ENVIRONMENTAL IMPACT ASSESSMENT REPORT FOR THE PROPOSED NKOSI INTEGRATED HUMAN SETTLEMENT DEVELOPMENT

For Competent Authority Review

On the Farm Nkosi City 1002 JU

REFERENCE: 1/3/1/16/1E-137 **August 2018**

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REPORT DETAILS

Status	Rev 0
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Date Submitted	August 2018
Project Consultant	Bokamoso Landscape Architects and Environmental Consultants CC
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Declaration	I, Adéle Drake, as authorised representative of Bokamoso Landscape Architects and Environmental Consultants CC hereby confirm my independence in terms of Section 13.(1)(a) of the National Environmental Management Act, 1998 (Act No. 107 of 1998, as amended) 2014 EIA Regulations as amended.
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LIST OF ABBREVIATIONS

ARC	Agricultural Research Council
CoM	City of Mbombela
DAFF	Department of Agriculture Forestry and Fisheries
DEA	Department of Environmental Affairs
DMR	Department of Mineral Resources
DRD&LR	Department of Rural Development and Land Reform
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EMPr	Environmental Management Programme
GAs	General Authorisations
GIS	Geographic Information System
HIA	Heritage Impact Assessment
I&APs	Interested and Affected Parties
IDP	Integrated Development Plan
IAIA	International Association of Impact Assessment
IEM	Integrated Environmental Management
IEMA	Institution for Environment Management and Assessment
IHAS	Integrated Habitat Assessment System
IUCMA	Inkomati Usutu Catchment Management
KNP	Kruger National Park
NHRA	National Heritage Resources Agency
NCCPA	Nkosi City Communal Property Association
NEMA	National Environmental Management Act
NWA	National Water Act
MBSP	The Mpumalanga Biodiversity Sector Plan
MBCP	Mpumalanga Biodiversity Conservation Plan

MDAFF	Mpumalanga Department of Agriculture Forestry and Fisheries
MDARDLEA	Mpumalanga Department of Agriculture Rural Development Land and Environmental Affairs
MDPWRT	Mpumalanga Department of Public Works Roads and Transport (MDPWRT)
MPHRA	Mpumalanga Provincial Heritage Resources Agency
MLM	Mbombela Local Municipality
MTPA	Mpumalanga Tourism and Parks Agency
OHSA	Occupational Health & Safety Act
PoS	Plan of Study
QDS	Quarter Degree Square
RDP	Reconstruction and Development Programme
SACLAP	South African Council of the Landscape Architects Profession
SAHRA	South African Heritage Resources Agency
SANBI	South African Biodiversity Institute
SANParks	South African National Parks
SASS5	South African Scoring System version 5
SEA	Strategic Environmental Assessment
SDF	Spatial Development Framework
SPLUMA	Spatial Planning and Land Use Management Act
SANRAL	South African National Roads Agency Limited
SMME	Small, Medium to Micro-sized Enterprises
STWs	Sewage Treatment Works
TIS	Traffic Impact Study
TWQRs	Total Water Quality Rages
UNCED	United Nations Conference on Environment and Development
VEGREI	Vegetation Response Assessment Index
WRVCB	White River Valley Conservation Board
WWTW	Waste Water Treatment Works

1. INTRODUCTION

1.1 Background

Dovetail Properties (Pty) Ltd on behalf of Mbombela Local Municipality appointed Bokamoso Landscape Architects and Environmental Consultants CC to conduct an Environmental Impact Assessment (EIA) in terms of the National Environmental Management Act (NEMA), 1998 (Act No. 107 of 1998, as amended) for the proposed Nkosi City Integrated Human Settlement Development on the Farm Nkosi City 1002 JU, Mbombela Local Municipality, Ehlanzeni District Municipality, Mpumalanga Province.

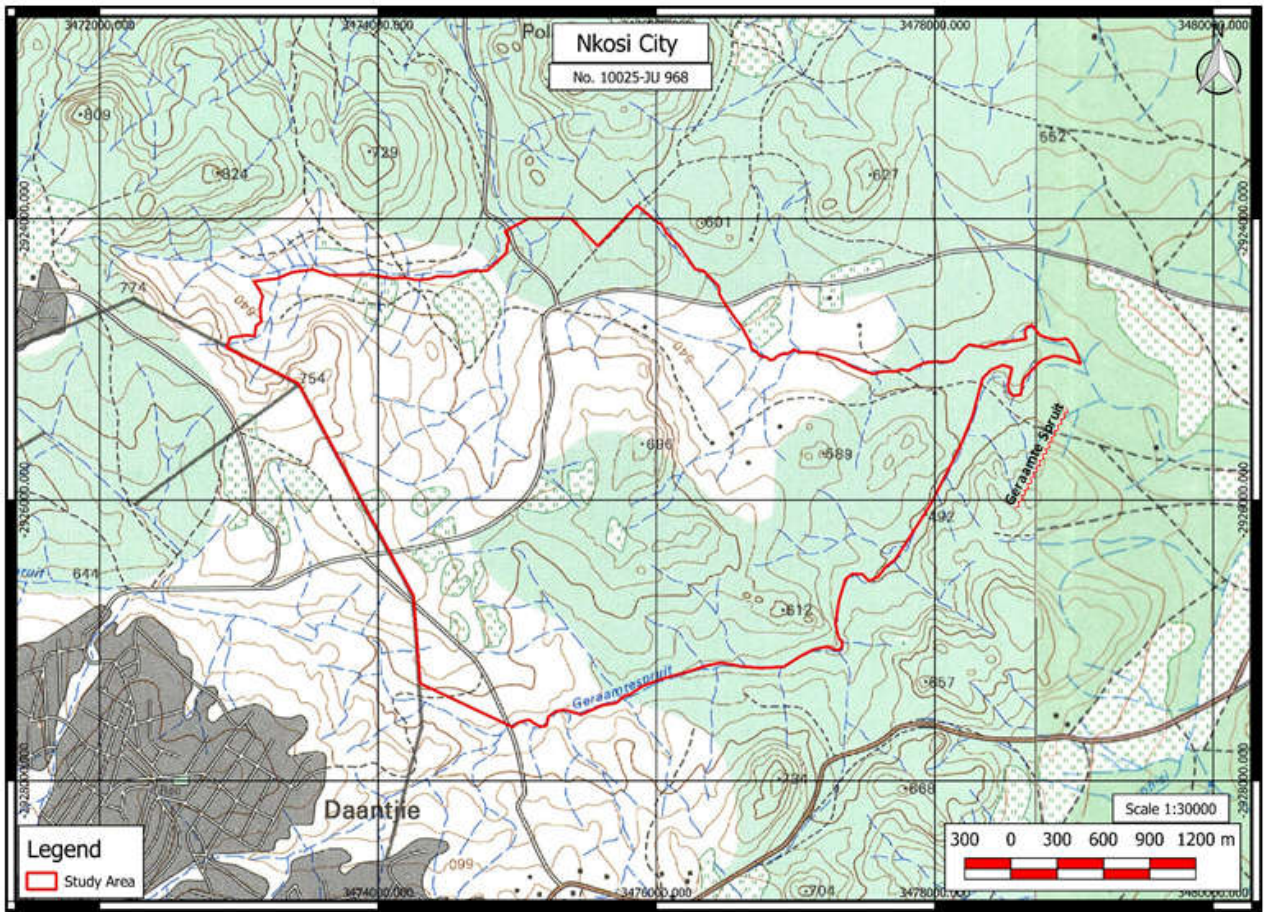


Figure 1: Locality map

Enlargement of figures contained in this report are attached as Appendix A.

The Nkosi City integrated human settlement development is a 50/50 joint venture between the Nkosi City Communal Property Association (NCCPA) and Dovetail Properties with assistance and support from National Government, Mpumalanga Province and the City of Mbombela (CoM).

Nkosi City is an integrated human settlement development project based on the Rural Transformation Model comprising of agricultural units, social and bonded housing, schools, institutional buildings, commercial and industrial properties, sports facilities, public transport facilities, waste water treatment works, water reticulation, stormwater management infrastructure, electrical infrastructure, waste management facilities, public open space, and the construction of dams on land 968ha in extent. **Refer to Figure 1 and 2 below.**

The proposed Nkosi City development will comprise of approximately 2 305 RDP/Social housing units, approximately 1 166 bonded housing units, approximately 95 farming units on 228 hectares, approximately 19 industrial units on approximately 13 hectares, approximately 3 business units on approximately 14 hectares, 32 Special units on approximately 13 hectares, six institutional units on approximately 3 hectares, 12 educational units on approximately 28 hectares, one fresh produce market approximately 2 hectares, one unit for a hospital and clinic on approximately 5 hectares, one unit for informal trading on approximately 1 hectare, two units for Public Transport on 2 hectares, one unit for the existing cemetery on 3.3 hectares, two units for Government purposes on approximately 1.4 hectares, five Private Open Space units on approximately 5 hectares, 34 units for environmental sensitive and conservation areas approximately 450 hectares in extent, and approximately 94 hectares of Public Roads and Streets.

Need for housing

The provision of RDP houses is a competence of the Department of Human Settlements and Local Municipalities. The City of Mbombela has a register of 35 000 people waiting for houses. The RDP houses associated with the "residential 1" land use will cater for approximately 2 300 of the 35 000 backlog.

The walk-up apartments are intended to be rental stock, to cater for individuals who do not qualify for RDP housing. The Bonded/GAP Housing will be sold and are intended for families with an income of R 15 000. Commercial banks have a subsidy scheme which assist Bonded/GAP Housing buyers with deposits.

Strategic Environmental Assessment

A Strategic Environmental Assessment (SEA) was conducted prior to the commencement with the EIA process and the main purpose of this SEA was to identify risks and "Fatal Flaws" at an early stage and to conduct an initial assessment of the biophysical and institutional environments affected by the proposed development. The SEA also identified the most salient problems, opportunities and constraints associated with the proposed development and it supplied important project planning and application process guidelines.

During the SEA process several specialists conducted assessments for purpose of informing the SEA and to be attached as part of the Environmental Impact Assessment (EIA) to follow after the SEA. The following specialist studies were conducted:

- The wetlands on the site were delineated and wetland buffers were applied around such wetlands;
- An ecological survey was conducted to identify threatened species and/or species of concern;
- A Heritage Impact Assessment (HIA) in order to identify critical heritage features on site;
- A baseline aquatic assessment for all watercourses (perennial and non-perennial) affected by the proposed development; and
- A desktop hydrological and hydrogeological assessment, including an intermediate reserve determination.

The fauna and flora studies conducted for purpose of this SEA were conducted during the correct season and during this initial survey process no red data species were identified.

The Mpumalanga Biodiversity Conservation Plan (MBCP) identifies the area as mostly natural with modified areas scattered throughout. No Critical Biodiversity Areas are found on site; however, the entire site falls within an area classified as Ecological Support Area (ESA) Protected Area Buffer. This buffer is applied, because the Kruger National Park (KNP) is situated

Availability of bulk service infrastructure

The current shortage of municipal services in the area necessitated an investigation of various service alternatives and combination of service alternatives. The provision of on-site services i.e. sewage package plant and on-site borehole/surface water abstraction was considered due to lack of municipal service supply.

The comments of the Mpumalanga Department of Agriculture Rural Development Land and Environmental Affairs (MDARDLEA) on the Final Scoping Report emphasized the importance to confirm the availability of services. The department requested that detailed information be provided for the services, especially the water provision, due to the current water shortage within the municipal area.

The project team took cognisance of the important issues raised by MDARDLEA and immediately arranged follow-up meetings with the Department of Water and Sanitation (DWS) to determine the status of the Department's "dam-planning" for the area.

DWS supplied the details of the site selection exercises and dam alternatives investigated and the Nkosi City Project team offered to assist DWS with the finalisation of the planning and with the implementation of the identified dam projects that will also provide water for the Nkosi City project. The minutes of the meetings held between DWS and the Nkosi City Project team is attached hereto as **Appendix E7.**

At this stage there are two main options for the water provision of Nkosi City. The 1st and shorter term option is to raise the dam wall of the Primkop Dam and a meeting was already held with the White River Valley Conservation Board (WRVCB), the owner of the

dam, to discuss the proposed dam upgrading project and the members of the board already supplied their principle support for the project and a draft agreement between the WRVCB and the Developer is currently under review.

Another longer term option is the construction of a completely new Mbombela dam for the entire catchment area and the main purpose of this dam will be to supply water to Mbombela. The site selection exercises for the identification of the most suitable dam-sites have already been completed and DWS agreed to provide timeframes for the completion of the dam project. At this stage the Nkosi City project team will be responsible for the planning and upgrading of the dam wall of the Primkop Dam.

In the interim the City of Mbombela has also agreed to investigate and address the considerable water losses within the Municipal area to make water available for future developments within Mbombela. The problem with the water losses are not only associated with water leaks. The are many illegal water connections on the water network that were implemented by parties that are without water infrastructure and it is very difficult to address this problem.

During initial discussions with the relevant official at Mpumalanga Department of Agriculture Rural Development Land and Environmental Affairs (MDARDLEA) it was mentioned that the Department will only consider approving the development phases/clusters for which services (roads, water, sewer, stormwater management measures and waste management services and electricity) can be supplied.

The Developer plans to construct the proposed devolvement over a period of four (4) years in six (6) phases commencing in January 2019 and concluding in May 2022 as denoted in **Figure 2** below.

Phase	Start	End	Duration	Earliest Occupation Date/ Water Requirement
Phase 1	Jan-2019	Jan-2022	36 months	Dec-2021
Phase 2	June-2019	Dec-2021	30 months	Dec-2021
Phase 3	Sept-2019	Sept-2021	24 months	Sept-2021
Phase 4	Nov-2019	Dec-2021	25 months	Dec-2021
Phase 5	Jan-2020	May-2022	28 months	May-2022
Phase 6	May-2020	May-2022	24 months	May-2022

The construction of the following service infrastructure required to give effect to Nkosi City thus have to be **concluded by September 2021,** which is the estimated completion date of Phase 3:

- Bulk water: Raising of Primkop Dam wall, construction of the 7.5Mℓ Primkop Dam Water Treatment Plant (WTP), and the installation of the 300mm diameter 15.8km bulk water line from Primkop Dam to the Pienaar reservoir;
- Sewerage: Off-site 4Mℓ Waste Water Treatment Works (WWTWs) and 250mm diameter main outfall sewer;
- Electricity: On-site132kV/11kV Simunye Substation; and
- Road upgrades: Road upgrades as per TIS to be compiled per Phase.

Figure 2: Nkosi City phases map

Phase 1 is situated on a portion of the proposed development site that is in close proximity to existing service connection points and to access roads i.e. to the west of the site.

Take note that the project team plans to develop the entire city and it will be possible to provide the entire development with water by raising the Primkop Dam wall. **For detail pertaining to bulk water supply, refer to Section 7.6.1 of this report.**

A special project discussion meeting was held in Mbombela at the offices of MDARDLEA on 6 June 2018 between the Developer and the MDARDLEA Chief Director: Environmental Services, the Mbombela Speaker and DWS Mpumalanga Planning, in order to obtain support for this flagship project, considering financing can only be obtained once Environmental Authorisation has been obtained. Refer to Appendix B11 for the Minutes of the meeting.

An agreement has been drafted between owners of Primkop Dam and the Developer regarding private financing for raising of the Primkop Dam wall, as water supply source for Nkosi City and the City of Mbombela.

In MDARDLEAs response to the Draft EIA Report (Refer Appendix B12), the Department noted the request from the EAP on behalf of the developer, for environmental authorisation to be subject to confirmation of water supply. It is thus crucial that an Environmental Impact Assessment and Water Use License Applications be launched as soon as possible for bulk water supply, in order to give effect to Nkosi City.

1.2 Activities Applied for in Terms of NEMA

The application is made in terms of Government Notices R. 983, R. 984, and R. 985 of the 2014 EIA Regulations of the National Environment Management Act, 1998 (Act No. 107 of 1998), as amended. The intention of the application is to establish an Integrated Human Settlement Development to be known as Nkosi City on 968ha of land consisting of the following land uses:

- Approximately 2305 RDP/Social housing units;
- Approximately 1166 Bonded housing units;
- Approximately 95 Farming units on 228 hectares;
- Approximately 19 Industrial units on approximately 13 hectares;
- Approximately 3 Business units on approximately 14 hectares;
- 32 Special units for places of refreshment, Hotel and accommodation, Shops, Retail, Service retail, Wholesale, Bulk retail, Dwelling units, Residential buildings, Social Halls, Dry cleaners and Offices, on ± 13 ha;
- Six institutional units on approximately 2.3 hectares;
- 12 Educational units on approximately 28 hectares;
- One fresh produce market approximately 2 hectares;
- One unit for a hospital and clinic on approximately 5 hectares;
- One unit for informal trading on approximately 1 hectare;

- Two units for Public Transport on 2 hectares;
- One unit for the existing cemetery and expansion thereof on 3.3 hectares;
- Two units for Government purposes on approximately1.4 hectares;
- Five Private Open Space units on approximately 5 hectares;
- 34 Units for environmental sensitive and conservation areas covering approximately 450 hectares; and
- Approximately 94 hectares of Public Roads and Streets.

It is the intention of the applicant to apply for the division of the township in terms of Section 45 of the Mbombela Local Municipality By-law on Spatial Planning and Land Use Management after initial approval, to allow for the phased development of the proposed township.

The applicant is applying for environmental authorisation of the following listed activities as per pre-application meeting held with officials representing Mpumalanga Department of Agriculture Rural Development Land and Environmental Affairs (MDARDLEA):

Table 1: Listed activities in terms of Government Notice R 983 (as amended)

Relevant Notice and Listed activity	**Describe each listed activity as per project description:**
Notice 1), 4 December 2014, as amended 7 April 2017 **Activity 1**	The Development of facilities or infrastructure for the generation of electricity from a renewable resource where – (i) The electricity output is more than 10 megawatts but less than 20 megawatt; or (ii) the output is 10 megawatts or less but the total extent of the facility covers an area in excess of 1 hectare; excluding where such development of facilities or infrastructure is for photovoltaic installations and occurs – (a) within an urban area; or (b) on existing infrastructure.
Reason for exclusion: **A separate Environmental Impact Assessment is required for the proposed solar farm, as instructed by MDARDLEA, due to the associated impacts not having been assessed in detail.**	
GN R983 (Listing Notice 1), 4 December 2014, as amended 7	The development of infrastructure exceeding 1000 metres in length for the bulk transportation of water or storm water- (i) with an internal diameter of 0,36 metres or more; or (ii) with a peak throughput of 120 litres per second or more;

April 2017 **Activity 9**	excluding where- (a) such infrastructure is for bulk transportation of water or storm water or storm water drainage inside a road reserve or railway line reserve; or (b) where such development will occur within an urban area.
Reason for inclusion: The proposed development will require the installation of bulk water stormwater pipework with a minimum diameter of 450mm Ø outside an urban area as only half of the proposed development site fall within the Mbombela Urban Edge, thus triggering this listed activity.	
GN R983 (Listing Notice 1), 4 December 2014, as amended 7 April 2017 **Activity 10**	The development and related operation of infrastructure exceeding 1000 meters in length for the bulk transportation of sewage, effluent, process water, wastewater, return water, industrial discharge or slimes – (i) With an internal diameter of 0,36 meters or more; or (ii) With a peak throughput of 120 litres per second or more; excluding where: (a) Such infrastructure is for the bulk transportation of sewage, effluent, process water, wastewater, return water, industrial discharge or slimes inside a road reserve or railway line reserve; or (b) Where such development will occur within an urban area.
Reason for inclusion: Although the sewerage infrastructure proposed will not exceed 360mm diameter nor 120 litres per second throughput, this activity is still applied for due to 50% of Nkosi City occurring outside the Mbombela Urban Edge, and the possibility of the proposed off-site Nkosi City Waste Water Treatment Works (WWTWs) catering for a bigger area and not just Nkosi City i.e. serving as a Municipal Sewerage Treatment Plant, which will increase the throughput to above 120 litres per second.	
GN R983 (Listing Notice 1), 4 December 2014, as amended 7 April 2017 **Activity 11**	The development of facilities or infrastructure for the transmission and distribution of electricity – (i) Outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts; or (ii) Inside urban areas or industrial complexes with a capacity of 275 kilovolts or more; Excluding the development of bypass infrastructure for the transmission and distribution of electricity where such bypass infrastructure is – (a) Temporarily required to allow for maintenance of existing infrastructure; (b) 2 kilometres or shorter in length; (c) Within an existing transmission line servitude; and (d) Will be removed within 18 months of the commencement of development.
Reason for exclusion: The proposed development will require the installation of electrical infrastructure 11kV or smaller and thus this listed activity is not triggered. The Nkosi City Simunye 132kV/11kV substation will be constructed on-site on 1ha of land falling outside the Mbombela Urban Edge. As a substation converts electricity it does not trigger this listed activity. An Environmental Authorisation has been	

issued to Eskom for the 132kV electrical line to be installed from the Clau-Clau Eskom Substation up to the planned Simunye/Nkosi City substation on site.	
GN R983 (Listing Notice 1), 4 December 2014, as amended 7 April 2017 **Activity 12**	The development of- (i) Dams or weirs, where the dam or weir. Including infrastructure and water surface area, exceeds 100 square metres; or (ii) Infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs – (a) Within a watercourse; (b) In front of a development setback; or (c) If no development setback exists, within 32 meters of a watercourse, measured from the edge of a watercourse; - -excluding- (aa) the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour; (bb) where such development activities are related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies; (cc) activities listed in activity 14 in Listing Notice 2 of 2014 or activity 14 in Listing Notice 3 of 2014, in which case that activity applies; (dd) where such development occurs within an urban area; (ee) where such development occurs within existing roads, road reserves or railway line reserves; or (ff) the development of temporary infrastructure or structures where such infrastructure or structures will be removed within 6 weeks of the commencement of development and where indigenous vegetation will not be cleared.
Reason for exclusion: The **existing** small dam occurring on site which covers 8 000m^2 might be **expanded** to supplement Nkosi City bulk water supply. Considering the activity involves expansion of an existing dam within a watercourse and within 10km from the Kruger National Park, this listed activity is not included for authorisation, however Activity 48 of Listing Notice 1 and Activity 23 of Listing Notice 3 are applied for instead.	
GN R983 (Listing Notice 1), 4 December 2014, as amended 7 April 2017 **Activity 13**	The development of facilities or infrastructure for the off-stream storage of water, including dams and reservoirs, with a combined capacity of 50,000 cubic meters or more, unless such storage falls within the ambit of activity 16 in Listing Notice 2 of 2014.
Reason for exclusion: The proposed development will require the construction of four off-stream reservoirs for bulk water	

storage. The total storage capacity of the four reservoirs is 6.5Mℓ or 6 500 cubic meters, thus this listed activity is not triggered.	
GN R983 (Listing Notice 1), 4 December 2014, as amended 7 April 2017 **Activity 19**	The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse; - but excluding where such infilling, depositing, dredging, excavation, removal or moving- (a) will occur behind a development setback; (b) is for maintenance purposes undertaken in accordance with a maintenance management plan; (c) falls within the ambit of activity 21 in this Notice, in which case that activity applies; (d) occurs within the existing ports or harbours that will not increase the development footprint of the port or harbour; or (e) where such development is related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies.
Reason for inclusion: The proposed development requires the construction of bridges and bulk infrastructure across tributaries/ watercourses occurring on site which will require the excavation of more than 10m^3 of material from a watercourse, thus this listed activity is triggered and applied for.	
GN R983 (Listing Notice 1), 4 December 2014, as amended 7 April 2017 **Activity 25**	The development and related operation of facilities or infrastructure for the treatment of effluent, wastewater or sewage with a daily throughput capacity of more than 2,000 cubic meters but less than 15,000 cubic meters.
Reason for exclusion: The proposed development will make use of a **new off-site package plant** with 4 000 cubic meters capacity for the processing of Nkosi City sewage effluent to be situated just due east of Nkosi City, therefore this activity is not triggered as part of this application. **A separate Environmental Impact Assessment and Water Use Licence Application is required for the off-site WWTWs.**	
GN R983 (Listing Notice 1), 4 December 2014, as amended 7 April 2017 **Activity 27**	The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for - (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.
Reason for exclusion: The proposed development will require the **clearance of indigenous vegetation of** approximately 508ha in extent as 80% of the 968ha is in good natural condition, thus this listed activity is not triggered. **The Listing Notice 2 activity which relates to clearing more than 20 hectares is however triggered and applied for.**	

GN R983 (Listing Notice 1), 4 December 2014, as amended 7 April 2017 **Activity 28**	Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture or afforestation on or after 01 April 1998 and where such development: (i) will occur inside an urban area, where the total land to be developed is bigger than 5 hectares; or (ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare; excluding where such land has already been developed for residential, mixed, retail, commercial, industrial, or institutional purposes.
Reason for inclusion: Part of the proposed development is currently used for subsistence farming and the land to be developed exceeds ha. The western part of Nkosi City falls within the Mbombela Urban Edge. It is however not known whether the land was used for agriculture before 1 April 1998.	
GN R983 (Listing Notice 1), 4 December 2014, as amended 7 April 2017 **Activity 44**	The expansion of cemeteries by 2500 square meters or more.
Reason for inclusion: The existing cemetery covers a surface area of 2.3ha i.e. 23 000m^2 and will be expanded to cater for additional graves on surface area covering 1ha i.e. 10 000m^2. Thus this listed activity is triggered due to expanding the cemetery by more than 2 500m^2. The Township application catered for a cemetery 3.3ha in size. Results from the Geotech and Geohydrological studies were utilised to motivate the expansion of the existing cemetery.	
GN R983 (Listing Notice 1), 4 December 2014, as amended 7 April 2017 **Activity 48**	The expansion of – i) Infrastructure or structures where the physical footprint is expanded by 100 square meters or more; or ii) dams or weirs, where the dam and weir, including infrastructure and water surface area, is expanded by more than 100 square meters or more; Where such expansion occurs – (a) within a watercourse; (b) in front of a development setback; or (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse; excluding – (aa) the expansion of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour; (bb) where such expansion activities are related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies; (cc) activities listed in activity 14 in Listing Notice 2 of 2014 or activity 14 of Listing Notice 3 of 2014, in which case that activity applies; (dd) where such expansion occurs within an urban area; or (ee) Where such expansion occurs within an existing road, road reserve or

	railway line reserves.
Reason for exclusion: The proposed development requires the repair and use of an existing small on-site dam 8000m² in extent occurring within a watercourse. The possibility of increasing this dam surface area by more than 100m² in order to increase the storage capacity to supplement Nkosi City bulk water supply, requires further investigation. **A separate Environmental Impact Assessment is required for the proposed dam expansion, as instructed by MDARDLEA.**	
GN R983 (Listing Notice 1), 4 December 2014, as amended 7 April 2017 **Activity 50**	The expansion of facilities or infrastructure for the off-stream storage of water, including dams and reservoirs, where the combined capacity will be increased by 50 000 cubic meters or more.
Reason for exclusion: There are currently no bulk water reservoirs or off stream dams on site which could be expanded, hence this listed activity is not triggered. External off-site bulk reservoirs might have to be expanded to cater for Nkosi City water supply, which will require separate Environmental Authorisation.	
GN R983 (Listing Notice 1), 4 December 2014, as amended 7 April 2017 **Activity 66**	The expansion of a dam where – (i) the highest part of the dam wall, as measured from the outside toe of the wall to the highest part of the wall, was originally 5 meters or higher and where the height of the wall is increased by 2,5 meters or more; or (ii) where the high-water mark of the dam will be increased with 10 hectares or more.
Reason for exclusion: The proposed expansion of the existing small 8 000m² in extent could potentially trigger this listed activity as the current dam wall height is 7m and the expansion of the surface area to be covered by the dam will exceed 10ha, thus this listed activity is triggered and applied for. **A separate Environmental Impact Assessment is required for the proposed dam expansion, as instructed by MDARDLEA.**	

Table 2: Listed activities in terms of Government Notice R 984 (as amended)

Relevant Notice and Listed activity	**Describe each listed activity as per project description:**
GN R984 (Listing Notice 2), 4 December 2014, as amended 7 April 2017	The development of facilities or infrastructure for any process or activity which requires a permit or Licence or an amended permit or licence in terms of national or provincial legislation governing the generation or release of emissions, pollution or effluent, excluding – (i) Activities which are identified and included in Listing Notice 1 of 2014; or

Relevant Notice and Listed activity	**Describe each listed activity as per project description:**
Activity 6	(ii) Activities which are included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case the National Environmental Management: Waste Act, 2008 applies; or (iii) The development of facilities or infrastructure for treatment of effluent, polluted water, wastewater, or sewage where such facilities have a daily throughput capacity of 2 000 cubic meters or less; or (iv) Where the development is directly related to aquaculture facilities or infrastructure where the wastewater discharge capacity will not exceed 50 cubic meters per day.
Reason for exclusion: The proposed off-site 4Mℓ sewage package plant to cater for Nkosi City and potentially also for a larger area, triggers a WULA for effluent to be discharged, as well as Environmental Impact Assessment process in terms of NEMA. Considering the proposed WWTWs occurs off-site, the aforementioned applications do not form part of this application and will be applied for separately.	
GN R984 (Listing Notice 2), 4 December 2014, as amended 7 April 2017 **Activity 15**	The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for- (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.
Reason for inclusion: The proposed development site is 968ha in extent and approximately 508ha of indigenous vegetation will be cleared to cater for the proposed development, as 80% of the site is undisturbed. Thus this listed activity is triggered and applied for.	
GN R984 (Listing Notice 2), 4 December 2014, as amended 7 April 2017 **Activity 16**	The development of a dam where the highest part of the dam wall, as measured from the outside toe of the wall to the highest part of the wall, is 5 meters or higher or where the high-water mark of the dam covers an area of 10 hectares or more.
Reason for exclusion: The proposed development will require the construction of off-site dams in order to provide water to the proposed development. These dams are not included in this application and will be applied for separately.	

