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Project report

Olifants Management Model Programme Bulk Raw Water Study Phase (OMMP-BRWSP-Mokopane and Sekuruwe proposed Water treatment Works)

Social Impact Assessment

Lebalelo Water User Association

Document control record

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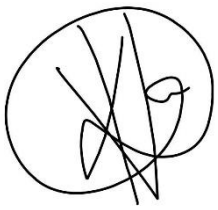
Author signature		Author signature		Approver signature	
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Executive Summary

Introduction

Mokopane and Sekuruwe WTWs are proposed as part of the Olifants Management Model (OMM) Programme. The proposed development triggers a Basic assessment (BA) in terms of the National Environmental Management Act (Act No 107 of 1998, as amended). It is anticipated that the proposed WTWs will have social consequences (positive and negative, intended, or unintended) on the receiving social environment. This document presents the Social Impact Assessment (SIA) for the proposed WTWs, as part of the BA.

Methodology

The SIA has been completed at a desktop study level. The specialist undertaking the SIA did not undertake any consultation with the project Interested and Affected Parties (I&APs). The activities undertaken as part of the SIA compromised the following:

- A ***desktop review:*** A desktop review of various relevant secondary data sources in the public domain including census reports, Government / Municipal reports, and available specialist reports associated with the proposed development.

- ***Identification of potential impacts***: Anticipated positive and negative impacts have been identified and categorised in terms of the project phase in which they are likely to occur viz., pre-construction and construction, operation, and decommissioning.

- ***Rating of impacts:*** Impacts have been rated in terms of their anticipated duration, extent, intensity, and probability. Duration, extent, and intensity ratings were combined into a measure of an impact's expected consequence. Consequence ratings, in turn, were combined with probability ratings to give a measure of an impact's overall significance.

- ***Identification of appropriate mitigation measures:*** mitigation measures have been identified to avoid or ameliorate negative socio-economic impacts and to enhance positive ones. The rating procedure described above was then repeated to assess the expected consequence, probability, and significance of each impact after mitigation. This post-mitigation rating indicates the significance of residual impacts, while the difference between an impact's pre-and post-mitigation ratings, therefore, represents the degree to which the recommended mitigation measures are expected to be effective in reducing or ameliorating that impact.

- **Cumulative impacts:** An overview on cumulative impacts has been provided based on specialist opinion, taking into consideration similar developments.

- ***Assessment of no-go alternative:*** the assessment of the no-go alternative has been assessed based on specialist opinion considering the south African strategic plan for water provision.

Overview of the Socio-economic conditions

The proposed Mokopane and Sekuruwe WTWs are located in the Mogalakwena Local Municipality (MLM) which, falls within the Waterberg District Municipality in the Limpopo Province, South Africa. Based on the reviewed socio-economic secondary data, it can be concluded that communities in

proposed project area are in dire need for potable water, jobs and socio-economic improvement as the areas impacted are amongst the poorest areas in the Limpopo Province.

Anticipated Impacts associated with the proposed WTWs, including associated mitigation and ratings

Mokopane WTW alternative site

Impact	Pre-mitigation:						Recommended mitigation	Post-mitigation:					
	Duration	Extent	Intensity	Consequence	Probability	Significance		Duration	Extent	Intensity	Consequence	Probability	Significance
Pre-construction and Construction Phase													
Income for farm owners (Land access)	Short-term	Local	Very high - positive	Moderately beneficial	Certain	High - positive	The developer should enter into a formal and fair land access agreement. Depending on the negotiations with the affected landowner/s, land access can either mean land purchase, lease agreement or servitude agreement.	Short-term	Local	Very high - positive	Moderately beneficial	Certain	High - positive
Procurement of goods and services	Short-term	Regional	Moderate - positive	Moderately beneficial	Certain	Moderate - positive	The developer should put in place a procurement policy aimed at supporting and prioritizing upcoming and qualifying subcontractors or SMMEs, were possible. The policy should be aimed at providing first preference to appropriate subcontractors/SMMEs located in the surrounding communities, followed by those located in the municipal area and lastly those located elsewhere or outside the province.	Short-term	Local	Very high - positive	Moderately beneficial	Certain	High - positive
Employment opportunities	Short-term	Regional	Moderate - positive	Moderately beneficial	Certain	Moderate - positive	The developer should have an employment policy aimed at maximising employment opportunities in the	Short-term	Regional	High - positive	Moderately beneficial	Certain	High - positive

Impact	Pre-mitigation:						Recommended mitigation	Post-mitigation:					
	Duration	Extent	Intensity	Consequence	Probability	Significance		Duration	Extent	Intensity	Consequence	Probability	Significance
							local area and in the region						
Community expectations	Short-term	Local	Very high - negative	Moderately detrimental	Certain	High - negative	Community expectations should be managed via timely and clear messaging throughout the Stakeholder engagement and consultation processes	Short-term	Local	Low - negative	Slightly detrimental	Certain	Low - negative
Health and safety	Short-term	Local	negative	Moderately detrimental	Very likely	Moderate - negative	The developer should implement health and safety mitigation measures for communities and employees as per the recommendations made in other specialist studies viz., air quality, traffic, visual assessment etc.	Short-term	Local	Low - Negative	Slightly detrimental	Fairly likely	Low - negative
Security	Short-term	Site-specific	High - negative	Slightly detrimental	Very likely	Low - negative	The developer should make sufficient provision for all security measures, not just access control and monitoring of criminal activities during the pre-operation phases.	Short-term	Site-specific	Low - negative	Negligible	Fairly likely	Very low
Operation Phase													
Employment opportunities	Long-term	Regional	Low - positive	Moderately beneficial	Certain	High - positive	The developer should have an employment policy aimed at maximising employment opportunities in the local area and in the region	Long-term	Regional	High - positive	Highly beneficial	Certain	Very high - positive
Access to potable water for selected communities in the	Long-term	Local	Moderate - positive	Moderately beneficial	Certain	High - positive	A Water Management Master Plan should be in place, clearly specifying which communities in the Northen limb will	Long-term	Regional	High - positive	Highly beneficial	Certain	Very high - positive

Impact	Pre-mitigation:						Recommended mitigation	Post-mitigation:					
	Duration	Extent	Intensity	Consequence	Probability	Significance		Duration	Extent	Intensity	Consequence	Probability	Significance
Northern limb							benefit from accessing potable water						
community expectations	Long-term	Local	Very high - negative	Highly detrimental	Very likely	High - negative	The Water Management Master Plan and associated beneficiaries should be communicated to the project interested and affected communities, to avoid creating expectations to from those communities which will not benefit from the project	Long-term	Local	Moderate - negative	Moderately detrimental	Fairly likely	Low - negative
Health and safety	Long-term	Local	High - negative	Highly detrimental	Certain	High - negative	The developer should implement health and safety mitigation measures for communities and employees as per the recommendations made in other specialist studies viz., air quality, traffic, visual assessment etc.	Long-term	Local	Moderate - negative	Moderately detrimental	Fairly likely	Low - negative
Decommission Phase													
Employment and business opportunities	Short-term	Regional	Moderate - positive	Moderately beneficial	Certain	Moderate - positive	The developer should have an employment policy aimed at maximising employment opportunities in the local area and in the region, including a procurement policy aimed at supporting and prioritizing upcoming and qualifying subcontractors or SMMEs, were possible	Short-term	Regional	High - positive	Moderately beneficial	Certain	High - positive
Health and safety	Short-term	Site-specific	Moderate - negative	Slightly detrimental	Very likely	Low - negative	The developer should implement health and safety mitigation measures for	Short-term	Site-specific	Low - negative	Negligible	Fairly likely	Very low

Impact	Pre-mitigation:						Recommended mitigation	Post-mitigation:					
	Duration	Extent	Intensity	Consequence	Probability	Significance		Duration	Extent	Intensity	Consequence	Probability	Significance
							communities and employees as per the recommendations made in other specialist studies viz., air quality, traffic, visual assessment etc.						
No access to potable water	Long-term	Local	Very high - negative	Highly detrimental	Certain	Very high - negative	Potable water beneficiaries should be notified on the decommissioning of the WTW prior to decommissioning. The municipality should provide alternative potable water source for the northern limb beneficiaries	Long-term	Local	Moderate - negative	Moderately detrimental	Very likely	Moderate - negative
Loss of employment and business opportunities	Long-term	Regional	Very high - negative	Extremely detrimental	Certain	Very high - negative	Employees and businesses benefiting from operation of the WTW should be notified in time regarding the decommissioning of the WTW prior to decommissioning	Long-term	Regional	Low - negative	Moderately detrimental	Fairly likely	Low - negative

Mokopane WTW preferred site

Impact	Pre-mitigation:						Recommended mitigation	Post-mitigation:					
	Duration	Extent	Intensity	Consequence	Probability	Significance		Duration	Extent	Intensity	Consequence	Probability	Significance
Pre-construction and Construction Phase													
Income for farm owners (Land access)	Short-term	Local	Very high - positive	Moderately beneficial	Certain	High - positive	The developer should enter into a formal and fair land access agreement. Depending on the negotiations with the affected landowner/s, land access can either mean land purchase,	Short-term	Local	Very high - positive	Moderately beneficial	Certain	High - positive

Impact	Pre-mitigation:						Recommended mitigation	Post-mitigation:					
	Duration	Extent	Intensity	Consequence	Probability	Significance		Duration	Extent	Intensity	Consequence	Probability	Significance
							lease agreement or servitude agreement.						
Procurement of goods and services	Short-term	Regional	Moderate - positive	Moderately beneficial	Certain	Moderate - positive	The developer should put in place a procurement policy aimed at supporting and prioritising upcoming and qualifying subcontractors or SMMEs, were possible. The policy should be aimed at providing first preference to appropriate subcontractors/SMMEs located in the surrounding communities, followed by those located in the municipal area and lastly, those located elsewhere or outside the province.	Short-term	Local	Very high - positive	Moderately beneficial	Certain	High - positive
Employment opportunities	Short-term	Regional	Moderate - positive	Moderately beneficial	Certain	Moderate - positive	The developer should have an employment policy aimed at maximising employment opportunities in the local area and in the region	Short-term	Regional	High - positive	Moderately beneficial	Certain	High - positive
Community expectations	Short-term	Local	Very high - negative	Moderately detrimental	Certain	High - negative	Community expectations should be managed via timely and clear messaging throughout the Stakeholder engagement and consultation process	Short-term	Local	Low - negative	Slightly detrimental	Certain	Low - negative
Health and safety	Short-term	Local		Moderately detrimental	Very likely	Moderate - negative	The developer should implement health and safety mitigation measures for	Short-term	Local;	Low - negative	Slightly detrimental	Fairly likely	Low - negative

Impact	Pre-mitigation:						Recommended mitigation	Post-mitigation:					
	Duration	Extent	Intensity	Consequence	Probability	Significance		Duration	Extent	Intensity	Consequence	Probability	Significance
							communities and employees as per the recommendations made in other specialist studies viz., air quality, traffic, visual assessment etc.						
Security	Short-term	Site-specific	High - negative	Slightly detrimental	Very likely	Low - negative	The developer should make sufficient provision for all security measures, not just access control and monitoring of criminal activities during the pre-operation phases	Short-term	Site-specific	Low - negative	Negligible	Fairly likely	Very low
Operation Phase													
Employment opportunities	Long-term	Regional	Low - positive	Moderately beneficial	Certain	High - positive	The developer should have an employment policy aimed at maximising employment opportunities in the local area and in the region	Long-term	Regional	High - positive	Highly beneficial	Certain	Very high - positive
Access to Potable water for selected communities in the Northern limb	Long-term	Local	Moderate - positive	Moderately beneficial	Certain	High - positive	A Water Management Master Plan should be in place, clearly specifying which communities in the Northern limb will benefit from accessing potable water	Long-term	Regional	High - positive	Highly beneficial	Certain	Very high - positive
community expectations	Long-term	Local	Very high - negative	Highly detrimental	Very likely	High - negative	The Water Management Master Plan and associated beneficiaries should be communicated to the project interested and affected communities, to avoid creating expectations to from those communities which will not benefit from the project	Long-term	Local	Moderate - negative	Moderately detrimental	Fairly likely	Low - negative

Impact	Pre-mitigation:						Recommended mitigation	Post-mitigation:					
	Duration	Extent	Intensity	Consequence	Probability	Significance		Duration	Extent	Intensity	Consequence	Probability	Significance
Health and safety	Long-term	Local	High - negative	Highly detrimental	Certain	High - negative	The developer should implement health and safety mitigation measures for communities and employees as per the recommendations made in other specialist studies viz., air quality, traffic, visual assessment, etc.	Long-term	Local	Moderate - negative	Moderately detrimental	Fairly likely	Low - negative
Decommission Phase													
Employment and business opportunities	Short-term	Regional	Moderate - positive	Moderately beneficial	Certain	Moderate - positive	The developer should have an employment policy aimed at maximizing employment opportunities in the local area and in the region, including a procurement policy aimed at supporting and prioritizing upcoming and qualifying subcontractors or SMMEs, were possible	Short-term	Regional	High - positive	Moderately beneficial	Certain	High - positive
Health and safety	Short-term	Site-specific	Moderate - negative	Slightly detrimental	Very likely	Low - negative	The developer should implement health and safety mitigation measures for communities and employees as per the recommendations made in other specialist studies viz., air quality, traffic, visual assessment etc.	Short-term	Site-specific	Low - negative	Negligible	Fairly likely	Very low
No access to potable water	Long-term	Local	Very high - negative	Highly detrimental	Certain	Very high - negative	Potable water beneficiaries should be notified on the decommissioning of the WTW prior to decommissioning. The	Long-term	Local	Moderate - negative	Moderately detrimental	Very likely	Moderate - negative

Impact	Pre-mitigation:						Recommended mitigation	Post-mitigation:					
	Duration	Extent	Intensity	Consequence	Probability	Significance		Duration	Extent	Intensity	Consequence	Probability	Significance
							municipality should provide alternative potable water source for the northern limb beneficiaries						
Loss of employment and business opportunities	Long-term	Regional	Very high - negative	Extremely detrimental	Certain	Very high - negative	employees and businesses benefiting from operation of the WTW should be notified in time regarding the decommissioning of the WTW prior to decommissioning	Long-term	Regional	Low - negative	Moderately detrimental	Fairly likely	Low - negative

Sekuruwe WTW preferred site

Impact	Pre-mitigation:						Recommended mitigation	Post-mitigation:					
	Duration	Extent	Intensity	Consequence	Probability	Significance		Duration	Extent	Intensity	Consequence	Probability	Significance
Pre-construction and Construction Phase													
Income for farm owners (Land access)	Short-term	Local	Very high - positive	Moderately beneficial	Certain	High - positive	The developer should enter into a formal and fair land access agreement. Depending on the negotiations with the affected landowner/s, land access can either mean land purchase, lease agreement or servitude agreement.	Short-term	Local	Very high - positive	Moderately beneficial	Certain	High - positive
Procurement of goods and services	Short-term	Regional	Moderate - positive	Moderately beneficial	Certain	Moderate - positive	The developer should put in place a procurement policy aimed at supporting and prioritizing upcoming and qualifying subcontractors or SMMEs, were possible. The policy should be aimed at	Short-term	Local	Very high - positive	Moderately beneficial	Certain	High - positive

Impact	Pre-mitigation:						Recommended mitigation	Post-mitigation:					
	Duration	Extent	Intensity	Consequence	Probability	Significance		Duration	Extent	Intensity	Consequence	Probability	Significance
							providing first preference to appropriate subcontractors/SMMEs located in the surrounding communities, followed by those located in the municipal area and lastly those located elsewhere or outside the province.						
Employment opportunities	Short-term	Regional	Moderate - positive	Moderately beneficial	Certain	Moderate - positive	The developer should have an employment policy aimed at maximising employment opportunities in the local area and in the region	Short-term	Regional	High - positive	Moderately beneficial	Certain	High - positive
Community expectations	Short-term	Local	Very high - negative	Moderately detrimental	Certain	High - negative	Community expectations should be managed via timely and clear messaging throughout the Stakeholder engagement and consultation process	Short-term	Local	Low - negative	Slightly detrimental	Certain	Low - negative
Health, safety, and security	Short-term	Local		Moderately detrimental	Very likely	Moderate - negative	The developer should implement health and safety mitigation measures for communities and employees as per the recommendations made in other specialist studies viz., air quality, traffic, visual assessment etc. The developer should make sufficient provision for all security measures, not just access control and monitoring of	Short-term	Local	Low - negative	Slightly detrimental	Fairly likely	Low - negative

Impact	Pre-mitigation:						Recommended mitigation	Post-mitigation:					
	Duration	Extent	Intensity	Consequence	Probability	Significance		Duration	Extent	Intensity	Consequence	Probability	Significance
							criminal activities during the pre-operation phases						
Traffic and damage to local and access road	Short-term	Local	Very high - negative	Moderately detrimental	Very likely	Moderate - negative	Traffic should be managed as per the recommendations made in the traffic impact assessment specialist study. The developer should regularly maintain the existing road to avoid damage to the road	Short-term	Site-specific	Low - negative	Negligible	Fairly likely	Very low
Operation Phase													
Employment opportunities	Long-term	Regional	Low - positive	Moderately beneficial	Certain	High - positive	The developer should have an employment policy aimed at maximising employment opportunities in the local area and in the region	Long-term	Regional	High - positive	Highly beneficial	Certain	Very high - positive
Access to Potable water for selected communities in the Northern limb	Long-term	Local	Moderate - positive	Moderately beneficial	Certain	High - positive	A Water Management Master Plan should be in place, clearly specifying which communities in the Northen limb will benefit from accessing potable water	Long-term	Regional	High - positive	Highly beneficial	Certain	Very high - positive
community expectations	Long-term	Local	Very high - negative	Highly detrimental	Very likely	High - negative	The Water Management Master Plan and associated beneficiaries should be communicated to the project interested and affected communities, to avoid creating expectations to from those communities which will not benefit from the project	Long-term	Local	Moderate - negative	Moderately detrimental	Fairly likely	Low - negative
Health and safety	Long-term	Local	High - negative	Moderately detrimental	Certain	High - negative	The developer should implement health and	Long-term	Local	Moderate - negative	Moderately detrimental	Fairly likely	Low - negative

Impact	Pre-mitigation:						Recommended mitigation	Post-mitigation:					
	Duration	Extent	Intensity	Consequence	Probability	Significance		Duration	Extent	Intensity	Consequence	Probability	Significance
							safety mitigation measures for communities and employees as per the recommendations made in other specialist studies viz., air quality, traffic, visual assessment etc.						
Decommission Phase													
Employment and business opportunities	Short-term	Regional	Moderate - positive	Moderately beneficial	Certain	Moderate - positive	The developer should have an employment policy aimed at maximising employment opportunities in the local area and in the region, including a procurement policy aimed at supporting and prioritizing upcoming and qualifying subcontractors or SMMEs, were possible	Short-term	Regional	High - positive	Moderately beneficial	Certain	High - positive
Health and safety	Short-term	Site-specific	Moderate - negative	Slightly detrimental	Very likely	Low - negative	The developer should implement health and safety mitigation measures for communities and employees as per the recommendations made in other specialist studies viz., air quality, traffic, visual assessment etc.	Short-term	Site-specific	Low - negative	Negligible	Fairly likely	Very low
No access to potable water	Long-term	Local	Very high - negative	Highly detrimental	Certain	Very high - negative	Potable water beneficiaries should be notified on the decommissioning of the WTW prior to decommissioning. The municipality should provide alternative	Long-term	Local	Moderate - negative	Moderately detrimental	Very likely	Moderate - negative

Impact	Pre-mitigation:						Recommended mitigation	Post-mitigation:					
	Duration	Extent	Intensity	Consequence	Probability	Significance		Duration	Extent	Intensity	Consequence	Probability	Significance
							potable water source for the northern limb beneficiaries						
Loss of employment and business opportunities	Long-term	Regional	Very high - negative	Extremely detrimental	Certain	Very high - negative	employees and businesses benefiting from operation of the WTW should be notified in time regarding the decommissioning of the WTW prior to decommissioning	Long-term	Regional	Low - negative	Moderately detrimental	Fairly likely	Low - negative

No-go alternative

Code	Impact	Pre-mitigation:					
		Duration	Extent	Intensity	Consequence	Probability	Significance
1	No-go alternative	Long-term	Regional	Very high - negative	Extremely detrimental	Certain	Very high - negative

Cumulative impacts

It is anticipated that cumulative impacts are likely to arise based on the combined effects of the proposed development as well as other existing and planned developments in the area. The three identified cumulative impacts which are likely to arise as a result of the proposed Mokopane and Sekuruwe WTWs are linked to impact related to population influx, community health and multiplier effects on the local economy. It is anticipated that population influx if not managed is likely to place significant pressure on local resources, services, and infrastructure, including the formation of informal settlements, contributing negatively to community health. On the other hand, the proposed development, including other key developments in the area will result in several economic benefits for local communities through direct and multiplier effects.

