APPENDIX D: DETAILED ASSESSMENT OF POTENTIAL IMPACTS

Potential biophysical, cultural/heritage and socio-economic impacts were identified by SLR, specialists and I&APs. These impacts are discussed under the relevant headings in this section. It should be noted that cumulative impacts and latent impacts are discussed where relevant.

SLR's impact assessment methodology used to rate each impact is outlined in section 7.6. Where applicable, impacts have been considered both incrementally and cumulatively in the context of existing Impala operations.

The potential impacts are rated with the assumption that no management actions (which assumes that no consideration is given to the mitigation of environmental and social impacts) are applied and then again with management actions which is the mitigated scenario and represents the residual impact. In addition to this, the section below also provides a discussion on the impact significance of the proposed project activities within the context of the environment adjacent to the existing Shaft 16 Complex. A summary of the impact assessment is provided in chapter 9.

Management actions identified to prevent, reduce, control or remedy the assessed negative impacts, or enhance positive impacts are provided under the relevant impact discussions sections. Where impacts are considered to be insignificant, no management actions have been identified.

GEOLOGY

ISSUE: LOSS AND STERILISATION OF MINERAL RESOURCES

Mineral resources can be sterilised and/or lost through the placement of infrastructure and activities in close proximity to mineral resources. The proposed project will require excavations at a maximum depth of (650 mm) and the proposed parking area will be placed primarily on the surface. No existing ore bodies or current underground mining activities will be affected. It follows that the proposed project will not result in the sterilisation of any mineral reserves. This impact has therefore been rated as being **INSIGNIFICANT** and has not been assessed further.

TOPOGRAPHY

ISSUE: ALTERING TOPOGRAPHY

The expansion of the parking area will alter the natural topography of the area and cannot be mitigated. It is important to note that the natural topography of the project area has already been disturbed as a result of existing mining infrastructure at the Shaft 16 Complex, as well as other anthropogenic activities and placement of infrastructure, such as the overhead powerline and the stormwater culvert. It follows that any potential alteration of topography is expected to be negligible. This impact has therefore been rated as being **INSIGNIFICANT**; however, the management actions outlined below are required to ensure this rating is achieved.

MINE PHASE AND LINK TO PROJECT-SPECIFIC ACTIVITIES

Construction	Operation	Decommissioning	Closure
• Site preparation • Civil works • Earthworks		• Rehabilitation	• Maintenance and aftercare

MANAGEMENT OBJECTIVES

The objective is to minimise changes to natural topography.

MANAGEMENT OUTCOMES

The outcome is to limit the alteration of topography during the proposed project through rehabilitation.

MANAGEMENT ACTIONS

The following management actions will be implemented to manage the impact:

- Minimise the area of disturbance by designing and constructing the most compact infrastructure practically possible; and
- Rehabilitate in accordance with the approved mine closure plan that ensures a suitable post-closure land use is achieved.

ISSUE: HAZARDOUS EXCAVATIONS AND INFRASTRUCTURE RESULTING IN SAFETY RISKS TO THIRD PARTIES AND ANIMALS

Hazardous excavations and infrastructure include all structures into, or off which third parties and animals can fall and be harmed. During the construction phase of the proposed project, excavations may be required for trenches, foundations and localised stormwater controls (diversion channels), hereby creating the potential for safety risks. Further detail is provided below.

MINE PHASE AND LINK TO PROJECT-SPECIFIC ACTIVITIES

Construction	Operation	Decommissioning	Closure
• Site preparation • Civil works • Earthworks			

DISCUSSION

Intensity: The proposed project is located on one farm portion, will cover a maximum area of 2.5 ha and is located adjacent to the existing Shaft 16 Complex. A pedestrian walkway is located adjacent to the site, and two main access roads used to access the Shaft 16 Complex is located to the west and north-east. The Kanana residential area is located 100 m eastwards. In this regard, the proposed project site is easily accessed by third parties. In the absence of access control to the site and management measures to ensure that the land is safe, the excavations required as part of the proposed project have the potential to cause injury or death to people and animals (free roaming livestock). Due to the uncontrolled access at the site, the close proximity to Kanana and the existing Shaft 16 Complex frequented by people, and the fact that

the impact has the potential to result in injury or death, in the unmitigated scenario the intensity is rated as **High**. This will be reduced to **VERY LOW** with mitigation.

