



**PROPOSED UPGRADING OF THE EMANZANA WATER TREATMENT  
WORKS (WTW), EMANZANA, CHIEF ALBERT LUTHULI LOCAL  
MUNICIPALITY, MPUMALANGA**

Draft Basic Assessment Report

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## EXECUTIVE SUMMARY

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Chief Albert Luthuli Local Municipality proposes increasing the existing Water Treatment Works (WTW) capacity from 3 ml to 5 ml per day and applying for the abstraction of additional water from the Seekoeispruit. The upgrade will serve the eManzana (Badplaas) area in Wards 17 and 23. As part of the upgrading activities, the following is proposed:

- New sedimentation tank;
- New sand filters;
- New 2.5ML Reservoir;
- Upgrade of an existing pump from 4m<sup>2</sup> to 10m<sup>2</sup>; and
- New 300mm diameter pipeline of approximately 1 km from the Seekoeispruit to the existing WTW.
- This pipeline will also be traversing a watercourse.

As activities will be taking place within a watercourse, an Environmental Authorisation (EA) and Water Use License (WUL) is required in accordance with the National Environmental Management Act of 1998 (No.107 of 1998) GNR 983 of 2014 (as amended in 2017), and the National Water Act of 1998 (No.36 of 1998) before these upgrading activities can commence.

The proposed upgrade project will be an addition to the existing infrastructure supplying the eManzana area. Consequently, only the installation of the pipeline component requires an Environmental and Water Use Authorization due to the abstraction of water from a watercourse as well as the pipeline traversing a tributary of the Seekoeispruit. The other components of the infrastructure upgrade do not trigger any listed activities.

Core Environmental Services was subsequently appointed as an independent Environmental Consultant, to apply for the Environmental Authorisation by means of conducting a Basic Environmental Authorisation Application process in accordance with GNR 983, 2014 (as amended in 2017). The application for Environmental Authorisation will be submitted to the Department of Agriculture, Rural Development, Land and Environmental Affairs (DARLDEA) for consideration.

As the proposed eManzana WTW upgrade is proposed along existing infrastructure, no site alternatives were investigated for this application. Following an impact evaluation, it was concluded that the proposed route will have no detrimental effects on the receiving environment. Additionally, the proposed activity does not have alternatives as it is an upgrade of the existing water treatment works and the proposed pipeline runs along the boundary fence of the Badplaas Forever Resorts. For this reason, this pipeline route was found to have the least impact.

The establishment of the development area is likely to result in environmental and socio-economic impacts. The identified impacts are listed below:

- *Impact on biodiversity;*
- *Generation of dust;*
- *Impact on soils and erosion;*
- *Traffic Impact*
- *Visual and Aesthetics;*
- *Impact on water resources;*
- *Socio-economic impact;*

- *Waste; and*
- *Cultural and Heritage Resources.*

The table below summarises the impacts identified and assessed for the establishment and operation of the project:

SECTION	IMPACT	SIGNIFICANCE BEFORE MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION MEASURES
<b>Construction Phase Impacts</b>			
7.1.1	Biodiversity Impact	Very Low	Very Low
7.1.2	Generation of dust	Low	Very Low
7.1.3	Soil pollution	Low	Very Low
	Soil Erosion	Low	Very Low
	Soil compaction	Low	Very Low
7.1.4	Traffic Impact	Very Low	Very Low
7.1.5	Visual and Aesthetics	Very Low	Very Low
7.1.6	Impact on water resources	Medium	Low
7.1.7	Socio-economic Impact	Medium (+)	Medium (+)
	Health and Safety	Low	Very Low
7.1.8	Waste	Low	Very Low
7.1.9	Cultural and Heritage Resources	Very Low	Very Low
<b>Operational Phase Impacts</b>			
7.2.1	Flora and Fauna	Low	Very Low
7.2.2	Impact on water resources	Low	Very Low
7.2.3	Socio-economic Impact	High (+)	High (+)

The assessment of the possible impacts associated with the construction and operational activities, concluded that the impact on the surrounding environment is of **low to very low significance**. Recommendations have however been made to address the impacts which could affect the biophysical and socio-economic environment. Recommendations for the mitigation of impacts are included within **Section 7** and also the Draft Environmental Management Plan attached.

It is the opinion of the EAP that the EA for this project should be granted, and the proposed mitigation included as the conditions of the authorisation.

# TABLE OF CONTENTS

<b>EXECUTIVE SUMMARY</b> .....	<b>2</b>
<b>TABLE OF CONTENTS</b> .....	<b>4</b>
<b>1. OVERVIEW OF THE PROJECT</b> .....	<b>7</b>
1.1 Introduction .....	7
1.2 Location and Accessibility .....	8
1.3 Details of the EAP .....	12
1.4 Policy, Legal and Administrative Framework .....	13
1.5 National Environmental Management Act, 1998 (No. 107 of 1998) .....	14
1.6 Description of the project .....	15
1.7 Need and Desirability .....	16
<b>2. PUBLIC PARTICIPATION PROCESS</b> .....	<b>17</b>
<b>3. CONSIDERATION OF ALTERNATIVES</b> .....	<b>18</b>
3.1 Alternative Selection .....	18
3.1.1 Location alternatives .....	18
3.1.2 Design Alternatives .....	18
3.1.3 No-Go alternative .....	18
<b>4. DESCRIPTION OF THE AFFECTED ENVIRONMENT</b> .....	<b>20</b>
4.1 Topography .....	20
4.2 Climate .....	21
4.3 Terrestrial Ecology .....	21
4.4 Surface and Groundwater .....	25
4.5 Land use .....	26
4.6 Geology and Soils .....	26
4.7 Heritage .....	29
4.8 Socio-Economic Environment .....	29
<b>5. SPECIALIST ASSESSMENT REQUIREMENTS AS IDENTIFIED IN THE SCREENING REPORT</b> .....	<b>30</b>
<b>6. METHODOLOGY OF ASSESSING THE SIGNIFICANCE OF IMPACTS</b> .....	<b>31</b>
<b>7. ENVIRONMENTAL IMPACT ASSESSMENT</b> .....	<b>35</b>
7.1 Impacts during the construction process .....	35
7.1.1. Impact on biodiversity .....	35
7.1.2. Generation of dust .....	36
7.1.3 Impact on soils and erosion .....	37
7.1.4. Traffic Impact .....	38
7.1.5. Visual and Aesthetics .....	39
7.1.6 Impact on water resources .....	40
7.1.7 Socio-economic Impact .....	41
7.1.8. Waste .....	42
7.1.9. Cultural and Heritage Resources .....	43
7.2 Operational Phase Impacts .....	44
7.2.1. Impact on flora and fauna .....	44
7.2.2. Impact on water resources .....	45
7.2.3. Socio-economic Impact .....	46

7.3 Environmental Impact Statement .....	47
<b>8. CONCLUSION AND WAY FORWARD.....</b>	<b>48</b>
8.1 Assumptions and Limitations.....	48
8.2 Conclusion .....	48
8.3 Way Forward .....	49
<b>9. REFERENCES.....</b>	<b>50</b>

## LIST OF FIGURES

Figure 1: Locality Map of Emanzana Water Treatment Works upgrade, emanzana, Chief Albert Luthuli Local Municipality .....	9
Figure 2: Emanzana Water Treatment Works upgrade Service Area, Badplaas, Chief Albert Luthuli Local Municipality .....	10
Figure 3: Emanzana Water Treatment Works upgrade Abstraction Point SeekoeispruiT River, eManzana (Badplaas), Chief Albert Luthuli Local Municipality.....	11
Figure 4: Contour Map For The Proposed Pipeline Water Crossing, Emanzana Water Treatment Works Upgrade, Chief Albert Luthuli Municipality.....	20
Figure 5: Terrestrial Biodiversity Map For The Proposed Pipeline Water Crossing, Emanzana Water Treatment Works Upgrade, Chief Albert Luthuli Municipality .....	22
Figure 6: Vegetation Map For The Proposed Pipeline Water Crossing, Emanzana Water Treatment Works Upgrade, Chief Albert Luthuli Municipality.....	23
Figure 7: Biome Map For The Proposed Pipeline Water Crossing, Emanzana Water Treatment Works Upgrade, Chief Albert Luthuli Municipality .....	24
Figure 8: Aquatic Biodiversity Map For The Proposed Pipeline Water Crossing, Emanzana Water Treatment Works Upgrade, Chief Albert Luthuli Municipality .....	25
Figure 9: NFEPA Map For The Proposed Pipeline Water Crossing, Emanzana Water Treatment Works Upgrade, Chief Albert Luthuli Municipality.....	26
Figure 10: Soils Map For The Proposed Pipeline Water Crossing, Emanzana Water Treatment Works Upgrade, Chief Albert Luthuli Municipality .....	27
Figure 11: Soil Class Map For The Proposed Pipeline Water Crossing, Emanzana Water Treatment Works Upgrade, Chief Albert Luthuli Municipality.....	28

## LIST OF TABLES

Table 1: Legislation applicable to the project .....	13
Table 2: Assessment criteria for the evaluation of impacts.....	31
Table 3: Definition of significance ratings .....	32

Table 4: Definition of probability ratings .....	33
Table 5: Definition of confidence ratings .....	33
Table 6: Definition of reversibility ratings.....	33
Table 7: Significance of Biodiversity Impact.....	36
Table 8: Dust Generation.....	36
Table 9: Impact on Soil .....	37
Table 10: Traffic Impact .....	39
Table 11: Visual and Aesthetics .....	40
Table 12: Impact on water resources .....	41
Table 13: Socio-Economic Impact.....	41
Table 14: Waste.....	43
Table 15: Cultural and heritage impact.....	43
Table 16: Significance of Biodiversity Impact.....	44
Table 17: Impact on water resources .....	45
Table 18: Socio-Economic Impact.....	46
Table 19: Environmental Impact Statement .....	47

## APPENDICES

- Appendix A: Locality Map and Designs
- Appendix B: Site Photos
- Appendix C: Public Participation Process
- Appendix D: Environmental Management Plan

## ABBREVIATIONS

BAR	Basic Assessment Report
CBA	Critical Biodiversity Area
EA	Environmental Authorisation
GNR	General Notice Regulation
I&AP	Interested and Affected Party
IDP	Integrated Development Framework
LIA	Late Iron Age
MDARDLEA	Mpumalanga Department of Agriculture, Rural Development, Land and Administration
NEMA	National Environmental Management Act, 1998 (No. 107 of 1998)
NFEPA	National Freshwater Ecosystem Priority Areas
NHRA	National Heritage Resources Agency
PPP	Public Participation Process
SACAA	South African Civil Aviation Authority
WTW	Water Treatment Works

# 1. OVERVIEW OF THE PROJECT

---

## 1.1 Introduction

The Chief Albert Luthuli Local Municipality is proposing to upgrade the existing Water Treatment Works (WTW) from 3 ML to 5 ML per day and apply for the abstraction of additional water from the Seekoetspruit. The upgrade of the WTW would only trigger a listed activity as per the National Environmental Management Act 107 of 1998, if the proposed capacity was more than 50ML per day. The local municipality is also proposing a new 300mm diameter Ø PVC pipeline which is approximately 1 km in length, from the abstraction point in Seekoetspruit to the existing Water Treatment Works. The pipeline will pass through a watercourse and as this activity will entail the moving, removal or infilling of more than 10m<sup>3</sup> of soil, this is the only component that will initiate a listed activity in accordance with the National Environmental Management Act 107 of 1998, within the upgrading project. As a result, both an environmental authorization and a water use license application is required for the proposed activity taking place within a watercourse.