Conclusion and Recommendations

The proposed WTWs are strategic infrastructure development projects that are aligned with the National Infrastructure Plan (NIP) and the overall goals of the National Development Plan (NDP). The findings of the SIA indicate that the recommended mitigation measures are expected to reduce the significance of the identified negative impacts to acceptable levels, while positive impacts will on average be significantly enhanced to maximise benefits to surrounding communities in the Northen limb. It is finally recommended that the developer should respectively consider the proposed mitigation and maximisation measures included in the report to decrease the effect of negative impacts on communities and maximise the effect of positive impacts. Additionally, the specialist recommends that the proposed development should be authorised since the no-go alternative would hinder the execution of the national strategic plans aimed at providing potable water to communities for social use.

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List of Abbreviations and ACRONYMS

BA	Basic assessment
BUR	Bed Utilisation Rate
CBD	Community Based Development
DFA	Development Facilitation Act
DM	District Municipality
DWS	Department of Water and Sanitation
GDP	Gross Domestic Product
GVA	Gross Value Added
I&APs	Interested and Affected Parties
IDP	Integrated Development Plan
ISA	Infrastructure South Africa
kV	Kilovolts
LED	Local Economic Development
LM	Local Municipality
LP WMP	Limpopo Province Water Master Plan
LSDF	Limpopo Spatial Development Framework
MLM	Mogalakwena Local Municipality
MWMP	Mogalakwena Water Master Plan
MYPE	Mid-Year Population Estimation
NDP	National Development Plan
NEMA	National Environmental Management Act
NIP	National Infrastructure Plan
NWA	National Water Act
NWRS2	The second National Water Resources Strategy
OMM	Olifants Management Model
OMMP-BRWSP	Olifants Management Model Programme Bulk Water Study Phase
ORWRDP	Olifants River Water Resource Development Project
PAJA	Promotion of Administration Justice Act
PP	Public Participation
PPP	Public Participation Process
RAL	Roads Agency Limpopo
RDP	Reconstruction and Development Programme
SANRAL	South African National Road Agency SOC Limited
SDF	Spatial Development Framework
SIA	Social Impact Assessment

SMMEs	Small, Medium-Sized and Micro Enterprises
SOC	State Owned Company
SPLUMA	Spatial Planning and Land Use Management Act
StatsSA	Statistics South Africa
TAs	Traditional Authorities
WDM	Waterberg District Municipality
WSA	Water Services Authority
WSDP	Water Services Development Plan
WTW/s	Water Treatment Works
ZNJV	Zutari Ndodana Joint Venture

1. Introduction

Mokopane and Sekuruwe WTWs are proposed as part of the Olifants Management Model (OMM) Programme. The proposed development triggers a Basic assessment (BA) in terms of the National Environmental Management Act (Act No 107 of 1998). It is anticipated that the proposed WTWs will have social consequences (positive and negative, intended, or unintended) on the receiving social environment. This document presents the Social Impact Assessment (SIA) for the proposed WTWs, as part of the BA.

The sub-sections in this section provide an overview on the project, the purpose of this SIA and the SIA methodology adopted by the specialist.

1.1. Project Overview

1.1.1. Project Location

The proposed Mokopane and Sekuruwe WTWs are located in the Mogalakwena Local Municipality (MLM) area, Waterberg District, Limpopo Province, South Africa.

Mokopane WTW is proposed on two site alternatives viz., alternative site and preferred site. The alternative site is located on Portion 69 of the Farm Maribashoek (owner information unknown) and Portion 80 of the Farm Piet Potgietersrus which is owned by MLM (See Figure 1-1 below). The preferred site is located on Portion 80 of the farm Piet Potgietersrus, which is owned by MLM (see Figure 1-2 below).

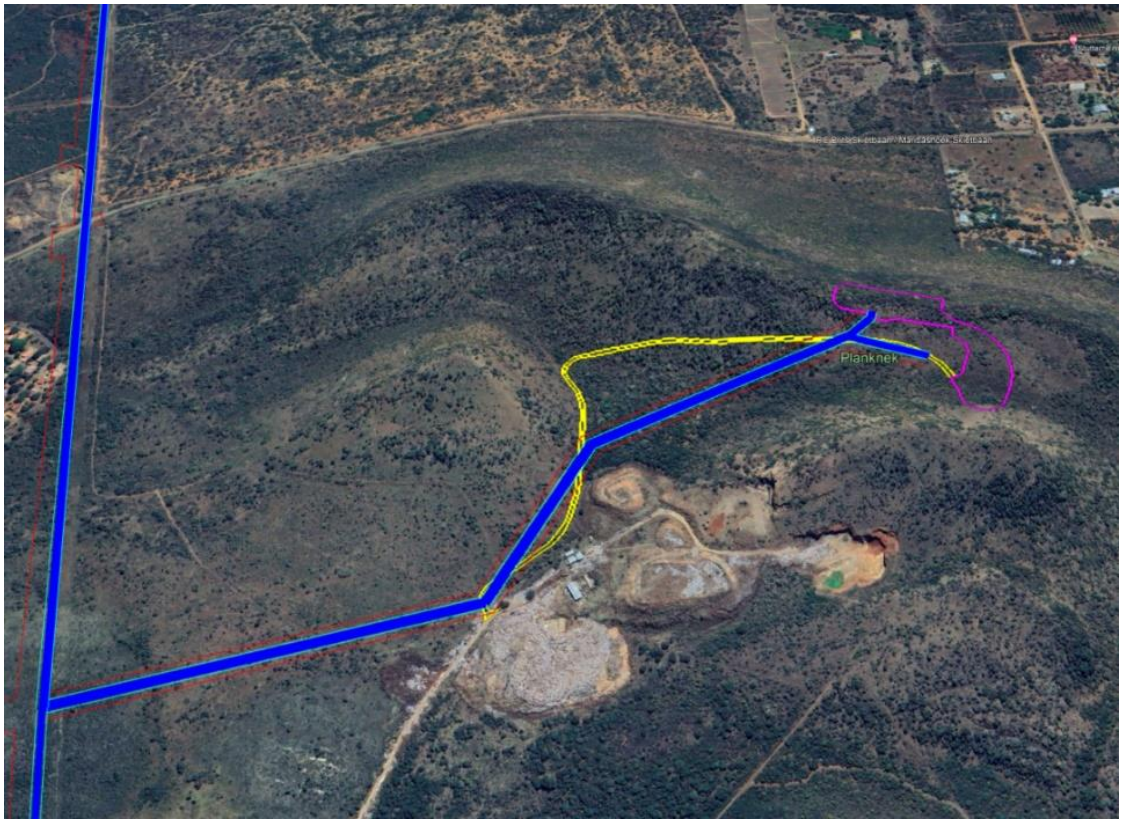


Figure 1-1: Location of the Mokopane WTW alternative site

Figure 1-2: Location of the Mokopane WTW preferred site

Sekuruwe WTW is located north of the town of Sekuruwe, near the Mogalakwena Platinum Mine, on the Farm Blinkwater 820 LR and on the Farm Gillimberg 861 LR (See Figure 1-3below), both Farm properties are owned by the National Government (Republic of South Africa).

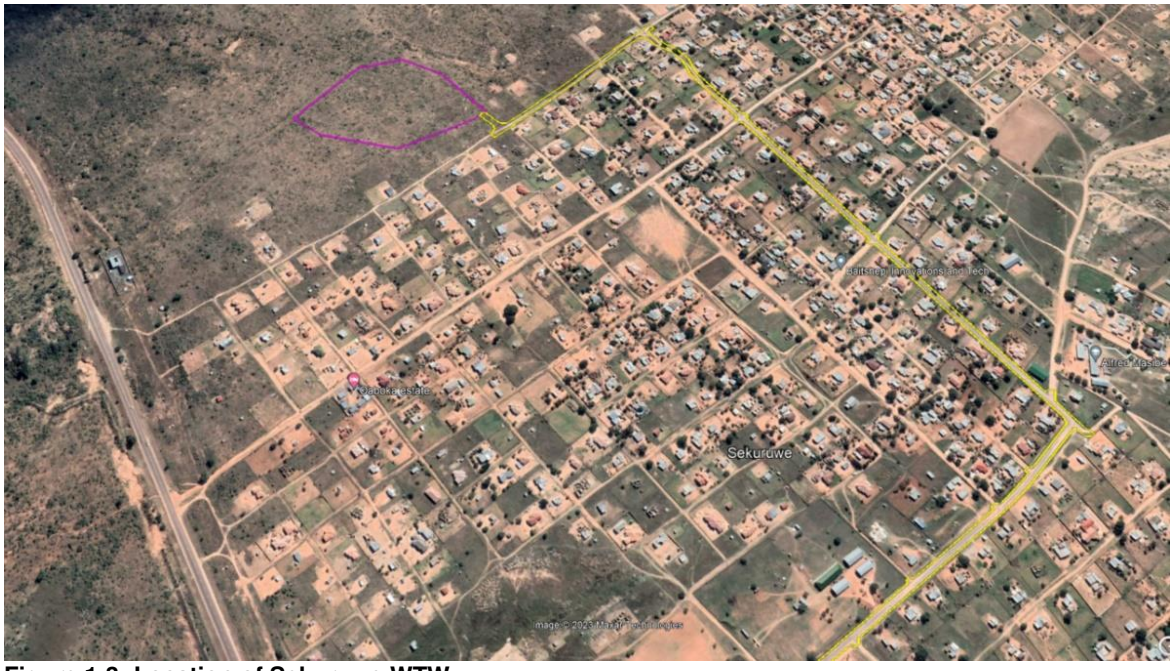


Figure 1-3: Location of Sekuruwe WTW

1.1.2. Project Background

Zutari Ndodana Joint Venture (ZNJV) was previously appointed by the Trans-Caledon Tunnel Authority (TCTA), on behalf of the Department of Water and Sanitation (DWS) for the provision of professional services for the Olifants River Water Resources Development Project – Phase 2 (ORWRDP-2). Initially the Project comprised of the following phases:

- Phase 2A: Construction of De Hoop Dam
- Phase 2B: Pipeline from Flag Boshielo Dam to Pruissen near Mokopane (72km)
- Phase 2B+: New pipe for 2B extension, where existing raw water pipeline to Sekuruwe commences
- Phase 2C: Pipeline from De Hoop Dam to Mooihoek
- Phase 2D: Pipeline from Steelpoort to Mooihoek(24km)
- Phase 2E: Pipeline from Mooihoek to Havercroft Junction (14km)
- Phase 2F: Pipeline from Havercroft Junction to Olifantspoort (44km)
- Phase 2G: Possible second pipeline parallel to Phase 2B
- Phase 2H: Changes and additions to the current Phase 2H (Lebalelo Network); and
- Phase 2I: Pipeline from the De Hoop Dam to the proposed Eskom Tubatse Pump-storage Hydro-electric Scheme (this Phase has been cancelled).

The ORWRDP-2 has since been reconstituted to become the Olifants Management Model Programme Bulk Raw Water Study Phase (OMMP – BRWSP) in recent years, with the Lebalelo Water User Association (LWUA) acting as the implementing agent for the following portions of the project:

- Phase 2B
- Phase 2B+; and
- Phase 2F

The OMMP-BRWSP1 bulk infrastructure plan makes provision for the construction of raw water pipeline systems to the identified target areas. These bulk pipeline systems are now identified by their respective "Phase" number. The relevant bulk pipe that would augment raw water to the Mogalakwena system (i.e., for domestic and mine use) is the proposed Phase 2B pipeline. Phase 2B has been authorised by a revised Record of Decision (rRoD) (Ref: 12/12/20/553) issued in 2006 in terms of the Environmental Conservation Act, (No. 73 of 1989) (ECA). The proposed Water Treatment Works (WTW) are located in two locations along the alignment of Phase 2B+. This phase is an extension of Phase 2B and spans from Pruissen reservoir to Piet-se-Kop. The gravity pipeline has been authorised by EA (12/1/9/1-W120) and EA (12/19/1-W131). The OMMP-BRWSP bulk infrastructure plan makes provision for the construction of raw water pipeline systems to the identified target areas.

Mogalakwena Local Municipality (MLM) is a Water Services Authority (WSA) as contemplated in the Water Services Act (Act 108 of 1997). Therefore, the municipality is responsible for the realisation of the right to access basic water services: ensuring progressive realisation of the right to basic water services, subject to available resources (that is, extension of services), the provision of effective and efficient ongoing services (performance management, by laws) and sustainability (financial planning, tariffs, service level choices, environmental monitoring). The WSA has developed a Water Services Development Plan (WSDP) together with master plans for water and sanitation.

The planning for water and wastewater services in Mogalakwena culminated in the Mogalakwena Water Master Plan (MWMP). As part of the MWMP, two new water treatment works (WTW) are to be provided, namely a works serving the Mokopane Town with an ultimate capacity of 28Ml/d and another servicing the areas north of Mokopane located near Sekuruwe Township with an ultimate design capacity of 21Ml/d.

The technical features of the scheme proposed in the WMP (for the ultimate scheme) include the following:

- A raw water pipe from the farm Pruissen (where it connects to the bulk water pipeline from Flag Boshielo Dam) to new a WTWs. This works will supply potable water to Mokopane CBD and town areas.
- The raw water pipe will continue from the WTWs at Mokopane area up to the rural town area of Sekuruwe. At this point a second water treatment facility will be constructed. This facility will be able provide potable water to mining clients and residents for various rural villages.
- Mining water users will also be able to draw water from the raw water line at various points towards Sekuruwe. This will be handled by means of offtake agreements.

[1] Previously known as the Olifants River Water Resources Development Project (ORWRDP)

1.2. Purpose of the SIA

The purpose of this SIA is to;

- Identify the social implications associated with the proposed Mokopane and Sekuruwe WTWs;
- Assess, categorise, and rate the impacts based on the project phase which they are likely to occur viz., pre-construction and construction, operation and decommission;
- Recommend mitigation measures for identified negative impacts and enhancement measures for identified positive impacts; and
- Provide an assessment of cumulative impacts, including no-go alternative.

2. Social Impact assessment approach

The Social Impact Assessment was mainly a desktop study, as such, the social specialist did not undertake any site visit or external engagements as part of the assessment. Instead, the specialist relied on available secondary data source to undertake the assessment.

2.1. Desktop review

Secondary data sources were reviewed to develop an understanding of the socio-economic baseline prevailing in the proposed study area[2], the documents reviewed include:

- Available digital ariel photography of the proposed WTWs;
- Statistical publications from Statistics South Africa (Stats SA);
- Census data (Stats SA); and
- Mogalakwena Local Municipality Integrated Development Plan (IDP).

Specialists' reports have been reviewed to gain an understanding of the proposed developments and to scope for other anticipated impacts which are likely to have social implications. The reviewed specialist's documents include:

- Environmental Sensitivity Screening report for the proposed Mokopane WTW alternative site and preferred site;
- Environmental Sensitivity Screening report for the proposed Sekuruwe WTW preferred site;
- LEDET enquiry form for confirmation of listed activities; and
- Specialists' sensitivity statements viz., hydrology, terrestrial, visual and land scape, agriculture, air quality, aquatic, civil aviation, geotechnical investigations, heritage, and hydrology.

This draft SIA has been prepared prior to the Public Participation Process (PPP), as such the Public Participation (PP) report could not be reviewed to scope for potential social impacts. Prior to finalisation of the SIA document, the specialist will:

- Review all PP reports prepared as part of the BA process; and
- Review final specialists reports for alignment, especially alignment on mitigation measures for identified potential negative impacts which have social implications.

[2] No primary data collection was undertaken to inform the socio-economic data of the proposed project location.

2.2. Identification of impacts

Positive and negative impacts likely to be induced by the proposed developments have been identified taking into consideration similar projects and specialists' knowledge and experience.

2.3. Scope of impact assessment

Potential Impacts have been assessed for the pre-construction and construction, operation, and decommissioning phases of the proposed developments. Indirect impacts (cumulative) likely to be induced by the identified proposed development have also been included in the report, including the assessment of the no-go alternative.

2.4. Ratings of impacts

This section briefly outlines the proposed method for assessing the significance of the potential environmental and socio-economic impacts identified during the pre-construction and construction, operational and decommissioning phase.

For each predicted impact, criteria are applied to establish the significance of the impact based on likelihood (probability) and consequence, firstly in the case of no mitigation and then with the most effective mitigation measure(s) in place.

The criteria that contribute to the consequence of the impact are **INTENSITY** (the degree to which pre-development conditions are changed); the **DURATION** (length of time that the impact will continue); and the **EXTENT** (spatial scale) of the impact. The sensitivity of the receiving environment and/or sensitive receptors is incorporated into the consideration of consequence by appropriately adjusting the thresholds or scales of the intensity, duration, and extent criteria, based on expert knowledge. For each impact, the specialist applies professional judgement to ascribe a numerical rating for each criterion according to the ratings provided. The consequence is then established using the formula:

Consequence = intensity x (duration + extent)

Depending on the numerical result of this calculation, the impact's consequence would be classified as one of the following:

- Extremely; highly; moderately; slightly detrimental;
- Negligible; or
- Slightly, moderately, highly, or extremely beneficial.

To determine the significance of an impact, the probability (or likelihood) of that impact occurring is also considered. In assigning probability, the specialist must consider the likelihood of occurrence and the degree of uncertainty and detectability of the impact. Significance is calculated according to the following formula:

Significance = consequence x probability

Depending on the numerical result of this calculation, the impact would fall into a significance category of one of the following:

- Very Low;
- Low (negative or positive);
- Moderate (negative or positive);
- High (negative or positive);
- Very High (negative or positive).

2.5. Mitigation measures

The significance of an impact indicates the level of mitigation or enhancement measures required to enhance positive impacts and reduce negative impacts during the various project phases. Suitable and appropriate mitigation measures have been proposed for each potential impact based on specialist recommendations and expertise.

3. Legal and Policy framework

This section provides context of the South African legal and policy framework and development plans which are relevant to the assessment and management of social implications associated with proposed development projects.

3.1. Constitution of the South Africa (Act No. 108 of 1996)

Development projects in south Africa should aim to comply will South African constitutional and common law by carrying out all activities with due diligence and care for the rights of others. As contained in the Constitution the rights of all South Africans are protected as outlined in Chapter 2: The Bill of Rights. These rights form the basis of democracy in South Africa. The Constitution (including the Bill of Rights) binds the Legislature, the Executive, the Judiciary, and all organs of state and is the overriding legislation of South Africa. While all items in the Bill of Rights are considered to be of equal importance, key items in the Bill of Rights that have a bearing on social rights and issues in this project include (but are not necessarily limited to):

- Life: Everyone has the right to life;
- Human Dignity: Everyone has inherent dignity and the right to have their dignity respected and protected;
- Equality: Everyone is equal before the law and has the right to equal protection and benefit from the law;
- Freedom of religion, belief, and opinion: Everyone has the right of freedom of conscience, religion, thought, belief, and opinion;
- Environment: Everyone has the right to an environment that is not harmful to their health or well-being, and to have the environment protected for the benefit of present and future generations, through reasonable legislative and other measures that prevent pollution and ecological degradation, promote conservation and secure ecologically sustainable development and the use of natural resources while promoting justifiable economic and social development;
- Property: No person may be deprived of property except in terms of the law of general application, and no law may permit arbitrary deprivation of property. Property may be expropriated only in terms of the law of general application for a public purpose or in the public interest. The public interest includes South Africa's commitment to land reform and to reforms to bring about equitable access to all South Africa's natural resources. Property is not limited to land;
- Health care, food, water, and social security: Everyone has the right to have access to health care services, including reproductive health care, sufficient food and water and social security, including, if they are unable to support themselves and their dependents, appropriate social assistance;
- Language and culture: Everyone has the right to use the language and participate in the cultural life of their choice, but no one exercising these rights may do so in a manner inconsistent with any provision of the Bill of Rights;
- Cultural, religious, and linguistic communities: Persons belonging to cultural, religious, or linguistic communities may not be denied the right, with other members of the that community to enjoy their culture, practice their religion and use their language, and to form, join and maintain cultural, religious, and linguistic associations and other organs of civil society. These rights must be exercised in a manner that is consistent with any provision in the Bill of Rights;

- Access to information: Everyone has the right of access to any information held by the state and any information that is held by another person and that is required for the exercise or protection of any rights; and,
- Just administrative action: Everyone has the right to administrative action that is lawful, reasonable, and procedurally fair. Everyone whose rights have been adversely affected by administrative action has the right to be given written reasons. This right has been given effect via the Promotion of Administrative Justice Act ((PAJA) Act 3 of 2000).