Duration: The impact of death or injury is permanent and therefore the duration in both the mitigated and unmitigated scenario is rated as **VERY HIGH**.

Extent: The impact of hazardous excavations is localised because the risk occurs within the site boundary; however, the spatial scale is considered to extend beyond the site boundary as an indirect impact. This is because the impact will affect the communities to which the impacted person or animal belongs. Therefore, the extent is rated as **MEDIUM** in both scenarios.

Consequence: The consequence is **High** in the unmitigated scenario and reduces to **MEDIUM** with mitigation.

Probability: In the unmitigated scenario, the project components with uncontrolled access and within proximity to Kanana and the Shaft 16 Complex may cause possible loss or injury to third parties or animals, rated as **Medium**. Mitigation measures aimed at making the land safe and controlling access may cause improbable loss or injury, therefore rated as **VERY LOW.**

Significance: In the unmitigated scenario, the significance of this potential impact is **Medium**. In the mitigated scenario, the significance of the impact is reduced to **VERY LOW**.

ISSUE: HAZARDOUS EXCAVATIONS AND INFRASTRUCTURE RESULTING IN SAFETY RISKS TO THIRD PARTIES AND ANIMALS		
CONSTRUCTION PHASE		
Criteria	**Without Mitigation**	**With Mitigation**
Intensity	**High**	**VERY LOW**
Duration	**Very High**	**VERY HIGH**
Extent	**Medium**	**MEDIUM**
Consequence	**High**	**MEDIUM**
Probability	**Medium**	**VERY LOW**
Significance	**Medium**	**VERY LOW**
Nature of cumulative impacts	No cumulative impacts have been identified.	
Degree to which impact can be reversed	Unlikely in the event of death and injury	
Degree to which impact can be avoided	High with mitigation	
Degree to which impact may cause irreplaceable loss	Very High in the event of death and injury	
Degree to which impact can be mitigated	Very High	

MANAGEMENT OBJECTIVES

The objective is to prevent physical harm to third parties and animals resulting from potentially hazardous excavations and infrastructure.

MANAGEMENT OUTCOMES

The outcome is to ensure no third parties or animals are during the proposed project.

MANAGEMENT ACTIONS

The following management actions will be implemented to manage the impact:

- The project area will be fenced off to prevent inadvertent access by third parties and animals;
- Access control will be implemented to ensure access is only granted to those who have authorisation;
- Barriers will be erected around all hazardous excavations;
- Warning signage will be erected at all hazardous excavations; and
- Where the proposed project has caused injury to third parties or animals, appropriate compensation will be provided.

SOILS AND LAND CAPABILITY

ISSUE: LOSS OF SOIL RESOURCES AND LAND CAPABILITY THROUGH PHYSICAL DISTURBANCE AND CONTAMINATION

The proposed project occupies a relatively small area of 2.5 ha, located adjacent to the existing Shaft 16 Complex. The soil resources in the project footprint have already been influenced by anthropogenic activities (historic cultivation) to the extent that floral communities within the project footprint are considered species poor and the habitat is not conducive to sustaining faunal SCC. For these reasons, the impact has been rated as being **INSIGNIFICANT**; however, the management actions outlined below are required to ensure this rating is achieved.

MINE PHASE AND LINK TO PROJECT-SPECIFIC ACTIVITIES

Construction	Operation	Decommissioning	Closure
• Site preparation • Civil works • Earthworks • Transport systems	• Transport systems • General site management	• Demolition • Rehabilitation	• Maintenance and aftercare

MANAGEMENT OBJECTIVES

The objective is to minimise the loss of soil resources and related land capability from physical disturbance, erosion, compaction and soil pollution.

MANAGEMENT OUTCOMES

The outcome is to handle, manage and conserve soil resources to be used as part of rehabilitation and re-establishment of the pre-mining land capability.

