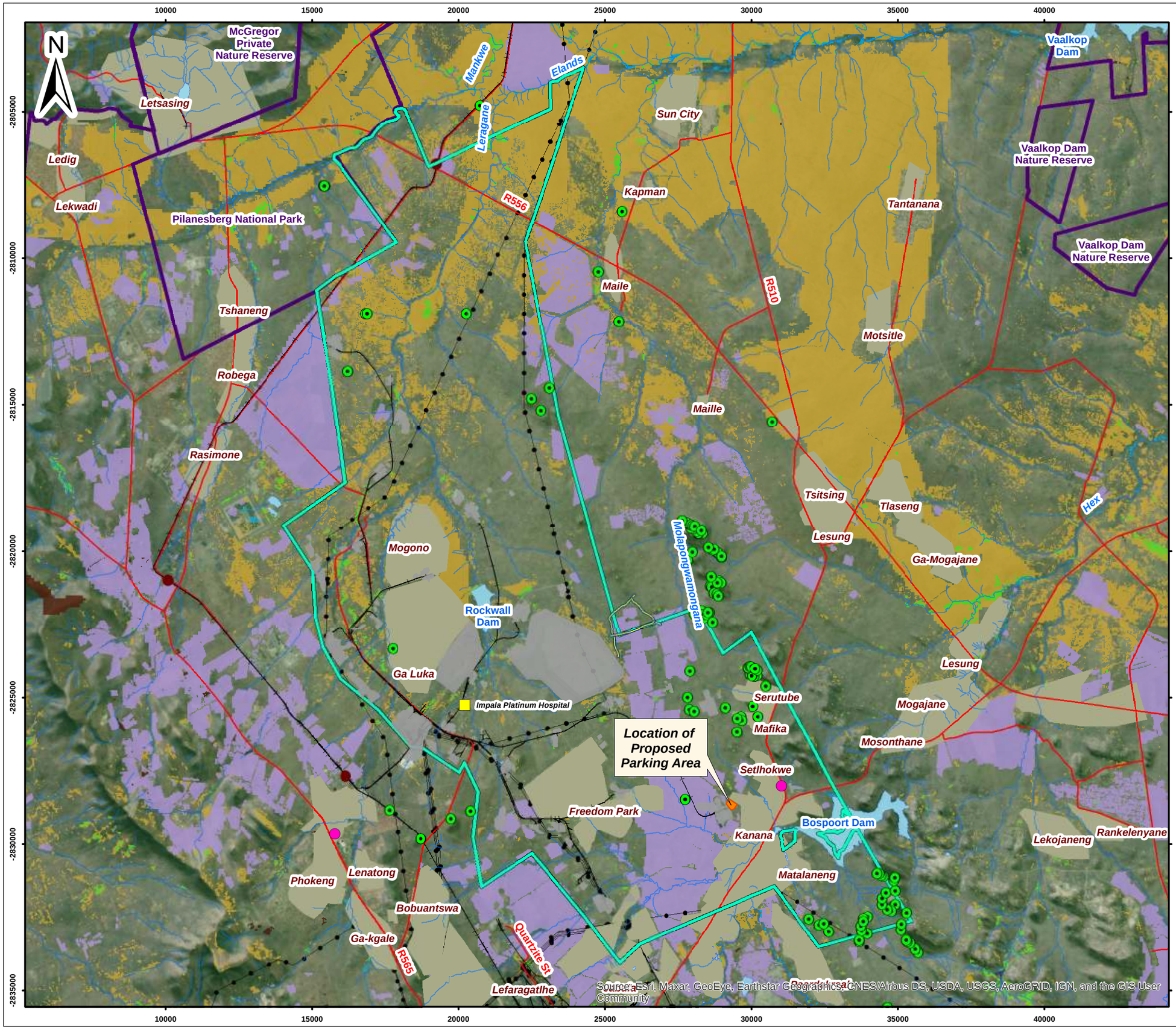

Legend

- Impala Surface Use Area
- Roads
- Power Line
- Railway Line
- Rivers
- Dams
- Residential Areas
- Mining Related Interests or Operations
- Protected Areas / Nature Reserves
- Wetlands
- Plantations
- Improved Veld
- Degraded
- Cultivated
- Places of Worship
- Heritage Resources
- Impala Platinum Hospital
- Historically Man Made Furrows

0 2 4 Kilometers

Scale: 1:250 000 @ A3

Projection:Transverse Mercator
Datum: Hartebeeshoek, Lo 23

Impala Platinum Limited

Figure 7-8

Regional Land Use

SLR Consulting (Africa) (Pty) Ltd
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710.09003.00143

2021/08/19

25000
30000
-2825000
-2830000
N
Serutube
Impala No. 10 Shaft
Impala No. 17 Shaft
Mafika
Setlhokwe
Location of Proposed Parking Area
Impala No. 9 Shaft
Freedom Park
Impala No.16 Shaft
Kanana
Bospoort Dam
Matalaneng
R510
Hex River
Impala No. 1 Shaft
Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Legend

- Towns / Villages
- Main Roads
- Power Line
- Railway Line
- Rivers
- Dams
- Residential Areas
- Mining Related Interests of Operations
- Wetlands
- Improved Veld
- Degraded
- Cultivated
- Heritage Resources
- Places of Worship
- Impala Surface Use Area
- Proposed Parking Area Expansion

0 0,5 1 Kilometers

Scale: 1:30 000 @ A3

Projection:Transverse Mercator
Datum: Hartebeeshoek, Lo 27

Impala Platinum Limited

Figure 7-9

Local Land Use

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2021/08/19

- Mining Operations and Other Industries: There are a number of individual operators that are located within and outside of Impala's MR area that operate on the basis of their own agreements with the RBA/RBN and therefore do not fall under the responsibility of Impala even though they may be located in the MR area. These include Sasol Nitro, Xstrata Merafe and Omnia. None of these are located within a 10 km radius of the project footprint.

Conclusion

Whilst the project footprint is located within close proximity to Kanana, it is not anticipated that the community will be affected by the proposed project. This is due largely to the nature and limited scale and extent of the proposed project. Various infrastructural components (powerline, pipeline and stormwater culvert) are located in close proximity or within the project footprint. The proposed project will need to be managed in such a way so as not to interfere with the infrastructure. The design and configuration of the proposed parking area has already taken the location of this infrastructure into account.

7.4.3.3 Traffic

Introduction

Traffic from mining projects has the potential to affect the capacity of existing road networks, as well as result in public road safety issues. To understand the basis of these potential impacts in the context of the project activities, a baseline situational analysis is described below.

Data Sources

Information in this section was sourced from the BAR and EMPr for the Flash Dryer Project (SLR, 2021) and from site observations.

Description

Existing road intersections within the vicinity of the proposed project include the following:

- Two main access roads used to enter the Shaft 16 Complex;
- Detour, Mapogo and Thekwane roads; and
- The R510 road.

Access to Impala's Shaft 16 Complex is via the afore-mentioned two main access roads that run through the community of Kanana. Employees coming to the Shaft 16 Complex with their own vehicles are provided with parking bays within the Complex but are also forced to park along the access road due to the limited number of bays available.

Conclusion

A key potential traffic-related impact is public safety. 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. These impacts would; however, still need to be managed accordingly. In contrast, the expansion of the parking area is expected to increase public safety through the provision of safe, secure parking bays. It will limit the need to park vehicles along the access road which is considered to be unsafe.

7.4.3.4 Description of Specific Environmental Features and Infrastructure on the Site

The environmental features associated with the project area are described in Section 7.4.1 above. No notable environmental features are associated with the project footprint. In contrast, noteworthy infrastructure within or in close proximity to the proposed project include the underground Magalies water pipeline, the overhead powerline and the stormwater culvert (refer to Section 7.4.3.2).

7.4.3.5 Environmental and Current Land Use Map

Regional and local land use maps are provided in Figure 7-8 and Figure 7-9, respectively.

7.5 ENVIRONMENTAL IMPACTS AND RISKS OF THE ALTERNATIVES

This section requires a list of potential impacts on environmental and socio-economic aspects that have been identified in respect of each of the main project activities and processes for each of the project phases in terms of the project alternatives. With reference to chapter 6, no project alternatives have been considered and as such this section is not applicable.

7.6 METHODOLOGY USED IN DETERMINING THE SIGNIFICANCE OF ENVIRONMENTAL IMPACTS

The method used for the assessment of environmental issues is set out in Table 7-11. Part A provides the definition for determining impact consequence (combining intensity, spatial scale and duration) and impact significance (the overall rating of the impact). Impact consequence and significance are determined from Part B and C. The interpretation of the impact significance is given in Part D.

The assessment methodology enables the assessment of environmental issues including cumulative impacts, the severity of impacts (including the nature of impacts and the degree to which impacts may cause irreplaceable loss of resources), the extent of the impacts, the duration and reversibility of impacts, the probability of the impact occurring, and the degree to which the impacts can be mitigated.

Table 7-11: SLR's Impact Assessment Methodology

PART A: DEFINITIONS AND CRITERIA*		
Definition of SIGNIFICANCE		**Significance = consequence x probability**
Definition of CONSEQUENCE		**Consequence is a function of intensity, spatial extent and duration**
Criteria for ranking of the INTENSITY of environmental impacts	VH	Severe change, disturbance or degradation. Associated with severe consequences. May result in severe illness, injury or death. Targets, limits and thresholds of concern continually exceeded. Substantial intervention will be required. Vigorous/widespread community mobilization against project can be expected. May result in legal action if impact occurs.
	H	Prominent change, disturbance or degradation. Associated with real and substantial consequences. May result in illness or injury. Targets, limits and thresholds of concern regularly exceeded. Will definitely require intervention. Threats of community action. Regular complaints can be expected when the impact takes place.
	M	Moderate change, disturbance or discomfort. Associated with real but not substantial consequences. Targets, limits and thresholds of concern may occasionally be exceeded. Likely to require some intervention. Occasional complaints can be expected.
	L	Minor (Slight) change, disturbance or nuisance. Associated with minor consequences or deterioration. Targets, limits and thresholds of concern rarely exceeded. Require only minor interventions or clean-up actions. Sporadic complaints could be expected.
	VL	Negligible change, disturbance or nuisance. Associated with very minor consequences or deterioration. Targets, limits and thresholds of concern never exceeded. No interventions or clean-up actions required. No complaints anticipated.
	VL+	Negligible change or improvement. Almost no benefits. Change not measurable/will remain in the current range.
	L+	Minor change or improvement. Minor benefits. Change not measurable/will remain in the current range. Few people will experience benefits.
	M+	Moderate change or improvement. Real but not substantial benefits. Will be within or marginally better than the current conditions. Small number of people will experience benefits.
	H+	Prominent change or improvement. Real and substantial benefits. Will be better than current conditions. Many people will experience benefits. General community support.
	VH+	Substantial, large-scale change or improvement. Considerable and widespread benefit. Will be much better than the current conditions. Favourable publicity and/or widespread support expected.
Criteria for ranking the DURATION of impacts	VL	Very short, always less than a year. Quickly reversible
	L	Short-term, occurs for more than 1 but less than 5 years. Reversible over time.
	M	Medium-term, 5 to 10 years.
	H	Long term, between 10 and 20 years (likely to cease at the end of the operational life of activity).
	VH	Very long, permanent, +20 years (Irreversible, Beyond closure).
Criteria for ranking the EXTENT of impacts	VL	A part of the site/property.
	L	Whole site.
	M	Beyond the site boundary, affecting immediate neighbours.
	H	Local area, extending far beyond site boundary.
	VH	Regional/National

PART B: DETERMINING CONSEQUENCE							
INTENSITY = VL							
DURATION	Very long	VH	Low	Low	Medium	Medium	High
	Long term	H	Low	Low	Low	Medium	Medium
	Medium term	M	Very Low	Low	Low	Low	Medium
	Short term	L	Very low	Very Low	Low	Low	Low
	Very short	VL	Very low	Very Low	Very Low	Low	Low

INTENSITY = L							
DURATION	Very long	VH	Medium	Medium	Medium	High	High
	Long term	H	Low	Medium	Medium	Medium	High
	Medium term	M	Low	Low	Medium	Medium	Medium
	Short term	L	Low	Low	Low	Medium	Medium
	Very short	VL	Very low	Low	Low	Low	Medium
INTENSITY = M							
DURATION	Very long	VH	Medium	High	High	High	Very High
	Long term	H	Medium	Medium	Medium	High	High
	Medium term	M	Medium	Medium	Medium	High	High
	Short term	L	Low	Medium	Medium	Medium	High
	Very short	VL	Low	Low	Low	Medium	Medium
INTENSITY = H							
DURATION	Very long	VH	High	High	High	Very High	Very High
	Long term	H	Medium	High	High	High	Very High
	Medium term	M	Medium	Medium	High	High	High
	Short term	L	Medium	Medium	Medium	High	High
	Very short	VL	Low	Medium	Medium	Medium	High
INTENSITY = VH							
DURATION	Very long	VH	High	High	Very High	Very High	Very High
	Long term	H	High	High	High	Very High	Very High
	Medium term	M	Medium	High	High	High	Very High
	Short term	L	Medium	Medium	High	High	High
	Very short	VL	Low	Medium	Medium	High	High
			VL	L	M	H	VH
			A part of the site/property	Whole site	Beyond the site, affecting neighbours	Extending far beyond site but localised	Regional/ National
			EXTENT				

PART C: DETERMINING SIGNIFICANCE							
PROBABILITY (of exposure to impacts)	Definite/ Continuous	VH	Very Low	Low	Medium	High	Very High
	Probable	H	Very Low	Low	Medium	High	Very High
	Possible/ frequent	M	Very Low	Very Low	Low	Medium	High
	Conceivable	L	Insignificant	Very Low	Low	Medium	High
	Unlikely/ improbable	VL	Insignificant	Insignificant	Very Low	Low	Medium
			VL	L	M	H	VH
			CONSEQUENCE				

PART D: INTERPRETATION OF SIGNIFICANCE	
Significance	**Decision guideline**
Very High	Potential fatal flaw unless mitigated to lower significance.
High	It must have an influence on the decision. Substantial mitigation will be required.
Medium	It should have an influence on the decision. Mitigation will be required.
Low	Unlikely that it will have a real influence on the decision. Limited mitigation is likely required.
Very Low	It will not have an influence on the decision. Does not require any mitigation
Negligible	Inconsequential, not requiring any consideration.