3.2. National Environmental Management Act (Act No. 107 of 1998) (NEMA)

This Act provides that sustainable development requires the integration of social, economic, and environmental factors in the planning, implementation, and evaluation of decisions in order to ensure that development serves present and future generations. The Act further sets out the process for public participation. The social relevance of NEMA to social impact and management is provided below:

- Development projects must be socially, environmentally, and economically sustainable;
- The social, economic and environmental impacts of activities, including disadvantages and benefits, must be considered, assessed and evaluated, and decisions must be appropriate in light of such consideration and assessment; The participation of all interested and affected parties in environmental governance must be promoted, and all people must have the opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation, and participation by vulnerable and disadvantaged persons must be ensured;
- Decisions must consider the interests, needs and values of all interested and affected parties, and this includes recognising all forms of knowledge, including traditional and ordinary knowledge;
- Decisions must be taken in an open and transparent manner, and access to information must be provided in accordance with the law;
- Community well-being and empowerment must be promoted through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means;
- Environmental management must place people and their needs at the forefront of its concern, and serve their physical, psychological, developmental, cultural, and social interests equitably;
- Environmental management must be integrated, acknowledging that all elements of the environment are linked and interrelated, and it must consider the effects of decisions on all aspects of the environment and all people in the environment by pursuing the selection of the best practicable environmental option;
- Environmental justice must be pursued so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons;
- Equitable access to environmental resources, benefits, and services to meet basic human needs and ensure human well-being must be pursued and special measures may be taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination;
- The right of workers to refuse work that is harmful to human health or the environment and to be informed of dangers must be respected and protected;
- The environment is held in public trust for the people. The beneficial use of environmental resources must serve the public interest and the environment must be protected as the peoples' common heritage; and
- The vital role of women and youth in environmental management and development must be recognised and their full participation therein must be promoted.

3.3. National Water Act, 1998 (NWA)

The NWA seeks to ensure that the country's water resources are protected, used, developed, conserved, managed, and controlled in a sustainable and equitable manner for the benefit of all people. The NWA assigns the national government as the public trustee of the water resources. Acting through the Minister of Water and Sanitation, it has the power to regulate the allocation, use, flow, and control of all water in the Republic.

3.4. The Water Service Act, 1997 (WSA)

The overall objective of the WS Act is to provide a framework regarding municipalities' role as Water Services Authorities, and to look after the interests of consumers. It also provides clarity regarding the role of other water services institutions, especially water services providers and water boards. The WS Act prescribes the legislative duty of municipalities as WSA to supply water and sanitation according to national norms and standards. In addition, it regulates Water boards as important water service providers. It acknowledges that although municipalities have authority to administer water supply services and sanitation services, all government spheres are required to works towards this objective, within the limits of physical and financial feasibility.

3.5. Spatial Planning and Land Use Management Act (Act No. 16 of 2013) (SPLUMA)

The Spatial Planning and Land Use Management Act (SPLUMA) has been implemented on 1 July 2015. The Act aims to reform and guide legislation pertaining to spatial planning and land use management. It enables government to formulate policies, plans and strategies for land use and land development that addresses existing spatial, economic, and environmental challenges. The Act also repeals the Development Facilitation Act of 1995. All municipalities are required to develop land use and zoning plans within five years.

3.6. Municipal Systems Act (Act No.32 of 2000)

The Municipal Systems Act provides for the principles, mechanisms and processes that are necessary to enable municipalities to move progressively towards the social and economic upliftment of local communities, and to ensure universal access to essential services that are affordable to all. In accordance with this Act, all municipalities are required to develop and implement a five-year IDP and SDF for their administrative areas. Section 35 of the Act confirms the statutory status of the municipal IDPs and SDFs. The Act also states that, apart from serving as principal strategic planning instruments to guide and inform municipal decisions on land use, the IDP binds the municipality in the exercise of its executive authority. However, where there is inconsistency between a municipality's policy and national or provincial legislation, national legislation should prevail.

3.7. Development Facilitation Act (Act No. 67 of 1995) (DFA)

The Development Facilitation Act (DFA) outlines various principles concerning land development in Section 3 of the Act. Some of the relevant principles are briefly highlighted below (Babour, 2007). These principles include (but are not limited to):

- Promoting the integration of the social, economic, institutional, and physical aspects of land development;
- Optimising the use of existing resources including such resources relating to agriculture, land, minerals, bulk infrastructure, roads, transportation, and social facilities;
- Promoting integrated land development in rural and urban areas in support of each other;

- Promoting the availability of residential and employment opportunities in close proximity to or integrated with each other;
- Promoting a diverse combination of land uses, also at the level of individual erven or subdivisions of land;
- Discouraging the phenomenon of "urban sprawl" in urban areas and contributing to the development of more compact towns and cities;
- Contributing to the correction of the historically distorted spatial patterns of settlement in the Republic and to the optimum use of existing infrastructure in excess of current needs;
- Encouraging environmentally sustainable land development practices and processes;
- Promoting land development which is within the fiscal, institutional, and administrative means of the Republic;
- Promoting the establishment of viable communities and sustained protection of the environment.

3.8. Labour legislation

The following acts should be considered when developing employment policies associated with the proposed development, the following acts should be considered:

- Employment Equity Act, 1998 (Act No. 55 of 1998);
- Basic Conditions of Employment Act, 1997 (Act No. 75 of 1997);
- Labour Relations Act, 1995 (Act No. 66 of 1995); and
- Skills Development Act, 1998 (Act No. 97 of 1998 as amended).

3.9. Health and Safety legislation

The following acts are applicable during the pre-construction, construction, and operation phases:

- Occupational Health and Safety Act (Act 85 of 1993) and Regulations
- Compensation for Occupational Injuries and Diseases Act (Act 130 of 1993).

3.10. National Water Resources Strategy (June 2013) (NWRS2)

This strategy provides a national framework against which water resources across the country will be managed and, in this sense, aims to;

"…*ensure that national water resources are protected, used, developed, conserved, managed and controlled in an efficient and sustainable manner towards achieving South Africa's development priorities in an equitable manner over the next five to 10 years. This Strategy responds to priorities set by Government within the National Development Plan (NDP) and National Water Act (NWA) imperatives that support sustainable development. The NWRS2 acknowledges that South Africa is a water-stressed country and is facing a number of water challenges and concerns, which include security of supply, environmental degradation and resource pollution, and the inefficient use of water*" (Department of Water Affairs, 2013a, p. iii).

3.11. National Development Plan (2011) (NDP)

The National Development Plan of 2010 proposes to "invigorate and expand economic opportunity through infrastructure, more innovation, private investment, and entrepreneurialism. The Plan aims to ensure that all South Africans attain a decent standard of living through the elimination of poverty and reduction of inequality. The core elements of a decent standard of living identified in the Plan are,

housing, water, electricity and sanitation, safe and reliable public transport, quality education and skills development, safety, and security; quality health care, social protection, employment; recreation and leisure, clean environment, and adequate nutrition.

3.12. National Infrastructure Plan 2050, Phase I

The National Infrastructure Plan 2050 (NIP 2050) Phase I, was published in the Government Gazette of 11 March 2022. The goal of the NIP 2050 is to create a foundation for achieving the National Development Plan's vision of inclusive growth. Prepared by Infrastructure South Africa (ISA), the NIP 2050 offers a strategic vision and plan that link top NDP objectives to actionable steps and intermediate outcomes. It is further envisaged that infrastructure development projects will contribute significantly to the goals of the NDP. The NDP anticipates, amongst others, universal and reliable access to water of an acceptable quality and quantity in support of a strong, inclusive economy and a healthy environment by 2030, a commitment that must be sustained thereafter.

4. Social Baseline

This section presents the social baseline of Mogalakwena Local Municipality, including the socio-economic conditions in Waterberg District Municipality and Limpopo province.

4.1. Geographical Description of the project area

The Mokopane and Sekuruwe WTWs are proposed in the Mogalakwena Local Municipality which falls within the Waterberg District Municipality in the Limpopo Province.

The Limpopo Province is South Africa's most northern province and covers an area of 125 754 km^2, it shares international borders with Mozambique, Zimbabwe, and Botswana. It also borders the Gauteng, Mpumalanga, and North West Provinces. The Waterberg District Municipality is located in the western part of the Limpopo Province and covers an area of 44,913 km^2. It shares a border with the North West and Gauteng Provinces. It is the biggest district in the province and shares five border control points with Botswana. Main towns in the area are Amandelbult Mine Town, Bela-Bela, Lephalale, Modimolle, Mokopane, Mookgophong, Pienaarsrivier, Thabazimbi and Vaalwater. The Mogalakwena Local Municipality covers an area of 6,156 km^2. It was established on 5 December 2000 when the Greater Potgietersrus, Bakenberg and Koedoesrand/Rebone local authorities were amalgamated to form the new municipality.

4.1.1. Population dynamics and spatial status

As per the 2016 Stats SA Community survey, the MLM had 328,161 people. The municipality saw an increase of 0.9% population growth within the intercensal period between 2016 and 2022. According to the StatsSA Mid-year population estimations 2016-2031, the Waterberg District Municipality (WDM) (Mogalakwena Local Municipality is part of this district municipality) is forecasted to see a population growth of 0.7% annually.

The MLM has an average household size of 3.2, which is just short of the provincial average of 3.3. Mogalakwena Local Municipality projections of the household numbers are estimated to increase with 18,696. The largest estimated growth within the WDM. The local municipality has 35.1% of the population is under the age of 15 years and the working-age population (youth and adults ages 15 to 64 years) close to 55%. The StatsSA MYPE 2022 also indicates that 185,451 residents live within the upper-bound poverty of R1 335 per person per month. A further 22.8% of the population have no form of schooling attained. Close 10% of the adults have attained higher level education.

Mogalakwena Local Municipality with a provincial Gross Domestic Product (GDP) contribution of 4.3% or R18 million of the province's overall GDP. A diverse economy, however, the MLM is stronger in mining and quarrying and government and community services industries. Mogalakwena Local Municipality falls under the Bushveld Mineral Complex, it contains one of the riches ore deposits. Furthermore, a reserve of platinum, chromium, palladium, osmium, iridium, rhodium, and ruthenium are of the world's largest. It extends over 67,000km2.

4.1.2. Migration and Urbanisation Trends

The latest data source of migration available is the StatsSA 2022 Mid-year population estimates. It is on provincial levels.

Table 1 below, indicates that Limpopo experienced a negative net migration of -187,356 people in the period of 2016 – 2021. The in-migration was much less than the out-migration. Figure 3-1 provides a snapshot of the provincial migration streams of Limpopo. The largest pool of people migrated to Gauteng (75.5%), Mpumalanga (10.4%) and North West (7.1%). Over the period of 2016 to 2021 468,149 people migrated out of Limpopo. Further, the in-migration saw a total of 280,793 which the most significant portion of people 37% came from Gauteng and 32% outside of South Africa.

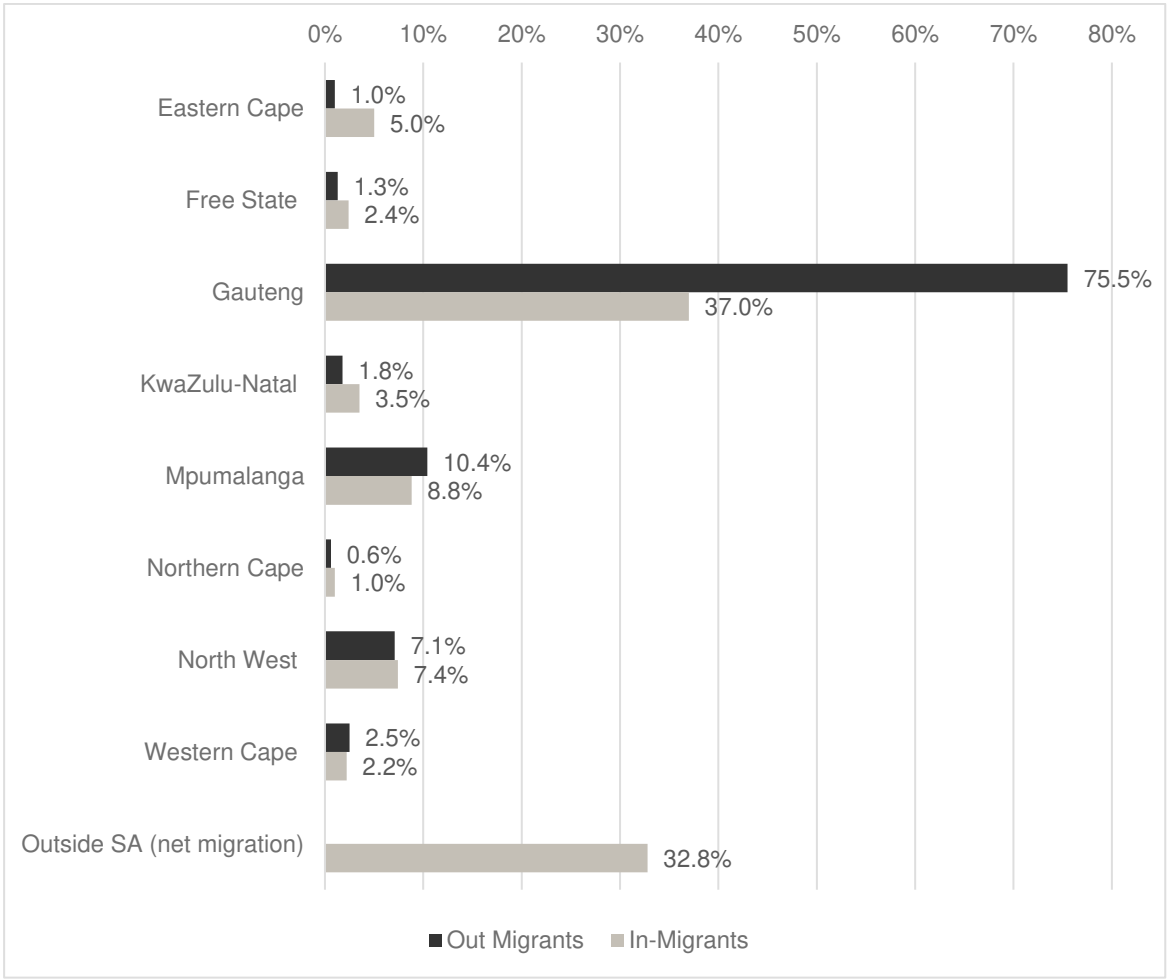


Figure 4-1: Limpopo estimated provincial migration streams, 2016-2021

Source: StatsSA Mid-Year Population Estimates (MYPE), 2022

Table 1: Estimated provincial migration streams, 2016 to 2021

Province in 2016	Province in 2021												
	EC	FS	GP	KZN	LIM		MP	NC	NW	WC	Out-migrants	In-migrants	Net migration
Eastern Cape (EC)	0	13,111	146,972	98,810	**14,087**	**5.0%**	16,900	8,130	37,856	175,892	511,757	192,412	-319,345
Free State (FS)	8,561	0	83,352	7,981	**6,653**	**2.4%**	10,948	9,215	24,137	12,390	163,237	134,719	-28,517
Gauteng (GP)	52,240	40,607	0	70,611	**103,774**	**37.0%**	83,059	12,678	111,642	98,742	573,354	1,559,881	986,527
KwaZulu-Natal (KZN)	26,145	12,657	230,144	0	**9,819**	**3.5%**	37,693	8,834	12,014	34,307	371,614	288,533	-83,081
Limpopo (LIM)	**4,580**	**5,937**	**353,514**	**8,415**	**0**	**-**	**48,472**	**2,649**	**33,017**	**11,564**	**468,149**	**280,793**	**-187,356**
	1.0%	**1.3%**	**75.5%**	**1.8%**	**-**	**-**	**10.4%**	**0.6%**	**7.1%**	**2.5%**			
Mpumalanga (MP)	5,315	5,494	141,862	13,311	**24,664**	**8.8%**	0	2,446	14,130	10,308	217,531	282,740	65,208
Northern Cape (NC)	4,582	9,226	17,372	5,882	**2,756**	**1.0%**	4,668	0	13,209	18,936	76,632	88,320	11,688
North West (NW)	5,423	12,311	113,111	6,377	**20,785**	**7.4%**	12,423	24,660	0	9,528	204,618	320,161	115,543
Western Cape (WC)	53,601	8,451	65,638	13,846	**6,115**	**2.2%**	7,680	13,493	8,834	0	177,658	469,984	292,325
Outside SA (net migration)	31,965	26,925	407,915	63,299	**92,140**	**32.8%**	60,896	6,214	65,320	98,317			

Source: StatsSA Mid-Year Population Estimates (MYPE), 2022

4.1.3. Education

The education levels of the Limpopo Province have shown a decrease to functional literacy rate change from 2016 (69.3%) to 2021(68.0%). Shown in table 2 below, Limpopo's rate is lower than the national rate. The inability of an individual to effectively apply numeracy and literacy skills to manage their daily living, is known as functional illiteracy. The WDM has seen over the period of 2016 to 2021 an increase on functional illiteracy rate for males and a slight decrease for the females. Furthermore, table 2 below indicates that MLM functional literacy rate has decreased over the period, from 66.0% to 64.1%.

In the Limpopo province, the highest level of education attainment for individuals aged 20 or older is some secondary (31.0%). Some secondary is described as the individual has received a certificate with less than grade 12 or Std 10 and diploma with less than Grade 12 or Std 10.

Table 2:Adult education level trends - Functional illiteracy and literacy rates, 2016 to 2021

Area	2016		2021		2016 to 2021	2016		2021	
	Functional illiteracy rate	Functional literacy rate	Functional illiteracy rate	Functional literacy rate	Functional illiteracy rate change	Functional illiteracy rate (%)		Functional illiteracy rate (%)	
						Male	Female	Male	Female
South Africa	21.5%	77.3%	22.9%	76.7%	1.4%	44.2%	55.8%	44.5%	55.5%
Limpopo Province	29.8%	69.3%	31.9%	68.0%	2.0%	37.2%	62.8%	37.9%	62.1%
Waterberg District	29.3%	68.7%	31.7%	67.9%	2.5%	46.2%	53.8%	47.3%	52.7%
Mogalakwena	33.5%	66.0%	35.8%	64.1%	2.3%	37.3%	62.7%	37.2%	62.8%

Source: Own calculations based on StatsSA MYPE 2021 and 2022, Quantec Standardised Regional Data, Easy Data 2022

Table 3: Adult education levels - highest level of education attainment, 2021

Area	No schooling	Less than primary	Complete primary	Some secondary	Complete secondary (Grade 12 or equivalent)	Higher education	Other
South Africa	12.6%	10.4%	3.9%	30.3%	30.0%	12.6%	0.3%
Limpopo Province	21.4%	10.4%	4.0%	31.0%	22.0%	11.0%	0.1%
Waterberg District	18.2%	13.6%	4.8%	31.6%	21.7%	9.8%	0.4%
Mogalakwena	22.8%	13.1%	4.2%	30.2%	19.9%	9.9%	0.1%

Source: Quantec Standardised Regional Data, Easy Data 2022

4.1.4. Employment

According to Quantec Standardised Regional Data (2022), Limpopo's employment rate shown a decrease in 2021 was 58.3%, compared to the 2016 of 66.3%. The provincial annual average growth rate declined to -2.58%. The period of 2020 and 2021 was an evident decline in the employment rate due to the unforeseen pandemic outbreak of the Corona Virus. This had a negative effect on the job industry, resulting in significant job retrenchments which was due to the impact the pandemic had on the business operations to remain sustainable. Furthermore, as shown in table 5, there was a significant increase to the unemployment rate on provincial, district and local municipality level.