MANAGEMENT ACTIONS

The following management actions will be implemented to manage the impact:

- Minimise the area of disturbance by designing and constructing the most compact infrastructure practically possible;
- Implement the soil conservation procedure as set out in Table 26-3;
- Rehabilitate in accordance with the approved mine closure plan that ensures a suitable post-closure land use is achieved;
- Establish short term perennial vegetation that will stabilise the site but allow the indigenous vegetation to establish over the site;
- Use existing established roads;
- Conduct potentially polluting activities (i.e., loading, hauling, tipping, transportation, handling and storage) in a manner that pollutants are contained at source and do not pollute soils. In this regard:
    - Service all vehicles and mobile equipment regularly in workshops, service bays and wash bays with contained impermeable, floors, dirty water collection facilities and oil traps;
    - Design and operate all new and used chemical, fuel and oil storage and handling facilities in a manner that all spillages are contained in impermeable areas and cannot be released into the environment;
    - Report ad-hoc spills of potentially polluting substances (whether in dirty areas or in the environment) to the Environmental Manager immediately and clean up and/or remediate immediately;
    - Implement and maintain a dirty water management system;
    - Implement the waste management practices, as set out in Table 26-2;
    - Educate and train all employees (temporary and permanent) and contractors in pollution prevention; and
    - Implement formalised action plans to enable fast and efficient reaction to contain and remediate pollution incidents.
- Consider the requirements for long term soil pollution prevention, land function and confirmatory monitoring in the design of any permanent and potentially polluting structures; and
- Implement the emergency response procedure in section Table 29-1 in the event of any major spillage incident.

BIODIVERSITY

ISSUE: PHYSICAL DESTRUCTION AND DISTURBANCE OF FLORAL SPECIES

The expansion of the parking area has the potential to destroy and disturb floral species in the project footprint and surrounding area. These impacts may be realised in the construction, operation, decommissioning and closure phases of the proposed project. Further detail is provided below.

MINE PHASE AND LINK TO PROJECT-SPECIFIC ACTIVITIES

Construction	Operation	Decommissioning	Closure
• Site preparation • Civil works • Earthworks	• Transport systems • General site management	• Transport systems • Demolition • Rehabilitation	• Maintenance and aftercare

Construction	Operation	Decommissioning	Closure
• Transport systems • General site management			

DISCUSSION

Intensity: The proposed project will entail the clearance of approximately 2.5 ha of indigenous vegetation. Floral communities within the project area were; however, species poor, homogenous and are no longer representative of the threatened Marikana Thornveld vegetation type (as a result of historic cultivation activities). The close proximity of the project area to anthropogenic activities (Shaft 16 Complex, Kanana residential area and other infrastructure (overhead powerline and stormwater culvert)), as well as the general fragmented nature of the area, allows for limited potential for floral communities to recover to a pre-cultivation state. No floral protected species and SCC were located on site. In the unmitigated scenario the intensity is rated as **Medium**. This will be reduced to **LOW** with mitigation.

Duration: In the unmitigated scenario, the impact on floral species and related functionality is long term and will continue after the life of mine, therefore rated as **High**. In the mitigated scenario, the rating will be reduced to **LOW**.

Extent: Biodiversity processes are generally not confined to a project site and will extend beyond the boundary. In the unmitigated scenario, the impact is more likely to be extended, therefore rated as **Medium.** In the mitigated scenario, impacts can be managed so as to localise it, therefore reducing the rating to **LOW.**

Consequence: The consequence is **Medium** in the unmitigated scenario and reduces to **LOW** with mitigation.

Probability: Without the implementation of management actions, impacts on floral species are possible, rated as **Medium.** With the implementation of management actions, the probability may be reduced to a **LOW**, conceivable probability.

Significance: In the unmitigated scenario, the significance of this potential impact is **Low**. In the mitigated scenario, the significance of the impact is reduced to **VERY LOW**.

ISSUE: PHYSICAL DESTRUCTION AND DISTURBANCE TO FLORAL SPECIES		
CONSTRUCTION, OPERATION, DECOMMISSIONING AND CLOSURE PHASES		
Criteria	**Without Mitigation**	**With Mitigation**
Intensity	**Medium**	**LOW**
Duration	**High**	**LOW**
Extent	**Medium**	**LOW**
Consequence	**Medium**	**LOW**
Probability	**Medium**	**LOW**
Significance	**Low**	**VERY LOW**

Nature of cumulative impacts	The greatest threat to the floral ecology within the project area and broader region is the ongoing expansion of anthropogenic developments (mining, residential, cultivation, etc.). Ongoing proliferation of poorly managed alien invasive species can result in an overall cumulative loss of native floral communities within the local area.
Degree to which impact can be reversed	Medium
Degree to which impact can be avoided	Medium
Degree to which impact may cause irreplaceable loss	Low
Degree to which impact can be mitigated	Very High

MANAGEMENT OBJECTIVES

The objective is to prevent the unacceptable loss and disturbance to floral species, and to prevent the proliferation of alien invasive species within and surrounding the project area.

