operational phase as open pit expands	Nature of impact:	The land capability at the footprints where topsoil or overburden material are stockpiled will reduce from arable and grazing to none						
	without	1	4	10	5	75	High	-
	with	1	4	10	5	75	High	-
	degree to which impact can be reversed:	All mitigation measures applied on soils will mitigate land capability as far as possible						
	degree of impact on irreplaceable resources:	The Impact will result in a partially irreplaceable loss of resources with regards to topsoil						
Progressive stripping of topsoil at opencast footprint and direct replacing thereof	Nature of impact:	The impacts on soils as described above will cause a reduction in land capability. However, the post-mining land capability will remain arable						
	without	1	5	10	5	80	High	-
	with	1	5	6	4	48	Medium	-
	degree to which impact can be reversed:	All mitigation measures applied on soils will mitigate land capability as far as possible						

	degree of impact on irreplaceable resources:	The Impact will result in a partially irreplaceable loss of resources with regards to topsoil						
Use of haul roads	Nature of impact:	The pre-mining land capability at roads and haul road footprints will remain ceased. Altered soil chemical status might hamper land						
	without	1	4	10	5	75	High	-
	with	1	4	10	5	75	High	-
	degree to which impact can be reversed:	All mitigation measures applied on soils will mitigate land capability as far as possible						
	degree of impact on irreplaceable resources:	The impact on natural, cultural and / or social structures, functions and processes is totally reversible with regards to construction of haul roads						
Use of pollution control dams	Nature of impact:	The pre-mining land capability will remain ceased. Altered soil chemical status due to leaks or overflows might hamper land capability to						
	without	2	4	10	5	80	High	-
	with	2	4	10	5	80	High	-
	degree to which impact can be reversed:	All mitigation measures applied on soils will mitigate land capability as far as possible						
	degree of impact on irreplaceable resources:	The impact on natural, cultural and / or social structures, functions and processes is totally reversible with regards to construction of pollution control dam						
Use of diesel, petroleum and oil storage on site	Nature of impact:	The pre-mining land capability will be influenced negatively.						
	without	1	1	8	4	40	Medium	-
	with	1	1	4	4	24	Low	-
	degree to which impact can be reversed:	All mitigation measures applied on soils will mitigate land capability as far as possible						
	degree of impact on irreplaceable resources:	The impact on natural, cultural and / or social structures, functions and processes is totally reversible with regards to the use of hydrocarbons						
Use of coal stockpiles and ROM tip	Nature of impact:	Pre-mining land capability will remain ceased. Altered soil chemical status might hamper land capability to some extent.						
	without	1	4	10	5	75	High	-
	with	1	4	10	5	75	High	-
	degree to which impact can be reversed:	All mitigation measures applied on soils will mitigate land capability as far as possible						
	degree of impact on irreplaceable resources:	The impact on natural, cultural and / or social structures, functions and processes is totally reversible with regards to the coal stockpiles						

Rietvlei Opencast Mine - EIA and Mining Right Application

Land Capability

Significance Rating Table

Decommissioning Phase

Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)	Status (+ve or -ve)	Confidence
Rehabilitation of remaining open pit and final voids	Nature of impact:	This is not an impact but a continuation of mitigation measures. If all mitigation measures for soils were applied correctly approximately						
	without							
	with	1	5	8	4	56	Medium	+
	degree to which impact can be reversed:	As for soils above. The post-mining land capability will be arable or grazing.						
	degree of impact on irreplaceable resources:	N/A						
Removal of all stockpiles and dumps and rehabilitation of the footprints	Nature of impact:	This is not an impact but a continuation of mitigation measures. If all mitigation measures for soils were applied correctly the pre-mining						
	without							
	with	1	4	6	4	44	Medium	+
	degree to which impact can be reversed:	As for soils above. The post-mining land capability will be arable or grazing.						
	degree of impact on irreplaceable resources:	N/A						
Demolishing and rehabilitation of roads and haul roads	Nature of impact:	This is not an impact but a continuation of mitigation measures. If all mitigation measures for soils were applied correctly the pre-mining						
	without							
	with	1	4	6	4	44	Medium	+
	degree to which impact can be reversed:	As for soils above. The post-mining land capability will be arable or grazing.						

	degree of impact on irreplaceable resources:	N/A						
Demolishing of Pollution control dams	Nature of impact:	Removal of polluted material and levelling of wall embankments. (This is not an impact but a continuation of mitigation measures. The only						
	without							
	with	1	4	6	4	44	Medium	+
	degree to which impact can be reversed:	As for soils above. The post-mining land capability will be arable or grazing.						
	degree of impact on irreplaceable resources:	N/A						
Demolishing and rehabilitation of coal stockpiles and ROM tip area	Nature of impact:	This is not an impact but a continuation of mitigation measures. If all mitigation measures for soils were applied correctly the pre-mining						
	without							
	with	1	4	6	4	44	Medium	+
	degree to which impact can be reversed:	As for soils above. The post-mining land capability will be arable or grazing.						
	degree of impact on irreplaceable resources:	N/A						
Demolishing and rehabilitation of the office workshop complex	Nature of impact:	This is not an impact but a continuation of mitigation measures. If all mitigation measures for soils were applied correctly the pre-mining						
	without							
	with	1	4	4	4	36	Medium	
	degree to which impact can be reversed:	As for soils above. The post-mining land capability will be arable or grazing.						
	degree of impact on irreplaceable resources:	N/A						



Rietvlei Opencast Mine - EIA and Mining Right Application

Land Use

Significance Rating Table

Construction Phase									
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)		Status (+ve or -ve)	Confidence
Stripping of topsoil at the initial box cut footprint	Nature of impact:	The land use at the footprint of the box cut will reduce from forestry, cultivation and grazing to none because there will be no topsoil.							
	without	1	5	10	5	80	High	-	
	with	1	5	10	5	80	High	-	
	degree to which impact can be reversed:	All mitigation measures applied on soils will mitigate land capability as far as possible							
	degree of impact on irreplaceable resources:	The Impact will result in a partially irreplaceable loss of resources with regards to topsoil							
Possible contamination of soil by spillages of fuel or oil by mechanical equipment	Nature of impact:	Soil physical and chemical properties will be adversely affected and will cause some reduction in land capability .							
	without	1	1	8	4	40	Medium	-	
	with	1	1	4	1	6	Low	-	
	degree to which impact can be reversed:	All mitigation measures applied on soils will mitigate land capability as far as possible							
	degree of impact on irreplaceable resources:	The impact on natural, cultural and / or social structures, functions and processes is totally reversible with regards to contamination of soil							
Construction of topsoil, soft and hard overburden stockpiles during initial box cuts	Nature of impact:	The land use at the footprint where topsoil and overburden material are stockpiled will reduce from forestry, cultivation and grazing to none							
	without	1	4	10	5	75	High	-	
	with	1	4	10	5	75	High	-	
	degree to which impact can be reversed:	All mitigation measures applied on soils will mitigate land capability as far as possible							
	degree of impact on irreplaceable resources:	The impact on natural, cultural and / or social structures, functions and processes is totally reversible with regards to construction of topsoil							
Construction of haul roads	Nature of impact:	The current arable and grazing land capability will cease completely until the structure is removed and the footprint is rehabilitated.							
	without	1	4	10	5	75	High	-	
	with	1	4	10	5	75	High	-	
	degree to which impact can be reversed:	All mitigation measures applied on soils will mitigate land capability as far as possible							
	degree of impact on irreplaceable resources:	The impact on natural, cultural and / or social structures, functions and processes is totally reversible with regards to construction of haul roads							
Construction of access roads and diversion of existing access road	Nature of impact:	The current arable and grazing land capability will cease completely until the structure is removed and the footprint rehabilitated.							
	without	1	4	10	5	75	High	-	
	with	1	4	10	5	75	High	-	
	degree to which impact can be reversed:	All mitigation measures applied on soils will mitigate land capability as far as possible							
	degree of impact on irreplaceable resources:	The impact on natural, cultural and / or social structures, functions and processes is totally reversible with regards to construction of access roads							
	Nature of impact:	The land use at the footprint of the dam will reduce from forestry, cultivation and grazing to none because there will be no topsoil. The land							

Construction of Pollution control dam	without	2	4	10	5	80	High	-	
	with	1	4	10	5	75	High	-	
	degree to which impact can be reversed:	All mitigation measures applied on soils will mitigate land uses as far as possible							
	degree of impact on irreplaceable resources:	The impact on natural, cultural and / or social structures, functions and processes is totally reversible with regards to construction of pollution control dam							
Construction of office workshop complex including offices, heavy vehicle workshop, stores, vehicle parking areas	Nature of impact:	The current arable and grazing land capability will cease completely until the structure is removed.							
	without	1	4	10	5	75	High	-	
	with	1	4	10	5	75	High	-	
	degree to which impact can be reversed:	All mitigation measures applied on soils will mitigate land capability as far as possible							
	degree of impact on irreplaceable resources:	The impact on natural, cultural and / or social structures, functions and processes is totally reversible with regards to construction of an office workshop complex							

Rietvlei Opencast Mine - EIA and Mining Right Application

Land Use

Significance Rating Table

Operational Phase								
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)	Status (+ve or -ve)	Confidence
Progressive stripping of topsoil at opencast footprint and stockpiling thereof before direct replacing is initiated	Nature of impact:	The land use at the footprint of the open pit will reduce from forestry, cultivation and grazing to none because there will be no topsoil.						
	without	1	5	10	5	80	High	-
	with	1	5	10	5	80	High	-
	degree to which impact can be reversed:	All mitigation measures applied on soils will mitigate land uses as far as possible						
	degree of impact on irreplaceable resources:	The Impact will result in a partially irreplaceable loss of resources with regards to topsoil						
Expansion of topsoil, soft and hard overburden stockpiles during the operational phase as open pit expands	Nature of impact:	The land use at the footprint where topsoil and overburden material are stockpiled will reduce from forestry, cultivation and grazing to none						
	without	1	4	10	5	75	High	-
	with	1	4	10	5	75	High	-
	degree to which impact can be reversed:	All mitigation measures applied on soils will mitigate land uses as far as possible						
	degree of impact on irreplaceable resources:	The Impact will result in a partially irreplaceable loss of resources with regards to topsoil						
Progressive stripping of topsoil at opencast footprint and direct replacing thereof	Nature of impact:	A reduction in land capability will reduce crop production potential and subsequent crop yields. However, the pre-mining land uses which						
	without	1	5	10	5	80	High	-
	with	1	5	6	4	48	Medium	-
	degree to which impact can be reversed:	All mitigation measures applied on soils will mitigate land uses as far as possible						

	degree of impact on irreplaceable resources:	The Impact will result in a partially irreplaceable loss of resources with regards to topsoil						
Use of haul roads	Nature of impact:	The pre-mining land capability at roads and haul road footprints will remain ceased. Altered soil chemical status might hamper land						
	without	1	4	10	5	75	High	-
	with	1	4	10	5	75	High	-
	degree to which impact can be reversed:	All mitigation measures applied on soils will mitigate land capability as far as possible						
	degree of impact on irreplaceable resources:	The impact on natural, cultural and / or social structures, functions and processes is totally reversible with regards to construction of haul roads						
Use of pollution control dams	Nature of impact:	The pre-mining land capability will remain ceased. Altered soil chemical status due to leaks or overflows might hamper land capability to						
	without	2	4	10	5	80	High	-
	with	2	4	10	5	80	High	-
	degree to which impact can be reversed:	All mitigation measures applied on soils will mitigate land capability as far as possible						
	degree of impact on irreplaceable resources:	The impact on natural, cultural and / or social structures, functions and processes is totally reversible with regards to construction of pollution control dam						
Use of diesel, petroleum and oil storage on site	Nature of impact:	The pre-mining land use will be influenced negatively.						
	without	1	1	8	4	40	Medium	-
	with	1	1	4	4	24	Low	-
	degree to which impact can be reversed:	All mitigation measures applied on soils will mitigate land uses as far as possible						
	degree of impact on irreplaceable resources:	The impact on natural, cultural and / or social structures, functions and processes is totally reversible with regards to the use of hydrocarbons						
Use of coal stockpiles and ROM tip	Nature of impact:	Pre-mining land use will remain ceased. Altered soil chemical status might hamper land uses to some extent.						
	without	1	4	10	5	75	High	-
	with	1	4	10	5	75	High	-
	degree to which impact can be reversed:	All mitigation measures applied on soils will mitigate land uses as far as possible						
	degree of impact on irreplaceable resources:	The impact on natural, cultural and / or social structures, functions and processes is totally reversible with regards to the coal stockpiles						