Table 4 depicts that MLM had a decrease in the total employment growth in numbers of -5 053 with an average annual growth rate of -2.9%. Which is much higher than the district's average annual growth rate, however, lesser than the total growth in numbers.

Table 4: Provincial, district and local municipality employment trends, 2016 to 2021

Area	2016					2021					2016 to 2021	
	Labour force	Total employed (formal + informal sector)		Employed: formal sector	Employed informal sector	Labour force	Total employed (formal + informal sector)		Employed: formal sector	Employed informal sector	Total employment growth in numbers	Total employment AAGR (%)
		Number	% of total labour force	% of total employed	% of total employed		Number	% of total labour force	% of total employed	% of total employed		
South Africa	21,546,001	15,793,377	73.3%	75.2%	24.8%	22,201,460	14,543,241	65.5%	82.3%	17.7%	-1,250,136	-1.6%
Limpopo Province	1,633,438	1,082,972	66.3%	69.8%	30.2%	1,662,823	969,469	58.3%	78.4%	21.6%	-113,503	-2.2%
Waterberg District	263,407	205,920	78.2%	74.8%	25.2%	262,429	188,185	71.7%	82.1%	17.9%	-17,735	-1.8%
Mogalakwena	84,734	55,353	65.3%	73.3%	26.7%	86,807	50,300	57.9%	80.9%	19.1%	-5,053	-1.9%

Source: Quantec Standardised Regional Data, Easy Data 2022

Table 5: Provincial, district and local municipality unemployment trends, 2016 to 2021

Area	2016		2021		2016 to 2021		
	Total unemployed	Unemployment rate (unemployed as % of labour force)	Total unemployed	Unemployment rate (unemployed as % of labour force)	Total percentage point change in unemployment rate	Total unemployment growth in numbers	Total unemployment AAGR (%)
South Africa	5,752,624	26.7%	7,658,219	34.5%	7.8%	1,905,594	5.9%
Limpopo Province	550,466	33.7%	693,354	41.7%	8.0%	142,888	4.7%
Waterberg District	57,487	21.8%	74,244	28.3%	6.5%	16,757	5.2%
Mogalakwena	29,381	34.7%	36,507	42.1%	7.4%	7,126	4.4%

Source: Quantec Standardised Regional Data, Easy Data 2022

4.1.5. Economic Structure

The Limpopo Province is connected to the Maputo Development Corridor through the Phalaborwa Spatial Development Initiatives, a network of road and rail corridors linking the major harbours. The province aims to open up Limpopo for investment and trade. This is supported through the airports situated in major cities of the province.

In 2021, MLM ranked 9 overall in the Limpopo province. The mining sector is the main driver of the economy. The mineral deposits include iron ore, platinum group metals, high and middle grade coking coal, chromium, antimony, diamonds, copper, and phosphate. The key economic development in MLM is the Platinum mines, the surrounding communities are highly expectant for procurement and employment opportunities. Which could have a significant impact on the area if the mines were to close.

The wellbeing of a region's economy is another important indicator, the rate at which the economy is growing. Between 2016 and 2021 the MLM's economy grew at an annual average of 1.3%. This is much higher than the national annual growth rate of 0.3% per annum. In Limpopo, the one highest contribution to the total Gross Value Added (GVA) current prices for 2021 is mining and quarrying. This industry's

(mining and quarrying) contribution at provincial level (31.0%) to the GVA is much higher than the contribution to the national level (8.5%). MLM contribution at municipal level was 28.6%. The municipality seems less dependent on the mining and quarrying industries as they have substantial contributions to GVA in other industries.

Table 6: Limpopo's industry contribution to total GVA (current prices), 2021

Area	Total GVA (R'millions, current prices 2021)	Agriculture	Mining and quarrying	Manufacturing	Electricity, gas and water	Construction	Wholesale and retail trade, catering and accommodation	Transport, storage and communication	Finance, insurance, real estate and business services	Government and community services
South Africa	**5,572,608**	**2.7%**	**8.5%**	**13.1%**	**3.1%**	**2.5%**	**13.5%**	**7.1%**	**23.7%**	**25.7%**
Limpopo province	**421,780**	**3.0%**	**31.0%**	**2.5%**	**3.5%**	**1.8%**	**13.3%**	**3.6%**	**16.8%**	**24.5%**
Waterberg District	**75,727**	**2.6%**	**63.5%**	**1.7%**	**1.6%**	**1.2%**	**7.0%**	**2.2%**	**8.8%**	**11.4%**
Mogalakwena	18,167	2.8%	28.6%	3.3%	2.1%	2.4%	12.9%	3.4%	18.6%	25.9%

Source: IHS Global Insight Regional Explorer, 2022. Zutari-CSIR collaboration for analysis

4.1.6. Health

The primary health care facilities in MLM are hospitals (3), clinics (26) and mobile clinics (12). For more than 80% of the population the health facilities are within 120 minutes of walking distance. The Mokopane WTW alternative 1 and 2 is approximately 4.7km east from the Mokopane Platinum clinic and approximately 9.3km south east from the Mokopane hospital. The Sekuruwe WTW is approximately 1.6km north from the Sekuruwe clinic.

The Bed Utilisation Rate (BUR) reflects the usage of hospital beds over a given period of time (over a year at times). In 2011/12, South Africa's BUR was at 62.7%. The WDM has a 1.3 district hospital beds per 1 000 population. This is higher than the national (0.8) and provincial (0.7) averages. Further the DM had an average length of stay of 4.5 days *(ibid.).*

Limpopo had the third lowest HIV occurrence in the country at 8.8% (Shisana *et al.,* 2009*).* In 2000, MLM conducted the HIV prevalence survey and the estimated occurrence to be 10.2% (Mogalakwena Local Municipality, 2012).

In 2011, in the Waterberg DM had 681 cases per 100,000 of TB and in the same year, the new HIV positive patients had also confirmed they had TB the rate was at 14.4% (Day *et al,* 2012).

Limpopo is one of the three provinces that is endemic to malaria. Malaria is a seasonal disease and most of the cases are reported during summer rainy months between September and May. Further most cases are reported in December, which is due to the increased movement of people between the different malaria areas.

Table 7 below depicts the number of deaths due to malaria captured between 1997 to 2009 in Limpopo.

Table 7: Limpopo number of deaths due to Malaria, 1997 - 2009

Year	Number of Deaths
1997	170
1998	160
1999	380
2000	324
2001	377
2002	359
2003	359
2004	313
2005	296
2006	183
2007	59
2008	80
2009	570

Source: Mortality and causes of death in South Africa, 1997-2009; Findings from the death notification, Statistics South Africa

The immunisation to protect children against vaccine-preventable diseases is a crucial intervention. During 2011/12, Limpopo exceeded the national target of full immunisation coverage rate for the children under the age of one. Limpopo was at 95.2% and the annual target was 95%.

4.1.7. Housing

Census 2011 is the most recent provincial data that was used to complete this section. In Limpopo almost 70% of the households are on land under the jurisdiction of the Traditional Authorities (TAs). Formal residential covers up to 46.7% households within the Waterberg DM. Mogalakwena LM close to 61% of the households reside on TAs land. More than 90% of the houses are brick structures on stand-alone yards in the MLM.

Over 51% of the household's tenure status in the Limpopo province are owned and fully paid off. Further the MLM households occupy their dwellings rent free.

4.1.8. Water and sanitation

The Sustainable Development Goals has a goal dedicated to the importance for countries to improve the quality of water and sanitation for their citizens – it is classified as a human right. South Africa is committed to improving and ensuring that every citizen has access to sustainable, reliable, affordable, and safe water services. Table 6 below, is comparisons of the most recent water services population figures, the Limpopo Province Water Master Plan (LP WMP) of 2016 and figures proposed in the Limpopo Spatial Development Framework (LSDF). The Limpopo Province Water Master Plan was largely based on the Department of Water and Sanitation (DWS) Reference Framework and the LSDF figures were adapted from household estimations. As depicted in table 6 below the LP WMP projections of the households is slightly lower growth than the projections of the LSDF for the 2031. Further, the variations between the data sources emphasis a need for adequate planning in the province.

Table 8: Limpopo population comparison LSDF to Limpopo Water Master Plan

Population/ municipal area	LSDF 2021	LP WMP 2020	Ratio 2020 to 2021	LSDF 2031	LP WMP 2030	Ratio 2030 to 2031

Limpopo	**5,907,136**	**6,231,941**	**0.948**	**7,024,278**	**6,649,736**	**1.056**
Waterberg	**753,198**	**801,221**	**0.940**	**897,852**	**865,887**	**1.037**
Mogalakwena	343,047	350,132	0.980	401,432	348,970	1.150

Source: Own calculations from draft LSDF 2023, Limpopo Water Master Plan 2016

Stats SA presented information on the water supply levels of the 2001 and 2011 census, together with the general household surveys that are conducted annually at provincial level on a sample of approximately 30 000 households. The household water supply levels are categorised as:

- Below RDP
- Adequate RDP standard (street taps within 200 meters of walking distance, 25 liters/cap/day, pressure, and sustainability)
- Yard connections
- House connections

Figure 5 below, depicts the considered current levels of services of water infrastructure supply in Limpopo. Almost 50% of the households in Limpopo fall under the below RDP and RDP standard.

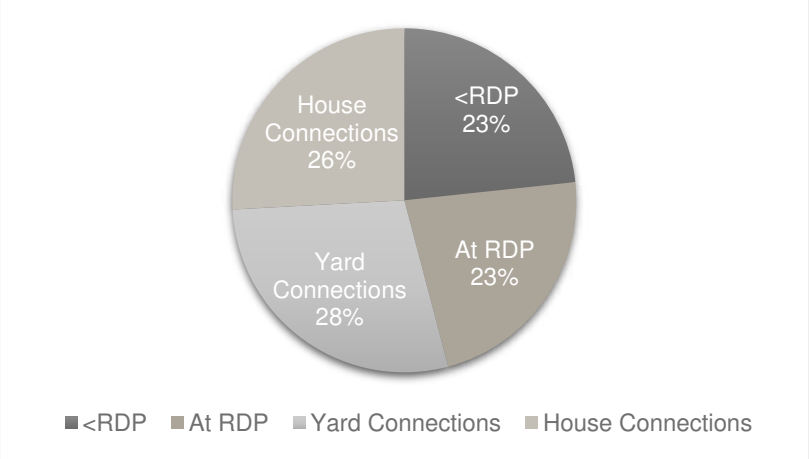


Figure 3-2: Limpopo water supply infrastructure level of service

The water and sanitation need for Limpopo is depicted in figure 3-3 to figure 3-6 The information indicated in these figures are from the 2013 DWS Reference framework for the Province. These figures illustrate the needs that the communities have for adequate water services levels. Although there were no considerable changes during this period but only an escalation of operational problems.

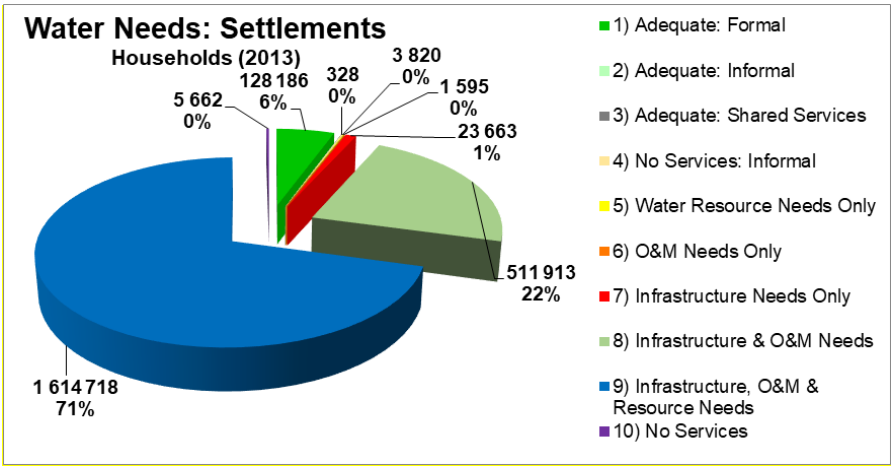


Figure 3-3: Water needs per settlement, 2013 (*Source: 2013 DWS Reference Framework)*

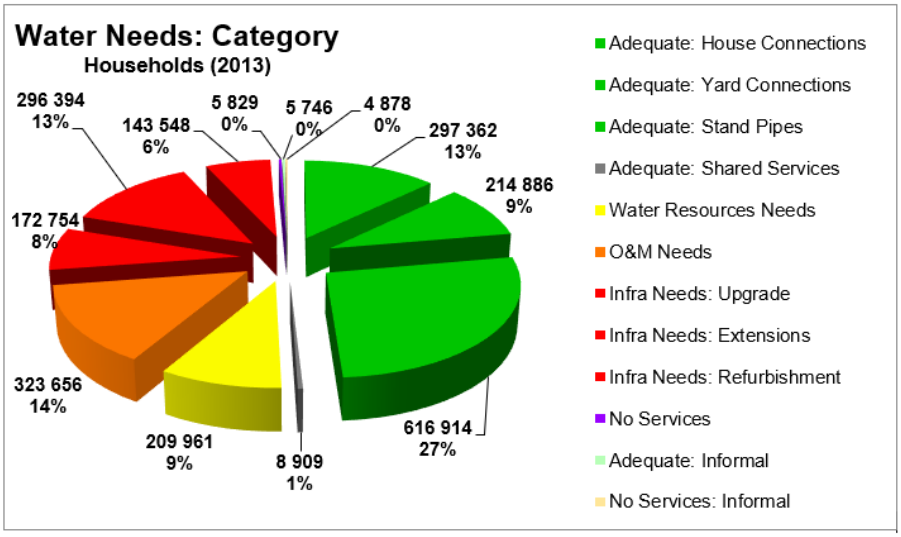


Figure 3-4: Water needs per category, 2013 (*Source: 2013 DWS Reference Framework)*

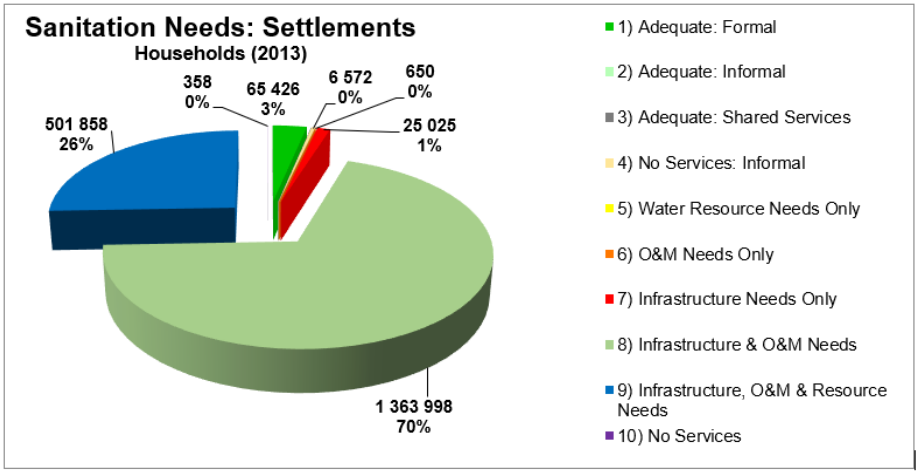


Figure 3-5: Sanitation needs per settlement, 2013 (*Source: 2013 DWS Reference Framework)*

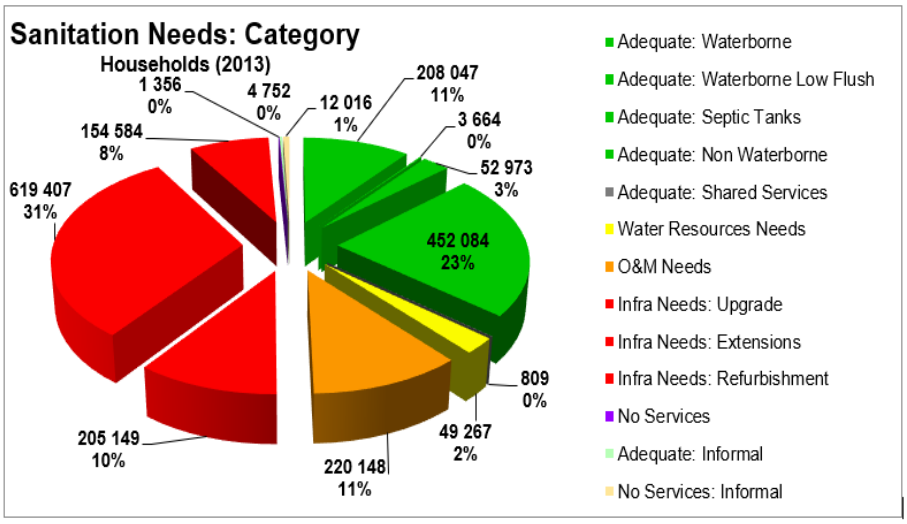


Figure 3-6: Sanitation needs per category, 2013 (*Source: 2013 DWS Reference Framework)*

In 2019, Limpopo had 63.7% of households who had access to improved sanitation service. It increased from 26.9% in 2002). South Africa is projected to have 17% water shortage between supply and demand by 2030. The projected water shortage and climate change will have a significant impact on the traditional way of providing waterborne sanitation.

Limpopo has a large number of rural settlements; the development of the water and sanitation infrastructure has become a significant priority for the province. The latest information for Limpopo is shown in table 7 below of the sanitation levels of service. The current sanitation infrastructure is inadequate; however, Limpopo has no bucket sanitation system. The census figure of 0.1% should have been zero. Limpopo has the lowest percentage of all provinces in South Africa to have access to any type of flush toilet. Majority of the households in Limpopo used pit latrines, without ventilation pipes.

Table 9: Limpopo's sanitation levels of service

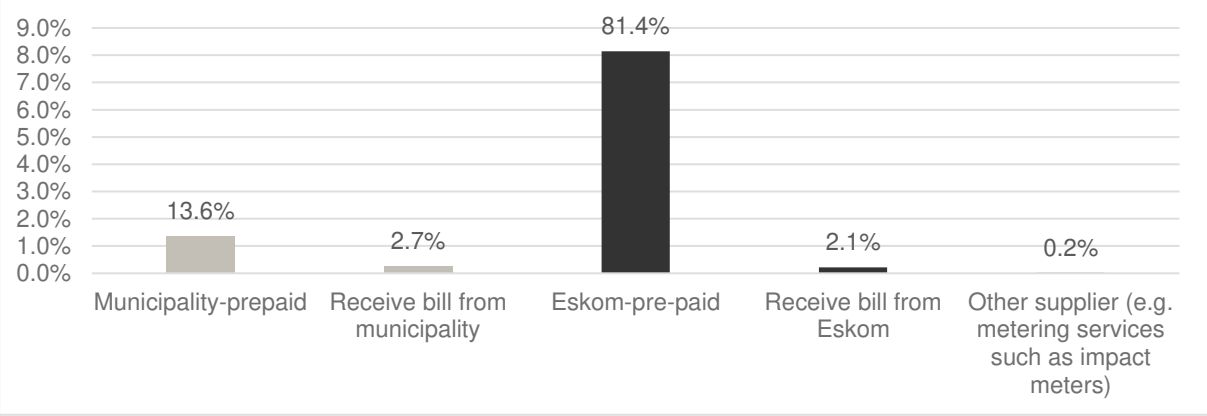
Sanitation levels of service	Percentage
Flush Toilet connected to a public sewerage system	18.6%
Flush toilet connected to a septic or conservancy tank	5.9%
Pour flush toilet connected to a septic tank or pit	0.5%
Chemical toilet	0.1%
Pit latrine with ventilated pipe	38.5%
Pit latrine without a ventilated pipe	34.4%
Bucket toilet collected by municipality	0.1%
Bucket toilet emptied by household	0.0%
Ecological sanitation systems	0.0%
None	1.7%
Other	0.4%
Total	**100.00%**

Source: Central Statistics SA 2020

The sanitation infrastructure for the Waterberg DM has 27 waterborne wastewater treatment works in operation. Mogalakwena LM is one of the two LM in the province where the eradication of the sanitation backlog is focussed on the rural communities.

