

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.

IMPACT ASSESSMENT



SIGNIFICANCE CRITERIA	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
	Low	-2 to <-4
Insignificant	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
	Low	1 to <4

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	Low	<ul style="list-style-type: none"> - 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 Heritage Western Cape and must not be disturbed further until the necessary approval has been obtained from Heritage Western Cape. - Should any human remains/burial or archaeological material be disturbed, exposed or uncovered during construction, these should immediately be reported to Heritage Western Cape. The ECO and ER are also to be informed. An archaeologist will be required to remove the remains at the expense of the applicant. - Note that the Contractor must 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 <i>in situ</i>) and the Environmental Control Officer (ECO) should alert the Heritage Western Cape so that appropriate mitigation (e. g. recording, sampling, or collection) can be taken by a professional palaeontologist. 	Low (Negative)
2	Impact on Palaeontological Resources	Loss and/or damage to potential fossils within the construction footprint	Low	<p>Significant impacts on fossil heritage resources are not expected.</p> <p>The Fossil Find Procedure must be implemented. Should any fossil material be discovered during construction, this must be safeguarded</p>	Low (Negative)

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				(preferably <i>in situ</i>) and the Environmental Control Officer (ECO) should alert Heritage Western Cape so that appropriate mitigation (<i>i.e.</i> recording, sampling, or collection) can be taken by a professional palaeontologist at the expense of the applicant.	
3	Biodiversity	Loss of indigenous vegetation and indigenous fauna	Medium	<ul style="list-style-type: none"> • All construction must be done in accordance with an approved construction and operational phase Environmental Management Plan (EMP), which must be developed by a suitably experienced Environmental Assessment Practitioner. • A suitably qualified Environmental Control Officer must be appointed to monitor the construction phase in terms of the EMP and any other conditions pertaining to specialist studies. • Before any work is done the footprint must be clearly demarcated. The demarcation must aim at minimum footprint and minimisation of disturbance. • All alien invasive species within the footprint and or within 10 m of the footprint must be removed responsibly (a number of Blackwattle and Port Jackson were observed). • Indiscriminate clearing of any area outside of these footprints may not be allowed. • All employees and contractors must be sensitised to the fact that they are working within a Nature Reserve. • All wildlife must be protected, and employees must be warned against disturbing, injuring or killing any wild animals. • An integrated waste management approach must be implemented during construction. <ul style="list-style-type: none"> ○ Construction related general and hazardous waste may only be disposed of at approved waste disposal sites. 	Low (Negative)

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				<p>All rubble and waste should be collected and removed from the site to a Municipal approved waste disposal site.</p> <ul style="list-style-type: none"> • The aboveground section of the pipeline should be painted or coloured in such a way as to minimize its visibility within this natural landscape (it should not be visible from the Michells Pass). <p>Access and laydown areas</p> <ul style="list-style-type: none"> • Only the existing twee-spoor track, from the WTW towards up to the point where the pipeline starts to follow the old footpath, may be used for vehicle usage. • Laydown areas should be located on already disturbed areas, which in special instances may include some of the open disturbed areas, next to the Breede River, near the mouth of the Tierhokskloof River. • The existing footpath must be used for entrance to and from the inlet works up to the point where it meets the existing twee-spoor road (where the pipeline will be laid underground). • The footpath may be cleared and slightly enlarged, up to the point of being a suitable access road for future maintenance works (this footpath was always used for access and maintenance purposes). By ensuring that this footpath is easily accessible, it will discourage any additional footpaths or access routes being established over time. • Pipes must be transported onto the site by hand or by a small vehicle that will fit onto the footpath. The footpath may not be enlarged to allow normal vehicle access. 	

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				<p>Cement or concrete mixing</p> <ul style="list-style-type: none"> • Cement and concrete mixing must be done on impenetrable material (e.g., lined with plastic) and no wastewater from these areas may be allowed within any of the watercourses or rivers. • Rocks (for construction of the pedestals) should preferably be harvested from the footpath area (during the clearing of the footpath) or from the excavations when laying the underground pipeline section (near the WTW). The ECO must oversee and approve any other rock harvesting that might be needed. 	
4	Freshwater resources	Pollution and the modification of watercourse characteristics	Medium (Negative)	<p>-Pedestals must be manufactured for the placement of the new pipeline. These must be manufactured off site and transported to where they are required along the length of the new pipeline.</p> <p>-Do not create more access routes. Use the existing one.</p> <p>-The staging yard where materials will be assembled and from where it will be moved up the mountain must be kept as small as possible.</p> <p>-The pipeline must be elevated high enough above ground level that game such as rhee buck and steen buck can pass underneath.</p> <p>-A design of the intake structure, the weir, at the top of the pipeline must be submitted for evaluation by the appointed freshwater ecologist as well as by the environmental authorities.</p> <p>-Prevent loose soil, sediments and debris from moving down the Tierhoksloof Stream and Breede River along with storm water.</p> <p>-The pipeline and its pedestals must be of a colour that blends in with surrounding the environment.</p> <p>-An ECO must be appointed to oversee the project, to assure that the environmental imperatives are met.</p>	Low (Negative)
5	Socio-economic	Availability of short term employment opportunities during construction phase	Medium (Positive)	No mitigation measures applicable	

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6	Dust	Dust may be generated during the construction of the proposed development.	Low (Negative)	The Contractor must take all reasonable measures to minimize the generation of dust. -	Low (Negative)
7	Traffic	Increase in number of large vehicles delivering construction material near intersection of Michells Pass and small track located outside gate of Wittebrug WPP	Medium (Negative)	Cognisance of traffic and other road users.	Low (Negative)

OPERATIONAL PHASE

8	Freshwater Resources	Soil erosion and subsequent stream	Medium	Inspect the pipeline according to a schedule. Inspect pipes, fittings, valves, screen, pedestals.	Low (Negative)
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		siltation through muddy stormwater		Preventative maintenance, repair pipeline before any leaks occurs.	
9	Visual	Visual intrusion to onlookers travelling on Michells Pass	High (Negative)	Colour chosen for pipeline and pedestals must blend well into surrounding environment	Low (Negative)
10	Socio-economic	Reliable delivery of water abstracted from Tierhokskloof Stream to Wittebrug WPP for supplying potable water to the community of Wolseley	Low (Positive)	No mitigation measures applicable	