The pump station located adjacent to the Seekoetspruit, near the abstraction point will be upgraded by adding 16m<sup>2</sup> to the footprint of this pump station. As part of the Water Treatment Works upgrading activities, the following is also proposed:

- New sedimentation tank;
- New sand filters; and
- New 2.5ML Reservoir.

**Core Environmental Services** was subsequently appointed as an independent Environmental Consultant, to apply for the Environmental Authorisation by means of conducting a Basic Environmental Authorisation Application process in accordance with GNR 982, 2014 (as amended in 2017). The application for Environmental Authorisation will be submitted to the Department of Agriculture, Rural Development, Land and Environmental Affairs (DARLDEA) for consideration. As activities will be taking place within a watercourse and an additional 2ML per day is proposed to be abstracted from the Seekoetspruit, a Water Use License will also be required in accordance with Section 21 of the National Water Act 36, of 1998 for the abstraction of water, as well as impeding or diverting the flow of water in a watercourse and altering the bed, banks, course of characteristics of a watercourse during the construction as well as operational phase of the project.

The objective of this report is to provide a description of the activity; description of alternatives considered; description of property and location; description of the receiving environment; public participation process followed; legislative requirements; need and desirability; feasibility of the project; and significant impacts. This report is meant to disclose environmental effects of the proposed activity. Moreover, to guide the developer or contractor to avoid or minimise the environmental impacts that may be consequential to the proposed pipeline development and associated infrastructure through mitigation and management measures contained in the Environmental Management Programme (EMPr) of the report.

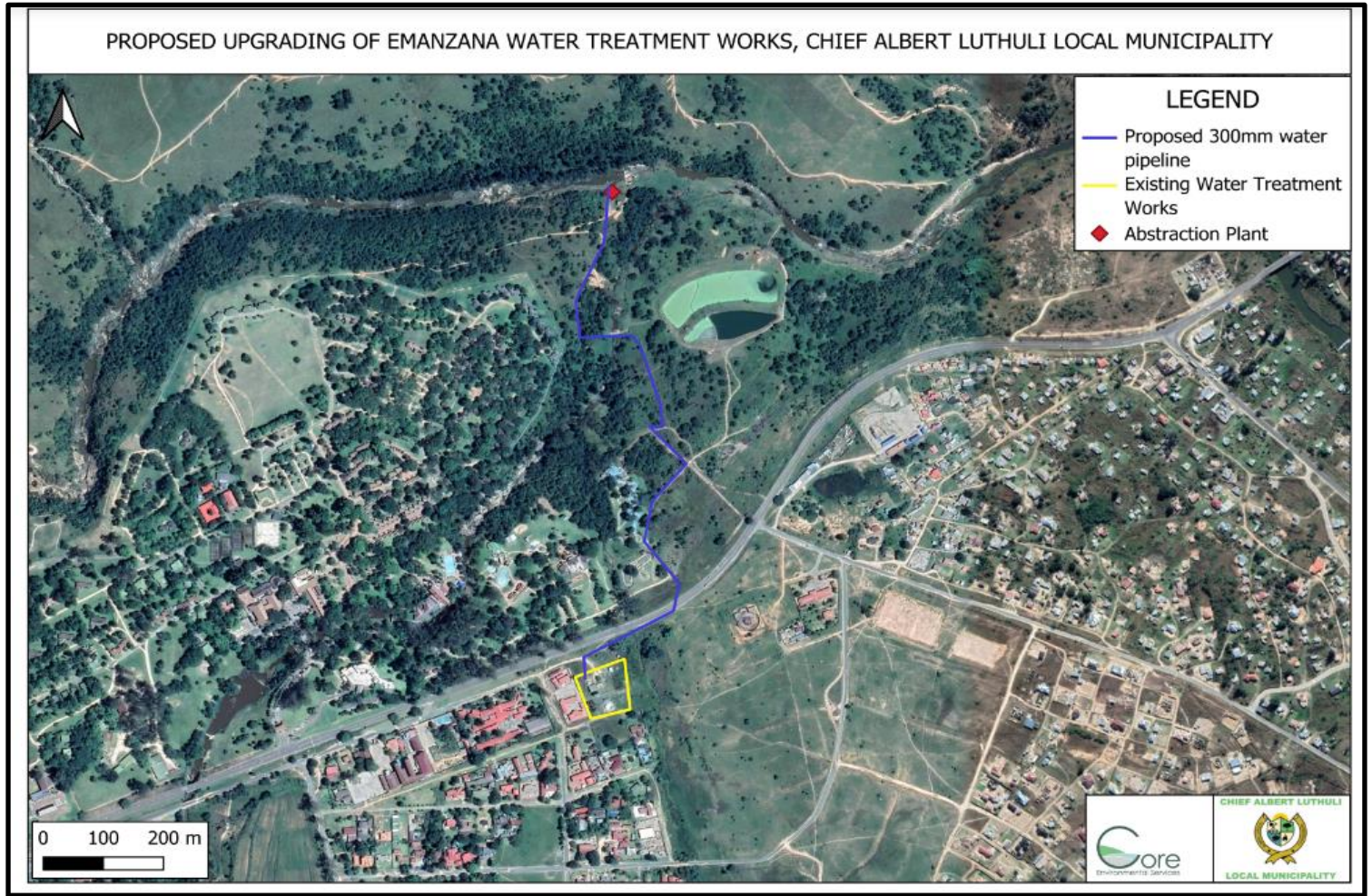
## 1.2 Location and Accessibility

The proposed pipeline and existing Water Treatment Works (WTW) are located on Portion 14 and 15 of the farm Doornpoort 724-JT, Ward 17 and 23 of Badplaas (eManzana), Mpumalanga Province. The Water Treatment Works is situated along the R38 and the proposed pipeline moves in a northern direction from the WTW where it connects with the Seekoeispruit approximately 1km from the existing WTW. The following coordinates provides reference for the project location:

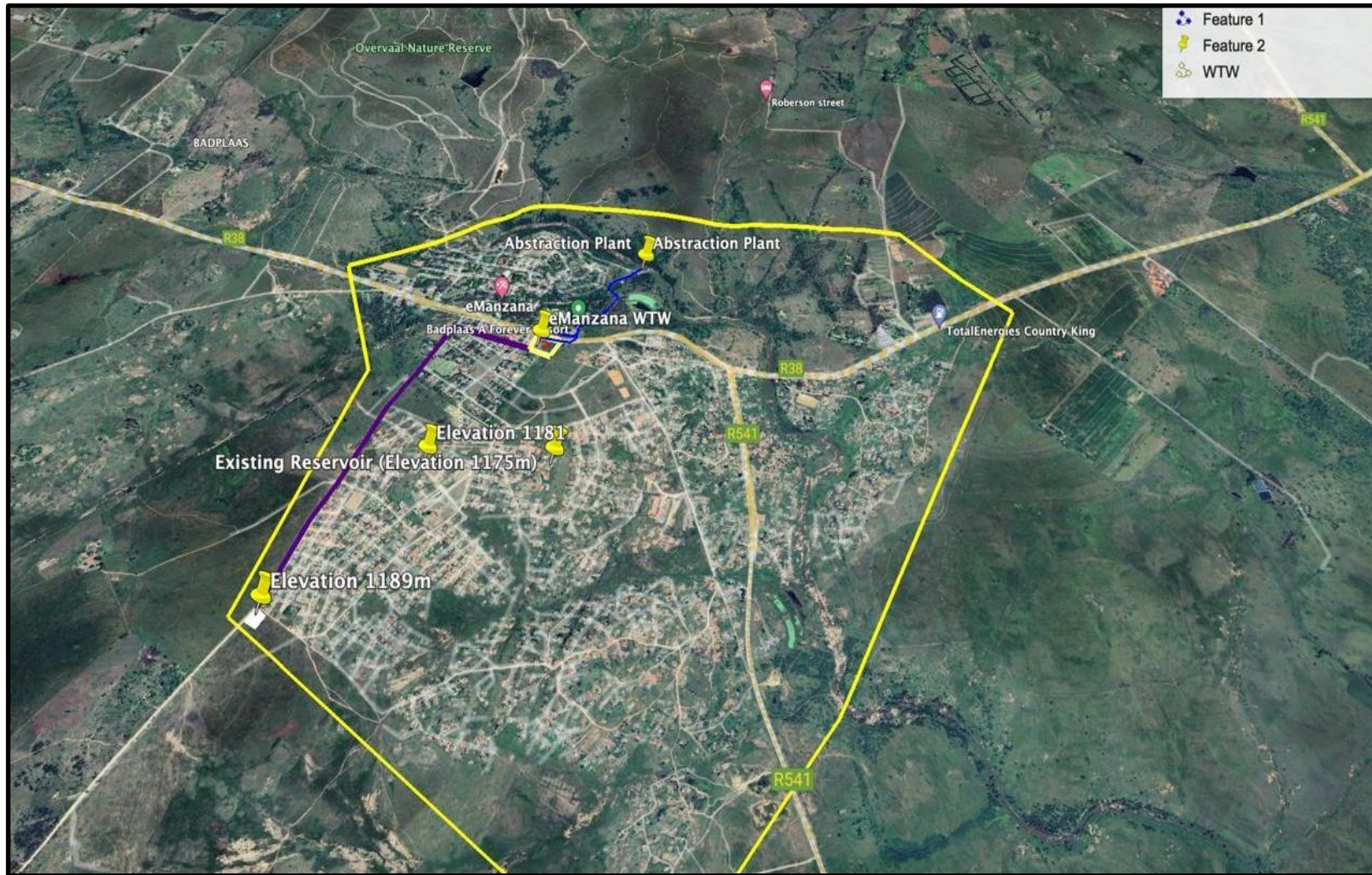
<u>Water Treatment Works:</u>	<u>Pipeline Mid-point:</u>	<u>Abstraction point:</u>
25°57'21.65"S	25°57'08.22"S	25°56'52.12"S
30°34'5.74"E	30°34'10.60"E	30°34'06.10"E

Accessibility to the project site is achieved through the regional road R38.

The objective of this report is to provide a description of the activity; description of alternatives considered; description of property and location; description of the receiving environment; Public Participation process followed; legislative requirements; need and desirability; feasibility of the project; and significant impacts. This report is meant to disclose environmental effects of the proposed activity. Moreover, to guide the developer or contractor to avoid or minimise the environmental impacts that may be consequential to the proposed pipeline development and associated infrastructure through mitigation and management measures contained in the Environmental Management Programme (EMPr) of the report.



**FIGURE 1: LOCALITY MAP OF EMANZANA WATER TREATMENT WORKS UPGRADE, EMANZANA, CHIEF ALBERT LUTHULI LOCAL MUNICIPALITY**



**FIGURE 2: EMANZANA WATER TREATMENT WORKS UPGRADE SERVICE AREA, BADPLAAS, CHIEF ALBERT LUTHULI LOCAL MUNICIPALITY**



**FIGURE 3: EMANZANA WATER TREATMENT WORKS UPGRADE ABSTRACTION POINT SEEKOEISPRUIT RIVER, EMANZANA (BADPLAAS), CHIEF ALBERT LUTHULI LOCAL MUNICIPALITY**

### 1.3 Details of the EAP

Mrs. Anne-Mari Hitge is an Environmental Specialist, who started her studies at the North-West University (NWU) and completed her Bachelor of Science: Environmental Management at the University of South Africa (UNISA) in 2007. Mrs. Hitge is registered with the Environmental Assessment Practitioners Association of South Africa (EAPASA Reg No: 2020/602) as well as the South African Council for Natural Scientific Professionals as a Certificated Natural Scientist (Reg. No 300067/15). In addition to her qualification, she completed short courses in soil classification and wetland delineations (Terrasoil Science), Geographic Information Systems (University of KwaZulu-Natal), and Environmental Impact Assessments (NWU).