4.1.9. Electricity

The main supplier of electricity in Limpopo is Eskom. Approximately 83.5% of the households receive electricity from Eskom, pre-paid or receive a bill from Eskom. Waterberg is one of the two district municipality in the province where the percentages of no access to electricity (12.3%) is much higher than the provincial rate (5.3%).



Source: StatsSA, Community Survey 2016

Figure 4-2: Main electricity supply in Limpopo

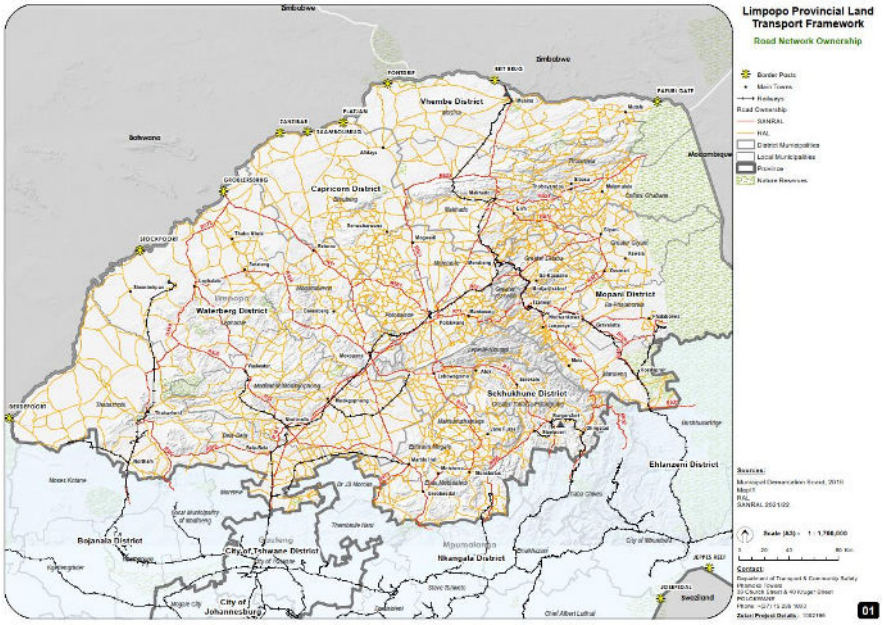
Planned Eskom project (2022-2031) for the Waterberg DM – the Waterberg generation 400kV stability enhancement. This project of the Waterberg area for future planned generation is broken into two projects which consists of the following:

- 400 kV line Medupi to Witkop (~200 km)
- 400 kV line Borutho to Silimela (~100 km)

These projects are prioritised to ensure that the power stations in the area remain transiently stable.

4.1.10. Road network

The Roads Agency Limpopo (RAL) owns about 20 000 km of road network. Limpopo Province has about 24 000km of road network, where the South African National Roads Agency SOC Limited (SANRAL) owns about 3 645 km of road network. SANRAL owned road network includes the two national routes in the province the N1 and the N11 and regional roads that were once owned by the province. All roads owned by SANRAL is paved, while 67% of the road network owned by RAL is unpaved. Most of the unpaved road is within the Waterberg (about 5 000km) and Capricorn (about 3 200 km) district.



Source: Limpopo Land Transport Framework (2022)

Figure 4-3: Limpopo road network ownership

5. Anticipated Social Impacts associated with the proposed Mokopane WTW alternative site

5.1. Construction and pre-construction phase

5.1.1. Income for landowners / Occupiers (Land access)

Mokopane WTW alternative site is proposed on Portion 69 of the Farm Maribashoek (*owner information unknown*) and Portion 80 of the Farm Piet Potgietersrus which is owned by Mogalakwena Local Municipality. As such, it is anticipated that the developer will require land access prior to construction of the proposed development. Depending on the negotiations with the affected land owner/s, land access can either mean land purchase, lease agreement or servitude agreement.

Based on the baseline assessment, it doesn't seem like the proposed development area is currently used for any livelihood or income generation activity. Therefore, the potential land access agreement between the developer and the owner/s can be a means of generating either short- or long-term income for the owners.

Table 10 shows the income for farm owners impact rating and mitigation measures, pre and post mitigation.

Table 10 Income for farm owners

<table>
<tr><th colspan="5">IMPACT DESCRIPTION: Income for farm owners (Land access)</th></tr>
<tr><td>Predicted for project phase:</td><td colspan="4">Pre-construction & construction</td></tr>
<tr><td colspan="5">PRE-MITIGATION</td></tr>
<tr><td>Dimension</td><td>Rating</td><td colspan="3">Motivation</td></tr>
<tr><td>Duration</td><td>Short-term</td><td>It is assumed that the developer will enter into short-term payment agreement with the affected land owners, hence the short-term rating</td><td rowspan="3">Consequence: Moderately beneficial</td><td rowspan="4">Significance: High - positive</td></tr>
<tr><td>Extent</td><td>Local</td><td>The directly affected land owners will benefit, hence the local rating</td></tr>
<tr><td>Intensity</td><td>Very high - positive</td><td>The financial benefit will be very high as the current land use does not generate profits</td></tr>
<tr><td>Probability</td><td>Certain</td><td colspan="2">Land access is certain as the developer doesn't own the affected land portions</td></tr>
<tr><td colspan="5">MITIGATION:</td></tr>
<tr><td colspan="5">The developer should enter into a formal and fair land access agreement. Depending on the negotiations with the affected land owner/s, land access can either mean land purchase, lease agreement or servitude agreement.</td></tr>
<tr><td colspan="5">POST-MITIGATION</td></tr>
<tr><td>Dimension</td><td>Rating</td><td colspan="3">Motivation</td></tr>
<tr><td>Duration</td><td>Short-term</td><td>It is assumed that the developer will enter into short-term payment agreement with the affected land owners, hence the short-term rating</td><td rowspan="2">Consequence: Moderately beneficial</td><td rowspan="2">Significance: High - positive</td></tr>
<tr><td>Extent</td><td>Local</td><td>The directly affected land owners will benefit, hence the local rating</td></tr>
</table>

Intensity	Very high - positive	The financial benefit will be very high as the current land use does not generate profits		
Probability	Certain	Land access is certain as the developer doesn't own the affected land portions		

5.1.2. Procurement of goods and services

Development projects are known for procurement of goods and services prior and during the construction phase. It is anticipated that this will also be the case for the proposed development and that the developer will require various goods and services, such as the purchase of building supplies and equipment. This requirement is likely to generate economic opportunities for existing Small, Medium and Micro Enterprises (SMMEs) in the area and potential new SMMEs which will be established because of the proposed development. It is, however, anticipated that some required goods and services might not be available in the local study area. In this case, the developer will procure from businesses elsewhere in the country or outside the country if necessary.

Table 11 shows the procurement of goods and services impact rating and mitigation measures, pre and post mitigation.

Table 11 Procurement of goods and services

IMPACT DESCRIPTION: Procurement of goods and services				
Predicted for project phase:	Pre-construction and construction phase			
PRE-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Short-term	Impact will prevail during the construction phase, which is anticipated to be short-term	Consequence: Moderately beneficial	Significance: Moderate - positive
Extent	Regional	procurement likely to extend regionally		
Intensity	Moderate - positive	Benefit likely to be moderate should a clear & sound policy be not in place		
Probability	Certain	Procurement of goods and services is certain during construction of any development project		
MITIGATION:				
The developer should put in place a procurement policy aimed at supporting and prioritizing upcoming and qualifying subcontractors or SMMEs, were possible. The policy should be aimed at providing first preference to appropriate subcontractors/SMMEs located in the surrounding communities, followed by those located in the municipal area and lastly those located elsewhere or outside the province.				
POST-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Short-term	Impact will prevail during the construction phase, which is anticipated to be short-term	Consequence: Moderately beneficial	Significance: High - positive
Extent	Local	procurement likely to extend regionally		
Intensity	Very high - positive	Benefit likely to be very high should a clear and sound policy be in place		
Probability	Certain	Procurement of goods and services is certain during construction of any development project		

5.1.3. Employment opportunities

During the construction phase, it is anticipated that employment opportunities will be triggered for skilled, semi-skilled and unskilled workforce. The number of locally employed people during the construction phase of the proposed development will largely depend on the developer's project activities and associated recruitment policy, including the applicant's level of education, skills, and work experience.

Table 12 shows the employment opportunities impact rating and mitigation measures, pre and post mitigation.

Table 12 Employment opportunities

<table>
<tr><th colspan="5">IMPACT DESCRIPTION: Employment opportunities</th></tr>
<tr><td>Predicted for project phase:</td><td colspan="4">Pre-construction and construction</td></tr>
<tr><td colspan="5">PRE-MITIGATION</td></tr>
<tr><td>Dimension</td><td>Rating</td><td colspan="3">Motivation</td></tr>
<tr><td>Duration</td><td>Short-term</td><td>Impact will prevail during the construction phase, which is anticipated to be short-term</td><td rowspan="3">Consequence: Moderately beneficial</td><td rowspan="4">Significance: Moderate - positive</td></tr>
<tr><td>Extent</td><td>Regional</td><td>Impact likely to extend regionally</td></tr>
<tr><td>Intensity</td><td>Moderate - positive</td><td>Benefit likely to be moderate should a clear & sound policy be not in place</td></tr>
<tr><td>Probability</td><td>Certain</td><td colspan="2">Employment opportunities are certain during construction of any development project</td></tr>
<tr><td colspan="5">MITIGATION:</td></tr>
<tr><td colspan="5">The developer should have an employment policy aimed at maximising employment opportunities in the local area and in the region</td></tr>
<tr><td colspan="5">POST-MITIGATION</td></tr>
<tr><td>Dimension</td><td>Rating</td><td colspan="3">Motivation</td></tr>
<tr><td>Duration</td><td>Short-term</td><td>Impact will prevail during the construction phase, which is anticipated to be short-term</td><td rowspan="3">Consequence: Moderately beneficial</td><td rowspan="4">Significance: High - positive</td></tr>
<tr><td>Extent</td><td>Regional</td><td>procurement likely to extend regionally</td></tr>
<tr><td>Intensity</td><td>High - positive</td><td>Benefit likely to be very high should a clear and sound policy be in place</td></tr>
<tr><td>Probability</td><td>Certain</td><td colspan="2">Employment opportunities are certain during construction of any development project</td></tr>
</table>

5.1.4. Community expectations

It is anticipated that community expectations will be very high during the construction phase. The development is proposed nearby communities where the unemployment rates are very high, as such, unemployed individuals and opportunity seekers from door step communities are anticipated to have high expectations related to employment and business opportunities. Should these expectations be not met, individuals and community groups can mobilize against the project.

Table 13 shows the community expectations impact rating and mitigation measures, pre and post mitigation.

Table 13 Community expectations

IMPACT DESCRIPTION: Community expectations				
Predicted for project phase:	Pre-construction and construction			
PRE-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Short-term	Impact will prevail during the construction phase, which is anticipated to be short-term	Consequence: Moderately detrimental	Significance: High - negative
Extent	Local	Local communities likely to have expectations		
Intensity	Very high - negative	Expectations likely to be very high if not managed		
Probability	Certain	Expectations are certain during construction of any development project		
MITIGATION:				
Community expectations should be managed via timely and clear messaging throughout the Stakeholder engagement and consultation process.				
POST-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Short-term	Impact will prevail during the construction phase, which is anticipated to be short-term	Consequence: Slightly detrimental	Significance: Low - negative
Extent	Local	Local communities likely to have expectations		
Intensity	Low - negative	Expectations likely to be negligible to minor if managed		
Probability	Certain	Expectations are certain during construction of any development project		

5.1.5. Health and safety

Construction projects are generally known to impact negatively on the health and safety of communities and employees. It is anticipated that similar impacts will be triggered by the proposed development. During the construction phase, nearby communities and employees may be exposed to increased dust, noise, visual and other nuisance disturbances, construction vehicles and man-machine interfaces. The dust will likely to be induced by construction phase activities such as excavation, cement mixing and material or waste transportation. The dust from construction activities may affect the respiratory system of those exposed to the dust. Construction noise will likely be induced by construction machines and transportation vehicles and although the construction noise will not damage the hearing ability of those exposed to the noise in the community, it will be at a nuisance level. An increase in construction vehicle traffic causes an increase in man-machine interfaces which could put pedestrians, children, and livestock at risk on busier routes. Additionally, an influx of job and opportunity seekers is often characterized by higher health risks, particularly if the influx is male dominated. These include a higher disease burden and rise in HIV/AIDS rates.

Table 14 shows the health and safety impact rating and mitigation measures, pre and post mitigation.

Table 14 Health and safety

IMPACT DESCRIPTION: Health and safety	
Predicted for project phase:	Pre-construction and construction

PRE-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Short-term	Impact will prevail during the construction phase, which is anticipated to be short-term	Consequence: Slightly detrimental	Significance: Low - negative
Extent	Local	Impact likely to extend to local communities		
Intensity	Moderate - negative	Impact likely to be moderately high if not managed		
Probability	Very likely	Health and safety impacts are likely during the construction phase		
MITIGATION:				
The developer should implement health and safety mitigation measures for communities and employees as per the recommendations made in other specialist studies viz., air quality, traffic, visual assessment etc. and as per the Client's duties as defined in the Construction Regulations (Occupational Health and Safety Act)				
POST-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Short-term	Impact will prevail during the construction phase, which is anticipated to be short-term	Consequence: Slightly detrimental	Significance: Low - negative
Extent	Local	Impact likely to extend to local communities		
Intensity	Low - negative	Impact likely to be low if managed		
Probability	Fairly likely	Health and safety impacts are fairly likely if managed during the construction phase		

5.1.6. Security

Construction activities are likely to attract criminals into the area, hence compromising the security of nearby farm owners, communities, contractors' property, and employees. During the construction phase, it is anticipated that that criminal activities will escalate in the area, including the trespassing of properties as well as being a potential target for the construction mafia and extortion.

Table 15 shows the security impact rating and mitigation measures, pre and post mitigation.

Table 15 Security

IMPACT DESCRIPTION: Security				
Predicted for project phase:	Pre-construction and construction			
PRE-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Short-term	Impact will prevail during the construction phase, which is anticipated to be short-term	Consequence: Slightly detrimental	Significance: Low - negative
Extent	Site-specific	Impact will be aimed at the project		
Intensity	High - negative	Impact likely to be high if not managed properly		
Probability	Very likely	Security related risks very likely to realise during the construction phase		
MITIGATION:				

The developer should make sufficient provision for all security measures, not just access control and monitoring of criminal activities during the pre-operation phases.

POST-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Short-term	Impact will prevail during the construction phase, which is anticipated to be short-term	Consequence: Negligible	Significance: Very low
Extent	Site-specific	Impact will be aimed at the project		
Intensity	Low - negative	Impact likely to be much lower if managed properly		
Probability	Fairly likely	Security related risks less likely to realise during the construction phase		

5.2. Operation phase

5.2.1. Employment opportunities

During the operation phase, it is anticipated that long-term and permanent opportunities related to WTW functionality and maintenance be induced during this phase. Consequently, this will contribute positively to the income of the successful job applicants as they will be able to support their dependents for an extended period. Like the construction phase, the number of locally employed people during the operational phase will largely depend on the developer's recruitment policy and the applicant's level of education, skills, and work experience.

Table 16 shows the employment impact rating and mitigation measures, pre and post mitigation.

Table 16 Employment opportunities

IMPACT DESCRIPTION: Employment opportunities				
Predicted for project phase:	Operation			
PRE-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Long-term	Impact will prevail during the operation phase, which is anticipated to be long-term	Consequence: Moderately beneficial	Significance: High - positive
Extent	Regional	Impact likely to extend regionally		
Intensity	Low - positive	Benefit likely to be low should a clear & sound policy be not in place		
Probability	Certain	Employment opportunities are certain during operation of any development project		
MITIGATION:				
The developer should have an employment policy aimed at maximising employment opportunities in the local area and in the region				
POST-MITIGATION				
Dimension	**Rating**	**Motivation**		

Duration	Long-term	Impact will prevail during the operation phase, which is anticipated to be long-term	Consequence: Highly beneficial	Significance: Very high - positive
Extent	Regional	Procurement likely to extend regionally		
Intensity	High - positive	Benefit likely to be high should a clear and sound policy be in place		
Probability	Certain	Employment opportunities are certain during operation of any development project		

5.2.2. Access to potable water for selected communities in the Northern limb

Mogalakwena Local Municipality has been reported to be severely water stressed and experiencing water shortages. It is anticipated that selected door step communities in the Northen limb (*as per the Water Management Master Plan*) will have access to potable water.

Water shortages are an issue in the proposed project area. Unfortunately, serious water shortages may be accompanied by chronic illnesses, thus, putting pressure on the hospitals and clinics. Sufficient water supply minimises the spread of diseases in an area and increases the livelihood status of the individuals. Additionally, a secure water supply reduces expenditure on health-related costs in a society. In most developing countries people spend a third of their income on medical costs mostly from water related diseases such as malaria and diarrhea. Further, water supplies the individual with the opportunity to do everyday activities such as drinking water, cooking, bathing, and cleaning.

Table 17 shows the access to Potable water for selected communities in the Northern Limb impact rating and mitigation measures, pre and post mitigation.

Table 17 Access to Potable water for selected communities in the Northern Limb

IMPACT DESCRIPTION: Access to Potable water for selected communities in the Northern limb				
Predicted for project phase:	Operation			
PRE-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Long-term	Impact will prevail during the operation phase, which is anticipated to be long-term	Consequence: Moderately beneficial	Significance: High - positive
Extent	Local	Local communities in the northern limb are likely to benefit from Potable water		
Intensity	Moderate - positive	Benefit likely to be moderate prior to implementation of the master plan		
Probability	Certain	Employment opportunities are certain during operation phase of any development project		
MITIGATION:				
A Water Management Master Plan should be in place, clearly specifying which communities in the Northen limb will benefit from accessing potable water				
POST-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Long-term	Impact will prevail during the operation phase, which is anticipated to be long-term	Consequence: Highly beneficial	Significance: Very high - positive

Extent	Regional	Local communities in the northern limb are likely to benefit from Potable water		
Intensity	High - positive	Benefit likely to be high following the implementation of mater plan		
Probability	Certain	It is certain that selected communities as per the master plan will have access to Potable water		

5.2.3. Community Expectations

Once the WTW is operational, it is anticipated that doorstep communities, especially those in the Northen limb will expect to have access to potable water. Unfortunately, it is assumed that not all communities in the study area will have access to potable water from this specific development, it is assumed by the specialist that the proposed WTW will serve the communities generally situated along the route of the proposed 2B+ pipeline project and the communities surrounding the commercial users in the area between Mokopane and Sekuruwe. However, the beneficiaries of the potable water in the Northern limb will be determined as per the Water Management Master Plan.

Table 18 shows the community expectations impact rating and mitigation measures, pre and post mitigation.

Table 18 community expectations

IMPACT DESCRIPTION: community expectations				
Predicted for project phase:	Operation			
PRE-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Long-term	Impact will prevail during the operation phase, which is anticipated to be long-term	Consequence: Highly detrimental	Significance: High - negative
Extent	Local	Local communities likely to have expectations		
Intensity	Very high - negative	Expectations likely to be very high if not managed		
Probability	Very likely	Expectations are certain during operation of any development project		
MITIGATION:				
The Water Management Master Plan and associated beneficiaries should be communicated to the project interested and affected communities, to avoid creating expectations to from those communities which will not benefit from the project				
POST-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Long-term	Impact will prevail during the operation phase, which is anticipated to be long-term	Consequence: Moderately detrimental	Significance: Low - negative
Extent	Local	Local communities likely to have expectations		
Intensity	Moderate - negative	Expectations likely to be moderate if not managed		
Probability	Fairly likely	Expectations are anticipated to be fairly likely if managed		

5.2.4. Health and safety

During the operation phase, some of the activities associated with the maintenance of the WTW will be reliant on human labour and therefore operation phase workforce will be exposed to health and safety risks. It is anticipated that injuries can occur due to incorrect handling of equipment and materials failing from heights, stacked items tipping over, accidents involving forklifts and vehicles, and exposure to hot and cold temperatures. Additionally, it is also anticipated that operational noise will be a health hazard during operation (may damage the hearing ability of those exposed to the noise) and the noise will likely be introduced by back-up generators as well. Confined space entry and chemical exposure are also risks that can occur during the operation phase of the asset.