7.7 POSITIVE AND NEGATIVE IMPACTS OF THE PROPOSED ACTIVITY AND ALTERNATIVES

As noted in chapter 6, no site alternatives were considered as the project footprint was determined due to the need to be in close proximity to the Shaft 16 Complex, as well as being near the main access road.

7.8 POSSIBLE MANAGEMENT ACTIONS THAT COULD BE APPLIED AND THE LEVEL OF RISK

A summary of the issued and concerns raised by I&APs during the BA process to date is provided in Section 7.3. A list of the potential impacts identified raised by I&APs, as well as the possible management and mitigation measures, is provided in Table 7-12. An estimation of the level of residual risk after management or mitigation is provided.

Table 7-12: Possible Management Actions and the Anticipated Level of Risk

Issue and Concern Raised	Possible Management Actions or Alternatives to Address Issue	Impact Significance of the Possible Management Action Before and After Mitigation	
		Without Mitigation	With Mitigation
What pollution impacts, other than air quality, have been identified as part of the proposed project? I.e., how will stormwater be managed at the parking area?	Management actions to be implemented during all proposed project phases to address impacts related to stormwater include: • Design the proposed parking area to allow for stormwater/surface water run-off to be channelled to the existing stormwater canal adjacent to the parking area; • Implement the use of high-quality diesel to reduce vehicle exhaust emissions; • Undertake routine inspection and maintenance programmes for all plant and equipment; • Continue the implementation of Impala's air quality monitoring programme; • Continue the implementation of approved management actions pertaining to the containment of dirty water in accordance with Regulation 704 (June 1999); • Continue to implement approved waste management procedures; • Continue the implementation of monitoring measures of surface water resources. Where monitoring results indicate that third-party water supply has been polluted by Impala, ensure the provision of alternative equivalent water supply; and • Implement monitoring and record keeping.	**INSIGNIFICANT**	
Procurement opportunities should be extended to Lefaragathla and not be limited to Kanana The socio-economic of the proposed project will be long-term. The socio-economic impact of the proposed project cannot be determined to be	• During all project phases, Impala will continue to implement existing Impala management actions pertaining to the procurement of local people (where possible) and procurement of local good.	**INSIGNIFICANT**	

Issue and Concern Raised	Possible Management Actions or Alternatives to Address Issue	Impact Significance of the Possible Management Action Before and After Mitigation	
		Without Mitigation	With Mitigation
insignificant, especially to the residents of Kanana who live in close proximity to the proposed project.			
The new parking area will also result in an increase in crime in the area. Can Impala increase the security around the project?	• Impala will undertake a risk assessment to address the safety of pedestrians using the access road and security concerns associated with the proposed project; • Access control will be implemented at the project site.	**Low**	**VERY LOW**
Why is road disturbance and traffic safety assessed as insignificant?	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.	**INSIGNIFICANT**	
Have the impacts on surface water/stormwater been determined as part of the proposed project? How will the drainage system affect those closest to the project area?	• 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;	**INSIGNIFICANT**	

Issue and Concern Raised	Possible Management Actions or Alternatives to Address Issue	Impact Significance of the Possible Management Action Before and After Mitigation	
		Without Mitigation	With Mitigation
	• 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.		
How has the impact on noise been determined? Were any noise impact studies undertaken for the proposed project?	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. The impact has therefore been rated as being insignificant.	**INSIGNIFICANT**	

7.9 MOTIVATION WHERE NO ALTERNATIVE SITES WERE CONSIDERED

As noted in chapter 6, no site alternatives were considered as the project footprint was determined due to the need to be in close proximity to the Shaft 16 Complex, as well as being near the main access road.

7.10 STATEMENT MOTIVATING THE PREFERRED ALTERNATIVE

Due to the nature and limited extent of the proposed project, no technology alternatives were considered. The project site adjacent to the Shaft 16 Complex, is currently vacant and has not been earmarked for non-mining-related development. The proposed expansion of the parking area is thus considered an ancillary activity associated with the current mining operations at the Shaft 16 Complex. In this regard, as part of on-going mine planning, the need for additional parking bays was identified, to accommodate the increasing number of employees coming to the Shaft 16 Complex with their own vehicles and will improve health, safety and security for the employees.

8. FULL DESCRIPTION OF THE PROCESS UNDERTAKEN TO IDENTIFY, ASSESS AND RANK THE IMPACTS AND RISKS THE ACTIVITY WILL IMPOSE ON THE PREFERRED SITE THROUGH THE LIFE OF THE ACTIVITY

This chapter provides a description of the process that was followed in order to identity the potential biophysical, cultural and socio-economic impacts that are assessed as part of the proposed project.

8.1 DESCRIPTION OF THE PROCESS UNDERTAKEN TO IDENTIFY IMPACTS

Biophysical, cultural/heritage and socio-economic impacts associated with the proposed project were identified through site visits undertaken by SLR, as well as specialists and the associated specialist studies.

As part of the PPP, I&APs (refer to section 7.2) are being provided with opportunities to provide input into the BA process and comment on the proposed project, including the identification of biophysical, cultural/heritage and socio-economic impacts.

8.2 DESCRIPTION OF THE PROCESS UNDERTAKEN TO ASSESS AND RANK THE IMPACTS AND RISKS

A description of SLR's assessment methodology used to assess the severity of identified impacts (including the nature of impacts and the degree to which impacts may cause irreplaceable loss of resources), the extent of the impacts, the duration and reversibility of impacts, the probability of the impact occurring, and the degree to which the impacts can be mitigated, is provided in section 7.6.

8.3 A DESCRIPTION OF THE ENVIRONMENTAL IMPACTS AND RISKS IDENTIFIED DURING THE ENVIRONMENTAL ASSESSMENT PROCESS

Descriptions of the biophysical, cultural/heritage and socio-economic impacts in respect of each of the main project activities and phases are provided in Table 8-1. The detailed assessment of these impacts is provided in Appendix D. Impacts that have been deemed insignificant, but only due to the implementation of mitigation, are also included. Impacts that are deemed insignificant without mitigation are included for completeness and will not be associated with any activities or project phase.

Table 8-1: List of Potential Impacts in respect of each Project Activity and Phase

Potential Impact	Activity	Phase
Loss and sterilisation of mineral resources	N/A	N/A
Altering topography	• Site preparation • Civil works • Earthworks • Rehabilitation • Maintenance and aftercare	• Construction • Decommissioning • Closure
Hazardous excavations and infrastructure resulting in safety risks to third parties and animals	• Site preparation • Civil works • Earthworks	• Construction

Potential Impact	Activity	Phase
Loss of soil resources and land capability through physical disturbance and contamination	• Site preparation • Civil works • Earthworks • Transport systems • General site management • Demolition • Rehabilitation • Maintenance and aftercare	• Construction • Operation • Decommissioning • Closure
Physical destruction and disturbance of floral species	• Site preparation • Civil works • Earthworks • Transport systems • General site maintenance • Demolition • Rehabilitation • Maintenance and aftercare	• Construction • Decommissioning • Closure
Physical destruction and disturbance of faunal species	• Site preparation • Civil works • Earthworks • Transport systems • General site maintenance • Demolition • Rehabilitation • Maintenance and aftercare	• Construction • Decommissioning • Closure
Alteration of natural drainage patterns	N/A	N/A
Contamination of surface water resources	• Site preparation • Civil works • Earthworks • Transport systems • General site maintenance • Demolition • Rehabilitation • Maintenance and aftercare	• Construction • Operation • Decommissioning • Closure
Contamination of groundwater resources	• Site preparation	• Construction

Potential Impact	Activity	Phase
	• Civil works • Earthworks • Transport systems • General site maintenance • Demolition • Rehabilitation • Maintenance and aftercare	• Operation • Decommissioning • Closure
Air pollution	• Site preparation • Civil works • Earthworks • Transport systems • General site maintenance • Demolition • Rehabilitation • Maintenance and aftercare	• Construction • Operation • Decommissioning • Closure
Increase in disturbing noise levels	N/A	N/A
Negative visual views	N/A	N/A
Road disturbance and traffic safety	N/A	N/A
Loss of cultural/heritage and palaeontological resources	• Site preparation • Civil works • Earthworks	• Construction
Inward migration and economic impact	N/A	N/A
Change in land use	N/A	N/A

8.4 ASSESSMENT OF THE SIGNIFICANCE OF EACH IMPACT AND RISK AND AN INDICATION OF THE EXTENT OF WHICH THE ISSUE AND RISK CAN BE AVOIDED OR ADDRESSED BY THE ADOPTION OF MANAGEMENT ACTION

The assessment of the significance of potential biophysical, cultural/heritage and socio-economic impacts, including the extent to which impacts can be avoided or mitigated, is included in chapter 9 and Appendix D.

9. ASSESSMENT OF EACH IDENTIFIED POTENTIALLY SIGNIFICANT IMPACT AND RISK

This chapter provides a summary of the assessment results of the identified potentially significant biophysical, cultural/heritage and socio-economic impacts identified for the proposed project.

A summary of the assessment of the identified potentially significant biophysical, cultural/heritage and socio-economic impacts associated with the proposed project is provided in Table 9-1. A full description of the assessment is included in Appendix D.

Table 9-1: Assessment of Significant Impacts and Risks

Activity	Potential impact	Aspects affected	Phase	Significance (Unmitigated)	Management actions type	Significance (Mitigated)	Extent to which the impact can be reversed, avoided or cause irreplaceable loss and the degree to which the impact and risk can be mitigated
N/A	Loss and sterilisation of mineral resources	Geology	N/A	**INSIGNIFICANT**			
• Site preparation • Civil works • Earthworks • Rehabilitation • Maintenance and aftercare	Altering topography	Topography	• Construction • Decommissioning • Closure	**Insignificant**	• Minimise the area of disturbance by designing and constructing the most compact infrastructure practically possible; • Rehabilitate in accordance with the approved mine closure plan that ensure a suitable post-closure land use is achieved.	**INSIGNIFICANT**	
• Site preparation • Civil works • Earthworks	Hazardous excavations and infrastructure resulting in safety risks to third parties and animals		• Construction	**Medium**	• 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 compensations will be provided.	**VERY LOW**	• Highly likely to be mitigated. • Highly unlikely to be reversed in the case of injury or death. • Highly likely to be avoided with mitigation. • Highly likely to cause irreplaceable loss in the case of injury or death.
• Site preparation • Civil works • Earthworks • Transport systems • General site management • Demolition • Rehabilitation • Maintenance and aftercare	Loss of soil resources and land capability through physical disturbance and contamination	Soil and Land Capability	• Construction • Operation • Decommissioning • Closure	**Insignificant**	• 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;	**INSIGNIFICANT**	

Activity	Potential impact	Aspects affected	Phase	Significance (Unmitigated)	Management actions type	Significance (Mitigated)	Extent to which the impact can be reversed, avoided or cause irreplaceable loss and the degree to which the impact and risk can be mitigated
					○ 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. • Take into account 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 Table 29-1 in the event any major spillage incident.		
• Site preparation • Civil works • Earthworks • Transport systems • General site management • Demolition • Rehabilitation • Maintenance and aftercare	Physical destruction and disturbance of floral species	Biodiversity	• Construction • Operation • Decommissioning • Closure	**Low**	• A biodiversity specialist shall do a walkdown of the project footprint 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 the 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 the DEDECT and/or DFFE prior to removal; • Limit edge effects to the surrounding environment by: ○ Demarcating all footprint areas during construction; ○ Preventing construction rubble or cleared alien vegetation 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; • No fires are allowed 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.	**VERY LOW**	• Very highly likely to be mitigated. • Medium likeliness to be reversed. • Medium likeliness to be avoided with mitigation. • Unlikely to cause irreplaceable loss.
• Site preparation • Civil works	Physical destruction and	Biodiversity	• Construction • Operation	**Low**	• 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;	**VERY LOW**	• Very highly likely to be mitigated. • Medium likeliness to be reversed.