## 1.4 Policy, Legal and Administrative Framework

TABLE 1: LEGISLATION APPLICABLE TO THE PROJECT

Applicable legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments considered	Project application and type (permit / licence / authorisation / comment)
<p>The Constitution of South Africa, 1996 (No. 108 of 1996)</p>	<p><b>Chief Albert Luthuli Local Municipality</b> will be required to adhere to the Environmental Management Programme (EMPr) requirements to ensure that social and environmental management considerations are considered and implemented.</p> <p>As per Section 25 the Constitution, a public participation process (PPP) was and will continue to be undertaken, as this is considered to be an essential mechanism for informing stakeholders of their rights and obligations in terms of the project.</p> <p>Section 24 of the Constitution provides for an environmental right. The State is obliged “to respect, protect, promote and fulfil the social, economic and environmental rights of everyone...”</p> <p>The environmental right states that: “Everyone has the right -</p> <ol style="list-style-type: none"> <li>a) To an environment that is not harmful to their health or well-being; and</li> <li>b) To have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that: <ul style="list-style-type: none"> <li>• Prevent pollution and ecological degradation;</li> <li>• Promote conservation; and</li> <li>• Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.”</li> </ul> </li> </ol> <p>The undertaking of the BA process is in line with the state’s obligations as outlined in the Constitution in its effort to foster sustainability.</p>
<p>National Environmental Management Act, 1998 (No. 107 of 1998)</p>	<p>Environmental Authorisation will subsequently be applied for by means of conducting a Basic Environmental Authorisation process as regulated within GNR 982 of 2014 (as amended in 2017).</p>
<p>National Water Act 36, 1998 (No. 36 of 1998)</p>	<p>This Act provides for fundamental reform of law relating to water resources and use. The preamble to the Act recognises that the ultimate aim of water resource management is to achieve sustainable use of water for the benefit of all users and that the protection of the quality of water resources is necessary to ensure sustainability of the nation’s water resources in the interests of all water users.</p>

	<p>The project entails the construction of a water pipeline through a watercourse as well as the abstraction of additional water from the Seekoeispruit and for this reason an application is submitted to the Inkomati-Usuthu Catchment Management Agency (IUCMA)</p>
<p>National Biodiversity Act, 2004 (No. 10 of 2004)</p>	<p>The act provides for the management and conservation of South Africa's biodiversity within the framework of the National Environmental Management Act, 1998; the protection of species and ecosystems that warrant national protection; the sustainable use of indigenous biological resources, the fair and equitable sharing of benefits arising from bioprospecting involving indigenous biological resource; the establishment and functions of a South African National Biodiversity Institute; and for matters connected therewith.</p> <p>The National Biodiversity Act, 2004, must therefore be considered prior to the clearance of vegetation to minimise the impact on the terrestrial biodiversity.</p>
<p>Occupational Health and Safety Act, 1998 (No. 85 of 1998)</p>	<p>The Act provides for the health and safety of people at work and for the health and safety of people using plant and machinery.</p> <p>During establishment, work must be conducted with strict adherence to the Occupational Health and Safety Act 85 of 1998.</p>
<p>National Heritage Resources Act, 1999 (No. 25 of 1999)</p>	<p>This legislation aims to promote good management of the national estate, and to enable and encourage communities to nurture and conserve their legacy so that it may be bequeathed to future generations.</p> <p>Should any other items of significance be discovered during establishment, a Heritage Specialist must be contacted immediately, and work must cease until confirmation from the Specialist is received. For this reason, the applicant must adhere to the regulations stipulated within the National Heritage Resources Act, 1999.</p>
<p>Chief Albert Luthuli Integrated Development Plan (IDP) (Draft 2020 - 2021)</p>	<p>The primary objectives of the IDP are to improve access to basic water services, create jobs and improve infrastructure within the province.</p> <p>Job opportunities will be created by the proposed activities which support economic growth within the area as well as contributing to improving infrastructure that contributes to the goals listed within the IDP.</p>

## 1.5 National Environmental Management Act, 1998 (No. 107 of 1998)

The Environmental Impact Assessment (EIA) process, applicable to this application, is determined by the amendments to the Environmental Impact Assessment Regulations, 2014, published in Government Notice R982 (as amended in 2017) promulgated under Chapter 5 of the National Environmental Management Act, 1998 (No. 107 of 1998) (NEMA).

The aforementioned EIA regulations inter alia outline the procedure for two types of EIA processes and provide a description of activities that would require authorisation through either:

- a *Basic Assessment* in terms of GNR 983 and GNR 985 (Listing notices 1 and 3) of 2014, as amended in 2017; or
- *Scoping and Environmental Impact Assessment* in terms of GNR 984 (Listing Notice 2) of 2014, as amended in 2017.

The listed activity associated with the proposed eManzana Water Treatment Works and pipeline upgrade falls within GNR 983 (Listing notices 1). Only the pipeline component triggers a NEMA listed activity due to the abstraction of water from a watercourse. All other components of the proposed upgrade do not trigger any listed activities. Consequently, they do not require an environmental authorization and impact assessment. For this reason, the following listed activity in terms of Listing Notice 1, GNR 983 of 2014 (as amended in 2017), is applied for:

GNR 983, Activity 19: *The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock or more than 10 cubic metres from (i) a watercourse.*

It is proposed that approximately 50m<sup>3</sup> of soil will be moved and/or excavated to construct the water pipeline within the watercourse.

The proposed project is a 1 km linear project and has a diameter of 300mm. The impacts which are caused by this type of activity are mostly known, at a smaller scale and can usually be easily managed or mitigated. Therefore, a **Basic Assessment (BA)** procedure will apply to this application.

The proposed upgrade project is also required to obtain a Water Use License in terms of Section 21 (a), (c) and (i) of the National Water Act, 1998 (No. 36 of 1998). This will be required as it is proposed that additional water be abstracted from the Seekoiespruit and activities will also be undertaken within a watercourse. This authorisation is a separate application process from the BA process. Application for a WUL will therefore be made in terms of the National Water Act 36 of 1998 for the water uses:

- Section 21(a) – Abstraction of water from a water resource;
- Section 21 (c) – Impeding or diverting the flow of water within a watercourse; and
- Section 21 (i) – Altering the bed, banks, flow or characteristics of a watercourse.

## 1.6 Description of the project

Chief Albert Luthuli Local Municipality proposes upgrading the existing Water Treatment Works (WTW) capacity from 3 ML to 5 ML per day and applying for the abstraction of additional water from

the Seekoeispruit. The upgrade will serve the eManzana (Badplaas) area. As part of the upgrading activities, the following is proposed:

- New sedimentation tank;
- New sand filters;
- New 2.5ML Reservoir;
- Upgrade of an existing pump from 4m<sup>2</sup> to 10m<sup>2</sup>; and
- New 300mm diameter pipeline of approximately 1 km from the Seekoeispruit to the existing WTW.
- This pipeline will also be traversing a watercourse.

## 1.7 Need and Desirability

Access to water services is a basic human right stipulated in the Constitutional Bill of Rights. The National Development Plan and sixth Sustainable Development Goal recognises the importance of secure and equitable access to water and sanitation for all and as catalysts for socio-economic development. The proposed pipeline forms part of the priority capital programs and projects for service delivery as stated in the Chief Albert Luthuli Municipality's Integrated Development Plan (Draft IDP 2020/2021).

There is a need to advance the infrastructural requirements of the area, ultimately allowing for the improved basic provision of water. According to the Draft IDP, the Municipality supplies water under difficult conditions to almost 95% of the population of which the majority is in rural towns. The Municipality is also faced with the challenge of ageing infrastructure, resulting in high water losses, and disruptions of water supply. Although a water supply scheme is existing in the eManzana area, it is failing to meet the capacity to provide sufficient potable water needs and demands required by residents. Population growth is expected to naturally increase in the next few years, further putting constraints to the current supply versus the demand.

The residents in the vicinity of the pipeline will also benefit through the additional water supply available to development projects and programmes within the immediate area. The proposed pipeline and WTW upgrade addresses a basic need of water and will reduce the risk of an influx of unauthorized boreholes in the area, which might have a greater negative impact on water resources.

Chief Albert Luthuli Municipality has a population of 187 630 people who are accommodated by 53 480 households (Draft IDP, 2020/2021), 9 824 of these households do not have access to piped or tap water (StatsSA Community Survey, 2016). With the building of this pipeline, it will increase the number of households that have access to tap/piped water. According to the 2016 Statistics SA Community Survey, there are 43,656 households with piped water, accounting for 81.6% of all households. This is slightly lower than the 81.8% access in 2011. A number of 9,824 or 18.4% of households are still without access to piped water in 2016, which is needs to be addressed.

## 2. PUBLIC PARTICIPATION PROCESS

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The purpose of this chapter is to provide an outline of the public participation process (PPP) to date and the way forward with respect to the Basic Assessment process. Consultation with the public forms an integral component of the EA process. This process enables Interested and Affected Parties (I&APs) (e.g. directly affected landowners, national-, provincial- and local authorities, and local communities etc.) to raise their issues and concerns regarding the proposed activities, which they feel should be addressed in the BA process. The PPP has thus been structured such as to provide I&APs with an opportunity to gain more knowledge about the proposed project, to provide input through the review of documents/reports, and to voice any issues or concerns at various stages throughout the BA process.

I&APs were identified during the public participation phase of the project. All the parties identified as an I&AP (surrounding landowners, relevant departments, stakeholders, local and district authorities) have automatically been registered in the I&APs database for the project. The registered I&AP list is attached as **Annexure C.1**.

In effort to engage potential stakeholders, different communication methods were used to inform them about the project and how to get involved in the BA process. These methods include:

- Distributing English Background Information Documents (BIDs) to all registered I&APs on 16 April 2024, proof of which is attached in **Annexure C.2**;
- Placement of media advert in a local newspaper (The Mpumalanga News) on 24 April 2024 (see **Annexure C.3**).
- Placing of a notice at the proposed site took place on 12 April 2024 (see **Annexure C.4**)

The draft Basic Assessment Report will be made available for public review from June 2024 – July 2024.

To date, no comments have been received.

## 3. CONSIDERATION OF ALTERNATIVES

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The EIA process requires the developer to identify and investigate/assess feasible and reasonable alternatives. The project alternatives range from the location where the activity is proposed, type of activity to be undertaken, design of the activity, technology to be used in the activity to the option of not implementing the activity (No-Go Alternative).

The assessment of the alternatives is a complicated and multi-faceted issue, which is essential to the success of this application and ultimately to the proper, responsible and sustainable operation of the proposed project.

### 3.1 Alternative Selection

#### 3.1.1 Location alternatives

As the proposed eManzana WTW Upgrade is proposed along existing infrastructure, no site alternatives were investigated for this application. As for the proposed locality where the water pipeline will be crossing the watercourse, the area directly adjacent to an existing bridge was found to be the preferred option, as this area was previously disturbed.

Following an impact evaluation, it was concluded that the proposed route will have no detrimental effects on the receiving environment. Additionally, the proposed activities associated within the Water Treatment Plant does not have alternatives as it is an upgrade of the existing water treatment works.

#### 3.1.2 Design Alternatives

When comparing the types of materials to be used for the water pipeline, there are two options, PVC pipeline or steel pipeline. When comparing the two pipelines, it is noted that steel pipelines are stronger and more durable than PVC pipelines. PVC pipelines are more susceptible to damage from impact and can result in costly repairs. Another advantage of steel pipes over PVC pipes, is their ability to withstand high temperatures. While steel pipelines are more expensive than PVC pipes upfront, they offer a better return on investment in the long run with less maintenance being required.

For the above reasons, the preferred design/material for the pipeline is steel.