Table 3: Listed activities in terms of Government Notice R 985 (as amended)

Relevant Notice and Listed activity	**Describe each listed activity as per project description:**
GN R985 (Listing Notice 3), 4 December 2014, as amended 7 April 2017 **Activity 2**	The development of reservoirs excluding dams, with a capacity of more than 250 cubic meters. f. Mpumalanga i. In a protected area identified in terms NEMPAA, excluding conservancies; ii) Outside urban areas: (aa) National Protected Area Expansion Strategy Focus areas; (bb) Sensitive areas as identified in an environmental management framework as contemplated in Chapter 5 of the Act and as adopted by the competent authority; (cc) Sites or areas identified in terms of an international convention; (dd) Critical Biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (ee) Core areas in biosphere reserves; or (ff) **Areas within 10 kilometres from national parks** or world heritage sites of 5 kilometres from any other protected area identified in terms of NEMPAA or from core area of a biosphere reserve, where such areas comprise indigenous vegetation; or iii) Inside urban areas: (aa) Areas zoned for use as public open space; or (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority, or zoned for conservation purpose.
Reason for inclusion: Four reservoirs with a combined storage capacity of 6.5Mℓ i.e. 6 500m^3 which exceeds the threshold of 250m^3 will be constructed on site within 10km from the Kruger National Park, thus this listed activity is triggered and applied for.	
GN R985 (Listing Notice 3), 4 December 2014, as amended 7 April 2017 **Activity 4**	The development of a road wider than 4 metres with a reserve less than 13.5 metres. f. Mpumalanga: i. Outside urban areas: (aa) A protected area identified in terms NEMPAA, excluding disturbed areas; (bb) National Protected Area Expansion Strategy Focus areas; (cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (dd) Sites or areas identified in terms of an international convention; (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (ff) Core areas in Biosphere reserves; or (gg) **Areas within 10 kilometres from national parks** or world heritage sites of 5 kilometres from any other protected area identified in terms of NEMPAA or from core area of a biosphere reserve, where such areas comprise indigenous

Relevant Notice and Listed activity	**Describe each listed activity as per project description:**
	vegetation; or iii) Inside urban areas: (aa) Areas zoned for use as public open space; or (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority, or zoned for conservation purpose.
Reason for inclusion: Internal streets and access roads wider than 4 meters will be constructed to cater for the proposed development of which half of the development occurs outside the Mbombela Urban Edge, and within 10km from the Kruger National Park, thus this listed activity is triggered.	
GN R985 (Listing Notice 3), 4 December 2014, as amended 7 April 2017 **Activity 6**	The development of resorts, lodges, hotels, tourism or hospitality facilities that sleeps 15 people or more. f. Mpumalanga i. Outside urban areas: (aa) A protected area identified in terms NEMPAA, excluding conservancies; (bb) National Protected Area Expansion Strategy Focus areas; (cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (dd) Sites or areas identified in terms of an international convention; (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (ff) Core areas in biosphere reserves; or (gg) **Areas within 10 kilometres from national parks** or world heritage sites of 5 kilometres from any other protected area identified in terms of NEMPAA or from core area of a biosphere reserve, where such areas comprise indigenous vegetation; or (hh) Areas within a watercourse or wetland, or within 100 meters of a watercourse or wetlands; or iii) Inside urban areas: (aa) Areas zoned for use as public open space; or (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority, or zoned for conservation purpose.
Reason for exclusion: Hotels and Lodges sleeping more than 15 people are planned as part of the proposed development within 10km from the Kruger National Park, thus this listed activity is triggered. **A separate Environmental Impact Assessment is required for the proposed lodge, as instructed by MDARDLEA, due to limited information available.**	

Relevant Notice and Listed activity	**Describe each listed activity as per project description:**
GN R985 (Listing Notice 3), 4 December 2014, as amended 7 April 2017 **Activity 12**	The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of ecosystem listed in terms of section 52 of the NEMBA or indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. (f) Mpumalanga i. Within any critically endangered or endangered ecosystem listed in terms of Section 52 of NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004; ii. within critical biodiversity areas identified in bioregional plans; or iii. on land, where at the time of coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning or proclamation in terms of NEMPAA.
Reason for inclusion: 300m^2 of indigenous vegetation will have to be cleared for the proposed development which fall within an Ecological Support Area protected area buffer, thus this listed activity is triggered and applied for.	
GN R985 (Listing Notice 3), 4 December 2014, as amended 7 April 2017 **Activity 14**	The development of- (i) Dams or weirs, where the dam or weir, including infrastructure and water surface area exceeds 10 square meters; or (ii) **Infrastructure or structures with a physical footprint of 10 square meters or more;** **Where such development occurs –** **(a) Within a watercourse;** (b) In front of a development setback; or (c) If no development setback has been adopted, within 32 meters of a watercourse, measured from the edge of a watercourse; excluding the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour. f. Mpumalanga i. Outside urban areas: (aa) A protected area identified in terms of NEMPAA, excluding conservancies; (bb) National Protected Area Expansion Strategy Focus areas; (cc) World Heritage Sites; (dd) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (ee) Sites or areas identified in terms of an international convention; (ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (gg) Core areas in biosphere reserves; or

Relevant Notice and Listed activity	**Describe each listed activity as per project description:**
	(hh) **Areas within 10 kilometre from National Parks** or World Heritage Sites or 5 kilometres from any other protected are identified in terms of NEMPAA or from the core area of a biosphere reserve, where such areas comprise indigenous vegetation; or ii. Inside urban areas: (aa) Areas zoned for use as public open space; or (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority, zoned for conservation purpose.
Reason for inclusion: The proposed development requires the construction of road infrastructure crossing watercourses which will exceed 10m^2 as half of the proposed development site falls outside the Mbombela Urban Edge and the site occurs within 10km from the Kruger National Park. This listed activity is thus triggered and applied for.	
GN R985 (Listing Notice 3), 4 December 2014, as amended 7 April 2017 **Activity 16**	The expansion of reservoirs, excluding dams, where the capacity will be increased by more than 250 cubic meters. f. Mpumalanga i. Outside urban areas: (aa) A protected area identified in terms of NEMPAA, excluding conservancies; (bb) National Protected Area Expansion Strategy Focus areas; (cc) World Heritage Sites; (dd) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (ee) Sites or areas identified in terms of an international convention; (ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (gg) Core areas in biosphere reserves; or (hh) **Areas within 10 kilometre from National Parks** or World Heritage Sites or 5 kilometres from any other protected are identified in terms of NEMPAA or from the core area of a biosphere reserve, where such areas comprise indigenous vegetation; or ii. Inside urban areas: (aa) Areas zoned for use as public open space; or (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority, zoned for conservation purpose.
Reason for exclusion: The proposed development might require the expansion of the existing Pienaar bulk water	

Relevant Notice and Listed activity	**Describe each listed activity as per project description:**
reservoirs **situated off-site** within 10km from the Kruger National Park. **A separate application will be submitted if required for upgrading of the any off-site reservoirs.**	
GN R985 (Listing Notice 3), 4 December 2014, as amended 7 April 2017 **Activity 18**	The widening of a road by more than 4 meters, or the lengthening of a road by more than 1 kilometre. f. Mpumalanga i. Outside urban areas: (aa) A protected area identified in terms of NEMPAA, excluding conservancies; (bb) National Protected Area Expansion Strategy Focus areas; (cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (dd) Sites or areas identified in terms of an international convention; (ee) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (ff) Core areas in biosphere reserves; or (gg) **Areas within 10 kilometre from National Parks** or World Heritage Sites or 5 kilometres from any other protected are identified in terms of NEMPAA or from the core area of a biosphere reserve, where such areas comprise indigenous vegetation; or ii. Inside urban areas: (aa) Areas zoned for use as public open space; or (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority, zoned for conservation purpose.
Reason for inclusion: The existing road that transects the site from southwest to north will be widened by more than 4 meters to cater for the proposed development, of which half of the development occurs outside the Mbombela Urban Edge, and within 10km from the Kruger National Park, thus this listed activity is triggered.	
GN R985 (Listing Notice 3), 4 December 2014, as amended 7 April 2017 **Activity 23**	**The expansion of –** **(i) dams** or weirs, where the dam and weir, including infrastructure and water surface area, is expanded by more than 10 square meters or more; (ii) Infrastructure or structures where the physical footprint is expanded by 10 square meters or more; **Where such expansion occurs –** **(a) within a watercourse;** (b) in front of a development setback; or (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse; excluding expansion of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or

Relevant Notice and Listed activity	**Describe each listed activity as per project description:**
	harbour. f. Mpumalanga i. Outside urban areas: (aa) A protected area identified in terms of NEMPAA, excluding conservancies; (bb) National Protected Area Expansion Strategy Focus areas; (cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (dd) Sites or areas identified in terms of an international convention; (ee) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (ff) Core areas in biosphere reserves; or (gg) **Areas within 10 kilometre from National Parks** or World Heritage Sites or 5 kilometres from any other protected are identified in terms of NEMPAA or from the core area of a biosphere reserve, where such areas comprise indigenous vegetation; or ii. Inside urban areas: (aa) Areas zoned for use as public open space; or (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority, zoned for conservation purpose.
Reason for exclusion: The proposed development requires the repair and use of an existing small on-site dam 8000m^2 in extent occurring within a watercourse and within 10km from the KNP. The possibility of increasing this dam surface area by more than 100m^2 in order to increase the storage capacity to supplement Nkosi City bulk water supply, requires further investigation. **A separate Environmental Impact Assessment is required for the proposed dam expansion, as instructed by MDARDLEA.**	

1.3 Background

Dovetail Properties (PTY) LTD on behalf of Mbombela Local Municipality **appointed Bokamoso Landscape Architects and Environmental Consultants CC** as an independent consultant to prepare the applicable environmental reports. The Mpumalanga Department of Agriculture Rural Development Land and Environmental Affairs (MDARDLEA) acknowledged receipt of the **Environmental Impact Assessment Application**

submitted on **29 November 2017 (Refer Appendix B1),** on 30 November 2017 and issued the project with reference number **1/3/1/16/1E-137.**

A **Draft Scoping Report** stipulating the Plan of Study i.e. scope for EIA and specialist studies to be conducted during the EIA Phase of the Environmental Impact Assessment Process **was submitted to MDARDLEA on 29 November 2017** together with the Application form. MDARDLEA commented on the Draft Scoping Report on **5 December 2017 (Refer Appendix B2).** The National Department of Agriculture Forestry and Fisheries (DAFF) commented on the Draft Scoping Report on 20 December 2017 stating that they await the Environmental Management Programme (EMPr) and requested that a soil study be undertaken and the current land use be made known. An Agricultural Potential Assessment was concluded and a copy of this Draft EIA Report including all appendices will be made available for review by the National DAFF. **Refer Appendix B3.**

The **Final Scoping Report** and Plan of Study for Environmental Impact Assessment were submitted to MDARDLEA on 5 February 2018. MDARDLEA approved the Plan of Study on **5 March 2018** and requested the following be undertaken as part of the EIAR **(Refer Appendix B4):**

- Prove availability of water per phase (Refer to Section 7.6.1 and Appendix D9a-d);
- Provision of additional services must be demonstrated (Refer to Section 7.6 and Appendix D9a-d, D10, and D11);
- Explanation of each listed activity applied for must be provided in the Draft EIAR (Refer to Section 1.2, Tables 1 to 3);
- Additional studies:
    - Slope analysis (Refer to Section 6.1.3 and Appendix D4d);
    - Stormwater management plan informed by specialist studies (Refer to Section 7.6.3 and Appendix D9e);
    - Fauna and Flora Studies in accordance with Mpumalanga Tourism and Parks Agency (MTPA) minimum requirements (Refer to Section 6.2.1, 6.2.2 and 6.2.3, and Appendix D5a, D5b, and D5c);

- Wetland assessment must include delineated buffers (Refer to Section 6.1.2.1 and Appendix D4a);
- Visual impact study with inputs from SANParks (Refer to Section 7.3 and Appendix D8);
- Agricultural Potential Study (Refer to Section 5.2.3 and Section 6.1.1.2 and Appendix D3a and D3b);
- Aquatic assessment for dams in accordance with MTPA requirements (Refer to Section 6.2.3 and Appendix D5d and D5e); and
- Specialist Geohydrological study for groundwater and Sewage Treatment Works (STWs) (Refer to Section 6.1.2.4 and 7.6.2, and Appendix D4b and D4c). **The WWTWs proposed will be located off-site and will be applied for separately.**

- Consider bridge designs and aquatic impacts (Refer to Section 6.2.3 and Appendix D5d and D5e and D9a);
- Routes of pipelines and bulk infrastructure to be determined as part of Scoping Phase – Aquatic impacts (Refer to Section 7.6.1 and 7.6.6, and Appendix D1a, D1ai, D1aii, D1aiii, D1aiv, D1av and D1avi);
- Location and capacity of reservoirs must be provided in DEIAR (Refer to Section 7.6.1 and Appendix D1ai);
- Consult SANParks and MTPA and National DAFF (Refer to Section 4.3, 7.3, 7.6.5, 8.1 for SANParks, Section 6.2.1 and 8.1 for MTPA, and Section 1.3, 6.2.1 and Section 8 for DAFF);
- Existing cemetery cannot form part of this application (Refer to Section 1.2 and Table 1) **Cemetery expansion risk assessed under 6.1.2.4;**
- Technology and capacity of sewage plant to be assessed (Refer to Section 7.6.2 and Appendix D9a); **The sewage plant does not form part of this application and will be applied for separately.**
- Clarify whether off-site dams part of this application (Refer to Section 7.6.1); **Off-site dams do not form part of this application and will be applied for separately.**
- Proof that all I&APs provided with opportunity to comments on Draft Scoping Report (Refer Section 8 and Appendix E1 to E6);

- Location and capacity of proposed resorts must be included (Refer to Section 1.2 Table 1); **The listed activity associated with Hotels and Lodges catering for more than 15 patrons will be applied for separately as instructed by MDARDLEA**; and
- EIAR to include map of all activities applied for and associated infrastructure, and sensitivities, and buffers (Refer to Appendix D1a for proposed layout and D1ai to D1av for services layouts). An enlarged A1 map of the layout is attached as Appendix D1a as requested by MDRADLEA.

The **Mpumalanga Tourism and Parks Agency** commented on the **Final Scoping Report** on 15 March 2018 **(Refer to Appendix B5)** recommending that the following be included in the EMP (Bokamoso presume they mean EIA Report):

- Ecological study (Refer to Section 6.2.1, 6.2.2 and 6.2.3, and Appendix D5a, D5b, and D5c);
- Delineation of the affected streams and drainage lines (Refer to Section 6.1.2.1 and Appendix D4a and Appendix D1a, D1avi and D1avii);
- Zoning of open spaces in the layout plan (Approximately 460ha of the 968ha site has been zoned "Special" to conserve environmental sensitive areas such as ridges and watercourses, Refer to Appendix D1a);
- Stormwater management system that prevent pollution (Refer to Section 7.6.3 and Appendix D9e);
- Waste management system (Refer to Planning and Design Phase of EMPr attached as Appendix F);
- Sound sewerage treatment system preventing pollution (Refer to Section 7.6.2 and Appendix D9a);
- Fire management plan (Refer to Planning and Design Phase of EMPr attached as Appendix F);
- Investigate crematorium instead of graveyard **(not investigated due to not in line with intended residents cultural practices);**
- Sufficient space for agricultural practices (Approximately 230ha zoned as "Agriculture", Refer to Appendix D1a); and

- Sufficient space for sports grounds (Five erven 5ha in extent are zones "Special" for public open space, swimming pool, sports and recreation, Refer to Appendix D1a).

MDARDLEA commented on the Draft EIA Report on 10 August 2018 **(Refer to Appendix B12)** requesting the following changes to be affected to the Final EIA Report:

1. This office notes the content of the minutes of a meeting that took place on 6 June 2018 with yourself, the applicant, and senior managers of the Department of Water and Sanitation, City of Mbombela, and this Department, wherein there was agreement that, in the event that a positive authorisation is issued in terms of NEMA, that such authorisation must be subject to the availability of bulk water (i.e. No commencement of construction activities until there is confirmation of water supply, which includes various authorisations such as the environmental authorisations from the relevant competent authority in terms of NEMA for the construction of required infrastructure).

   The competent authority noted that if Environmental Authorisation be granted, it will be subject to the availability of bulk water.

2. The layout plan must be revised and submitted in a more legible format (i.e. Larger), and must include a land use table that aligns with the description on page 46 of the EIAR. Please also ensure that the stands to be zones open space are distinguishable from the stands that will be zoned for agricultural purposes, and that the 1:100 year flood line, all buffers, and all attenuation dams, are clearly visible. All changes required as a result of comments herein must also be incorporated.

   The layout was amended to correlate with the land use zones on P.46 of the Draft EIA Report. The Layout is included in A1 format as Appendix D1a to this report with a land use table on a separate A4 page.

3. Please provide the threshold applicable to the removal of indigenous vegetation, noting that 452ha has been indicated to be used for open space and conserving environmentally sensitive areas.

   Approximately 508ha (of 968ha) of indigenous vegetation will be cleared to cater for the proposed development.

4. Please explain why the stands intended for conserving environmentally sensitive areas will not be zoned as open space.

   The stands intended for environmental conservation (approximately 460ha) were zoned "Special" with the specific purpose and land use of conserving sensitive environmental areas. If the environmental sensitive areas were zoned as "Public Open Space" it would not prevent development of these areas, based on this land use catering for parks, swimming pools, sports and recreation over and above catering for public open space.

5. Without any detail in respect of the proposed 'lodge', the associated activity cannot be authorised as part of this application. An application for such an activity will need to be submitted separately when the detail becomes available.

   The listed activity associated with the lodge has been removed from the application and a separate EIA will be carried out for the lodge as instructed by MDARDLEA, as soon as additional information becomes available.

6. The revised layout plan must specify that stands earmarked for activities that require separate environmental authorisation will be applied for separately.

   The revised layout plan denotes the activities for which separate environmental authorisation will be requested in pink; the lodge, the dam expansion and the solar farm.

7. The proposed solar farm was only identified after the EIA application process has commenced. It appears that the proposed site is located on an area that was to be conserved due to its environmental sensitivity. There is also no analysis of associated impacts, including visual impacts. Please clarify.

   The listed activity associated with the solar farm has been removed from the application and a separate EIA will be carried out for the solar farm as instructed by MDARDLEA, as soon as additional information becomes available.

8. In response to this Department's comments dated 5 March 2018 on the final scoping report in respect of the requirement to analyse bridge design as part of the EIA process (to be informed by specialist input), and the request to provide the co-ordinates of their final positions (which positions reflect lowest impact), you refer this

office to Section 6.2.3 and Appendices D5d, D5e and D9a. These references provide no detail in relation to the abovementioned requests.

Appendix 6.2.3 has been updated to reflect the GPS coordinates of each planned bridge crossing as well as an explanation as to why a specific bridge design was selected.

9. Existing infrastructure cannot be authorised retrospectively. As per this Department's comments on 5 March 2018, the existing cemetery cannot form part of this application – only the intended expansion. While you have applied for the expansion activity, the layout plan must still illustrate where the expansion is located. Currently the layout only refers to a stand to be zoned for the purposes of a cemetery, and it's not clear if this stand includes the existing cemetery. The site suitability for a cemetery was also to be included in the terms of reference in the geotechnical report, however there is no reference to a cemetery in that report. It appears that the cemetery site falls within geotechnical zones C1 and C2, where C1 is characterised by slopes >15%, >90% hard rock excavation, and is susceptible to ponding of surface water and a shallow perched ground water table. This must be addressed.

   The layout plan has been amended to show where the expansion of the existing cemetery is planned. The application form and listed activities have been amended to allow for the expansion of a cemetery. Results from the Geotech and Geohydrological studies were utilised to motivate the expansion of the existing cemetery. It is requested that the Department consider it to approve the expansion of the cemetery as part of the EIA authorisation for the Nkosi City Development, because the community will utilise the site as a cemetery in any way. Apparently there is a need for a graveyard. Even though the geotechnical report stated that the excitability in the area earmarked for the expansion of the cemetery is low, the presence of the existing graves confirms that it is possible to dig graves on the site. We regarded it as better to rather assess the potential impacts of the graves now and to rather supply mitigation measures to prevent impacts for a legal graveyard than to address the impacts of illegal graves on a reactive basis.

10. You have applied for Activity 66 of GNR 983 (as amended) and Activity 23 of GNR 985 (as amended), as it is intended to expand the existing dam on site. For this activity to be considered, you are required to provide the design detail (i.e. Expansion capacity, if the wall is considered, you are required to provide the design detail (i.e. expansion capacity, if the wall is being raised by how much etc.), and analyse the associated aquatic and ecological impacts.

    Listed activities relating to the expansion of the existing on-site dam has been removed from the application and a separate EIA will be conducted as instructed by MDRADLEA, as soon as additional information becomes available.

11. You have explained that you are applying for Activity 19 of GNR 985 (as amended) for the purposes of constructing bridges. Again, as requested in our previous comments, location and design of all bridges is required. You are also required to confirm whether this activity is applicable to the construction of attenuation ponds and the proposed expansion of the on-site dam.

    Refer to point 8 above pertaining to bridges.

    Activity 19 of LN 1 (GNR 983) applies to:

    - The construction of bridges; and
    - the construction of in-stream attenuation ponds.

    The expansion of the on-site dam shall be submitted as a separate application, as instructed by MDARDLEA.

12. Provide the co-ordinates of the proposed reservoir. Your activity table (page 16) makes reference to the construction of four reservoirs with a combined storage capacity of 6.5Ml, whereas the layout plan refers to one new 4.5 Ml reservoir. Please clarify.

    Coordinates of the reservoirs proposed have been included under Section 7.6.1 in this EIA Report, as requested by MDARDLEA.

This document represents the Final EIA Report for review and decision by the competent authority.

2. ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP)

The new Environmental Regulations require that relevant details of the Environmental Assessment Practitioner be included as part of the EIAR. In this regard, attached as ***Appendix C***, is a copy of the Curriculum Vitae (CV) of the EAP for this project, Ms. Lizelle Gregory from Bokamoso Landscape Architects and Environmental Consultants CC. In summary details of the EAP are indicated below:

- **Name:** Lizelle Gregory
- **Company:** Bokamoso Landscape Architects and Environmental Consultants CC.
- **Qualifications:** Registered Landscape Architect and Environmental Consultant (degree obtained at the University of Pretoria) with more than 25 years' experience in the following fields:
  - Environmental Planning and Management;
  - Compilation of Environmental Impact Assessment;
  - Landscape Architecture; and
  - Landscape Contracting.

MS L. Gregory also lectured at the Technicon of South Africa and the University of Pretoria. She is a registered member of the South African Council of the Landscape Architects Profession (SACLAP), the International Association of Impact Assessments (IAIA) and the Institute of Environmental Management and Assessment (IEMA).

3. SCOPE OF WORK AND APPROACH TO THE STUDY

An EIA application form containing the relevant activities as well as an Environmental Scoping Report was submitted to Mpumalanga Department of Agriculture Rural Development Land and Environmental Affairs (MDARDLEA). An investigative approach was followed and the relevant physical, social, economic, and institutional environmental aspects were assessed.

The scope of work includes the necessary investigations, to assess the suitability of the study area and the surrounding environment for the proposed activities. The scoping exercise identified the anticipated environmental aspects in an issues matrix and it also supplied a preliminary significance rating for the impacts identified. The scoping process also assessed the possible impacts of the proposed development on the surrounding environment (including the Interested and Affected Parties).

This document represents the EIA Report for Interested and Affected Party review for the proposed development. The EIA is in line with Section 32 of the National Environmental Management Act (NEMA), 1998 (Act 107 of 1998), as amended and the approved Plan of Study for EIA that was submitted as part of the Scoping Report.

The EIA takes into consideration the environment that may be affected by the activity and the manner in which the physical, biological, social, economic, and cultural aspects of the environment may be affected by the proposed activity. A description of the property on which the activity is to be undertaken and the location of the activity on the property are described. A description of the proposed activity and any feasible and reasonable alternatives were identified. In addition, a description of the need and desirability of the proposed activity, including advantages and disadvantages that the proposed activity or alternatives may have, on the environment and community that may be affected by the activity are included.

An identification of all legislation and guidelines that Bokamoso is currently aware of is considered in the preparation of this EIA Report. Furthermore, a description of environmental issues and potential impacts, including cumulative impacts, are identified and discussed. Information on the methodology that will be adopted in assessing the potential impacts is furthermore identified, including any specialist studies or specialised processes that were/should be undertaken.

The EIA Report eventually determines whether a proposed project should receive the "Go-Ahead" or whether the "No-Go" option should be followed. If the EAP recommends that the project receive the "Go-Ahead", it will in most cases be possible to mitigate the issues

identified to more acceptable levels. Reference is also made to the mitigation of identified impacts or for further studies that may be necessary to facilitate the design and construction of an environmentally acceptable facility.

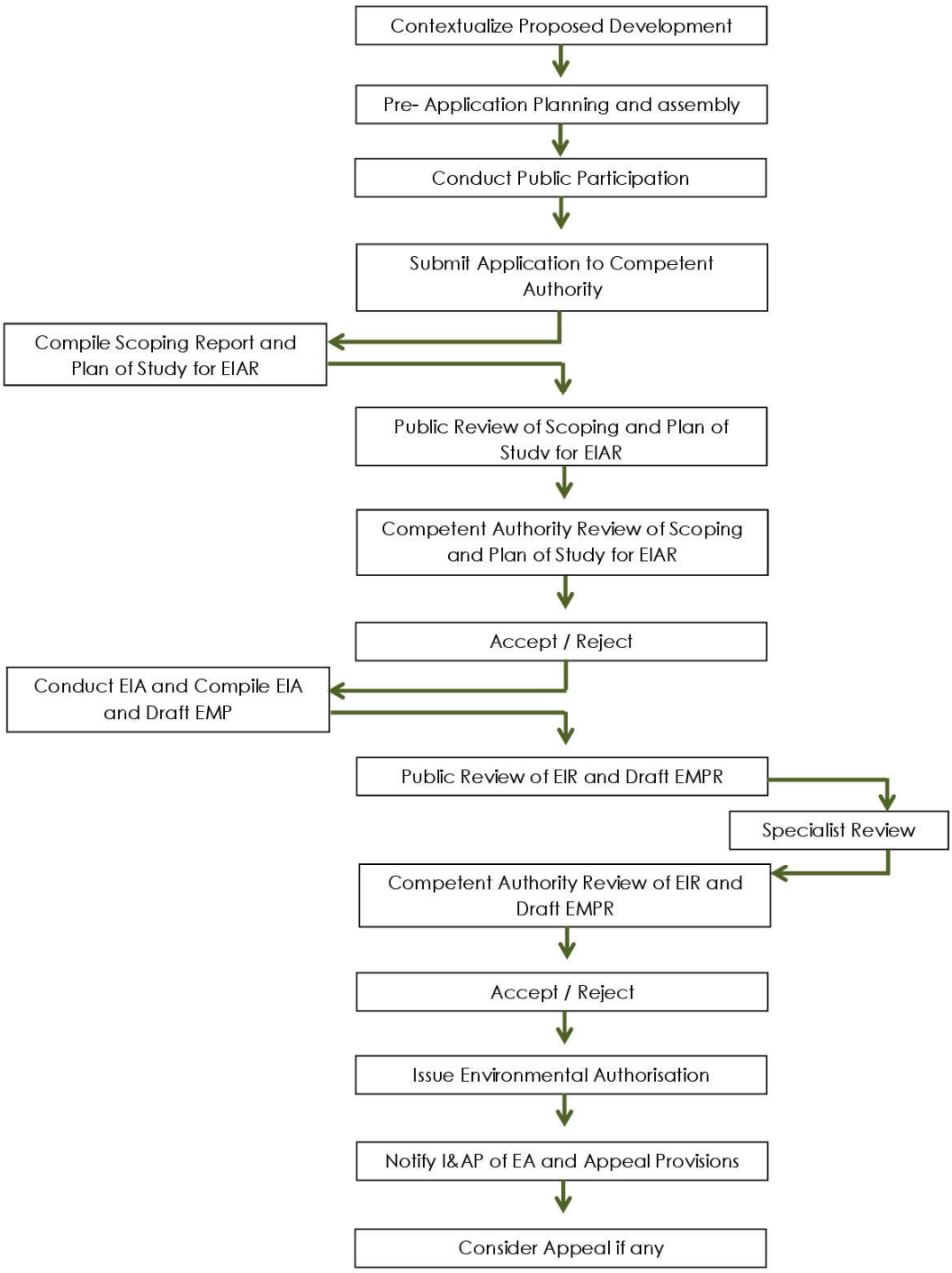
Details of the Public Participation Process (in terms of Sub-Regulation 1) are also included. Sub-Regulation 1 requires that the following information be included as part of the Public Participation Section of the EIA report:

(i) The steps undertaken in accordance with the Plan of Study for EIA;
(ii) A list of persons, organisations and Government Organs that were registered as Interested and Affected Parties;
(iii) A summary of comments received from, and a summary of issues raised by the Interested and Affected Parties, the date of receipt of these comments and the response of the EAP to those comments; and
(iv) Copies of any representations, objections, and comments received from the Registered Interested and Affected Parties.

The mitigation measures and guidelines that are listed in the EIA Report are also summarised in the Environmental Management Programme (EMPr) **(refer to Appendix F).** An EMPr is also a requirement of the EIA Process (Section 32 and 34 of the National Environmental Management Act (NEMA), Act 107 of 1998, as amended.

The diagram below denotes the technical process followed in terms of this EIA.

Diagram 1: NEMA EIA process



4. DESCRIPTION OF THE PROPOSED ACTIVITY

4.1 Name of Activity

The development of an Integrated Human Settlement Development to be known as **Nkosi City** on part of the Farm Nkosi City 1002 JU.

4.2 Particulars of Applicant

Applicant:	Dovetail Properties (PTY) LTD on behalf of Mbombela Local Municipality
Contact Person:	Philip Kleijnhans
Physical Address:	11 Walton Road, Carswald, Midrand,
Postal Address:	PO Box 4678, Halfway House, 1685
Tel:	011 468 2805
Cell:	083 378 3678
Fax:	011 468 2806

4.3 Background of Project

The EIA application for the proposed Nkosi City Integrated Human Settlement Development situated on the Farm Nkosi City 1002 JU, was submitted to MDARDLEA on 29 November 2017. MDARDLEA acknowledged receipt of the **Application** for Environmental Authorisation (EA) and issued the project with reference number **1/3/1/16/1E-137. Refer to Appendix B1.**

A **Draft Scoping Report** stipulating the Plan of Study i.e. scope for EIA and specialist studies to be conducted during the EIA Phase of the Environmental Impact Assessment Process **was submitted to MDARDLEA on 29 November 2017** together with the Application form. MDARDLEA commented on the Draft Scoping Report on 5 December 2017. **Refer to**

Appendix B2. The **Final Scoping Report** and Plan of Study for Environmental Impact Assessment were submitted to MDARDLEA on 5 February 2018. MDARDLEA approved the Plan of Study on **5 March 2018. Refer to Appendix B4.**

The most significant environmental issues identified during the Scoping process for the proposed Nkosi City Integrated Human Settlement Development were:

- According to the Mpumalanga Biodiversity Conservation Plan a large portion of the proposed development site comprise of undistributed natural areas and is classified as Ecological Support Area (ESA) Protected Area Buffer;
- The Flora Assessment conducted established that the greater part of the proposed development site is in a natural condition and identified three protected tree species and 13 Mpumalanga protected plants as well as two Species of Conservation Concern;
- The local community appears to be in full support of the much needed development;
- National Government, Mpumalanga Department of Water & Sanitation and the City of Mbombela support the proposed development;
- A wetland occurs along the eastern property boundary which has been assigned a 50m buffer by the wetland specialist;
- Several non-perennial tributaries of rivers and streams transect the proposed development site and their associated flood lines were considered in the amended proposed layout;
- The proposed development and associated infrastructure occur within 500m from a watercourse and therefore triggers a Water Use Licence Application;
- In some areas the proposed development will cut across/affect watercourses and trigger a Section 21 (c) and (i) Water Use Licence Application;
- Availability of water for the proposed development site and water supply security;
- No municipal services are currently available for the proposed development and it will therefore be necessary to apply for a dedicated off-site sewage treatment facility and to provide bulk water supply. The services required for the proposed

development will also trigger Section 21 Water Use Licence Applications or General Authorisations (GAs), and listed activities in terms of the NEMA EIA Regulations as well as other applicable environmental legislation. Various service alternatives were considered;

- During pre-application meetings with the relevant MDARDLEA officials, the importance of the availability of services was emphasized. The department recommended that the EIA Report/process for the Nkosi City development be linked to the EIA processes or other application processes required for the supply of the services for the development from the outset. The competent authority noted that if Environmental Authorisation be granted, it will be subject to the availability of bulk water.
- There is a general shortage of water for any new developments in the Mbombela area and new or upgraded dams to cater for the increased water needs are urgently required. DWS and the Mbombela Local Municipality already conducted many investigations in order to identify the most cost effective and environmental friendly site for a new dam or to upgrade existing dams. The intention was to identify a new water solution and to plan and implement the construction of the new water infrastructure as soon as the preferred solution/combination of solutions were identified;
- The applicant is currently assisting DWS and the local authority with the necessary investigations required to make water supply available to the development. DWS mentioned that the catchment area involved stretches across the South African border into Mozambique and that South Africa supplies a certain volume of water to Mozambique. It will therefore also be necessary to involve the relevant water departments in Mozambique when planning for the new water infrastructure;
- The impact of the proposed development on the Kruger National Park (KNP), mainly the water resources of the Kruger National Park, was considered and thus a meeting was held between the applicant and SANParks representatives. SANParks are in support of the purposed development;

- The new KNP access gate on the proposed direct access via the Nkosi City road network was investigated and removed from the Traffic Impact Study (TIS) following liaison between the developer and senior SANParks personnel.
- The development will also require the expansion of an existing cemetery for the burial of community members. The expansion of the existing cemetery is applied for in order to fulfil in the cemetery needs of the community; and
- The soil occurring within the proposed development site is regarded as suitable for grazing only. An Agricultural Potential Study was conducted to advise on crops suitable for the soil types occurring on site, and on farming methodology.

Umsebe Development Planners compiled a Memorandum for the township establishment of Nkosi City in terms of Section 44 read with Chapter 6 of the Mbombela By-Law on Spatial Planning and Land Use Management. The layout plan has been revised several times based on results obtained from specialist studies conducted. The latest revision of the proposed layout plan is dated May 2018 and it is proposed that the Nkosi City Integrated Human Settlement Development be developed in six phases. Refer to **Appendix D1a – Nkosi City Proposed layout and superimposed land use table**.

The following specialist studies were considered during the compilation of this EIA Report:

- Town Planning Memorandum compiled by Umsebe Development Planners, October 2017;
- Preliminary Findings: Geotechnical Investigation compiled by Geo3 cc, June 2017;
- Nkosi City Mixed Use Market Study compiled by Demacon, November 2017;
- Nkosi City: Traffic Impact Study & Roads Master Planning compiled by Endecon Ubuntu (Pty) Ltd Engineering Consultants, March 2018;
- Civil Engineering Services Report Revision 3 compiled by Endecon Ubuntu (Pty) Ltd Engineering Consultants, March 2018;
- Bulk Water Supply Options for Nkosi City compiled by GLS Consulting, January 2018;
- Bulk Sewerage Options for Nkosi City compiled by GLS Consulting, January 2018;
- Electrical Service Design Report compiled by PLP Consulting Engineers (Pty) Ltd, November 2017;

- Desktop Surface and Groundwater Availability Assessment compiled by GCS Water and Environmental Consultants, June 2017;
- Nkosi City Phase 2 Groundwater Feasibility Assessment, Mpumalanga Province, May 2018;
- Wetland Report compiled by Bokamoso Landscape Architects and Environmental Consultants CC, August 2017;
- Phase 1 Heritage Impact Assessment compiled by Bokamoso Landscape Architects and Environmental Consultants CC, October 2017;
- Baseline Study: Terrestrial Fauna compiled by Ecorex Consulting Ecologists CC, June 2017;
- 2018 Baseline Aquatic Assessment (wet season) compiled by Iggdrasil Scientific Services, March 2018;
- Vegetation Survey compiled by Bokamoso Landscape Architects and Environmental Consultants CC, May 2017;
- Avifaunal Habitat Assessment compiled by M.A.P Scientific Services, May 2017; and
- Baseline Aquatic Assessment compiled by Iggdrasil Scientific Services, May 2017;
- First Order Feasibility Study for the Proposed new Boschejskop Dam in the Nelsriver Version 3, January 2014.
- Pre-Feasibility Study for Private Finance Development of Primkop Dam and Mbombela Dam compiled by CAPIC, February 2018;
- Visual Impact Assessment compiled by Bokamoso Landscape Architects and Environmental Consultants CC, March 2018;
- Slope Analysis compiled by Endecon, February 2018;
- Flood line delineation compiled by Endecon, February 2018.

4.4 Particulars of Activity

4.4.1 Nature of Activity

The applicant seeks to establish an Integrated Human Settlement Development to be known as Nkosi City on 968ha of land consisting of the following land uses:

- Approximately 2305 RDP/Social housing units;
- Approximately 1166 Bonded housing units;
- Approximately 95 Farming units on 228 hectares;
- Approximately 19 Industrial units on approximately 13 hectares;
- Approximately 3 Business units on approximately 14 hectares;
- 32 Special units for places of refreshment, Hotel and accommodation, Shops, Retail, Service retail, Wholesale, Bulk retail, Dwelling units, Residential buildings, Social Halls, Dry cleaners and Offices, on ± 13 ha;
- Six institutional units on approximately 2.3 hectares;
- 12 Educational units on approximately 28 hectares;
- One fresh produce market approximately 2 hectares;
- One unit for a hospital and clinic on approximately 5 hectares;
- One unit for informal trading on approximately 1 hectare;
- Two units for Public Transport on 2 hectares;
- One unit zoned for the existing cemetery on 3.3 hectares of which 1ha is for the expansion of the existing cemetery;
- Two units for Government purposes on approximately1.4 hectares;
- Five Private Open Space units on approximately 5 hectares;
- 34 Units for environmental sensitive and conservation areas covering approximately 450 hectares; and
- Approximately 94 hectares of Public Roads and Streets.

