PROJECT IMPACT ASSESSMENT, SIGNIFICANCE AND MITIGATION MEASURES SUMMARY

The following impact rating approach used by EnviroAfrica CC is a basic exponential rating system to assess actual and potential negative and positive environmental impacts.

Environmental activities or aspects are identified, based on:

- the phases of the project,
- the nature (or description) of the actual and potential impacts of the activities.

For every project activity or aspect, various environmental impacts are listed. Every negative impact is allocated a -value as per each of the following criteria:

- Probability (Likelihood)
- Extent
- Duration (Frequency)
- Consequence (Receiving Environment)
- Magnitude (Intensity/severity)

Every positive impact is allocated a +value as per each of the following criteria:

- Probability (Likelihood)
- Extent
- Duration (Frequency)
- Magnitude (Intensity/severity)

Once a value is allocated for each of the criterion, the scores are averaged to determine the final impact rating see Table 1 below.

EnviroAfrica then further assesses environmental significance, based on the nature of the impact, as per the score and colour key which forms part of Table 1 below. This results in impacts having either a low (indicated in green), medium (indicated in yellow) or high (indicated in orange and red) negative significance, and a low (light blue), medium (blue) or a high (dark blue) positive significance

Note: i. As a baseline, impact rating values/scores are allocated taking the **worst-case** scenario into account i.e. with no mitigation. The baseline rating is compared with those after mitigation has been taken into account i.e. the post-mitigation rating. Post mitigation rating is used for the actual impact assessment.

APPENDIX F – IMPACT ASSESSMENT

SIGNIFICANCE CRITIERIA	Very High	High	Medium	Low	Negligible (very low)
Value	**16**	**8**	**4**	**2**	**1**
Probability (likelihood) **(P)**		Definite. Impact will definitely occur (impact will occur regardless of any prevention measures)	Highly probable. Very likely for impact to occur.	Probable. Impact may likely occur.	Improbable. Low likelihood/unlikely for impact to occur.
Extent (E)	Impact potentially reaches beyond national boundaries	Impact has definite provincial/potential national consequences	Impact confined to regional area/ town	Impact confined to local region and impact on neighbouring properties	Impact confined to project property / site
Duration (D)		Permanent The impact is expected to have a permanent impact, with very little to no rehabilitation possible	Long-Term The impact is expected to last for a long time after construction with rehabilitation expected to be 15-50 years. Impact is reversible but only with long-term mitigation	Medium-term The impact is expected to last for some time after construction with rehabilitation expected to be 2 - 15 years. Impact is reversible but only with on-going mitigation	Short-term / temporary The impact is expected to be temporary or last for a relatively short time with rehabilitation expected to be <2years. The impact is reversible through natural process and/or some mitigation.
Magnitude (Intensity/ Severity) **(M)**	It is expected that the activity will have a very severe to permanent impact on the surrounding environment. Functioning irreversibly impaired. Rehabilitation often impossible or unfeasible	It is expected that the activity will have a severe impact on the surrounding environment. Functioning may be severely impaired and may be temporarily cease. Rehabilitation will be needed to restore system integrity	It is expected that the activity will have an impact on the surrounding environment, but it will maintain its function, even if moderately modified (overall integrity not compromised). Rehabilitation easily achieved	It is expected that the activity will have a perceptible impact on the surrounding environment, but it will maintain its function, even if slightly modified (overall integrity not compromised). Rehabilitation easily achieved	It is expected that the impact will have little or no effect on the integrity of the surrounding environment
Receiving environment (Consequence): **(RE)**	Very sensitive, pristine area – protected site or species permanently or seasonally present	Unused area containing only indigenous fauna / flora species	Unused area containing indigenous and alien fauna / flora species	Semi-disturbed area already rehabilitated / recovered from prior impact, or with moderate alien vegetation	Disturbed area/ transformed/ heavy alien vegetation

ENVIRONMENTAL RATING SIGNIFICANCE KEY:

Negative Impacts

SIGNIFICANCE	RATING	Final rating score / value range
Very Significant	Very High	-11 to -16
Significant	High	-7 to <-11
Increasing Significance	Medium	-4 to <-7
Insignificant	Low	-2 to <-4
	Very Low	-1 to <-2

Positive Impacts

SIGNIFICANCE	RATING	Final rating score / value range
Significant	High	10 to 16
Increasing Significance	Medium	4 to <10
Insignificant	Low	1 to <4

Table 1: Environmental Significance Rating Methodology (rating criteria and significance key)