Rietvlei Opencast Mine - EIA and Mining Right Application

Land Use

Significance Rating Table

Decommissioning Phase

Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)	Status (+ve or -ve)	Confidence
Rehabilitation of remaining open pit and final voids	Nature of impact:	This is not an impact but a continuation of mitigation measures. Possible post-mining land uses will be crop farming, forestry or grazing. The						
	without							
	with	1	5	8	4	56	Medium	+
	degree to which impact can be reversed:	As for soils above. The post-mining land use will be cultivation or grazing.						
	degree of impact on irreplaceable resources:	N/A						
Removal of all stockpiles and dumps and rehabilitation of the footprints	Nature of impact:	This is not an impact but a continuation of mitigation measures. If all mitigation measures for soils were applied correctly the pre-mining						
	without							
	with	1	4	6	4	44	Medium	+
	degree to which impact can be reversed:	As for soils above. The post-mining land use will be cultivation or grazing.						
	degree of impact on irreplaceable resources:	N/A						
Demolishing and rehabilitation of roads and haul roads	Nature of impact:	This is not an impact but a continuation of mitigation measures. If all mitigation measures for soils were applied correctly the pre-mining						
	without							
	with	1	4	6	4	44	Medium	+
	degree to which impact can be reversed:	As for soils above. The post-mining land use will be cultivation or grazing.						

	degree of impact on irreplaceable resources:	N/A						
Demolishing of Pollution control dams	Nature of impact:	This is not an impact but a continuation of mitigation measures. If all mitigation measures for soils were applied correctly the pre-mining						
	without							
	with	1	4	6	4	44	Medium	+
	degree to which impact can be reversed:	As for soils above. The post-mining land use will be cultivation or grazing.						
	degree of impact on irreplaceable resources:	N/A						
Demolishing and rehabilitation of coal stockpiles and ROM tip area	Nature of impact:	This is not an impact but a continuation of mitigation measures. If all mitigation measures for soils were applied correctly the pre-mining						
	without							
	with	1	4	6	4	44	Medium	+
	degree to which impact can be reversed:	As for soils above. The post-mining land uses will be grazing or cultivation.						
	degree of impact on irreplaceable resources:	N/A						
Demolishing and rehabilitation of the office workshop complex	Nature of impact:	This is not an impact but a continuation of mitigation measures. If all mitigation measures for soils were applied correctly the pre-mining						
	without							
	with	1	4	4	4	36	Medium	
	degree to which impact can be reversed:	As for soils above. The post-mining land use can be cultivation or grazing.						
	degree of impact on irreplaceable resources:	N/A						

Rietvlei Opencast Mine - EIA and Mining Right Application

Noise

Significance Rating Table

Construction Phase								
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)	Status (+ve or -ve)	Confidence
Construction of the Opencast Pit	Nature of impact:	The use of Drilling and shovel machinery during the construction of the open cast pit where this equipment is located at the nearest point to						
	without	1	1	4	3	18	Low	-
	with	1	1	2	3	12	Low	-
	degree to which impact can be reversed:	- Due to the level of noise and few dwellings indicated in close proximity of the site the impact is considered to be low when mitigation measures such as maintenance of the machinery is implemented. '- As the site is proposed to be located in a rural setting with minimal noise therefore an increase in noise level from the construction of the mine would be seen to be irreversible						
	degree of impact on irreplaceable resources:	N/A						
Construction Noise and its effect on Livestock	Nature of impact:	The construction noise can have an effect on livestock and wildlife as they are sensitive to noise, blasting and ground vibrations						
	without	1	1	4	3	18	Low	-
	with	1	1	2	3	12	Low	-
	degree to which impact can be reversed:	Livestock is not predicted to be severely affected by the operational noise produced from the mine. Mitigation measures can include Regular monitoring of the exposed livestock to ascertain if there are any adverse reactions						
	degree of impact on irreplaceable resources:	N/A						

Rietvlei Opencast Mine - EIA and Mining Right Application

Noise

Significance Rating Table

Operational Phase								
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)	Status (+ve or -ve)	Confidence
Transport of Coal from the mine to the treatment plant	Nature of impact:	The transport of coal from the mine to the coal treatment plant along a stretch of gravel road through the centre of the site.						
	without	1	4	4	3	27	Low	-
	with	1	4	0	3	15	Low	-
	degree to which impact can be reversed:	As the site is proposed to be located in a rural setting with minimal noise therefore an increase in noise level from the transportation of coal can be seen to be unavoidable. To mitigate this impact vehicle routes need to be specifically chosen and silencers should be fitted.						
	degree of impact on irreplaceable resources:	N/A						
Operational phase of the Opencast Pit	Nature of impact:	General operational noise from the mining operation to extract the coal from ground level.						
	without	1	4	4	3	27	Low	-
	with	1	5	2	2	16	Low	-
	degree to which impact can be reversed:	The duration and magnitude can be reversed to a very low and almost minimal impact through the use of a number of mitigation strategies such as the maintenance of equipment, specific placement of stockpiles, equipment noise audits and environmental noise monitoring.						
	degree of impact on irreplaceable resources:	N/A						
Blasting for the operation of the Opencast Mine	Nature of impact:	Blasting may be used in order to extract the coal from the mine during its operation						
	without	2	4	8	4	56	Medium	-
	with	2	4	6	2	24	Low	-
	degree to which impact can be reversed:	Blasting can produce both primary (air blast and ground vibrations) and secondary noise vibrations which can have an effect on humans and infrastructure. With appropriate migration strategies these impacts can be minimised. - By calculating the charge size to keep air blast and ground vibration levels below pre-determined acceptable						
	degree of impact on irreplaceable resources:	N/A						



Vibration on Surrounding Structures	Nature of impact:	Blast vibrations can be measured through Peak Particle Velocity (PPV) and can result in damage to infrastructure						
	without	2	4	4	3	30	Low	-
	with	2	1	2	2	10	Low	-
	degree to which impact can be reversed:	It must be noted that the PPV is not expected to exceed the acceptable limits for cosmetic damages. The blast vibrations can be controlled by a competent blast design and the levels expect is likely to only cause cosmetic structural damage to the nearest farm house. Mitigation measures that could be implemented include:						
	degree of impact on irreplaceable resources:	N/A						
Operational Noise and its effect on Livestock	Nature of impact:	The operational noise can have an effect on livestock and wildlife as they are sensitive to noise, blasting and ground vibrations						
	without	1	4	4	3	27	Low	-
	with	1	4	2	3	21	Low	-
	degree to which impact can be reversed:	Livestock is not predicted to be severely affected by the operational noise produced from the mine. Mitigation measures can include Regular monitoring of the exposed livestock to ascertain if there are any adverse reactions						
	degree of impact on irreplaceable resources:	N/A						
Blast Noise and its effect on Livestock	Nature of impact:	Blasting can have an effect on livestock and wildlife as they are sensitive to noise, blasting and ground vibrations						
	without	2	4	8	4	56	Medium	-
	with	2	4	4	3	30	Low	-
	degree to which impact can be reversed:	Livestock can be significantly affected by sudden and unpredictable blasting events. Mitigation measures can include Regular monitoring of the exposed livestock to ascertain if there are any adverse reactions						
	degree of impact on irreplaceable resources:	N/A						

Rietvlei Opencast Mine - EIA and Mining Right Application

Noise

Significance Rating Table

Decommissioning Phase

Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)	Status (+ve or -ve)	Confidence
Decommissioning of the Opencast Pit	Nature of impact:	Noise related to the decommissioning and rehabilitation of the opencast pit once operation has ceased and all the coal has been extracted.						
	without	1	2	2	3	15	Low	-
	with	1	2	2	3	15	Low	-
	degree to which impact can be reversed:	No mitigation measures can be implemented						
	degree of impact on irreplaceable resources:	N/A						

Rietvlei Opencast Mine - EIA and Mining Right Application

Socio-Economic

Significance Rating Table

Construction Phase								
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)	Status (+ve or -ve)	Confidence
Employment opportunities for local labour resulting from the construction phase.	Nature of impact:	It is anticipated that approximately 80 employment opportunities will be generated through the construction phase. Skilled labour is likely						
	without	2	1	6	3	27	Low	+
	with	2	1	8	4	44	Medium	+
	degree to which impact can be reversed:	As far as possible, labour will be sourced from the local, nearby formal (not squatter) settlements and Middleburg, where appropriate skills exist. Contractors must make all efforts to obtain services and consumables from local entrepreneurs.						
	degree of impact on irreplaceable resources:	N/A						
Increased health and safety issues resulting from noise emissions, dust emissions and trucks using the roads during the construction phase.	Nature of impact:	As a result of blasting and the construction activities both noise and dust will be expected which may have an impact on the health of local						
	without	3	1	8	4	48	Medium	-
	with	2	1	6	3	27	Low	-
	degree to which impact can be reversed:	PPE must be made available to all employees and contractors, during construction, operation and closure. The mine will routinely inspect the boundary fences around the mine. Public awareness programmes will be developed by the mine with the community to identify areas of particular risk						
	degree of impact on irreplaceable resources:	N/A						
Unmanaged contractors might cause an increase in influx of job seekers and the establishment of	Nature of impact:	The increased job opportunities from the construction of the mine may lead to an influx of people from outside the local areas. Due to						
	without	3	2	8	4	52	Medium	-
	with	3	2	4	2	18	Low	-
	degree to which impact can be reversed:	Contractors must make all efforts to obtain services and consumables from local entrepreneurs. No informal settlements will be allowed on mine property. No accommodation will be permitted onsite.						