Activity	Potential impact	Aspects affected	Phase	Significance (Unmitigated)	Management actions type	Significance (Mitigated)	Extent to which the impact can be reversed, avoided or cause irreplaceable loss and the degree to which the impact and risk can be mitigated
• Earthworks • Transport systems • General site management • Demolition • Rehabilitation • Maintenance and aftercare	disturbance of faunal species		• Decommissioning • Closure		• 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; • Construction personnel are to undergo environmental awareness training pertaining to the potential faunal species located on site; • 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; and • 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.		• Medium likeliness to be avoided with mitigation. • Unlikely to cause irreplaceable loss.
N/A	Alteration of natural drainage patterns	Surface water resources	N/A	**INSIGNIFICANT**			
• Site preparation • Civil works • Earthworks • Transport systems • General site management • Demolition • Rehabilitation • Maintenance and aftercare	Contamination of surface water resources		• Construction • Operation • Decommissioning • Closure	**Insignificant**	• 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 structure 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 Table 29-1 in the event 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.	**INSIGNIFICANT**	
• Site preparation • Civil works • Earthworks • Transport systems	Contamination of groundwater resources	Groundwater resources	• Construction • Operation • Decommissioning • Closure	**Insignificant**	• Refer to section above.	**INSIGNIFICANT**	

Activity	Potential impact	Aspects affected	Phase	Significance (Unmitigated)	Management actions type	Significance (Mitigated)	Extent to which the impact can be reversed, avoided or cause irreplaceable loss and the degree to which the impact and risk can be mitigated
• General site management • Demolition • Rehabilitation • Maintenance and aftercare							
• Site preparation • Civil works • Earthworks • Transport systems • General site management • Demolition • Rehabilitation • Maintenance and aftercare	Air pollution	Air Quality	• Construction • Operation • Decommissioning • Closure	**Insignificant**	• 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.	**INSIGNIFICANT**	
N/A	Increase in disturbing noise levels	Noise	N/A	**INSIGNIFICANT**			
N/A	Negative visual views	Visual	N/A	**INSIGNIFICANT**			
NA	Road disturbance and traffic safety	Traffic	N/A	**INSIGNIFICANT**			
• Site preparation • Civil works • Earthworks	Loss of cultural/heritage and paleontological resources	Cultural/heritage and paleontological resources	• Construction	**Insignificant**	• Implement the chance find procedure (see Table 10-1) in the event of the discovery of cultural/heritage and/or palaeontological resources on site.	**INSIGNIFICANT**	
N/A	Inward migration and economic impact	Socio-economic	N/A	**INSIGNIFICANT**			
N/A	Change in land use		N/A	**INSIGNIFICANT**			

10. SUMMARY OF SPECIALIST REPORTING FINDINGS

The aim of this chapter is to list the various specialist studies undertaken for the proposed project, including the main findings of their reports, which are used to inform the compilation of this BAR.

The relevant specialist studies that were undertaken as part of the proposed project including the recommendations made by the specialists are provided in Table 10-1. All relevant specialist reports have been attached as Appendix F.

Table 10-1: A List of Specialist Studies and Recommendations

Specialist Study	Recommendation of Specialist	Specialist Recommendations that have been included in the BAR (Mark with X)	Reference to Applicable Section in this Report
Biodiversity Study	• Minimise loss of indigenous vegetation where possible through planning and where necessary by incorporating the sensitivity of the biodiversity report, as well as any other specialist studies; • The construction footprint must be kept as small as possible to minimise impact on the surrounding environment (edge effect management); • Removal of vegetation must be restricted to what is absolutely necessary and should remain within the approved development footprint. Where possible/ feasible, any remaining natural areas should be utilised as part of the landscaping of the proposed development; • Clearing of vegetation should take place in a phased manner. This will allow for faunal species within the study area to flee and avoid harm; • Smaller species that are not as readily able to move out of an area ahead of ground clearing activities such as scorpions and reptiles will be less mobile during rainfall events and cold days (winter). As such should any be observed in the construction site during clearing and construction activities, they are to be carefully and safely moved to an area of similar habitat outside of the disturbance footprint. Construction personnel are to be educated about these species and instructed not to kill them. Smaller scorpion species and harmless reptiles (that may occur within the study area) should be carefully relocated by a suitably nominated construction person to the surrounding natural veld. For larger venomous snakes, a suitably trained specialist, or on-site personnel, should be contacted to carry out the relocation of the species, should it not move off on its own; • Vehicles should be restricted to travelling only on designated roadways to limit the ecological footprint of the construction activities. Additional road construction should be limited to what is absolutely necessary, and the footprint thereof kept to a minimal; • Where formal landscaped gardens are envisioned, use should be made of indigenous species or ornamental alien species that are not listed within the NEM:BA Alien Species List (2020); • No collection of floral SCC must be allowed by construction personnel; • No hunting or trapping of faunal species is to be allowed by construction personnel; • Informal fires by construction personnel should be prohibited, and no uncontrolled fires whatsoever should be allowed; • Care should be taken during the construction and operation of the proposed development to limit edge effects to surrounding natural habitat. This can be achieved by: ○ Demarcating all footprint areas during construction activities; ○ No construction rubble or cleared AIPs are to be disposed of outside of demarcated areas, and should be taken to a registered waste disposal facility; ○ All soils compacted as a result of construction activities should be ripped and profiled and reseeded; ○ Manage the spread of alien invasive species, which may affect remaining natural habitat within surrounding areas; • Appropriate sanitary facilities must be provided during the construction of the development and must be removed to an appropriate waste disposal site; • No dumping of litter, rubble or cleared vegetation on site should be allowed. Infrastructure and rubble removed because of the construction activities should be disposed of at an appropriate registered dump site away from the development footprint. No temporary dump sites should be allowed in areas with natural vegetation. It is advised that waste disposal containers and bins be provided during the construction phase for all construction rubble and general waste. Vegetation cuttings must be carefully collected and disposed of at a separate waste facility; • If any spills occur, they should be immediately cleaned up to avoid soil contamination that can hinder floral rehabilitation later down the line. Spill kits should be kept on-site within workshops. In the event of a breakdown, maintenance of vehicles must take place with care, and the recollection of spillage should be practised, preventing the ingress of hydrocarbons into the topsoil; • Upon completion of construction activities, it must be ensured that no bare areas remain, and that indigenous species be used to revegetate the disturbed area; • Edge effects arising from the proposed development, such as erosion and alien plant species proliferation, which may affect adjacent natural areas, need to be strictly managed. Specific mention in this regard is made of Category 1b alien and invasive species (as listed in the NEM: BA Alien species lists, 2020), in line with the NEM:BA Alien and Invasive Species Regulations (2020); and • Prior to the commencement of construction activities, an alien invasive species management/control plan should be compiled for implementation. If the mine has an existing alien invasive species management plan, it is recommended that the parking area be incorporated into such a plan: ○ Removal of alien invasive species should preferably commence during the pre-construction phase and continue throughout the construction and operational phases. alien invasive species should be cleared within the study area before any vegetation clearing activities commence, thereby ensuring that no alien invasive species propagules are spread, or soils contaminated with alien invasive species seeds during the construction phase;	X	Chapter 9 and Table 9-1

Specialist Study	Recommendation of Specialist	Specialist Recommendations that have been included in the BAR (Mark with X)	Reference to Applicable Section in this Report
	○ No uncertified chemical control of alien invasive species to take place. Only trained personnel to handle chemical clearing of alien invasive species. Ongoing alien and invasive species monitoring and clearing/control should take place throughout the construction and operational phase of the development, and a 30 m buffer surrounding the study area should be regularly checked for alien and invasive species proliferation and to prevent spread into surrounding natural areas; and ○ Alien vegetation that is removed must not be allowed to lay on unprotected ground as seeds might disperse upon it. All cleared plant material to be disposed of at a licensed waste facility which complies with legal standards.		
Plant, Animal and Avifauna Compliance Statement	• It is recommended that a site walkdown be undertaken after the area has received adequate rain and prior to the clearing of vegetation to determine the presence of provincially protected species that may require permit applications (these are not RDL species), i.e., the TNCO provides a list of Specially Protected Species (Schedule 12) (Section 86 (1) (b) of the TNCO) and Protected Species (Schedule 11) (Section 86 (1) (a) of the TNCO) for the North West Province. Permits from the Department of Rural, Environment and Agricultural Development (DREAD) would need to be obtained to remove, cut, or destroy the above-mentioned protected species before any vegetation clearing may take place; • Edge effects arising from the proposed parking expansion, such as soil compaction, erosion and alien plant species proliferation, which may affect adjacent natural areas, need to be strictly managed. Specific mention in this regard is made of listed invasive species as per the National NEM: BA Alien species lists, 2020, in line with the NEM: BA Alien and Invasive Species Regulations (2020). Ongoing alien and invasive plant monitoring and clearing/control should take place throughout the construction of the parking expansion, and a buffer surrounding the study area (e.g., 30 m) should be regularly checked for alien and invasive species proliferation and to prevent spread into surrounding natural areas during the operational and maintenance phases; • Alien vegetation that is removed must not be allowed to lay on unprotected ground as seeds might disperse upon it. All cleared plant material to be disposed of at a licenced waste facility which complies with legal standards; • If any spills occurs, they should be immediately cleaned up to avoid soil contamination that can hinder floral rehabilitation later down the line. Spill kits should be kept on site within workshops. In the event of a breakdown, maintenance of vehicles must take place with care, and the recollection of spillage should be practiced, preventing the ingress of hydrocarbons into the topsoil; • No dumping of litter, rubble or cleared vegetation on site should be allowed; • Infrastructure and rubble removed as a result of the construction activities should be disposed of at an appropriate registered dump site away from the development footprint; • No temporary dump sites should be allowed in areas with natural vegetation; • Waste disposal contained and bins should be provided during the construction phase for all construction rubble and general waste; • All soils compacted or exposed as a result of construction activities should be ripped and profiled and reseeded; All footprint areas should remain as small as possible and the boundaries of footprint areas, must be clearly defined and it should be ensured that all activities remain within defined footprint areas; Planning of temporary roads and access routes should be restricted to existing roads; • It must be ensured that an adequate number of waste and "spill" bins are provided will also prevent litter and ensure the proper disposal of waste and spills; • All vehicles must be regularly inspected for leaks. Re-fuelling must take place on a sealed surface area to prevent ingress of hydrocarbons into the topsoil; and • Any sheet runoff from compacted areas should be slowed down by the strategic placement of berms.	X	Chapter 9 and Table 9-1
Aquatic Biodiversity Compliance Statement	• 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 post development of the parking area; • The development footprint area should remain as small as possible and the boundaries of footprint area, must be clearly defined and it should be ensured that all activities remain within defined footprint area; • Existing roads must be utilised by construction vehicles during the construction phase of the project; • All waste management should take place according to be best practice guidelines and principles; • All vehicles must be regularly inspected for leaks. Re-fuelling must take place on a sealed surface area to prevent ingress of hydrocarbons into the topsoil; and • Any sheet runoff from compacted areas should be slowed down by the strategic placement of berms.	X	Chapter 9 and Table 9-1
Cultural/Heritage Study	• In the event of the uncovering of a heritage resource, implement the following chance find procedure: ○ The person or group (identifier) who identified or exposed the heritage resource or graves must cease all activity in the immediate vicinity of the site; ○ The identifier must immediately inform the senior on-site manager of the discovery; ○ The senior on-site manager must make an initial assessment of the extent of the find and confirm that further work has stopped and ensure that the site is secured, and that controlled access is implemented; ○ The senior on-site manager will inform the Environmental Officer (EO) and Health and Safety (HS) officers of the chance-find and its immediate impact on the project. The EO will then contact the project archaeologist; ○ The project archaeologist will do a site inspection and confirm the significance of the discovery, recommend appropriate mitigation measures and notify the SAHRA APM Unit (Natasha Higgitt/Phillip Hine 021 462 5402); and	X	Chapter 9 and Table 9-1

Specialist Study	Recommendation of Specialist	Specialist Recommendations that have been included in the BAR (Mark with X)	Reference to Applicable Section in this Report
	○ Based on the comments received from the authorities the project archaeologist will provide the mine with a Terms of References Report and associated costs if mitigation measures must be implemented. • In the event of the uncovering of grave, implement the following chance find procedure: ○ The project archaeologist must confirm the presence of graveyards and graves and follow the following procedures; ○ Inform the local South African Police Service (SAPS) and traditional authority. ○ The project archaeologist in conjunction with the SAPS and traditional authority will inspect the possible graves and make an informed decision whether the remains are of forensic, recent, cultural-historical or of archaeological significance; ○ Should it be concluded that the find is of heritage significance and therefore protected in terms of heritage legislation the project archaeologist will notify the SAHRA BGG Unit (Thingahangwi Tshivhase /Mimi Seetelo 012 320 8490); and ○ The project archaeologist will provide advice with mitigation measures for the graveyards and graves. • In the event of a chance-find, a Phase 2 rescue operation may be require subject to permits issued by SAHRA.		
Paleontological Exemption Letter	None	N/A	N/A

11. ENVIRONMENTAL IMPACT STATEMENT

The aim of this chapter is to provide a summary of the potential biophysical, cultural/heritage and socio-economic impacts identified as part of the proposed project, as well as their significance.

