

Appendix C1: Identification of potential impacts

Appendix C1

Identification of Potential Impacts

1 Potential Impacts

The key environmental issues were identified by the environmental consultants and were assessed and rated in order to determine the significance of each potential impact. Specialist studies were conducted for impacts with a potentially high significance or where it is a legal requirement. The objective of the specialist studies was to further investigate each of the issues identified and assess their potential environmental impact in order to determine their significance and propose mitigation measures to address the impacts, if required.

The identification of potential impacts is based on:

- The legal requirements;
- The nature of the proposed activity; and
- The nature of the receiving environment.

After consideration of these aspects, the following potential impacts were identified and have been addressed by SRK in consultation with the project team consultants and engineers. The assessments are summarised in Appendix C3:

- **Visual impacts**
 - V1 – Visual impact of the borrow pit on passers-by.
 - V2 – Rehabilitation of BP site improving the visual character of the area.
- **Ecology impacts**
 - E1 – (Geology) Removal of material from the borrow pit, therefore making it unavailable for other users.
 - E2 – (Vegetation) Small scale loss of vegetation and invasion by invasive alien vegetation associated with borrow pit development and associated activities (establishment of site camp, removal of overburden, and topsoil stockpiles).
 - E3 – (Fauna) Small scale loss of fauna, particularly small animals confined to borrow pit site, resulting from habitat loss.
- **Air quality impacts**
 - A1 – Nuisance impact of dust generated from excavating, blasting, crushing, stockpiling and road works on nearby residents.
 - A2 – Nuisance impact of dust generated from excavating, blasting, stockpiling and road works on visibility for traffic on the R717.
- **Noise impacts**
 - N1 – Nuisance impacts resulting from noise during blasting and crushing activities affecting nearby residents.
- **Storm water and erosion impacts**
 - SW1 – Increased sediment load in runoff water from borrow pit and road works affecting aquatic ecology and water users.
 - SW2 – Loss of topsoil from the borrow pit due to erosion during removal and stockpiling for rehabilitation.

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- **Waste management impacts**
 - W1 – Construction and domestic waste as well as waste water could lead to other visual impacts and loss of natural habitat.
- **Safety Impacts**
 - S1 – Danger of people or livestock entering the mining area and getting injured.
 - S2 – Danger for traffic utilizing the roads due to heavy vehicles.
 - S3 – Blasting activities at the borrow pit may affect the stability of nearby houses and infrastructure. Fly rock from the blast may also affect the surrounding terrain.

2 Potential Cumulative Impacts

An increase in traffic on the local roads of the area which may have a cumulative impact on the following:

- **Traffic Impacts:**
 - C1 – Increased traffic in the area may result in increased noise levels as well as negatively affecting the ambient air quality due to increased dust levels.

However; these cumulative impacts are not of a permanent nature and will not remain after the closure of the borrow pit.

3 Potential Impacts on Social and Cultural Impacts (Communities, Individuals or Competing Land Uses)

After consideration of these aspects, the following potential impacts were identified:

- **Land Capability Impacts:**
 - LC1 – The loss of agricultural land due to the development of the borrow pit could result in a low impact as BP A extends an existing borrow pit.
- **Socio-Economic Impacts:**
 - SE1 – The surrounding community may benefit from temporary employment opportunities during the construction phase of the road and the mining activities.
 - SE2 – The rehabilitation of the road would continue to positively affect the local, provincial and national economy as it is the main access route between Johannesburg and Cape Town as well as Johannesburg and Port Elizabeth.

4 Potential Impact on Heritage Resources

An Archaeological and Paleontological Impact Assessment studies have been conducted in order to investigate the potential environmental/cultural impacts associated with the proposed activities. The specialists were required to assess the significance of anticipated impacts and to recommend mitigation measures.

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The specialist studies had the following conclusions:

- **Archaeology**

- H1 – The archaeological impact assessment concluded that it is highly unlikely that there will be any impacts on the heritage environment as a result of this activity as no archaeology artefacts could be identified on site (refer to Appendix A5 for specialist report)

- **Palaeontology**

- H2 – The palaeontological impact assessment concluded that the potential impact is very low impact (refer to Appendix A6 for specialist report)

Appendix C2: Criteria for assigning significance

Appendix C2**Criteria for assigning significance**

A significance rating is allocated to each potential impact, based on consideration of the probability, intensity, extent, duration and possible mitigation of the potential impact. These terms are explained as follows:

Term	Description
Probability	the likelihood of the impact occurring
Intensity	the 'severity' of the impact or extent to which ecological and social processes are altered
Extent	the scale of the impact on a local - national level
Duration	the length of time the impact will last, which may be anything from several days to the entire lifetime of the development
Mitigation	ways in which an impact can be avoided, minimised or managed to reduce its environmental significance

Each rating is based on observations made during the site visits and on professional judgement. Based on a synthesis of the above criteria, significance of an impact is rated as follows:

Significance	Description
High	where the impact would influence the decision to authorise the road upgrade regardless of any mitigation measures
Moderate	where the impact should influence the decision to upgrade the road, and where mitigation measures can, and must, be specified to reduce the overall impact
Low	where the impact would not have any influence on the decision to authorise the upgrading of the road

Significance	Description
High (positive)	High
Medium (positive)	Medium
Low (positive)	Low
Very Low (positive)	Very Low
Insignificant	Insignificant
Very Low (negative)	Very Low
Low (negative)	Low
Medium (negative)	Medium
High (negative)	High

Appendix C3: Significance of potential impacts

Appendix C3

Significance of Potential Impacts

1 Assessment of Potential Impacts

The potential impacts of the proposed borrow pit are summarised in the table below. The status and significance of the relevant impacts are also listed. All measures recommended to mitigate and manage the identified impacts are incorporated into Appendix H1 (Environmental Management Plan – Mitigation Measures), which lists the mitigatory specifications for the different phases of the proposed mining operations.