Table 19 shows the health and safety impact rating and mitigation measures, pre and post mitigation.

Table 19 Health and safety

IMPACT DESCRIPTION: Health and safety				
Predicted for project phase:	Operation			
PRE-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Long-term	Impact will remain present during the full operational phase of the asset.	Consequence: Highly detrimental	Significance: High - negative
Extent	Local	Impact likely to extend locally		
Intensity	High - negative	Impact will be high if not managed.		
Probability	Certain	Probability for incidents and injuries are almost certain if not manged		
MITIGATION:				
The developer should implement health and safety mitigation measures for communities and employees as per the recommendations made in other specialist studies viz., air quality, traffic, visual assessment etc				
POST-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Long-term	Impact will remain present during the full operational phase of the asset.	Consequence: Moderately detrimental	Significance: Low - negative
Extent	Local	Impact likely to extend locally		
Intensity	Moderate - negative	Impact will be moderate when managed.		
Probability	Fairly likely	Probability for incidents and injuries are fairly likely as operational risks will always be present.		

5.3. Decommission phase

5.3.1. Employment and business opportunities

Although the operation phase workforce will lose their jobs during this time, short term employment and businesses will be created with the aim of executing the decommission activities.

Table 20 shows the employment and business opportunities impact rating and mitigation measures, pre and post mitigation.

Table 20 Employment and business opportunities

IMPACT DESCRIPTION: Employment and business opportunities				
Predicted for project phase:	Decommission			
PRE-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Short-term	Impact will prevail during the decommission phase, which is anticipated to be short-term	Consequence: Moderately beneficial	Significance: Moderate - positive
Extent	Regional	Impact likely to extend regionally		
Intensity	Moderate - positive	Intensity anticipated to be moderate		
Probability	Certain	Employment and business opportunities are certain during decommission of any development project		
MITIGATION:				
The developer should have an employment policy aimed at maximising employment opportunities in the local area and in the region, including a procurement policy aimed at supporting and prioritizing upcoming and qualifying subcontractors or SMMEs, were possible				
POST-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Short-term	Impact will prevail during the decommission phase, which is anticipated to be short-term	Consequence: Moderately beneficial	Significance: High - positive
Extent	Regional	Impact likely to extend regionally		
Intensity	High - positive	Intensity anticipated to be high post mitigation		
Probability	Certain	Employment and business opportunities are certain during decommission of any development project		

5.3.2. Health and safety

Decommission activities are likely to impact negative on the health and safety of employees and communities. The health and safety are likely to be induced by decommissioning activities such as demolition and the handling and transportation of demolished materials.

Table 21 shows the health and safety impact rating and mitigation measures, pre and post mitigation.

Table 21 health and safety

IMPACT DESCRIPTION: Health and safety				
Predicted for project phase:	Decommission			
PRE-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Short-term	Impact will only remain during the decommissioning phase.	Consequence: Slightly detrimental.	Significance: Low - negative
Extent	Site-specific	Impact will be limited the site being decommissioned.		
Intensity	Moderate - negative	Impact will be moderately negative if not managed properly.		
Probability	Very likely	Probability for incidents and injuries are very likely if not manged properly.		
MITIGATION:				

The developer should implement health and safety mitigation measures for communities and employees as per the recommendations made in other specialist studies viz., air quality, traffic, visual assessment etc. and as per the Client's duties as defined in the Construction Regulations (Occupational Health and Safety Act)

POST-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Short-term	Impact will only remain during the decommissioning phase.	Consequence: Negligible	Significance: Very low
Extent	Site-specific	Impact will be limited the site being decommissioned.		
Intensity	Low - negative	Impact will be low if managed properly.		
Probability	Fairly likely	Probability for incidents and injuries are less likely when manged properly.		

5.3.3. No access to potable water

Should the proposed WTW be decommissioned, social water users will not have access to potable water. Specifically, the selected doorstep communities in the Northern limb (as per the Water Management Master Plan).

Table 22 shows the no access to Potable water impact rating and mitigation measures, pre and post mitigation.

Table 22 No access to potable water

IMPACT DESCRIPTION: No access to potable water				
Predicted for project phase:	Decommission			
PRE-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Long-term	Impact anticipated to be long-term	Consequence: Highly detrimental	Significance: Very high - negative
Extent	Local	Lack of access to water will affect the local beneficiaries		
Intensity	Very high - negative	Impact intensity anticipated to be very high if not managed		
Probability	Certain	Impact certain should the development decommission		
MITIGATION:				
Potable water beneficiaries should be notified on the decommissioning of the WTW prior to decommissioning. The municipality should provide alternative potable water source for the northern limb beneficiaries				
POST-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Long-term	Impact anticipated to be long-term	Consequence: Moderately detrimental	Significance: Moderate - negative
Extent	Local	Lack of access to water will affect the local beneficiaries		
Intensity	Moderate - negative	Impact intensity anticipated to be moderate if managed		
Probability	Very likely	Impact very likely should the development decommission		

5.3.4. Loss of employment and business opportunities

It is anticipated that operation phase workforce will lose their jobs during the decommission phase, including businesses opportunities which would have been induced by the need for procurement of operational goods and services.

Table 23 shows the loss of employment and business opportunities impact rating and mitigation measures, pre and post mitigation.

Table 23 Loss of employment and business opportunities

<table>
<tr><th colspan="5">IMPACT DESCRIPTION: Loss of employment and business opportunities</th></tr>
<tr><td>Predicted for project phase:</td><td colspan="4">Decommission</td></tr>
<tr><td colspan="5">PRE-MITIGATION</td></tr>
<tr><td>Dimension</td><td>Rating</td><td colspan="3">Motivation</td></tr>
<tr><td>Duration</td><td>Long-term</td><td>Impact anticipated to be long-term</td><td rowspan="3">Consequence: Extremely detrimental</td><td rowspan="4">Significance: Very high - negative</td></tr>
<tr><td>Extent</td><td>Regional</td><td>Impact likely to extend regionally</td></tr>
<tr><td>Intensity</td><td>Very high - negative</td><td>Impact intensity anticipated to be very high if not managed</td></tr>
<tr><td>Probability</td><td>Certain</td><td colspan="2">Impact certain should the development decommission</td></tr>
<tr><td colspan="5">MITIGATION:</td></tr>
<tr><td colspan="5">Employees and businesses benefiting from operation of the WTW should be notified in time regarding the decommissioning of the WTW prior to decommissioning</td></tr>
<tr><td colspan="5">POST-MITIGATION</td></tr>
<tr><td>Dimension</td><td>Rating</td><td colspan="3">Motivation</td></tr>
<tr><td>Duration</td><td>Long-term</td><td>Impact anticipated to be long-term</td><td rowspan="3">Consequence: Moderately detrimental</td><td rowspan="4">Significance: Low - negative</td></tr>
<tr><td>Extent</td><td>Regional</td><td>Impact likely to extend regionally</td></tr>
<tr><td>Intensity</td><td>Low - negative</td><td>Impact intensity anticipated to be low if managed</td></tr>
<tr><td>Probability</td><td>Fairly likely</td><td colspan="2">Impact fairly likely if managed</td></tr>
</table>

6. Anticipated Social Impacts associated with the proposed Mokopane WTW preferred site

6.1. Construction and pre-construction phase

6.1.1. Income for Landowners / Occupiers (Land access)

The proposed Mokopane WTW preferred site will trigger land access because the WTW is proposed on land that is not owned by the developer. Mokopane WTW preferred site is proposed on Portion 80 of the farm Piet Potgietersrus, which is owned by Mogalakwena Local Municipality. Depending on the negotiations with the municipality, access can either mean land purchase, lease agreement or servitude agreement.

Based on desktop assessment, it doesn't seem like the proposed development area is currently used for any livelihood or income generation activity. Therefore, the potential land access agreement between the developer and the municipality may be a means of generating either short- or long-term income the municipality.

Table 24 shows the income for farm owners impact rating and mitigation measures, pre and post mitigation.

Table 24 Income for farm owners (land access)

<table>
<tr><th colspan="6">IMPACT DESCRIPTION: Income for farm owners (Land access)</th></tr>
<tr><td>Predicted for project phase:</td><td colspan="5">Pre-construction & construction</td></tr>
<tr><td colspan="6">PRE-MITIGATION</td></tr>
<tr><td>Dimension</td><td>Rating</td><td colspan="4">Motivation</td></tr>
<tr><td>Duration</td><td>Short-term</td><td colspan="2">It is assumed that the developer will enter into short-term payment agreement with the affected land owners, hence the short-term rating</td><td rowspan="4">Consequence: Moderately beneficial</td><td rowspan="4">Significance: High - positive</td></tr>
<tr><td>Extent</td><td>Local</td><td colspan="2">The directly affected land owners will benefit, hence the local rating</td></tr>
<tr><td>Intensity</td><td>Very high - positive</td><td colspan="2">The financial benefit will be very high as the current land use does not generate profits</td></tr>
<tr><td>Probability</td><td>Certain</td><td colspan="2">Land access is certain as the developer doesn't own the affected land portions</td></tr>
<tr><td colspan="6">MITIGATION:</td></tr>
<tr><td colspan="6">The developer should enter into a formal and fair land access agreement. Depending on the negotiations with the affected land owner/s, land access can either mean land purchase, lease agreement or servitude agreement. Land purchase appears to be a financial feasible option as it will entail a once-off payment to the affected land owner/s.</td></tr>
<tr><td colspan="6">POST-MITIGATION</td></tr>
<tr><td>Dimension</td><td>Rating</td><td colspan="4">Motivation</td></tr>
<tr><td>Duration</td><td>Short-term</td><td colspan="2">It is assumed that the developer will enter into short-term payment agreement with the affected land owners, hence the short-term rating</td><td rowspan="4">Consequence: Moderately beneficial</td><td rowspan="4">Significance: High - positive</td></tr>
<tr><td>Extent</td><td>Local</td><td colspan="2">The directly affected land owners will benefit, hence the local rating</td></tr>
<tr><td>Intensity</td><td>Very high - positive</td><td colspan="2">The financial benefit will be very high as the current land use does not generate profits</td></tr>
<tr><td>Probability</td><td>Certain</td><td colspan="2">Land access is certain as the developer doesn't own the affected land portions</td></tr>
</table>

6.1.2. Procurement of goods and services

Development projects are known for procurement of goods and services prior and during the construction phase. It is anticipated that this will also be the case for the proposed development and that the developer will require various goods and services, such as the purchase of building supplies and equipment. This requirement is likely to generate economic opportunities for existing SMMEs in the area and potential new SMMEs which will be established because of the proposed development. It is, however, anticipated that some required goods and services might not be available in the local study area. In this case, the developer will procure from businesses elsewhere in the country or outside the country if necessary.

Table 25 shows the procurement of goods and services impact rating and mitigation measures, pre and post mitigation.

Table 25 Procurement of goods and services

IMPACT DESCRIPTION: Procurement of goods and services				
Predicted for project phase:	Pre-construction and construction phase			
PRE-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Short-term	Impact will prevail during the construction phase, which is anticipated to be short-term	Consequence: Moderately beneficial	Significance: Moderate - positive
Extent	Regional	procurement likely to extend regionally		
Intensity	Moderate - positive	Benefit likely to be moderate should a clear & sound policy be not in place		
Probability	Certain	Procurement of goods and services is certain during construction of any development project		
MITIGATION:				
The developer should put in place a procurement policy aimed at supporting and prioritizing upcoming and qualifying subcontractors or SMMEs, were possible. The policy should be aimed at providing first preference to appropriate subcontractors/SMMEs located in the surrounding communities, followed by those located in the municipal area and lastly those located elsewhere or outside the province.				
POST-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Short-term	Impact will prevail during the construction phase, which is anticipated to be short-term	Consequence: Moderately beneficial	Significance: High - positive
Extent	Local	procurement likely to extend regionally		
Intensity	Very high - positive	Benefit likely to be very high should a clear and sound policy be in place		
Probability	Certain	Procurement of goods and services is certain during construction of any development project		

6.1.3. Employment opportunities

During the construction phase, it is anticipated that employment opportunities will be triggered for skilled, semi-skilled and unskilled workforce. The number of locally employed people during the construction phase of the proposed development will largely depend on the developer's project activities and associated recruitment policy, including the applicant's level of education, skills, and work experience.

Table 26 shows the employment opportunities impact rating and mitigation measures, pre and post mitigation.

Table 26 Employment opportunities

IMPACT DESCRIPTION: Employment opportunities				
Predicted for project phase:	Pre-construction and construction			
PRE-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Short-term	Impact will prevail during the construction phase, which is anticipated to be short-term	Consequence: Moderately beneficial	Significance: Moderate - positive

Extent	Regional	Impact likely to extend regionally		
Intensity	Moderate - positive	Benefit likely to be moderate should a clear & sound policy be not in place		
Probability	Certain	Employment opportunities are certain during construction of any development project		
MITIGATION:				
The developer should have an employment policy aimed at maximising employment opportunities in the local area and in the region				
POST-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Short-term	Impact will prevail during the construction phase, which is anticipated to be short-term	Consequence: Moderately beneficial	Significance: High - positive
Extent	Regional	procurement likely to extend regionally		
Intensity	High - positive	Benefit likely to be very high should a clear and sound policy be in place		
Probability	Certain	Employment opportunities are certain during construction of any development project		

6.1.4. Community expectations

It is anticipated that community expectations will be very high during the construction phase. The development is proposed nearby communities where the unemployment rates are very high, as such, unemployed individuals and opportunity seekers from door step communities are anticipated to have high expectations related to employment and business opportunities. Should these expectations be not met, individuals and community groups can mobilize against the project.

Table 27 shows the community expectations impact rating and mitigation measures, pre and post mitigation.

Table 27 Community expectations

IMPACT DESCRIPTION: Community expectations				
Predicted for project phase:	Pre-construction and construction			
PRE-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Short-term	Impact will prevail during the construction phase, which is anticipated to be short-term	Consequence: Moderately detrimental	Significance: High - negative
Extent	Local	Local communities likely to have expectations		
Intensity	Very high - negative	Expectations likely to be very high if not managed		
Probability	Certain	Expectations are certain during construction of any development project		
MITIGATION:				

Community expectations should be managed via timely and clear messaging throughout the Stakeholder engagement and consultation process

POST-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Short-term	Impact will prevail during the construction phase, which is anticipated to be short-term	Consequence: Slightly detrimental	Significance: Low - negative
Extent	Local	Local communities likely to have expectations		
Intensity	Low - negative	Expectations likely to be negligible to minor if managed		
Probability	Certain	Expectations are certain during construction of any development project		

6.1.5. Health and safety

Construction projects are generally known to impact negatively on the health and safety of communities and employees. It is anticipated that similar impacts will be triggered by the proposed development. During the construction phase, nearby communities and employees may be exposed to increased dust, noise, visual and other nuisance disturbances, construction vehicles and man-machine interfaces. The dust will likely to be induced by construction phase activities such as excavation, cement mixing and material or waste transportation. The dust from construction activities may affect the respiratory system of those exposed to the dust. Construction noise will likely be induced by construction machines and transportation vehicles and although the construction noise will not damage the hearing ability of those exposed to the noise in the community, it will be at a nuisance level. An increase in construction vehicle traffic causes an increase in man-machine interfaces which could put pedestrians, children, and livestock at risk on busier routes. Additionally, an influx of job and opportunity seekers is often characterized by higher health risks, particularly if the influx is male dominated. These include a higher disease burden and rise in HIV/AIDS rates.

Table 28 shows the health and safety impact rating and mitigation measures, pre and post mitigation.

Table 28 Health and safety

IMPACT DESCRIPTION: Health and safety				
Predicted for project phase:	Pre-construction and construction			
PRE-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Short-term	Impact will prevail during the construction phase, which is anticipated to be short-term	Consequence: Moderately detrimental	Significance: Moderate - negative
Extent	Local	Impact likely to extend to local communities		
Intensity	Moderate - negative	Impact likely to be moderately high if not managed		
Probability	Very likely	Health and safety impacts are likely during the construction phase		
MITIGATION:				

The developer should implement health and safety mitigation measures for communities and employees as per the recommendations made in other specialist studies viz., air quality, traffic, visual assessment etc. and as per the Client's duties as defined in the Construction Regulations (Occupational Health and Safety Act)

POST-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Short-term	Impact will prevail during the construction phase, which is anticipated to be short-term	Consequence: Negligible	Significance: Very low
Extent	Local	Impact likely to extend to local communities		
Intensity	Low - negative	Impact likely to be low if managed		
Probability	Fairly likely	Health and safety impacts are fairly likely if managed during the construction phase		

6.1.6. Security

Construction activities are likely to attract criminals into the area, hence compromising the security of nearby farm owners, communities, and employees. During the construction phase, it is anticipated that that criminal activities will escalate in the area, including the trespassing of properties

Table 29 shows the security impact rating and mitigation measures, pre and post mitigation

Table 29 Security

IMPACT DESCRIPTION: Security				
Predicted for project phase:	Pre-construction and construction			
PRE-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Short-term	Impact will prevail during the construction phase, which is anticipated to be short-term	Consequence: Slightly detrimental	Significance: Low - negative
Extent	Site-specific	Impact will be aimed at the project		
Intensity	High - negative	Impact likely to be high if not managed properly		
Probability	Very likely	Security related risks very likely to realise during the construction phase		
MITIGATION:				
The developer should make sufficient provision for all security measures, not just access control and monitoring of criminal activities during the pre-operation phases				
POST-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Short-term	Impact will prevail during the construction phase, which is anticipated to be short-term	Consequence: Negligible	Significance: Very low
Extent	Site-specific	Impact will be aimed at the project		
Intensity	Low - negative	Impact likely to be much lower if managed properly		
Probability	Fairly likely	Security related risks less likely to realise during the construction phase		

6.2. Operation phase

6.2.1. Employment opportunities

During the operation phase, it is anticipated that long-term and permanent opportunities related to WTW functionality and maintenance be induced during this phase. Consequently, this will contribute positively to the income of the successful job applicants as they will be able to support their dependents for an extended period. Like the construction phase, the number of locally employed people during the operational phase will largely depend on the developer's recruitment policy and the applicant's level of education, skills, and work experience.

Table 30 shows the employment and business opportunities impact rating and mitigation measures, pre and post mitigation.

Table 30 Employment opportunities

<table>
<tr><th colspan="6">IMPACT DESCRIPTION: Employment opportunities</th></tr>
<tr><td>Predicted for project phase:</td><td colspan="5">Operation</td></tr>
<tr><td colspan="6">PRE-MITIGATION</td></tr>
<tr><td>Dimension</td><td>Rating</td><td colspan="4">Motivation</td></tr>
<tr><td>Duration</td><td>Long-term</td><td colspan="2">Impact will prevail during the operation phase, which is anticipated to be long-term</td><td rowspan="4">Consequence: Moderately beneficial</td><td rowspan="4">Significance: High - positive</td></tr>
<tr><td>Extent</td><td>Regional</td><td colspan="2">Impact likely to extend regionally</td></tr>
<tr><td>Intensity</td><td>Low - positive</td><td colspan="2">Benefit likely to be low should a clear & sound policy be not in place</td></tr>
<tr><td>Probability</td><td>Certain</td><td colspan="2">Employment opportunities are certain during operation of any development project</td></tr>
<tr><td colspan="6">MITIGATION:</td></tr>
<tr><td colspan="6">The developer should have an employment policy aimed at maximising employment opportunities in the local area and in the region</td></tr>
<tr><td colspan="6">POST-MITIGATION</td></tr>
<tr><td>Dimension</td><td>Rating</td><td colspan="4">Motivation</td></tr>
<tr><td>Duration</td><td>Long-term</td><td colspan="2">Impact will prevail during the operation phase, which is anticipated to be long-term</td><td rowspan="4">Consequence: Highly beneficial</td><td rowspan="4">Significance: Very high - positive</td></tr>
<tr><td>Extent</td><td>Regional</td><td colspan="2">Procurement likely to extend regionally</td></tr>
<tr><td>Intensity</td><td>High - positive</td><td colspan="2">Benefit likely to be high should a clear and sound policy be in place</td></tr>
<tr><td>Probability</td><td>Certain</td><td colspan="2">Employment opportunities are certain during operation of any development project</td></tr>
</table>

6.2.2. Access to potable water for selected communities in the Northen limb

Mogalakwena Local Municipality has been reported to be severely water stressed and experiencing water shortages. It is anticipated that selected doorstep communities in the Northen limb (*as per the Water Management Master Plan*) will have access to potable water.