4.4.2 Location of Activity

The proposed development on 968ha of land is situated on the Farm Nkosi City 1002 JU, partly within the City of Mbombela jurisdiction, Mpumalanga Province. The property is situated in Ward 2 of Pienaar. The proposed development occurs approximately 25km east-north-east from Mbombela, bordering the township Daantjie and is situated 2km from the Luphisi Township to the east, and 21km east-south-east from White River and is situated within 5km from the Kruger National Park situated to the East.

The D2975 from Daantjie to Phakane in the north transects the proposed development site from the western boundary to the northern boundary in a north-easterly direction.

Refer to Figures 1 and 2.

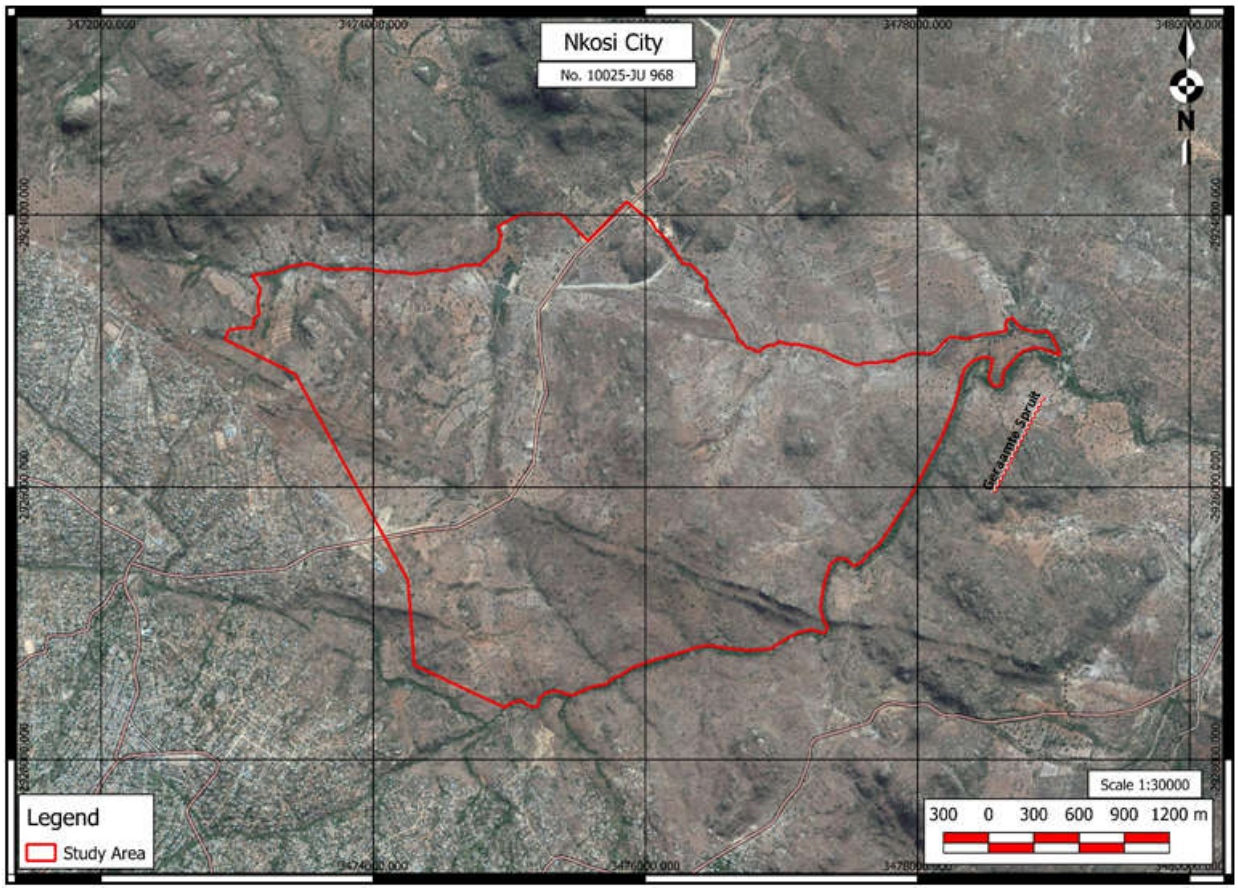


Figure 3: Aerial map

4.4.3 The role and importance of the proposed development

Umsebe Development Planners compiled an application, subject to certain conditions, to establish a township to be known as **Nkosi City** to serve as an integrated human settlement development in terms of Section 44 read with Chapter 6 of the Mbombela By-Law on Spatial Planning and Land Use Management on the Farm Nkosi City 1002 JU.

The Nkosi City integrated human settlement development is a 50/50 joint venture between the Nkosi City Communal Property Association (NCCPA) and Dovetail Properties with assistance from National Government, Mpumalanga Province and the City of Mbombela. An approval letter was received from the Mpakeni Traditional Authority, which is now known as the NCCPA, and the Mbombela Local Municipality, Department of Health and Social Development and the Department of Education.

A letter was obtained from the Regional Land Claims Commissioner to confirm that there are no Land Claims on the proposed development site. The proposed development site used to be owned by National Government and was transferred to the NCCPA via the State Land Disposal Process.

Dovetail Properties follows an **upliftment philosophy** which focuses on developments that uplift communities by creating jobs and Small, Medium to Micro-sized Enterprises (SMMEs), education programmes.

The development will cater for housing in the form of RDP houses, Social housing (apartments), bonded housing and urban farms. The development will also cater for Education by means of preschools, primary schools, secondary schools, a college, an agricultural training centre and the Dovetail Foundation training centre. The development will also cater for a provincial hospital and a clinic as well as the SPCA. Institutional offices catered for as part of the development include Fire and Emergency Services, a Police Station, a Post Office and Government Offices. Retail space will include a Fresh Produce Market, Entertainment and Restaurants, a Filling Station and Fitment Centre etc. In terms of

tourism the proposed development will cater for a hotel, lodge and B&B facilities, which will be applied for during a separate EIA process, as recommended by MDRADLEA. Public Transport will be provided for in the form of bus terminals and Taxi Ranks.

Community facilities planned as part of Nkosi City include a Community Centre, Public Swimming Pool, Orphanage, Churches, Library, an existing cemetery, parks and recreational areas, and a dam with picnic facility.

The following infrastructure is planned as part of the proposed Nkosi City development: Electrical substations, mini substations and LV reticulation; Road upgrades and associated stormwater infrastructure; a dedicated off-site sewerage treatment plant, pump stations and bulk sewerage lines; a new Water Treatment Plant at Primkop Dam, on-site water reservoirs and bulk water lines; telecommunication infrastructure and Wi-Fi and a solar renewable energy plant.

Approximately 228ha of the total 968ha surface area has been set aside for Agriculture. The **urban farm concept** entails stands with a size of approximately 2500m^2 which will be utilised for intensive agriculture flanked by bonded stands and RDP houses. The aim is to provide jobs for the occupants of the RDP houses and food security to the community. Agricultural specialists will train community members in intensive farming to ensure success of the Nkosi City Integrated Human Settlement which is the first of its kind in South Africa.

In order to give effect to the proposed Nkosi City Development the Primkop Dam wall will be raised to address the current need of the Nsikazi South Area in which Nkosi City lies as well as addressing future bulk water needs. The existing Primkop Dam Water Treatment Plant (WTP) will be decommissioned and replaced with a new Primkop Dam Water Treatment Plant. These upgrades will not only result in supply of bulk water to Nkosi City, but will also cater for bulk water needs within Mbombela Local Municipal Area.

4.4.4 Need and Desirability

Umsebe Development Planners compiled an application, subject to certain conditions, to establish a township to be known as **Nkosi City** to serve as an integrated human settlement development in terms of Section 44 read with Chapter 6 of the Mbombela By-Law on Spatial Planning and Land Use Management on the Farm Nkosi City 1002 JU. The application was submitted to the City of Mbombela Local Municipality on 16 October 2018.

4.4.4.1 Need

One of the South African Governments objectives is the alleviation of poverty through job creation and the provision of housing. Mbombela Local Municipality in line with this objective, approved assistance with a self-sustaining city called Nkosi City to accommodate the disenfranchised population in the east of their jurisdiction.

Nkosi City will address the following national objectives:

- Job creation;
- Service delivery;
- RDP and subsidized housing;
- Close proximity between homes and workplaces;
- Provision of educational and social facilities; and
- Creation of self-sustaining environment providing for commercial opportunities.

Nkosi City is strategically located to cater for the needs of the Mpakeni Traditional Authority as per the land right holder's resolution. The following community requirements will be met:

- Ward 2 community members will be employed during construction and operational phase of the proposed development;
- Local small to medium enterprises will be afforded the opportunity to rent business space within the proposed shopping centre(s);
- Skills will be transferred during construction and operation; and

- Farmers with rights on the area earmarked for Nkosi City will be afforded the opportunity to be incorporated into the Agricultural Cooperation of the development where they will run a commercial agricultural business.

Need for housing

The provision of RDP houses is a competence of the Department of Human Settlements and Local Municipalities. The City of Mbombela has a register of 35 000 people waiting for houses. The RDP houses associated with the "residential 1" land use will cater for approximately 2300 of the 35000 backlog.

The walk-up apartments are intended to be rental stock, to cater for individuals who do not qualify for RDP housing. The Bonded/GAP Housing will be sold and are intended for families with an income of R15 000. Commercial banks have a subsidy scheme which assist Bonded/GAP Housing buyers with deposits.

4.4.4.2 Desirability

According to the motivating memorandum desirability of Nkosi City can be motivated in terms of institutional sustainability, social sustainability, and environmental sustainability, suitability of the site, context of the site, local economic development and compatibility.

Institutional Sustainability

According to the Mbombela Spatial Development Framework (SDF), 2011-2030 the farm Nkosi City 1002 JU is situated within the Mpakeni Traditional Authority area and the western half of the site falls within the Urban Edge.

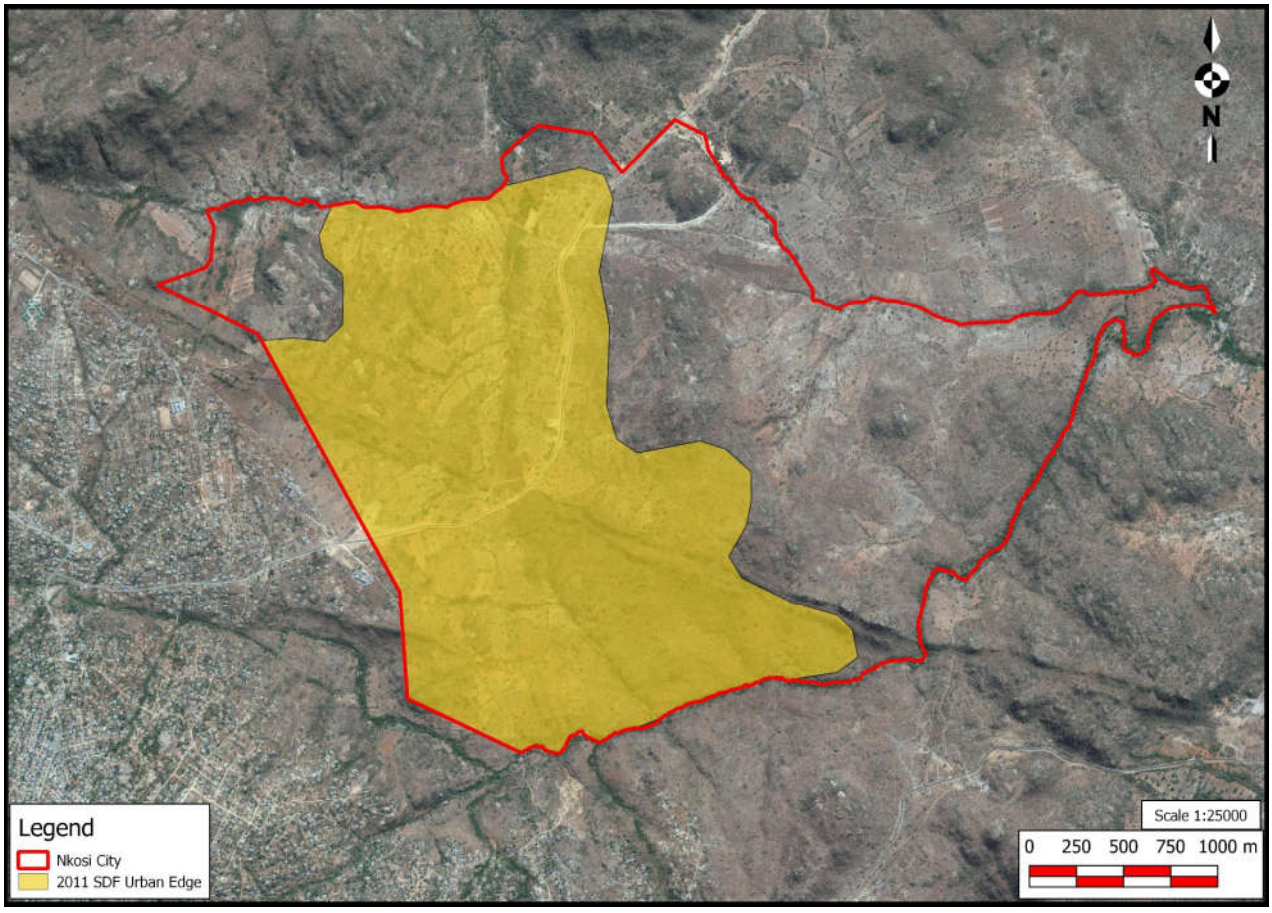


Figure 4: Urban Edge

Institutional sustainability

The Mbombela Spatial Development Framework (SDF), 2011-2030 divides the municipality in to five management zones where zone 1 is mainly urban and zones 2 to 5 are mainly rural. The Farm Nkosi City 1002 JU is situated within the Mpakeni Traditional Authority jurisdiction and falls within the Mbombela Urban Edge.

The area is reserved for new development with the following objectives:

- Survey for clear road hierarchy;
- Provide full range of community facilities; and
- Should fall outside environmentally sensitive areas.

The proposed Nkosi City development will adhere to the above objectives by providing community facilities and accommodating environmentally sensitive areas as part of the proposed township layout.

Social sustainability

The residents of Nkosi City will have easy access to employment opportunities, social facilities, entertainment facilities and convenience shopping.

The aim of the proposed development is to provide a compact mixed use development which provides easy access to social facilities. The proposed human settlement will require limited reliance on motorised transport, while also providing access to public transport.

Environmental sustainability

The Environmental Impact Assessment process runs concurrent with the Township Establishment Process. Numerous studies will be completed as part of the EIA process. Proof of Environmental Authorisation is required for issuance of a Section 47 Certificate without which the township cannot be proclaimed.

Suitability of the site

The regional accessibility of the site makes it suitable for the proposed Nkosi City Integrated Human Settlement Development.

Context of the site

The proposed township is a natural expansion of the informal settlement of Daantjie and the creation of a formal township providing in the needs of the local community is of critical importance. The site will be developed with due consideration of its proximity to informal settlements, environmental constraints and recognition that services will have to be provided in order to cater for the proposed development.

Local economic development

The proposed development will result in upliftment of a disenfranchised community who will benefit from the creation of sustainable living.

Compatibility

The land uses proposed are in line with existing land uses in the area.

4.4.5 Registered Owners and Title Deeds

As mentioned above, the property on which the proposed development is to take place, is known as the Farm Nkosi City 1002 JU and is approximately 968ha in size. The proposed development site used to be owned by National Government and was transferred to the NCCPA via the State Land Disposal Process. The Minister of the Department of Rural Development and Land Reform authorised the disposal of the land to the Nkosi City Communal Property Association (NCCPA).

There are no Land Claims registered against the proposed development site as per a confirmation letter obtained from the Regional Land Claims Commissioner.

A tar road transects the proposed development site from north to southwest. According to the Land Surveyor appointed on the project, VSP Survey, no servitudes have been registered and there are no Mineral Right Diagrams registered over the Farm Nkosi City 1002 JU.

Due to the land having transferred from the State to the NCCPA, the conveyancing Attorney had to draw up a new Title Deed for the Farm Nkosi City 1002 JU.

4.5 Zoning and Land-Use

4.5.1 Existing Zoning and Land-Use

The property is zoned "Agricultural" as defined in the Subdivision of Agricultural Land Act

(Act 70 of 1970). Subsistence farming is currently carried out on approximately 20% of the surface area of the proposed development site. There is evidence of illegal mining (suspect sand mining) along the eastern boundary just north of the tar road transecting the development site.

4.5.2 Surrounding Zoning and Land-Use

The most dominant surrounding land uses comprise of "rural-like" residential villages with some supporting agricultural activities and communal facilities. The township of Daantjie has a variety of land uses including housing and subsistence farming. Workers commute to larger cities nearby such as Mbombela and White River for work, clinics, and groceries. **Refer to Figure 5 below.**

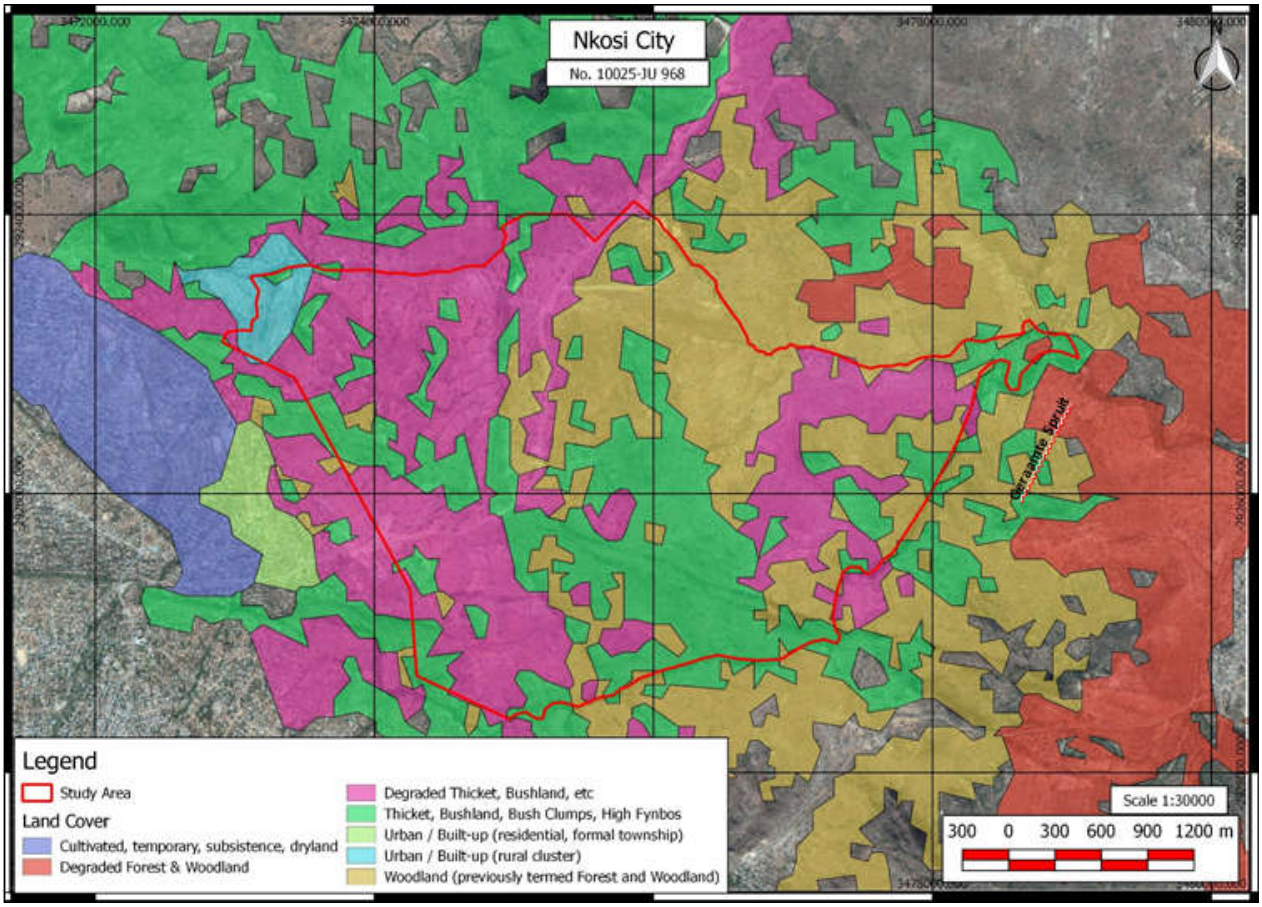


Figure 5: Surrounding land-Use

The Township of Daantjie forms the eastern boundary of the proposed development site, while the Kruger National Park occurs 5kms to the east.

4.5.3 Proposed Zoning and Land-Use

The purpose of the application is for the establishment of a township, over six phases, for the development of an integrated human development settlement to be known as **Nkosi City** comprising of; approximately 2,305 RDP/Social housing units, approximately 1,166 bonded housing units, approximately 95 farming units on 228 hectares, approximately 19 industrial units on approximately 13 hectares, approximately 3 business units on approximately 14 hectares, approximately 32 Special units for places of refreshment, hotel and accommodation, shops, retail, service retail, wholesale, bulk retail, dwelling units, residential buildings, social halls, dry cleaners and offices on approximately 13 hectares, six institutional units on approximately 3 hectares, 12 educational units on approximately 28 hectares, one fresh produce market approximately 2 hectares, one unit for a hospital and clinic on approximately 5 hectares, one unit for informal trading on approximately 1 hectare, two units for public transport on 2 hectares, one unit for the existing cemetery on 3.3 hectares, two units for government purposes on approximately 1.4 hectares, five private open space units on approximately 5 hectares, 34 units for environmental sensitive and conservation areas, and approximately 94 hectares of public roads and streets. **Refer to Appendix D1a for the proposed layout of the proposed township.**

5. ALTERNATIVES IDENTIFIED

5.1 Locality Alternatives

The proposed development site falls partly (approximately 50%) within the Mbombela Urban Edge but in an area composing of natural vegetation where small scale farming is already practised which is earmarked for new development in terms of the Mbombela

Spatial Development Framework, 2011-2030. The development site is affected by multiple 1:100-year flood lines of non-perennial tributaries of the Nsikazi River and Mnyeleni River, as well as non-perennial tributaries of the Geraamte Spruit and the Rietbokspruit. The flood lines are indicated on the proposed layout plan and were zoned "Special" to preserve as environmentally sensitive and conservation areas.

In terms of the Mbombela Spatial Development Framework, 2011-2030 the subject property is situated in an area earmarked for new development. In terms of the new development area the following uses are encouraged; residential use, full range of community facilities, must fall outside environmental sensitive areas, and make optimum use of agricultural land for cultivation and grazing.

In terms of the Spatial Planning and Land Use Management Act, 2013 (SPLUMA) the proposed development must comply with the following principles:

Principle of spatial justice

Development concept to provide housing, skills and community facilities to previously disadvantaged communities.

Principle of spatial sustainability

Environmental restrictions applicable to the proposed development site were considered and incorporated into the proposed layout. Infrastructure and social services will be provided during the different phases associated with the proposed township. Through the provision of community facilities, an agricultural land and training facilities a viable sustainable community can be developed.

Considering 1)the proposed development site transferred ownership from the State to the Nkosi City Communal Property Association (NCCPA), and 2)that the proposed location complies with the principles of SPLUMA, 3)that the land is vacant and 4)in close proximity to Mbombela and existing service infrastructure, and that 5)subsistence farming is already

carried out on a portion of the proposed development site, no locality alternatives were considered for the proposed Nkosi City Integrated Human Settlement development.

5.2 Land Use Alternatives

5.2.1 Proposed Development – Integrated Human Settlement Development (Preferred Alternative)

The proposed Integrated Human Settlement Development will be developed over six phases consisting of the following land use zones elaborated on below; Agricultural, Business 1, Cemetery, Educational, Government, Industrial 1, Institutional, Residential 1, Residential 4, Special, streets and roads.

Agricultural

Ninety-five erven covering 228 hectares will be zoned "Agricultural" for purpose of cultivation, grazing and agricultural buildings.

Business 1

Three erven covering 14 hectares will be zoned as "Business 1" for places of refreshment, hotels, shops, dwelling units, residential buildings, places of worship, places of instruction, social halls, dry cleaners and offices.

Educational

Twelve erven on 28 hectares will be zoned as "Educational" for purpose of Primary Schools, Secondary Schools, Crèches, and TVET College.

Government

Two erven on 1.4 hectares will be zoned as "Government" for purpose of Police station, Post Office, Emergency Services and Public Facilities.

Industrial 1

Nineteen erven on 13 hectares will be zoned as "Industrial 1" for purpose of industries (excluding noxious industries), Workshops, Commercial uses, Places of refreshment, Offices, Retail trade in manufactured goods, processed or assembled on the erven, or industry related products.

Institutional

Six erven on 2.3 hectares will be zoned as "Institutional" for purpose of places of worship, places of instruction, Public Library and Community Hall.

Private Open Space

Five erven on 5 hectares will be zoned as "Private Open Space" for public open spaces, parks, public swimming pool and sports and recreation.

Residential 1

2305 erven 78 hectares in size will be zoned as "Residential 1" for the purpose of constructing 1 dwelling unit per erf. Housing typologies will include RDP and social housing catering for lower-income households.

Residential 4

17 erven 14 hectares in size will be zoned as "Residential 4" for the purpose of approximately 1,166 bonded housing of approximately 85 units per hectare.

Special

34 erven of approximately 450 hectares in size will be zoned as "Special" for the purpose of conserving environmental sensitive areas.

One erf 2 hectares in size will be zoned as "Special" for the purpose of a fresh produce market.
One erf 5 hectares in size will be zoned as "Special" for the purpose of a Hospital and Clinic.
One erf smaller than 1 hectare in size will be zoned as "Special" for the purpose of informal trading.
32 erven 13 hectares in size will be zoned as "Special" for the purpose of places of refreshment, hotel, retail, service retail, wholesale, bulk retail, dwelling units, residential buildings, social halls, dry cleaners, and offices.
Two even, 2 hectares in size, will be zoned as "Special" for the purpose of public transport and ranks (Bus and Taxi).

Cemetery

One erven 3.3 hectares in size is zoned as "Cemetery" to cater for the existing cemetery 2.3 hectares in size and the expansion of the cemetery by 1 hectare.

Roads and Streets

94 hectares in size will cater for existing roads transecting the development site as well as internal streets.

The original layout for the proposed development did not take all the ridges and watercourses that affect the study area into consideration. The original layout was compiled prior to any ecological or wetland studies being conducted.

The project team however regarded the environmental issues and characteristics on the site as primary form-giving element for the development layout and the layout was amended several times to accommodate (as far as possible) the sensitive environmental features of the site and to give effect to the proposed layout.
In the response to the Draft EIA Report, MDARDLEA requested certain activities to be excluded from the application and applied for separately. The layout plan was amended accordingly. **Refer to Appendix D1a for the proposed layout (Revision 9).**

5.2.2 Alternative 1 – Low density residential

In terms of the Mbombela Spatial Development Framework, 2011-2030 the subject property is situated in an area earmarked for new development. In terms of the new development area the framework encourages the following uses: residential use, full range of community facilities, must fall outside environmental sensitive areas, and make optimum use of agricultural land for cultivation and grazing.

Although Low Density Residential was considered as alternative, it is not in line with the Mbombela Spatial Development Framework, 2011-2030 as residential use will not comply with the requirements for new developments, as stated above.

5.2.3 Alternative 2 – Agriculture

Although the proposed development site is currently zoned "Agricultural", which is evident from aerial photos that show clear signs of current and past agricultural activities, the site is not regarded as suitable for only one land-use.

The site is associated with cultivated lands and regular ploughing of the upper soil layers to do ground preparation. Available data however suggests that the site has agricultural potential for grazing only, and therefore agriculture alone is not considered a viable option for the proposed development site. **Refer to Figure 6 below.** A mixed use development, which includes a major agricultural component is at this point regarded as the feasible and sustainable option for the land.

Approximately 234ha of the total 968ha surface area has been set aside for Agriculture. The **urban farm concept** entails stands with a size of approximately 2500m^2 which will be utilised for intensive agriculture flanked by bonded stands and RDP houses. The aim is to provide jobs for the occupants of the RDP houses and food security to the community. Agricultural specialists will train community members in intensive farming to ensure success of the Nkosi City Integrated Human Settlement which is the first of its kind in South Africa.

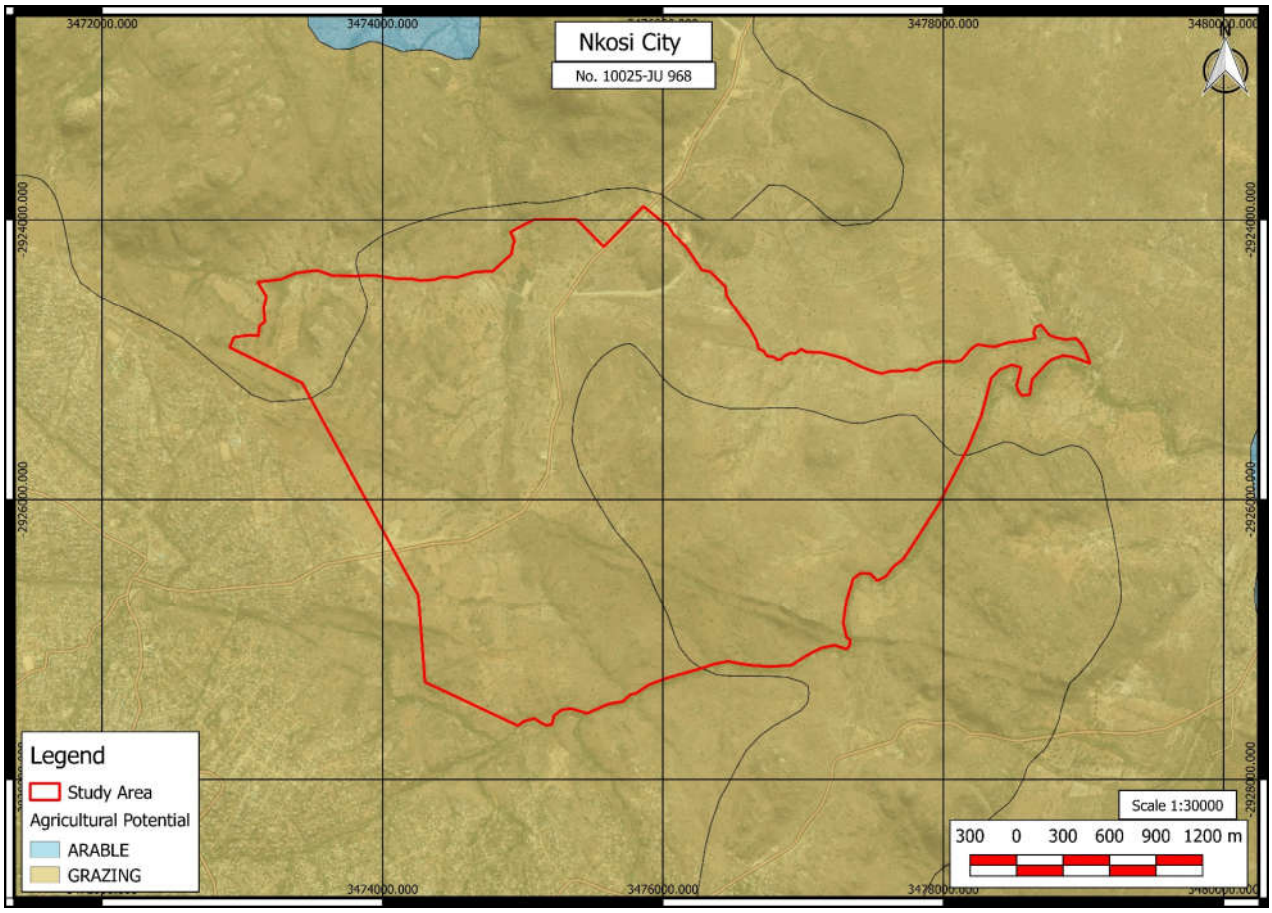


Figure 6: Agricultural potential

5.2.4 Alternative 3 – Conservation Area

According to the Mpumalanga Biodiversity Conservation Plan a large portion (approximately 80%) of the proposed development site comprise of natural undisturbed areas. **Refer to Figure 7 below.**

Although the proposed development site is not regarded as a critical biodiversity area, there are large sections of natural vegetation still remaining on site and the entire development site falls within an Ecological Support Area (ESA) Protected Area Buffer.