#### 3.1.3 No-Go alternative

The no-go alternative would be not to authorise the application for the watercourse crossing of the proposed pipeline for the upgrade of the eManzana Water Treatment Works. Should this

alternative be favourable, the new water pipeline would not be able to reach the existing WTW to ensure that more water is supplied to the town of eManzana.

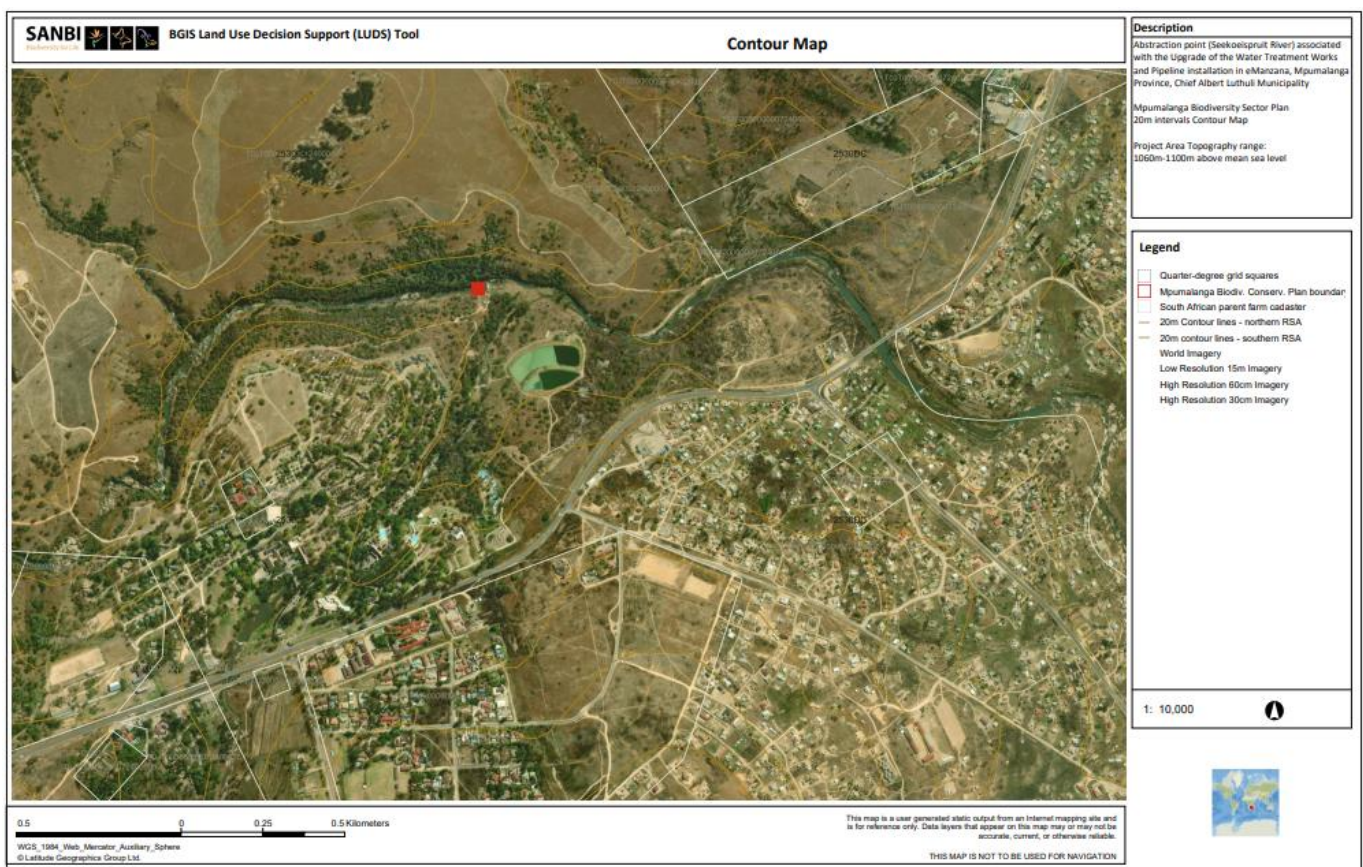
The impacts associated with the proposed construction process were not found to be so severe for the no-go alternative to be further investigated. The environmental impacts associated with the proposed pipeline are considered an acceptable level and can be effectively managed with the implementation of effective mitigation methods. Therefore, the no-go alternative was not further investigated.

## 4. DESCRIPTION OF THE AFFECTED ENVIRONMENT

The description of the affected environment below draws on existing knowledge from published data, previous studies, specialist investigations, site visits to the area and is used to understand the possible effects of the proposed project on the environment.

### 4.1 Topography

The topography of the project area ranges between 1060m to 1100m above mean sea level. The slope gradient of the project area is generally flat and does not hinder the proposed upgrade.



**FIGURE 4: CONTOUR MAP FOR THE PROPOSED PIPELINE WATER CROSSING, EMANZANA WATER TREATMENT WORKS UPGRADE, CHIEF ALBERT LUTHULI MUNICIPALITY**

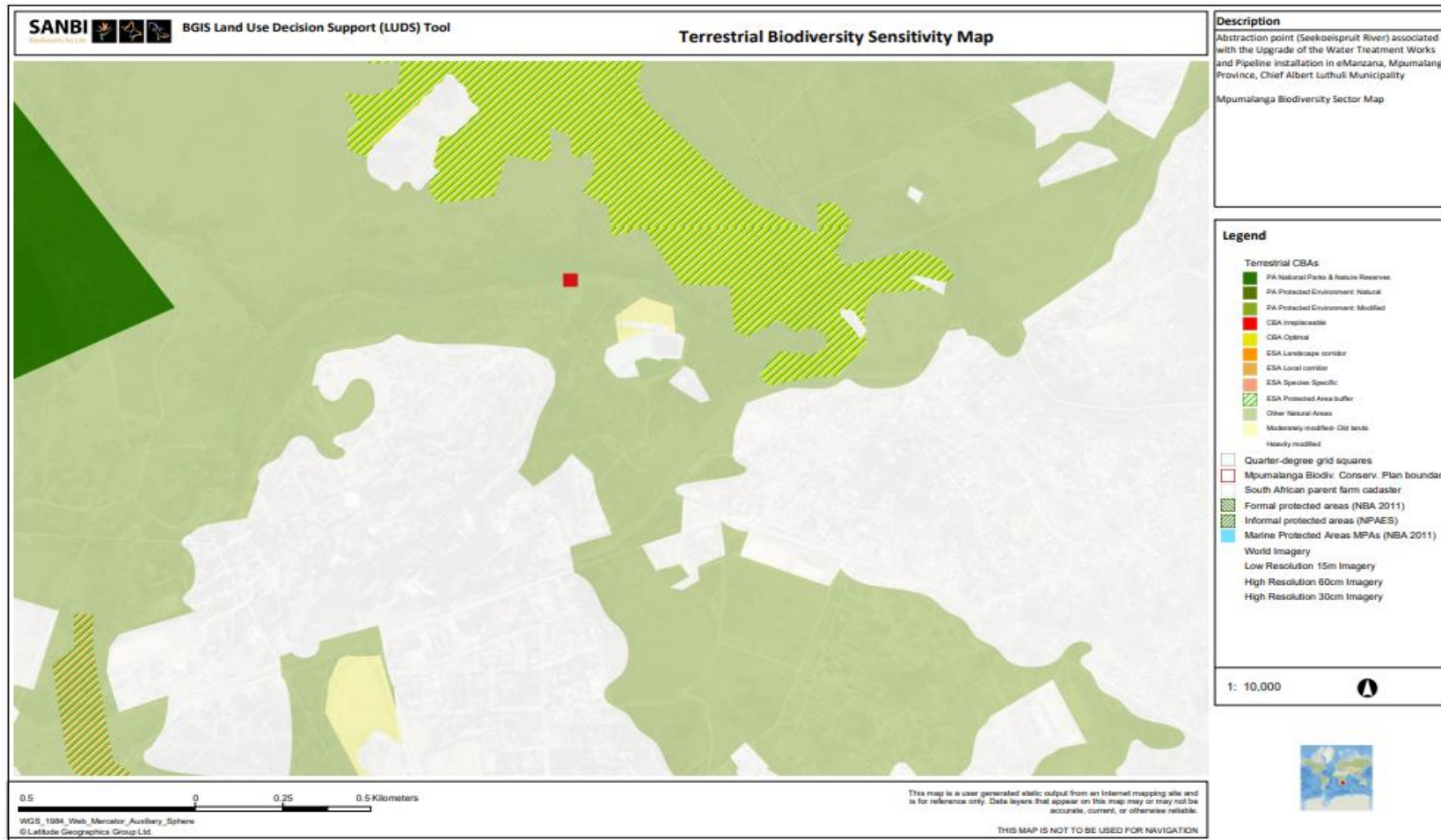
## 4.2 Climate

Mpumalanga is a province where the climate varies due to its topography. The project site is located within the Lowveld Region of the eastern escarpment of South Africa. Temperatures vary between -4°C and 45°C and frost is infrequent. The study area experiences humid and hot weather during the summer seasons. Approximately 65 - 70% of the area's rainfall occurs during the summer months between October and March, in the form of conventional thunderstorms and showers, and measures from 800 - 1000 mm per year. The rainfall varies from 235 to 1 000 mm per year and frost may occur from 0 to 120 days per year.