informal settlements	degree of impact on irreplaceable resources:	N/A							
Construction and closure activities could contribute to social ills, such as HIV/AIDS, petty crime, stock theft, etc.	Nature of impact:	The potential influx of labour and job-seekers into the area could result in health concerns around communicable diseases, such as HIV/							
	without	4	2	8	4	56	Medium	-	
	with	3	2	6	3	33	Medium	-	
	degree to which impact can be reversed:	Employment of mostly local labour could reduce the chances of the spread of HIV/AIDs that can be brought in by external labour. Condoms will be made available to all staff and workers.							
	degree of impact on irreplaceable resources:	N/A							
The presence of non-residents, perceived "outsiders" and contractors within the local environment could cause localised social tension	Nature of impact:	Due to the rural nature of the area, and the change in nature of the area during construction and the opposition expressed by certain local							
	without	2	1	8	4	44	Medium	-	
	with	2	1	4	2	14	Low	-	
	degree to which impact can be reversed:	As far as possible, labour will be sourced from the local, nearby formal (not squatter) settlements and Middleburg, where appropriate skills exist. The contractor is to ensure that all staff onsite will be in possession of a South African identity document, or							
	degree of impact on irreplaceable resources:	N/A							
Growth in skills development resulting from the employment of unskilled labour from nearby communities	Nature of impact:	The proposed mine is unlikely to provide significant skills development opportunities during the construction phase of the project due to the							
	without	2	1	6	3	27	Low	+	
	with	2	1	8	4	44	Medium	+	
	degree to which impact can be reversed:	Skills development programmes will be set up so as to improve the skills of the labour force The Social Labour Plan must be followed to ensure the development of skilled labour							
	degree of impact on irreplaceable resources:								
Opportunities for entrepreneurial development as a result of the construction activities.	Nature of impact:	The degree to which downstream economic impacts provide local stimulus to the economy is based on the degree to which value added							
	without	3	2	6	4	44	Medium	+	
	with	3	2	8	5	65	High	+	
	degree to which impact can be reversed:	Non-core activities related to the construction phase of the project will be identified and out-sourced to local service providers, where the skills exist. The mine will ensure that a transportation system is implemented from the potential housing areas to the mine to							
	degree of impact on irreplaceable resources:	N/A							

Rietvlei Opencast Mine - EIA and Mining Right Application

Socio-Economic

Significance Rating Table

Operational Phase								
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)	Status (+ve or -ve)	Confidence
The development of the mine will have a positive impact on the economic development	Nature of impact:	There are a number of opportunities for the proposed mine to contribute towards the development of local services and business						
	without	2	4	6	3	36	Medium	+
	with	2	4	8	5	70	High	+
	degree to which impact can be reversed:	The mine must provide opportunities in order for small businesses to grow such as transport, cleaners etc The mine should encourage local business to provide services for the mine to allow for economic development of the local area						
degree of impact on irreplaceable resources:	N/A							
Employment opportunities for local labour resulting from the operational phase.	Nature of impact:	It is anticipated that approximately 60 employment opportunities will be generated through the operational phase. Skilled labour is likely to						
	without	2	4	6	3	36	Medium	+
	with	2	4	8	5	70	High	+
	degree to which impact can be reversed:	As far as possible, labour will be sourced from the local, nearby formal (not squatter) settlements and Middleburg, where appropriate skills exist. Contractors must make all efforts to obtain services and consumables from local entrepreneurs.						
degree of impact on irreplaceable resources:	N/A							
Increased health and safety issues resulting from noise emissions, dust emissions and trucks using the roads during the operational	Nature of impact:	As a result of blasting and the operational activities both noise and dust will be expected which may have an impact on the health of local						
	without	3	4	8	5	75	High	-
	with	2	4	6	3	36	Medium	-
	degree to which impact can be reversed:	PPE must be made available to all employees and contractors, during construction, operation and closure. The mine will routinely inspect the boundary fences around the mine. Public awareness programmes will be developed by the mine with the community to identify areas of particular risk						

during the operational phase.	degree of impact on irreplaceable resources:	N/A							
Unmanaged contractors might cause an increase in influx of job seekers and the establishment of informal settlements	Nature of impact:	The increased job opportunities from the operation of the mine may lead to an influx of people from outside the local areas. Due to limited							
	without	3	4	8	4	60	Medium	-	
	with	3	4	6	2	26	Low	-	
	degree to which impact can be reversed:	Contractors must make all efforts to obtain services and consumables from local entrepreneurs. No informal settlements will be allowed on mine property. No accommodation will be permitted onsite.							
	degree of impact on irreplaceable resources:	N/A							
Construction, operational and closure activities could contribute to social ills, such as HIV/ AIDS, petty crime, stock theft, etc.	Nature of impact:	The potential influx of labour and job-seekers into the area could result in health concerns around communicable diseases, such as HIV/							
	without	4	4	8	4	64	High	-	
	with	3	4	6	3	39	Medium	-	
	degree to which impact can be reversed:	Employment of mostly local labour could reduce the chances of the spread of HIV/AIDs that can be brought in by external labour. Condoms will be made available to all staff and workers.							
	degree of impact on irreplaceable resources:	N/A							
The presence of non-residents, perceived "outsiders" and contractors within the local environment could cause localised social tension	Nature of impact:	Due to the rural nature of the area, and the change in nature of the area during operation of the mine and the opposition expressed by							
	without	2	4	8	4	56	Medium	-	
	with	2	4	4	2	20	Low	-	
	degree to which impact can be reversed:	As far as possible, labour will be sourced from the local, nearby formal (not squatter) settlements and Middleburg, where appropriate skills exist. The contractor is to ensure that all staff onsite will be in possession of a South African identity document, or							
	degree of impact on irreplaceable resources:	N/A							
Growth in skills development resulting from the employment of unskilled labour from nearby communities	Nature of impact:	The proposed mine is likely to provide significant skills development opportunities during the construction phase of the project which will							
	without	2	4	6	3	36	Medium	+	
	with	2	4	8	4	56	Medium	+	
	degree to which impact can be reversed:	Skills development programmes will be set up so as to improve the skills of the labour force The Social Labour Plan must be followed to ensure the development of skilled labour							
	degree of impact on irreplaceable resources:								
	Nature of impact:	The degree to which downstream economic impacts provide local stimulus to the economy is based on the degree to which value added							

Opportunities for entrepreneurial development as a result of the operational activities.	without	3	4	6	4	52	Medium	+	
	with	3	4	8	5	75	High	+	
	degree to which impact can be reversed:	Non-core activities related to the operational phase of the project will be identified and out-sourced to local service providers, where the skills exist. The mine will ensure that a transportation system is implemented from the potential housing areas to the mine to							
	degree of impact on irreplaceable resources:	N/A							

Rietvlei Opencast Mine - EIA and Mining Right Application

Socio-Economic

Significance Rating Table

Decommissioning Phase								
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)	Status (+ve or -ve)	Confidence
Employment opportunities for local labour resulting from the decommissioning phase.	Nature of impact:	It is anticipated that employment opportunities will be generated through the decommissioning phase. Skilled labour is likely to be sourced						
	without	2	1	6	3	27	Low	+
	with	2	1	8	4	44	Medium	+
	degree to which impact can be reversed:	As far as possible, labour will be sourced from the local, nearby formal (not squatter) settlements and Middleburg, where appropriate skills exist. Contractors must make all efforts to obtain services and consumables from local entrepreneurs.						
	degree of impact on irreplaceable resources:	N/A						
Increased health and safety issues resulting from noise emissions, dust emissions and trucks using the roads during the decommissioning phase.	Nature of impact:	As a result of the decommissioning activities both noise and dust will be expected which may have an impact on the health of local people						
	without	3	1	8	4	48	Medium	-
	with	2	1	6	3	27	Low	-
	degree to which impact can be reversed:	PPE must be made available to all employees and contractors, during construction, operation and closure. The mine will routinely inspect the boundary fences around the mine. Public awareness programmes will be developed by the mine with the community to identify areas of particular risk						
	degree of impact on irreplaceable resources:	N/A						
Construction and closure activities could contribute to social ills, such as HIV/AIDS, petty crime, stock theft, etc.	Nature of impact:	The potential influx of labour and job-seekers into the area could result in health concerns around communicable diseases, such as HIV/						
	without	4	2	8	4	56	Medium	-
	with	3	2	6	3	33	Medium	-
	degree to which impact can be reversed:	Employment of mostly local labour could reduce the chances of the spread of HIV/AIDs that can be brought in by external labour. Condoms will be made available to all staff and workers.						
	degree of impact on irreplaceable resources:	N/A						
	Nature of impact:	The proposed mine is unlikely to provide significant skills development opportunities during the decommissioning phase of the project due						



Growth in skills development resulting from the employment of unskilled labour from nearby communities	without	2	1	4	3	21	Low	+	
	with	2	1	6	3	27	Low	+	
	degree to which impact can be reversed:	Skills development programmes will be set up so as to improve the skills of the labour force and prepare their staff to find alternative jobs The Social Labour Plan must be followed to ensure the development of skilled labour							
	degree of impact on irreplaceable resources:								
Opportunities for entrepreneurial development as a result of the construction activities.	Nature of impact:	The degree to which downstream economic impacts provide local stimulus to the economy is based on the degree to which value added							
	without	3	2	6	4	44	Medium	+	
	with	3	2	8	5	65	High	+	
	degree to which impact can be reversed:	Non-core activities related to the construction phase of the project will be identified and out-sourced to local service providers, where the skills exist. The mine will ensure that a transportation system is implemented from the potential housing areas to the mine to							
	degree of impact on irreplaceable resources:	N/A							

Rietvlei Opencast Mine - EIA and Mining Right Application

Soil

Significance Rating Table

Construction Phase								
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)	Status (+ve or -ve)	Confidence
Stripping of topsoil at the initial box cut footprint	Nature of impact:	1. Complete removal of all topsoil at boxcut footprint. 2. Stripping of soil result in mixing of the soil's A and B-horizons with subsequent						
	without	1	5	10	5	80	High	-
	with	1	5	10	5	80	High	-
	degree to which impact can be reversed:	1. Soils will be stripped at specified depths in order to prevent stripping of lower quality subsoil together with topsoil. 2. Topsoil will be stripped and stockpiled based on soil type groups (red soils, yellow brown soils and grey wetland soils) in order to preserve pre-mining soil potential and land capability as far as possible as indicated by						
	degree of impact on irreplaceable resources:	The Impact will result in a partially irreplaceable loss of resources with regards to topsoil						
Possible contamination of soil by spillages of fuel or oil by mechanical equipment	Nature of impact:	Possible contamination of soils by spillages of fuel or oil by mechanical equipment. Soil physical and chemical properties will be adversely						
	without	1	1	8	4	40	Medium	-
	with	1	1	4	4	24	Low	-
	degree to which impact can be reversed:	All accidental fuel and oil spillages will be cleaned up immediately. Contaminated soil will be disposed at a suitable disposal facility. All mechanical equipment will be serviced at an approved facility.						
	degree of impact on irreplaceable resources:	The impact on natural, cultural and / or social structures, functions and processes is totally reversible with regards to contamination of soil						
Construction of topsoil, soft and hard overburden stockpiles during initial box cuts	Nature of impact:	"Creation of topsoil and soft and hard overburden stockpiles during construction of box cuts.						
	without	1	4	10	5	75	High	-
	with	1	4	10	5	75	High	-
	degree to which impact can be reversed:	2. The footprint size of all stockpiles will be contained as far as possible.1. The topsoil and overburden stockpiles will probably remain through the entire construction and operational phase but it will be removed as soon as possible.						