Water shortages are an issue in the proposed project area. Unfortunately, serious water shortages may be accompanied by chronic illnesses; thus, putting pressure on the hospitals and clinics. Sufficient water supply minimizes the spread of diseases in an area and increases the livelihood status of the individuals. Additionally, A secure water supply reduces expenditure on health-related costs in a society. In most developing countries people spend a third of their income on medical costs mostly from water related diseases such as malaria and diarrhea. Further, water supplies the individual with the opportunity to do everyday activities such as drinking water, cooking, bathing, and cleaning. The ability to prepare healthy food ensures sustenance and strengthens the immune system.

Table 31 shows the access to Potable water for selected communities in the Northern Limb impact rating and mitigation measures, pre and post mitigation.

Table 31 Access to potable water for selected communities in the Northern Limb

IMPACT DESCRIPTION: Access to potable water for selected communities in the Northern limb				
Predicted for project phase:	Operation			
PRE-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Long-term	Impact will prevail during the operation phase, which is anticipated to be long-term	Consequence: Moderately beneficial	Significance: High - positive
Extent	Local	Local communities in the northern limb are likely to benefit from Potable water		
Intensity	Moderate - positive	Benefit likely to be moderate prior to implementation of the master plan		
Probability	Certain	Employment opportunities are certain during operation phase of any development project		
MITIGATION:				
A Water Management Master Plan should be in place, clearly specifying which communities in the Northen limb will benefit from accessing potable water				
POST-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Long-term	Impact will prevail during the operation phase, which is anticipated to be long-term	Consequence: Highly beneficial	Significance: Very high - positive
Extent	Regional	Local communities in the northern limb are likely to benefit from Potable water		
Intensity	High - positive	Benefit likely to be high following the implementation of mater plan		
Probability	Certain	It is certain that selected communities as per the master plan will have access to Potable water		

6.2.3. Community Expectations

Once the WTW is operational, it is anticipated that doorstep communities, especially those in the Northen limb will expect to have access to potable water. Unfortunately, it is assumed that not all communities in the study area will have access to potable water from this specific development, it is assumed by the specialist that the proposed WTW will serve the communities generally situated along the route of the proposed 2B+ pipeline project and the communities surrounding the commercial users in the area between Mokopane and Sekuruwe. However, the beneficiaries of the potable water in the Northern limb will be determined as per the Water Management Master Plan.

Table 32 shows the community expectations impact rating and mitigation measures, pre and post mitigation.

Table 32 Community expectations

<table>
<tr><th colspan="5">IMPACT DESCRIPTION: community expectations</th></tr>
<tr><td>Predicted for project phase:</td><td colspan="4">Operation</td></tr>
<tr><td colspan="5">PRE-MITIGATION</td></tr>
<tr><td>Dimension</td><td>Rating</td><td colspan="3">Motivation</td></tr>
<tr><td>Duration</td><td>Long-term</td><td>Impact will prevail during the operation phase, which is anticipated to be long-term</td><td rowspan="3">Consequence: Highly detrimental</td><td rowspan="4">Significance: High - negative</td></tr>
<tr><td>Extent</td><td>Local</td><td>Local communities likely to have expectations</td></tr>
<tr><td>Intensity</td><td>Very high - negative</td><td>Expectations likely to be very high if not managed</td></tr>
<tr><td>Probability</td><td>Very likely</td><td colspan="2">Expectations are certain during operation of any development project</td></tr>
<tr><td colspan="5">MITIGATION:</td></tr>
<tr><td colspan="5">The Water Management Master Plan and associated beneficiaries should be communicated to the project interested and affected communities, to avoid creating expectations to from those communities which will not benefit from the project</td></tr>
<tr><td colspan="5">POST-MITIGATION</td></tr>
<tr><td>Dimension</td><td>Rating</td><td colspan="3">Motivation</td></tr>
<tr><td>Duration</td><td>Long-term</td><td>Impact will prevail during the operation phase, which is anticipated to be long-term</td><td rowspan="3">Consequence: Moderately detrimental</td><td rowspan="4">Significance: Low - negative</td></tr>
<tr><td>Extent</td><td>Local</td><td>Local communities likely to have expectations</td></tr>
<tr><td>Intensity</td><td>Moderate - negative</td><td>Expectations likely to be moderate if not managed</td></tr>
<tr><td>Probability</td><td>Fairly likely</td><td colspan="2">Expectations are anticipated to be fairly likely if managed</td></tr>
</table>

6.2.4. Health and safety

During the operation phase, some of the activities associated with the maintenance of the WTW will be reliant on human labour and therefore operation phase workforce will be exposed to health and safety risks. It is anticipated that injuries can occur due to incorrect handling of equipment and materials failing from heights, stacked items tipping over, accidents involving forklifts and vehicles, and exposure to hot and cold temperatures. Additionally, it is also anticipated that operational noise will be a health hazard during operation (may damage the hearing ability of those exposed to the noise), and the noise will likely be introduced by back-up generators as well. Confined space entry and chemical exposure are also risks that can occur during the operation phase of the asset.

Table 33 shows the health and safety impact rating and mitigation measures, pre and post mitigation.

Table 33 Health and safety

IMPACT DESCRIPTION: Health and safety				
Predicted for project phase:	Operation			
PRE-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Long-term	Impact will remain present during the full operational phase of the asset.	Consequence: Highly detrimental	Significance: High - negative
Extent	Local	Impact likely to extend locally		
Intensity	High - negative	Impact will be high if not managed.		
Probability	Certain	Probability for incidents and injuries are almost certain if not manged		
MITIGATION:				
The developer should implement health and safety mitigation measures for communities and employees as per the recommendations made in other specialist studies viz., air quality, traffic, visual assessment etc				
POST-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Long-term	Impact will remain present during the full operational phase of the asset.	Consequence: Moderately detrimental	Significance: Low - negative
Extent	Local	Impact likely to extend locally		
Intensity	Moderate - negative	Impact will be moderate when managed.		
Probability	Fairly likely	Probability for incidents and injuries are fairly likely as operational risks will always be present.		

6.3. Decommission phase

6.3.1. Employment and business opportunities

Although the operation phase workforce will lose their jobs during this time, short term employment and businesses will be created with the aim of executing the decommission activities.

Table 34 shows the employment and business opportunities impact rating and mitigation measures, pre and post mitigation.

Table 34 Employment and business opportunities

IMPACT DESCRIPTION: Employment and business opportunities				
Predicted for project phase:	Decommission			
PRE-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Short-term	Impact will prevail during the decommission phase, which is anticipated to be short-term	Consequence: Moderately beneficial	Significance: Moderate - positive
Extent	Regional	Impact likely to extend regionally		

Intensity	Moderate - positive	Intensity anticipated to be moderate		
Probability	Certain	Employment and business opportunities are certain during decommission of any development project		
MITIGATION:				
The developer should have an employment policy aimed at maximising employment opportunities in the local area and in the region, including a procurement policy aimed at supporting and prioritizing upcoming and qualifying subcontractors or SMMEs, were possible				
POST-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Short-term	Impact will prevail during the decommission phase, which is anticipated to be short-term	Consequence: Moderately beneficial	Significance: High - positive
Extent	Regional	Impact likely to extend regionally		
Intensity	High - positive	Intensity anticipated to be high post mitigation		
Probability	Certain	Employment and business opportunities are certain during decommission of any development project		

6.3.2. Health and safety

Decommission activities are likely to impact negative on the health and safety of employees and communities. The health and safety are likely to be induced by decommissioning activities such as demolition and the handling and transportation of demolished materials.

Table 35 shows the health and safety impact rating and mitigation measures, pre and post mitigation.

Table 35 Health and safety

IMPACT DESCRIPTION: Health and safety				
Predicted for project phase:	Decommission			
PRE-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Short-term	Impact will only remain during the decommissioning phase.	Consequence: Slightly detrimental	Significance: Low - negative
Extent	Site-specific	Impact will be limited the site being decommissioned.		
Intensity	Moderate - negative	Impact will be moderately negative if not managed properly.		
Probability	Very likely	Probability for incidents and injuries are very likely if not manged properly.		
MITIGATION:				
The developer should implement health and safety mitigation measures for communities and employees as per the recommendations made in other specialist studies viz., air quality, traffic, visual assessment etc. and as per the Client's duties as defined in the Construction Regulations (Occupational Health and Safety Act)				
POST-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Short-term	Impact will only remain during the decommissioning phase.	Consequence: Negligible	Significance: Very low
Extent	Site-specific	Impact will be limited the site being decommissioned.		

Intensity	Low - negative	Impact will be low if managed properly.		
Probability	Fairly likely	Probability for incidents and injuries are less likely when manged properly.		

6.3.3. No access to water

Should the proposed WTW be decommissioned, social water users will not have access to potable water. Specifically, the selected doorstep communities in the Northern limb (as per the Water Management Master Plan).

Table 36 shows the no access to Potable water impact rating and mitigation measures, pre and post mitigation.

Table 36 No access to Potable water

IMPACT DESCRIPTION: No access to potable water				
Predicted for project phase:	Decommission			
PRE-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Long-term	Impact anticipated to be long-term	Consequence: Highly detrimental	Significance: Very high - negative
Extent	Local	Lack of access to water will affect the local beneficiaries		
Intensity	Very high - negative	Impact intensity anticipated to be very high if not managed		
Probability	Certain	Impact certain should the development decommission		
MITIGATION:				
Potable water beneficiaries should be notified on the decommissioning of the WTW prior to decommissioning. The municipality should provide alternative potable water source for the northern limb beneficiaries				
POST-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Long-term	Impact anticipated to be long-term	Consequence: Moderately detrimental	Significance: Moderate - negative
Extent	Local	Lack of access to water will affect the local beneficiaries		
Intensity	Moderate - negative	Impact intensity anticipated to be moderate if managed		
Probability	Very likely	Impact very likely should the development decommission		

6.3.4. Loss of employment and business opportunities

It is anticipated that operation phase workforce will lose their jobs during the decommission phase, including businesses opportunities which would have been induced by the need for procurement of operational goods and services.

Table 37 shows the loss of employment and business opportunities impact rating and mitigation measures, pre and post mitigation.

Table 37 Loss of employment and business opportunities

IMPACT DESCRIPTION: Loss of employment and business opportunities

Predicted for project phase:	Decommission			
PRE-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Long-term	Impact anticipated to be long-term	Consequence: Extremely detrimental	Significance: Very high - negative
Extent	Regional	Impact likely to extend regionally		
Intensity	Very high - negative	Impact intensity anticipated to be very high if not managed		
Probability	Certain	Impact certain should the development decommission		
MITIGATION:				
Employees and businesses benefiting from operation of the WTW should be notified in time regarding the decommissioning of the WTW prior to decommissioning				
POST-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Long-term	Impact anticipated to be long-term	Consequence: Moderately detrimental	Significance: Low - negative
Extent	Regional	Impact likely to extend regionally		
Intensity	Low - negative	Impact intensity anticipated to be low if managed		
Probability	Fairly likely	Impact fairly likely if managed		

7. Anticipated Social Impacts associated with the proposed Sekuruwe WTW preferred site

7.1. Construction and pre-construction phase

7.1.1. Income for farm owners (Land access)

Sekuruwe WTW preferred site is proposed on the Farm Blinkwater 820 LR and on the Farm Gillimberg 861 LR, both Farm properties are owned by the National Government (Republic of South Africa). As such, the developer will require land access from the national government. Depending on the negotiations with the national government, access can either mean land purchase, lease agreement or servitude agreement.

Based on the desktop assessment, it doesn't seem like the proposed development area is currently used for any livelihood or income generation activity. Therefore, the potential land access agreement between the developer and the national government may be a means of generating either short- or long-term income for the national government.

Table 38 shows the income for farm owners impact rating and mitigation measures, pre and post mitigation.

Table 38 Income for farm owners (Land access)

<table>
<tr><th colspan="5">IMPACT DESCRIPTION: Income for farm owners (Land access)</th></tr>
<tr><td>Predicted for project phase:</td><td colspan="4">Pre-construction & construction</td></tr>
<tr><td colspan="5">PRE-MITIGATION</td></tr>
<tr><td>Dimension</td><td>Rating</td><td colspan="3">Motivation</td></tr>
<tr><td>Duration</td><td>Short-term</td><td>It is assumed that the developer will enter into short-term payment agreement with the affected land owners, hence the short-term rating</td><td rowspan="3">Consequence: Moderately beneficial</td><td rowspan="4">Significance: High - positive</td></tr>
<tr><td>Extent</td><td>Local</td><td>The directly affected land owners will benefit, hence the local rating</td></tr>
<tr><td>Intensity</td><td>Very high - positive</td><td>The financial benefit will be very high as the current land use does not generate profits</td></tr>
<tr><td>Probability</td><td>Certain</td><td colspan="2">Land access is certain as the developer doesn't own the affected land portions</td></tr>
<tr><td colspan="5">MITIGATION:</td></tr>
<tr><td colspan="5">The developer should enter into a formal and fair land access agreement. Depending on the negotiations with the affected land owner/s, land access can either mean land purchase, lease agreement or servitude agreement.</td></tr>
<tr><td colspan="5">POST-MITIGATION</td></tr>
<tr><td>Dimension</td><td>Rating</td><td colspan="3">Motivation</td></tr>
<tr><td>Duration</td><td>Short-term</td><td>It is assumed that the developer will enter into short-term payment agreement with the affected land owners, hence the short-term rating</td><td>Consequence: Moderately beneficial</td><td>Significance: High - positive</td></tr>
</table>

Extent	Local	The directly affected land owners will benefit, hence the local rating		
Intensity	Very high - positive	The financial benefit will be very high as the current land use does not generate profits		
Probability	Certain	Land access is certain as the developer doesn't own the affected land portions		

7.1.2. Procurement of goods and services

Development projects are known for procurement of goods and services prior and during the construction phase. It is anticipated that this will also be the case for the proposed development and that the developer will require various goods and services, such as the purchase of building supplies and equipment. This requirement is likely to generate economic opportunities for existing SMMEs in the area and potential new SMMEs which will be established because of the proposed development. It is, however, anticipated that some required goods and services might not be available in the local study area. In this case, the developer will procure from businesses elsewhere in the country or outside the country if necessary.

Table 39 shows the procurement of goods and services impact rating and mitigation measures, pre and post mitigation.

Table 39 Procurement of goods and services

IMPACT DESCRIPTION: Procurement of goods and services				
Predicted for project phase:	Pre-construction and construction phase			
PRE-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Short-term	Impact will prevail during the construction phase, which is anticipated to be short-term	Consequence: Moderately beneficial	Significance: Moderate - positive
Extent	Regional	procurement likely to extend regionally		
Intensity	Moderate - positive	Benefit likely to be moderate should a clear & sound policy be not in place		
Probability	Certain	Procurement of goods and services is certain during construction of any development project		
MITIGATION:				
The developer should put in place a procurement policy aimed at supporting and prioritizing upcoming and qualifying subcontractors or SMMEs, were possible. The policy should be aimed at providing first preference to appropriate subcontractors/SMMEs located in the surrounding communities, followed by those located in the municipal area and lastly those located elsewhere or outside the province.				
POST-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Short-term	Impact will prevail during the construction phase, which is anticipated to be short-term	Consequence: Moderately beneficial	Significance: High - positive
Extent	Local	procurement likely to extend regionally		
Intensity	Very high - positive	Benefit likely to be very high should a clear and sound policy be in place		
Probability	Certain	Procurement of goods and services is certain during construction of any development project		

7.1.3. Employment opportunities

During the construction phase, it is anticipated that employment opportunities will be triggered for skilled, semi-skilled and unskilled workforce. The number of locally employed people during the construction phase of the proposed development will largely depend on the developer's project activities and associated recruitment policy, including the applicant's level of education, skills, and work experience.

Table 40 shows the employment opportunities impact rating and mitigation measures, pre and post mitigation.

Table 40 Employment opportunities

<table>
<tr><th colspan="6">IMPACT DESCRIPTION: Employment opportunities</th></tr>
<tr><td>Predicted for project phase:</td><td colspan="5">Pre-construction and construction</td></tr>
<tr><td colspan="6">PRE-MITIGATION</td></tr>
<tr><td>Dimension</td><td>Rating</td><td colspan="4">Motivation</td></tr>
<tr><td>Duration</td><td>Short-term</td><td colspan="2">Impact will prevail during the construction phase, which is anticipated to be short-term</td><td rowspan="3">Consequence: Moderately beneficial</td><td rowspan="4">Significance: Moderate - positive</td></tr>
<tr><td>Extent</td><td>Regional</td><td colspan="2">Impact likely to extend regionally</td></tr>
<tr><td>Intensity</td><td>Moderate - positive</td><td colspan="2">Benefit likely to be moderate should a clear & sound policy be not in place</td></tr>
<tr><td>Probability</td><td>Certain</td><td colspan="3">Employment opportunities are certain during construction of any development project</td></tr>
<tr><td colspan="6">MITIGATION:</td></tr>
<tr><td colspan="6">The developer should have an employment policy aimed at maximising employment opportunities in the local area and in the region</td></tr>
<tr><td colspan="6">POST-MITIGATION</td></tr>
<tr><td>Dimension</td><td>Rating</td><td colspan="4">Motivation</td></tr>
<tr><td>Duration</td><td>Short-term</td><td colspan="2">Impact will prevail during the construction phase, which is anticipated to be short-term</td><td rowspan="3">Consequence: Moderately beneficial</td><td rowspan="4">Significance: High - positive</td></tr>
<tr><td>Extent</td><td>Regional</td><td colspan="2">procurement likely to extend regionally</td></tr>
<tr><td>Intensity</td><td>High - positive</td><td colspan="2">Benefit likely to be very high should a clear and sound policy be in place</td></tr>
<tr><td>Probability</td><td>Certain</td><td colspan="3">Employment opportunities are certain during construction of any development project</td></tr>
</table>

7.1.4. Community expectations

It is anticipated that community expectations will be very high during the construction phase. The development is proposed nearby communities where the unemployment rates are very high, as such, unemployed individuals and opportunity seekers from door step communities are anticipated to have high expectations related to employment and business opportunities. Should these expectations be not met, individuals and community groups can mobilize against the project.

Table 41 shows the community expectations impact rating and mitigation measures, pre and post mitigation.