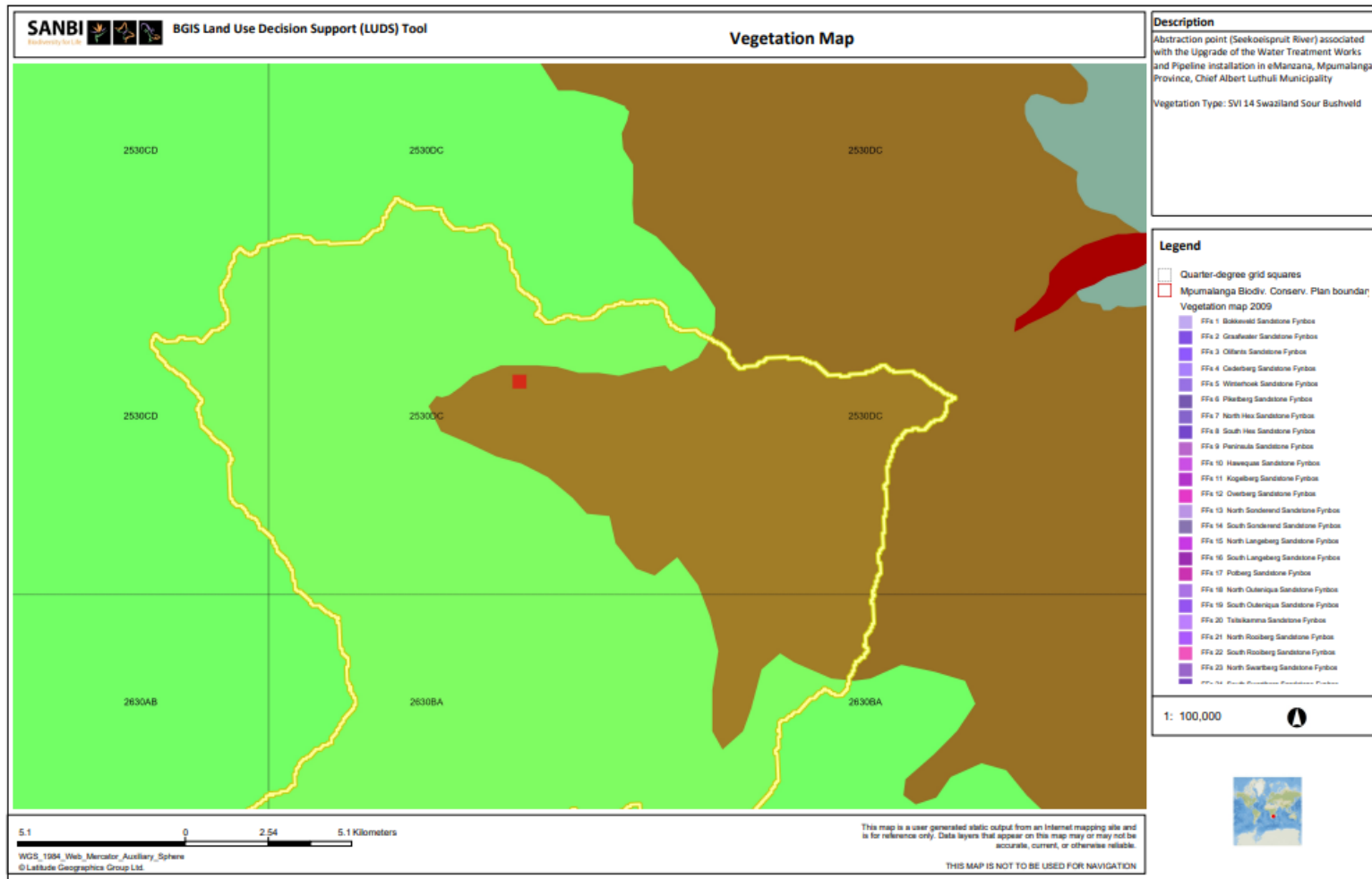
## 4.3 Terrestrial Ecology

The vegetation type within the project site is the Swaziland Sour Bushveld SV114 which is mainly found in Mpumalanga and Swaziland from Badplaas eastwards to Piggs Peak and Manzini. The conservation status is not Threatened. Altitude ranges from 400-1100m. Open to closed tree layer with a well-developed (closed) grass layer. Very hilly with moderate to steep slopes. Grey soils, derived from Randian granites and Swazian granites and gneiss. Soils are dark, and very clayey: Sterkspruit, Valsrivier and Swartland soil forms. Summer rainfall with dry winters. MAP: 700-1350mm. Frost is infrequent to occasional at higher altitudes. Approximately 21% transformed into cultivation and forestry. According to the SANBI Terrestrial Biodiversity map, all the sites are located in natural areas (Figure 5). According to the Mpumalanga Biodiversity Sector Plan, 2014, there are no critically endangered threatened ecosystems within the Chief Albert Luthuli Municipality.

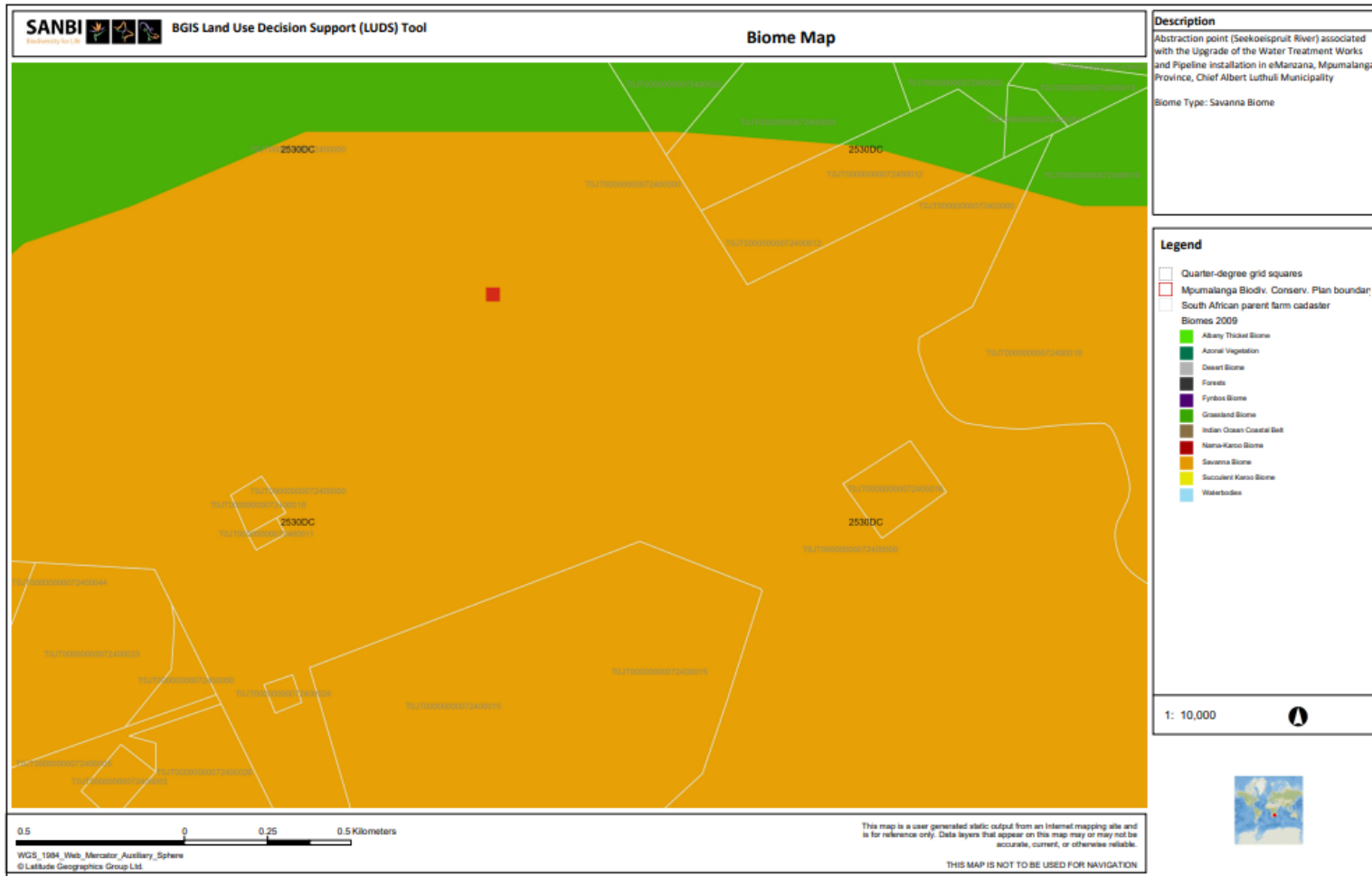
The project area falls within the Savanna Biome which is characterised by a grassy ground layer and a distinct upper layer of woody plants. Where this upper layer is near the ground the vegetation may be referred to as Shrubveld, where it is dense as Woodland, and the intermediate stages are locally known as Bushveld. In many parts of southern Africa the term 'bushveld' is considered appropriate because the woody component of the vegetation does not often form a clear canopy layer. Instead, the vegetation forms a low, often interlocking series of different canopies with various openings and often little distinction between taller shrubs and relatively small trees.



**FIGURE 5: TERRESTRIAL BIODIVERSITY MAP FOR THE PROPOSED PIPELINE WATER CROSSING, EMANZANA WATER TREATMENT WORKS UPGRADE, CHIEF ALBERT LUTHULI MUNICIPALITY**



**FIGURE 6: VEGETATION MAP FOR THE PROPOSED PIPELINE WATER CROSSING, EMANZANA WATER TREATMENT WORKS UPGRADE, CHIEF ALBERT LUTHULI MUNICIPALITY**



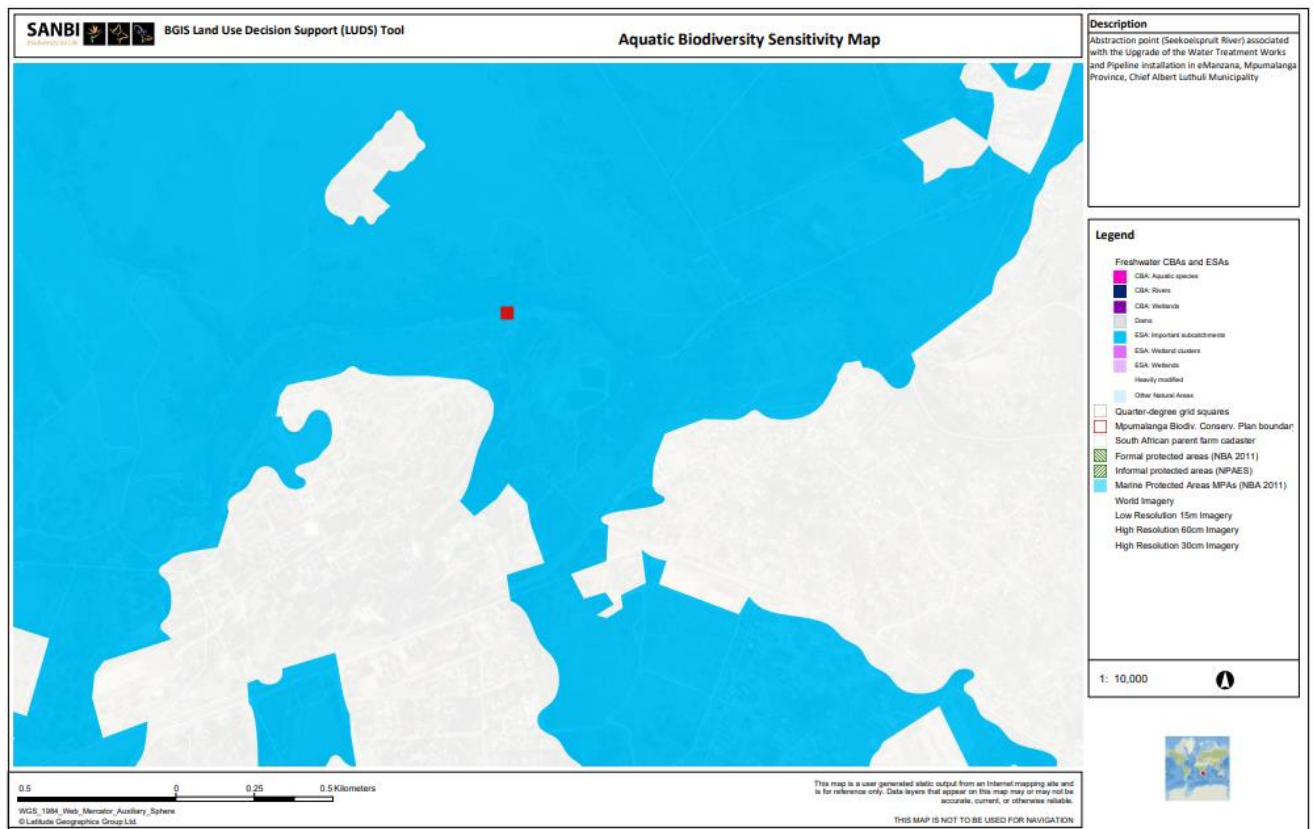
**FIGURE 7: BIOME MAP FOR THE PROPOSED PIPELINE WATER CROSSING, EMANZANA WATER TREATMENT WORKS UPGRADE, CHIEF ALBERT LUTHULI MUNICIPALITY**

## 4.4 Surface and Groundwater

The area where construction of the pipeline traverses a watercourse, falls within a National Freshwater Ecosystem Priority Areas (NFEPA) which is the Seekoeispruit. It flows from west to east and tributaries to the Komati River on the southern section of the Sterkspruit farms.

Geographically, the reach falls within the lower foothills zone. The riparian zone along the Seekoeispruit is well developed with large obligate riparian trees dominated by *Combretum erythrophyllum*. Due to the steep gradient and mountainous environment, the riparian vegetation of the Seekoeispruit is mostly limited to the marginal zone but widens where the topography allows. Alien invasive vegetation is problematic and well represented by *Melia azedarach*, *Populus alba*, *Morus alba*, *Lantana camara* and *Solanum mauritanum*. Aquatic habitat includes deep water pools with infrequent rapids, riffles and runs.