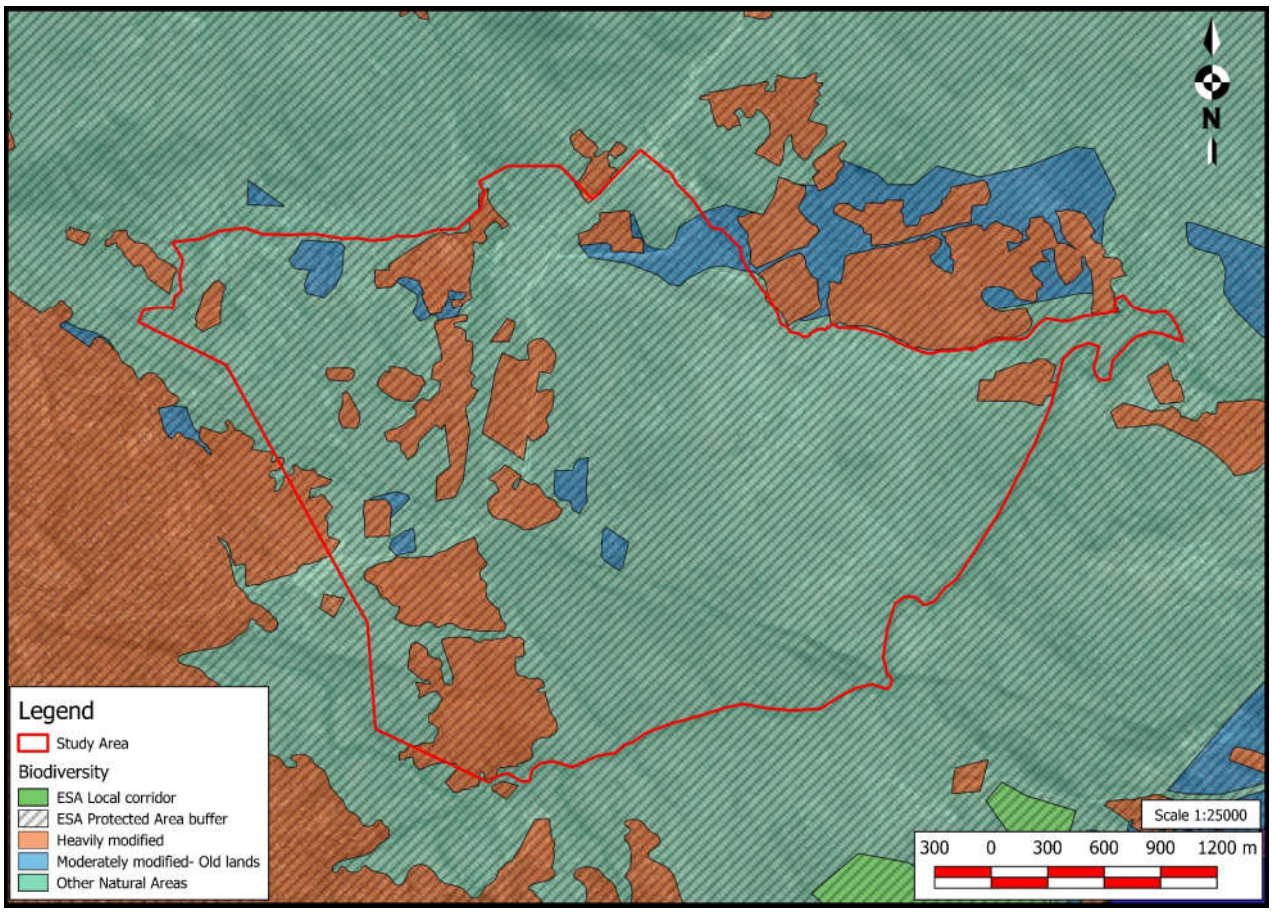


Figure 7: Mpumalanga Conservation Plan Areas

According to the Fauna Assessment conducted, the proposed development site covers five faunal habitats of which one – the Rocky Outcrops, have a high biodiversity value and the Thickets and Closed Woodland have a Moderate Biodiversity Value.

The Flora Assessment conducted established that the greater part of the proposed development site is in a natural condition and identified three protected tree species and 13 Mpumalanga protected plants as well as two Species of Conservation Concern.

The proposed development site is surrounded by townships, and has been identified for new development in terms of the Mbombela Spatial Development Framework, 2011-2030, is currently utilised for small scale farming along watercourses and is therefore not regarded as suitable for the purpose of conservation only.

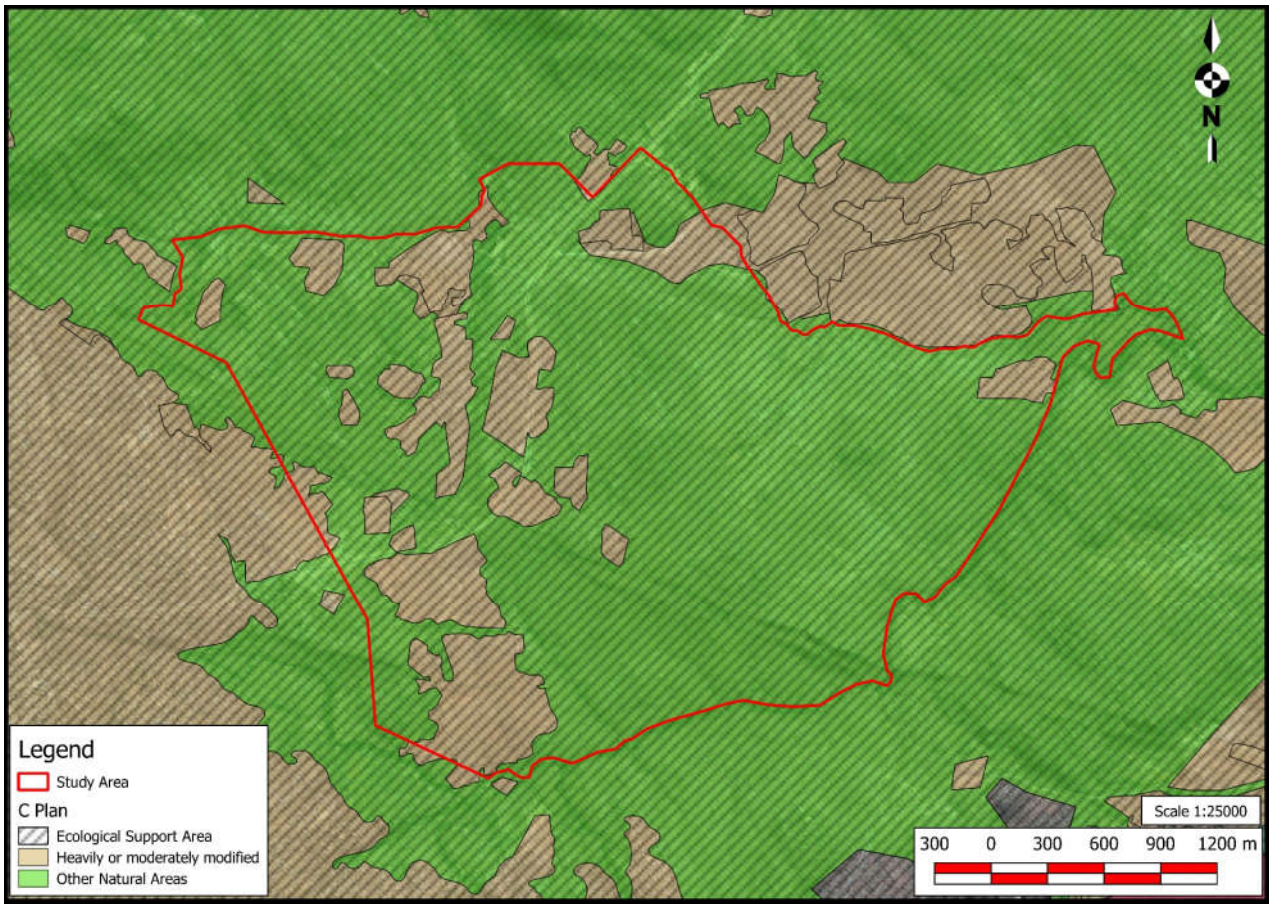


Figure 8: Mpumalanga Conservation Plan Ecological Support Areas

5.3 Layout Alternatives

Various layouts have been considered, but the environmental aspects of the site identified during the Strategic Environmental Assessment (SEA) such as topography, tributaries, an existing dam, an existing cemetery, and undisturbed natural areas, acted as the main form giving effect to the proposed layout included as part of this Report **(Refer to Appendix D1a for the proposed layout).**

Several revisions of the original layout have been compiled in order to end up with the proposed layout which is Revision 9.

Due to a wetland identified along the eastern boundary of the proposed development site, the agricultural land use zone and associated Residential 1 units were relocated westwards as to not impact on the 50m wetland buffer recommended by the wetland specialist resulting in Revision 8 of the preliminary layout.

All the service infrastructure was not denoted on the proposed layout submitted as part of the Final Scoping Report. The proposed layout was thus amended **(Revision 9)** to include all service infrastructure to be constructed as part of the proposed Nkosi City Integrated Human Settlement Development.

5.4 The "No-Go" Alternative

The proposed development site is mostly vacant but surrounded by townships and if left undeveloped will be engulfed by informal settlements due to need for housing. There are already clear signs of agricultural activities (grazing and some informal crops) and other human activities such as mining on the study area. People move freely through this large farmland area from Daantjie to Luphisi and some informal pedestrian routes across the farm confirm this occurrence. Human activities on the site (i.e. illegal quarrying activities, grazing etc.) also contribute to erosion and siltation problems, especially in and around the watercourses.

Since the commencement with the EIA process the illegal sand mining activities on the site expanded and the vegetation of large areas are now destroyed and soils are exposed. It is requested that MDARDLEA and the Department of Mineral Resources (DMR) investigate the matter, because such illegal activities will cause major erosion and siltation lower down in the catchment.

In terms of the Mbombela Spatial Development Framework, 2011-2030 the subject property is situated in an area earmarked for future development and if one considers the strategic location of the site in between Daantjie and Luphisi, the proposed development will constitute infill development and will be a mere extension of the two villages referred to above.

The proposed Integrated Human Settlement development is thus in line with the Mbombela Spatial Development Framework, 2011-2030.

The preferred land-uses as depicted on the amended layout plan for the Nkosi City Development proposes a development, which will incorporate residential uses, agricultural activities (mainly in association with residential land-uses), retail, commercial and business development clusters, a full range of community facilities (including, schools, clinics and/or a hospital and a tourism information centre), industrial uses, a cemetery (the existing cemetery will be expanded), overnight facilities such as hotels and lodges, recreational open space areas, roads and infrastructure, waste management facilities and dams for irrigation and domestic water supply (if required). The land-uses will be strategically placed to utilise the opportunities offered by the qualitative features of the site, without jeopardising the ecologically sensitive areas associated with the ridges and watercourses occurring on the proposed development site.

At this stage the opinion is that a well-planned and managed development will be more beneficial to the environment than the "No-Go" option, which currently involves large portions of unutilised farmland situated in between townships that experience tremendous

development pressure, in order to accommodate the large housing backlog of the City of Mbombela (35 000 houses) and the province.

As mentioned some informal activities are currently taking place on the site, but many of the activities contribute to the on-going degradation of the environment (i.e. increased erosion due to over grazing and areas cleared for the planting of crops). This is mainly due to a lack of experience and environmental awareness. Interventions such as the proposed Nkosi City development can assist with environmental awareness and agricultural training to achieve a development with residents that are empowered and that understand the reasoning behind a sustainable development and the implementation of sound environmental planning and management principles.

In terms of the Spatial Planning and Land Use Management Act, 2013 (SPLUMA) the proposed development must comply with the following principles:

Principle of spatial justice

Development concept to provide housing, skills and community facilities to previously disadvantaged communities.

Principle of spatial sustainability

Environmental restrictions applicable to the proposed development site were considered and incorporated into the preliminary layout. Infrastructure and social services will be provided during the different phases associated with the proposed township. Through the provision of community facilities, an agricultural land and training facilities a viable sustainable community can be developed.

Principle of efficiency

The proposed development site borders the township of Daantjie which ensures efficient use of existing infrastructure and continuity of infrastructure.

The proposed Integrated Human Settlement Development is thus in line with SPLUMA principles.

Considering the proposed development site is mostly vacant, and that it recently transferred ownership from the State to the Nkosi City Communal Property Association (NCCPA), and that the proposed location complies with the principles of SPLUMA and is in line with the Mbombela Spatial Development Framework, 2011-2030, the "No-Go" alternative is not supported by the Environmental Assessment Practitioner.

6. THE DESCRIPTION OF THE BIOPHYSICAL ENVIRONMENT

This section briefly describes the biophysical environment of the proposed development site.

6.1 The Physical Environment

6.1.1 Geology and Soils

6.1.1.1 Geology

The proposed site falls within the Karoo Supergroup and Granite Group of geological strata in Southern Africa, one of the oldest formations. Underlying geology is meinhartskraal granite and sandriver gneiss. **Refer to Figure 9 below.**

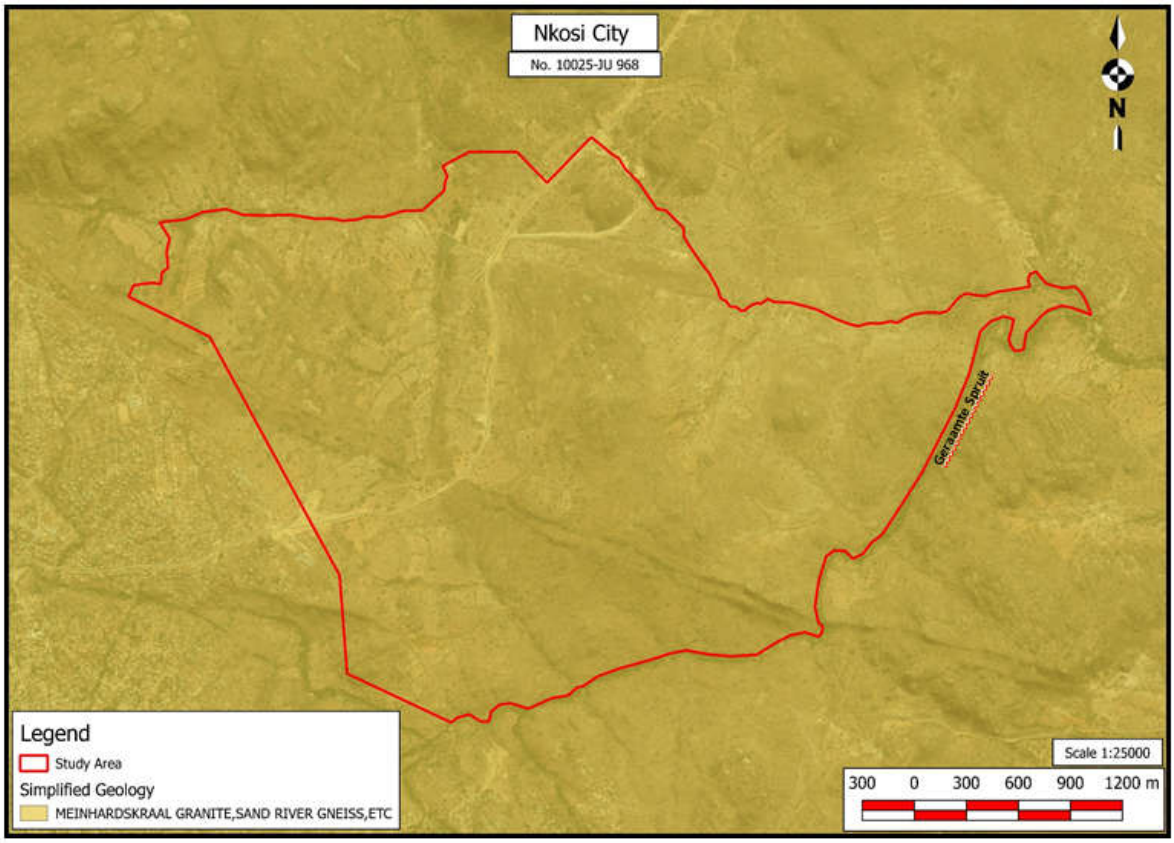


Figure 9: Geology of the Study Area

A *Preliminary Geotechnical Investigation* was undertaken by Geo3 cc. The preliminary findings were that the site is underlain by granite bedrock along the Nelspruit Suite of Basement rock with sporadic diabase intrusions, which do not pose a constraint to the proposed development. **Refer to Appendix D2a.**

An *Engineering Geological Investigation* was undertaken by Geo3 cc. **Refer to Appendix D2b.**

6.1.1.2 Soils

The dominant lithology is expected to be eutric regosols and lithic leptosols. The soil data indicates that the site has red, structure-less and highly weathered soils. Soils are highly erodible and permeable.

Sand mining occurs on a small portion of the proposed development site which poses the potential for erosion and impacting a non-perennial watercourse.

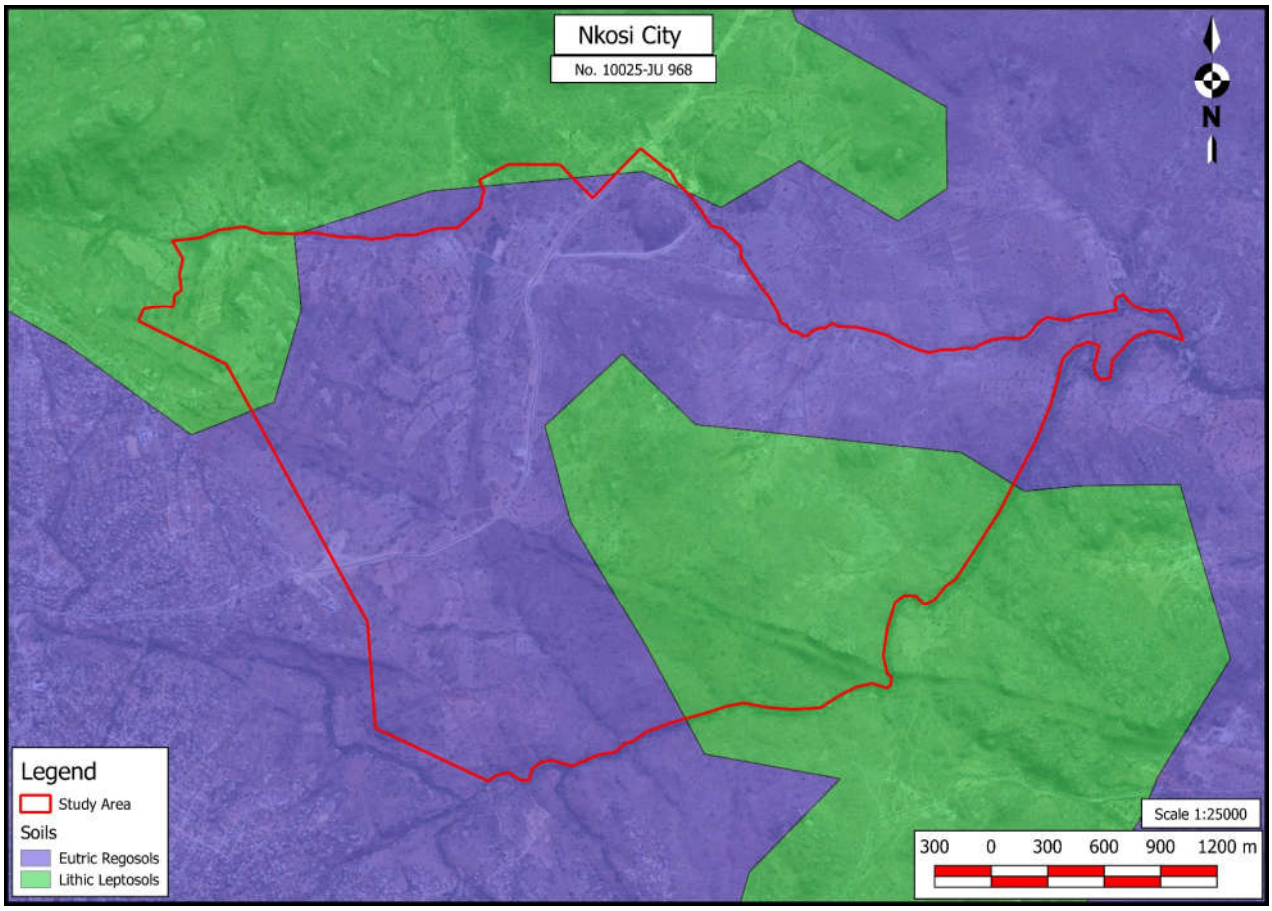


Figure 10: Soils of the Study Area

Nulandis Precision Sciences compiled a *Soil Management Report* which concluded that soils in the Daantjie area are either washed or leached and are therefore not ideal for agricultural crops. Poor management practices such as intensive fertiliser application and intensive irrigation poses a risk of surface and groundwater contamination. It is thus recommended that **land users be trained** in land utilisation and proper soil management in order to ensure successful crop production and irrigation suitability. Nulandi's also recommended that a **detailed soil survey be conducted** of a 2500m^2 grid which is equivalent to a planned household plot, in order to determine best soil management

practices applicable to the area, such as the cultivation strategy and a fertilizer strategy. **Refer to Appendix D3a.**

The EAP is of the opinion that an **Agricultural Business Plan** specific to Nkosi City has to be compiled in order to ensure effectiveness of the Nkosi City urban farm concept.

Table 4: Issues and impacts – Geology and Soils

	Issue/ Impact	**Positive/ Negative/ Neutral ±**	**Mitigation Possible (Yes/No)**
1	Soils are highly erodible and there are already clear signs of erosion on the site	-	Yes
2	The soils are highly permeable	-	Yes
3	Granites are often associated with collapsible soils and unstable slopes	-	Yes
4	Sand mining occurs on site resulting in destruction of topsoil, exposed areas, potential erosion, and potential siltation of watercourses	-	Yes

6.1.1.1.1 Discussion of Issues identified, possible mitigation measures and significance of issue after mitigation – geology and soils

1) Soils are highly erodible and there are already clear signs of erosion on the site

Mitigation measures to be included in the EMPr

Planning Phase

- Civil Design to cater for highly erodible soils.

The **significance** of the issue **following mitigation** is **Low**.

2) The soils are highly permeable

Mitigation measures to be included in the EMPr

Planning Phase

- Civil Design to cater for highly permeable soils.

The **significance** of the issue **following mitigation** is **Low**.

3) Granites are often associated with collapsible soils and unstable slopes

Mitigation measures to be included in the EMPr

Planning Phase

- Civil Design to cater for collapsible soils and unstable slopes.

Construction Phase

- Engineering and Safety measures to cater for collapsible soils and unstable slopes must be budgeted for as part of the construction phase.

The **significance** of the issue **following mitigation** is **Low**.

4) Sand mining occurs on site resulting in destruction of topsoil, exposed areas, potential erosion, and potential siltation of watercourses

Mitigation measures to be included in the EMPr

Planning Phase

- All sand mining occurring onsite to be reported to the relevant authorities.

6.1.1.2 Agricultural Potential

Although the proposed development site is currently zoned "Agricultural", which is evident from aerial photos showing clear signs of current agricultural activities near the rivers on site that are associated with cultivated lands and regular ploughing of the upper soil layers to do ground preparation and to establish erosion prevention berms along the contours of the site, available data however suggests that the site has agricultural potential for grazing only, and therefore agriculture alone is not considered a viable option for the proposed development site.

An *Agricultural Potential Survey* was conducted by the Agricultural Research Council (ARC) during March 2018 which concluded the following. The irrigation potential of the area was found to be not suitable for irrigation under most conditions with severe limitations (Class 4) and soils with severe limitations, such as soils in natural waterways, shallow soils and soils presently eroded (Class 5). The area is not high potential agricultural land because of the very shallow sandy soils. The land capability class is Class VI i.e. severe limitations that make it generally unsuited to cultivation and limit its use largely to pasture and range, woodland or wildlife food and cover. Other agricultural limitations identified included steep slopes, severe erosion potential, effects of past erosion, stones, a shallow rooting zone, excessive wetness or flooding, and low water-holding capacity. The grazing potential is between 5 and 10 ha per animal unit. **Refer to Appendix D3b.**

Table 5: Issues and impacts – Agriculture

	Issue/ Impact	**Positive/ Negative/ Neutral ±**	**Mitigation Possible (Yes/No)**
1	Availability of water for the proposed agricultural activities	-	Yes
2	The site is regarded as being suitable for grazing and not cultivation	-	Yes
3	The areas with the highest agricultural potential are the lower lying areas with deeper soils that have high conservation value	-	Yes

6.1.1.2.1 Discussion of Issues identified, possible mitigation measures and significance of issue after mitigation – Agriculture

1) Availability of water for the proposed agricultural activities

Mitigation measures to be included in the EMPr

Planning Phase

- Conduct Agricultural Potential Study; and
- Compile Services Report establishing need for agricultural water supply.

The **significance** of the issue **following mitigation** is **Low**.

2) The site is regarded as being suitable for grazing and not cultivation

Mitigation measures to be included in the EMPr

Planning Phase

1. Compile an **Agricultural Business Plan**, which identifies the various types of agriculture (i.e. grazing, hydroponics in tunnels; in-situ agricultural activities, abattoirs, feed lots, chicken houses etc.) to be exercised in the different agricultural clusters as identified on the proposed layout map. The Agricultural Business Plan must also include water requirements and financial figures for the various types of agriculture.

Operational Phase

- Implement the Agricultural Business Plan.

The **significance** of the issue **following mitigation** is **Low**.

3) The areas with the highest agricultural potential are the lower lying areas with deeper soils that have high conservation value

Mitigation measures to be included in the EMPr

Planning Phase

2. Compile an Agricultural Business Plan.

Operational Phase

- Implement the Agricultural Business Plan.

The **significance** of the issue **following mitigation** is **Low**.

6.1.2 Hydrology

6.1.2.1 Surface Hydrology

The subject property is located in the Inkomati Water Management Area (NWMA), Quaternary catchment X24B AND X24C. **Refer to Figure 11 below.** The study area incorporates sections of three sub-catchment areas. **Refer to Figure 12 below.**

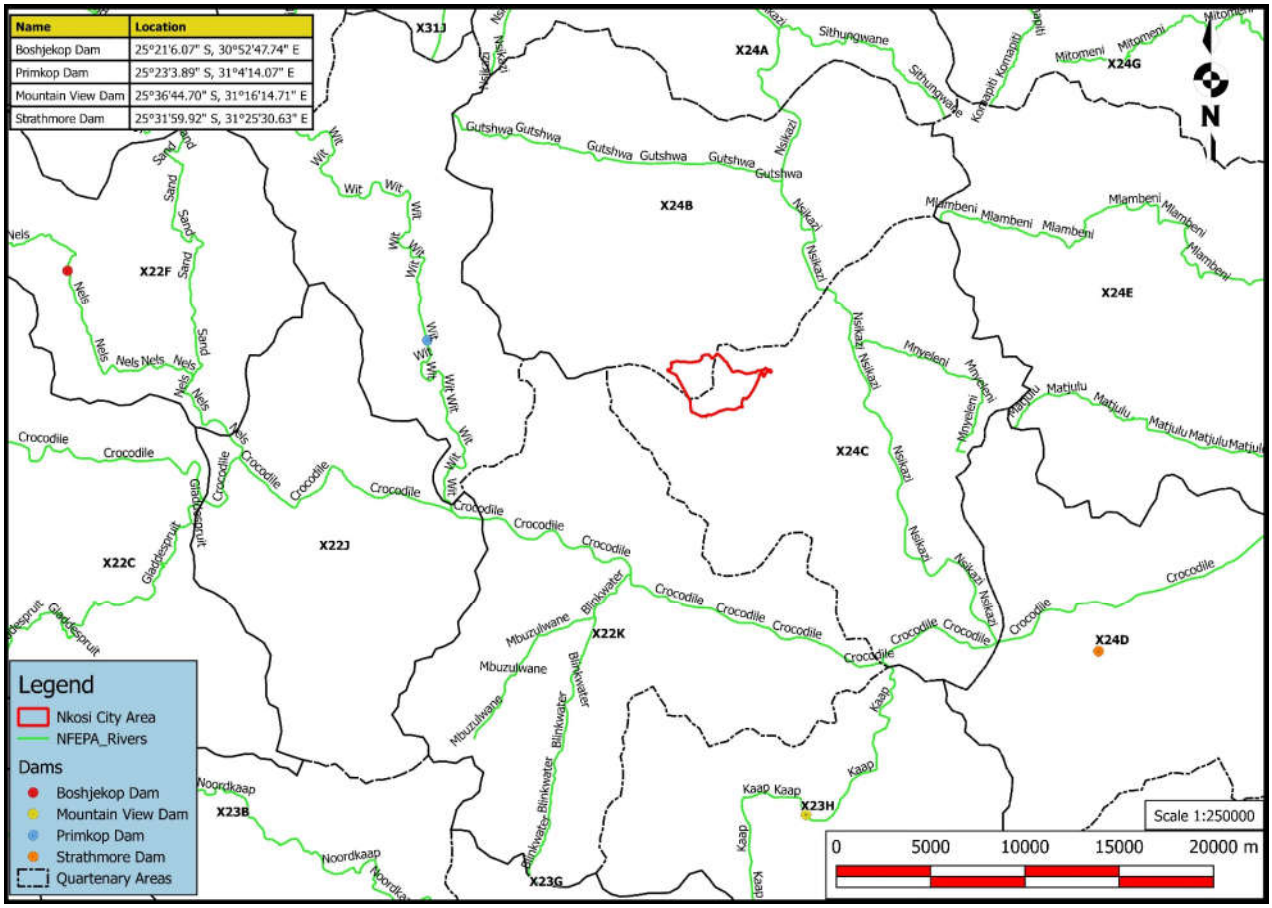


Figure 11: Quaternary Catchment Areas

The first catchment area, which covers the southern and eastern section of the study area is located at the Geraamte Spruit, a tributary of the Luphisi and Nsikazi River and is approximately 341,370ha in extent.

The second sub-catchment area which is situated in the central and western section of the study area is approximately 22,000ha in extent, accommodates a historic in-stream dam and it is located within the Hlauhlau River, which is also a tributary of the Nsikazi River.

The third sub-catchment area, which is situated in the north-western corner of the site is approximately 57,299ha in extent and it represents the entire sub-catchment of the two streams that join downstream of the old farm dam.

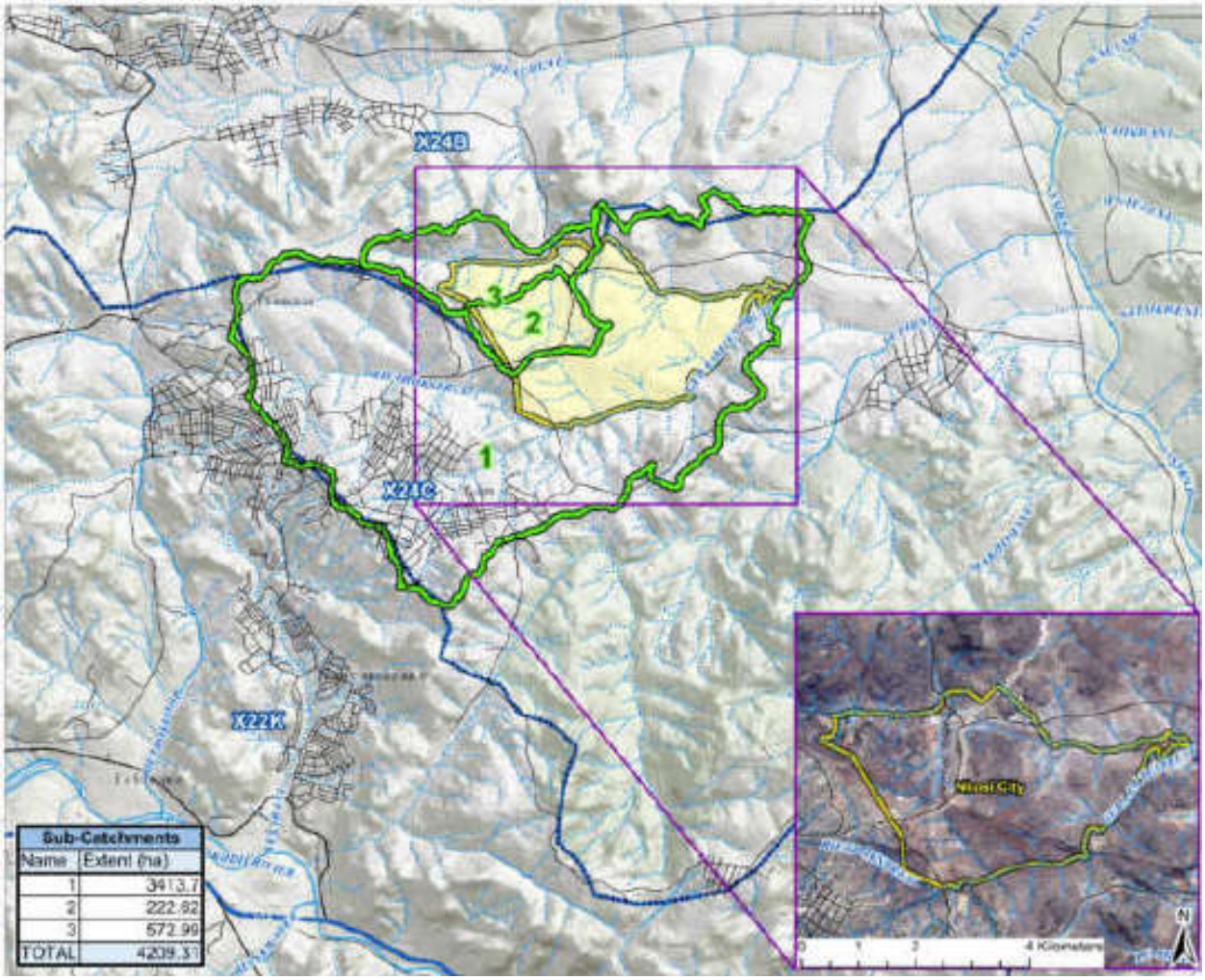


Figure 12: Sub-catchments of the Nkosi City Study Area

6.1.2.2 Wetland Delineation

Bokamoso Landscape Architects and Environmental Consultants CC conducted a *Wetland Report* which identified three valley bottom wetlands occurring within 500m from the proposed development site. The first valley bottom wetland occurs along the eastern boundary of the small dam on the northern boundary of the site. A 50m buffer has been applied to the two wetlands occurring along the eastern boundary of the development site. **Refer to Appendix D4a.**

Wetland 2 occurring along a Tributary of the Geraamte Spruit is affected by a dam wall which alters the stream flow. Wetland 3 situated along the Geraampte Spruit is in near pristine condition.