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Domain	Impact	Description of Potential Impact	BP's	Status	Significance		Reference to Mitigation
					Without Mitigation	With Mitigation	
Potential Environmental Impacts							
Visual impact	V1	Visual impact of borrow pits on passers-by.	BP A	+ve	Very Low	Low	Section 4.5 (App. H1)
	V2	Rehabilitation of BP site improving the visual character of the area where existing BP is present.	BP A	+ve	Low	Low	Section 6.3 (App. H1) & Section 2 (App. H2)
Geology	E1	Removal of material from the borrow pits, therefore making it unavailable for other users	BP A	-ve	Low	Low	N/A
Vegetation	E2	Small scale loss of vegetation and invasion by invasive alien vegetation associated with borrow pit development and associated activities (establishment of site camp, removal of overburden, and topsoil stockpiles).	BP A	-ve	Very Low	Very Low	Sections 3.2 & 4.1 (App. H1)
Fauna	E3	Small scale loss of fauna, particularly small animals confined to borrow pit sites, resulting from habitat loss.	BP A	-ve	Very Low	Insignificant	Section 4.1 (App. H1)
Air quality	A1	Nuisance impact of dust generated from excavating, blasting, crushing, stockpiling on nearby residents.	BP A	-ve	Very Low	Very Low	Section 4.6 (App. H1)
	A2	Nuisance impact of dust generated from excavating, blasting, stockpiling and road works on visibility for traffic on the R717.	BP A	-ve	Very Low	Insignificant	Section 4.6 (App. H1)
Noise	N1	Nuisance impacts resulting from noise during blasting and crushing activities affecting nearby residents.	BP A	-ve	Very Low	Insignificant	Section 4.5 (App. H1)
Surface Water	SW1	Increased sediment load in runoff water from borrow pits and road works affecting aquatic ecology and water users.	BP A	-ve	Very Low	Insignificant	Section 5.2 (App. H1)
Soils	SW2	Loss of topsoil from borrow pits due to erosion during removal and stockpiling for rehabilitation.	BP A	-ve	Very Low	Insignificant	Section 4.2 (App. H1)
Waste management	W1	Construction and domestic waste as well as waste water could lead to other visual impacts and loss of natural habitat.	BP A	-ve	Low	Insignificant	Sections 4.7, 5.3 & 5.4 (App. H1)

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Domain	Impact	Description of Potential Impact	BP's	Status	Significance		Reference to Mitigation
					Without Mitigation	With Mitigation	
Safety	S1	Danger of people or livestock entering the mining area and getting injured	BP A	-ve	Low	Insignificant	Sections 3.3 & 3.4 (App. H1)
	S2	Danger for traffic utilizing the roads due to heavy vehicles.	BP A	-ve	Low	Insignificant	Sections 3.3 & 3.4 (App. H1)
	S3	Blasting activities at the borrow pits may affect the stability of nearby houses and infrastructure. Fly rock from the blast may also affect the surrounding terrain.	BP A	-ve	Very Low	Insignificant	Section 6.2 (App. H1)
Potential Impact on Heritage Resources							
Archaeology / Heritage	H1	Removal or destruction of items of archaeological or cultural heritage due to borrow pit excavation.	BP A	N/A	Insignificant	Insignificant	No sites identified.
Palaeontology	H2	Removal or destruction of palaeontological resources through BP excavation.	BP A	N/A	Very Low	Insignificant	Section 4.3 (App. H1)
Potential Impacts on Communities, Individuals and Competing Land Uses							
Land Capability	LC1	Loss of agricultural land due to development of borrow pits.	BP A	-ve	Insignificant	N/A	N/A
Socio-economic impacts	SE1	The surrounding community may benefit from temporary employment opportunities during the construction phase of the road and the mining activities.	BP A	+ve	Insignificant (short-term)	Very Low (short-term)	Section 7 (App. H1)
	SE2	The rehabilitation of the road would continue to positively affect the local, provincial and national economy as it is the main access route between Gauteng (Johannesburg) and the Western Cape (Cape Town) as well as Gauteng to the Eastern Cape.	BP A	+ve	Medium (long term)	Medium (long term)	N/A
Potential Cumulative Impacts							
Cumulative	C1	Increased traffic in the area may result in increased noise levels as well as negatively affecting the ambient air quality due to increased dust levels.	BP A	-ve	Low	Very Low	Sections 4.5 & 4.6 (App. H1)