	degree of impact on irreplaceable resources:	The impact on natural, cultural and / or social structures, functions and processes is totally reversible with regards to construction of topsoil						
Construction of haul roads	Nature of impact:	Construction of haul roads. The upper 300 mm (A-horizon) will be graded side ward and placed as a berm along the haul road edge. The B-						
	without	1	4	10	5	75	High	-
	with	1	4	10	5	75	High	-
	degree to which impact can be reversed:	1. The soil's A-horizon will be stored as a berm along the edges for later replacement.						
	degree of impact on irreplaceable resources:	The impact on natural, cultural and / or social structures, functions and processes is totally reversible with regards to construction of haul roads						
Construction of access roads and diversion of existing access road	Nature of impact:	Construction of roads. The upper approximately 150 mm of the A-horizon may be graded away and placed as a berm along the road edges.						
	without	1	4	10	5	75	High	-
	with	1	4	10	5	75	High	-
	degree to which impact can be reversed:	1. The soil's A-horizon will be stored as a berm along the edges for later replacement.						
	degree of impact on irreplaceable resources:	The impact on natural, cultural and / or social structures, functions and processes is totally reversible with regards to construction of access roads						
Construction of Pollution control dam	Nature of impact:	"Stripping of topsoil at the footprint of the pollution control dam where the upper 300 mm will be stockpiled and the remainder used for						
	without	2	4	10	5	80	High	-
	with	1	4	10	5	75	High	-
	degree to which impact can be reversed:	1. The upper 300 mm of topsoil (A-horizon) will be removed and stockpiled for final rehabilitation. 2. The dam floor and embankments will be lined with a polyethylene membrane to prevent soil pollution by low quality mine water. 3. Dirty water channels will be lined with concrete or a polyethylene membrane.						
	degree of impact on irreplaceable resources:	The impact on natural, cultural and / or social structures, functions and processes is totally reversible with regards to construction of pollution control dam						
Construction of office workshop complex including offices, heavy vehicle workshop, stores, vehicle parking areas	Nature of impact:	The construction of structures that cover the soil surface by means of concrete, tar or paving. 1. Compaction of the soil surface for building						
	without	1	4	10	5	75	High	-
	with	1	4	10	5	75	High	-
	degree to which impact can be reversed:	Contain the footprint as far as possible.						
	degree of impact on irreplaceable resources:	The impact on natural, cultural and / or social structures, functions and processes is totally reversible with regards to construction of an office workshop complex						

Rietvlei Opencast Mine - EIA and Mining Right Application

Soil

Significance Rating Table

Operational Phase								
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)	Status (+ve or -ve)	Confidence
Progressive stripping of topsoil at opencast footprint and stockpiling thereof before direct replacing is initiated	Nature of impact:	"Progressive stripping of topsoil at the opencast footprint and stockpiling thereof.						
	without	1	5	10	5	80	High	-
	with	1	5	10	5	80	High	-
	degree to which impact can be reversed:	1. Soils will be stripped at specified depths in order to prevent stripping of lower quality subsoil together with topsoil. 2. Topsoil will be stripped and stockpiled based on soil type groups (red soils, yellow brown soils and grey wetland soils) in order to preserve pre-mining soil potential and land capability as far as possible as indicated by						
	degree of impact on irreplaceable resources:	The Impact will result in a partially irreplaceable loss of resources with regards to topsoil						
Expansion of topsoil, soft and hard overburden stockpiles during the operational phase as open pit expands	Nature of impact:	"Expansion of topsoil and soft and hard overburden stockpiles during operational phase as the open pit expands.						
	without	1	4	10	5	75	High	-
	with	1	4	10	5	75	High	-
	degree to which impact can be reversed:	All mitigation measures applied on soils will mitigate land capability as far as possible						
	degree of impact on irreplaceable resources:	The Impact will result in a partially irreplaceable loss of resources with regards to topsoil						
Progressive stripping of topsoil at opencast footprint and direct replacing thereof	Nature of impact:	"Progressive stripping of topsoil at the opencast footprint and direct replacing on backfilled opencast areas.						
	without	1	5	10	5	80	High	-
	with	1	5	6	4	48	Medium	-
	degree to which impact can be reversed:	1. Soils will be stripped at specified depths in order to prevent stripping of lower quality subsoil together with topsoil (Figure 6 and Table 8 in soil report). 2. Open pits will be backfilled and spoil surfaces will be levelled and shaped to a free draining topography. 3. Topsoil will be dumped in sufficient quantities to render a soil depth						

	degree of impact on irreplaceable resources:	The Impact will result in a partially irreplaceable loss of resources with regards to topsoil						
Use of haul roads	Nature of impact:	"Use of haul roads. 1. All impacts on soils during the construction phase will remain during the operational phase. 2. Coal and coal dust						
	without	1	4	10	5	75	High	-
	with	1	4	10	5	75	High	-
	degree to which impact can be reversed:	Frequent dust suppression by water trucks. Implementation of an effective storm water management system along haul roads.						
	degree of impact on irreplaceable resources:	The impact on natural, cultural and / or social structures, functions and processes is totally reversible with regards to construction of haul roads						
Use of pollution control dams	Nature of impact:	"Maintenance and use of pollution control dams. 1. All impacts on soil during the construction phase will remain throughout the operational						
	without	2	4	10	5	80	High	-
	with	2	4	10	5	80	High	-
	degree to which impact can be reversed:	1. Continuous monitoring of pollution control dam levels in order to prevent overflows. 2. Frequent inspections to identify leaks and immediate reparation thereof. 3. Immediate removal of sludge after overflows.						
	degree of impact on irreplaceable resources:	The impact on natural, cultural and / or social structures, functions and processes is totally reversible with regards to construction of pollution control dam						
Use of diesel, petroleum and oil storage on site	Nature of impact:	Possible contamination of soils by spillages of diesel, petroleum and oil will alter soil chemical status negatively"						
	without	1	1	8	4	40	Medium	-
	with	1	1	4	4	24	Low	-
	degree to which impact can be reversed:	1. All accidental fuel spillages will be cleaned up immediately and contaminated soil will be removed to a suitable disposal facility.						
	degree of impact on irreplaceable resources:	The impact on natural, cultural and / or social structures, functions and processes is totally reversible with regards to the use of hydrocarbons						
Use of coal stockpiles and ROM tip	Nature of impact:	"Dumping and storage of coal on coal stockpiles and ROM tip. 1. All impacts of the construction phase will remain during the operational						
	without	1	4	10	5	75	High	-
	with	1	4	10	5	75	High	-
	degree to which impact can be reversed:	Implementation of an efficient storm water management system						
	degree of impact on irreplaceable resources:	The impact on natural, cultural and / or social structures, functions and processes is totally reversible with regards to the coal stockpiles						

Rietvlei Opencast Mine - EIA and Mining Right Application

Soil

Significance Rating Table

Decommissioning Phase								
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)	Status (+ve or -ve)	Confidence
Rehabilitation of remaining open pit and final voids	Nature of impact:	"Replacement of stockpiled topsoil on backfilled remaining open pit area and possibly some final voids. (This is not an impact but a						
	without							
	with	1	5	8	4	56	Medium	+
	degree to which impact can be reversed:	1. The remaining open pit area and possibly some final voids will be backfilled and spoil surfaces will be levelled and shaped to a free draining topography. 2. Topsoil will be dumped in sufficient quantities to render a soil depth after levelling which is similar to the stripping depth (Table 8). 3. Soil amelioration and re-vegetation will be done as						
	degree of impact on irreplaceable resources:	N/A						
Removal of all stockpiles and dumps and rehabilitation of the footprints	Nature of impact:	Complete removal of all stockpile topsoil and dumped overburden material. (This is not an impact but a continuation of mitigation						
	without							
	with	1	4	6	4	44	Medium	+
	degree to which impact can be reversed:	1. All stockpiled overburden material will be moved to the open pit and all stockpiled topsoil will be used for rehabilitation of the open pit. The stockpile footprints will be thoroughly cleaned and then ripped to alleviate soil compaction. After ripping the rough surface will be smoothen with a disc or multiple tooth implement and then						
	degree of impact on irreplaceable resources:	N/A						
Demolishing and rehabilitation of roads and haul roads	Nature of impact:	Complete removal of all roads building material. (This is not an impact but a continuation of mitigation measures. The only impact may be						
	without							
	with	1	4	6	4	44	Medium	+
	degree to which impact can be reversed:	1. The footprint will be thoroughly cleaned and all road building material will be removed to a suitable disposal facility. 2. The footprint will be ripped to alleviate soil compaction. After ripping the rough surface will be smoothen with a disc or multiple tooth implement and then graded to a smooth surface. 3. Topsoil stored as berms on the						

	degree of impact on irreplaceable resources:	N/A						
Demolishing of Pollution control dams	Nature of impact:	Removal of polluted material and levelling of wall embankments. (This is not an impact but a continuation of mitigation measures. The only						
	without							
	with	1	4	6	4	44	Medium	+
	degree to which impact can be reversed:	1. The dam floor will be thoroughly cleaned and all polluted material will be removed to a suitable disposal facility. 2. Soil material used for wall embankments will be spread over the floor of the borrow pit. 3. The stockpiled topsoil (A-horizon) will be replaced on the surface. 4. Compaction will be alleviated by ripping. 5. Soil amelioration will be						
	degree of impact on irreplaceable resources:	N/A						
Demolishing and rehabilitation of the office workshop complex	Nature of impact:	Complete removal of all structures and foundations. (This is not an impact but a continuation of mitigation measures. The only impact may						
	without							
	with	1	4	4	4	36	Medium	+
	degree to which impact can be reversed:	1. During the decommissioning phase the footprint will be thoroughly cleaned. 2. The footprint will be ripped to alleviate compaction. 3. Stored topsoil will be replaced (if any) and the footprint will be graded to a smooth surface 4. The topsoil will be ameliorated according to soil chemical analysis. 5. The footprint will be re-vegetated with a						
	degree of impact on irreplaceable resources:	N/A						
Demolishing and rehabilitation of coal stockpiles and ROM tip area	Nature of impact:	Removal of all coralliferous material. (This is not an impact but a continuation of mitigation measures. The only impact may be spillages of						
	without							
	with	1	4	6	4	44	Medium	+
	degree to which impact can be reversed:	1. The footprint will be thoroughly cleaned and all coralliferous and soft overburden material will be removed to a discard dump or suitable disposal facility. 2. The footprint will be loosened with a multiple tooth implement to a depth of at least 300 mm to alleviate compaction. 3. The topsoil will be replaced and ameliorated according to soil						
	degree of impact on irreplaceable resources:	N/A						