Nature of Impact			Impact Assessment Ranking and Proposed Mitigation (Preferred Alternative)		
No.	**Aspect**	**Impact**	**Environmental Significance (without Mitigation)**	**Proposed Mitigation (i.e. Proposed mitigation to reverse/ avoid, manage or mitigate identified impacts associated with construction, operation, and decommissioning/ closure phases)**	**Environmental Significance (After Mitigation)**
CONSTRUCTION PHASE					
1	Terrestrial biodiversity	Potential loss of Endangered vegetation and associated habitat (Indigenous vegetation is only on riverbed and none remains on riverbanks)	Low (Negative)	-Keep disturbance area as small as possible. A suitably qualified Environmental Control Officer must be appointed to oversee the construction phase of the project. -The ECO must beforehand approve all areas to be used as laydown areas. -All works should be kept within the existing areas disturbed by cultivation). -The individuals of *Leucadendron laxum, are of conservation concern and must be transplanted where they will be safe as close as possible to the proposed site.* -Alien- and invasive species must be removed in a manner that prevents the spread thereof.	Very Low (Negative)
2		Potential impact on protected areas, CBAs.	Very Low (Negative)		Very Low (Negative)
3		Potential impact on threatened or protected plant species.	Medium (Negative)		Low (Negative)
4		Potential impact on fish, mammals, reptiles or amphibians	Low (Negative)		Very Low (Negative)
5		Potential impact on Avifauna (No nests nor individuals encountered on and near proposed site).	Very Low (Negative)		Very Low (Negative)
6	Freshwater Resources	-Erosion of soil in Paaskloof River and on riparian areas near proposed site owing to disturbance by construction work. - Pollution caused by littering and usage of the proposed site as outdoor toilet by labourers	Low (Negative)	- Rehabilitate any damage caused by construction to the banks of the Paaskloof River and its riparian areas as soon as construction work is completed. - Provide refuse bins and portable toilets and implement a system of regular removal and lawful disposal of the waste during construction. In addition, train the labourers to appreciate proper disposal of waste.	Very Low (Negative)
7	Heritage				N/A
8	Palaeontology				N/A
9	Agriculture	No loss of agricultural production potential anticipated.	N/A	N/A	N/A
10	Visual	Proposed site may become less aesthetically appealing during construction phase as a result of	Low (Negative)	Complete the construction phase as quickly as possible and rehabilitate as soon as possible thereafter.	Very Low (Negative)

Nature of Impact			Impact Assessment Ranking and Proposed Mitigation (Preferred Alternative)		
No.	**Aspect**	**Impact**	**Environmental Significance (without Mitigation)**	**Proposed Mitigation (i.e. Proposed mitigation to reverse/ avoid, manage or mitigate identified impacts associated with construction, operation, and decommissioning/ closure phases)**	**Environmental Significance (After Mitigation)**
		trucks, construction machinery and spoil heaps			
11	Socio-economic	Creation of some short-term employment opportunities relating to construction.	Low (Positive)	No mitigation required	Low (Positive)
12	Traffic	Increase in traffic owing to contractor's trucks and other construction vehicles.	Medium (Negative)	- Trucks and construction machinery must be controlled to remain within speed limits required by the local municipality.	Low (Negative)
13	Noise	Noise will be generated during the construction phase.	Low (Negative)	- Any noise generated by construction activities will be a temporary impact however, the following mitigation measures will be implemented: - A complaint register to be maintained on-site. Any complaints received must be responded to and rectified accordingly. The ECO must be notified of any complaints. - All construction vehicles must be fitted with standard silencers. All silencers must be maintained. All machinery used on site must have suppressors. - Working hours must be limited to and strictly adhered to standard daylight working hours (08h00-17h00).	Very Low (Negative)
14	Dust	Dust will be generated during the construction phase of the proposed development.	Low (Negative)	The following mitigation measures must be implemented: - Water must be sprayed if high levels of dust are generated by construction activities	Very Low (Negative)
Nature of Impact			**Impact Assessment Ranking and Proposed Mitigation**		
No.	**Aspect**	**Impact**	**Environmental Significance (without Mitigation)**	**Proposed Mitigation (i.e. Proposed mitigation to reverse/ avoid, manage or mitigate identified impacts associated with construction, operation, and decommissioning/ closure phases)**	**Environmental Significance (After Mitigation)**
OPERATIONAL PHASE					
15		Potential loss of vulnerable or endangered vegetation and associated habitat (No remnants of any indigenous	Very Low (Negative)		Very Low (Negative)