11.1 SUMMARY OF KEY FINDINGS

This section provides a summary of the findings of identified as part of the proposed project and assessed potential impacts on the receiving environment in both the unmitigated and mitigated scenarios, including cumulative impacts. A summary of the potential impacts (as per chapter 9), associated with the preferred alternative (as per chapter 6), in the unmitigated and mitigated scenarios for all project phases is included in Table 11-1.

The assessment of the proposed project presents the potential for negative impacts to occur (in the unmitigated scenario in particular) on the biophysical and socio-economic environments both on the project footprint and in the surrounding area. With the implementation of management actions, these potential impacts can be prevented or reduced to acceptable levels.

It follows that provided the EMPr is effectively implemented, there is no biophysical, cultural/heritage or socio-economic reason why the proposed project should not proceed.

Table 11-1: Summary of Potential Impacts

Aspect	Potential impact	Cumulative impact significance of the impact (the ratings are negative unless otherwise specified)	
		Unmitigated	Mitigated
Geology	Loss and sterilisation of mineral resources	**INSIGNIFICANT**	
Topography	Altering topography	**INSIGNIFICANT**	
	Hazardous excavations and infrastructure resulting in safety risks to third parties and animals	**Medium**	**VERY LOW**
Soil and land capability	Loss of soil resources and land capability through physical disturbance and contamination	**INSIGNIFICANT**	
Biodiversity	Physical destruction and disturbance of floral species	**Low**	**VERY LOW**
	Physical destruction and disturbance of faunal species	**Low**	**VERY LOW**
Surface water resources	Alteration of natural drainage patterns	**INSIGNIFICANT**	
	Contamination of surface water resources	**INSIGNIFICANT**	
Groundwater	Contamination of groundwater resources	**INSIGNIFICANT**	
Air quality	Air pollution	**INSIGNIFICANT**	
Noise	Increase in disturbing noise levels	**INSIGNIFICANT**	
Visual	Negative visual views	**INSIGNIFICANT**	
Traffic	Road disturbance and traffic safety	**INSIGNIFICANT**	
Cultural/heritage and palaeontological resources	Loss of cultural/heritage and palaeontological resources	**INSIGNIFICANT**	
Socio-economic	Inward migration and economic impact	**INSIGNIFICANT**	
	Change in land use	**INSIGNIFICANT**	

11.2 FINAL SITE MAP

The final preferred alternative site layout map is included in Figure 3-2.

11.3 SUMMARY OF THE POSITIVE AND NEGATIVE IMPACTS AND RISKS OF THE PROPOSED ACTIVITY AND IDENTIFIED ALTERNATIVES

The positive and negative impacts and risks of the proposed activity are summarised above in section 11.1.

As noted in chapter 6, the locality of the proposed parking area has been determined due to the need to be in close proximity to the Shaft 16 Complex, as well as being near the main access road. It follows that no site alternatives were considered due to this fixed position.

12. IMPACT MANAGEMENT OBJECTIVES AND OUTCOMES FOR INCLUSION IN THE EMPR

Based on the outcome of the impact assessment (refer to chapter 9 and see Appendix D), and where applicable the recommendations from specialists (refer to chapter 10), the proposed management objectives and outcomes are provided in this chapter.

12.1 PROPOSED MANAGEMENT OBJECTIVES AND OUTCOMES FOR ENVIRONMENTAL AND SOCIO-ECONOMIC IMPACTS

Specific environmental objectives and outcomes to control, remedy or prevent potential impacts from the proposed project are provided in Table 12-1.

Table 12-1: Environmental Objectives and Outcomes

Aspect	Environmental Objective	Environmental Outcome
Topography	The objective is to minimise changes to natural topography.	The outcome is to limit the alteration of topography during the proposed project and through rehabilitation.
	The objective is to prevent physical harm to third parties and animals resulting from potentially hazardous excavations and infrastructure.	The outcome is to ensure no third parties or animals are harmed during the proposed project.
Soils and Land Capability	The objective is to minimise the loss of soil resources and related land capability from physical disturbance, erosion, compaction and soil pollution.	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.
Biodiversity	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.	The outcome is to prevent the spread of alien species in the project area, as well to limit disturbance as far as practically possible.
	The objective is to prevent the unacceptable destruction and disturbance to faunal species.	The outcome is to ensure that no faunal species are harmed or disturbed in the project area.
Surface Water Resources	The objective is to prevent pollution of surface water resources.	The outcome is to ensure that surface water quality remains within acceptable limits for both domestic and agricultural purposes.
Groundwater Resources	The objective is to prevent pollution of groundwater resources.	The outcome is to ensure that groundwater quality remains within acceptable limits for both domestic and agricultural purposes.
Air Quality	The objective is to prevent air pollution health impacts.	The outcome is to ensure that any pollutants emitted as a result of the proposed project remains within acceptable limits so as to prevent health related impacts.

Aspect	Environmental Objective	Environmental Outcome
Cultural/Heritage and Palaeontology	The objective is to minimise the disturbance of cultural/heritage and paleontological resources.	The outcome is to protect heritage resources where possible. If disturbance is unavoidable, then mitigate impact in consultation with a specialist and the SAHRA and in line with regulatory requirements.

12.1.1 Impacts That Require Monitoring Programme

Outcomes of the environmental objectives listed in the section above are the implementation of monitoring programmes. Impacts that require monitoring include:

- Hazardous excavations and infrastructure resulting in safety risks to third parties and animals;
- Physical destruction and disturbance of biodiversity; and
- Air quality.

Environmental impacts requiring monitoring are discussed further in chapter 28.

12.1.2 Activities and Infrastructure

The source activities of potential impacts which require management include:

- Site preparation;
- Earthworks;
- Civil works;
- Transport systems;
- General site management;
- Demolition;
- Rehabilitation; and
- Maintenance and aftercare.

The phases of development associated with the above-mentioned source activities are provided in Table 3-3.

12.1.3 Management Actions

Management actions which will be implemented to control the proposed project activities or processes which have the potential to pollute or result in environmental degradation are provided in chapter 9 and Table 9-1.

12.1.4 Roles and Responsibilities

The key personnel to ensure compliance to this BAR and EMPr are the operations executive and the Environmental Department Manager and officers. As a minimum, their roles, as they relate to the implementation of monitoring programmes and management activities, include:

- Ensuring that monitoring programmes and audits are scoped to be fit for purpose and included in the annual mine budget;

- Identifying and appointing appropriately qualified specialists/engineers to undertake the monitoring programmes;
- Appointing specialists in a timeous manner to ensure work can be carried out to acceptable standards;
- Liaising with the relevant company, municipal and community structures in terms of the commitments in the Social and Labour Plan (SLP);
- Ensuring that commitments in the SLP are developed and implemented timeously;
- Establishing and maintaining good working relations with surrounding communities and landowners; and
- Facilitating stakeholder communication, information sharing and a grievance mechanism.

13. ASPECTS FOR INCLUSION AS CONDITIONS OF THE AUTHORISATION

Management actions (refer to chapter 9 and Table 9-1) including monitoring requirements (see chapter 28), should form part of the conditions of the EA. With reference to Regulation 26 of Government Notice Regulation (GNR) 982 of NEMA, additional conditions that should form part of the EA that are not specifically included in the EMPr report, include compliance with all applicable environmental legislation, whether specifically mentioned in this document or not, and which may be amended from time to time.

14. ASSUMPTIONS, UNCERTAINTIES, LIMITATIONS AND GAPS IN KNOWLEDGE

This chapter outlines the assumptions, uncertainties, limitations and gaps in knowledge associated with the BA process and the proposed project.

14.1 ENVIRONMENTAL ASSESSMENT LIMIT

The BA process focuses on third parties only and does not assess health and safety impacts on employees and contractors because the assumption is made that these aspects are separately regulated by health and safety legislation, policies and standards, and that Impala will adhere to these.

14.2 BIODIVERSITY

The following assumptions and limitations apply to the Biodiversity Study compiled for the proposed project:

- The biodiversity assessment was confined to the project footprint and did not include the neighbouring and adjacent properties. This were considered as part of the desktop assessment;
- With ecology being dynamic and complex, some aspects (some of which may be important) may have been overlooked. It is; however, expected that most floral and faunal communities have been accurately assessed and considered. Relevant online sources and background information were further accessed to improve on the overall understanding of the project footprint's ecology;
- Due to most faunal taxa's nature and habits, it is unlikely that all species would have been observed during a field assessment of limited duration. Due to the locality of the project footprint (peri-urban area), continuous anthropogenic activities, the cyclical nature of many species' life stages, as well as the season of the assessment, few faunal species were observed during the site visit. As such, background data (desktop) and literature studies (previous studies undertaken in the immediate area) were used to further infer faunal species composition and sensitivities in relation to the available habitat;
- Sampling, by its nature, means that not all individuals are assessed and identified. Some species and taxa associated with the project footprint may have been missed during the assessment; and
- The data presented in the Biodiversity Study are based on one site visit, undertaken on the 26 of May 2021 (autumn season). A more comprehensive assessment would require that assessments take place in all seasons of the year. However, on-site data were augmented with all available desktop data. Together with project experience in the area, the findings of the assessment are considered an accurate reflection of the ecological characteristics of the project footprint.

14.3 CULTURAL/HERITAGE

The following assumptions and limitations apply to the HIA compiled for the proposed project:

- The findings, observations, conclusions and recommendations reached in the report are based on the author's best scientific and professional knowledge, available information and his ability to keep up with the physical challenges that the project commanded;
- The project area was surveyed on several former occasions in the past when various heritage surveys were done for Impala. Information was thus based on a review of this documentation;

- The report's findings are based on accepted archaeological survey and assessment techniques and methodologies. However, the author preserves the right to modify aspects of the report including the recommendations if and when new information becomes available, particularly if this information may have an influence on the reports final results and recommendations. This in particular applies to the uncovering of graves as these may have been missed during the survey as a result of various reasons;
- The heritage survey may have missed heritage resources as these may be located below the surface of the earth and may be exposed during the developmental stages of the proposed project; and
- Is possible that heritage resources simply may have been missed as a result of human failure to observe or to recognise them.

15. REASONED OPINION AS TO WHETHER THE PROPOSED ACTIVITY SHOULD OR SHOULD NOT BE AUTHORISED

The aim of this chapter is to provide a reasoned independent opinion, whether or not the proposed project should proceed or not. This opinion is informed by the outcome of the impact assessment and recommendations made by specialists and I&APs.

15.1 REASONS WHY THE ACTIVITY SHOULD BE AUTHORISED OR NOT

The assessment of the proposed project presents the potential for negative impacts to occur (in the unmitigated scenario in particular) on the biophysical, cultural/heritage and socio-economic environments, both on the project footprint and in the surrounding area. With the implementation of management actions, these potential impacts can be prevented or reduced to acceptable levels. It follows that provided the EMPr is effectively implemented, there is no reason from a biophysical, cultural/heritage or socio-economic standpoint why the proposed project should not proceed.

15.2 CONDITIONS THAT MUST BE INCLUDED IN THE AUTHORISATION

15.2.1 Specific Conditions for Inclusion in the EMPr

Refer to chapter 13.

15.2.2 Rehabilitation Requirements

Refer to chapter 9.