Rietvlei Opencast Mine - EIA and Mining Right Application

Surface Water

Significance Rating Table

Construction Phase								
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)	Status (+ve or -ve)	Confidence
Siltation due to soil disturbance	Nature of impact:	The clearing of topsoil for footprint areas associated with construction activities (waste site, water control infrastructures, cut and fill) can						
	without	1	2	2	5	25	Low	-
	with	1	1	2	3	12	Low	-
	degree to which impact can be reversed:	Water management infrastructure (separate clean and dirty water systems) should be in place before the commencement of construction activities. Compaction of the area during base preparation.						
	degree of impact on irreplaceable resources:	N/A						
Erosion due to rerouting of storm water runoff	Nature of impact:	The design of the site infrastructure (rock dumps, discard dump, washing crushing plant) should take into account the specification						
	without	1	2	2	3	15	Low	-
	with	1	1	2	2	8	Low	-
	degree to which impact can be reversed:	Sloping of the area as to allow for free runoff, either towards pollution controls structure or away from the site pending on whether the water is clean or dirty. Management of speed versus velocity aspects if and when required as to prevent erosion gullies from forming. Inspections and maintenance.						
	degree of impact on irreplaceable resources:	N/A						
Water quality deterioration due to Spill and /or leaking of hydrocarbon product from construction vehicles, equipment's, and storage	Nature of impact:	The construction activities are likely to be associated with accidental spills of hydrocarbons (oils, diesel etc.) from the construction vehicles						
	without	3	1	6	4	40	Medium	-
	with	1	1	2	2	8	Low	-
	degree to which impact can be reversed:	Hydrocarbon product storage area should be bounded, and collected rainwater to be removed to keep the area dry						
	degree of impact on irreplaceable resources:	N/A						
	Nature of impact:	The construction activities are likely to be associated with potentially hazardous chemical spills during the construction phase. Such spills						



Water quality deterioration due to seepage from construction waste site to the surface water resource	without	2	3	6	4	44	Medium	-	
	with	1	1	2	3	12	Low	-	
	degree to which impact can be reversed:	Waste classification is required in order to influence design parameters and make recommendations with regards to design and monitoring requirements. These must be adhered to in order to prevent or minimise seepage from waste disposal areas.							
	degree of impact on irreplaceable resources:	N/A							

Rietvlei Opencast Mine - EIA and Mining Right Application

Surface Water

Significance Rating Table

Operational Phase								
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)	Status (+ve or -ve)	Confidence
Deterioration of clean storm water runoff quality	Nature of impact:	During mining phase, surface water runoff may enter the operating (open pit, crushing/washing plant, stockpiles, etc...) and waste disposal						
	without	3	4	6	5	65	High	-
	with	1	2	2	3	15	Low	-
	degree to which impact can be reversed:	Separate clean water from dirty water at upstream and divert clean water around the operating area (screening and crushing areas, stockpile area) and disposal areas as to prevent it from entering these areas. Contaminated run-off water from the operating area should be drained to a pollution control dam. Waste classification and management						
	degree of impact on irreplaceable resources:	N/A						
Increasing of water removal activities due to in pit dewatering	Nature of impact:	Water (groundwater, rainfall) will need to be pumped from the pit and groundwater, and store at the surface, for mine safety. Water from						
	without	2	2	2	4	24	Low	-
	with	1	1	2	3	12	Low	-
	degree to which impact can be reversed:	Reduce the amount of water to be removed from the pit area by means of effective clean and dirty water system, by keeping the operating pit area as small as possible, and by continuously rehabilitating the closed pit area.						
	degree of impact on irreplaceable resources:	N/A						
Ponding due to storm water falling onto operating (mining pit, crushing and screening,	Nature of impact:	The mining facility can result in pollution of storm water that floods the site during the rainy seasons						
	without	2	2	2	4	24	Low	-
	with	1	1	2	2	8	Low	-
	degree to which impact can be reversed:	Contaminated storm water from operating area (mining pit, crushing and screening, stockpiling) should be drained to a pollution controlled dam, which should be design according to appropriate regulations.						

stockpiling) areas	degree of impact on irreplaceable resources:	N/A								
Erosion due to surface water runoff rerouting	Nature of impact:	As a result in the loss of vegetation and natural flow lines from the development of the mine the rerouting of runoff can result in surface								
	without	1	2	2	4	20	Low	-		
	with	1	1	2	2	8	Low	-		
	degree to which impact can be reversed:	Equip trenches and gullies with energy dissipater, and conduct frequent inspections and maintenances.								
	degree of impact on irreplaceable resources:									
Siltation due to surface water runoff rerouting	Nature of impact:	As a result in the loss of vegetation and natural flow lines from the development of the mine the rerouting of runoff can result in siltation								
	without	1	2	2	4	20	Low	-		
	with	1	1	2	2	8	Low	-		
	degree to which impact can be reversed:	Suspended solids should filter out (silt trap) before dirty water enters pollution control dams, and regular inspections and maintenances should follow.								
	degree of impact on irreplaceable resources:									
Water quality deterioration due spill and/or leaking of hydrocarbon	Nature of impact:	Stockpiling and transport: the exposure of stockpiling and transporting of coal, to water and oxygen, together with hydrocarbon spills from								
	without	2	3	6	4	44	Medium	-		
	with	1	1	2	3	12	Low	-		
	degree to which impact can be reversed:	Hydrocarbon product storage area should be bounded, and collected rainwater to be removed to keep the area dry								
	degree of impact on irreplaceable resources:									
Water quality deterioration due to septic tank	Nature of impact:	Septic tank: spillage from septic may constitute source of bacteriological contamination to surface water. If not properly managed.								
	without	2	3	6	4	44	Medium	-		
	with	1	2	2	3	15	Low	-		
	degree to which impact can be reversed:	Routing of sewage to the municipality sewage works								
	degree of impact on irreplaceable resources:									
	Nature of impact:	Tailing disposal: residual from coal processing will be disposed of onsite at designated are or in pit. Such disposal when not handled								

Water quality deterioration due to seepage from waste disposal facility to the surface water resource	without	2	3	6	5	55	Medium	-	
	with	2	2	2	3	18	Low	-	
	degree to which impact can be reversed:	Waste classification is required in order to influence design parameters and make recommendations with regards to design, and monitoring requirements. These must be adhered to in order to prevent or minimise seepage from waste disposal areas.							
	degree of impact on irreplaceable resources:								
Water quality deterioration due to spillage, seepage and/or leak from waste disposal, storage, handling facility to surface water	Nature of impact:	Coal processing: coal will be exposed at the washing plant area to water (with chemical) and oxygen, resulting in dirty water, and							
	without	2	3	6	4	44	Medium	-	
	with	2	1	2	3	15	Low	-	
	degree to which impact can be reversed:	Waste classification is required in order to influence design parameters and make recommendations with regards to design, and monitoring requirements. These must be adhered to in order to prevent or minimise seepage from waste disposal areas.							
Water quality deterioration due to Spillage of dirty water from dirty water control system (Dams, trenches, berms etc...)	degree of impact on irreplaceable resources:								
	Nature of impact:	Dirty water from any of these activities should be drained, or pumped (where required) to pollution control dams. Pollution control dams,							
	without	2	3	6	5	55	Medium	-	
	with	2	1	2	3	15	Low	-	
degree to which impact can be reversed:	All the different components of the dirty water control system should be design according to appropriate regulations. Water and mass balance should be determined and updated regularly.								
degree of impact on irreplaceable resources:									

Rietvlei Opencast Mine - EIA and Mining Right Application

Surface Water

Significance Rating Table

sedqdw								
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)	Status (+ve or -ve)	Confidence
Erosion due to increase of runoff speed and velocity	Nature of impact:	As a result in the loss of vegetation and natural flow lines from the development of the mine the rerouting of runoff can result in surface						
	without	1	2	2	4	20	Low	-
	with	1	1	2	2	8	Low	-
	degree to which impact can be reversed:	Rehabilitation should consist of re-vegetating the site using appropriately chosen indigenous grasses. Control of vegetation cover over the rehabilitated area.						
	degree of impact on irreplaceable resources:							
Siltation related to erosion	Nature of impact:	As a result in the loss of vegetation and natural flow lines from the development of the mine the rerouting of runoff can result in siltation						
	without	1	2	2	4	20	Low	-
	with	1	1	2	2	8	Low	-
	degree to which impact can be reversed:	Clean water system and dirty water system should be maintained on site. Inspection and maintenance should implemented after removal of material s associated with mining on site						
	degree of impact on irreplaceable resources:							
Deterioration of water quality due to spill and/or leaking from hydrocarbon storage area	Nature of impact:	Activities such as covering of the spillages with sand and collection and possibly treatment etc. are likely to be associated with accidental						
	without	3	3	6	5	60	Medium	-
	with	1	2	2	3	15	Low	-
	degree to which impact can be reversed:	Hydrocarbon product storage area should be bounded, and collected rainwater to be removed to keep the area dry						
	degree of impact on irreplaceable resources:							

Deterioration of water quality due to seepage and/or spillage from waste site facility	Nature of impact:	Activities such as covering of the spillages with sand and collection and possibly treatment etc. are likely to be associated with accidental						
	without	3	3	6	5	60	Medium	-
	with	1	2	2	3	15	Low	-
	degree to which impact can be reversed:	Waste classification is required in order to influence design parameters and make recommendations with regards to design, and monitoring requirements. These must be adhered to in order to prevent or minimise seepage from waste disposal areas.						
degree of impact on irreplaceable resources:								
Deterioration of the surface water quality due decanting water	Nature of impact:	Dewatering would be stopped at that stage, and open pit flooding will occur, as recovering of groundwater levels, and subsequent decant to						
	without	4	4	8	5	80	High	-
	with	3	2	4	4	36	Medium	-
	degree to which impact can be reversed:	Decant water should be contained (pollution control dam) or treated. Clean water runoff from decant area must be maximised by sloping the decant area , to minimise ingress of storm water.						
degree of impact on irreplaceable resources:								
Flood risk due decant to surface	Nature of impact:	Flooding can occur as a result of the decanting process undertaken during the closure phase. The effect of this decant may only be observed						
	without	3	4	6	4	52	Medium	-
	with	1	1	4	3	18	Low	-
	degree to which impact can be reversed:	Decant water should be drain to a specific pollution control dam.						
degree of impact on irreplaceable resources:								
Erosion due decant water runoff	Nature of impact:	Erosion can occur as a result of the decanting process undertaken during the closure phase. The effect of this decant may only be observed						
	without	1	2	2	4	20	Low	-
	with	1	1	2	2	8	Low	-
	degree to which impact can be reversed:	Water run-off direction, and velocity as well as the geophysical conditions of the rehabilitated areas should be measured trough field surveys. A modelling simulation may be useful as management tool. The rehabilitated areas should be covered of vegetation and maintained						

