


## DOCUMENT CONTROL

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	<b>Title:</b> S24G Report to support the Bergvlam Stream Rehabilitation Plan	<b>Number:</b> 14906_PRO_ENV	<b>Revision:</b> 000	<b>Date:</b> 30 Nov '16
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## EXECUTIVE SUMMARY

Mbombela Local Municipality (MLM) is located on the foothills of the Drakensberg with many drainage lines, small streams and sensitive rocky areas. Most of these areas are zoned “Public Open Space” and are managed by MLM’s Parks and Environmental Departments. It’s the legacy of MLM to prevent pollution and ecological degradation, to promote conservation and secure ecological sustainable development and use of natural resources. It is therefore important for MLM to rehabilitate streams in urban areas with properties next to the stream, for tourists visiting the city, especially at the Crossings Shopping Centre and to protect biodiversity in green areas inside the CBD of Nelspruit.

The Bergvlam stream is one of the Public Open Spaces in Nelspruit’s residential area that have to be rehabilitated by MLM. The stream of 5,8km in length, started next to the R40 from the entrance of the Nelspruit TUT Campus, passing Laerskool Laeveld, Bergvlam High School, Crossings shopping centre, through Sonpark Industrial area, passing the Mercedes garage and at the back of MMC up to the Kamagugu road.

These open areas are sensitive but is highly eroded and disturbed with illegal waste dumpsites and overgrown indigenous invaders such as *Acacia ataxacantha*, but are mainly overgrown with exotic invader plant species such as *Lantana camara*, *Rucinus communis*, *Solanum mauritanum* (Bug weed), *Titonia diversifolia* (Mexican sunflower), *T. rotundifolia* (red sunflower), *Chromolaena dorata* (Triffid weed) and *Tecoma stans* (Yellow bells). The streams and drainage areas in Nelspruit are also used for bulk services such as the management of storm water from roads and residential areas, electrical cables as well as the gravity sewer and water pipe lines. The banks of the stream are eroded and unstable due to regular cyclone induced floods and natural storms every year from November till March. Houses that were constructed within 32m from the edge of the stream during the 1970’s and 80’s, experience problems with damages of foundations.

The Department of Technical Services, Roads and Storm water from MLM appointed Endecon Ubuntu (Pty) Ltd, consulting Engineers to determine the 1:100 year flood line, the conditions of storm water structures, erosion impacts and illegal settlements inside the parks areas in 2013/14 financial year. The report from Endecon Ubuntu (Pty) Ltd include recommendations to rehabilitate eroded areas, stabilized the 2-3m unstable banks next to houses and to manage the storm water during storm events to minimize the erosion effects and siltation in the stream. The Bergvlam Stream (Stream 10 in the report) was not assessable for the public with homeless people staying in the stream and criminals that hide in the bushes. Money was available for the project and unfortunately the employees started with clearing of vegetation in August 2015 before the Basic Assessment was submitted to DARDLEA for Environmental Approval.

This rehabilitation plan for the Bergvlam stream includes storm water management and structures in the stream to prevent flooding and further damage to neighbouring properties. The management of the stream flow of the stream during storm events include the re-alignment (deviation) of the stream, the construction of attenuation dams, stabilizing the banks with gabions; baskets, mats and polymer mats, maintenance of the culverts, storm water outlet structures and re-vegetation of the disturbed areas with indigenous riparian vegetation. The end use of the rehabilitation process includes projects such as: environmental education projects such as tree identification routes, birding areas and water monitoring projects, recreational activities such as cross-country training routes for Primary (5km) and Secondary schools (10Km) and open green areas for elderly persons to walk during the day. The main purpose of rehabilitation projects is to create a cleaner and safer environment for the public to understand the fragility of the environment and the importance to protect the biodiversity within the CBD of Nelspruit.

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The Rehabilitation plan will assist MLM to rehabilitate the stream on an environmental friendly manner and ensure future use of the stream. The predicted impacts and the evaluation thereof is summarised below. LIDWALA CONSULTING ENGINEERS were appointed to compile a rehabilitation plan for the Bergvlam Stream.

A summary of the assessment of identified potential impacts and risk

Phase	Nature of Impact	Duration	Probability	Direct/indirect	Extent	Consequences	Significance	
							Before	After Mitigation
Construction	Topography Soil & Geology -	Long term	Probable	Direct Cumulative	Local	Negative	Medium	Low
	Biodiversity: Loss of Fauna & Flora	Long term	Definite	Indirect	Local	Negative	Medium	Low
	Surface & groundwater	Long term	Probable	Indirect	Local	Negative	Medium	Low
	Air Quality & Noise pollution	Short term	Improbable	Indirect	Local	Negative	Low	Low
	Noise pollution	Short term	Improbable	Direct	Local	Negative	Low	Low
	Visual impact	Short term	Improbable	Direct	Local	Negative	Low	Low
	Socio-economy	Long term	Definite	Direct	Regional	Negative	Medium	High
	Heritage	Long term	Improbable	Direct	Local	Negative	Low	Low
	Bulk services	Long term	Probable	Direct	Local	Negative	High	Low
Operational	Topography Soil & Geology -	Long term	Probable	Direct Cumulative	Local	Negative	Medium	Low
	Biodiversity: Loss of Fauna & Flora	Long term	Definite	Indirect	Local	Negative	Medium	Low
	Surface & groundwater	Long term	Probable	Indirect	Local	Negative	Medium	Low
	Bulk services		Probable	Direct		Negative		
	Socio-economy	Long term	Definite	Direct	Local	Negative	Medium	High
	Heritage	Long term	Probable	Direct	Local	Negative	Low	Low

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