MANAGEMENT OUTCOMES

The outcome is to prevent the spread of alien species in the project area, as well as to limit disturbance as far as practically possible.

MANAGEMENT ACTIONS

The following management actions will be implemented to manage the impact:

- A biodiversity specialist will do a walkdown of the project footprint after a rainfall period and prior to land clearing activities to identify protected floral species and floral SCC that may have been lying dormant during initial field observations;
- Minimise the area of disturbance by designing and constructing the most compact infrastructure practically possible;
- Ensure the removal of indigenous vegetation is restricted to what is absolutely necessary. Where possible, utilise remaining natural areas as part of landscaping of the parking area;
- Rehabilitate in accordance with the approved mine closure plan that ensures a suitable post-closure land use is achieved;
- Establish short term perennial vegetation that will stabilise the site but allow the indigenous vegetation to establish over the site;
- Use existing established roads. Additional road construction is to be limited to what is absolutely necessary and the footprint thereof kept to a minimum;
- Ensure vegetation clearing is undertaken in phases, so as to limit the potential for erosion;
- No collection of floral species and floral SCC is allowed;
- Where formal gardens are envisioned, indigenous vegetation or ornamental alien species not listed within NEM: BA Alien Species List (2020) must be used;
- While no protected plant or tree species were identified on site, if any species are encountered on site, the necessary permits need to be obtained from DREAD and/or DFFE prior to removal;
- No fires are allowed on site;

- Limit edge effects to the surrounding environment by:
  - Demarcating all footprint areas during construction
  - Preventing construction rubble or cleared alien and invasive species to be disposed outside of demarcated areas;
  - Ensuring that construction rubble and cleared alien and invasive species are taken to a registered waste disposal facility; and
  - Managing the spread of alien and invasive species.
- Provide appropriate sanitary facilities and ensure the disposal thereof at a registered licenced facility;
- Ensure no temporary dump sites are created on site;
- Compile an alien invasive species management or control plan for implementation with the following recommendations:
  - Removal alien invasive species throughout the construction, operation and maintenance phases;
  - Ensure alien vegetation is removed prior to the removal of indigenous vegetation;
  - Ensure only trained personnel are involved in the chemical control of alien invasive species;
  - Edge effects arising from the proposed project which may affect adjacent areas must be strictly managed;
  - Ongoing alien invasive species monitoring must be undertaken throughout all phases; and
  - Removed alien invasive species must not be placed on unprotected ground as seeds may disperse upon it. All cleared alien invasive species must be disposed of at a licenced waste facility.

ISSUE: PHYSICAL DESTRUCTION AND DISTURBANCE OF FAUNAL SPECIES

The expansion of the parking area has the potential to destroy and disturb faunal species in the project footprint. These impacts may be realised in the construction, operation, decommissioning and closure phases of the proposed project. Further detail is provided below.

MINE PHASE AND LINK TO PROJECT-SPECIFIC ACTIVITIES

Construction	Operation	Decommissioning	Closure
• Site preparation • Civil works • Earthworks • Transport systems • General site management	• Transport systems • General site management	• Transport systems • Demolition • Rehabilitation	• Maintenance and aftercare

DISCUSSION

Intensity: The proposed project is expected to have a limited impact on faunal communities. This is largely due to the species poor and homogenous nature of the floral species located on site, which in turn have limited ability to support faunal species. The proposed project will result in localised faunal habitat loss; however, the project footprint is only associated with a moderately low diversity of faunal species and no

faunal SCC were located on site. In the unmitigated scenario the intensity is rated as **Medium**. This will be reduced to **LOW** with mitigation.

Duration: In the unmitigated scenario, the impact on faunal species is long term and will continue after the life of mine, therefore rated as **High**. In the mitigated scenario, the rating will be reduced as **LOW**.

Extent: Biodiversity processes are generally not confined to a project site and will extend beyond the boundary. In the unmitigated and mitigated scenario, the impact can extend to the local region, thus rated as **MEDIUM**.

Consequence: The consequence is **Medium** in the unmitigated scenario and reduces to **LOW** with mitigation.

Probability: Without the implementation of management actions, impacts on faunal species are possible, rated as **Medium.** With the implementation of management actions, the probability may be reduced to a **LOW**, conceivable probability.

Significance: In the unmitigated scenario, the significance of this potential impact is **Low**. In the mitigated scenario, the significance of the impact is reduced to **VERY LOW**.