A wetland risk assessment carried out in terms of the National Water Act, 1998 (Act No. 36 of 1998) is attached as **Appendix D4aii**. The risk assessment concluded that, except for the sewerage infrastructure proposed, the risk posed by the proposed Nkosi City development and associated service infrastructure is low, and thus a General Authorisation Registration is triggered by the proposed development, excluding sewerage. A separate Water Use License Application is triggered by sewerage which will be applied for separately.

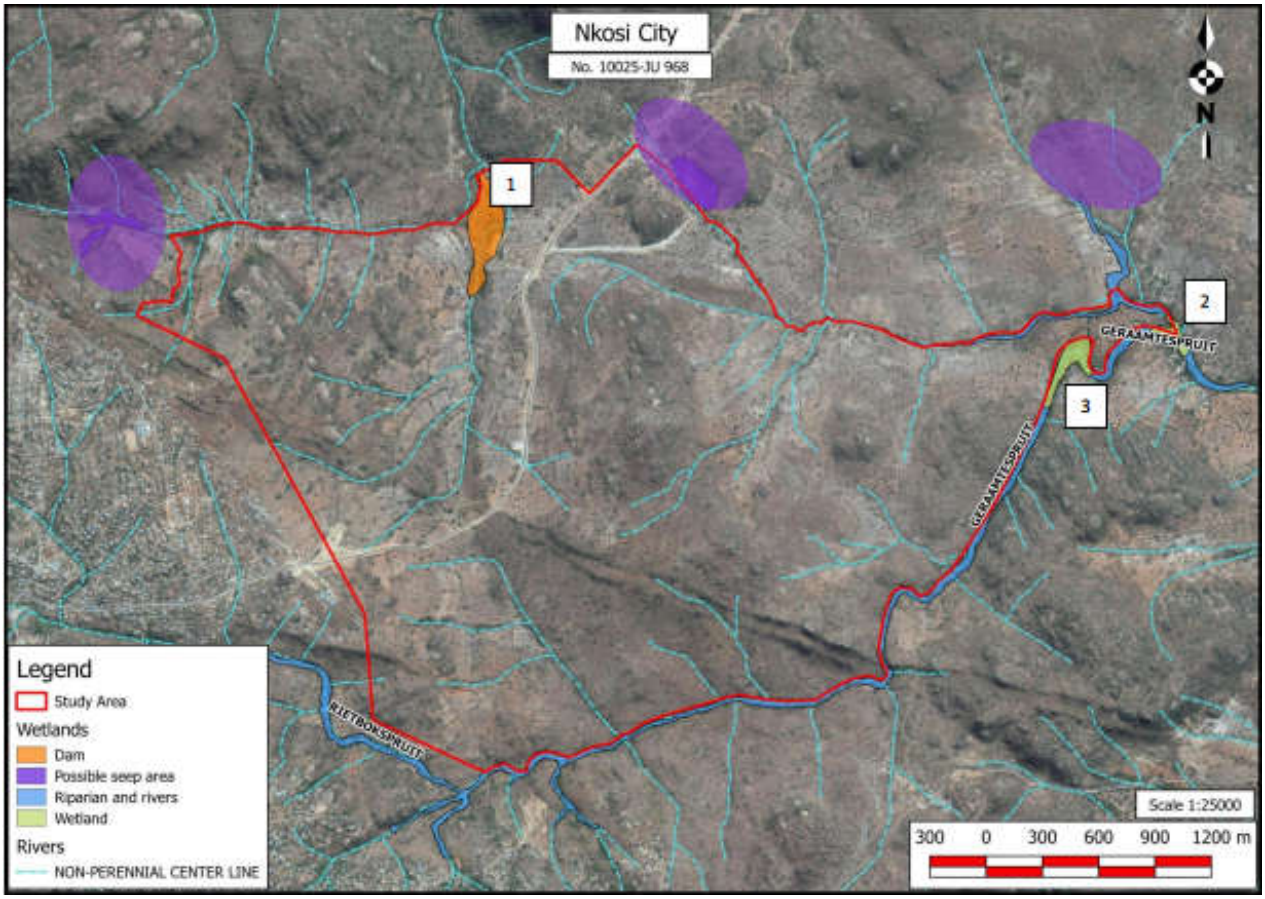


Figure 13: Wetland and Riparian areas

6.1.2.3 Flood lines

The proposed development site is affected by the 1:100-year flood line of non-perennial tributaries associated with the Nsikazi River, the Mnyeleni River, the Geraamte Spruit and the Rietbokspruit. Therefore, a flood line determination was carried out by Endecon Ubuntu Engineering and the flood lines were indicated on the proposed layout plan of the proposed development. **Refer to Appendix D1avii for the certified flood line compiled by Endecon Ubuntu (Pty0 Ltd Engineering Consultants.**

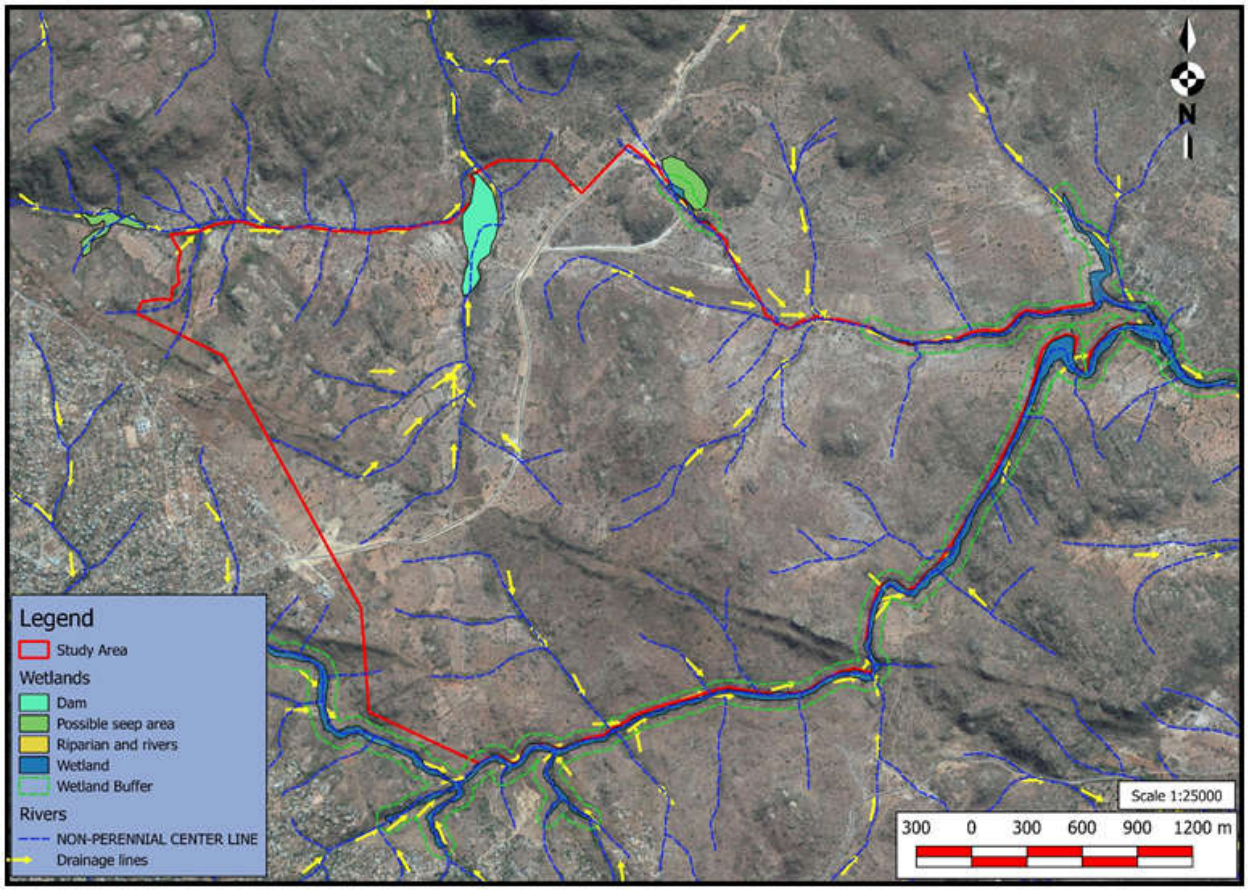


Figure 14: Hydrology

6.1.2.4 Subsurface Hydrology - Groundwater

A *Desktop Surface and Groundwater Availability Assessment* conducted by GCS Water and Environmental Consultants concluded that the site is situated within an inter-granular and fractured rock aquifer, and that no groundwater is currently abstracted from any of the three hydro census boreholes located on the proposed development site. **The water table ranges from 90 to 55 meters below ground level.** **Refer to Appendix D4b.**

A *Phase II Groundwater Feasibility Assessment Report* compiled by GCS Water and Environmental Consultants entailed aquifer hydraulic testing of the three existing hydro census boreholes occurring on the northern boundary of the proposed development site. Only one of the three boreholes were viable for testing due to the other two boreholes being blocked and debris clogging up the pump system. **Refer to Appendix D4c.**

It was not possible to calculate aquafer yield from the viable borehole as there was no groundwater yield. The water abstracted from the borehole during testing represents borehole storage and not yield. It was thus concluded that this borehole is not economically viable as water supply source or to augment Nkosi City water supply.

GCS recommended the following to be conducted:

- Phase I Surface Geophysical Investigation of the entire development site;
- Phase II Hydrogeological Exploration Drilling and Production borehole installation; and
- Phase III Aquifer Hydraulic Testing.

Table 6: Issues and impacts – Hydrology

	Issue/ Impact	Positive/ Negative/ Neutral ±	Mitigation Possible (Yes/No)
1	Three wetlands occur within 500m from the proposed development site, one of which is pristine	-	Yes
2	The proposed development is affected by the 1:100-year flood lines of several non-perennial streams	-	Yes
3	The proposed development triggers a section 21 (c) and (i) WULA for construction within 500m from a watercourse	-	Yes
4	Availability of groundwater to sustain the proposed development is unknown and needs to be ascertained	-	Yes
5	Sand mining occurring on the proposed development site	-	Yes
6	Potential for surface and groundwater pollution, siltation, and erosion problems due to erodible soils	-	Yes
7	The proposed cemetery might have an impact on groundwater quality	-	Yes

6.1.2.4.1 Discussion of Issues identified, possible mitigation measures and significance of issue after mitigation – Hydrology

1) Three wetlands occur within 500m from the proposed development site, one of which is pristine

Mitigation measures to be included in the EMPr

Planning Phase

- Denote wetlands and associated buffers on the proposed layout.

Construction Phase

- All areas within wetland and associated buffer or within the flood line should be denoted as 'No-Go' Areas prior to construction commencing.

The **significance** of the issue **following mitigation** is **Low**.

2) The proposed development is affected by the 1:100-year flood lines of several non-perennial streams

Mitigation measures to be included in the EMPr

Planning Phase

- Denote certified flood line on the proposed layout.

Construction Phase

- All areas within the flood line should be denoted as 'No-Go' Areas prior to construction commencing.

The **significance** of the issue **following mitigation** is **Low**.

3) The proposed development triggers a section 21 (c) and (i) WULA for construction within 500m from a watercourse

Mitigation measures to be included in the EMPr

Planning Phase

- Apply for Water Use Licence (WUL) for all water uses triggered by the proposed development.

Construction Phase

- Implement WUL conditions.

Operational Phase

- Implement WUL conditions.

The **significance** of the issue **following mitigation** is **Low**.

4) Availability of groundwater to sustain the proposed development is unknown and needs to be ascertained

Mitigation measures to be included in the EMPr

Planning Phase

- A Desktop Surface and Groundwater Availability Assessment was conducted;
- A Phase 2 Groundwater Feasibility Assessment was conducted of the three existing boreholes occurring on site.
- Consider conducting a Phase I Surface Geophysical Investigation of the entire development site; a Phase II Hydrogeological Exploration Drilling and Production borehole installation; and Phase III Aquifer Hydraulic Testing, as recommended by GCS.

The **significance** of the issue **following mitigation** is **Low**.

5) Sand mining occurring on the proposed development site

Mitigation measures to be included in the EMPr

Planning Phase

- All sand mining occurring onsite to be reported to the relevant authorities.

The **significance** of the issue **following mitigation** is **Low**.

6) Potential for surface and groundwater pollution, siltation, and erosion problems due to erodible soils

Mitigation measures to be included in the EMPr

Planning Phase

- Detail of drainage line crossings and alternatives investigated by the engineers must be supplied within a Services Report from the engineers and included in the EIA Report;
- Detailed Stormwater Management Plan will be required for assessment and inclusion in the EIA Report. The Stormwater Management Plan must be designed to:
    - Reduce and/or prevent siltation, erosion, and water pollution. If erosion, siltation and water pollution is not addressed, the long-term sustainability of the wetlands and the open space systems lower down in the catchment area cannot be guaranteed;
    - Attenuate stormwater captured on the proposed development site prior to release into the watercourse.

Operational Phase

- Implement the Agricultural Business Plan.

7) The proposed cemetery might have an impact on groundwater

Considering the depth of groundwater in the area as established during the *Groundwater Feasibility Assessment*, as well as the poor groundwater yield, as well as the fact that an existing cemetery occurs in the location where the expansion of the cemetery is proposed, the EAP is of the opinion that the expansion of the cemetery will not have a negative impact on the environment with specific reference to groundwater.

The area proposed for the expansion has already been impacted partially by means of gravel roads and pathways used by visitors to the cemetery.

Mitigation measures to be included in the EMPr

Planning Phase

- Monitoring boreholes to be drilled upstream and downstream of the proposed area for expansion of the cemetery.

Construction Phase

- Monitor borehole quality during the construction phase of Nkosi City i.e. prior to the actual use of the expanded cemetery on **an annual basis** in order to obtain a **baseline** of the water quality prior to potential impact.

Operational Phase

- Monitor borehole **quality six-monthly** during the operational phase of Nkosi City to establish whether the expanded or existing cemetery has an impact on groundwater quality;
- If impacts identified, an investigation should be lodged by a geo-hydrologist or geotechnical engineer.

The significance of the issue following mitigation is Low.

6.1.3 Topography

The proposed development site is characterised by an undulating landscape that ranges from mountainous to gently sloping areas with an average slope of 6.9-7%. It should be noted that the development site slopes in different directions at different inclines with a general decline in elevation from west to east.

The elevation of the site ranges between approximately 459m and 795m above sea level, with the lower lying areas in the eastern section of the development site towards the Kruger National Park. **Refer to Figure 15 below.**

The gradient of the development site is regarded as favourable for development in the eastern section, especially from a stormwater management and engineering services point

of view. The central portion of the development site is steep with high rocky hills and will require more intensive engineering inputs. Several ridges occur on site which have been excluded from development and zoned "Special" for purpose of environmental conservation.

A Slope analysis was conducted to ensure that no development occurs on slopes steeper than 12% for roads, and 25% for stands. **Refer to Appendix D4d**.

Table 7: Issues and impacts – Topography

	Issue/ Impact	**Positive/ Negative/ Neutral ±**	**Mitigation Possible (Yes/No)**
1	The central part of the proposed development site comprises of rocky hills	-	Yes
2	The proposed development site is not flat	-	Yes

6.1.3.1 Discussion of Issues identified, possible mitigation measures and significance of issue after mitigation – Topography

1) The central part of the proposed development site comprises of rocky hills

Mitigation measures to be included in the EMPr

Planning Phase

- Rocky ridges were zoned as "Special" for the purpose of conserving environmental sensitive areas;
- A Slope analysis was conducted to ensure that no development occurs on slopes steeper than 12% for roads, and 25% for stands;
- Stormwater management measures must cater for the topography; and
- Engineering designs must cater for the topography and associated surface drainage.

Construction Phase

- Demarcate all areas denoted as environmentally sensitive prior to construction commencing.

The **significance** of the issue **following mitigation** is **Low**.

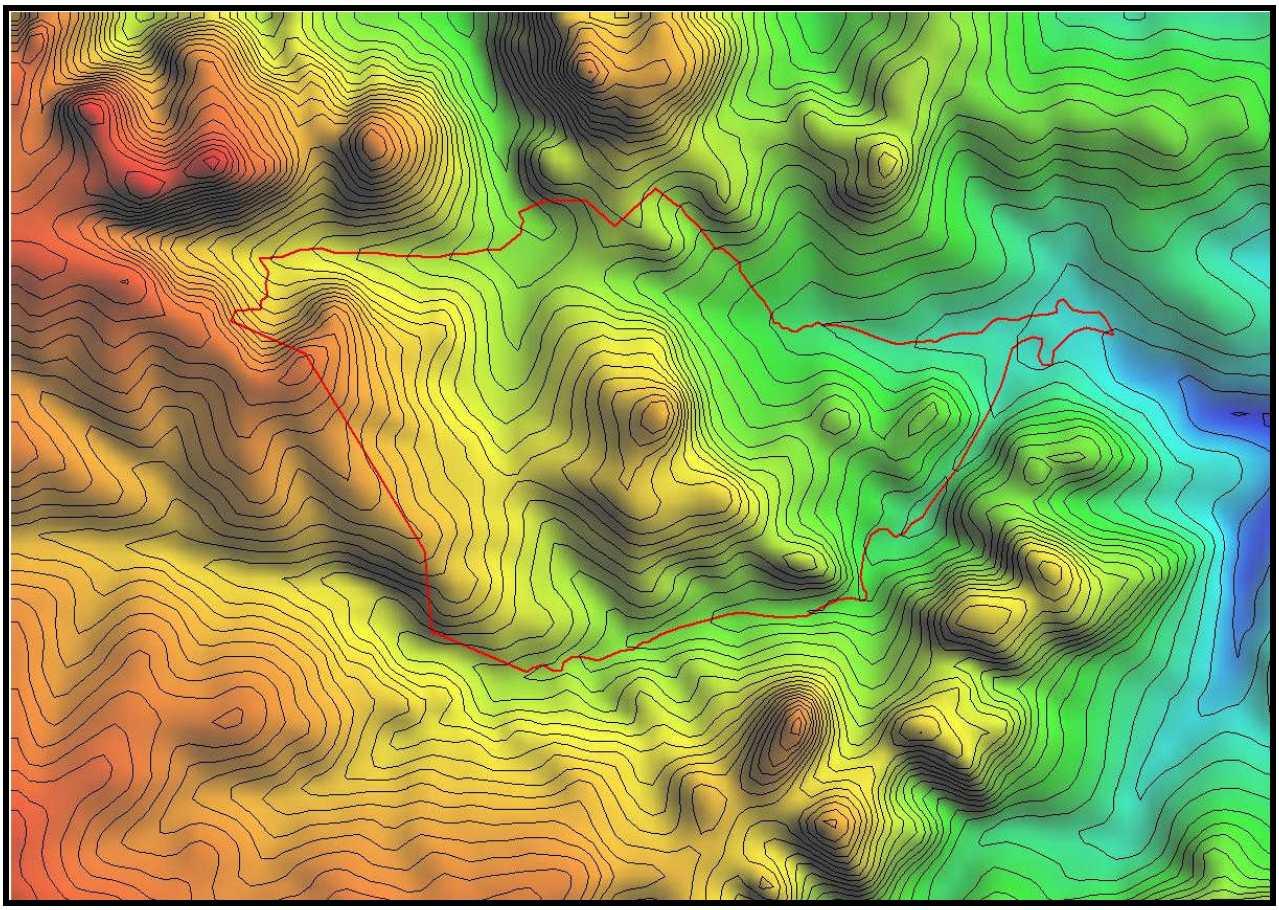


Figure 15: Elevation profile

6.1.4 Climate

Information on the climate for the area was taken from the Nelspruit data (as obtained from SA Weather Online). The region receives an average of 796mm of rain per annum with the rain falling mainly during the summer months. The highest rainfall usually occurs in January with an average of 130mm; while June has the lowest rainfall with an average of 11mm.

The summer months can generally be described as warm to hot with an average maximum midday temperature of 30°C for the months of December and January. The minimum night temperature recorded for the same period is 20°C. The coldest winter month is July where temperature measurements reflect a maximum midday temperature of 24°C and a minimum night temperature of 12°C. The average winter temperature is 14.6°C and the average summer temperature is 23.6°C.

Table 8: Issues and impacts – Climate

	Issue/ Impact	Positive/ Negative/ Neutral ±	Mitigation Possible (Yes/No)
1	Should the construction phase be scheduled for the summer months, erosion could be an issue due to soil type	-	Yes

6.1.4.1 Discussion of Issues identified, possible mitigation measures and significance of issue after mitigation – Climate

1) Should the construction phase be scheduled for the summer months, erosion could be an issue due to soil type

Mitigation measures to be included in the EMPr

Planning Phase

- Construction should be planned for winter months only.

The **significance** of the issue **following mitigation** is **Low**.

6.2 The Biological Environment

Specialist biodiversity assessments were carried out for the proposed development as listed below:

- A Baseline Study: Terrestrial Fauna;
- A Vegetation Survey;
- A Baseline Aquatic Assessment and 2018 (wet season) Baseline Aquatic Assessment; and
- An Avifaunal Habitat Assessment.

6.2.1 Flora Survey

The regional vegetation classification is the Lowveld Bioregion of the Savanna biome (Mucina & Rutherford, 2006). Two vegetation units are present within the site, namely Malelane Mountain Bushveld and Pretoriuskop Sour Bushveld. **Refer to Figure 16 for the vegetation map**.

Malelane Mountain Bushveld

Classified as Least Threatened with a conservation target of 24% while 39% is statutorily conserved in the Kruger National Park and a further 6% conserved in the Mthethomusha Nature Reserve. At least 4% is transformed, mainly by cultivation and urban and built-up areas. Scattered alien plant species include L*antana camara, Jacaranda mimosifolia,*

Melia azedarach, Solanum mauritianum, Sesbania punicea, Ricinus communis and *Psidium guajava*. Erosion is generally very low to low. Open savanna on mountains and higher-lying slopes, with open to dense, short mountain bushveld on rocky outcrops and lower-lying areas. Low-lying areas have tall trees (*Pterocarpus angolensis*) and small trees such as *Acacia caffra, Acacia davyi* and *Combretum molle*. Main grass species include *Bothrioclea radicans, Enneapogon scoparius, Eragrostis rigidor, Eustrachys paspaloides, Heteropogon contortus, Themeda triandra, Tristachya leucothrix* and *Urochloea mosambicensis*.

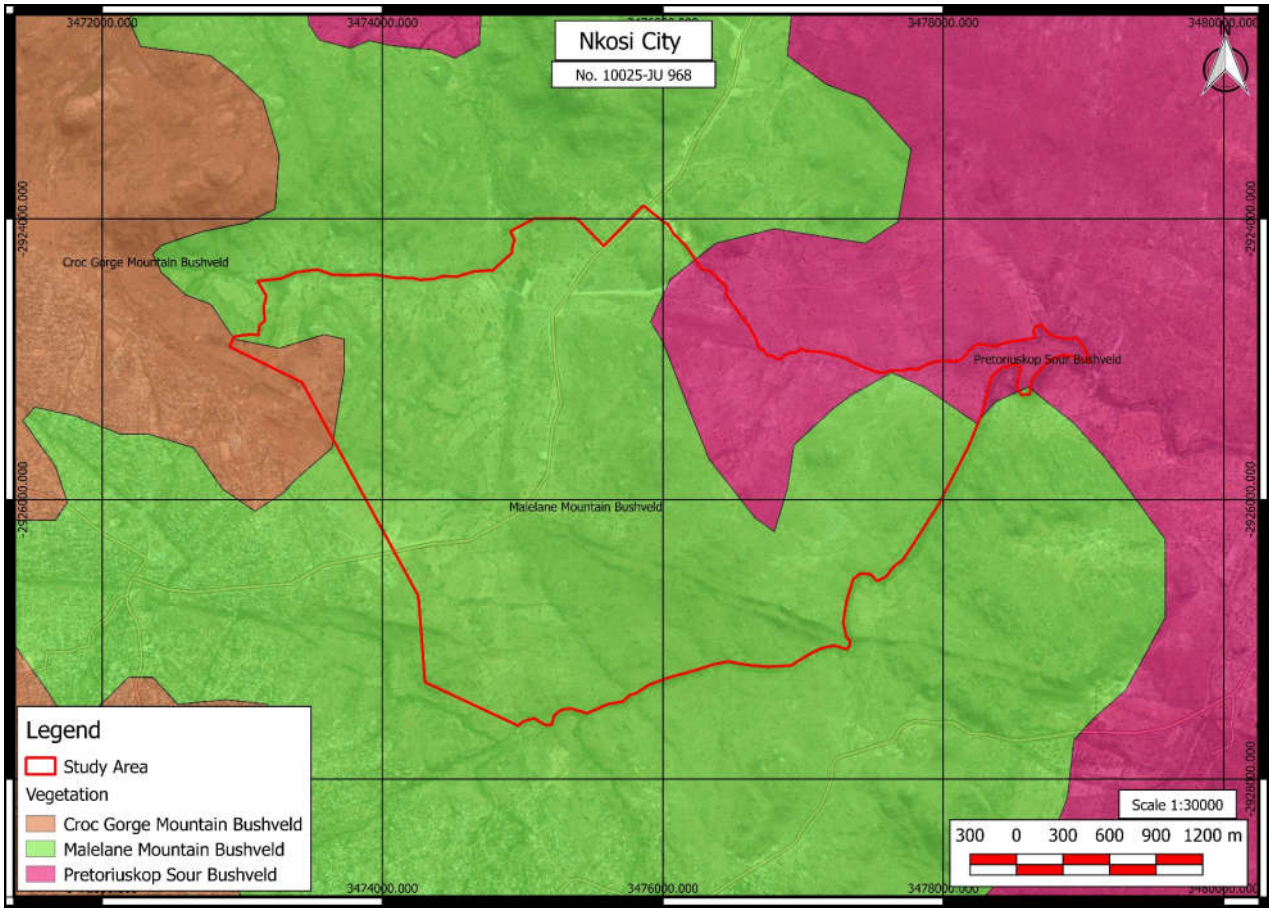


Figure 16: Vegetation map

Pretoriuskop Sour Bushveld

This vegetation unit covers the Mpumalanga Province from around Hazyview and Pretoriuskop Camp in the south-western part of the Kruger National Park to the Malekutu

area and also in the Crocodile Estates area between Nelspruit and Crocodile Gorge. Found at an altitude of 400–700 m.a.s.l. it is classified as Least Threatened, with a conservation target of 19%. Some 40% is statutorily conserved in the Kruger National Park. A very small area is also conserved in the private Mthethomusha Nature Reserve. About 16% is transformed by cultivation and by development of settlements. Alien plants include *Opuntia stricta, Lantana camara* and *Psidium guajava*. Tall tree species include *Sclerocarya birrea* and a large variety of small trees such as *Combretum apiculatum, Combretum zeyheri* and *Peltophorum africanum*. Dominant grass species that occur in the area are *Aristida congesta, Digitaria eriantha, Elionurus muticus, Eragrostis rigiodor* and *Heteropogon contortus*.

None of the vegetation units occurring on site were earmarked by the National List of Threatened Ecosystems (2011).

The South African Biodiversity Institute (SANBI) Plants of Southern Africa (SANBI, 2016) species list was consulted to obtain species that have been recorded in the 2531AC Quarter Degree Square (QDS) before. A total of 550 species have been recorded before for this QDS.

The Red List of South African Plants (SANBI, 2016), SANBI: Plants of Southern Africa (SANBI, 2016) and information obtained from the Mpumalanga Tourism and Parks Agency was consulted for information on Red List plant species. Fifteen Red List plant species are expected to occur on or surrounding the study site.

A desktop study was done prior to conducting a site visit in order to identify potential protected tree species as candidates for the study site to be marked in accordance with the legislation. Twelve species relevant to the proposed study area were identified as potentially occurring on the site, including:

- *Sclerocarya birrea* subsp. *caffra* (Maroela) (2531AC);
- *Boscia albitrunca* (Shepherd's tree) (2531CA);
- *Catha edulis* (Bushman's tea) (2530BD);

- *Elaeodendron transvaalense* (Bushveld saffron) (2531AC);
- *Combretum imberbe* (Leadwood) (2531CB);
- *Curtisia dentata* (Assegaai) (2531CA);
- *Philenoptera violacea* (Apple-leaf) (2531AC);
- *Pterocarpus angolensis* (Kiaat) (2531AC);
- *Breonadia salicina* (Matumi) (2531AC);
- *Pittosporum viridiflorum* (Cheesewood) (2531AC);
- *Prunus africana* (Red Stinkwood) (2531CA); and
- *Sideroxylon inerme* subsp. *inerme* (White milkweed) (2531CA).

Of these 12 species, six has a high likelihood to occur on the study area.

A *Vegetation* Survey was conducted by Bokamoso Landscape Architects and Environmental Consultants CC during May 2017. **Refer to Appendix D5a.**

The *Vegetation Survey* established that the greater part of the proposed development site is in a natural condition and identified three protected tree species and 13 Mpumalanga protected plants, as well as two Species of Conservation Concern.

To comply with Section 16(2) of Act 84 of 1998, protected trees found within the study area (i.e. necessitating the removal or felling of protected trees) needs to be recorded with a GPS and enumerated. An application needs to be submitted to the competent authority for the removal, cutting or any type of related disturbance of protected tree species recorded on site as stipulated in the legislation.

The Mpumalanga Biodiversity Sector Plan (MBSP) was considered in conducting the Flora assessment as requested by the Mpumalanga Tourism and Parks Agency (MTPA).
According to the MBSP most of the site comprise of Other Natural Areas, with approximately 10% of the site Heavily Modified. Large portions of the site denoted as Other Natural Areas will be preserved as environmental sensitive areas in the form of "Special: land use due to presence of ridges or watercourses.

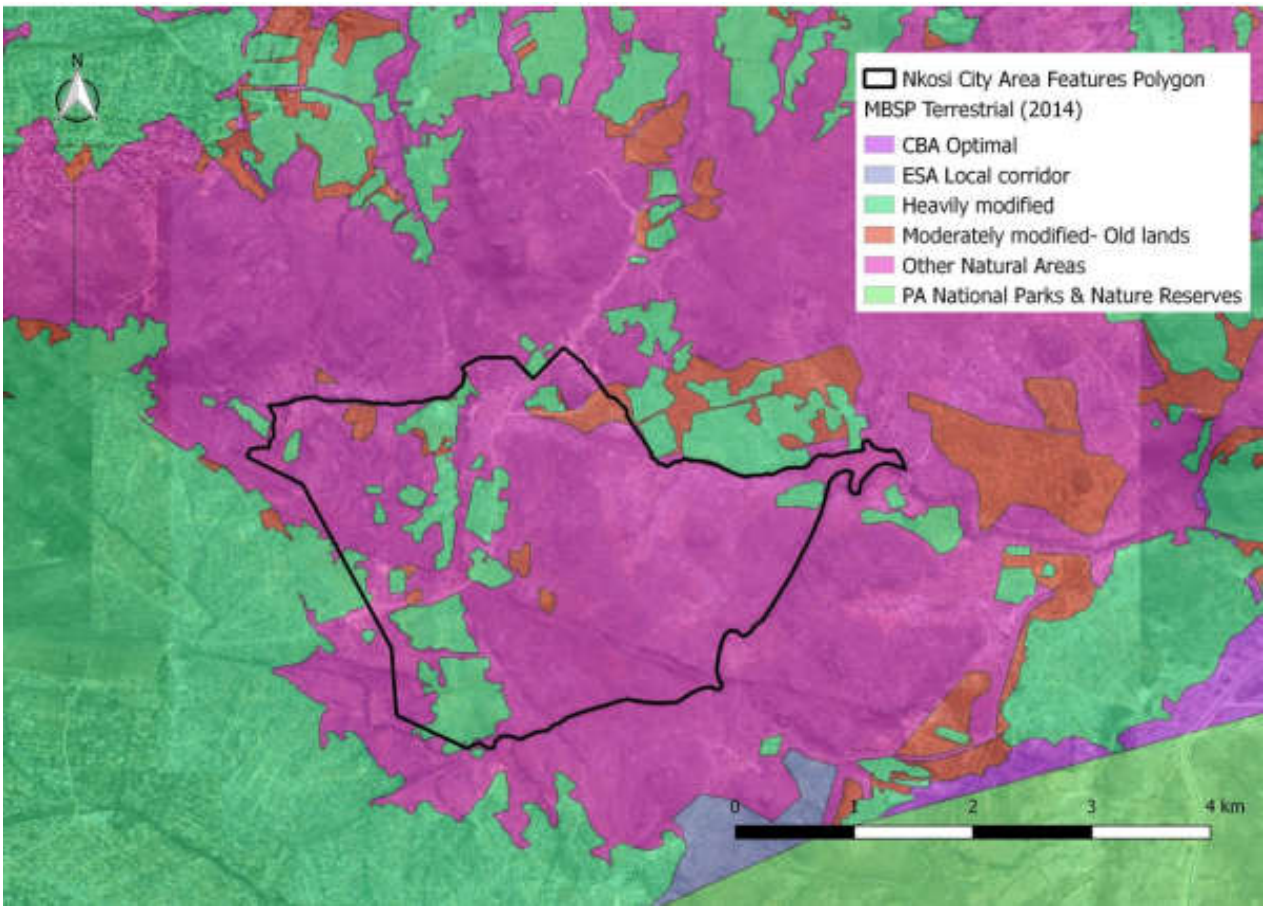


Figure 17: MBSP Terrestrial map (2014)

Table 9: Issues and impacts – Flora

	Issue/ Impact	Positive/ Negative/ Neutral ±	Mitigation Possible (Yes/No)
1	Three protected tree species identified on site	-	Yes
2	Protected plants as well as two Species of Conservation Concern were positively identified on site	-	Yes

6.2.1.1 Discussion of Issues identified, possible mitigation measures and significance of issue after mitigation – Flora

1) Three protected tree species identified on site

Mitigation measures to be included in the EMPr

Planning Phase

- Protected trees needs to be recorded i.e. GPS location logged and enumerated.
- An application has to be lodged with the Mpumalanga Department Agriculture Forestry and Fisheries (MDAFF) of for the removal/relocation of the three protected tree species identified on site.