16. PERIOD FOR WHICH AUTHORISATION IS REQUIRED

With specific reference to Table 3-3, the identified project activities relate to all phases of development (construction, operation, decommissioning and closure. Given that the proposed project will supplement mining operations at the Shaft 16 Complex, it follows that authorisation is required for the remaining life of mine, which is approximately 20 years.

17. UNDERTAKING

We, Sharon Meyer and Rizqah Baker, undertake that:

- The information provided herein is correct;
- Comments and inputs from I&APs have been included and correctly recorded in this report;
- Inputs and recommendations from the specialist reports have been included, where relevant; and
- Any information provided to I&APs and any responses to comments or inputs made is correct or was correct at that time.

Signature of Report Author — Date: 16/11/21

Signature of EAP — Date: 16/11/21

Signature of Commissioner of Oaths — Date: 16-11-2021

OREN JAN VAN VREDE
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18. FINANCIAL PROVISION

The aim of this chapter is to provide information pertaining to the methodology considered as part of the closure liability calculation determination.

18.1 METHODOLOGY

18.1.1 Methodology Applied to Liability Model

The following approach was applied by E-Tek Consulting (Pty) Ltd (E-Tek) to determine the financial provision:

- Financial models were developed to cater for the requirements of GNR 1147;
- The costing models were developed to address all the identified closure components applicable to Impala;
- The costing models provide the following output:
    - Executive summary (summary of all closure components and associated costs (where applicable);
    - Preliminary and Generals (P&G's): Allocation of P&G's for each component and provides weighted P&G's as certain P&G's allowances, can vary per component);
    - Contingencies (allocation of contingencies for each component and provides weighted contingencies, as certain contingency allowances can vary per component);
    - Closure components summary (provides a summary of all costs per closure component). The five main closure components have been identified as follows:
        - Infrastructural aspects;
        - Mining aspects;
        - Biophysical closure aspects;
        - Social closure aspects; and
        - General aspects.
    - Closure components (breakdown of the detail facilities and aspects under each of the five main closure components); and
    - Rates table (unit rates for various actions required).

18.1.2 Assessment Methodology

The approach followed by E-Tek with the determination of the closure costs is summarised as follows:

- Review of available information and identification of infrastructure that would need to be decommissioned at closure;
- Gathering of relevant data which forms the basis of the calculation;
- All-newly proposed infrastructure was assigned with a reference number which can be referenced directly to the costing model;
- Reference map was created indicating the position of the proposed infrastructure in relation to the existing infrastructure;
- Closure criteria was developed and workshopped with Impala as part of the annual liability assessment;
- The closure forecast was based on the proposed project timeframe;

- Compilation of a Bill of Quantities (BoQ) capturing the quantities and actions relating to the closure of the different closure aspects (Microsoft excel format); and
- Unit rates from E-Tek's database were updated to be aligned with the current market-related rates acquired from local civil- and demolition contractors (these rates refer to closure conditions when the mine is no longer operational).

18.1.3 Components

The following components were identified by E-Tek through the review of the site layout plan (refer to Figure 3-2) and form part of the calculation:

- Carports;
- Covered waiting area;
- Taxi drop-off lane;
- Pedestrian access bridge;
- Fencing;
- Paving; and
- Stormwater culvert.

18.2 CONFIRM THAT THE AMOUNT CAN BE PROVIDED FROM OPERATING EXPENDITURE

The amount required to manage and rehabilitate the environmental disturbance (as a result of Impala's activities) is provided for in the operating costs.

19. SPECIFIC INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

19.1 IMPACT ON THE SOCIO-ECONOMIC CONDITIONS OF ANY DIRECTLY AFFECTED PERSON

The impacts associated with socio-economic conditions are discussed in Appendix D. Management actions identified to address any socio-economic impacts are provided in chapter 9 and Table 9-1.

No person will be directly affected by the project given that no I&APs currently reside within the project footprint area and no I&APs undertake any activities (i.e., farming, etc.) activities within the project footprint. However, other impacts include:

- Road disturbance and traffic safety (**INSIGNIFICANT**);
- Inward migration which in turn increases pressure on existing communities, housing, basic service delivery and raises concerns around safety and security (**INSIGNIFICANT**); and
- Employment and procurement of goods and services (**INSIGNIFICANT**).

Indirect socio-economic impacts include:

- Hazardous excavations and infrastructure resulting in safety risks to third parties and animals (**VERY LOW** significance with mitigation);
- Alteration of drainage patterns by reducing the volume of runoff into the downstream catchments (**INSIGNIFICANT**);
- Contamination of surface water resources (**INSIGNIFICANT**);
- Contamination of groundwater resources (**INSIGNIFICANT**);
- Air pollution sources that can have a negative impact on ambient air quality (**INSIGNIFICANT**);
- Increase in disturbing noise levels (**INSIGNIFICANT**); and
- Visual impacts on this receiving environment may be caused by activities and infrastructure (**INSIGNIFICANT**).

19.2 IMPACT ON ANY NATIONAL ESTATE REFERRED TO IN SECTION 3(2) OF THE NHRA

No national estate will be affected by the proposed project.

19.3 SCREENING TOOL

DFFE developed an online screening tool which identifies environmental sensitivities within the project area. The screening tool report for the proposed project was generated using the DFFE online screening tool and was attached to the NEMA application form as supporting documentation. The screening tool report recommended specialist studies to be undertaken as part of the BA process. The specialist studies that were identified in the screening tool report are included in Table 19-1, as well as explanations for why or why not they were undertaken as part of the BA process.

Table 19-1: Specialist Studies and Environmental Sensitivities Identified by the Screening Tool

Theme	Sensitivity	Specialist Study	Reason for in/exclusion
Avifauna	Unspecified	Compliance Statement	The proposed project entails the clearance of approximately 2.5 ha of indigenous vegetation that may

Theme	Sensitivity	Specialist Study	Reason for in/exclusion
			provide a habitat for avifauna. Due to the unspecified sensitivity, a Compliance Statement was deemed sufficient.
Animal Species	Low	Compliance Statement	The proposed project entails the clearance of approximately 2.5 ha of indigenous vegetation that may provide a habitat for fauna SCC. Due to the low sensitivity, a Compliance Statement was deemed sufficient.
Aquatic Biodiversity	Low	Compliance Statement	No aquatic resources were identified within the project area. Due to the low sensitivity, a Compliance Statement was deemed sufficient.
Archaeological and Cultural Heritage	High	HIA	The proposed project is located within the Central Bankenveld, a region rich with diverse cultural/heritage resources. A full HIA was deemed appropriate.
Landscape/Visual	Unspecified	SSVR	The proposed project is located adjacent to an existing mining complex. A SSVR was deemed sufficient.
Palaeontology	Medium	Exemption Letter	The proposed project is associated with underlying geology of the BIC of the RLS. No palaeontological resources are associated with this geology. A letter of exemption from a paleontological specialist was deemed appropriate.
Plant Species	Low	Compliance Statement	The proposed project entails the clearance of approximately 2.5 ha of indigenous vegetation that may contain floral SCC. Due to the low sensitivity, a Compliance Statement was deemed sufficient.
Socio-Economic	Unspecified	SSVR	Due to the nature and limited duration and extent of the proposed project, as well as the unspecified sensitivity, a SSVR was deemed sufficient.
Terrestrial Biodiversity	Very High	Biodiversity Study	The proposed project entails the clearance of approximately 2.5 ha of indigenous vegetation. Due to the very high sensitivity, a full biodiversity study was deemed appropriate.

20. OTHER MATTERS REQUIRED IN TERMS OF SECTION 24(4)(A) AND (B) OF THE ACT

No other matters are required.

PART B – ENVIRONMENTAL MANAGEMENT PROGRAMME

21. DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER

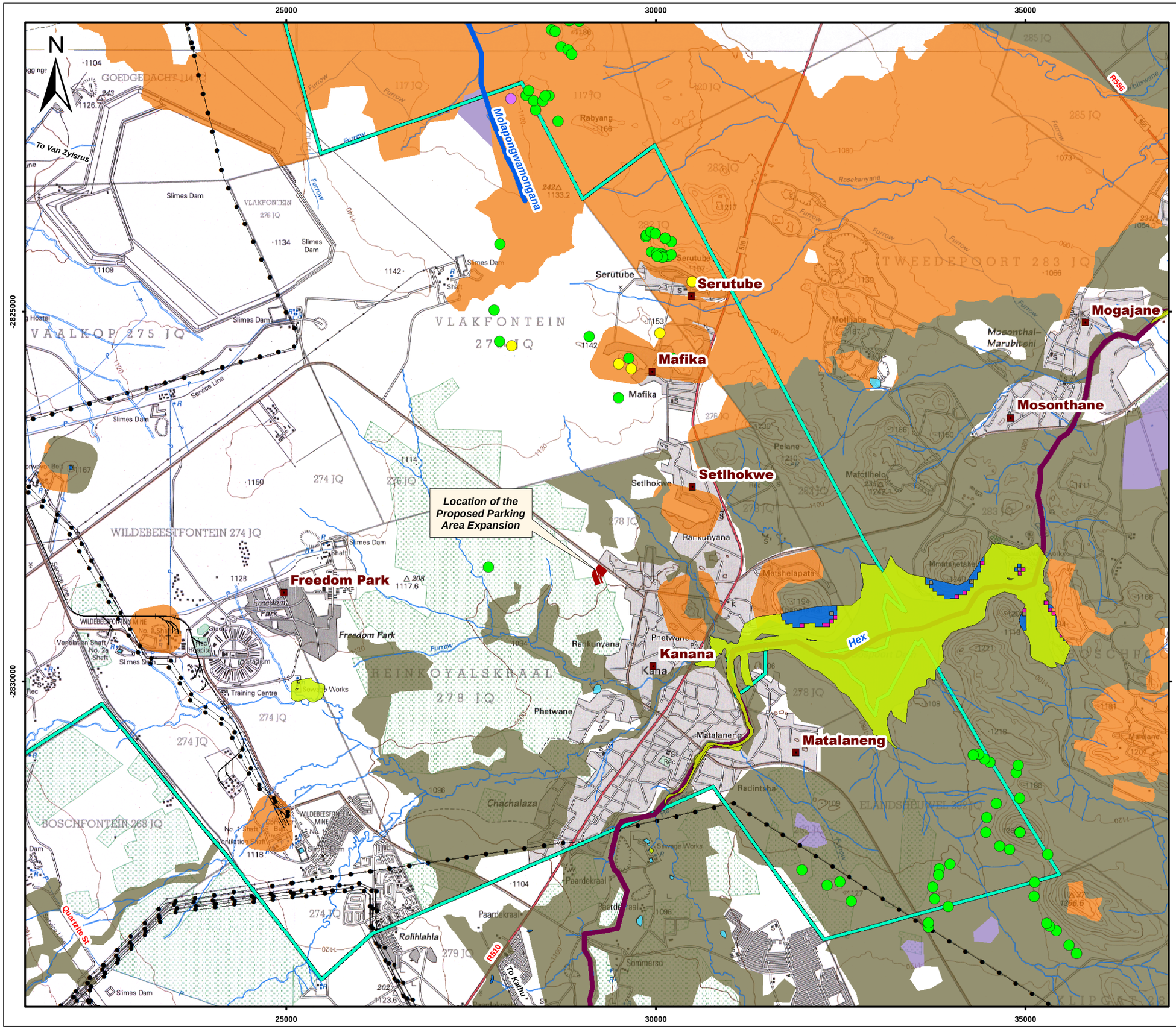
The details of the EAPs who undertook the BA process and prepared this revised BAR are provided in chapter 1.

22. DESCRIPTION OF THE ASPECTS OF THE ACTIVITY

The activities associated with the proposed project that are covered in the EMPr are included in chapter 3 and Table 3-3.

23. COMPOSITE MAP

A composite map of the environmental sensitivities of the project area superimposed on the project footprint is provided in Figure 23-1.



Legend

- Towns / Villages
- Main Roads
- Power Line
- Railway Line
- Rivers
- Dams
- Impala Surface Use Area
- Proposed Parking Area Expansion

North West CBA and ESA (2015)

- Critical Biodiversity Area 1
- Critical Biodiversity Area 2
- Ecological Support Area 1
- Ecological Support Area 2

Heritage Resources

- Historical site
- Stone tools
- Stone wall settlement

NFEPA Wetlands

- Channelled valley-bottom wetland
- Unchannelled valley-bottom wetland
- Valleyhead seep
- Flat

NFEPA Rivers

- CLASS C: Moderately Modified
- CLASS D: Largely Modified

0 1 2 Kilometers

Scale: 1:50 000 @ A3

Projection:Transverse Mercator
Datum: Hartebeeshoek, Lo 27

Impala Platinum Limited

Figure 23-1

Composite Map of Environmental Sensitivities Superimposed on the Project Footprint

SLR Consulting (Africa) (Pty) Ltd
P O Box 1596, Cramerview, 2060, South Africa
Tel: +27 (11) 467-0945 Fax: +27 (11) 467-0978

710.09003.00143	2021/08/13

24. DESCRIPTION OF THE IMPACT MANAGEMENT OBJECTIVES, INCLUDING THE MANAGEMENT STATEMENT

This chapter outlines the determination of the closure objectives and provides a list of the management measures specifically identified to mitigate impacts associated with the project activities.