ISSUE: PHYSICAL DESTRUCTION AND DISTURBANCE TO FLORAL SPECIES		
CONSTRUCTION, OPERATION, DECOMMISSIONING AND CLOSURE PHASES		
Criteria	**Without Mitigation**	**With Mitigation**
Intensity	**Medium**	**LOW**
Duration	**High**	**LOW**
Extent	**Medium**	**MEDIUM**
Consequence	**Medium**	**LOW**
Probability	**Medium**	**LOW**
Significance	**Low**	**VERY LOW**
Nature of cumulative impacts	The proposed project will result in the clearance of vegetated areas, which will lead to further isolation and displacement of faunal species within the local area.	
Degree to which impact can be reversed	Medium	
Degree to which impact can be avoided	Medium	
Degree to which impact may cause irreplaceable loss	Low	
Degree to which impact can be mitigated	Very High	

MANAGEMENT OBJECTIVES

The objective is to prevent the unacceptable destruction and disturbance to faunal species.

MANAGEMENT OUTCOMES

The outcome is to ensure that no faunal species are harmed or disturbed in the project area.

MANAGEMENT ACTIONS

The following management actions will be implemented to manage the impact:

- A biodiversity specialist shall do a walkdown of the project footprint prior to land clearing activities to identify faunal species on site and to assist with the relocation thereof;
- Ensure vegetation clearing is undertaken in phases, so as to allow for faunal species to vacate the area safely;
- No collection, trapping and harming of faunal species and faunal SCC is allowed;
- While no protected faunal species were identified on site, if any species are encountered on site, the necessary permits need to be obtained from DFFE prior to removal;
- Smaller species that are not readily able to move out of an area ahead of vegetation and ground clearing activities (such as scorpions and reptiles), will be less mobile during rainfall events and cold days. As such, care must be taken to look for these species prior to these activities and should these species be encountered, they are to be carefully and safely moved to an area of similar habitat outside of the project footprint. A suitably trained specialist shall be instructed to carry out the removal of venomous snake species; and
- Construction personnel are to undergo environmental awareness training pertaining to the potential faunal species located on site.

SURFACE WATER RESOURCES

ISSUE: ALTERATION OF NATURAL DRAINAGE PATTERNS

Surface water resources include drainage lines and paths of preferential flow of stormwater runoff. A stormwater culvert is located west of the project footprint. Given the hardened surfaces around the project area, it is expected that water flows through this culvert and collects in parts of the project footprint. Due to the relatively flat topography and the clay-like soils, water is likely to remain trapped here and is only lost through evaporation. Stormwater/surface water run-off at the parking area will be channelled to the existing stormwater canal adjacent to the parking area. In this regard, any potential loss of runoff to the catchment is expected to be negligible. This impact has therefore been rated as being **INSIGNIFICANT** and is not assessed any further.

ISSUE: CONTAMINATION OF SURFACE WATER RESOURCES

As mentioned above, a stormwater culvert is located west of the project footprint and stormwater/surface water run-off at the parking area will be channelled to the existing stormwater canal adjacent to the parking area. The proposed project presents a potential for long-term contamination through accidental spills and leaks from trucks, plant, equipment and vehicles during all phases of the project. At elevated pollution concentrations, these contaminants can be harmful; however, it is important to note that the proposed project does not present sources of contaminants that differ from those at the existing parking area. This impact has been rated as being **INSIGNIFICANT;** however, the management actions outlined below are required to ensure this rating is achieved.

MINE PHASE AND LINK TO PROJECT-SPECIFIC ACTIVITIES

Construction	Operation	Decommissioning	Closure
• Site preparation • Civil works • Earthworks • Transport systems • General site management	• Transport systems • General site management	• Transport systems • Demolition • Rehabilitation	• Maintenance and aftercare

MANAGEMENT OBJECTIVES

The objective is to prevent pollution of surface water resources.

MANAGEMENT OUTCOMES

The outcome is to ensure that surface water quality remains within acceptable limits for both domestic and agricultural purposes.

