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 J – 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 5 - 15 years. Impact is reversible but only with on-going mitigation	Short-term The impact is expected to last for a relatively short time with rehabilitation expected to be 2-5 years. The impact is reversible through natural process and/or some mitigation.	Very short/ temporary The impact is expected to be temporary and last for a very short time with rehabilitation expected to be less than 2 years. The impact is easily 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		
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	Impact on Cultural, Archaeological, and Heritage Resources	Loss and/or damage to potential archaeological and historical sites within the construction footprint	Negligible	- Should any archaeological remains (including but not limited to fossil bones and fossil shells, coins, indigenous and/or colonial ceramics, any articles of value or antiquity, stone artefacts and bone remains, structures and other built features, rock art and rock engravings) are discovered during construction they must immediately be reported to HWC and must not be disturbed further until the necessary approval has been obtained from HWC. - Should any human remains/burial or archaeological material be disturbed, exposed or uncovered during construction, these should immediately be reported to the South African Heritage Resources Agency (021 462 4502) and Heritage Western Cape (021 483 9685). The ECO and ER are also to be informed. An archaeologist will be required to remove the remains at the expense of the developer - Note that the Contractor may not, without a permit issued by the responsible heritage resource authority; destroy, damage, excavate, alter, deface or otherwise disturb any archaeological site or archaeological material. The latter is a criminal offence under the Heritage Resources Act. - The Fossil Find Procedure must be implemented, should any fossil material be discovered during construction, this must be safeguarded (preferably *in situ*) and the Environmental Control Officer (ECO) should alert Heritage Western Cape so that appropriate mitigation (*e. g.* recording, sampling, or collection) can be taken by a professional palaeontologist.	Negligible
2	Impact on Palaeontological Resources	Loss and/or damage to potential fossils within the construction footprint	Negligible	Significant impacts on fossil heritage resources are not expected. The Fossil Find Procedure must be implemented. Should any fossil material be discovered during construction, this must be safeguarded (preferably *in situ*) and the Environmental Control Officer (ECO) should alert Heritage Western Cape so that appropriate mitigation (*e. g.* recording, sampling, or collection) can be taken by a professional palaeontologist.	Negligible

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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)**
3	Botanical	Loss of Winterhoek Sandstone Fynbos	High (Negative)	Bridge site: Allow vegetation to grow back naturally. This should be assisted by stabilising the riverbanks. Any *Prionium serratum* removed during construction should be retained and replanted to enhance the restorative process. Road section 1: Rehabilitation of vegetation in the abandoned section of road. Road section 2: Rehabilitation of vegetation in the abandoned section of road. Culverts must be built to allow the stream to flow naturally. Road section 3: Rehabilitation of vegetation in the abandoned section of road. Culverts must be built to allow the stream to flow naturally.	Medium (Negative)
4	Freshwater Resources	Construction of the bridge	Medium (Negative)	- Work must be done during the dry season, low flow conditions. - Downstream placement of sediment containing measures. - Due diligence to limit sediments washing down the river. - Vegetation of ramps and shoulders.	Low (Negative)
5		Construction of the road sections	Medium (Negative)	- Work must be done during the dry season, low flow conditions. - Downstream placement of sediment containing measures. - Due diligence to limit sediments washing down the river. - Limit footprint.	Low (Negative)
6	Socioeconomic	Creation of short- term employment opportunities.	Low (Positive)		
7	Dust	Dust may be generated during the construction of the proposed development.	Medium (Negative)	The Contractor must take all reasonable measures to minimize the generation of dust as a result of construction activities resulting from along-construction-route activities (but must also take into account possible water constrictions of the area). - The onsite construction site agent must take into account prevailing wind strength and wind direction and must have preventative measures on	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)**
				standby to minimize dust pollution that may cause damage to people and property. - The liberation of dust into the surrounding environment shall be effectively controlled by the use of, inter alia, water spraying and/or other dust-allaying agents. The speed of haul trucks and other vehicles must be strictly controlled to avoid dangerous conditions, excessive dust or excessive deterioration of the road being used. - Major earth-works to take place after harvest season	
8	Visual	Visual impact of construction activities and plant on site	Low (Negative)	- Construction activities limited to within the construction footprint - The contractor may not operate any machinery outside the demarcated area. - Appropriate machinery to be used	Low (Negative)
9	Traffic	Increase in trucks and construction plant	Medium (Negative)	Cognisance of traffic and other road users. Allowance for road users to bypass construction areas, without creating new routes into natural vegetation or watercourses.	Medium (Negative)
10	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)

OPERATION PHASE					
11	Freshwater Resources	Operation of the bridge and road sections	Medium (Negative)	- Maintain the road surface - Maintain storm water management infrastructure - Due diligence to limit sediments washing down the river	Low (Negative)
12	Visual	Visual impact of the bridge and roads	Negligible (Negative)	No mitigation necessary	Negligible (Negative)
13	Socio-economic	Creation of long-term employment opportunities.	Low (Positive)	No mitigation necessary	