24.1 DETERMINATION OF CLOSURE OBJECTIVES

The closure objectives for the project were determined taking into account the existing type of environment as described in sections 7.4.1 to 7.4.3, in order to ensure that the closure objectives strive to achieve a condition approximating its natural state, as far as possible. Further information pertaining to the closure objectives identified for the proposed project is provided in section 27.1.1.

24.2 VOLUMES AND RATE OF WATER USED FOR MINING

The proposed project will require minimal volumes of water as part of the construction phase.

24.3 HAS A WATER USE LICENCE BEEN APPLIED FOR?

The proposed project does not trigger any activities listed in the NWA. It follows that a Water Use Licence (WUL) is not required.

24.4 IMPACTS TO BE MITIGATED IN THEIR RESPECTIVE PHASES

The assessment of potential impacts associated with the proposed project is provided in chapter 9 and Appendix D. Management actions which will be implemented to avoid, reduce and minimise impacts to acceptable levels are detailed in chapter 9 and Table 9-1. Table 24-1 outlines the management actions that are specific to the Listed Activities triggered by the proposed project in terms of NEMA.

Table 24-1: Measures to Rehabilitate the Environment Affected by the Undertaking of a Listed Activity

Activity (Listed in terms of NEMA)		Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
Number	Description					
Listing Notice 1, GN No. R983, Listing Activity 27:	*The clearance of an area of 1 ha or more, but less than 20 ha of indigenous vegetation, except where such clearance of indigenous vegetation is required for -* *(i) the undertaking of a linear activity; or* *(ii) maintenance purposes undertaken in accordance with a maintenance management plan.*	• Construction • Operation • Decommissioning • Closure	Approximately 2.5 ha	• A biodiversity specialist shall do a walkdown of the project footprint 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 the 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 the DEDECT and/or DFFE prior to removal; • Limit edge effects to the surrounding environment by: ○ Demarcating all footprint areas during construction; ○ Preventing construction rubble or cleared alien vegetation 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; • No fires are allowed 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. • 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; • 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; • Construction personnel are to undergo environmental awareness training pertaining to the potential faunal species located on site;	• Implementation of an alien invasive species management or control plan is in accordance with the NEM: BA Alien and Invasive Species List (2020) that require the control of alien invasive species. • Obtaining permits to remove protected flora and faunal species is in accordance with the TNCO and NEM: BA. • Planting formal gardens will comply with the NEM: BA Alien and Invasive Species List (2020).	• Prior to construction • Prior to construction • Construction • Decommissioning and Closure • Decommissioning and Closure • Construction and Operation • Construction Construction • Construction • Construction • Construction • Construction • Construction • Construction • Prior to construction • Construction • Prior to construction • Construction • Construction • Prior to construction

Activity (Listed in terms of NEMA)		Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
Number	Description					
				• 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; and • 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.		• Prior to construction • Prior to construction

25. IMPACT MANAGEMENT OUTCOMES AND OBJECTIVES

The purpose of this chapter is to outline the impact management objectives and outcomes for the potential biophysical, cultural/heritage and socio-economic impacts identified for the proposed project.

Table 25-1 provides a description of the outcomes and objectives of the management actions recommended to manage, remedy, control or modify potential impacts associated with the proposed project. The management actions identified to achieve these outcomes and objectives are also provided.

Table 25-1: Description of Impact Management Outcomes and Objectives

Activity	Potential Impact	Affected Aspect	Phase	Management Action	Standard to be Achieved (Impact Management Objective and Outcomes)
N/A	Loss and sterilisation of mineral resources	Geology	N/A	**INSIGNIFICANT**	
• Site preparation • Civil works • Earthworks • Rehabilitation • Maintenance and aftercare	Altering topography	Topography	• Construction • Decommissioning • Closure	• 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 ensure a suitable post-closure land use is achieved.	• The objective us to minimise changes to natural topography. • The outcome is to limit the alteration of topography during the proposed project and through rehabilitation.
• Site preparation • Civil works • Earthworks	Hazardous excavations and infrastructure resulting in safety risks to third parties and animals		• Construction	• 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 compensations will be provided.	• The objective is to prevent physical harm to third parties and animals resulting from potentially hazardous excavations and infrastructure. • The outcome is to ensure no third parties' animals are harmed during the proposed project.
• Site preparation • Civil works • Earthworks • Transport systems • General site management • Demolition • Rehabilitation • Maintenance and aftercare	Loss of soil resources and land capability through physical disturbance and contamination	Soils and Land Capability	• Construction • Operation • Decommissioning • Closure	• 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 any major spillage incident.	• The objective is to minimise the loss of soil resources and related land capability from physical disturbance, erosion, compaction and soil pollution. • 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.

Activity	Potential Impact	Affected Aspect	Phase	Management Action	Standard to be Achieved (Impact Management Objective and Outcomes)
• Site preparation • Civil works • Earthworks • Transport systems • General site management • Demolition • Rehabilitation • Maintenance and aftercare	Physical destruction and disturbance of floral species	Biodiversity	• Construction • Operation • Decommissioning • Closure	• A biodiversity specialist shall do a walkdown of the project footprint 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 the 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 the DEDECT and/or DFFE prior to removal; • Limit edge effects to the surrounding environment by: ○ Demarcating all footprint areas during construction; ○ Preventing construction rubble or cleared alien vegetation 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; • No fires are allowed 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.	• 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. • The outcome is to prevent the spread of alien species in the project area, as well to limit disturbance as far as practically possible.
• Site preparation • Civil works • Earthworks • Transport systems • General site management • Demolition • Rehabilitation • Maintenance and aftercare	Physical destruction and disturbance of faunal species		• Construction • Operation • Decommissioning • Closure	• 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; • Construction personnel are to undergo environmental awareness training pertaining to the potential faunal species located on site; • 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; and • 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.	• The objective is to prevent the unacceptable destruction and disturbance to faunal species. • The outcome is to ensure that no faunal species are harmed or disturbed in the project area.
N/A	Alteration of natural drainage patterns	Surface Water Resources	N/A	**INSIGNIFICANT**	

Activity	Potential Impact	Affected Aspect	Phase	Management Action	Standard to be Achieved (Impact Management Objective and Outcomes)
• Site preparation • Civil works • Earthworks • Transport systems • General site management • Demolition • Rehabilitation • Maintenance and aftercare	Contamination of surface water resources		• Construction • Operation • Decommissioning • Closure	• 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 structure 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 29-1in the event 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.	• The objective is to prevent pollution of surface water resources. • The outcome is to ensure that surface water quality remains within acceptable limits for both domestic and agricultural purposed.
• Site preparation • Civil works • Earthworks • Transport systems • General site management • Demolition • Rehabilitation • Maintenance and aftercare	Contamination of groundwater resources	Groundwater Resources	• Construction • Operation • Decommissioning • Closure	Refer to the section above.	• The objective is to prevent pollution of groundwater resources. • The outcome is to ensure that groundwater quality remains within acceptable limits for both domestic and agricultural purposed.
• Site preparation • Civil works • Earthworks • Transport systems • General site management • Demolition • Rehabilitation • Maintenance and aftercare	Air pollution	Air Quality	• Construction • Operation • Decommissioning • Closure	• 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.	• The objective is to prevent air pollution health impacts. • The outcome is to ensure that any pollutants emitted as a result of the project remains within acceptable limits so as to prevent health related impacts.
N/A	Negative visual views	Visual	N/A	**INSIGNIFICANT**	
N/A	Road disturbance and traffic safety	Traffic	N/A	**INSIGNIFICANT**	

Activity	Potential Impact	Affected Aspect	Phase	Management Action	Standard to be Achieved (Impact Management Objective and Outcomes)
• Site preparation • Civil works • Earthworks	Loss of cultural/heritage and paleontological resources	Cultural/Heritage and Paleontological Resources	• Construction	• 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.	• The objective is to minimise the disturbance of cultural/heritage and paleontological resources. • The outcome is to protect heritage resources where possible. If disturbance is unavoidable, then mitigate impact in consultation with a specialist and the SAHRA and in line with regulatory requirements.
N/A	Inward migration and economic impact	Socio-Economic	N/A	**INSIGNIFICANT**	
N/A	Change in land use		N/A	**INSIGNIFICANT**	

26. IMPACT MANAGEMENT ACTIONS

Table 26-1: Description of Impact Management Actions

Activity	Potential Impact	Management Action	Time Period for Implementation	Compliance with Standards
N/A	Loss and sterilisation of mineral resources	**INSIGNIFICANT**		
• Site preparation • Civil works • Earthworks • Rehabilitation • Maintenance and aftercare	Altering topography	• 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 ensure a suitable post-closure land use is achieved.	• Construction • Closure	N/A
• Site preparation • Civil works • Earthworks	Hazardous excavations and infrastructure resulting in safety risks to third parties and animals	• 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 compensations will be provided.	• Construction • Construction • Construction • Construction • Construction	N/A
• Site preparation • Civil works • Earthworks • Transport systems • General site management • Demolition • Rehabilitation • Maintenance and aftercare	Loss of soil resources and land capability through physical disturbance and contamination	• 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 any major spillage incident.	• Construction • Construction • Closure • Construction • Construction and Operation • All phases • Construction • All phases	N/A
• Site preparation • Civil works • Earthworks • Transport systems • General site management	Physical destruction and disturbance of floral species	• A biodiversity specialist shall do a walkdown of the project footprint 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;	Refer to Table 24-1	Refer to Table 24-1

Activity	Potential Impact	Management Action	Time Period for Implementation	Compliance with Standards
• Demolition • Rehabilitation • Maintenance and aftercare		• 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 the 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 the DEDECT and/or DFFE prior to removal; • Limit edge effects to the surrounding environment by: ○ Demarcating all footprint areas during construction; ○ Preventing construction rubble or cleared alien vegetation 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; • No fires are allowed 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.		
• Site preparation • Civil works • Earthworks • Transport systems • General site management • Demolition • Rehabilitation • Maintenance and aftercare	Physical destruction and disturbance of faunal species	• 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; • Construction personnel are to undergo environmental awareness training pertaining to the potential faunal species located on site; • 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; and • 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.	Refer to Table 24-1	Refer to Table 24-1
N/A	Alteration of natural drainage patterns	**INSIGNIFICANT**		
• Site preparation • Civil works • Earthworks • Transport systems • General site management • Demolition • Rehabilitation	Contamination of surface water resources	• 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 structure 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 29-1in the event 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	• All phases • Construction • Construction • Construction • All phases • All phases • All phases	Construction, operation and maintenance of stormwater management facilities are in accordance with the NWA.

Activity	Potential Impact	Management Action	Time Period for Implementation	Compliance with Standards
• Maintenance and aftercare		• 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.		
• Site preparation • Civil works • Earthworks • Transport systems • General site management • Demolition • Rehabilitation • Maintenance and aftercare	Contamination of groundwater resources	Refer to the section above.	Refer to the section above.	Refer to the section above.
• Site preparation • Civil works • Earthworks • Transport systems • General site management • Demolition • Rehabilitation • Maintenance and aftercare	Air pollution	• 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.	• All phases • All phases • All phases • Construction	N/A
N/A	Negative visual views	**INSIGNIFICANT**		
N/A	Road disturbance and traffic safety	**INSIGNIFICANT**		
• Site preparation • Civil works • Earthworks	Loss of cultural/heritage and paleontological resources	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.	• Construction	In the event of chance finds, compliance will be in accordance with the NHRA.
N/A	Inward migration and economic impact	**INSIGNIFICANT**		
N/A	Change in land use	**INSIGNIFICANT**		

Additional procedures to manage waste and conserve soil resources are provided in Table 26-2 and Table 26-3, respectively. These measures must be implemented in the relevant phases, in addition to those already mentioned in afore-mentioned sections.