MANAGEMENT ACTIONS

The following management actions will be implemented to manage the impact:

- Implement approved management actions pertaining to the containment of dirty water in accordance with Regulation 704 (June 1999);
- Prevent contamination through appropriate and effective channelling of stormwater into existing stormwater canal;
- Any sheet runoff from compacted areas must be slowed down by the strategic placement of berms;
- Ensure the inclusion of structures developed by means of soft engineering approaches, such as swales, to spread, and attenuate flow and to rap sediment within the design of the parking area in order to ensure flow pattern and timing within the area are not impacted;
- Implement the emergency response procedure in section Table 29-1 in the event of any major spillage incident;
- Monitor surface water resources in accordance with Impala's approved surface water monitoring programme. Where monitoring results indicate that third party water supply has been polluted by Impala, ensure that an alternative equivalent water supply is provided; and
- Conduct potentially polluting activities (i.e., loading, hauling, tipping, transportation, handling and storage) in a manner that pollutants are contained at source and do allow to be washed away through runoff. In this regard:
    - Service all vehicles and mobile equipment regularly in workshops, service bays and wash bays with contained impermeable, floors, dirty water collection facilities and oil traps;
    - Design and operate all new and used chemical, fuel and oil storage and handling facilities in a manner that all spillages are contained in impermeable areas and cannot be released into the environment;
    - Report ad-hoc spills of potentially polluting substances (whether in dirty areas or in the environment) to the environmental manager immediately and clean up and/or remediate immediately;

- Implement and maintain a dirty water management system;
- Implement the waste management practices, as set out in Table 26-2;
- Educate and train all employees (temporary and permanent) and contractors in pollution prevention; and
- Implement formalised action plans to enable fast and efficient reaction to contain and remediate pollution incidents.

GROUNDWATER RESOURCES

ISSUE: CONTAMINATION OF GROUNDWATER RESOURCES

Groundwater is a valuable resource and is defined as water which is located beneath the ground surface in soil/rock pore spaces and in the fractures of lithological formations. The proposed project presents a potential for long-term contamination through accidental spills and leaks from trucks, plant, equipment and vehicles, that may seep into the ground and affect groundwater resources. This potential exists during all phases of the project. At elevated pollution concentrations, these contaminants can be harmful; however, it is important to note that the proposed project does not present sources of contaminants that differ from those at the existing parking area. This impact has been rated as being **INSIGNIFICANT;** however, the management actions, as outlined in the previous section, are required to ensure this rating is achieved.

MINE PHASE AND LINK TO PROJECT-SPECIFIC ACTIVITIES

Construction	Operation	Decommissioning	Closure
• Site preparation • Civil works • Earthworks • Transport systems • General site management	• Transport systems • General site management	• Transport systems • Demolition • Rehabilitation	• Maintenance and aftercare

MANAGEMENT OBJECTIVES

The objective is to prevent pollution of groundwater resources.

MANAGEMENT OUTCOMES

The outcome is to ensure that groundwater quality remains within acceptable limits for both domestic and agricultural purposes.

AIR QUALITY

ISSUE: AIR POLLUTION

The proposed project presents a number of sources that can have a negative impact on the ambient air quality and surrounding land uses in all phases of development. Sources include clearing of vegetation, materials handling, wind erosion from stockpiles and disturbed areas, as well as vehicle tailpipe emissions from vehicles from construction vehicles. The afore-mentioned activities will be limited in time and extent, i.e., to the project area and to the construction phase (12 months). During operation, the proposed project does not present sources of contaminants that differ from those at the existing parking area i.e., vehicle

tailpipe emissions. In this regard, any potential impact to air quality is expected to be negligible. This impact has therefore been rated as being **INSIGNIFICANT**; however, the management actions, as outlined below are required to ensure this rating is achieved.

MINE PHASE AND LINK TO PROJECT-SPECIFIC ACTIVITIES

Construction	Operation	Decommissioning	Closure
• Site preparation • Civil works • Earthworks • Transport systems • General site management	• Transport systems • General site management	• Transport systems • Demolition • Rehabilitation	• Maintenance and aftercare

MANAGEMENT OBJECTIVES

The objective is to prevent air pollution-related health impacts.

MANAGEMENT OUTCOMES

The outcome is to ensure that any pollutants emitted as a result of the proposed project remains within acceptable limits so as to prevent air pollution-related health impacts.

MANAGEMENT ACTIONS

The following management actions will be implemented to manage the impact:

- Continue the implementation of Impala's air quality monitoring programme;
- Reduce vehicle exhaust emissions through the use of better-quality diesel;
- Implement inspection and maintenance programmes; and
- Ensure vegetation clearing is undertaken in phases, so as to limit the potential for dust generation.