As activities will be undertaken within a watercourse, it is required that all activities are focused on maintaining water quality and also maintaining the integrity of natural habitat.



**FIGURE 8: AQUATIC BIODIVERSITY MAP FOR THE PROPOSED PIPELINE WATER CROSSING, EMANZANA WATER TREATMENT WORKS UPGRADE, CHIEF ALBERT LUTHULI MUNICIPALITY**



**FIGURE 9: NFEPA MAP FOR THE PROPOSED PIPELINE WATER CROSSING, EMANZANA WATER TREATMENT WORKS UPGRADE, CHIEF ALBERT LUTHULI MUNICIPALITY**

## 4.5 Land use

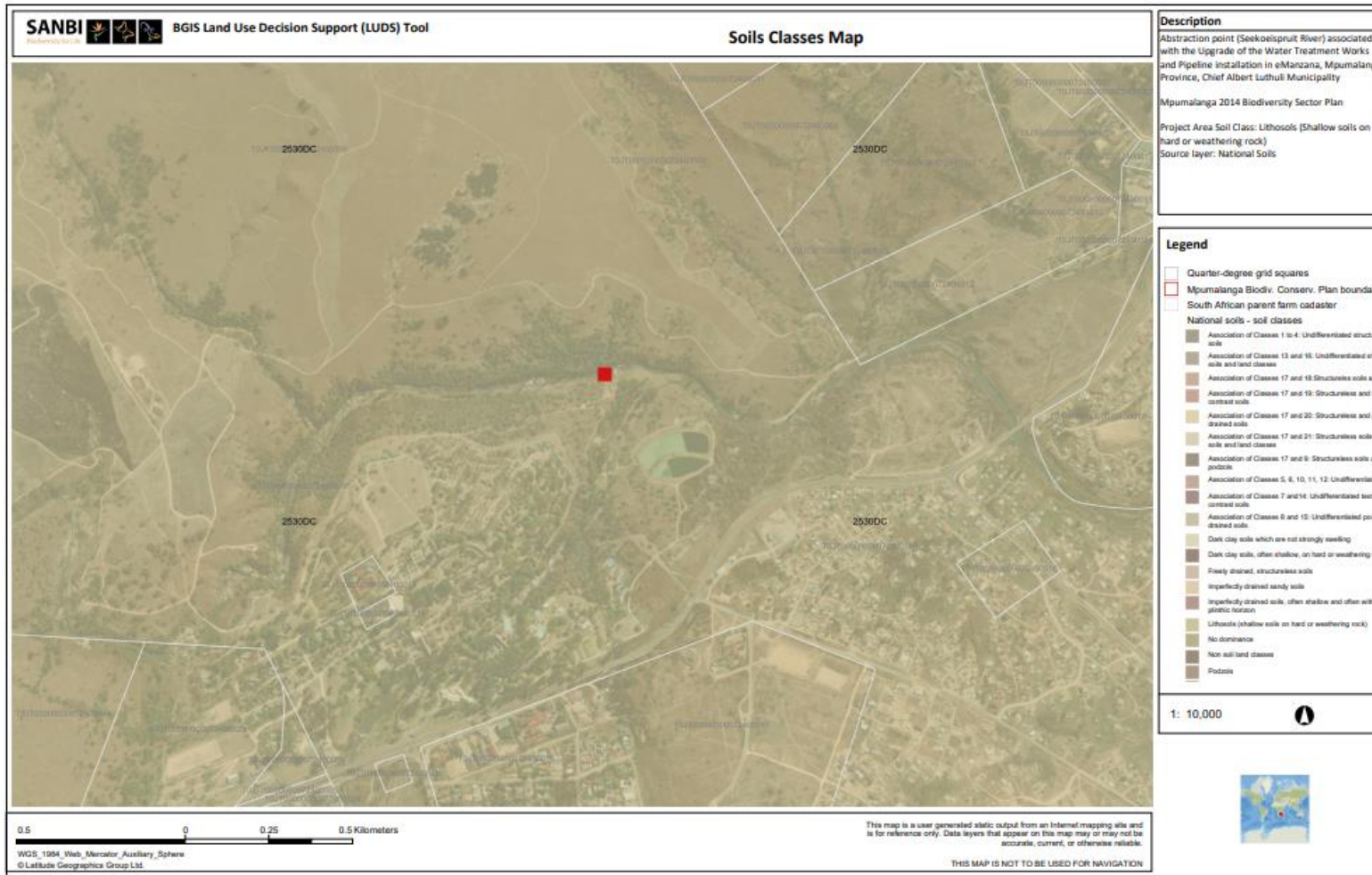
The proposed project falls within an urban and homestead area. Large areas of the surrounding environment have been transformed to residential areas and business (formal and informal). The land uses nearby the project site include the Badplaas Forever Resort, schools, security force, hotel, and church.

## 4.6 Geology and Soils

The soil within the project area is classified as Lithosols, which are shallow soils on hard or weathering rock. Soils with minimal development, usually shallow, on hard or weathering rock, with or without intermittent diverse soils. Soil may receive water runoff from associated rock, water intake areas. Lime is rare or absent in the landscape.



**FIGURE 10: SOILS MAP FOR THE PROPOSED PIPELINE WATER CROSSING, EMANZANA WATER TREATMENT WORKS UPGRADE, CHIEF ALBERT LUTHULI MUNICIPALITY**



**FIGURE 11: SOIL CLASS MAP FOR THE PROPOSED PIPELINE WATER CROSSING, EMANZANA WATER TREATMENT WORKS UPGRADE, CHIEF ALBERT LUTHULI MUNICIPALITY**

## 4.7 Heritage

No Heritage Impact Assessment was conducted as the listed activity assessed is restricted to the section where the pipeline traverse the watercourse. The remainder of the pipeline route will follow the existing boundary fence of the Badplaas Forever Resorts which have therefore already been impacted.

During the initial site investigation, no artefacts or sensitivities were found which could be of cultural or historical significance. It is however recommended that the applicant be made aware that distinct archaeological material or human remains may only be revealed during the development phase. Sub-surface finds must be assessed by a qualified archaeologist after which an assessment should be conducted.

## 4.8 Socio-Economic Environment

The project area is located within Chief Albert Luthuli Local Municipality which has a large rural component.

According to the Draft IDP (2020/2021) The high unemployment rate is amongst people in the 14 to 64 age group, being the economic productive years which is a noteworthy concern. In 2011 about 36,000 people in this age group were not working (StatsSA, 2011). The unemployment rate in the Municipality is 35,4% (2011); females 42% and males 28%. The unemployment rate for young people is alarmingly high at 45%, which is mainly influenced by the lack of economic opportunities in the municipal area. The levels of skill and qualifications of the population is also fairly low which is problematic for future economic development. The socio-economic context of the surrounding environment can therefore be described as a community with a low percentage of education, skills and high unemployment rate.

## 5. SPECIALIST ASSESSMENT REQUIREMENTS AS IDENTIFIED IN THE SCREENING REPORT

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The following specialist assessments were identified within the Department of Environmental Affairs Screening Report to be conducted as part of the Basic Environmental Impact Assessment:

- Agricultural Impact Assessment

The upgrade of eManzana Water Treatment Works and installation of a pipeline will have no agricultural impact on the surrounding area, as it will mostly be established along the boundary fence of the Badplaas Forever Resorts. The pipeline servitude has no agricultural value. For this reason, no agricultural assessment was conducted.

- Heritage and Paleontological Impact Assessment

The project area has already been mostly transformed by fencing activities of the Badplaas Forever Resorts. The area of significance for which the Environmental Authorisation process is undertaken, is only the water crossing where the pipeline traverses the watercourse. During the site investigation, no artefacts or sensitivities were found which could be of cultural or historical significance. For this reason, no Heritage Assessment was undertaken.

- Terrestrial Biodiversity Assessment / Plant and Animal Species Assessment

The proposed project site falls within an area which has already been modified and cleared of vegetation. It is also an upgrade project to the existing infrastructure which will be constructed mostly along the Badplaas Forever Resorts boundary fence. The pipeline through the watercourse is proposed adjacent to an existing watercrossing and subsequently this area have also already been impacted. Upon site investigation, no protected species were noted which would have to be removed during construction. For this reason, no Biodiversity Assessment was conducted.

- Aquatic Biodiversity Impact Assessment

In view of the fact that the project area have already been disturbed by previous activities, and that the placement of the pipeline is proposed underneath the bed of the water crossing, the pipeline would have no restriction on aquatic life and therefore it is the opinion of the EAP that no Aquatic Assessment is required.

- Socio-economic Assessment

The proposed project will not have any negative impact on the socio-economic environment. Contrary to this, some additional job opportunities will be created during the construction phase of the project, which will impact the surrounding community positively. Improved infrastructure will also have a positive impact on the socio-economic environment.

- Geotechnical Assessment

The proposed project is an upgrade to existing infrastructure within an already disturbed footprint. The geotechnical considerations are not applicable when constructing a pipeline, as geological support for this pipeline is not required. For this, no Geotechnical Assessment was conducted.

## 6. METHODOLOGY OF ASSESSING THE SIGNIFICANCE OF IMPACTS

This section outlines the method used for assessing the significance of the potential environmental impacts during the construction/establishment, operational and decommissioning phases.

For each impact, the **EXTENT** (spatial scale), **MAGNITUDE** and **DURATION** (time scale) would be described, as shown in Table 2. These criteria are then used to determine the **SIGNIFICANCE** of the impact, firstly in the case of no mitigation and then with the most effective mitigation measure(s) in place. The mitigation described in the Report represents the full range of plausible and pragmatic measures but does not necessarily imply that they would be implemented.

The following tables show the scale used to assess these variables and defines each of the rating categories.

**TABLE 2: ASSESSMENT CRITERIA FOR THE EVALUATION OF IMPACTS**

CRITERIA	CATEGORY	DESCRIPTION
Extent or spatial influence of impact	<b>Regional</b>	Beyond a 30km radius of the candidate site.
	<b>Local</b>	Within a 30km radius of the candidate site.
	<b>Site-specific</b>	On site or within 100 m of the candidate site.
Magnitude of impact (at the indicated spatial scale)	<b>High</b>	Natural and/ or social functions and/ or processes are <i>severely</i> altered
	<b>Medium</b>	Natural and/ or social functions and/ or processes are <i>notably</i> altered
	<b>Low</b>	Natural and/ or social functions and/ or processes are <i>slightly</i> altered

	<b>Very low</b>	Natural and/ or social functions and/ or processes are <i>negligibly</i> altered
	<b>Zero</b>	Natural and/ or social functions and/ or processes remain <i>unaltered</i>
Duration of impact	<b>Long-term</b>	More than 10 years after construction
	<b>Medium-term</b>	Up to 5 years after construction
	<b>Construction-term</b>	Up to 3 years

The **SIGNIFICANCE** of an impact is derived by taking into account magnitude, duration and extent of each impact. The criteria employed in arriving at the different significance ratings is shown in Table 3.