Table 26-2: Waste Management Procedures for General Waste

Items to be considered		Intentions
General	Specific	
Classification and record keeping	General	Impala's general and hazardous waste management procedure will cover the collection, storage, handling, transportation and disposal of waste to and from the Shaft 16 Complex. Impala will ensure that the responsible contractor(s) are made aware of these procedures.
	Waste opportunity analysis	In line with the DWS' strategy to eliminate waste streams in the long term, Impala will assess each waste type to see whether there are alternative uses for the material. This will be done as a priority before the disposal option.
	Safety data sheets	Impala will maintain, where required in terms of the regulations, the safety data sheets for hazardous waste (prepared in accordance with SANS 10234).
	Inventory of wastes produced	Impala will keep an accurate and up to date record of the waste that is generated, which must reflect: • The classification of the wastes; • The quantity of each waste generated, expressed in tons or cubic metres per month; • The quantities of each waste that has either been re-used, recycled, recovered, treated or disposed of; and • By whom the waste was managed.
	Disposal record	Written evidence of the safe disposal of waste will be kept.
	Record keeping	Records will be retained for a period of at least five years and will be made available to the DWS on request.
Waste management	Collection points	Designated waste collection points will be established on site. Care will be taken to ensure that there will be sufficient collection points with adequate capacity and that these are serviced frequently.
	Laydown/ salvage areas	During construction, operation, decommissioning and closure, lay down areas for re-usable non-hazardous materials will be established.
	General (Non-hazardous) waste	General (non-hazardous) waste will be stored in designated skips and removed by an approved contractor for disposal at a licenced facility.
	Hazardous wastes	Medical waste, laboratory chemicals and related packaging, used chemicals and chemical containers will be temporarily stored in sealed containers in a bunded store before removal by an approved waste contractor and disposed of at a licenced facility.
	Used and/or spilled hydrocarbons such as oil and grease	Used and/or spilt oil and grease will be collected in suitable containers at designated collection points. The designated collection points will be bunded and underlain by impervious materials to ensure that any spills are contained. In general areas, used and/or spilt oil and grease will be collected in suitable containers and deposited in a designated storage area. Notices will be erected at each waste oil point giving instructions on the procedure for waste oil discharge and collection. An approved subcontractor will remove oil from site.

Items to be considered		Intentions
General	Specific	
	Any soil polluted by a spill	If soil (whether stockpiled or in its undisturbed natural state) is polluted, the first management priority is to treat the pollution by means of in-situ bioremediation at the designated site. In-situ remediation is generally considered to be the preferred option because with successful in-situ remediation, the soil resource will be retained in the correct place. The in-situ options include bio-remediation at the point of pollution, or removal of soils for washing and/or bioremediation at a designated area after which the soils are returned.
		If remediation of the soil in-situ is not possible, the soils will be classified as a waste in terms of the Waste Regulations and will be disposed of at an appropriate permitted waste facility.
	Mixing of wastes	Waste will not be mixed or treated where this would reduce the potential for re-use, recycling or recovery; or result in treatment that is not controlled and not permanent.
Disposal	Offsite waste disposal facilities	Waste will be disposed of at appropriate licenced waste disposal facilities.
		Unless collected by the municipality, Impala must ensure that the disposal of their waste to landfill is in accordance with the Norms and Standards for Disposal of Waste to Landfill set in terms of Section 7(1) of NEM: WA.
Waste transport	Contractor	A qualified, reputable waste management subcontractor will undertake the waste transport. The contractor will provide an inventory of each load collected and of proof of disposal at a licenced facility.
Banned practices	Long-term stockpiling of waste	Stockpiling of waste is a temporary measure. Waste stockpiling sites must have an impervious floor, be bunded and have a drainage system for collection and containment of water on the site.
	Burying of waste	No waste will be buried on site.

Table 26-3: Soil Conservation Procedures

Steps	Factors to consider	Detail
Delineation of areas to be stripped		Stripping will only occur where soils are to be disturbed by activities that are described in the EMPr, and where a clearly defined end rehabilitation use for the stripped soil has been identified.
Reference to biodiversity mitigation		Sensitivity of the local biodiversity will be considered before any soils are stripped.
Stripping	Topsoil	A thickness of 50 cm of topsoil will be stripped, unless a soils expert advises otherwise.
	Subsoil	If present, subsoil will be removed and stockpiled separately to the topsoil.
Delineation of stockpiling areas	Location	Stockpiling areas will be identified in close proximity to the source of the soil to limit handling and to promote re-use of soils in the correct areas.
	Designation of the areas	Soil stockpiles will be clearly identifiable in terms of soil type and the intended areas of rehabilitation.
Stockpile management	Vegetation establishment and erosion control	Rapid growth of vegetation on the topsoil stockpiles will be promoted (e.g. by means of watering or fertilisation) is self-vegetation proves to be unsuccessful. The purpose of this exercise will be to encourage vegetation growth on soil stockpiles and to combat erosion by water and wind.
	Stormwater controls	Stockpiles will be established with stormwater diversion berms to prevent runoff erosion.
	Height and slope	Soil stockpile height will be controlled to avoid compaction and damage to the underlying soil. The stockpile side slopes should be flat enough to promote vegetation growth and reduce runoff-related erosion.
	Waste	No waste material will be placed on the soil stockpiles.
	Vehicles	Equipment movement on top of the soil stockpiles will be limited to avoid topsoil compaction and subsequent damage to the soils and seedbank.
Rehabilitation of disturbed land: restoration of land capability	Placement of soil	A minimum layer of 50 cm of topsoil will be replaced unless a soils expert advises otherwise.
	Fertilisation	Samples of stripped soils will be analysed to determine the nutrient status of the soil before rehabilitation commences. As a minimum, the following elements will be tested for: cation exchange capacity, pH and phosphate. These elements provide the basis for determining the fertility of soil. Based on the analysis, and suggested vegetation, fertilisers will be applied if necessary.
	Erosion control	Erosion control measures will be implemented to ensure that the topsoil is not washed away and that erosion gulleys do not develop prior to vegetation establishment.
	Restore land function and capability	Apply landscape function analysis and restoration interventions to areas where soil has been replaced as part of rehabilitation, but the land function and capability has not been effectively restored.

27. FINANCIAL PROVISION

The aim of this chapter is to outline the closure objectives, the rehabilitation plan and the financial liability determined for the proposed project.

27.1 DETERMINATION OF THE AMOUNT OF FINANCIAL PROVISION

27.1.1 Closure Objectives Description and the Alignment with the Baseline Environment

The preliminary closure plan objectives and principles have been developed for the proposed project against the background of the location in the North West. These objectives are in line with current approved consolidated EMPr and include the following:

- That environmental damage is minimised to the extent that it is acceptable to all parties involved;
- That contamination beyond the project area by surface run-off, groundwater movement and wind will be prevented;
- That the project closure is achieved efficiently, cost effectively and in compliance with the law; and
- That the social and economic impacts resulting from project closure are managed in such a way that negative socio-economic impacts are minimised.

Any additional and more specific closure objectives tied to the final land use for the entire Impala operations, will be determined in collaboration with local communities and other stakeholders during ongoing operations at Impala.

27.1.2 Confirmation that Closure Objectives Have Been Consulted with I&APs

The closure objectives are outlined in this report and is made available to I&APs for review and comment (refer to section 7.2).

To date, no comments regarding the closure objectives have been received from I&APs (refer to Table 7-2).

27.1.3 Rehabilitation Plan

The proposed project does not require the development of an annual rehabilitation plan as outlined in the Financial Provisioning Regulations, 2015 (GNR 1147 of 20 November 2015) that focusses on rehabilitation for the forthcoming 12 months. The Shaft 16 Complex, inclusive of the proposed parking area, will be operational for many years to come and the rehabilitation of this area would only be considered nearer to the end of life of mine, in approximately 20 years.

27.1.4 Compatibility of the Rehabilitation Plan with the Closure Objectives

It is confirmed that Impala's rehabilitation plan is compatible with the closure objectives given that the closure objectives were taken into account during the determination of the financial provision. The rehabilitation plan is in line with the minimum requirement of the EMPr.

27.1.5 Calculate and State the Quantum of the Financial Provision

The financial provision represents a ten-year forecast of the proposed project. The financial provision takes into consideration the proposed project schedule for implementation (12 months). Impala is to financially provide for the highest liability figure out of the ten-year closure forecast, which has been calculated at **R 1 915 011.83** (Rounded Closure Forecast (Y2021)). This figure includes P&Gs (6%), Contingencies (10%) and VAT (15%).

27.1.6 Confirmation that the Financial Provision will be Provided

The financial provision is provided in the form of an insurance guarantee.

28. MECHANISMS FOR MONITORING COMPLIANCE AND PERFORMANCE AGAINST THE EMPR

The aim of this section is to outline monitoring programmes that will need to be implemented during the proposed project.

There are no environmental impacts specifically associated with the proposed project that require monitoring. Impala currently has monitoring programmes in place for its existing mining operations. It is recommended that the implementation of those monitoring programmes be continued.

As a general approach, Impala will ensure that existing monitoring programmes comprise the following:

- Adherence to a formal monitoring procedure;
- Use of appropriately calibrated equipment by personnel trained to use the equipment;
- The preservation of samples according to laboratory specifications, where samples require analysis;
- The identification of monitoring parameters in consultation with a specialist in the relevant field and/or the relevant authority;
- The amendment or removal of monitoring parameters, where necessary, following the initial monitoring results and in consultation with a specialist and/or the relevant authority; and
- The interpretation of data and reporting of trends will be undertaken by an appropriately qualified person.

28.1 FREQUENCY OF PERFORMANCE ASSESSMENT REPORT

Impala will, for the period during which the EA and the EMPr is valid, submit environmental audit reports to the DMRE. These audits will focus on the mine's compliance with the conditions of the EA and the commitments in the EMPr. These audits will be undertaken by a qualified independent person and will comply with the relevant EIA Regulations, 2014 (as amended), promulgated under NEMA.

The Environmental Manager will conduct internal management audits against the commitments in the EMPr in accordance with an annual audit plan. During the operation phase, these audits will be conducted on a quarterly basis. The audit findings will be documented for both record keeping purposes and for informing continual improvement.

28.2 CLOSURE COST REPORTING

The financial provision for the mine will be updated on an annual basis and be submitted to the DMRE for the duration of the operation in accordance with the relevant legislation.

29. ENVIRONMENTAL AWARENESS PLAN

This chapter outlines the environmental awareness plan that has been developed for the proposed project.

29.1 MANNER IN WHICH THE APPLICANT INTENDS TO INFORM EMPLOYEES OF THE ENVIRONMENTAL RISKS

This section includes an environmental awareness plan for the proposed project. The plan describes how employees will be informed of environmental risks which may result from their work, the manner in which the risk must be dealt with in order to avoid pollution or degradation of the environment, the training required for general environmental awareness and dealing of emergency situations, as well as remediation measures for such emergencies. All contractors that conduct work on behalf of Impala are bound by the content of the EMPr and a contractual condition to this effect will be included in all such contracts entered into by Impala. If contractors are used, the responsibility for ensuring compliance with the EMPr will remain with Impala.

The purpose of the environmental awareness plan is to ensure that all personnel and management understand the general environmental requirements of the site. In addition, greater environmental awareness must be communicated to personnel involved in specific activities which can have a significant impact on the environment and ensure that they are competent to carry out their tasks on the basis of appropriate education, training and/or experience. The environmental awareness plan should enable Impala to achieve the objectives of the environmental policy.

29.2 ENVIRONMENTAL POLICY

Impala will display the environmental policy. To achieve world class environmental performance in a sustainable manner, Impala is currently committed to:

- Integrating environmental management into all aspects of their business, including the entire product life cycle;
- Complying with all applicable legislation and other requirement to which Impala subscribes;
- Practising responsible stewardship by adopting world class standards;
- Proactively identifying and managing significant environmental aspects in order to:
    - Minimise emissions to the atmosphere;
    - Minimise the release of effluent;
    - Optimise resource consumption;
    - Mitigate thier impacts on climate change;
    - Minimise waste;
    - Rehabilitate disturbed land and protect environmental biodiversity; and
    - Protect cultural heritage resources.
- Ensuring environmental awareness and appropriate competency among employees and promoting environmental awareness in the community;
- Engaging with I&APs towards the shared goal of improving the environment; and
- Setting objectives and, where possible, quantitative targets, to determine continual improvement in environmental performance and the prevention of pollution.