Construction Phase

- Trees to be removed in accordance with permit conditions.

The **significance** of the issue **following mitigation** is **Low**.

2) Protected plants as well as two Species of Conservation Concern were positively identified on site

Mitigation measures to be included in the EMPr

Planning Phase

- Thirteen Mpumalanga protected plants as well as two Species of Conservation Concern were positively identified on site and these species must be rescued prior to construction commencing if occurring outside the areas designated for conservation; and
- If any Red Listed Plant Species are found outside the planned environmental sensitive areas, then a biodiversity permit for relocation to open space areas situated on site, or a destruction permit must be obtained from Mpumalanga DAFF.

Rehabilitation Phase

- Rescued plants must be returned to areas designated for conservation within the proposed development boundary.

The **significance** of the issue **following mitigation** is **Low**.

6.2.2 Fauna

Ecorex conducted a *Baseline Study: Terrestrial Fauna during June 2017* which concluded that the proposed development site covers five faunal habitats of which one – the Rocky Outcrops, have a high biodiversity value and the Thickets and Closed Woodland have a moderate biodiversity value. Although no mammal or bird species of conservation concern were located during fieldwork, 11 mammal and three bird species of conservation concern have a moderate likelihood of occurring. **Refer to Appendix D5b.**

The fauna study recommended that planned infrastructure should be located in areas with Low Biodiversity value only, and that the Rocky Outcrops with high biodiversity value be excluded from development and protected as private open space, and that a detailed botanical survey be conducted prior to issuing of Environmental Authorisation.

Approximately 30% of the site is denoted as having a Low Faunal Sensitivity with approximately 70% of the site having a Moderate Faunal Sensitivity and only approximately 10% of the site having a High Faunal sensitivity. **Refer to Figure 18 below.**

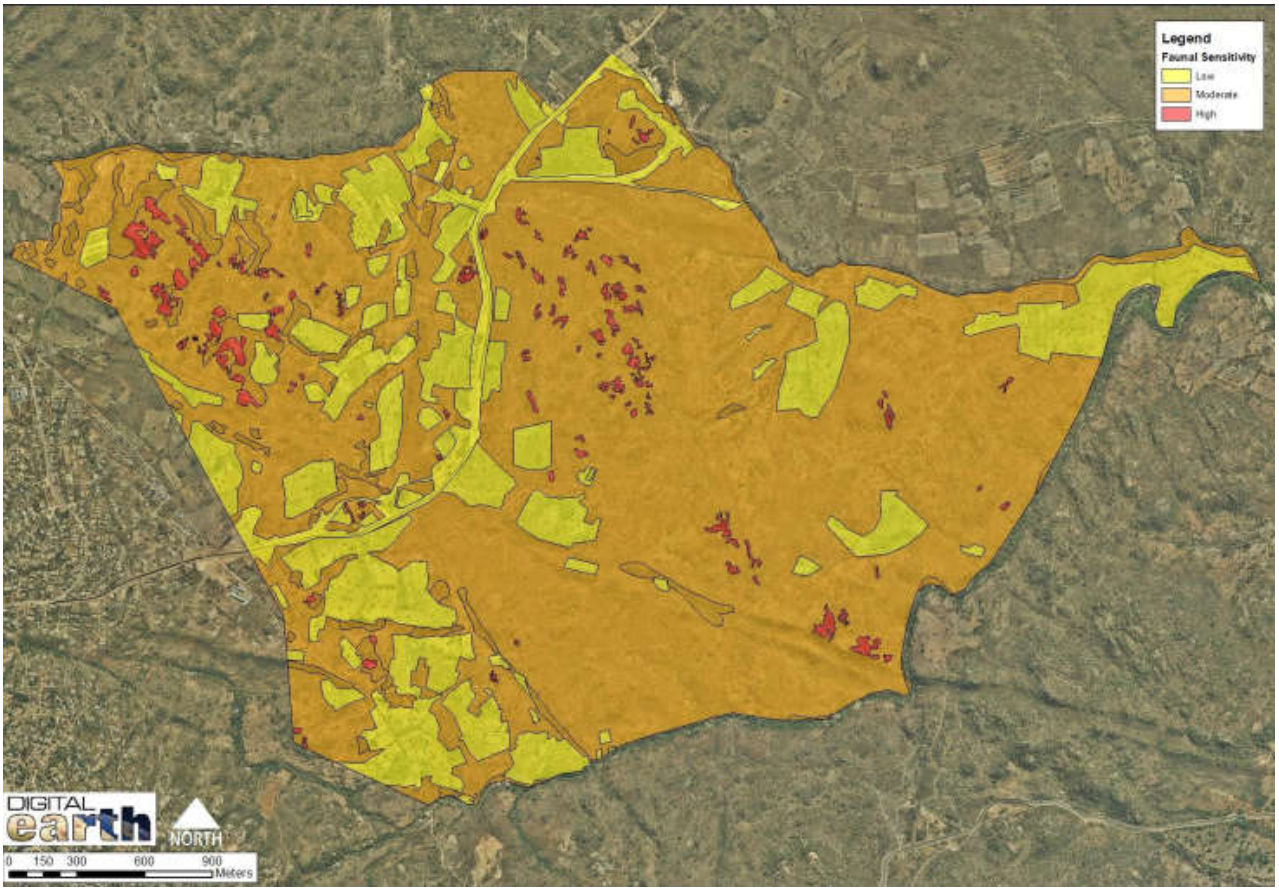


Figure 18: Faunal sensitivity map (*courtesy of Digital earth and Ecorex*)

6.2.2.1 Avifauna

The South African Bird Atlas Project 2 (SABAP2, 2017) was consulted to obtain a list of bird species occurring in the surrounding area of the study site. The study site is located in the 2525_3110 and 2520_3110 pentads in the 2531AC QDS. According to the Mpumalanga Tourism and Parks Agency, eight Red List species occur in the 2531AC QDS.

M.A.P. Scientific Services conducted an *Avifaunal Habitat Assessment* during May 2017 which concluded that only the riverine habitats can be regarded as sensitive. The proximity to the KNP could affect bird species resident within the KNP. **Refer to Appendix D5c.**

The Avifauna assessment concluded that although no Red Listed species were recorded during the survey, the Red Listed Half-collared Kingfisher and the African Finfoot have the potential off occurring along the Geraamte Spruit which forms the southern boundary of the development. Due to the proximity to the proposed development to the KNP which is an internationally Important Bird Area (IBA), the Avifauna specialist is of the opinion that habitat lost as a result of the proposed development is more likely to have a regional than a local impact. **The specialist recommended a 32m buffer along the Geraamte Spruit** considering its natural condition and the habitat it potentially provides to Red Listed bird species. **Refer to Figure 19 below.**

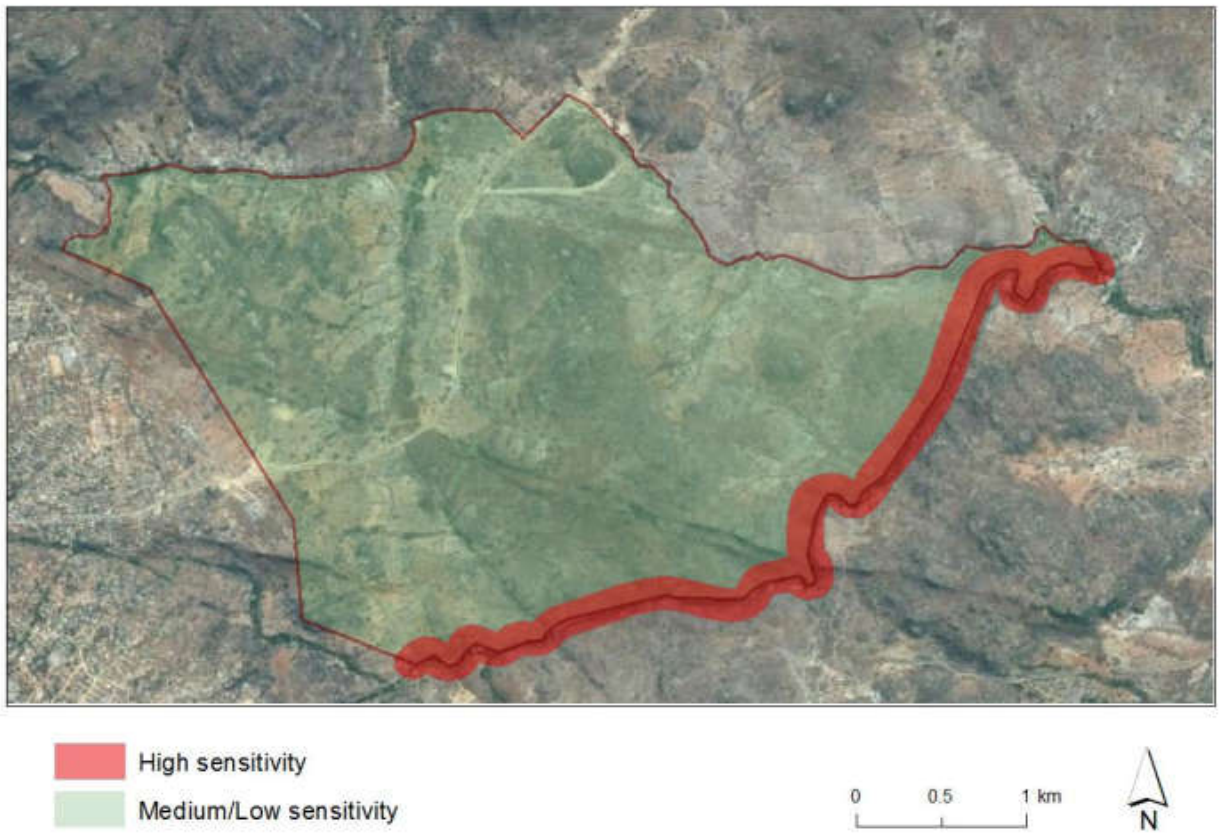


Figure 19: Faunal sensitivity map denoting 32m buffer (*courtesy of MAPPS*)

6.2.2.2 Mammals, Invertebrates, and amphibians

The Mammal Map (ADU, 2017) was consulted for potential mammal species that occur in the 2531AC QDS. Twenty mammal species have been logged for this QDS. In addition, other resources such as the Mpumalanga Tourism and Parks Agency were consulted, and a list of Red List species have been compiled that might occur in the study site.

The Frog Map (ADU, 2017) was consulted for potential amphibian species that occur in the 2531AC QDS. Twenty-one amphibian species have been logged for this QDS. Based on the information obtained from the Mpumalanga Tourism and Parks Agency, the Red List species *Hemisus guttatus*, which is regarded as Vulnerable, occurs in the 2531AC QDS.

The Reptile Map (ADU, 2017) was consulted for potential reptile species that occur in the 2531AC QDS. Fifty-two reptile species have been logged for this QDS. Based on the information obtained from the Mpumalanga Tourism and Parks Agency seven Red List species could occur on site.

Table 10: Issues and impacts – Fauna

	Issue/ Impact	**Positive/ Negative/ Neutral ±**	**Mitigation Possible (Yes/No)**
1	Highly sensitive environmental areas occur on site	-	Yes
2	Red Listed Half-collared Kingfisher and the African Finfoot have the potential of occurring along the Geraamte Spruit	-	Yes
3	Due to proximity to KNP habitat lost as a result of the proposed development is more likely to have a regional than a local impact	-	Yes

6.2.3.1 Discussion of Issues identified, possible mitigation measures and significance of issue after mitigation – Fauna

1) Highly sensitive environmental areas occur on site

Mitigation measures to be included in the EMPr

Planning Phase

- Planned infrastructure should be located in areas with Low Biodiversity value only;
- Rocky Outcrops with high biodiversity value be excluded from development and protected as private open space; and
- A detailed botanical survey be conducted prior to issuing of Environmental Authorisation.

Construction Phase

- Sensitive environmental areas must be denoted as "No-Go" areas prior to construction commencing.

The **significance** of the issue **following mitigation** is **Low**.

2) Red Listed Half-collared Kingfisher and the African Finfoot have the potential of occurring along the Geraamte Spruit

Planning Phase

- **Considering that nearly 50% (464ha) of proposed development has been zoned "Special" in order to preserve environmental sensitive areas, the EAP is of the opinion that the 32m buffer proposed along the Geraamte Spruit is sufficient habitat for birds potentially occurring on site.**

Construction Phase

- Sensitive environmental areas must be denoted as "No-Go" areas prior to construction commencing.

The **significance** of the issue **following mitigation** is **Low**.

3) Due to proximity to KNP habitat lost as a result of the proposed development is more likely to have a regional than a local impact

Planning Phase

- **Considering that nearly 50% (464ha) of proposed development has been zoned "Special" in order to preserve environmental sensitive areas, the EAP is of the opinion that the proposed 32m buffer proposed along the Geraamte Spruit is sufficient.**

Construction Phase

- Sensitive environmental areas must be denoted as "No-Go" areas prior to construction commencing.

The **significance** of the issue **following mitigation** is **Low**.

6.2.3 Aquatic Biodiversity

According to the SANBI GIS map, the proposed development site falls in Aquatic Biodiversity Sub-catchment 5 which means the ecosystem must be maintained. **Refer to Figure 20 below.**

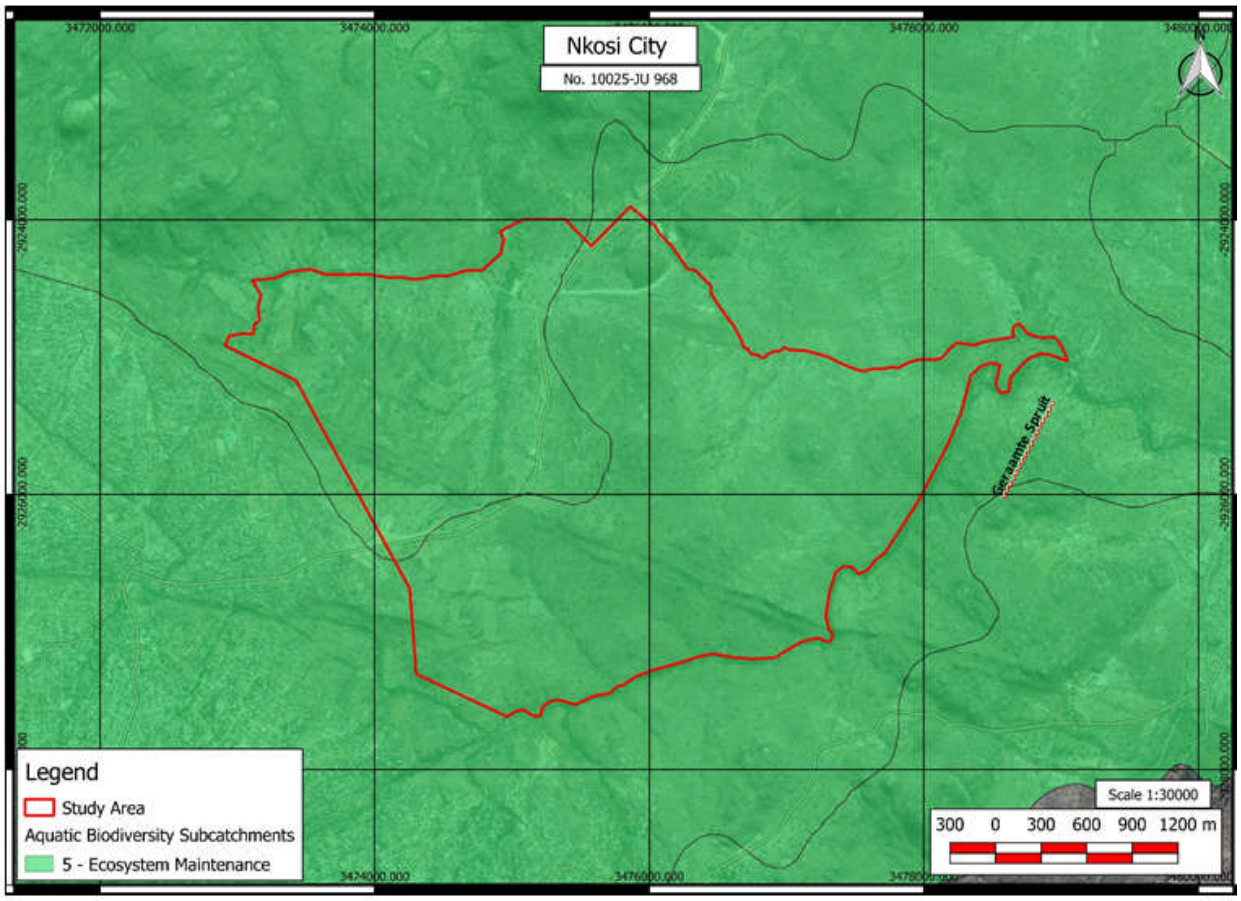


Figure 20: Aquatic biodiversity map

A *Baseline Aquatic Assessment* was conducted by Iggdrasil Scientific Services during May 2017 and a wet season *2018 Baseline Aquatic Assessment* was conducted during March 2018. **Refer to Appendix D5d and D5e.**

Several un-named non-perennial tributaries of the Nsikazi River flow through the proposed development site. The Nsikazi River in turn flows into the Crocodile River which forms the southern boundary of the Kruger National Park.

Bridge crossings

Several bridge crossings are planned as part of the proposed development. GPS coordinates of the proposed bridge crossings are listed below as requested by MDRADLEA.

Nkosi City Internal Roads Stream Crossings		
Description	**East**	**South**
1	31° 12' 39.593" E	25° 24' 36.806" S
2	31° 12' 44.693" E	25° 24' 32.000" S
3	31° 12' 51.127" E	25° 24' 29.884" S
4	31° 12' 54.076" E	25° 24' 23.150" S
5	31° 13' 0.649" E	25° 24' 20.637" S
6	31° 12' 50.665" E	25° 24' 16.417" S
7	31° 12' 56.342" E	25° 24' 11.975" S
8	31° 12' 53.198" E	25° 24' 10.285" S
9	31° 12' 50.490" E	25° 24' 8.667" S
10	31° 12' 8.935" E	25° 23' 45.965" S
11	31° 12' 36.993" E	25° 23' 46.775" S
12	31° 13' 1.476" E	25° 23' 42.827" S
13	31° 13' 21.174" E	25° 23' 54.126" S
14	31° 13' 47.795" E	25° 23' 50.880" S
15	31° 13' 45.106" E	25° 23' 58.344" S
16	31° 13' 54.169" E	25° 24' 4.759" S
17	31° 13' 59.229" E	25° 24' 7.565" S
18	31° 14' 21.935" E	25° 24' 11.962" S
19	31° 14' 10.036" E	25° 24' 29.207" S
20	31° 13' 44.924" E	25° 24' 52.599" S
21	31° 13' 49.353" E	25° 24' 59.747" S
22	31° 13' 34.993" E	25° 24' 57.463" S
23	31° 13' 30.069" E	25° 24' 54.530" S
24	31° 13' 13.497" E	25° 25' 0.169" S
25	31° 12' 53.393" E	25° 24' 52.365" S
26	31° 12' 46.368" E	25° 24' 51.953" S
27	31° 12' 56.487" E	25° 24' 41.163" S
28	31° 13' 9.740" E	25° 24' 28.181" S
29	31° 13' 5.864" E	25° 24' 23.907" S

Type of bridge crossing

In terms of the type of stream crossings to be implemented, the safety of the community (both pedestrians and road users) is a key consideration and therefore we generally envisage the installation of concrete pipe- or box culverts to ensure the affected roads and associated crossings are useable during typical wet weather events. The alternative use of at-grade stream crossings (such as concrete drifts and/or shallow channels) potentially puts pedestrians and road users at risk when they may be required to cross

swollen streams during wet weather and is therefore not preferred. The bridge structures will not be designed to act as dams/ attenuation structures where water are "kept back". **The principle will be to allow the water to flow freely underneath the bridges.**

An aquatic assessment can include the evaluation of physical aquatic habitat attributes by means of an Integrated Habitat Assessment System (IHAS) and evaluation of the chemical attributes by means of water quality monitoring. Aquatic species response can be surveyed by means of species composition utilising the South Africa Scoring System version 5 (SASS5), riparian vegetation survey by means of the Riparian Vegetation Response Assessment Index (VEGRAI), an fish assemblages by means of the Fish Response Assessment Index (FRAI). For the purpose of the baseline aquatic assessment biotic integrity was assessed by means of IHAS and SASS5).

The *Baseline Aquatic Assessment* recommend that a follow-up biomonitoring survey be conducted which includes a fish assessment during the wet season. Due to elevated Dissolved Oxygen (DO) levels possibly indicating eutrophication it was recommended that diatoms be added as a biomonitoring tool during future surveys.

The *2018 Baseline Aquatic Assessment* concluded that the proposed development site is not situated within an area earmarked for conservation. Chemical parameters were within the Total Water Quality Ranges (TWQRs) of the South African Water Quality Guidelines except for DO at sampling locations NK6, NK7 and NK10, which could be an indication of Eutrophication. Sampling locations are denoted in **Figure 21 below.** Sampling points NK6, NK7, NK8 and NK9 all occur within tributaries of the Nsikazi River flowing into the Crocodile River which borders the Kruger National Park. All the aforementioned sites are moderately modified and have a habitat highly suitable for diverse macro-invertebrates.

Due to the potential impact on the Kruger National Park the aquatic specialist recommended that Biomonitoring be conducted at quarterly intervals during the construction phase and bi-annually during the operational phase of Nkosi City at all sampling locations sampled during the abovementioned surveys, including the control

point NK10. Future assessments should include the latest version of SASS, IHAS, MIRAI, VEGRAI, FRAI and diatoms.

The proposed formalised development will be more advantageous than the current activities carried out on site e.g. as washing of laundry, subsistence farming and sand mining within water courses.

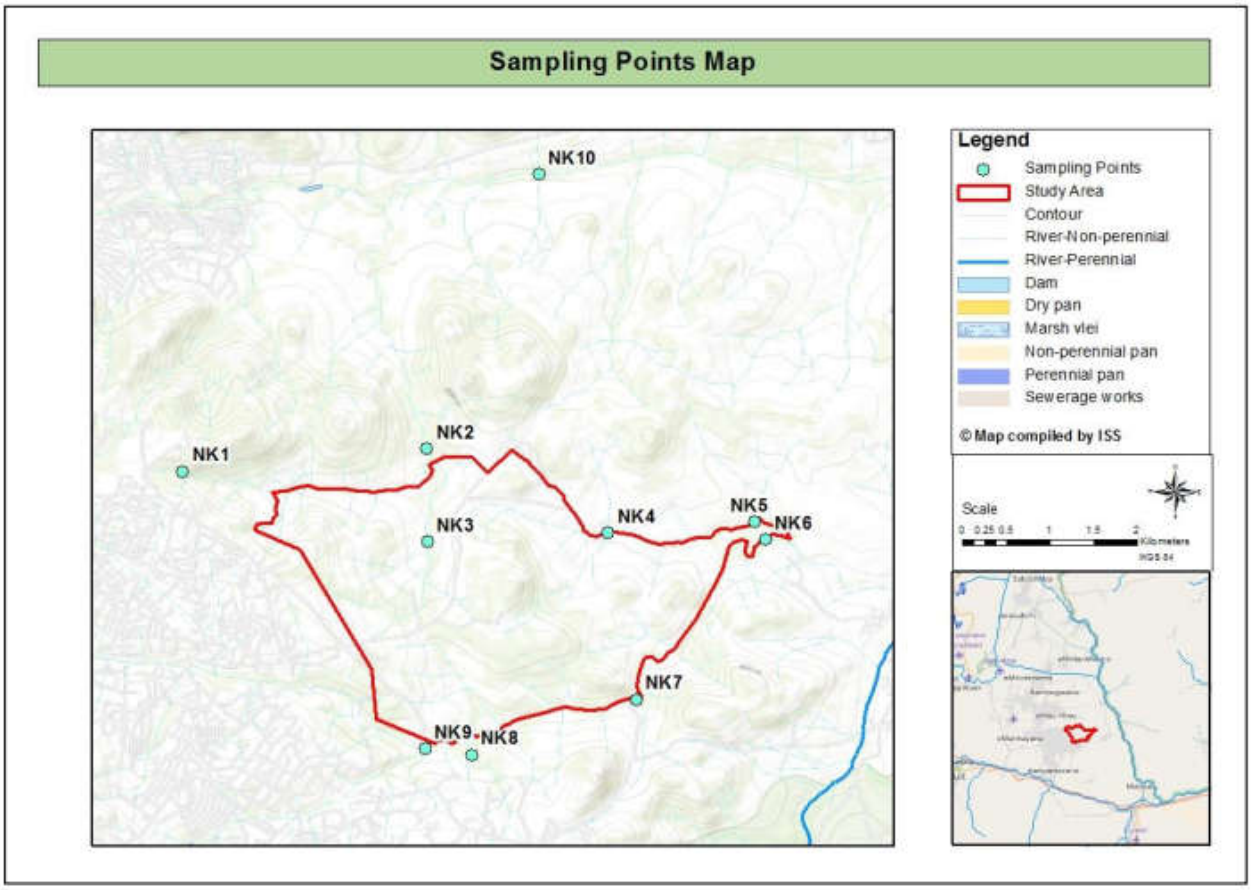


Figure 21: Aquatic assessment sampling locations (courtesy of *Iggdrasil Scientific Services*)

Table 11: Issues and impacts – Aquatic

	Issue/ Impact	Positive/ Negative/ Neutral ±	Mitigation Possible (Yes/No)
1	Non-perennial tributaries of the Nsikazi River flow through the proposed development site into the Crocodile River which forms the southern boundary of the Kruger National Park	-	Yes
2	Dissolved Oxygen levels indicate possible Eutrophication	-	Yes

6.2.3.1 Discussion of Issues identified, possible mitigation measures and significance of issue after mitigation – Aquatic

1) Non-perennial tributaries of the Nsikazi River flow through the proposed development site into the Crocodile River which forms the southern boundary of the Kruger National Park

Mitigation measures to be included in the EMPr

Planning Phase

- Wet season Aquatic assessment included fish assessment as recommended by the aquatic specialist.

Construction Phase

- Mitigation measures recommended in the Aquatic assessment must be strictly adhered to during the construction phase; and
- Biomonitoring, including the control point (NK10), to be conducted at **quarterly** intervals during the construction phase.

Operational Phase

- Biomonitoring, including the control point (NK10), to be conducted at **bi-annual** intervals during the construction phase.

The **significance** of the issue **following mitigation** is **Low**.

2) Dissolved Oxygen levels indicate possible Eutrophication

Mitigation measures to be included in the EMPr

Construction Phase

- Future Aquatic assessments to include Diatoms as biomonitoring tool to confirm eutrophication presence and source.

The **significance** of the issue **following mitigation** is **Low**.

7. THE DESCRIPTION OF THE EXISTING SOCIAL ENVIRONMENT

7.1 Archaeology/Cultural History

A Phase 1 Heritage Impact Assessment (HIA) as provided for in the National Heritage Resources Act (Act 25 of 1999) was conducted for the proposed development by Bokamoso Landscape Architects and Environmental Consultants CC during October 2017. **Refer to Appendix D6.**

The report concluded that an existing cemetery occur within the proposed development site. The Heritage Specialist recommended that the cemetery be conserved *in situ*. The developer plans to expand the existing cemetery and this land use has been catered for as part of the proposed layout. The report was submitted the Mpumalanga Heritage Resources Agency for review in order to obtain a Record of Decision.

Table 12: Issues and impacts – Archaeology

	Issue/ Impact	Positive/ Negative/ Neutral ±	Mitigation Possible (Yes/No)
1	An existing cemetery occurs on site which the heritage specialist recommended be preserved in situ	-	Yes

7.1.1 Discussion of Issues identified, possible mitigation measures and significance of issue after mitigation – Archaeology

1) An existing cemetery occurs on site

Mitigation measures to be included in the EMPr

Planning Phase

- The existing cemetery occurring on site must be preserved in situ; and
- HIA Report was submitted to the Mpumalanga Heritage Resources Agency in order to obtain a Record of Decision.

The **significance** of the issue **following mitigation** is **Low**.

7.2 Social and economic aspects of the proposed development

Demacon conducted a *Market Study* during November 2017 in order to ascertain the demographic profile, economic profile and trends and development and growth potential of the proposed Nkosi City Integrated Human Settlement Development. **Refer to Appendix D7.**

The Market Study summarised that the Nkosi City project will span over a period of 15 to 20 years with an estimated capital investment of R 2.5 billion which could potentially create 11,000 jobs during construction. During the operational phase Nkosi City could potentially create 3000 jobs. Nkosi City could potentially contribute R 34 billion to the fiscus by means of property rates and taxes payable.

7.2.1 Social Facilities and Economic opportunities

There are already some social facilities such as schools, clinics, small shopping facilities, public transport in the immediate surrounding area. New schools, clinics, hospitals, police

stations, filling stations, business developments etc. will be needed in order to cater for the increased number of residential units in the area.

The proposed development will result in upliftment of a disenfranchised community who will benefit from the creation of sustainable living.

Dovetail Properties follows an **upliftment philosophy** which focuses on developments that uplift communities by creating jobs and Small, Medium to Micro-sized Enterprises (SMMEs), education programmes.

Need for housing

The provision of RDP houses is a competence of the Department of Human Settlements and Local Municipalities. The City of Mbombela has a register of 35 000 people waiting for houses. The RDP houses associated with the "residential 1" land use will cater for approximately 2 300 of the 35 000 backlog.

The walk-up apartments are intended to be rental stock, to cater for individuals who do not qualify for RDP housing. The Bonded/GAP Housing will be sold and are intended for families with an income of R 15 000. Commercial banks have a subsidy scheme which assist Bonded/GAP Housing buyers with deposits.

The development will cater for housing in the form of RDP houses, Social housing (apartments), bonded housing and urban farms. The development will also cater for Education by means of preschools, primary schools, secondary schools, a college, an agricultural training centre and the Dovetail Foundation training centre. The development will also cater for a provincial hospital and a clinic as well as the SPCA. Institutional offices catered for as part of the development include Fire and Emergency Services, a Police Station, a Post Office and Government Offices. Retail space will include a Fresh Produce Market, Entertainment and Restaurants, a Filling Station and Fitment Centre etc. In terms of Tourism the proposed development will cater for a hotel, lodge and B&B facilities. Public Transport will be provided for in the form of bus terminals and Taxi Ranks.

Community facilities planned as part of Nkosi City include a Community Centre, Public Swimming Pool, Orphanage, Churches, Library, an existing cemetery, parks and recreational areas, and a dam with picnic facility.

The following infrastructure is planned as part of the proposed Nkosi City development: Electrical substations, mini substations and LV reticulation; Road upgrades and associated stormwater infrastructure; a sewerage treatment plant, pump stations and bulk sewerage lines; a new Water Treatment Plant at Primkop Dam, on-site water reservoirs and bulk water lines; telecommunication infrastructure and Wi-Fi and a biomass renewable energy plant.

Approximately 234ha of the total 968ha surface area has been set aside for Agriculture. The **urban farm concept** entails stands with a size of approximately 2 500m^2 which will be utilised for intensive agriculture flanked by bonded stands and RDP houses. The aim is to provide jobs for the occupants of the RDP houses and food security to the community. Agricultural specialists will train community members in intensive farming to ensure success of the Nkosi City Integrated Human Settlement which is the first of its kind in South Africa.

Table 13: Issues and impacts – Social

	Issue/ Impact	**Positive/ Negative/ Neutral ±**	**Mitigation Possible (Yes/No)**
1	Housing backlog in Mbombela	+	NA
2	Need for social facilities	+	NA
3	Need for economic opportunities	+	NA

7.2.1.1 Discussion of Issues identified, possible mitigation measures and significance of issue after mitigation – Social

1) Housing backlog in Mbombela

Mitigation measures to be included in the EMPr

Planning Phase

- Beneficiaries of the RDP and subsidised housing, must be selected form the City of Mbombela list of individuals waiting to receive housing.

The **significance** of the issue **following mitigation** is **Low**.

2) Need for social facilities

Mitigation measures to be included in the EMPr

Planning Phase

- Social facilities planned as part of Nkosi City must be denoted on the layout map which include a Community Centre, Public Swimming Pool, Orphanage, Churches, Library, an existing cemetery, parks and recreational areas, and a dam with picnic facility.

The **significance** of the issue **following mitigation** is **Low**.

3) Need for economic opportunities

Mitigation measures to be included in the EMPr

Planning Phase

- The approximately 11 000 job opportunities which will be created during construction and approximately 3 000 job opportunities which will be created during the operational phase of Nkosi City must be assigned to residents within Ward 2 of Pioneer in which the proposed development site is located.

The **significance** of the issue **following mitigation** is **Low**.

7.3 Visual Aspects

Bokamoso Landscape Architects and Environmental Consultants CC conducted a *Visual Impact Assessment* during May 2018. **Refer to Appendix D8.**

MDARDLEA commented on the Draft Scoping Report and requested that a Visual Impact Study must be undertaken in consultation with SANParks due to the proximity of the proposed development site to the KNP. The assessment was conducted in collaboration with SANParks with a site inspection having been carried out on 26 February 2018 with two SANParks officials being present who provided inputs and suggestions. A meeting was also held during March 2018 between the developer and the KNP Senior Manager: Park Planning and Conservation management.

The study concluded that due to the existing visual infrastructure such as townships the visual impact of Nkosi City will be low to moderate prior to implementing mitigation measures and low subsequent to implementing mitigation measures. The proposed Nkosi City development will be visually absorbed into the surrounding context, but could potentially impact on the tourism value of the KNP.

The study recommended that development within the eastern most corner be prevented as far as possible. Structure designs should cater for natural colours and soft lines, while lighting at night should be soft and designed to shine downwards.