Rietvlei Opencast Mine - EIA and Mining Right Application

Topography

Significance Rating Table

Construction Phase

Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)	Status (+ve or -ve)	Confidence
The development of the construction infrastructure (building structures, access roads, fencing, etc.)	Nature of impact:	The development of the construction infrastructure (building structures, access roads, fencing, etc.) will create a visible, artificial landscape for						
	without	2	2	8	4	48	Medium	-
	with	2	2	6	4	40	Medium	-
	degree to which impact can be reversed:	The areas on which new infrastructure will be placed, constructed, installed or sunk will be clearly demarcated and communicated to contractors and staff members. All structures and infrastructure must be designed and operated with the aim of closure in mind.						
	degree of impact on irreplaceable resources:	The natural topography of the area will be permanently altered						
Disturbance of natural lie of the land resulting from site clearing and topsoil removal	Nature of impact:	The natural lie of the land may be altered through site clearing and the removal of topsoil for the development of surface infrastructure that is						
	without	1	2	8	4	44	Medium	-
	with	1	2	6	4	36	Medium	-
	degree to which impact can be reversed:	Contractors and employees will be limited to the clearly defined access routes and areas to be constructed in order to limit site disturbance. Incorporation of indigenous trees and plants into the landscaping to make the mining area appear more natural.						
	degree of impact on irreplaceable resources:	The natural topography of the area will be permanently altered						
Disturbance of natural/ or existing flow of topography and the free drainage of the area resulting from surface infrastructure.	Nature of impact:	The surface infrastructure is likely to disturb the natural and/ or existing flow of the topography and free drainage of the area.						
	without	1	2	8	5	55	Medium	-
	with	1	2	6	4	36	Medium	-
	degree to which impact can be reversed:	Incorporation of indigenous trees and plants into the landscaping to make the mining area appear more natural and encourage drainage of the area. Monitoring methods will be implemented from the start of construction to monitor the surface stability and surface						
	degree of impact on irreplaceable resources:	The natural topography of the area will be permanently altered						

Rietvlei Opencast Mine - EIA and Mining Right Application

Topography

Significance Rating Table

Operational Phase								
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)	Status (+ve or -ve)	Confidence
The development of the pit will result in the altering of the topology in this area	Nature of impact:	The development of the pit will permanently alter the topography and disrupt the natural vegetation and features present on site.						
	without	1	5	10	5	80	High	-
	with	1	5	6	5	60	Medium	-
	degree to which impact can be reversed:	Concurrent replacement of overburden and topsoil and resultant re-vegetation during the operational phase may have improvements for natural surface flow dynamics and topography.						
	degree of impact on irreplaceable resources:	The natural topography of the area will be permanently altered						
The development of the pit will impact on the surface water flow dynamics	Nature of impact:	This alteration of the land will have further impacts on surface water flow dynamics as the natural drainage pattern is disrupted. Alteration of						
	without	1	5	8	5	70	High	-
	with	1	5	6	5	60	Medium	-
	degree to which impact can be reversed:	Concurrent replacement of overburden and topsoil and resultant re-vegetation during the operational phase may have improvements for natural surface flow dynamics and topography. Design appropriate storm management measures that allows drainage of the site.						
	degree of impact on irreplaceable resources:	The natural topography of the area will be permanently altered						
Infrastructure that is utilised on the site will alter the topology and surface water flow of the area	Nature of impact:	The establishment of the surface infrastructure will lead to a wide visual envelope on receptors and a change in the natural topography of the						
	without	1	5	8	5	70	High	-
	with	1	5	6	5	60	Medium	-
	degree to which impact can be reversed:	The areas on which new infrastructure will be placed, constructed, installed or sunk will be clearly demarcated and communicated to contractors and staff members. All structures and infrastructure must be designed and operated with the aim of closure in mind.						
	degree of impact on irreplaceable resources:	The natural topography of the area will be permanently altered						



Rietvlei Opencast Mine - EIA and Mining Right Application

Topography

Significance Rating Table

Decommissioning Phase								
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)	Status (+ve or -ve)	Confidence
Decommissioning of the pit	Nature of impact:	The decommissioning of the pit once all coal has been extracted and the LOM has been exceeded						
	without	1	5	10	5	80	High	-
	with	1	5	6	5	60	Medium	-
	degree to which impact can be reversed:	The final replacement of overburden, topsoil and resultant re-vegetation will result in the restoration of natural surface flow dynamics and topography.						
	degree of impact on irreplaceable resources:	The natural topography of the area will be permanently altered						
Decommissioning of infrastructure	Nature of impact:	The decommissioning of all infrastructure on site and the revegetation and restoration once all structures have been removed.						
	without	1	5	8	5	70	High	-
	with	1	3	6	5	50	Medium	-
	degree to which impact can be reversed:	Re-vegetation of the site and replacement of topsoil in order to encourage the regrowth of the natural topography in this area.						
	degree of impact on irreplaceable resources:	The natural topography of the area will be permanently altered						

Rietvlei Opencast Mine - EIA and Mining Right Application

Traffic

Significance Rating Table

Construction Phase								
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)	Status (+ve or -ve)	Confidence
Traffic generation around the site	Nature of impact:	The increase of construction vehicles in and around the site may contribute to the increased road usage leading to traffic congestion. The						
	without	2	1	4	4	28	Low	-
	with	2	1	2	3	15	Low	-
	degree to which impact can be reversed:	<ul style="list-style-type: none"> <li>■ Construction vehicles using the roads will be scheduled to avoid peak-hour traffic i.e. avoid period between 07:00am and 09:00am as well as the period between 16:00pm and 18:00pm</li> <li>■ Upgrade of the roads would aid in faster moving vehicles and potholes would be avoided</li> </ul>						
	degree of impact on irreplaceable resources:	N/A						
Creation of dust as a result of the movement of construction vehicles	Nature of impact:	The movement of construction vehicles along unpaved roads surrounding and within the mining area would contribute significantly to the						
	without	3	2	8	4	52	Medium	-
	with	2	2	4	3	24	Low	-
	degree to which impact can be reversed:	<ul style="list-style-type: none"> <li>■ Haul routes should be sprayed with water regularly to avoid the generation of dust</li> <li>■ All construction vehicles should abide by speed limits to reduce excessive generation of dust</li> </ul>						
Operation of vehicles may impact pedestrian safety	degree of impact on irreplaceable resources:	N/A						
	Nature of impact:	The increased use of construction vehicles during the development of the mine can have an impact on pedestrian safety that uses the roads.						
	without	1	1	6	3	24	Low	-
	with	1	1	2	2	8	Low	-
degree to which impact can be reversed:	<ul style="list-style-type: none"> <li>■ Construction vehicles must only use the roads during daylight hours. No vehicles should be operational from 6pm to 6am.</li> <li>■ Construction vehicles should put their headlights on when accessing the roads where pedestrians are commonly</li> </ul>							

	degree of impact on irreplaceable resources:	N/A						
Construction vehicles may result in an increase in road accidents	Nature of impact:	The increased road use of construction vehicles could result in an increase in road accidents on the roads leading away or towards the mine.						
	without	1	1	6	4	32	Medium	-
	with	1	1	2	3	12	Low	-
	degree to which impact can be reversed:	<ul style="list-style-type: none"> <li>■ In the event that the accident involves another vehicle the relevant authorities are to be notified of the incident and responsive action implemented based on legal and insurance requirements</li> <li>■ All construction and maintenance vehicles travelling on public roads must adhere to the relevant traffic laws and</li> </ul>						
	degree of impact on irreplaceable resources:	N/A						
Increase in traffic could result in the deterioration of the surrounding road network.	Nature of impact:	The increased traffic congestion on the surrounding road networks can lead to the deterioration of the roads if unmanaged. The roads to the						
	without	3	2	6	5	55	Medium	-
	with	2	2	4	3	24	Low	-
	degree to which impact can be reversed:	<ul style="list-style-type: none"> <li>■ The proposed mine must be responsible for continued maintenance on the roads used by the construction vehicles.</li> <li>■ Upgrade of the roads must occur so that potholes would be avoided and that the roads are safer to use</li> </ul>						
	degree of impact on irreplaceable resources:	N/A						

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Traffic

Significance Rating Table

Operational Phase								
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)	Status (+ve or -ve)	Confidence
Traffic generation around the site from transportation and operational vehicles	Nature of impact:	The increase of operational vehicles in and around the site may contribute to the increased road usage leading to traffic congestion. The						
	without	3	4	6	4	52 Medium	-	
	with	2	4	4	4	40 Medium	-	
	degree to which impact can be reversed:	<ul style="list-style-type: none"> <li>Operational vehicles using the roads will be scheduled to avoid peak-hour traffic i.e. avoid period between 07:00am and 09:00am as well as the period between 16:00pm and 18:00pm</li> <li>Upgrade of the roads would aid in faster moving vehicles and potholes would be avoided</li> </ul>						
	degree of impact on irreplaceable resources:	N/A						
Creation of dust as a result of the movement of operational vehicles	Nature of impact:	Dust may be a problem at the access to the site if there will be coal transported by truck along the R555. Fine coal dust could impair driver						
	without	3	4	8	5	75 High	-	
	with	2	4	4	3	30 Low	-	
	degree to which impact can be reversed:	<ul style="list-style-type: none"> <li>All vehicles transporting coal should be covered to avoid the generation of dust created by fine coal particulates.</li> <li>Haul routes should be sprayed with water regularly to avoid the generation of dust</li> <li>All Operational vehicles should abide by speed limits to reduce excessive generation of dust</li> </ul>						
	degree of impact on irreplaceable resources:	N/A						
Heavy vehicles may result in an increase in road accidents	Nature of impact:	The increased road use of heavy vehicles could result in an increase in road accidents leading away or towards the mine. Accidents could						
	without	3	4	6	4	52 Medium	-	
	with	3	4	4	2	22 Low	-	
	degree to which impact can be reversed:	<ul style="list-style-type: none"> <li>In the event that the accident involves another vehicle the relevant authorities are to be notified of the incident and responsive action implemented based on legal and insurance requirements</li> <li>All operational vehicles travelling on public roads must adhere to the relevant traffic laws and regulations to avoid</li> </ul>						

	degree of impact on irreplaceable resources:	N/A						
Increase in traffic could result in the deterioration of paved and haul routes	Nature of impact:	The increased traffic congestion on the surrounding road networks can lead to the deterioration of the roads if unmanaged. The roads to						
	without	3	4	8	4	60	Medium	-
	with	2	4	6	2	24	Low	-
	degree to which impact can be reversed:	<ul style="list-style-type: none"> <li>■ The proposed mine must be responsible for continued maintenance on the roads used by the operational vehicles.</li> <li>■ Upgrade of the roads must occur so that potholes would be avoided and that the roads are safer to use</li> </ul>						
	degree of impact on irreplaceable resources:	N/A						
Shoulder Sight Distance	Nature of impact:	Shoulder sight distance is the distance that the driver of a vehicle that is stationary at the stop line of a minor road can see along the major						
	without	2	4	6	4	48	Medium	-
	with	2	4	2	3	24	Low	-
	degree to which impact can be reversed:	<ul style="list-style-type: none"> <li>■ The speed limit on the road surrounding the mining area should be lowered from 120km/h to 60km/h.</li> <li>■ Clear signage should be used to clearly indicate the rules of the road.</li> <li>■ The roads should be upgrade and lengthened to improve the shoulder sight distance for operational vehicles</li> </ul>						
	degree of impact on irreplaceable resources:	N/A						
Operation of vehicles may impact pedestrian safety	Nature of impact:	The increased use of operational vehicles during the development of the mine can have an impact on pedestrian safety that uses the roads.						
	without	2	4	6	3	36	Medium	-
	with	2	4	2	2	16	Low	-
	degree to which impact can be reversed:	<ul style="list-style-type: none"> <li>■ Operational vehicles must only use the roads during daylight hours. No vehicles should be operational from 6pm to 6am.</li> <li>■ Operational vehicles should put their headlights on when accessing the roads where pedestrians are commonly</li> </ul>						