29.3 STEPS TO ACHIEVE THE ENVIRONMENTAL POLICY OBJECTIVES

Impala's environmental policy will be realised by setting specific and measurable objectives. It is proposed that new objectives are set throughout the life of mine, but initial objectives are as follows:

- Management of environmental responsibilities:
  - Impala will establish and appoint Managers at senior mine management level at each site, who will be provided with all necessary resources to carry out the management of all environmental aspects of the site irrespective of other responsibilities, for example:
    - Compliance with environmental legislation and EMPr commitments;
    - Implementing and maintaining an environmental management system with the assistance of the appointed Environmental Management System Area Coordinator and the Area Waste Coordinator;
    - Developing environmental emergency response procedures and coordinating personnel during incidents;
    - Manage routine environmental monitoring and data interpretation;
    - Environmental trouble shooting and implementation of remediation strategies; and
    - Closure planning.
- Communication of environmental issues and information:
  - Meetings, consultations and progress reviews will be carried out, and specifically Impala will:
    - Set the discussion of environmental issues and feedback on environmental projects as an agenda item at all company board meetings;
    - Provide progress reports on the achievement of policy objectives and level of compliance with the approved EMPr to the DMRE;
    - Ensure environmental issues are raised at monthly mine management executive committee meetings and all relevant mine wide meetings at all levels; and
    - Ensure environmental issues are discussed at all general liaison meetings with local communities and other interested and affected parties.
- Environmental awareness training:
  - Impala will provide environmental awareness training to individuals at a level of detail specific to the requirements of their job, but will generally comprise:
    - Basic awareness training for all prior to granting access to site (e.g., short video presentation requiring registration once completed). Employees and contractors who have not attended the training will not be allowed on site;
    - General environmental awareness training will be given to all employees and contractors as part of the Safety, Health and Environment (SHE) induction programme. All non-Impala personnel who will be on site for more than three days must undergo the SHE induction training; and
    - Specific environmental awareness training will be provided to personnel whose work activities can have a significant impact on the environment (e.g., workshops, waste handling and disposal, sanitation, etc.).
- Review and update the environmental topics already identified in the EMPr which currently includes the following:

- Topography (hazardous excavations);
- Soil and land capability management (loss of soil resource);
- Management of biodiversity;
- Surface water management (alteration of surface drainage and pollution of surface water);
- Groundwater management (reduction in groundwater levels/availability and groundwater contamination);
- Management of air quality (dust generation);
- Noise (specifically management of disturbing noise);
- Visual aspects (reduction of negative visual impacts);
- Surrounding land use (traffic management, blast management, land use loss);
- Heritage resources (management of sites); and
- Socio-economic impacts (management of positive and negative impacts).

- All mine projects will be designed to minimise impact on the environment and to accomplish closure/rehabilitation objectives; and
- Impala will maintain records of all environmental training, monitoring, incidents, corrective actions and reports.

29.4 TRAINING OBJECTIVES OF THE ENVIRONMENTAL AWARENESS PLAN

The environmental awareness plan ensures that training needs are identified, and that appropriate training is provided. The environmental awareness plan should communicate:

- The importance of conformance with the environmental policy, procedures and other requirements of good environmental management;
- The significant environmental impacts and risks of individuals' work activities and explain the environmental benefits of improved performance;
- Individuals' roles and responsibilities in achieving the aims and objectives of the environmental policy; and
- The potential consequences of not complying with environmental procedures.

29.4.1 General Contents of the Environmental Awareness Plan

To achieve the objectives of the environmental awareness, the general contents of the training plans are as follows:

- Module 1 – Basic training plan applicable to all personnel entering the site:
  - Short (15 min) presentation to indicate the site layout and activities at specific business units together with their environmental aspects and potential impacts; and
  - Individuals to sign off with site security on completion in order to gain access to the site.
- Module 2 – General training plan applicable to all personnel at the site for longer than three days:
  - General understanding of the environmental setting of the Shaft 16 Complex (e.g., local communities and industries and proximity to natural resources such as rivers);
  - Understanding the environmental impact of individuals activities on site (e.g., excessive production of waste, poor housekeeping, energy consumption, water use, noise, etc.);
  - Indicate potential site-specific environmental aspects and their impacts;
  - Impala's environmental management strategy;

  - Identifying poor environmental management and stopping work which presents significant risks;
  - Reporting incidents;
  - Examples of poor environmental management and environmental incidents; and
  - Procedures for emergency response and cleaning up minor leaks and spills.
- Module 3 – Specific training plan:
  - Environmental setting of the workplace (e.g., proximity of watercourses, vulnerability of groundwater, proximity of local communities and industries, etc.);
  - Specific environmental aspects such as:
    - Spillage of hydrocarbons at workshops;
    - Spillage of explosive liquids in the open pits;
    - Poor waste management such as mixing hazardous and general wastes, inappropriate storage and stockpiling large amounts of waste;
    - Poor housekeeping practices;
    - Poor working practices (e.g., not carrying out oil changes in designated bunded areas);
    - Excessive noise generation and unnecessary use of hooters; and
    - Protection of heritage resources (including palaeontological resources).
- Impact of environmental aspects, for example:
  - Hydrocarbon contamination resulting in loss of resources (soil, water) to downstream users;
  - Groundwater contamination also resulting in loss of resources due to potential adverse aesthetic, taste and health effects; and
  - Dust impacts on local communities (nuisance and health implications).
- Impala's duty of care (specifically with respect to waste management); and
- Purpose and function of Impala's environmental management system.

Individuals required to complete Module 3 (Specific training module) will need to complete Modules 1 and 2 first. On completion of the Module 3, individuals will be subject to a short test (written or verbal) to ensure the level of competence has been achieved. Individuals who fail the test will be allowed to re-sit the test after further training by the training department.

The actual contents of the training modules will be developed based on a training needs analysis. Key personnel will be required to undergo formal, external environmental management training (e.g., how to operate the environmental management system, waste management and legal compliance). In addition to the above, Impala will:

- Conduct refresher training/presentations on environmental-related issues for Shaft 16 employees (permanent and contractors) at regular intervals;
- Promote environmental awareness using relevant environmental topic posters displayed at strategic locations at the Shaft 16 Complex. These topics will be changed monthly, and will be reviewed annually by the Environmental Department Manager to ensure relevance; and
- Participate and organise events which promote environmental awareness, some of which will be tied to national initiatives e.g., National Arbour Week, World Environment Day and National Water Week.

29.5 MANNER IN WHICH RISKS WILL BE DEALT WITH TO AVOID POLLUTION OR DEGRADATION

29.5.1 Ongoing Monitoring and Management Actions

Implementation of Impala's existing monitoring programmes, as mentioned in chapter 28, will be continued to provide early warning systems necessary to avoid environmental emergencies.

29.5.2 Procedures in Case of Environmental Emergencies

Emergency procedures apply to incidents that are unexpected and may be sudden, and which may lead to serious danger to employees/contractors, the public and/or potentially serious pollution of, or detriment to the environment (immediate and delayed). Procedures to be followed in case of environmental emergencies are described in the sections below.

29.5.2.1 General Emergency Procedure

The general procedure that should be followed in the event of all emergency situations is as follows:

- Applicable incident controller, defined in Impala's existing emergency plans, must be notified of an incident upon discovery;
- Area to be cordoned off to prevent unauthorised access and tampering of evidence;
- Undertake actions defined in Impala's existing emergency plans to limit/contain the impact of the emergency;
- If residue facilities/dams, stormwater diversions, etc., are partially or totally failing and this cannot be prevented, the emergency siren is to be sounded (nearest one available). After hours the Operations Engineer on shift must be notified;
- Take photographs and samples as necessary to assist in investigation;
- Report the incident immediately to the Environmental Department for emergencies involving environmental impacts or to the safely department in the case of injury;
- The Environmental Department must comply with Section 30 of the NEMA such that:
    - The Environmental Department must immediately notify the relevant departments of:
        - The nature of the incident;
        - Any risks posed to public health, safety and property;
        - The toxicity of the substances or by-products released by the incident; and
        - Any steps taken to avoid or minimise the effects of the incident on public health and the environment.
- The Environmental Department must, as soon as is practically possible, after the incident:
    - Take all reasonable measures to contain and minimise the effects of the incident including its effects on the environment and any risks posed by the incident to the health, safety and property of persons;
    - Undertake clean up procedures;
    - Remedy the effects of the incident;
    - Assess the immediate and long-term effects of the incident (environment and public health); and
    - Within 14 days, the Environmental Department must report to the Director-General DWS and DFFE, the provincial head of DFFE, the regional manager of the DMRE, the head of the

district and local municipalities and the head of the regional DWS office such information as is available to enable an initial evaluation of the incident, including:

- The nature of the incident;
- The substances involved and an estimation of the quantity released;
- The possible acute effects of the substances on the persons and the environment (including the data needed to assess these effects);
- Initial measures taken to minimise the impacts;
- Causes of the incident, whether direct or indirect, including equipment, technology, system or management failure; and
- Measures taken to avoid a recurrence of the incident.

Identification of Emergency Situations

The project-specific emergency situations that have been identified together with specific emergency response procedures are outlined in Table 29-1.

Table 29-1: Emergency Response Procedures

Item	Emergency situation	Response in addition to general procedures
1	Spillage of chemicals, engineering substances and waste	• Where there is a risk that contamination will contaminate the land (leading to a loss of resource), surface water and/or groundwater, Impala will: ○ Notify residents/users downstream of the pollution incident; ○ Identify and provide alternative resources should contamination impact adversely on the existing environment; ○ Cut off the source if the spill is originating from a pump, pipeline or valve (e.g., refuelling bays) and the infrastructure 'made safe'; ○ Contain the spill (e.g., construct temporary earth bund around source such as road tanker); ○ Pump excess hazardous liquids on the surface to temporary containers (e.g., 210 litre drums, mobile tanker, etc.) for appropriate disposal; and ○ Remove hazardous substances from damaged infrastructure to an appropriate storage area before it is removed/repaired.
2	Discharge of dirty water to the environment	• Apply the principals listed for Item 1 above. • To stop spillage from the dirty water system, Impala will: ○ Redirect excess water to other dirty water facilities where possible; ○ Pump dirty water to available containment in the clean water system, where there is no capacity in the dirty water system; ○ Carry out an emergency discharge of clean water and redirect the spillage to the emptied facility; and ○ Apply for emergency discharge as a last resort.
3	Pollution of surface water (where relevant)	• Apply the principals listed for Item 1 above; • Absorbent booms will be used to absorb surface plumes of hydrocarbon contaminants; • Contamination entering the surface water drainage system will be redirected into the dirty water system; and • The Environmental Department will collect in-stream water samples downstream of the incident to assess the immediate risk posed by contamination.
4	Groundwater contamination	• Apply the principals listed for Item 1 above; and • Investigate the source of contamination and implement control/management actions.

Item	Emergency situation	Response in addition to general procedures
5	Falling into hazardous excavations	• Personnel discovering the fallen individual or animal must mobilise the emergency response team to the location of the incident and provide a general appraisal of the situation (e.g., human or animal, conscious or unconscious, etc.); • The injured party should be recovered by trained professionals such as the Shaft 16 emergency response team; and • A doctor (or appropriate medical practitioner)/ambulance should be present at the scene to provide first aid and transport individual to hospital.
6	Uncovering of graves and sites and fossils	• Refer to the Chance Find Procedure provided in Table 10-1.

29.6 TECHNICAL, MANAGEMENT AND FINANCIAL OPTIONS

Technical, management and financial options that will be put into place to deal with the remediation of impacts in cases of environmental emergencies are described below:

- Impala will appoint a competent management team with the appropriate skills to develop and manage the proposed project of this scale and nature;
- To prevent the occurrence of emergency situations, Impala will implement, as a minimum, the mine plan and mitigation measures as included in this BAR and EMPr;
- Impala has an environmental management system in place where to identify, report, investigate, address and close out environmental incidents;
- As part of its annual budget, Impala will allow a contingency for handling of any risks identified and/or emergency situations; and
- Where required, Impala will seek input from appropriately qualified people.

30. SPECIFIC INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

As mentioned in chapter 28, Impala will, for the period during which the EA and the EMPr is valid, submit environmental audit reports to the DMRE. These audits will focus on the mine's compliance with the conditions of the EA and the commitments in the EMPr. These audits will be undertaken by a qualified independent person and will comply with the relevant EIA Regulations, 2014 (as amended). Promulgated under NEMA.

The Environmental Manager will conduct internal management audits against the commitments in the EMPr in accordance with an annual audit plan. During the operation phase, these audits will be conducted on a quarterly basis. The audit findings will be documented for both record keeping purposes and for informing continual improvement.

Furthermore, the financial provision for the mine will be updated on an annual basis and be submitted to the DMRE for the duration of the operation in accordance with the relevant legislation.

31. UNDERTAKING

We, Sharon Meyer and Rizqah Baker, undertake that:

- The information provided herein is correct;
- Comments and inputs from I&APs have been included and correctly recorded in this report;
- Inputs and recommendations from the specialist reports have been included, where relevant; and
- Any information provided to I&APs and any responses to comments or inputs made is correct or was correct at that time.

Signature of Report Author — Date: 16/11/21

Signature of EAP — Date: 16/11/21

Signature of Commissioner of Oaths — Date: 16-11-2021

OREN JAN VAN VREDE
COMMISSIONER OF OATHS
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