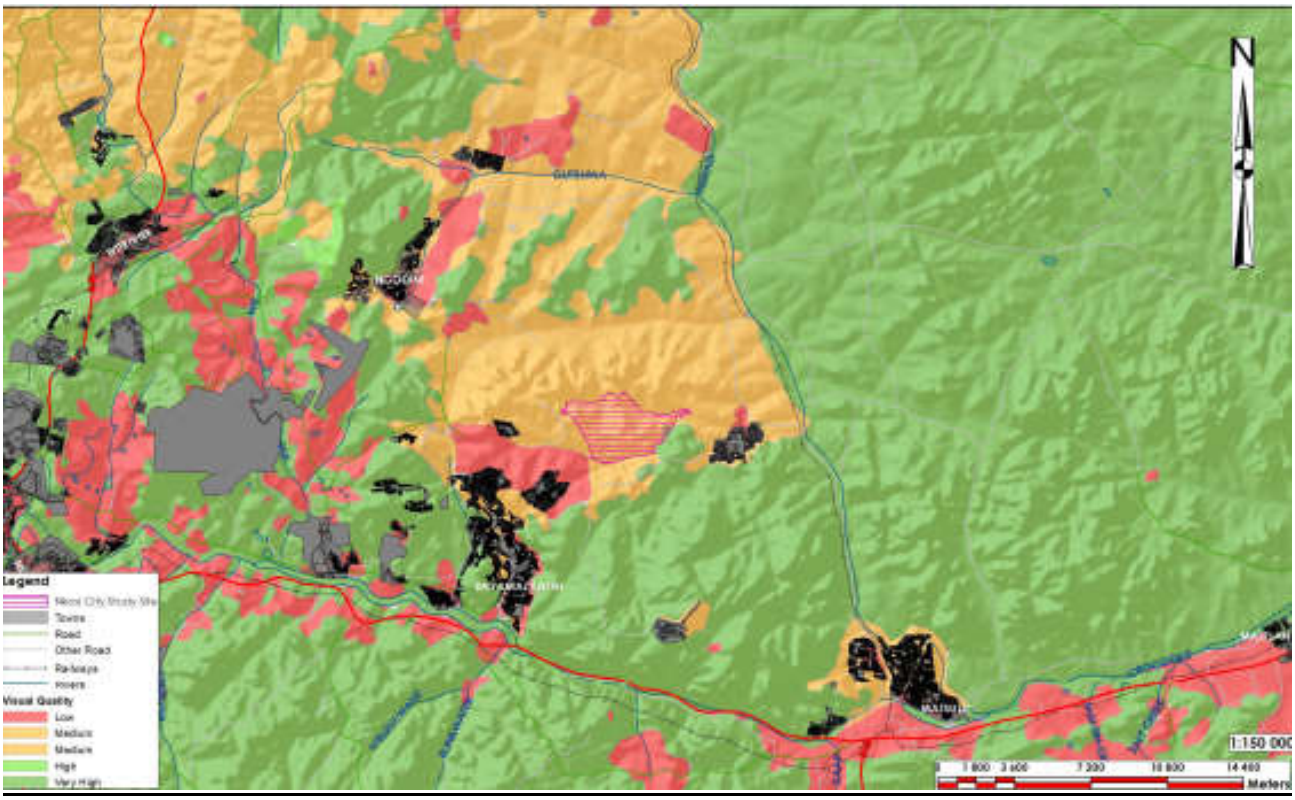


Figure 22: Visual quality map

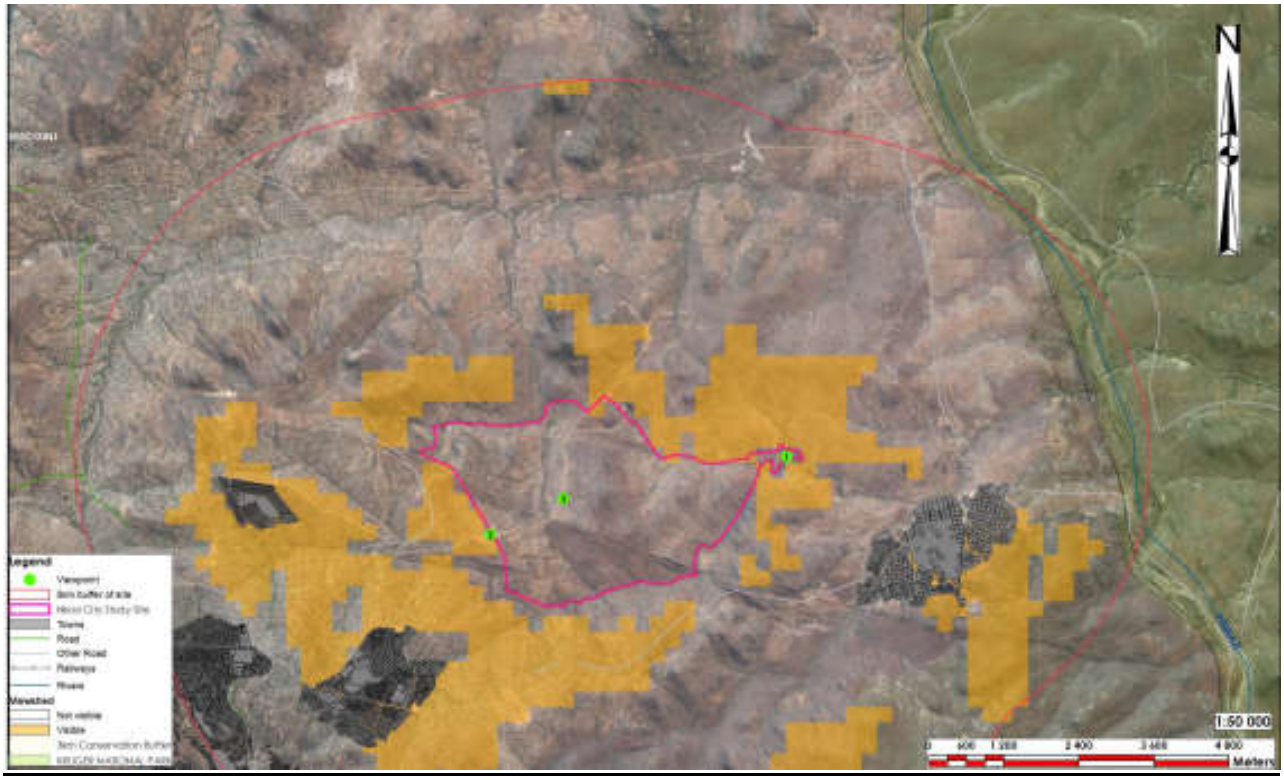


Figure 23: Viewpoints and view shed analysis

Table 14: Issues and impacts – Visual

	Issue/ Impact	Positive/ Negative/ Neutral ±	Mitigation Possible (Yes/No)
1	Proximity of the proposed development site to the KNP	-	Yes

7.3.1 Discussion of Issues identified, possible mitigation measures and significance of issue after mitigation – Visual

1) Proximity of the proposed development site to the KNP

Mitigation measures to be included in the EMPr

Planning Phase

- Development within the eastern most corner be prevented as far as possible.
- Structure designs should cater for natural colours and soft lines, while lighting at night should be soft and designed to shine downwards.

Construction Phase

- Lighting during construction phase should be focused on temporary structures and construction activities. Reflectors could be used to avoid light spillage.

The **significance** of the issue **following mitigation** is **Low**.

7.4 Air quality Impacts

The following are the main, existing and future, noise sources that could affect the study area:

- Traffic on the existing tar road transecting the site; and
- Kruger Mpumalanga International Airport situated 10km west of the proposed development site.

The main noise sensitive sites within close proximity to the proposed development area are:

- The Kruger National Park situated 5km to the east;
- The Mthethomusha Nature Reserve situated 3.5km to the southeast; and
- The Township of Daantjie.

Table 15: Issues and impacts – Air quality

	Issue/ Impact	Positive/ Negative/ Neutral ±	Mitigation Possible (Yes/No)
1	Proximity of the proposed development to the Kruger National Park	-	Yes
2	Proximity to the Township of Daantjie	-	Yes

7.4.1 Discussion of Issues identified, possible mitigation measures and significance of issue after mitigation – Air quality

1) Proximity of the proposed development to the Kruger National Park

Mitigation measures to be included in the EMPr

Planning Phase

- Dust suppression by means of water cart to be planned for;
- Plan for work hours to comply with Municipal By-laws.

Construction Phase

- Construction activities may only be carried out from 07:00 to 17:00 daily as to prevent potential impact on the Kruger National Park and the adjacent Township of Daantjie;
- Dust suppression by means of water cart must be applied if dust becomes a nuisance during winter months; and
- Construction activities should comply with Municipal By-laws and conform to NHBRC Standards.

The **significance** of the issue **following mitigation** is **Low**.

2) Proximity to the Township of Daantjie

Mitigation measures to be included in the EMPr

Construction Phase

- Construction activities may only be carried out from 07:00 to 17:00 daily as to prevent potential impact on the Kruger National Park and the adjacent Township of Daantjie;

- Construction activities should comply with Municipal By-laws and conform to NHBRC Standards.

The **significance** of the issue **following mitigation** is **Low**.

7.5 Sense of Place

Sense of place is the subjective feeling a person gets about a place by experiencing the place visually, physically, socially and emotionally. The "sense of place" of an area is one of the major contributors to the "image of the area".

The image of an area consists of two main components, namely "place structure" and "sense of place". These could be defined as the following:

- "Place structure" refers to the arrangement of physical place making elements within a unique structure that can be easily legible and remembered; and
- The "sense of place" is the subjective meaning attached to a certain area by individuals or groups and is linked to its history, culture, activities, ambience, and the emotions the place creates.

The natural environment remaining on the proposed development site as well as to the north, south and east are regarded as the main place making structure.

The "sense of place" of the study area is mainly created by attractive natural views from the higher lying areas and by the non-perennial streams transecting the site. The proposed development, especially the agricultural component and the natural areas to be retained as environmental sensitive and conservation areas, will contribute to the sense of place.

The aesthetic value of the area is considered to be high due to natural areas remaining which have been incorporated into the preliminary layout for conservation purposes.

The proposed development could improve the "spirit of place" or genius loci by combining the human social network and the genius loci by establishing a development which incorporates large natural open spaces that are true to the surrounding character and "sense of place".

7.6 Services

7.6.1 Water

Mbombela Local Municipality is the responsible Water Service Authority in terms of the Water Services Act (Act No. 108 of 1997). There are currently no municipal water services available on site. The competent authority confirmed that they regard the non-availability of water as a potential "fatal flaw" and the importance of the confirmation of services was emphasized by the relevant authorities from the outset.

Endecon Ubuntu (Pty) Ltd Engineering Consultants concluded in their ***Bulk Civil Engineering Services Report*** dated March 2018 that the proposed development's water demand will be 9Mℓ to 10Mℓ per day and up to 20Mℓ per day including the irrigation demand. The report addresses provisional planning of civil engineering services. The Nsikazi South water supply area within which the proposed development site fall, has a storage capacity of 68.5Mℓ comprising of 16 reservoirs supplying the Daantjie and Msogwaba village. **Refer to Appendix D9a.**

Existing municipal bulk water infrastructure will have to be upgraded and storage doubled by 2023 in order to cater for future development within the area.

Additional storage capacity is required to cater for the proposed development and therefore it is proposed that the existing Primkop Dam be raised in order to increase storage capacity as short term water supply solution.

A *Pre-Feasibility Study for Private Finance Development of Primkop Dam and Mbombela Dam* was compiled by CAPIC during February 2018. **Refer to Appendix D9b.**

Bulk water supply within the City of Mbombela is currently constraining future development. In order to address the need for bulk water and to secure water supply to the proposed Nkosi City Integrated Human Settlement, the developers of Nkosi City developed a bulk water supply strategy which entails the raising of the privately owned Primkop Dam by means of private sector financing, and the development of a new Mbombela Dam using private sector financing.

Due to fiscus funding constraints and the laborious process associated with the construction of a new regional dam, both the City of Mbombela and the Mpumalanga Department of Water and Sanitation agreed to explore the possibility of developing the dams by means of private finance.

On-site dam vs two new external dams (Geraamte Spruit and Hlauhlau)
Endecon Ubuntu (Pty) Ltd Engineering Consultants compiled a *Short Report: Investigation of the status and yield potential of the existing dam in Nkosi City Land* dated May 2018. **Refer to Appendix D9c.**

The purpose of the short report on the existing on site dam is to keep the dam and use it as a balancing dam for agricultural irrigation water. The dam wall height is approximately 7m and the dam covers a surface area of 8 000m^2 with an average depth of 2m. The dam yield of 16 000m^3 is insufficient to make any difference in the provision of potable water. It could however assist as source during the construction phase of Nkosi City. The small on site dam could serve an important purpose once the proposed external two dams are developed. Water could be pumped from the external dams to the existing on site dam from where the water could be purified and distributed.

IWR compiled a *Yield Analysis of possible local dams for Nkosi City* dated May 2018 on the two external dams (Geraamte Spruit and Hlauhlau) which show a more sustainable yield.

Although the Geraampte Spruit Dam occurs within the Geraampte Spruit which forms the southern boundary of the proposed Nkosi City, the construction of this dam will result in flooding part of the property situated south of Nkosi City, thus requiring Landowner permission. The proposed Hlauhlau Dam occurs 3km due north of Nkosi City within the Hlauhlau River.

Taking all factors into account, it is estimated that a yield of about 1.35 million m^3 per annum is achievable for a dam with a full supply capacity of 2 million m^3 on the Geraamte Spruit while a dam with a full supply capacity of 2 million m^3 on the 2 million m^3 at the upper Hlauhlau site will provide a yield of approximately 0.90 million m^3 per annum. The combined yield is approximately 2.25 million m^3 per annum or 2 250Mℓ per annum. The potable water requirements for Nkosi City is 5.9Mℓ per day or 2 153 Mℓ per annum. **Refer to Appendix D9d.**

These dams could serve the potable water demand generated by Nkosi City. It will be required to cater for the ecological reserve based on a C-Class ecological category, which will reduce the yield of the dam slightly.

It is recommended that a detailed investigation into the two dams be conducted and that this information be included into a feasibility report. Firstly, the feasibility in terms of cost needs to be compared to the Primkop Dam option. The Primkop Dam upgrade is supported by the CoM and DWS as it could be incorporated in the master planning for CoM. The two dams at Nkosi City will form an isolated source for Nkosi only and the possibility exists that CoM may not want to develop the dams as a water source.

It is thus proposed that the following be conducted:

- Geometric design of the two dams in order to do a cost estimation;
- Geotechnical investigation at dam wall positions;
- Detailed (more detail) hydrology assessment; and
- Presentation to City of Mbombela and the Inkomati Usutu Catchment Management Area (IUCMA).

If this water supply option is selected, separate Environmental Authorisation and a Water Use Licence Application will be required for the construction of both dams.

Water losses and water conservation

Water losses within Nsikazi South water supply area within which the proposed Nkosi City development is situated is estimated at 61%. The area has a storage capacity of 68.5 Mℓ comprising of 16 reservoirs. The cost of water losses within the Nsikazi South water supply area is the highest in Mbombela Local Municipality. There is significant potential to implement water conservation and water demand management measures such as pressure management and leakage management including the refurbishment of old water reticulation pipelines in Nsikazi South. The implementation of water conservation measures will however not remove the need for sourcing additional water supply to meet future water demand within Nsikazi South.

Primkop Dam Upgrade

Liaison has commenced with the owners of the Primkop Dam, the White River Valley Conservation Board (WRVCB), regarding raising the Primkop Dam wall. WRVCB gave their written support in principle dated 29 January 2018 (Appendix B6), and again in a letter dated 24 April 2018 (Appendix B7). A Memorandum of understanding for raising of the Primkop Dam has been drafted and is currently under review by the legal counsel of the WRVCB.

According to the *Bulk Water Supply Options for Nkosi City* compiled by GLS (Refer to Appendix E of Appendix D9a), raising of the Primkop Dam will result in an additional, yield of 10 million cubic meters per annum or approximately 27.4 Mℓ per day. Three options exist for water supply from Primkop Dam:

- Option 1: A new Water Treatment Plant (WTP) can be established at Primkop Dam to supply Nkosi City and possibly the northern portions of Nsikazi South, currently fed from the Crocodile River;
- Option 2: A new Water Treatment Plant (WTP) can be established at Primkop Dam to supply the northern portions of Nsikazi South which will free up water

in the Crocodile River which can then be supplied to Nkosi City via the Karino WTP or the Kanyamazane WTP;

- The additional yield form Primkop Dam can be released into the Crocodile River which will allow supply to Nkosi City via the Karino WTP or the Kanyamazane WTP.

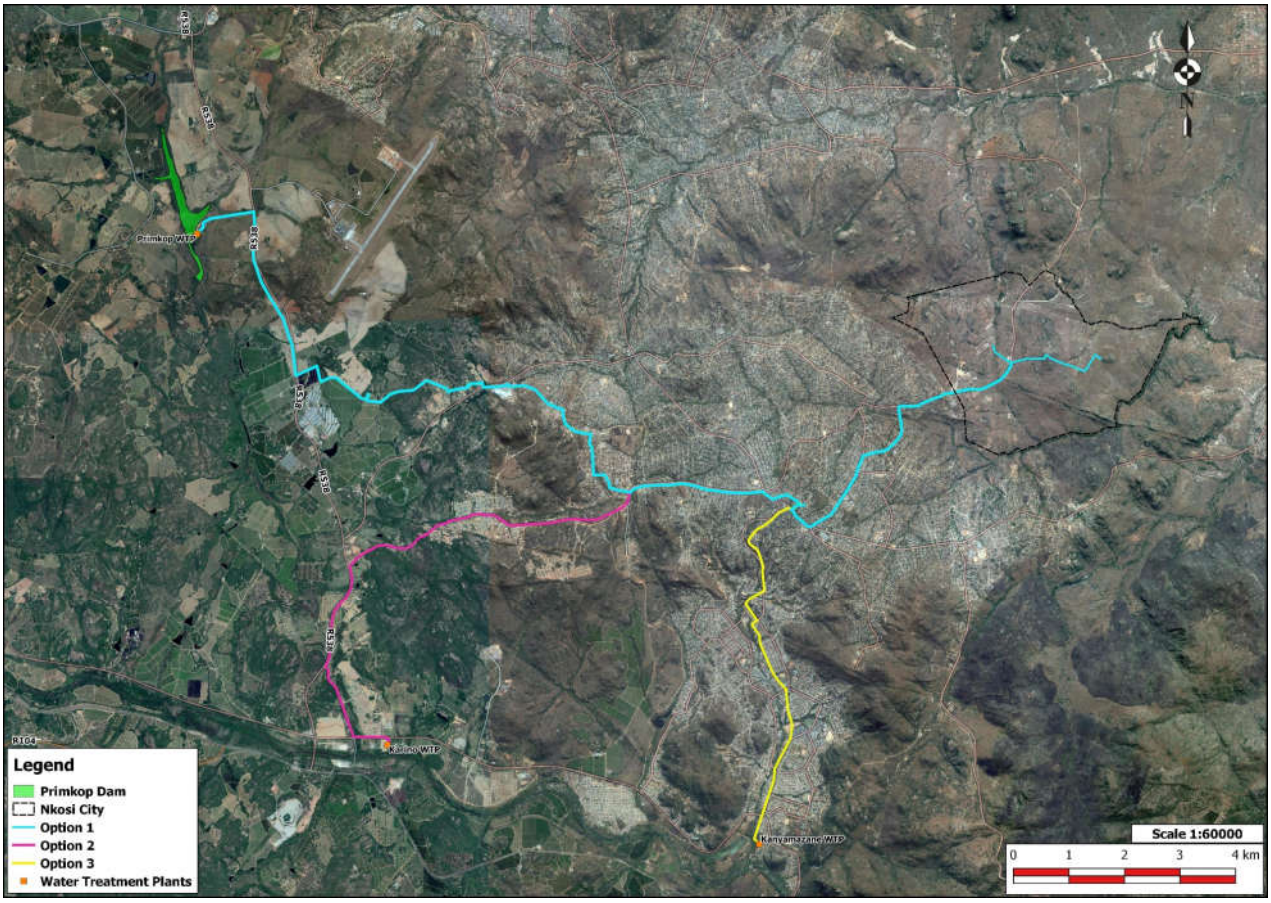


Figure 24: Primkop Dam bulk water supply options

If Option 1 is pursued, then the new Primkop Dam WTP must have a design capacity of 7.5Mℓ per day. The existing Primkop Dam WTP situated approximately 6km from the dam will be decommissioned. A 7.5Mℓ per day WTP with a 250m head at a distance of 15.8km 300mm in diameter is required to deliver water from Primkop Dam into the Pienaar Reservoir. The estimated capital cost for the aforementioned amounts to R 128.5 million. A need for upgrading the Pienaar Reservoir is not foreseen.

Due to the elevation on the proposed Nkosi City development site, three bulk reservoirs are proposed which can all be supplied under gravity form the Pienaar Reservoir. The three reservoirs have 2.5Mℓ, 2.5Mℓ, and 1.3Mℓ capacity respectively. The total storage capacity of on-site reservoirs will thus be 6.3Mℓ.

The GPS coordinates of the proposed reservoirs are listed below as requested by MDRADLEA.

Nkosi City Reservoir Positions		
Description	**East**	**South**
Reservoir - West	31° 12' 8.299" E	25° 24' 6.227" S
Reservoir - Middle	31° 13' 28.152" E	25° 24' 19.038" S
Reservoir - East	31° 14' 7.105" E	25° 24' 17.863" S

On-site water reticulation pipes to be installed will be 75mm to 110mm in diameter with main arterials being 110mm to 160mm in diameter. Main feeders from the three reservoirs will be 200mm to 250mm in diameter.

The proposed upgrading of the Primkop Dam will require Environmental Authorisation as well as a Water Use Licence. These applications will run parallel with the Nkosi City EIA process once the water supply source has been confirmed/secured with the relevant Stakeholders. The Mpumalanga DWS confirmed their support of Nkosi City and bulk water supply to the development in writing on 2 February 2018 (Appendix B8). The City of Mbombela also pledged their support to Nkosi City and bulk water supply in a letter dated 2 February 2018 (Appendix B9).

- **Consultation regarding water needs for the proposed development took place between the applicant and the Mpumalanga Department of Water and Sanitation (MDWS). Refer to Appendix E7 for minutes of the meetings which took place between the applicant and MDWS regarding the construction of a new off-site dam in order to secure water supply for the proposed Nkosi City Development.**

The competent authority noted in a response to the Draft EIA Report, that if Environmental Authorisation be granted, it will be subject to the availability of bulk water.

New Mbombela Dam

The construction of a new in-stream dam off site called Mbombela Dam at three potential locations (Mountain View, Boshjieskop and Strathmore) is planned as long term water supply solution to the area and the proposed development. The expected additional yield from construction of the proposed Mbombela Dam is 50 million cubic meters per annum. Refer to **Figure 25** below for potential bulk water supply dams.

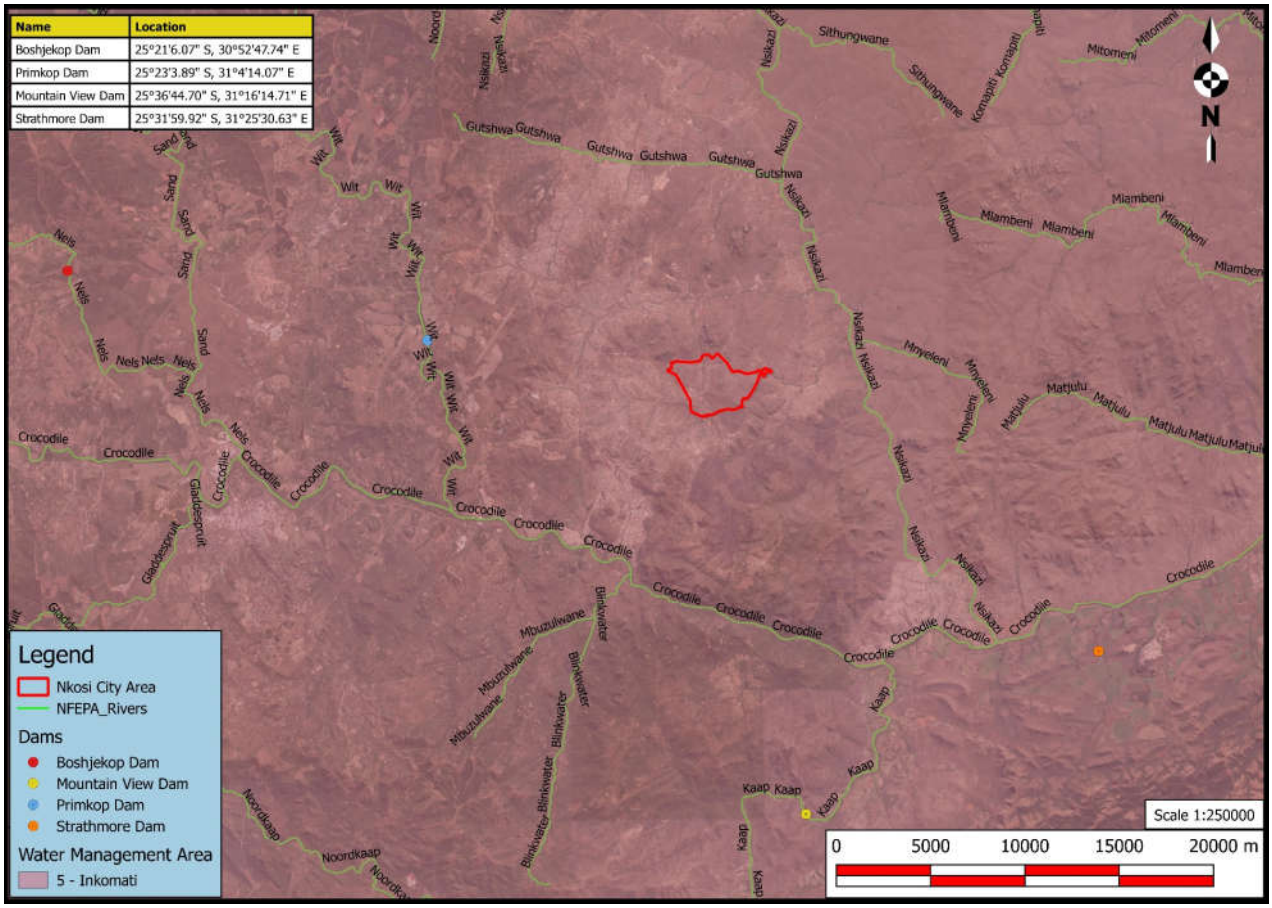


Figure 25: Potential bulk water supply dams

A *Phase II Groundwater Feasibility Assessment Report* compiled by GCS Water and Environmental Consultants concluded that the existing 3 boreholes has no yield potential and can thus not augment Nkosi City water supply. **Refer to Appendix D4c.**

GCS recommended the following to be conducted:

- Phase I Surface Geophysical Investigation of the entire development site;
- Phase II Hydrogeological Exploration Drilling and Production borehole installation; and
- Phase III Aquifer Hydraulic Testing.

The developer must decide whether pursuing groundwater as alternative water supply is feasible considering upgrading of Primkop Dam has been identified as main water supply project for this development.

7.6.2 Sewer

Endecon Ubuntu (Pty) Ltd Engineering Consultants proposed in their ***Bulk Civil Engineering Services Report*** that a dedicated off-site Waste Water Treatment Works (WWTW) downstream of Nkosi City be constructed to service the proposed Nkosi City development. **Refer to Appendix D9a.**

Three options were considered for handling bulk sewerage from Nkosi City and it is clear that for now a dedicated waste water treatment plant just downstream of Nkosi City i.e. **off-site** should be considered.

A 4Mℓ Waste Water Treatment Works (WWTW) is proposed for the development.
The treatment plant will be considered a regional plant and can be designed to accommodate the volume of sewage generated by Nkosi city as well as that of the neighbouring townships. The treatment plant can be located downstream of Nkosi City and the final treated effluent can be discharged into the Gutswa River.

The treatment is provisionally located as per the recommendations from GLS in their report conducted specifically for the Nkosi City development. The current planned location of the plant is off-site downstream of Nkosi City, due east on the southern bank of the Geraamte Spruit (outside of the required 50m wetland buffer zone).

A Water Use Licence is triggered by the discharge of treated effluent into the Gutswa River. Effluent must comply with Special Limits and therefore a Biological Nutrient Removal waste water treatment plant system is proposed. A separate WULA and EIA process will be followed for the off-site WWTWs.

The minimum on-site sewer main to be installed is 160mm diameter PVC pipe. Midblock sewers will also have a diameter of 160mm with main collectors between 160mm and 2 000mm in diameter. The main outfall sewer will be 200mm to 250mm in diameter.

Considering the proposed development will be constructed in Phases a sewage package plant might be considered for Phase 1 if the proposed of site WWTWs is not operational at the time of Phase 1 construction commencing. Such a sewage package plant will not trigger any NEMA listed activities, but will trigger a Water Use License Application.

7.6.3 Stormwater

A *Stormwater Management Plan* was compiled by Endecon Ubuntu (Pty) Ltd Engineering Consultants during March 2018 to ensure that the ecological integrity and quality and quantity of water resources within the site are maintained. **Refer to Appendix D9e.**

According to the plan it is anticipated that post-development flood peak levels will exceed pre-development flood peak levels due to increased impermeable surfaces.

The 1:5 and 1:50 year flood events were used to design the minor and major stormwater infrastructure for the proposed Nkosi City development.

The Stormwater Management Plan proposed the following configuration and principals for the Nkosi City stormwater management system:

Construction phase

- Construction boundaries and buffers should be clearly demarcated and fenced off.
- Only use designated access roads and river crossing points.
- Avoid unnecessary river crossings, limit work within the stream, river or wetland.
- Gravel berms should be constructed in the construction phase to divert upstream catchment runoff.
- The diverted upstream catchment runoff mentioned above should be dissipated at the outlet points to return the flow to its pre-development flow state.
- Temporary sedimentation trapping facilities should be constructed before the construction phase commences to avoid the washing of sediment into the natural rivers and watercourses, this should be constructed outside the buffer zones.
- Storage of material may not be within the 1:100 flood lines, watercourses or associated buffer areas.
- Aquatic biomonitoring should be conducted on a quarterly basis Construction in and around watercourses must be restricted to the drier winter months.

Operational Phase

- Maintenance activities should not take place within watercourses or buffer zones.
- Where possible maintenance within watercourses must be restricted to the drier winter months.
- The internal stormwater system should conform to the design standards (Design standards in this report are based on the "Guidelines for Human Settlement Planning and Design") set out in this report.
- All Provincial Environmental Impact Assessment conditions are met; The proposed internal stormwater system entail the following elements: Concrete interlocking stormwater pipework with a minimum diameter of 450mm Ø for maintenance purposes.

- Concrete kerbing along the edge of roadways where road runoff needs to be contained on the road surface.
- Kerb inlet structures to collect runoff transported on the road surface. Headwall outlet structures with adequate erosion protection measures to dissipate the energy of the runoff and prevent scour of the natural ground.
- Attenuation ponds to decrease the flow rate of post-development runoff to a rate smaller or equal to the pre-development scenario.
- Aquatic biomonitoring should be conducted on a bi-annual basis.

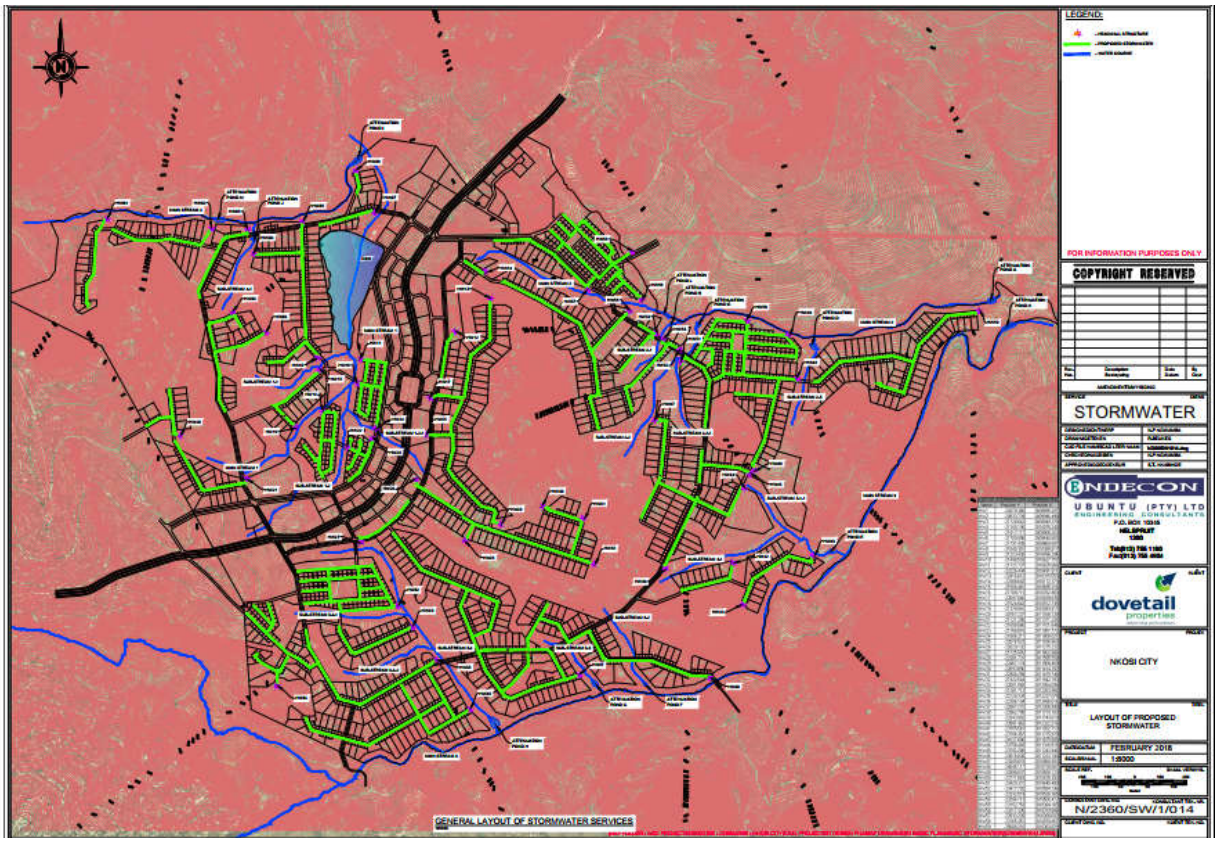


Figure 26: General layout of stormwater infrastructure (courtesy of Endecon Ubuntu (Pty) Ltd Engineering Consultants)

The Stormwater Management Plan recommends that the stormwater system must include the following requirements:

• The increase in downstream peak flows must be mitigated by retaining stormwater until after peak flows;

• Stormwater management must be designed to promote infiltration and slow the release of runoff into wetlands and watercourses. No surface stormwater generated as a result of the development may be channelled directly into any watercourse or wetland without attenuation;

• The rate of stormwater runoff from the site must be reduced by using mechanisms such as the construction of earth berms and grassed swales to promote infiltration, the construction of gabions, and the construction of stormwater attenuation ponds which must be designed for slow, prolonged release of water, and must have an earth base to promote infiltration and subsurface flows;

• Control measures must be provided at all stormwater outlets in order to obviate scour;

• Stormwater infiltration must also be promoted through the minimization of hard surfaces and the use of porous paving;

• Rainwater runoff from roofs must be directed into gardens and/or rainwater tanks as opposed to stormwater drains; and

- **A minimum buffer of 50m for wetlands, rivers and drainage lines should be adhered to. Note: Considering that nearly 50% (464ha) of proposed development has been zoned "Special" in order to preserve environmental sensitive areas, the EAP is of the opinion that the 32m buffer proposed along the Geraamte Spruit is sufficient habitat for birds potentially occurring on site.**

7.6.4 Solid Waste

Domestic waste generated at Nkosi City will be disposed of at the Municipal Tekwane West Central Waste Disposal Site (Class GLB+) which has a 30 year life span. Services Level Agreements (SLAs) will be entered into between Nkosi City and CoM. If no SLA is in place at time of construction commencing the developer/contractors will be responsible for

domestic waste disposal at the abovementioned landfill site. CoM will be responsible if a SLA is in place at the commencement of construction.
Estimated volume of waste to be generated per annum during operational phase is 4,906 tons per annum.