Rietvlei Opencast Mine - EIA and Mining Right Application

Traffic

Significance Rating Table

Decommissioning Phase

Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)	Status (+ve or -ve)	Confidence
Creation of dust as a result of the movement of decommissioning vehicles	Nature of impact:	The movement of decommissioning vehicles along haul roads surrounding and within the mining area would contribute significantly to the						
	without	3	4	6	4	52	Medium	-
	with	2	4	4	2	20	Low	-
	degree to which impact can be reversed:	<ul style="list-style-type: none"> <li>■ Haul routes should be sprayed with water regularly to avoid the generation of dust</li> <li>■ All decommissioning vehicles should abide by speed limits to reduce excessive generation of dust</li> </ul>						
	degree of impact on irreplaceable resources:	N/A						

Rietvlei Opencast Mine - EIA and Mining Right Application

Traffic

Significance Rating Table

Cumulative Impacts								
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)	Status (+ve or -ve)	Confidence
Increased Traffic Congestion on the roads in surrounding area	Nature of impact:	The Rietvlei area is dominated by a number of coal mines. With the development of the proposed mine there would be an increase usage of						
	without	3	4	6	4	52	Medium	-
	with	3	4	4	3	33	Medium	-
	degree to which impact can be reversed:	<ul style="list-style-type: none"> <li>All mining vehicles using the roads should be scheduled to avoid peak-hour traffic i.e. avoid period between 07:00am and 09:00am as well as the period between 16:00pm and 18:00pm</li> <li>Upgrade of the roads would aid in faster moving vehicles and potholes would be avoided</li> </ul>						
	degree of impact on irreplaceable resources:	N/A						
Creation of dust as a result of the movement of operational vehicles	Nature of impact:	Dust may be a problem due to the cumulative generation of dust from the other mines located in the areas created by the transportation of						
	without	3	4	8	5	75	High	-
	with	3	4	4	3	33	Medium	-
	degree to which impact can be reversed:	<ul style="list-style-type: none"> <li>All vehicles transporting coal should be covered to avoid the generation of dust created by fine coal particulates.</li> <li>Haul routes should be sprayed with water regularly to avoid the generation of dust</li> <li>All mining vehicles should abide by speed limits to reduce excessive generation of dust</li> </ul>						
	degree of impact on irreplaceable resources:	N/A						

Rietvlei Opencast Mine - EIA and Mining Right Application

Visual

Significance Rating Table

Construction Phase								
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)	Status (+ve or -ve)	Confidence
Movement of Construction Vehicles	Nature of impact:	Construction vehicles used during the development of the mine will result in an increase of dust which can affect the visual aspects of the						
	without	1	1	8	4	40	Medium	-
	with	1	1	4	3	18	Low	-
	degree to which impact can be reversed:	Mitigation measure can significantly reduce the impact of dust through road wetting and speed limits.						
	degree of impact on irreplaceable resources:	N/A						
Visual impacts of construction on visual receptors in close proximity to the proposed mine	Nature of impact:	The anticipated visual impact of construction of the mine on visual receptors in close proximity to the proposed mine (i.e. within 5km)						
	without	4	1	6	3	33	Medium	-
	with	4	1	6	2	22	Low	-
	degree to which impact can be reversed:	Mitigation measures can be implemented to reduce the significance of the impact. These include reducing the construction period through careful planning and productive implementation of resources, plan the placement of lay-down areas and temporary construction equipment camps in						
	degree of impact on irreplaceable resources:	N/A						



Rietvlei Opencast Mine - EIA and Mining Right Application

Visual

Significance Rating Table

Operational Phase								
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)	Status (+ve or -ve)	Confidence
Effect of the areas in close proximity to the Operating Mine	Nature of impact:	The anticipated visual impact of the proposed mine on the landscape character of the area in						
	without	4	2	6	4	48	Medium	-
	with	4	2	6	4	48	Medium	-
	degree to which impact can be reversed:	The significance is expected to remain the same with and without mitigation measures. The mitigation measures can include making use of existing roads, create berms along roads to reduce visual impact, make sure all roads are designed correctly and have adequate drainage structure, Implement an environmental responsive plan to roads and infrastructure, plant all buildings and signs with muted earth colours, no reflective surfaces, appropriate lighting, Maintain the general appearance of the facility in an aesthetically pleasing way, used dust suppression mitigation, Refrain from using the coal as infill material in road works and Monitor rehabilitated areas, and implement remedial action as and when required						
	degree of impact on irreplaceable resources:	N/A						
Effect of the mine on landscape characteristics	Nature of impact:	The anticipated visual impact of the proposed mine on the landscape character of the area beyond the 5km radius						
	without	3	2	4	2	18	Low	-
	with	3	2	4	2	18	Low	-
	degree to which impact can be reversed:	The significance is expected to remain the same with and without mitigation measures. The mitigation measures can include making use of existing roads, create berms along roads to reduce visual impact, make sure all roads are designed correctly and have adequate drainage structure, Implement an environmental responsive plan to roads and infrastructure, plant all buildings and signs with muted earth colours, no reflective surfaces, appropriate lighting, Maintain the general appearance of the facility in an aesthetically pleasing way, used dust suppression mitigation,						
	degree of impact on irreplaceable resources:	N/A						

Impact on Settlement and homesteads in close proximity to the proposed mine	Nature of impact:	The anticipated visual impact of the proposed mine on the residents of rural and agricultural settlements and homesteads in close proximity to the proposed mine (i.e. within 5km)						
	without	4	2	10	3	48	Medium	-
	with	4	2	10	3	48	Medium	-
	degree to which impact can be reversed:	It should be noted that the study area is relatively sparsely populated. In addition, homesteads are likely to include trees and domestic scale structures, which would both contribute to localised absorption of the visual impact. As such, the probability of this impact occurring is						
	degree of impact on irreplaceable resources:	N/A						
Mine's impact on the residents of settlements and homesteads within the region	Nature of impact:	The anticipated visual impact of the proposed mine on the residents of rural and agricultural settlements and homesteads beyond the 5km radius						
	without	3	2	8	2	26	Low	-
	with	3	2	8	2	26	Low	-
	degree to which impact can be reversed:	It should be noted that the study area is relatively sparsely populated. In addition, homesteads are likely to include trees and domestic scale structures, which would both contribute to localised absorption of the visual impact. As such, the probability of this impact occurring is						
	degree of impact on irreplaceable resources:	N/A						
Visual impacts on users of major and secondary roads in close proximity to the proposed mine	Nature of impact:	The anticipated visual impact of the proposed mine on commuters travelling on the R555 and secondary roads in close proximity to the proposed mine (i.e. within 5km)						
	without	4	2	8	3	42	Medium	-
	with	4	2	8	3	42	Medium	-
	degree to which impact can be reversed:	The significance is expected to remain the same with and without mitigation measures. The mitigation measures can include making use of existing roads, create berms along roads to reduce visual impact, make sure all roads are designed correctly and have adequate drainage structure, Implement an environmental responsive plan to roads						
	degree of impact on irreplaceable resources:	N/A						
Visual impacts on users of major and secondary roads within the region	Nature of impact:	The anticipated visual impact of the proposed mine on commuters travelling on the R104, the						
	without	3	2	6	2	22	Low	-
	with	3	2	6	2	22	Low	-
	degree to which impact can be reversed:	The significance is expected to remain the same with and without mitigation measures. The mitigation measures can include making use of existing roads, create berms along roads to reduce visual impact, make sure all roads are designed correctly and have adequate drainage structure, Implement an environmental responsive plan to roads						
	degree of impact on irreplaceable resources:	N/A						

the region:	degree of impact on irreplaceable resources:	N/A							
Visual impacts on recreational users, tourists and sightseers in close proximity to the proposed mine	Nature of impact:	The anticipated visual impact of the proposed mine on recreational users, tourists and sightseers in close proximity to the proposed mine							
	without	4	2	6	2	24	Low	-	
	with	4	2	6	2	24	Low	-	
	degree to which impact can be reversed:	The significance is expected to remain the same with and without mitigation measures. The mitigation measures can include making use of existing roads, create berms along roads to reduce visual impact, make sure all roads are designed correctly and have adequate drainage structure, Implement an environmental responsive plan to roads							
	degree of impact on irreplaceable resources:	N/A							
Visual impacts on recreational users, tourists and sightseers within the region	Nature of impact:	The anticipated visual impact of the proposed mine on recreational users, tourists and sightseers beyond the 5km radius							
	without	3	2	4	2	18	Low	-	
	with	3	2	4	2	18	Low	-	
	degree to which impact can be reversed:	The significance is expected to remain the same with and without mitigation measures. The mitigation measures can include making use of existing roads, create berms along roads to reduce visual impact, make sure all roads are designed correctly and have adequate drainage structure, Implement an environmental responsive plan to roads							
	degree of impact on irreplaceable resources:	N/A							
Visual impact of lighting at night on visual receptors in close proximity to the proposed mine.	Nature of impact:	Visual impact of security and operational lighting of the mine on visual receptors in close proximity to the proposed mine (i.e. within 5km)							
	without	4	2	8	3	42	Medium	-	
	with	4	2	8	3	42	Medium	-	
	degree to which impact can be reversed:	The significant level is expected to remain the same before and after mitigation. Some mitigation measures include: • Shielding the sources of light by physical barriers (walls, vegetation, or the structure itself);							
	degree of impact on irreplaceable resources:	N/A							

Rietvlei Opencast Mine - EIA and Mining Right Application

Wetland

Significance Rating Table

Construction Phase								
Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)	Status (+ve or -ve)	Confidence
Loss of wetland habitat and ecological structure	Nature of impact:	The Impacts on wetland habitat as a result of:						
	without	3	5	8	4	64	High	-
	with	2	4	6	4	48	Medium	-
	degree to which impact can be reversed:	<ul style="list-style-type: none"> <li>It must be ensured that planning of mining infrastructure includes consideration of adjacent wetland / pan areas to ensure that these areas are avoided as far as possible.</li> <li>Development / mining impacts on the affected wetland features should be managed to minimise</li> </ul>						
	degree of impact on irreplaceable resources:	Irreplaceable loss of wetland habitats will be experienced when the mine beings the construction activity.						
Changes to wetland ecological and sociocultural service provision	Nature of impact:	The Impacts on wetland ecology and sociocultural service is as a result of:						
	without	3	5	8	4	64	High	-
	with	3	3	6	3	36	Medium	-
	degree to which impact can be reversed:	<ul style="list-style-type: none"> <li>It must be ensured that planning of mining infrastructure includes consideration of adjacent wetland areas to ensure that these areas are avoided as far as possible.</li> <li>All demarcated sensitive zones outside of the construction area must be kept off limits during any</li> </ul>						
	degree of impact on irreplaceable resources:	Changes to wetland ecological and sociocultural service will be experienced when the mine beings the construction activity.						
	Nature of impact:	The Impacts on the disruption of the hydrological functioning of the wetland habitats is as a result of:						
	without	3	5	6	3	42	Medium	-
	with	2	4	4	2	20	Low	-

Impact on wetland hydrological function	degree to which impact can be reversed:	<ul style="list-style-type: none"> <li>· It must be ensured that planning of mining infrastructure includes consideration of adjacent wetland areas to ensure that these areas are avoided as far as possible.</li> <li>· Keep all demarcated sensitive zones outside of the construction area off limits during development phases.</li> <li>· Prevent run-off from dirty water areas entering wetland habitats.</li> <li>· Ensure that seepage from dirty water systems is prevented as far as possible.</li> <li>· Ensure that the mine process water system is managed in such a way as to prevent discharge to the receiving environment.</li> <li>· Implement effective waste management in order to prevent construction related waste from entering the wetland environment</li> </ul>	
	degree of impact on irreplaceable resources:	Irreplaceable loss of wetland habitat will be experienced when the mine beings the construction activity.	