**TABLE 3: DEFINITION OF SIGNIFICANCE RATINGS**

<b>Significance ratings</b>	<b>Level of criteria required</b>
High	<ul style="list-style-type: none"> <li>• High magnitude with a regional extent and long-term duration</li> <li>• High magnitude with either a regional extent and medium-term duration or a local extent and long-term duration</li> <li>• Medium magnitude with a regional extent and long-term duration</li> </ul>
Medium	<ul style="list-style-type: none"> <li>• High magnitude with a local extent and medium-term duration</li> <li>• High magnitude with a regional extent and construction period or a site-specific extent and long-term duration</li> <li>• High magnitude with either a local extent and construction period duration or a site-specific extent and medium-term duration</li> <li>• Medium magnitude with any combination of extent and duration except site specific and construction period or regional and long term</li> <li>• Low magnitude with a regional extent and long-term duration</li> </ul>
Low	<ul style="list-style-type: none"> <li>• High magnitude with a site-specific extent and construction period duration</li> <li>• Medium magnitude with a site-specific extent and construction period duration</li> <li>• Low magnitude with any combination of extent and duration except site specific and construction period or regional and long term</li> <li>• Very low magnitude with a regional extent and long-term duration</li> </ul>

Very low	<ul style="list-style-type: none"> <li>• Low magnitude with a site-specific extent and construction period duration</li> <li>• Very low magnitude with any combination of extent and duration except regional and long term</li> </ul>
Neutral	<ul style="list-style-type: none"> <li>• Zero magnitude with any combination of extent and duration</li> </ul>

Once the significance of an impact has been determined, the **PROBABILITY** and **CONFIDENCE** of this impact are determined using the rating systems outlined in Table 4 and Table 5. The significance of an impact should always be considered in concert with the probability of that impact occurring. Lastly, the **REVERSIBILITY** of the impact is estimated using the rating system outlined in Table 6.

**TABLE 4: DEFINITION OF PROBABILITY RATINGS**

Probability ratings	Criteria
Definite	Estimated greater than 95 % chance of the impact occurring.
Probable	Estimated 5 to 95 % chance of the impact occurring.
Unlikely	Estimated less than 5 % chance of the impact occurring.

**TABLE 5: DEFINITION OF CONFIDENCE RATINGS**

Confidence ratings	Criteria
Certain	Wealth of information on and sound understanding of the environmental factors potentially influencing the impact.
Sure	Reasonable amount of useful information on and relatively sound understanding of the environmental factors potentially influencing the impact.
Unsure	Limited useful information on and understanding of the environmental factors potentially influencing this impact.

**TABLE 6: DEFINITION OF REVERSIBILITY RATINGS**

Reversibility ratings	Criteria
Irreversible	The activity will lead to an impact that is in all practical terms permanent.

**Reversible**

The impact is reversible within 2 years after the cause of the impact is removed.

## 7. ENVIRONMENTAL IMPACT ASSESSMENT

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The biophysical and social environment will be impacted during the construction and operational phases of the eManzana WTW and pipeline upgrade activities. For this reason, the impacts below are assessed for both phases.

### 7.1 Impacts during the construction process

The construction activities are likely to result in environmental and socio-economic impacts. The identified impacts are listed below and discussed thereafter:

- *Impact on biodiversity;*
- *Generation of dust;*
- *Impact on soils and erosion;*
- *Traffic Impact*
- *Visual and Aesthetics;*
- *Impact on water resources;*
- *Socio-economic impact;*
- *Waste; and*
- *Cultural and Heritage Resources*

#### 7.1.1. Impact on biodiversity

##### **Description of the potential impact**

During the construction process, the existing water treatment works will be upgraded and a new pipeline will be installed. Removal of vegetation is inevitable in areas where the pipeline servitude is not in areas which have already been disturbed. In undisturbed areas and closer to the abstraction point, there is a probability of alien invasive plants growth, after construction. Also, the machinery to be used might transport these plants to the abstraction area. Majority of the project servitude is disturbed, and works should be restricted in these areas.

##### **Significance of the impact**

The proposed pipeline running mostly along the Forever Resorts boundary fence and the water crossing is proposed adjacent to an existing water crossing (bridge). The project areas as well as surrounding areas have already been mostly transformed.

Modified areas offer the most flexibility regarding potential land-uses, but these should be managed in a biodiversity-sensitive manner, aiming to maximize ecological functionality.

The excavation will be covered with the soil material and revegetated after installation of the pipeline. It is not anticipated that the activity will compromise biodiversity or ecological functions as the project area is located within an area classified as "Other Natural Areas" in accordance with the Mpumalanga Biodiversity Sector Plan of 2014. The magnitude of the impact is regarded as

low, with a site specific extent and short term duration and therefore the impact is rated to be of very low significance even prior to the implementation of mitigation measures.

**TABLE 7: SIGNIFICANCE OF BIODIVERSITY IMPACT**

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Magnitude	Extent	Duration	Probability	Impact Rating	Impact Rating
Impact on biodiversity <b>[NEGATIVE]</b>	Low	Site Specific	Short-term	Probable	Very Low	Very Low

**Mitigation measures**

- The footprint of activities associated with construction activities must be restricted to the existing water treatment works and pipeline alignment.
- It must be ensured that the materials used during construction activities are located far away from the watercourse or drainage lines.
- All disturbed or exposed areas must be rehabilitated promptly and re-vegetated to limit erosion potential and to encourage regrowth and stabilize disturbed soils.
- Remove any Alien Invasive Plants as a result of the existing road that might be seen during the construction of the pipeline.
- Stipulations of the Environmental Management Program (EMPr) should be adhered to during the construction phases of the project.

**7.1.2. Generation of dust**

**Description of the potential impact**

Soil will be disturbed during the construction phase of the proposed project.

Dust generated as a result of movement of machinery could possibly have an impact on adjacent landowners.

**Significance of the impact**

The construction site is located within a built-up area and adjacent to a resort. The activities associated with the placement of the pipeline is however somewhat limited and of short duration, for this reason, the impact is rated to be of low significance prior to the implementation of mitigation measures.

Mitigation measures must however be implemented to minimise the generation of dust.

**TABLE 8: DUST GENERATION**

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Magnitude	Extent	Duration	Probability	Impact Rating	Impact Rating
Dust generation <b>[NEGATIVE]</b>	<b>Medium</b>	<b>Site Specific</b>	<b>Short term</b>	<b>Probable</b>	<b>Low</b>	<b>Very Low</b>

### Mitigation measures

- Areas may not be disturbed and left for unattended for long periods of time;
- Heavy moving vehicles and other vehicles must adhere to a speed limit of 40km/h;
- Construction site must be sprayed with water to limit the generation of dust on the surfaces (if necessary).

### 7.1.3 Impact on soils and erosion

#### Description of the potential impact

The construction process will disturb the soil surface and increase the possibility of soil erosion. If the excavations for the pipeline are left uncovered for longer periods, there is a risk of erosion and soil compaction caused by stockpiles that are left unattended.

Other activities which could have an impact on soil, include any spillage of hazardous substances. Hazardous substances such as oil, diesel etc., could be spilled while refuelling or using machinery, leading to the pollution of soil which can alter microbial processes and be toxic to soil organisms.

#### Significance of the impact

During establishment, soil could be impacted by the following:

- Erosion;
- Compaction; and
- Contamination with the use and possible spillage of hazardous substances.

This impact soil pollution is of low magnitude, site specific and short duration and for this reason the impact is also of low significance prior to the implementation of mitigation measures.

**TABLE 9: IMPACT ON SOIL**

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Magnitude	Extent	Duration	Probability	Impact Rating	Impact Rating
Soil pollution [NEGATIVE]	Medium	Site Specific	Short-term	Probable	Low	Very Low
Erosion [NEGATIVE]	Medium	Site Specific	Short term	Probable	Low	Very Low
Compaction [NEGATIVE]	Medium	Site Specific	Short term	Probable	Low	Very Low

### Mitigation measures

- To minimise the possibility of erosion, it is recommended that no disturbed areas be left unattended. Disturbance and removal must be restricted to the proposed footprint.
- Measures to reduce the velocity of water must be taken on areas prone to erosion.
- Rehabilitate exposed areas promptly and re-vegetate cleared areas to limit erosion potential.
- Should there be any spillage of hazardous substances during the activities, soil must be removed up to a depth of 300mm and be disposed of at a registered hazardous waste disposal facility. Proof of such disposal must be kept on file.
- Storage of potential contaminants should be undertaken in bunded areas.
- Excavated material must not be stockpiled for longer periods to prevent deterioration in stability, especially during rainfall or groundwater seepage. Excavated material must be stockpiled separately and replaced promptly.

### 7.1.4. Traffic Impact

#### Description of the potential impact

Traffic congestion is probable due to the pipeline alignment traversing the R38 regional road to get to the Water Treatment Works. The pipeline will have to be placed underneath the R38 Provincial Road to link with the existing eManzana WTW and during this phase of the construction, traffic along the R38 might be impacted with Stop and Go's.

#### Significance of the impact

The construction site is located within a residential (built-up) area with hotels, businesses and institutions nearby. Although the R38 is a provincial road, it is hardly ever congested and the volumes of traffic making use of the road has never caused any congestion.

The impacts associated with the traffic are also of very short duration and therefore of very low significance prior to the implementation of mitigation measures. Mitigation measures must however be implemented to ensure the safety of workers and motorists.

**TABLE 10: TRAFFIC IMPACT**

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Magnitude	Extent	Duration	Probability	Impact Rating	Impact Rating
Traffic Congestion <b>[NEGATIVE]</b>	Low	Site Specific	Short term	Probable	Very Low	Very Low

### Mitigation measures

- Heavy moving vehicles and machinery must be parked clear of traffic and in a way that does not cause congestion to the access road or regional road R38.
- The pipeline alignment crossing the R38 road, must be undertaken in a timely manner to avoid any delays.
- Display enough construction site signage to direct vehicular and pedestrian movement.

### 7.1.5. Visual and Aesthetics

#### Description of the potential impact

The construction process will visibly affect the aesthetics of the area due to the excavations that will take place. During construction, the site might also look untidy with all materials and machinery on site. This could have a visual impact on the surrounding landowners and land users.

#### Significance of the impact

It is noted that the construction activities will be taking place within the boundary of eManzana. Although the construction activities are also proposed along the boundary fence of the Forever Resorts, the activities will not be visible to the tourists or visitors of the resort.

Except of the Forever Resorts adjacent to the proposed activities, there are no sensitive visual receptors along the proposed route. As noted, the activities will not be visible to the tourists or visitors of the resort and as construction of the pipeline will also be of short duration, the significance of visual impacts are low during construction and after mitigation measures are implemented, the impact is of very low significance.

**TABLE 11: VISUAL AND AESTHETICS**

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Magnitude	Extent	Duration	Probability	Impact Rating	Impact Rating
Aesthetics <b>[NEGATIVE]</b>	Medium	Site Specific	Short term	Probable	Very Low	Very Low

**Mitigation measures**

- The site must be kept tidy during the construction phase;
- Shade netting must be used if required;
- The pipeline must not be visible or exposed.
- The excavated material must be placed back neatly.
- The re-vegetation process must be carried out as soon as the pipeline has been placed and appropriate riparian vegetation must be used to revegetate the banks of the water crossing affected by the pipeline

**7.1.6 Impact on water resources**

**Description of the potential impact**

The area where activities are to take place traverses a watercourse. This requires that activities are focused on maintaining water quality and the integrity of natural habitat. Spillages of hazardous material are probable and should be avoided in the watercourse area.

When soil is moved within a watercourse, soil is disturbed and this increases the possibility of sedimentation impacting the watercourse downstream.

**Significance of the impact**

Any spillages within the watercourse will have an impact on the water quality of the watercourse and therefore special care must be taken when works are conducted within the watercourse. Spillages could result from machinery working within a watercourse.

Sedimentation could also impact the watercourse downstream of where the activities are taking place as sedimentation could increase the level of the bed of the watercourse and cause areas to silt up.

The activities proposed to be undertaken during the construction phase is however of short duration and local extent. For this reason, the impact is of medium significance prior to the implementation of mitigation measures.