Table 41 Community expectations

<table>
<tr><th colspan="5">IMPACT DESCRIPTION: Community expectations</th></tr>
<tr><td>Predicted for project phase:</td><td colspan="4">Pre-construction and construction</td></tr>
<tr><td colspan="5">PRE-MITIGATION</td></tr>
<tr><td>Dimension</td><td>Rating</td><td colspan="3">Motivation</td></tr>
<tr><td>Duration</td><td>Short-term</td><td>Impact will prevail during the construction phase, which is anticipated to be short-term</td><td rowspan="3">Consequence: Moderately detrimental</td><td rowspan="4">Significance: High - negative</td></tr>
<tr><td>Extent</td><td>Local</td><td>Local communities likely to have expectations</td></tr>
<tr><td>Intensity</td><td>Very high - negative</td><td>Expectations likely to be very high if not managed</td></tr>
<tr><td>Probability</td><td>Certain</td><td colspan="2">Expectations are certain during construction of any development project</td></tr>
<tr><td colspan="5">MITIGATION:</td></tr>
<tr><td colspan="5">Community expectations should be managed via timely and clear messaging throughout the Stakeholder engagement and consultation process</td></tr>
<tr><td colspan="5">POST-MITIGATION</td></tr>
<tr><td>Dimension</td><td>Rating</td><td colspan="3">Motivation</td></tr>
<tr><td>Duration</td><td>Short-term</td><td>Impact will prevail during the construction phase, which is anticipated to be short-term</td><td rowspan="3">Consequence: Slightly detrimental</td><td rowspan="4">Significance: Low - negative</td></tr>
<tr><td>Extent</td><td>Local</td><td>Local communities likely to have expectations</td></tr>
<tr><td>Intensity</td><td>Low - negative</td><td>Expectations likely to be negligible to minor if managed</td></tr>
<tr><td>Probability</td><td>Certain</td><td colspan="2">Expectations are certain during construction of any development project</td></tr>
</table>

7.1.5. Health, safety, and security

Construction projects are generally known to impact negatively on the health and safety of communities and employees. It is anticipated that similar impacts will be triggered by the proposed development. During the construction phase, nearby communities and employees may be exposed to increased dust, noise, visual and other nuisance disturbances, construction vehicles and man-machine interfaces. The dust will likely to be induced by construction phase activities such as excavation, cement mixing and material or waste transportation. The dust from construction activities may affect the respiratory system of those exposed to the dust. Construction noise will likely be induced by construction machines and transportation vehicles and although the construction noise will not damage the hearing ability of those exposed to the noise in the community, it will be at a nuisance level. Also, Additionally, an influx of job and opportunity seekers is often characterized by higher health risks, particularly if the influx is male dominated. These include a higher disease burden and rise in HIV/AIDS rates

Construction activities are likely to attract criminals into the area, hence compromising the security of nearby farm owners, communities, and employees. During the construction phase, it is anticipated that that criminal activities will escalate in the area, including the trespassing of properties.

Table 42 shows the health, safety and security impact rating and mitigation measures, pre and post mitigation.

Table 42 Health, safety, and security

IMPACT DESCRIPTION: Health, safety, and security				
Predicted for project phase:	Pre-construction and construction			
PRE-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Short-term	Impact will prevail during the construction phase, which is anticipated to be short-term	Consequence: Moderately detrimental	Significance: Low - negative
Extent	Local	Impact likely to extend to local communities		
Intensity	Moderate - negative	Impact likely to be moderately high if not managed		
Probability	Very likely	Health, safety, and security impacts are likely during the construction phase		
MITIGATION:				
The developer should implement health and safety mitigation measures for communities and employees as per the recommendations made in other specialist studies viz., air quality, traffic, visual assessment etc. The developer should make sufficient provision for all security measures, not just access control and monitoring of criminal activities during the pre-operation phases.				
POST-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Short-term	Impact will prevail during the construction phase, which is anticipated to be short-term	Consequence: Slightly detrimental	Significance: Low – negative
Extent	Local	Impact likely to extend to local communities		
Intensity	Low - negative	Impact likely to be moderately high if not managed		
Probability	Fairly likely	Health and safety impacts are fairly likely if managed during the construction phase		

7.1.6. Traffic and damage to local access road

The access road for the proposed Sekuruwe WTW preferred site is an existing road which transverse through the Sekuruwe community. It is anticipated that this will increase the traffic in the area and that the access road will be subject to damage. Heavy duty trucks and construction vehicles cause damage to the current road conditions as well as contribute to increased dust and congestion on the roads.

Table 43 shows the traffic and damage to local access road impact rating and mitigation measures, pre and post mitigation.

Table 43 Traffic and damage to local access road

IMPACT DESCRIPTION: Traffic and damage to local and access road				
Predicted for project phase:	Pre-construction and construction			
PRE-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Short-term	Impact will prevail during the construction phase, which is anticipated to be short-term	Consequence: Moderately detrimental	Significance: Moderate - negative
Extent	Local	Impact likely to affect local social receptors		
Intensity	Very high - negative	impact likely to be very high if not managed		

Probability	Very likely	Traffic and damage to local access road very likely if not managed	
MITIGATION:			
Traffic should be managed as per the recommendations made in the traffic impact assessment specialist study. The developer should regularly maintain the existing road to avoid damage to the road			
POST-MITIGATION			
Dimension	**Rating**	**Motivation**	
Duration	Short-term	Impact will prevail during the construction phase, which is anticipated to be short-term	Consequence: Negligible / Significance: Very low
Extent	Site-specific	Impact likely to affect local social receptors	
Intensity	Low - negative	impact likely to be low if managed	
Probability	Fairly likely	Traffic and damage to local access road fairly likely if managed	

7.2. Operation phase

7.2.1. Employment opportunities

During the operation phase, it is anticipated that long-term and permanent opportunities related to WTW functionality and maintenance be induced during this phase. Consequently, this will contribute positively to the income of the successful job applicants as they will be able to support their dependents for an extended period. Like the construction phase, the number of locally employed people during the operational phase will largely depend on the developer's recruitment policy and the applicant's level of education, skills, and work experience.

Table 44 shows the employment opportunities impact rating and mitigation measures, pre and post mitigation.

Table 44 Employment opportunities

IMPACT DESCRIPTION: Employment opportunities				
Predicted for project phase:	Operation			
PRE-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Long-term	Impact will prevail during the operation phase, which is anticipated to be long-term	Consequence: Moderately beneficial	Significance: High - positive
Extent	Regional	Impact likely to extend regionally		
Intensity	Low - positive	Benefit likely to be low should a clear & sound policy be not in place		
Probability	Certain	Employment opportunities are certain during operation of any development project		
MITIGATION:				

The developer should have an employment policy aimed at maximising employment opportunities in the local area and in the region

POST-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Long-term	Impact will prevail during the operation phase, which is anticipated to be long-term	Consequence: Highly beneficial	Significance: Very high - positive
Extent	Regional	Procurement likely to extend regionally		
Intensity	High - positive	Benefit likely to be high should a clear and sound policy be in place		
Probability	Certain	Employment opportunities are certain during operation phase of any development project		

7.2.2. Access to potable water for selected communities in the Northern limb

Mogalakwena Local Municipality has been reported to be severely water stressed and experiencing water shortages. It is anticipated that selected doorstep communities in the Northen limb (*as per the Water Management Master Plan*) will have access to potable water.

Water shortages are an issue in the proposed project area. Unfortunately, serious water shortages may be accompanied by chronic illnesses; thus, putting pressure on the hospitals and clinics. Sufficient water supply minimises the spread of diseases in an area and increases the livelihood status of the individuals. Additionally, A secure water supply reduces expenditure on health-related costs in a society. In most developing countries people spend a third of their income on medical costs mostly from water-related diseases such as malaria and diarrhea. Further, water supplies the individual with the opportunity to do everyday activities such as drinking water, cooking, bathing, and cleaning. .

Table 45 shows the access to Potable water for selected communities in the Northern Limb impact rating and mitigation measures, pre and post mitigation.

Table 45 Access to potable water for selected communities in the Northern Limb

IMPACT DESCRIPTION: Access to potable water for selected communities in the Northern limb				
Predicted for project phase:	Operation			
PRE-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Long-term	Impact will prevail during the operation phase, which is anticipated to be long-term	Consequence: Moderately beneficial	Significance: High - positive
Extent	Local	Local communities in the northern limb are likely to benefit from Potable water		
Intensity	Moderate - positive	Benefit likely to be moderate prior to implementation of the master plan		
Probability	Certain	It is certain that selected communities as per the master plan will have access to Potable water		
MITIGATION:				

A Water Management Master Plan should be in place, clearly specifying which communities in the Northen limb will benefit from accessing potable water

POST-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Long-term	Impact will prevail during the operation phase, which is anticipated to be long-term	Consequence: Highly beneficial	Significance: Very high - positive
Extent	Regional	Local communities in the northern limb are likely to benefit from Potable water		
Intensity	High - positive	Benefit likely to be high following the implementation of mater plan		
Probability	Certain	It is certain that selected communities as per the master plan will have access to Potable water		

7.2.3. Community Expectations

Once the WTW is operational, it is anticipated that doorstep communities, especially those in the Northen limb will expect to have access to potable water. Unfortunately, it is assumed that not all communities in the study area will have access to potable water from this specific development, it is assumed by the specialist that the proposed WTW will serve the communities generally situated along the route of the proposed 2B+ pipeline project and the communities surrounding the commercial users in the area between Mokopane and Sekuruwe. However, the beneficiaries of the potable water in the Northern limb will be determined as per the Water Management Master Plan.

Table 46 shows the community expectations impact rating and mitigation measures, pre and post mitigation.

Table 46 community expectations

IMPACT DESCRIPTION: community expectations				
Predicted for project phase:	Operation			
PRE-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Long-term	Impact will prevail during the operation phase, which is anticipated to be long-term	Consequence: Highly detrimental	Significance: High - negative
Extent	Local	Local communities likely to have expectations		
Intensity	Very high - negative	Expectations likely to be very high if not managed		
Probability	Very likely	Expectations are certain during operation of any development project		
MITIGATION:				
The Water Management Master Plan and associated beneficiaries should be communicated to the project interested and affected communities, to avoid creating expectations to from those communities which will not benefit from the project				
POST-MITIGATION				
Dimension	**Rating**	**Motivation**		

Duration	Long-term	Impact will prevail during the operation phase, which is anticipated to be long-term	Consequence: Moderately detrimental	Significance: Low - negative
Extent	Local	Local communities likely to have expectations		
Intensity	Moderate - negative	Expectations likely to be moderate if not managed		
Probability	Fairly likely	Expectations are anticipated to be fairly likely if managed		

7.2.4. Health and safety

During the operation phase, some of the activities associated with the maintenance of the WTW will be reliant on human labour and therefore operation phase workforce will be exposed to health and safety risks. It is anticipated that injuries can occur due to incorrect handling of equipment and materials failing from heights, stacked items tipping over, accidents involving forklifts and vehicles, and exposure to hot and cold temperatures. Additionally, it is also anticipated that operational noise will be a health hazard during operation (may damage the hearing ability of those exposed to the noise) and the noise will likely be introduced by back-up generators as well. Confined space entry and chemical exposure are also risks that can occur during the operation phase of the asset.

Table 47 shows the health and safety impact rating and mitigation measures, pre and post mitigation.

Table 47 Health and safety

IMPACT DESCRIPTION: Health and safety				
Predicted for project phase:	Operation			
PRE-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Long-term	Impact will remain present during the full operational phase of the asset.	Consequence: Moderately detrimental	Significance: High - negative
Extent	Local	Impact likely to extend locally		
Intensity	High - negative	Impact will be high if not managed.		
Probability	Certain	Probability for incidents and injuries are almost certain if not manged		
MITIGATION:				
The developer should implement health and safety mitigation measures for communities and employees as per the recommendations made in other specialist studies viz., air quality, traffic, visual assessment etc				
POST-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Long-term	Impact will remain present during the full operational phase of the asset.	Consequence: Moderately detrimental	Significance: Low - negative
Extent	Local	Impact likely to extend locally		
Intensity	Moderate - negative	Impact will be moderate when managed.		
Probability	Fairly likely	Probability for incidents and injuries are fairly likely as operational risks will always be present.		

7.3. Decommission phase

7.3.1. Employment and business opportunities

Although the operation phase workforce will lose their jobs during this time, short term employment and businesses will be created with the aim of executing the decommission activities.

Table 48 shows the employment and business opportunities impact rating and mitigation measures, pre and post mitigation.

Table 48 Employment and business opportunities

IMPACT DESCRIPTION: Employment and business opportunities				
Predicted for project phase:	Decommission			
PRE-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Short-term	Impact will prevail during the decommission phase, which is anticipated to be short-term	Consequence: Moderately beneficial	Significance: Moderate - positive
Extent	Regional	Impact likely to extend regionally		
Intensity	Moderate - positive	Intensity anticipated to be moderate		
Probability	Certain	Employment and business opportunities are certain during decommission of any development project		
MITIGATION:				
The developer should have an employment policy aimed at maximising employment opportunities in the local area and in the region, including a procurement policy aimed at supporting and prioritizing upcoming and qualifying subcontractors or SMMEs, were possible				
POST-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Short-term	Impact will prevail during the decommission phase, which is anticipated to be short-term	Consequence: Moderately beneficial	Significance: High - positive
Extent	Regional	Impact likely to extend regionally		
Intensity	High - positive	Intensity anticipated to be high post mitigation		
Probability	Certain	Employment and business opportunities are certain during decommission of any development project		

7.3.2. Health and safety

Decommission activities are likely to impact negative on the health and safety of employees and communities. The health and safety are likely to be induced by decommissioning activities such as demolition and the handling and transportation of demolished materials.

Table 49 shows the health and safety impact rating and mitigation measures, pre and post mitigation.

Table 49 Health and safety

IMPACT DESCRIPTION: Health and safety	
Predicted for project phase:	Decommission

PRE-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Short-term	Impact will only remain during the decommissioning phase.	Consequence: Slightly detrimental	Significance: Low - negative
Extent	Site-specific	Impact will be limited the site being decommissioned.		
Intensity	Moderate - negative	Impact will be moderately negative if not managed properly.		
Probability	Very likely	Probability for incidents and injuries are very likely if not manged properly.		
MITIGATION:				
The developer should implement health and safety mitigation measures for communities and employees as per the recommendations made in other specialist studies viz., air quality, traffic, visual assessment etc. and as per the Client's duties as defined in the Construction Regulations (Occupational Health and Safety Act)				
POST-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Short-term	Impact will only remain during the decommissioning phase.	Consequence: Negligible	Significance: Very low
Extent	Site-specific	Impact will be limited the site being decommissioned.		
Intensity	Low - negative	Impact will be low if managed properly.		
Probability	Fairly likely	Probability for incidents and injuries are less likely when manged properly.		

7.3.3. No access to potable water

Should the proposed WTW be decommissioned, social water users will not have access to potable water. Specifically, the selected doorstep communities in the Northern limb (as per the Water Management Master Plan).

Table 50 shows the no access to Potable water impact rating and mitigation measures, pre and post mitigation.

Table 50 No access to potable water

IMPACT DESCRIPTION: No access to potable water				
Predicted for project phase:	Decommission			
PRE-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Long-term	Impact anticipated to be long-term	Consequence: Highly detrimental	Significance: Very high - negative
Extent	Local	Lack of access to water will affect the local beneficiaries		
Intensity	Very high - negative	Impact intensity anticipated to be very high if not managed		
Probability	Certain	Impact certain should the development decommission		
MITIGATION:				
Potable water beneficiaries should be notified on the decommissioning of the WTW prior to decommissioning. The municipality should provide alternative potable water source for the northern limb beneficiaries				

POST-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Long-term	Impact anticipated to be long-term	Consequence: Moderately detrimental	Significance: Moderate - negative
Extent	Local	Lack of access to water will affect the local beneficiaries		
Intensity	Moderate - negative	Impact intensity anticipated to be moderate if managed		
Probability	Very likely	Impact very likely should the development decommission		

7.3.4. Loss of employment and business opportunities

It is anticipated that operation phase workforce will lose their jobs during the decommission phase, including businesses opportunities which would have been induced by the need for procurement of operational goods and services.

Table 51 shows the loss of employment and business opportunities impact rating and mitigation measures, pre and post mitigation.

Table 51 Loss of employment and business opportunities

IMPACT DESCRIPTION: Loss of employment and business opportunities				
Predicted for project phase:	Decommission			
PRE-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Long-term	Impact anticipated to be long-term	Consequence: Extremely detrimental	Significance: Very high - negative
Extent	Regional	Impact likely to extend regionally		
Intensity	Very high - negative	Impact intensity anticipated to be very high if not managed		
Probability	Certain	Impact certain should the development decommission		
MITIGATION:				
Employees and businesses benefiting from operation of the WTW should be notified in time regarding the decommissioning of the WTW prior to decommissioning				
POST-MITIGATION				
Dimension	**Rating**	**Motivation**		
Duration	Long-term	Impact anticipated to be long-term	Consequence: Moderately detrimental	Significance: Low - negative
Extent	Regional	Impact likely to extend regionally		
Intensity	Low - negative	Impact intensity anticipated to be low if managed		
Probability	Fairly likely	Impact fairly likely if managed		

8. Assessment of No-go alternative and cumulative impacts

As per the requirements of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA)the alternative of not proceeding with the proposed project; must be assessed as an alternative. The no-go alternative implies that the Mokopane and Sekuruwe WTWs do not proceed, hence the current status quo remains the same. This section defines a situation which would result should the proposed project not proceed.

The Department of Human Settlement and Water and Sanitation published the Water Master plan for South Africa which specifically indicated that South Africa as a country is experiencing a water crisis by insufficient water infrastructure maintenance and investment, recurrent droughts driven by climatic variation, inequities in access to water and sanitation, deteriorating water quality, and a lack of skilled water engineers.

The proposed Mokopane and Sekuruwe WTWs are part of the OMM programme. The OMM Programme intends to build, operate, and maintain bulk and potable water infrastructure in the Eastern and Northern Limb of the Limpopo Province. As such, this would address the water crisis caused by insufficient water infrastructure maintenance and investment identified in the Water Master Plan.

It is also essential to note that the OMM programme is aligned with the NIP, 2050 (Phase I), and the goals of the National Development plan (NDP) 2011, the NDP anticipates, amongst others, universal and reliable access to water of an acceptable quality and quantity in support of a strong, inclusive economy and a healthy environment by the year 2030.

The overall impact associated with not proceeding with the proposed WTWs would entail the failure of the OMM programme to fully align with the country's plan on infrastructure development, especially the provision of potable water to social users. Specifically,

- The selected doorstep communities from the Northern limb (*as per the Water Management Master Plan*) will not have access to potable water

The other anticipated positive and negative social impacts likely to be induced by the proposed WTWs (as identified in this SIA) will not be realised.

Table 52 below, presents the no-go assessment associated with the proposed Mokopane and Sekuruwe WTW.

Table 52 No-go assessment associated with the proposed Mokopane and Sekuruwe WTWs

Code	Impact	Pre-mitigation:					
		Duration	Extent	Intensity	Consequence	Probability	Significance
1	No-go alternative	Long-term	Regional	Very high - negative	Extremely detrimental	Certain	Very high - negative

9. Potential cumulative impacts

The potential cumulative impacts for the proposed Mokopane and Sekuruwe WTWs include:

- ***Impacts related to multiplier effects on the local economy:***

The proposed development, including other key developments in the area, will result in several economic benefits for local communities through direct and multiplier effects. These effects are usually stimulated by wage bills, local and regional procurement spending, and investment into Local Economic Development (LED) and skills development.

- ***Impacts related to community health:***

The impacts could be permanent duration due to the nature of HIV/AIDS and other STIs that are incurable. The spatial scale is local but infected persons from the community, as well as construction teams who are mobile, could infect more people in other parts of the country.

- ***Impacts related to population influx:***

Pressure on local resources, infrastructure, and services: The capacity of social service delivery is generally under threat in the proposed project areas. Any additional influx of job and business seekers into the area, combined with the construction and operational workforce, will place great pressure on local social services and infrastructure such as roads, clinics, schools, sanitation and water access, and housing.

Increased informal settlements: An influx of opportunity seekers into the area also has the potential to increase the formation of informal settlements, those who cannot afford rental property or bond will likely resort to residing in informal dwellings. This consequently lowers the property value of formal houses which are located in proximity to the informal settlements.

Increased indirect informal employment and businesses: It is anticipated that informal employment or businesses will emerge as a result of the proposed development. Indirect informal job opportunities or businesses largely relate to services that are not directly linked with the construction or operation activities, e.g., food stalls, etc. either at the construction/operation village or the construction/operation site.

10. Concluding remarks

The proposed WTWs are strategical infrastructure development projects which are aligned with the NIP and the overall goals of the NDP. The findings of the SIA indicate that the recommended mitigation measures are expected to reduce the significance of the identified negative impacts to acceptable levels, while positive impacts will on average be significantly enhanced to maximise benefits to surrounding communities in the Northen limb. It is finally recommended that the developer should respectively consider the proposed mitigation and maximisation measures included in the report to decrease the effect of negative impacts on communities and maximise the effect of positive impacts. Additionally, the specialist recommends that the proposed development should be authorised since the no-go alternative would hinder the execution of the national strategic plans aimed at providing potable water to communities for social use.

11. References

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In diversity there is beauty and there is strength.

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