Rietvlei Opencast Mine - EIA and Mining Right Application

Floral

Wetland

Operational Phase

Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)	Status (+ve or -ve)	Confidence
Loss of wetland habitat and ecological structure	Nature of impact:	The Impacts on wetland habitat as a result of:						
	without	3	5	8	4	64	High	
	with	2	4	6	4	48	Medium	
	degree to which impact can be reversed:	<ul style="list-style-type: none"> <li>It must be ensured that planning of mining infrastructure includes consideration of adjacent wetland / pan areas to ensure that these areas are avoided as far as possible.</li> <li>Development / mining impacts on the affected wetland features should be managed to minimise</li> </ul>						
	degree of impact on irreplaceable resources:	Irreplaceable loss of wetland habitats will be experienced during the operational phase of the mine.						
Changes to wetland ecological and sociocultural service provision	Nature of impact:	The Impacts on wetland ecology and sociocultural service is as a result of:						
	without	3	5	8	4	64	High	
	with	3	3	6	3	36	Medium	
	degree to which impact can be reversed:	<ul style="list-style-type: none"> <li>It must be ensured that planning of mining infrastructure includes consideration of adjacent wetland areas to ensure that these areas are avoided as far as possible.</li> <li>All demarcated sensitive zones outside of the construction area must be kept off limits during any</li> </ul>						
	degree of impact on irreplaceable resources:	Changes to wetland ecological and sociocultural service will be experienced during the operational phase of the mine.						
Impact on wetland hydrological function	Nature of impact:	The Impacts as a result of a change in hydrological functioning of the wetland habitats is as a result of :						
	without	3	5	6	3	42	Medium	
	with	2	4	4	2	20	Low	
	degree to which impact can be reversed:	<ul style="list-style-type: none"> <li>It must be ensured that planning of mining infrastructure includes consideration of adjacent wetland areas to ensure that these areas are avoided as far as possible.</li> <li>Keep all demarcated sensitive zones outside of the construction area off limits during development</li> </ul>						
	degree of impact on irreplaceable resources:	Irreplaceable loss of wetland habitat will be experienced during the operational phase of the mine.						

Rietvlei Opencast Mine - EIA and Mining Right Application

Wetland

Significance Rating Table

Decommissioning Phase

Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)	Status (+ve or -ve)	Confidence
Loss of wetland habitat and ecological structure	Nature of impact:	The Impacts on wetland habitat as a result of:						
	without	3	5	8	4	64	High	
	with	2	4	6	4	48	Medium	
	degree to which impact can be reversed:	<ul style="list-style-type: none"> <li>It must be ensured that planning of mining infrastructure includes consideration of adjacent wetland / pan areas to ensure that these areas are avoided as far as possible.</li> <li>Development / mining impacts on the affected wetland features should be managed to minimise</li> </ul>						
	degree of impact on irreplaceable resources:	N/A						
Changes to wetland ecological and sociocultural service provision	Nature of impact:	The Impacts on wetland ecology and sociocultural service is as a result of:						
	without	3	5	8	4	64	High	
	with	3	3	6	3	36	Medium	
	degree to which impact can be reversed:	<ul style="list-style-type: none"> <li>It must be ensured that planning of mining infrastructure includes consideration of adjacent wetland areas to ensure that these areas are avoided as far as possible.</li> <li>All demarcated sensitive zones outside of the construction area must be kept off limits during any</li> </ul>						
	degree of impact on irreplaceable resources:	N/A						
Impact on wetland hydrological function	Nature of impact:	The Impacts on the disruption of the hydrological functioning of the wetland habitats is as a result of:						
	without	3	5	6	3	42	Medium	
	with	2	4	4	2	20	Low	
	degree to which impact can be reversed:	<ul style="list-style-type: none"> <li>It must be ensured that planning of mining infrastructure includes consideration of adjacent wetland areas to ensure that these areas are avoided as far as possible.</li> <li>Keep all demarcated sensitive zones outside of the construction area off limits during development</li> </ul>						
	degree of impact on irreplaceable resources:	N/A						

Rietvlei Opencast Mine - EIA and Mining Right Application

Blasting

Significance Rating Table

Operational Phase

Potential Impact	Mitigation	Extent (E)	Duration (D)	Magnitude (M)	Probability (P)	Significance (S=(E+D+M)*P)	Status (+ve or -ve)	Confidence
Ground vibration impact on houses	Nature of impact:	The impact that blasting from the mining operation can have on the housing structures located in close proximity to the mining area.						
	without	2	3	4	4	36	Medium	-
	with	2	3	4	2	18	Low	-
	degree to which impact can be reversed:	To reduce the effects of ground vibration the planning of blast operations must occur to take cognisance of different initiations and charging options. Attempt to increase the distance between the blast and the structure concerned to reduce the effects of the vibrations.						
	degree of impact on irreplaceable resources:	N/A						
Ground vibration impact on boreholes	Nature of impact:	The impact that blasting from the mining operation can have on boreholes located in close proximity to the mining area.						
	without	2	3	6	4	44	Medium	-
	with	2	3	6	2	22	Low	-
	degree to which impact can be reversed:	To reduce the effects of ground vibration the planning of blast operations must occur to take cognisance of different initiations and charging options. Attempt to increase the distance between the blast and the structure concerned to reduce the effects of the vibrations.						
	degree of impact on irreplaceable resources:	N/A						
Ground vibration impact on roads	Nature of impact:	The impact that blasting from the mining operation can have on roads being used by both the mine and residents in the area.						
	without	2	3	6	2	22	Low	-
	with	2	3	6	2	22	Low	-
	degree to which impact can be reversed:	No mitigation strategy can be implemented to reduce this significance however constant road maintenance and repair can help mitigate from server impacts to road users.						



	degree of impact on irreplaceable resources:	N/A							
Ground vibration impact on railways	Nature of impact:	The impact that blasting from the mining operation can have on railways being used by both the mine and residents in the area.							
	without	2	3	6	4	44	Medium	-	
	with	2	3	6	2	22	Low	-	
	degree to which impact can be reversed:	To reduce the effects of ground vibration the planning of blast operations must occur to take cognisance of different initiations and charging options. Attempt to increase the distance between the blast and the structure concerned to reduce the effects of the vibrations.							
	degree of impact on irreplaceable resources:	N/A							
Air Blast impact on houses	Nature of impact:	The impact that air blasting can have on houses located in close proximity to the mine.							
	without	2	2	6	4	40	Medium	-	
	with	2	3	6	2	22	Low	-	
	degree to which impact can be reversed:	Mitigation measures can be used to reduce the effect of air blasting through the control of the length and type of material used in stremming.							
	degree of impact on irreplaceable resources:	N/A							
Air Blast impact on boreholes	Nature of impact:	The impact that air blasting can have on boreholes located in close proximity to the mine.							
	without	2	3	2	1	7	Low	-	
	with	2	3	2	1	7	Low	-	
	degree to which impact can be reversed:	No mitigation strategy can be implemented to reduce this significance. The probability of this impact having any effect on boreholes is minimal.							
	degree of impact on irreplaceable resources:	N/A							
Air Blast impact on roads	Nature of impact:	The impact that air blasting can have on roads located in close proximity to the mine.							
	without	2	3	2	1	7	Low	-	
	with	2	3	2	1	7	Low	-	
	degree to which impact can be reversed:	No mitigation strategy can be implemented to reduce this significance. The probability of this impact having any effect on the roads surrounding the area is minimal.							
	degree of impact on irreplaceable resources:	N/A							

Fly Rock impact on houses	Nature of impact:	The impact that fly rock can have on houses located in close proximity to the mine.							
	without	2	3	4	3	27	Low	-	
	with	2	3	4	3	27	Low	-	
	degree to which impact can be reversed:	No mitigation strategy can be implemented to reduce this significance. The probability of this impact having any effect on the houses surrounding the area is minimal.							
	degree of impact on irreplaceable resources:	N/A							
Fly Rock impact on boreholes	Nature of impact:	The impact that fly rock can have on boreholes located in close proximity to the mine.							
	without	2	3	2	1	7	Low	-	
	with	2	3	2	1	7	Low	-	
	degree to which impact can be reversed:	No mitigation strategy can be implemented to reduce this significance. The probability of this impact having any effect on the boreholes surrounding the area is minimal.							
	degree of impact on irreplaceable resources:	N/A							
Fly Rock impact on roads	Nature of impact:	The impact that fly rock can have on roads located in close proximity to the mine.							
	without	2	3	6	4	44	Medium	-	
	with	2	3	4	3	27	Low	-	
	degree to which impact can be reversed:	Mitigation measures can be used to reduce the effect of air blasting through the control of the length and type of material used in stremming.							
	degree of impact on irreplaceable resources:	N/A							
Fly Rock impact on railways	Nature of impact:	The impact that fly rock can have on railways located in close proximity to the mine.							
	without	2	3	6	4	44	Medium	-	
	with	2	3	4	3	27	Low	-	
	degree to which impact can be reversed:	Mitigation measures can be used to reduce the effect of air blasting through the control of the length and type of material used in stremming.							
	degree of impact on irreplaceable resources:	N/A							
	Nature of impact:	The impact that fumes can have on houses located in close proximity to the mine.							
	without	2	3	4	1	9	Low	-	
	with	2	3	4	1	9	Low	-	

Impact of Fumes Houses	degree to which impact can be reversed:	No mitigation strategy can be implemented to reduce this significance. The probability of this impact having any effect on the house surrounding the area is minimal.						
	degree of impact on irreplaceable resources:	N/A						
Impact of Fumes - Boreholes	Nature of impact:	The impact that fumes can have on boreholes located in close proximity to the mine.						
	without	2	3	2	1	7	Low	-
	with	2	3	2	1	7	Low	-
	degree to which impact can be reversed:	No mitigation strategy can be implemented to reduce this significance. The probability of this impact having any effect on the boreholes surrounding the area is minimal.						
	degree of impact on irreplaceable resources:	N/A						
Impact of Fumes - Roads	Nature of impact:	The impact that fumes can have on roads located in close proximity to the mine.						
	without	2	3	2	1	7	Low	-
	with	2	3	2	1	7	Low	-
	degree to which impact can be reversed:	No mitigation strategy can be implemented to reduce this significance. The probability of this impact having any effect on the roads surrounding the area is minimal.						
	degree of impact on irreplaceable resources:	N/A						
Impact of Fumes - Railways	Nature of impact:	The impact that fumes can have on railways located in close proximity to the mine.						
	without	2	3	2	1	7	Low	-
	with							
	degree to which impact can be reversed:	No mitigation strategy can be implemented to reduce this significance. The probability of this impact having any effect on the railways surrounding the area is minimal.						
	degree of impact on irreplaceable resources:	N/A						