**TABLE 12: IMPACT ON WATER RESOURCES**

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Magnitude	Extent	Duration	Probability	Impact Rating	Impact Rating
Impact on water resources <b>[NEGATIVE]</b>	<b>Medium</b>	<b>Local</b>	<b>Short-term</b>	<b>Probable</b>	<b>Medium</b>	<b>Low</b>

**Mitigation measures**

- No material or stockpiles may be stored within 30m from the edge of a watercourse.
- It must be ensured that all machinery working within the watercourse must be in a good working condition to ensure that there are no oil leaks.
- Should vehicles be washed, it must take place in a designated area, located far from these watercourses. Washing of equipment or any vehicles are not allowed within or near any watercourse.
- Activities within the watercourse must be restricted to low-flow periods.
- Activities within the watercourse must not be prolonged.

**7.1.7 Socio-economic Impact**

**Description of the potential impact**

During the construction activities, various temporary job opportunities will be created for the upgrading of the WTW and pipeline project and service delivery will be improved. In terms of safety and security, there is always risk associated when working with machinery and therefore it is essential that all workers comply with the Health and Safety Act, 1993 (No.85 of 1993).

**Significance of the impacts**

Based on the methodology detailed in **Section 6**, the following ratings have been assigned to the ‘employment opportunities’ and impact associated with health and safety of employees, respectively.

The job opportunities during the construction phase are short-lived and therefore the impact is only of medium (+) significance. In terms of the health and safety aspects of the workforce, the significance of the impact has been rated to be of low significance due to the short construction timeframe. Mitigation measures must however be adhered to.

**TABLE 13: SOCIO-ECONOMIC IMPACT**

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Magnitude	Extent	Duration	Probability	Impact Rating	Impact Rating
Job opportunities [POSITIVE]	High	Local	Short-term	Definite	Medium (+)	Medium (+)
Health and Safety [NEGATIVE]	Medium	Site Specific	Short-term	Probable	Low	Very Low

### Mitigation measures

- The applicant and/or project manager must ensure that local residents receive preference for job opportunities where local labour might be required.
- It is imperative that all personnel adhere to the Occupational Health and Safety Act 85 of 1998 and that no personnel enter any other surrounding properties.

### 7.1.8. Waste

#### Description of the potential impact

During the construction phase, various streams of waste is generated. Such waste is defined as general waste, construction waste as well as hazardous waste. If waste is not managed appropriately, waste generated would impact the surrounding environment negatively.

#### Significance of the impact

The construction site is located within a built-up area and close to a regional road. There might be a lot of movement along the working site and general housekeeping might be challenging, although necessary.

Hazardous waste could be generated by any possible fuel or oil spillages. General waste generated by the construction could negatively impact the surrounding environment and watercourse is the construction team is not adhering to housekeeping practices. Construction waste generated could affect the area if it is not stored and removed appropriately following the construction phase.

Due to the small size of the project and project team as well as the short duration of the project construction phase, the impact is regarded to be of low significance prior to the implementation of mitigation measures.

**TABLE 14: WASTE**

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Magnitude	Extent	Duration	Probability	Impact Rating	Impact Rating
Waste generation <b>[NEGATIVE]</b>	<b>Medium</b>	<b>Site Specific</b>	<b>Short term</b>	<b>Probable</b>	<b>Low</b>	<b>Very Low</b>

**Mitigation measures**

- General housekeeping must be implemented.
- Waste should be classified and separated and bins provided should be animal proof.
- Any hazardous waste spillages should be attended to promptly by removing such soil up to a depth of 300mm if the polluted soil is not visible.
- Waste should be disposed of at a registered landfill site and proof of such should be filed in the Environmental File.

**7.1.9. Cultural and Heritage Resources**

**Description of the potential impact**

During the excavations for the installation of the pipeline, there is a possibility of damage to unearthed heritage resources during the construction phase.

**Significance of the impact**

Considering that the project site is in a built-up area and the pipeline runs along an existing boundary fence, this impact is unlikely and of very low significance before mitigation measures.

**TABLE 15: CULTURAL AND HERITAGE IMPACT**

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Magnitude	Extent	Duration	Probability	Impact Rating	Impact Rating
Cultural and Heritage Impact <b>[NEGATIVE]</b>	<b>Low</b>	<b>Site Specific</b>	<b>Short term</b>	<b>Unlikely</b>	<b>Very Low</b>	<b>Very Low</b>

### Mitigation measures

- If fossils or any material that looks strange are discovered during construction, the Chance Find Protocol must be implemented, protecting the finds and reporting to SAHRA for mitigation by a palaeontologist.

## 7.2 Operational Phase Impacts

During operation the activities are likely to result in the following environmental and socio-economic impacts:

- *Impact on flora and fauna;*
- *Impact on water resources; and*
- *Socio-economic impact.*

### 7.2.1. Impact on flora and fauna

#### Description of the potential impact

During the operational phase there is a possibility of continued introduction of alien invasive species, weeds and pioneer plants due to ineffective rehabilitation and maintenance.

#### Significance of the impact

As the ecological sensitivity of the site was not found to be sensitive, it is noted that the magnitude of the impact is rated to be low. The impact is site specific in extent and of medium-term duration. For this reason, the impact is regarded to be of low significance prior to the implementation of mitigation measures.

**TABLE 16: SIGNIFICANCE OF BIODIVERSITY IMPACT**

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Magnitude	Extent	Duration	Probability	Impact Rating	Impact Rating
Impact on biodiversity <b>[NEGATIVE]</b>	Low	Site Specific	Medium-term	Probable	Low	Very Low

## Mitigation Measures

- The project site should be managed in a biodiversity-sensitive manner, aiming to maximize ecological functionality.
- Rehabilitation must be executed properly, neatly and using plants that indigenous to the site area.
- Alien Invasive Plants should be observed and eradicated as part of the continuous maintenance management plan.

### 7.2.2. Impact on water resources

#### Description of the potential impact

Any maintenance activities may result in the pipeline having to be unearthed and reburied within the watercourse. It is therefore possible that there would be increased possibility of erosion and sedimentation occurring should maintenance activities be required.

#### Significance of the impact

During operation and maintenance, the watercourse might be subject to erosion and sedimentation. The probability of this occurring is however low and should maintenance be required, activities would be of short duration. The impact is therefore regarded to be of low significance prior to the implementation of mitigation measures.

**TABLE 17: IMPACT ON WATER RESOURCES**

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Magnitude	Extent	Duration	Probability	Impact Rating	Impact Rating
Impact on water resources <b>[NEGATIVE]</b>	<b>Medium</b>	<b>Site-specific</b>	<b>Short-term</b>	<b>Unlikely</b>	<b>Low</b>	<b>Very Low</b>

#### Mitigation measures

- Ensure that the area is to be kept in a good ecological condition.
- Should maintenance of the pipeline be required within the watercourse, all measures included within the Environmental Management Plan must be adhered to.

### 7.2.3. Socio-economic Impact

#### Description of the potential impact

The improved infrastructure and increased WTW capacity will improve the socio-economic environment for the community of eManzana in that future development could be stimulated by the increase in water capacity for the area as well as the improvement of service delivery within the municipality.

#### Significance of the impact

Based on the methodology detailed in **Section 6**, the following ratings have been assigned to the 'Socio-economic' impact before and after mitigation.

**TABLE 18: SOCIO-ECONOMIC IMPACT**

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Magnitude	Extent	Duration	Probability	Impact Rating	Impact Rating
Socio-economic <b>[POSITIVE]</b>	<b>High</b>	<b>Local</b>	<b>Long-term</b>	<b>Definite</b>	<b>High (+)</b>	<b>High (+)</b>

The project will have a positive socio-economic impact on the local community. No mitigation measures would be required to further enhance this impact.

## 7.3 Environmental Impact Statement

The table below summarises the impacts identified and assessed for the construction activities proposed for the project:

**TABLE 19: ENVIRONMENTAL IMPACT STATEMENT**

SECTION	IMPACT	SIGNIFICANCE BEFORE MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION MEASURES
<b>Construction Phase Impacts</b>			
7.1.1	Biodiversity Impact	Very Low	Very Low
7.1.2	Generation of dust	Low	Very Low
7.1.3	Soil pollution	Low	Very Low
	Soil Erosion	Low	Very Low
	Soil compaction	Low	Very Low
7.1.4	Traffic Impact	Very Low	Very Low
7.1.5	Visual and Aesthetics	Very Low	Very Low
7.1.6	Impact on water resources	Medium	Low
7.1.7	Socio-economic Impact	Medium (+)	Medium (+)
	Health and Safety	Low	Very Low
7.1.8	Waste	Low	Very Low
7.1.9	Cultural and Heritage Resources	Very Low	Very Low
<b>Operational Phase Impacts</b>			
7.2.1	Flora and Fauna	Low	Very Low
7.2.2	Impact on water resources	Low	Very Low
7.2.3	Socio-economic Impact	High (+)	High (+)

## 8. CONCLUSION AND WAY FORWARD

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### 8.1 Assumptions and Limitations

In undertaking this investigation and compiling the Draft Basic Assessment Report, the following has been assumed:

- The information provided by the proponent is accurate and unbiased, and no information that could change the outcome of the Environmental Authorisation process has been withheld.
- The scope of this investigation is limited to assessing the environmental impacts associated with the establishment and operation of the project.
- The conclusion and recommendations proposed are based solely on the information, scope of works as agreed with the proponent.

### 8.2 Conclusion

The essence of all environmental assessment processes is aimed at ensuring informed decision-making and environmental accountability. Furthermore, it assists in achieving environmentally sound and sustainable development. The impact assessment for this project has been undertaken in line with the requirements prescribed in the NEMA regulations.

According to the EAP's evaluation and assessment of the possible impacts associated with the construction and operational activities, the proposed upgrade to the eManzana Water Treatment Works and installation of the pipeline is predicted to have **low to very low impacts**, should suitable mitigation measures be applied. The proposed project does not have any major environmental or social issues that may prohibit the proposed upgrade. The proposed pipeline route is already mainly disturbed as it is proposed along the boundary fence of the Badplaas Forever Resorts and the water crossing is proposed adjacent to an existing bridge.

The EAP believes that the proposed development can proceed if mitigation measures detailed in Section 7 and the Draft Environmental Management Plan are implemented. This is based on the nature and extent of the development, local disturbance levels, expected benefits at regional and national scales and understanding of potential environmental and social impacts. The proposed project does not and will not have any significant environmental or social issues.

The significance of the potential environmental (biophysical and social) impacts associated with the proposed project are discussed in detail under **Section 7**.

It is the opinion of the EAP that the EA for this project should be granted, and the proposed mitigation included as the conditions of the authorisation.

### 8.3 Way Forward

The next steps for the Basic Assessment process will be to distribute the Draft Basic Assessment Report and make it available to the public (including the registered I&APs) and Organs of State for a period of 30 days, during which the Competent Authority (DARDLEA) will also be given the opportunity to provide comments on the report. After the 30-day comment period, all comments will be addressed by the EAP and incorporated within the Final Basic Assessment Report to be submitted to the DARDLEA for decision making. All registered I&APs will be notified of the decision and will be given an opportunity to appeal as per the NEMA requirements.

## 9. REFERENCES

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*Chief Albert Luthuli Local Municipality Integrated Development Plan 2020/2021*

*National Environmental Management Act 107 of 1998 (NEMA 107, 1998)*

*General Notice Regulation 982, 983, 984 and 985 of 2014 (as amended in 2017)*

*Mpumalanga Biodiversity Sector Plan, 2014*

*Mucina, L. and Rutherford, M.C. (eds.) 2006. The vegetation of South Africa, Lesotho and Swaziland. Strelitzia 19. South African Biodiversity Institute, Pretoria.*