Nature of Impact			Impact Assessment Ranking and Proposed Mitigation (Preferred Alternative)		
No.	**Aspect**	**Impact**	**Environmental Significance (without Mitigation)**	**Proposed Mitigation (i.e. Proposed mitigation to reverse/ avoid, manage or mitigate identified impacts associated with construction, operation, and decommissioning/ closure phases)**	**Environmental Significance (After Mitigation)**
	Terrestrial biodiversity	vegetation type encountered on nor near proposed site)		-A suitably qualified Environmental Control Officer must be appointed to oversee the maintenance work of the project. -The ECO must beforehand approve all areas to be used for site offices or laydown areas. -All works should be kept within the existing disturbance footprint (most of the road shoulder falls within this category). -Any area that might still support indigenous species (even disturbed vegetation or areas being dominated by hardy shrubs such as *Searsia* species) should be protected. -Alien- and invasive species within the road reserve should be removed.	
		Potential impact on protected areas, CBAs, ESAs or Centres of Endemism (No such areas encountered on proposed site).	Very Low (Negative)		Very Low (Negative)
		Potential impact on threatened or protected plant species (No species of conservation concern encountered on and near proposed site).			Very Low (Negative)
16		Potential impact on mammals, reptiles, amphibians, fish	Low (Negative)		Low (Negative)
17		Potential impact on Avifauna (No nests nor individuals encountered on and near proposed site).	Very Low (Negative)		Very Low (Negative)
18	Freshwater	-Erosion of soil in Paaskloof River and on riparian areas near proposed site owing to disturbance by contractor's trucks and plant. - Pollution caused by littering and usage of the proposed site as outdoor toilet by labourers	Low (Negative)	- Keep disturbance area as small as possible and confine the disturbance to areas cultivated areas and other existing disturbed areas - Rehabilitate any damage caused by maintenance work to the riverbed and riverbanks as soon as the maintenance work is completed. - Provide refuse bins and portable toilets and implement a system of regular removal and lawful disposal of the waste during construction. In addition, train the labourers to appreciate proper disposal of waste	Very Low (Negative)
19	Visual	Proposed site may become less aesthetically appealing during maintenance work as a result of trucks and caterpillars etc that gather around	Low (Negative)	Complete the maintenance work as quickly as possible	Very Low (Negative)

Nature of Impact			Impact Assessment Ranking and Proposed Mitigation (Preferred Alternative)		
No.	**Aspect**	**Impact**	**Environmental Significance (without Mitigation)**	**Proposed Mitigation (i.e. Proposed mitigation to reverse/ avoid, manage or mitigate identified impacts associated with construction, operation, and decommissioning/ closure phases)**	**Environmental Significance (After Mitigation)**
20	Socio-economic	Creation of some short-term employment opportunities relating to maintenance work.	Low (Positive)	Mitigation not required	Low (Positive)

Nature of Impact			Impact Assessment Ranking and Proposed Mitigation ('No-go' alternative)		
No.	**Aspect**	**Impact**	**Environmental Significance (without Mitigation)**	**Proposed Mitigation (i.e. Proposed mitigation to reverse/ avoid, manage or mitigate identified impacts associated with construction, operation, and decommissioning/ closure phases)**	**Environmental Significance (After Mitigation)**
CONSTRUCTION PHASE					
1	Terrestrial biodiversity	N/A			
2		N/A			
3		N/A			
4		N/A			
5		N/A			

Nature of Impact			Impact Assessment Ranking and Proposed Mitigation ('No-go' alternative)		
No.	**Aspect**	**Impact**	**Environmental Significance (without Mitigation)**	**Proposed Mitigation (i.e. Proposed mitigation to reverse/ avoid, manage or mitigate identified impacts associated with construction, operation, and decommissioning/ closure phases)**	**Environmental Significance (After Mitigation)**
6	Freshwater ecology	N/A		Implement Preferred Alternative	
7	Heritage	N/A			N/A
8	Palaeontology	N/A			N/A
9	Agriculture	N/A			N/A
10	Visual	N/A			N/A
11	Socio-economic	N/A			
12	Traffic	N/A		-	
13	Noise	N/A		-	
14	Dust	N/A		-	

Nature of Impact			Impact Assessment Ranking and Proposed Mitigation		
No.	**Aspect**	**Impact**	**Environmental Significance (without Mitigation)**	**Proposed Mitigation (i.e. Proposed mitigation to reverse/ avoid, manage or mitigate identified impacts associated with construction, operation, and decommissioning/ closure phases)**	**Environmental Significance (After Mitigation)**
OPERATIONAL PHASE					
15		N/A			
		N/A			
		N/A			

Nature of Impact			Impact Assessment Ranking and Proposed Mitigation ('No-go' alternative)		
No.	**Aspect**	**Impact**	**Environmental Significance (without Mitigation)**	**Proposed Mitigation (i.e. Proposed mitigation to reverse/ avoid, manage or mitigate identified impacts associated with construction, operation, and decommissioning/ closure phases)**	**Environmental Significance (After Mitigation)**
16	Terrestrial biodiversity	N/A			
17		N/A			
18	Freshwater ecology	-Unchecked decline of indigenous fish species diversity in the Paaskloof River as a result of predation and undue competition by alien fishes	Low (Negative)	Approve the establishment of the proposed fish barrier	
19	Visual	N/A			
20	Socio-economic	N/A			