NOISE

ISSUE: INCREASE IN DISTURBING NOISE LEVELS

Mining activities and infrastructure have the potential to cause an increase in ambient noise levels that may cause a disturbance to nearby sensitive receptors. The noise-generating activities associated with the proposed project is limited in time and extent, i.e., to the project area and to the construction phase (12 months). During operation, the proposed project does not present additional sources of noise-generating activities that differ from those at the existing parking area i.e., movement of vehicles, access control. In this regard, any potential impact to the environment in terms of noise impacts is expected to be negligible. This impact has therefore been rated as being **INSIGNIFICANT** and has not been assessed further. In the event of a noise-related complaint, it would need to be investigated by Impala.

VISUAL

ISSUE: NEGATIVE VISUAL VIEWS

Mining activities and infrastructure have the potential to alter the landscape character of an area through the establishment of infrastructure. The parking area will be established adjacent to the existing Shaft 16

Complex, beneath an overhead powerline and adjacent to a stormwater culvert. The nearest sensitive receptor is the Kanana residential area, located 100 m eastwards and the two main access roads used to gain access to the Shaft 16 Complex. The proposed project is unlikely to generate additional negative views that will be noticeable, in the context of the environment, already characterised by mining activities and related infrastructure. This impact has therefore been rated as being **INSIGNIFICANT** and has not been assessed further.

TRAFFIC

ISSUE: ROAD DISTURBANCE AND TRAFFIC SAFETY

Traffic from mining projects has the potential to affect the capacity of existing road networks, as well as result in public road safety issues. The proposed project will require the movement of heavy vehicles and an increase in the traffic in the project area during the construction phase. Due to the nature and limited scale and extent of the proposed project, the impact to the nearby community of Kanana is expected to be limited. In contrast, the expansion of the parking area is expected to increase public safety through the provision of safe and secure parking bays. It will limit the need to park vehicles along the access road which is considered to be unsafe. This impact has therefore been rated as being **INSIGNIFICANT** and has not been assessed further.

CULTURAL/HERITAGE AND PALEONTOLOGICAL RESOURCES

ISSUE: LOSS OF CULTURAL/HERITAGE AND PALEONTOLOGICAL RESOURCES

Mining infrastructure has the potential to impact cultural/heritage and paleontological resources through the placement of infrastructure and physical disturbance. No cultural/heritage resources have been identified within the project footprint. Moreover, due to the underlying geology of the area (refer to section 7.4.1.1), no palaeontological resources are expected. This impact has been rated as being **INSIGNIFICANT;** however, the management actions outlined below are required to in the event of a chance find.

MINE PHASE AND LINK TO PROJECT-SPECIFIC ACTIVITIES

Construction	Operation	Decommissioning	Closure
• Site preparation • Civil works • Earthworks			

MANAGEMENT OBJECTIVES

The objective is to minimise the disturbance of cultural/heritage and palaeontological resources.

MANAGEMENT OUTCOMES

The outcome is to protect heritage resources, where possible. If disturbance is unavoidable, then mitigate the impact in consultation with a specialist and SAHRA, and in line with regulatory requirements.

MANAGEMENT ACTIONS

The following management actions will be implemented to manage the impact:

- Implement the chance find procedure (refer to Table 10-1) in the event of the discovery of cultural/heritage and/or palaeontological resources on site.

SOCIO-ECONOMIC

ISSUE: INWARD MIGRATION AND ECONOMIC IMPACT

Mines tend to bring with them an expectation of employment in all project phases prior to closure. This expectation can lead to the influx of job seekers to an area which in turn increases pressure on existing communities, housing, basic service delivery and raises concerns around safety and security. The proposed project is located adjacent to the existing Shaft 16 Complex and will result in a limited number of short-term employment opportunities through usage of registered community vendors during construction. It follows that negative inward migration, which could place additional pressure on housing and municipal services, is not expected to occur. A positive economic impact is expected on the local and regional economies; however, due to the limited nature and extent of the proposed project, this impact is considered to be negligible. This impact has therefore been rated as being **INSIGNIFICANT** and has not been assessed further.

ISSUE: CHANGE IN LAND USE

Mining-related activities have the potential to affect land uses both within the mine area and in the surrounding areas. This can be caused by physical land transformation and through direct or secondary impacts. The land on which the project footprint is located was used historically for cultivation, is currently vacant and has not been earmarked for development other than mining-related at this stage. This impact has therefore been rated as being **INSIGNIFICANT** and has not been assessed further.