7.6.5 Roads and Traffic

Endecon Ubuntu (Pty) Ltd Engineering Consultants compiled the *Nkosi City: Traffic Impact Study & Roads Master Planning* report dated March 2018. **Refer to Appendix D10.**

The Traffic Impact Study considered Regional Roads, Mbombela bus routes, surrounding area traffic data, the Mbombela-Kanyamazane Corridor Roads Master Plan, traffic to be generated by the proposed Nkosi City development, as well as future developments planned for the surrounding area, in establishing potential road upgrades required to cater for the proposed Nkosi City.

Several potential external road upgrades were identified as part of the Traffic Impact Study (TIS) which requires approval from CoM and The Mpumalanga Department: Public Works, Roads and Transport. The following intersections will have to be upgraded in order to cater for the additional traffic which will be generated by Nkosi City:

- Nkosi City and Daantjie bus route;
- P258/1 and Pienaar Link bus route linking with D1723;
- P258/1 and Pienaar Link bus route;
- D2975 and Daantjie link bus route;
- Emoyeni link bus route and Msogwaba link bus route;
- Nyamazeni link bus route and Pienaar-A link bus route;
- D2975 and D2976;
- Naymazeni link bus route and Aldie link bus route;
- P258/1 and D2975; and
- P258/1 and Tekwane –North Road.

Erven catering for public transport facilities (bus and taxi) are catered for in the preliminary layout.

Take note that the new KNP access gate on the proposed direct access via the Nkosi City road network was investigated and removed from the TIS following liaison between the developer and senior SANParks personnel.

The proposed internal road network will result in several stream crossings which trigger a Section 21(c) and (i) Water Use Licence Application (WULA).

Mpumalanga Department: Public Works, Roads and Transport as well as City of Mbombela: Roads & Storm Water has to provide in **principal support/approval of the proposed external road upgrades, and a detailed TIS or Site Traffic Impact Assessment must be compiled and approved per development Phase prior to construction commencing.**

7.6.6 Electrical

PLP Consulting Engineers (Pty) Ltd compiled an *Electrical Service Design Report, Revision 1 **dated*** November 2017. **Refer to Appendix D11.**

The developer will supply, at its cost, the MV and LV services to the boundary of each stand. The ring feed internal 11kV supply shall be obtained from the proposed new 132/11kV Nkosi City/Simunye Substation supplying 11kV Switching Stations. The Nkosi City/Simunye Substation will cover 1ha in extent and will be supplied from the Clau-Clau substation situated approximately 9km north-west of Nkosi City.

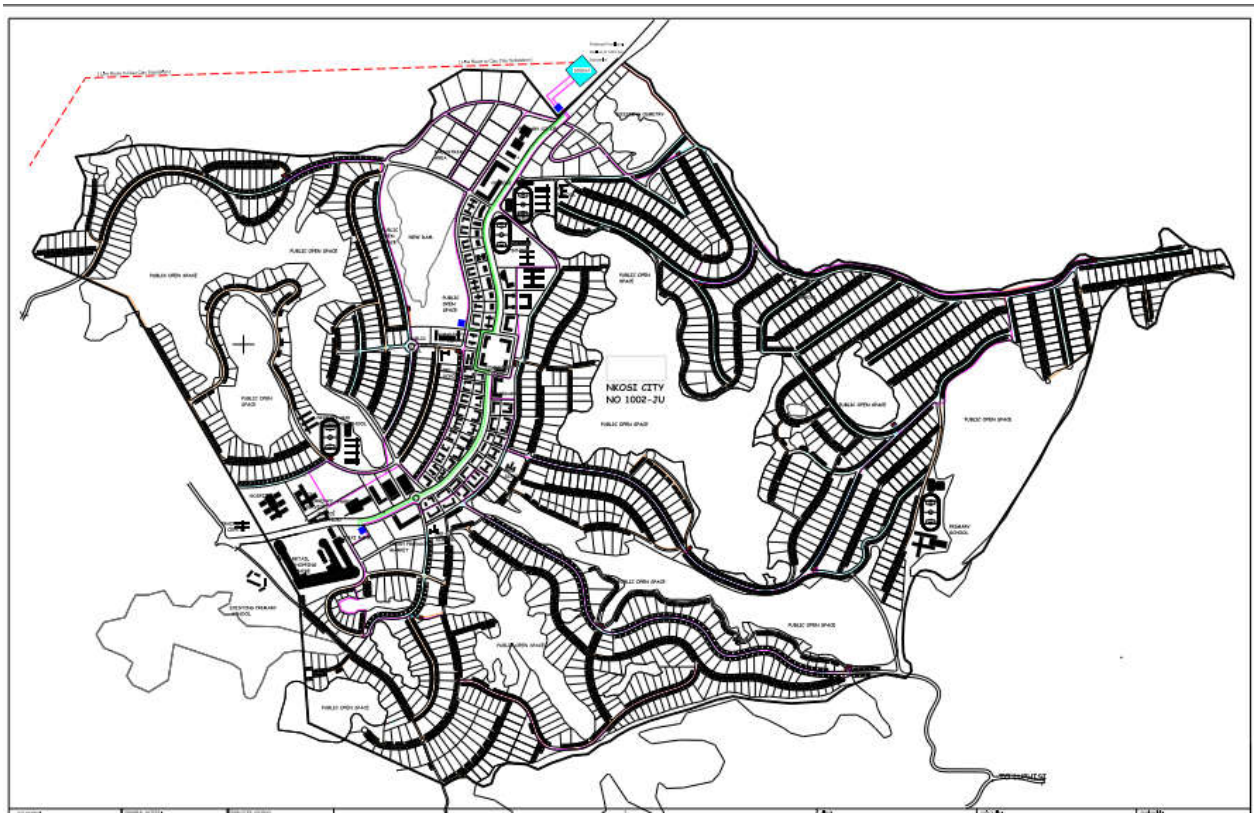


Figure 27: Medium and Low Voltage reticulation

The potential maximum load for the proposed development and associated land uses are not expected to exceed a Maximum Demand of 10.5MVA.

A new 132kV/11kV (2 X 20MVA) Nkosi City/Simunye Substation will be constructed on the north-western corner of the proposed Nkosi City development site by Eskom. 10MVA will be utilised by Nkosi City and 10MVA by Eskom, with a 100% redundancy built in as per Eskom requirements.

Eskom can only commence with the installation of the substation and new 132kV bulk line when Department of Energy funds is made available in 2020. PLP recommended that this project becomes a Customer project funded by the Nkosi City project to be refunded by Eskom once the funds become available.

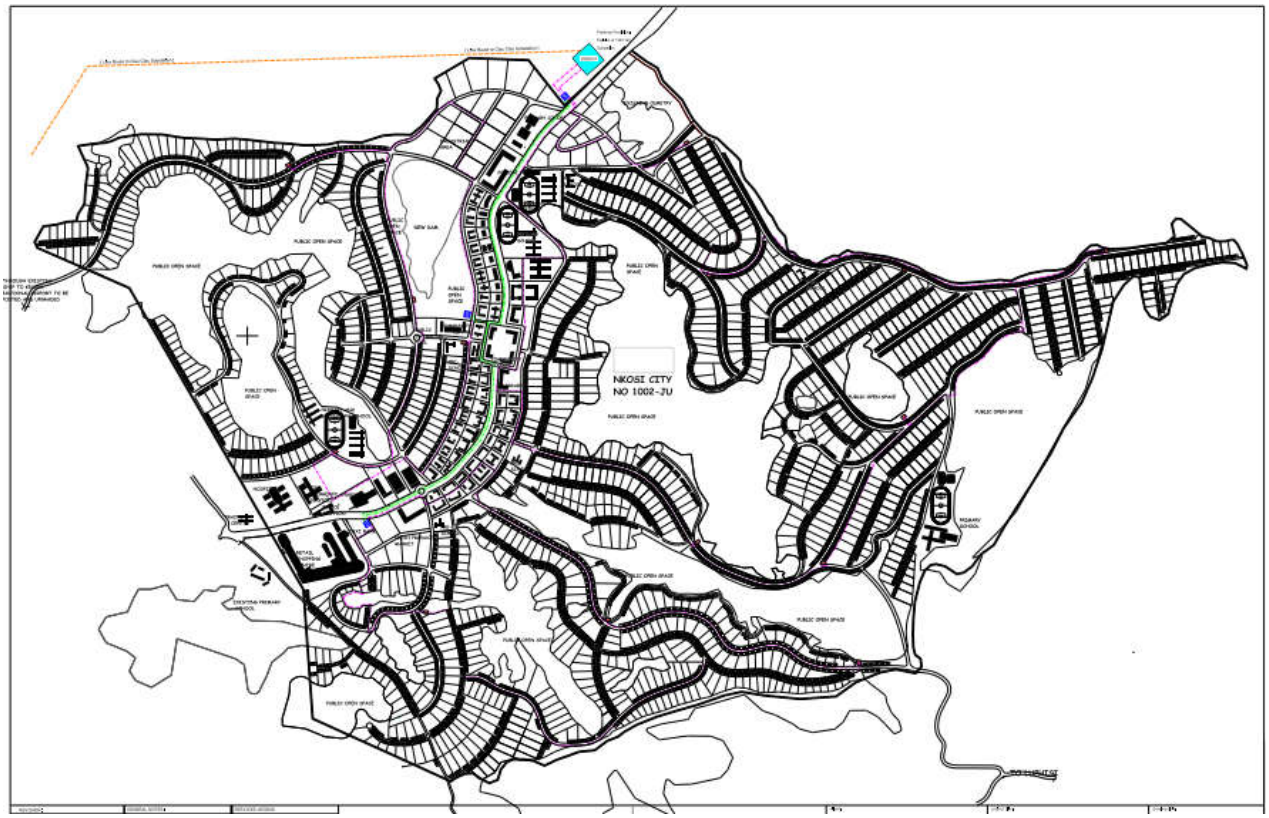


Figure 28: High and Medium Voltage reticulation

Negotiations with Eskom commenced regarding bulk electrical supply to the new Nkosi City 132kV/11kV substation via a new 132kV bulk line from the existing Eskom Clau-Clau Substation. Environmental Authorisation has already been granted for the proposed 132kV bulk line supply to Nkosi City. **Refer to Appendix D11a.** Eskom confirmed in a letter addressed to PLP Consulting Engineers dated 11 May 2018, that they will supply a Feasibility quotation for 10MVA supply to Nkosi City by 8 June 2018. **Refer to Appendix B10.**

The Nkosi City development will follow a green development approach based on the Green Star South Africa rating system. The following energy savings initiatives are recommended as part of the development:

- Street lights using LED technology;
- Street lights to be controlled via photocell;
- Solar water geysers to be installed;

- **A 1 000kVA/1.25MW solar plant is proposed to augment electrical supply to Nkosi City, or could be used as power supply during the construction phase if Eskom supply to site is not available at the time of construction commencing. MDARDLEA requested that a separate EIA process be followed for the proposed solar farm.**

The 1.25MW solar farm will be constructed in the north-western corner in close proximity to the 132/11kV Simunye substation on land approximately 0.5ha in extent, **only if approved by the Competent Authority during a separate EIA process.**

Table 16: Issues and impacts – Services

	Issue/ Impact	Positive/ Negative/ Neutral ±	Mitigation Possible (Yes/No)
1	There is insufficient water available to cater for the proposed development in terms of source, storage capacity and bulk water reticulation	-	Yes
2	Existing municipal bulk water infrastructure will have to be upgraded and storage doubled by 2023 in order to cater for future development within the area	-	Yes
3	An off-site sewage package plant to be constructed to cater for Nkosi City sewage generated	-	Yes
4	Post-development flood peak levels will exceed pre-development flood peak levels due to increased impermeable surfaces	-	Yes
5	Several potential external road upgrades were identified as part of the Traffic Impact Study (TIS) which requires approval from CoM and the Mpumalanga Department: Public Works, Roads and Transport.	-	Yes
6	The proposed service infrastructure such as roads crossing streams, as well as the actual development triggers water uses which requires licensing by means of a WULA	-	Yes
7	External bulk electrical supply line required as well as new on-site substation to cater for the proposed development	-	Yes
8	The proposed 132kV/11kV Nkosi City/Simunye Substation location occurs adjacent to a watercourse and its buffer	-	Yes
9	Groundwater yield as groundwater supply as alternative water supply source is unknown	-	Yes

7.6.6.1 Discussion of Issues identified, possible mitigation measures and significance of issue after mitigation – Services

1) There is insufficient water available to cater for the proposed development in terms of source, storage capacity and bulk water reticulation

Mitigation measures to be included in the EMPr

Planning Phase

- Primkop Dam Feasibility study completed;
- Alternative of two smaller dams as sole dedicated water supply to Nkosi City to be investigated;
- Financing to be secured for raising of Primkop Dam wall;
- Both CoM and DWS are in support of the upgrading of Primkop Dam;
- Agreement to be concluded between owners of Primkop Dam and Developer regarding private financing for raising of the Primkop Dam wall, as water supply source for Nkosi City and CoM; and
- EIA and WULA for raising Primkop Dam wall to commence.

Construction Phase

- Construction of raising Primkop Dam wall must commence concurrently with construction of Nkosi City in order to have potable water supply available during operational phase; and
- WUL and EA conditions must be complied with during the upgrading of Primkop Dam.

Operational Phase

- Conditions stipulated in the relevant authorisations must be complied with during the operational phase i.e. mentoring requirements etc.
- WUL and EA conditions must be complied with during the construction of the bulk water line.

The **significance** of the issue **following mitigation** is **Low**.

2) Existing municipal bulk water infrastructure will have to be upgraded and storage doubled by 2023 in order to cater for future development within the area

Mitigation measures to be included in the EMPr

Planning Phase

- Funding will have to be secured for installing a 300mm diameter bulk water line 15.8km in length from the new Primkop Dam WTP to the Pienaar Reservoir;
- CoM has to agree to the installation of the required bulk water line as the water service provider;
- The 15.8km bulk water line triggers an EIA and WULA which should run concurrently with the Nkosi City EIA.

Construction Phase

- Construction of the 15.8km bulk line from the Primkop Dam WTP connecting to the Pienaar Reservoir must commence concurrently with the construction of Nkosi City;
- WUL and EA conditions must be complied with during the construction of the bulk water line.

Operational Phase

- Conditions stipulated in the relevant authorisations must be complied with during the operational phase i.e. mentoring requirements etc.

The **significance** of the issue **following mitigation** is **Low**.

3) An off-site sewage package plant to be constructed to cater for Nkosi City sewage generated

Mitigation measures to be included in the EMPr

Planning Phase

- The off-site sewage package plant triggers water uses in terms of the National Water Act, 1998, as amended and thus requires a WUL.

Construction Phase

- Construction of the off-site sewage treatment plant must commence concurrently with the construction of Nkosi City.

The **significance** of the issue **following mitigation** is **Low**.

4) Post-development flood peak levels will exceed pre-development flood peak levels due to increased impermeable surfaces

Mitigation measures to be included in the EMPr

Planning Phase

- Stormwater mitigation measures recommended in the Stormwater Management Plan and contained in this report must be included in the EMPr and implemented as part of the development.

Construction Phase

- Stormwater infrastructure to be constructed in accordance with the stormwater management plan recommendations and designs.

The **significance** of the issue **following mitigation** is **Low**.

5) Several potential external road upgrades were identified as part of the Traffic Impact Study (TIS) which requires approval from CoM and The Mpumalanga Department: Public Works, Roads and Transport

Mitigation measures to be included in the EMPr

Planning Phase

- City of Mbombela as well as the Mpumalanga Department of Road to supply in principle approval of the road upgrades proposed in the TIS.
- Authorisations required for external road upgrades to be obtained if applicable e.g. WUL etc.

Construction Phase

- Construction of the proposed road upgrades to commence concurrent with the construction of Nkosi City.

Operational Phase

- Conditions stipulated in the relevant authorisations must be complied with during the operational phase i.e. mentoring requirements etc.

The **significance** of the issue **following mitigation** is **Low**.

6) The proposed service infrastructure such as roads crossing streams, as well as the actual development triggers water uses which requires licensing by means of a WULA

Mitigation measures to be included in the EMPr

Planning Phase

- A WULA covering all water uses triggered by proposed on-site service infrastructure as well as the proposed mixed use development, must be submitted for approval.

Construction Phase

- Construction of service infrastructure and the Nkosi City development should comply with WUL conditions.

Operational Phase

- WUL conditions stipulated in the Nkosi City WUL should be complied with during the operational phase i.e. mentoring requirements etc.

The **significance** of the issue **following mitigation** is **Low**.

7) External bulk electrical supply line required as well as new on-site substation to cater for the proposed development

Mitigation measures to be included in the EMPr

Planning Phase

- EA obtained by Eskom for the construction of the proposed 132kV power line from Clau Clau Substation to the new proposed Nkosi City/Simunye substation;
- Nkosi City to fund the construction of the new 132kV/11kV Eskom Simunye substation and Eskom to refund once funds become available or construction of a 1000kVA/1.25MW solar farm was included in Nkosi City layout to cater for power supply during the construction of Nkosi City; and
- Developer to obtain the necessary authorisations and agreements from the relevant authorities such as Power Purchase Agreement and Power Generation Licence etc.

Construction Phase

- Construction of an on-site 1000kVA/1.25MW solar farm must commence prior to the Nkosi City development construction in order to supply power during construction phase.

The **significance** of the issue **following mitigation** is **Low**.

8) The proposed 132kV/11kV Nkosi City/Simunye Substation location occurs adjacent to a watercourse and its buffer

Mitigation measures to be included in the EMPr

Planning Phase

- Layout plan was amended to move the proposed 1ha Simunye substation location to the outside of the watercourse buffer.

The **significance** of the issue **following mitigation** is **Low**.

9) Groundwater yield as groundwater supply as alternative water supply source is unknown

Mitigation measures to be included in the EMPr

Planning Phase

- A detailed Geohydrological investigation is required to determine volume of groundwater that can be abstracted without compromising the groundwater resource. Developer to decide whether this option is to be pursued or whether the Primkop Dam upgrade should be the only water supply source focussed on.

The **significance** of the issue **following mitigation** is **Low**.

7.7. Sensitive aspects identified on site

A preliminary sensitivity map compiled during the scoping phase has been updated based on issues identified during the EIA phase and is denoted in **Figure 29** below.

A wetland identified on the eastern corner of the site resulted in a 50m buffer being applied and the Nkosi City layout being amended.

The cemetery is a historical site due to its age and has to be preserved in situ as part of the proposed development, but will also be expanded, thus the proposed layout caters for "Cemetery" land-use zone which was also applied for as part of the Town Planning process.

The small dam occurring on site will be retained and potentially enlarged to supplement Nkosi City water supply. A separate EIA process will be followed for the expansion of this dam, as recommended by MDARDLEA.

Ridges occurring on site were excluded from development and zoned "special" in order to cater from ecological preservation of this feature classified as highly sensitive.

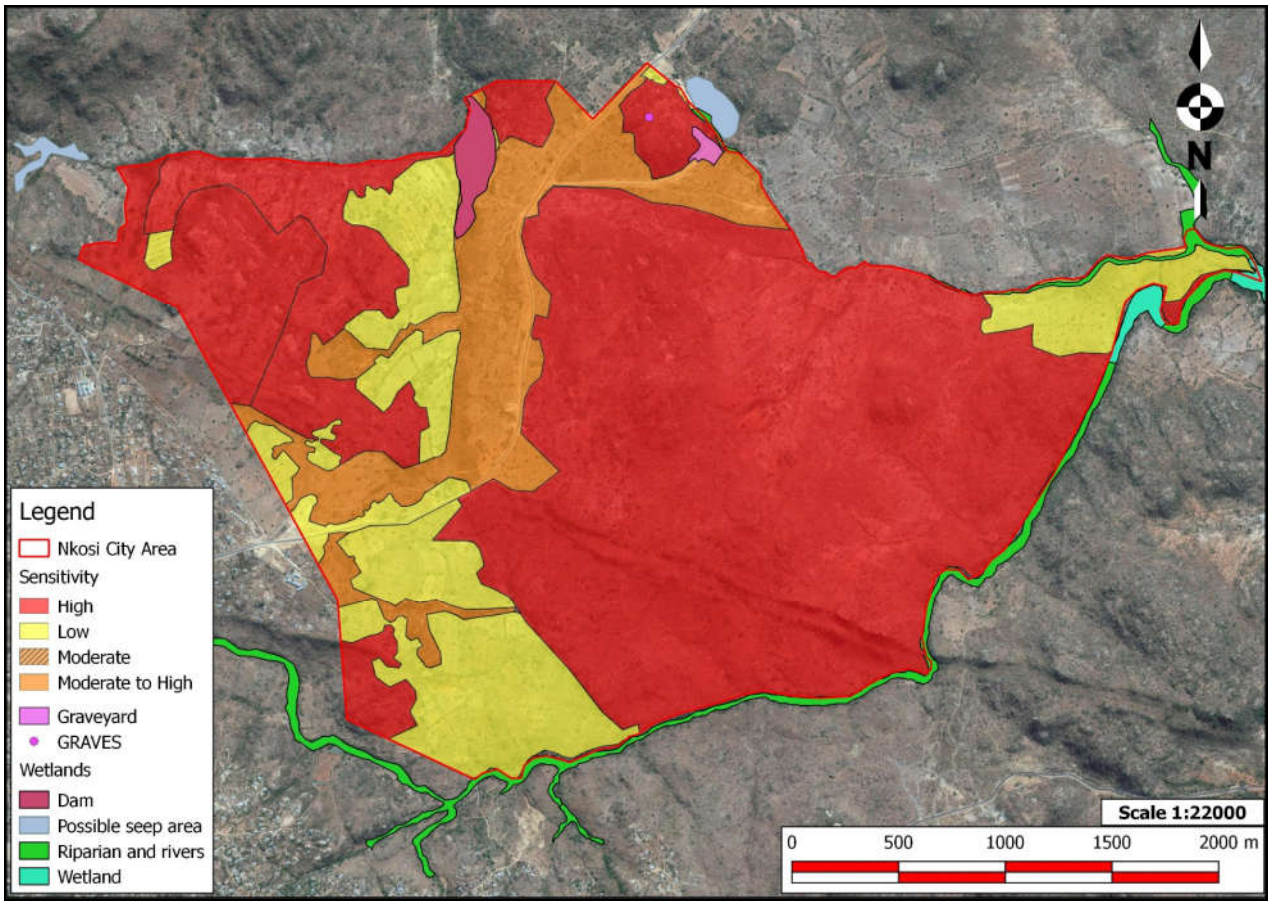


Figure 29: Sensitivity map

8. Public Participation

Public Participation is one of the most important aspects of the Environmental Authorisation process. People have the right to be informed about potential decisions that may affect them and that they must be afforded an opportunity to influence those decisions. Effective Public Participation also improves the ability of the competent authority to make informed decisions and result in improved decision making as the views of all parties are considered.

The Public Participation Process provides the following:

- An opportunity for Interested and Affected Parties (I&APs) to obtain clear accurate and comprehensible information about the proposed activity, its alternatives or the decision and the environmental impacts thereof;
- The opportunity for I&APs to indicate their viewpoints, issues and concerns regarding the activity, alternatives and/or decision;
- The opportunity for I&APs for suggesting ways of avoiding, reducing or mitigating negative impacts of an activity and for enhancing positive impacts;
- Enabling an applicant to incorporate the needs, preferences and values of affected parties into the activity;
- Opportunities to avoid and resolve disputes and reconcile conflicting interests; and
- Enhancing transparency and accountability in decision making.

Refer to *Appendix E* for Public Participation information.

In terms of the Environmental Impact Assessment (EIA) Regulations 2014, as amended on 7 April 2017 and promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998, as amended) stakeholders (I&APs) were notified of the Environmental Impact Assessment process through:

Scoping phase

- A site notice was erected at prominent points on and around the study area on 3 July 2017;
- On 3 July 2017 landowner letters were hand delivered to the neighbouring properties that may be affected by the proposed development;
- A public notice regarding the project was further e-mailed and faxed to a list of Stakeholders identified;
- A notice in English was published in **Lowvelder** newspaper on 7 July 2017 inviting Interested and Affected Parties to register;
- A notice in Swati (Swazi) was published in the **Mpumalanga News** newspaper on 6 July 2017 inviting Interested and Affected Parties to register;
- The Draft Scoping Report was made available for 30-day review by all registered Interested & Affected Parties from 29 November 2017 to 7 March 2018 on the Bokamoso website and at the White River Public Library;
- The Final Scoping Report was made available for 30-day review by all registered Interested & Affected Parties from 6 February 2018 to 22 January 2018 on the Bokamoso website and at the White River Public Library.

EIA phase

- A site notice was erected at prominent points on and around the study area on 23 March 2018;
- A public notice regarding the project was further e-mailed and faxed to the list of Stakeholders identified;
- A notice in English was published in **Lowvelder** newspaper on 27 March 2018 inviting Interested and Affected Parties to register;
- A notice in Swati (Swazi) was published in the **Mpumalanga News** newspaper on 29 March 2019 inviting Interested and Affected Parties to register;
- **The Draft Environmental Impact Assessment Report was made available for 30-day review by all registered Interested & Affected Parties on the Bokamoso website and at the White River Public Library.**

- The following institutions were also identified as I&APs by Bokamoso and notified of the proposed development:
    - Council of Geoscience;
    - Department of Mineral Resources;
    - Department of Human Settlements;
    - Department of Health;
    - Department of Agriculture Forestry and Fisheries;
    - Mbombela Local Municipality;
    - Ehlanzeni District Municipality;
    - Local Ward Councillor (Ward 38);
    - Eskom;
    - Mpumalanga Department of Public Works Roads and Transport;
    - SANRAL;
    - Transnet;
    - Mpumalanga Department of Health;
    - Mpumalanga Department of Agriculture Forestry and Fisheries;
    - Mpumalanga Department of Human Settlements;
    - Mpumalanga Department of Education;
    - Mpumalanga Department of Social Development;
    - Nkumati Catchment Management Agency;
    - Mpumalanga Provincial Heritage Resources Agency (MPHRA);
    - Department of Rural Development and Land Reform (DRD&LR);
    - Department of Water and Sanitation (DWS);
    - Mpumalanga Department of Water and Sanitation;
    - Kruger National Park;
    - South African National Parks (SANParks);
    - Mpumalanga Department of Agriculture Rural Development Land and Environmental Affairs (MDARDLEA);
    - Mpumalanga Tourism and Parks Agency (MTPA); and
    - The National Department of Environmental Affairs (DEA).

The Draft Scoping Report was made available for comment to all registered I&APs from 29 November to 22 January 2018.

The Mpumalanga Department of Agriculture Forestry and Fisheries (MDAFF): Directorate Land Use and Soil Management commented on the Draft Scoping Report on 20 December 2017 requesting a detailed soil study and information pertaining to the current land use of the site. MDAFF also requested that they be supplied with an electronic copy of the EIA Report for review and comment, once published.

MDAFF was supplied with an electronic copy of this Environmental Impact Assessment Report for comment, as requested.

An *Agricultural Potential Survey* was conducted by the Agricultural Research Council (ARC) during March 2018 which concluded the following. The irrigation potential of the area was found to be not suitable for irrigation under most conditions with severe limitations (Class 4) and soils with severe limitations, such as soils in natural waterways, shallow soils and soils presently eroded (Class 5). The area is not high potential agricultural land because of the very shallow sandy soils. The land capability class is Class VI i.e. severe limitations that make it generally unsuited to cultivation and limit its use largely to pasture and range, woodland or wildlife food and cover. Other agricultural limitations identified included steep slopes, severe erosion potential, effects of past erosion, stones, a shallow rooting zone, excessive wetness or flooding, and low water-holding capacity. The grazing potential is between 5 and 10 ha per animal unit. **Refer to Appendix D3b.**

The **Final Scoping Report** and Plan of Study for Environmental Impact Assessment were submitted to MDARDLEA on 5 February 2018. MDARDLEA approved the Plan of Study on 5 March 2018 and requested the following be undertaken as part of the EIAR **(Refer Appendix B4):**

The **Final Scoping Report** and Plan of Study for Environmental Impact Assessment were submitted to MDARDLEA on 5 February 2018. MDARDLEA approved the Plan of Study on

5 March 2018 and requested the following be undertaken as part of the EIAR **(Refer Appendix B4):**

- Prove availability of water per phase (Refer to Section 7.6.1 and Appendix D9a-d);
- Provision of additional services must be demonstrated (Refer to Section 7.6 and Appendix D9a-d, D10, and D11);
- Explanation of each listed activity applied for must be provided in the Draft EIAR (Refer to Section 1.2, Tables 1 to 3);
- Additional studies:
    - Slope analysis (Refer to Section 6.1.3 and Appendix D4d);
    - Stormwater management plan informed by specialist studies (Refer to Section 7.6.3 and Appendix D9e);
    - Fauna and Flora Studies in accordance with Mpumalanga Tourism and Parks Agency (MTPA) minimum requirements (Refer to Section 6.2.1, 6.2.2 and 6.2.3, and Appendix D5a, D5b, and D5c);
    - Wetland assessment must include delineated buffers (Refer to Section 6.1.2.1 and Appendix D4a);
    - Visual impact study with inputs from SANParks (Refer to Section 7.3 and Appendix D8);
    - Agricultural Potential Study (Refer to Section 5.2.3 and Section 6.1.1.2 and Appendix D3a and D3b);
    - Aquatic assessment for dams in accordance with MTPA requirements (Refer to Section 6.2.3 and Appendix D5d and D5e); and
    - Specialist Geohydrological study for groundwater and Sewage Treatment Works (STWs) (Refer to Section 6.1.2.4 and 7.6.2, and Appendix D4b and D4c). **The WWTWs proposed will be located off-site and will be applied for separately.**
- Consider bridge designs and aquatic impacts (Refer to Section 6.2.3 and Appendix D5d and D5e and D9a);

- Routes of pipelines and bulk infrastructure to be determined as part of Scoping Phase – Aquatic impacts (Refer to Section 7.6.1 and 7.6.6, and Appendix D1a, D1ai, D1aii, D1aiii, D1aiv, D1av and D1avi);
- Location and capacity of reservoirs must be provided in DEIAR (Refer to Section 7.6.1 and Appendix D1ai);
- Consult SANParks and MTPA and National DAFF (Refer to Section 4.3, 7.3, 7.6.5, 8.1 for SANParks, Section 6.2.1 and 8.1 for MTPA, and Section 1.3, 6.2.1 and Section 8 for DAFF);
- Existing cemetery cannot form part of this application (Refer to Section 1.2 and Table 1) **Cemetery expansion risk assessed under 6.1.2.4;**
- Technology and capacity of sewage plant to be assessed (Refer to Section 7.6.2 and Appendix D9a); **The sewage plant does not form part of this application and will be applied for separately.**
- Clarify whether off-site dams part of this application (Refer to Section 7.6.1); **Off-site dams do not form part of this application and will be applied for separately.**
- Proof that all I&APs provided with opportunity to comments on Draft Scoping Report (Refer Section 8 and Appendix E1 to E6);
- Location and capacity of proposed resorts must be included (Refer to Section 1.2 Table 1); **The listed activity associated with Hotels and Lodges catering for more than 15 patrons will be applied for separately as instructed by MDARDLEA**; and
- EIAR to include map of all activities applied for and associated infrastructure, and sensitivities, and buffers (Refer to Appendix D1a for proposed layout and D1ai to D1av for services layouts). An enlarged A1 map of the layout is attached as Appendix D1a as requested by MDRADLEA.

The **Mpumalanga Tourism and Parks Agency** commented on the **Final Scoping Report** on 15 March 2018 **(Refer to Appendix B5)** recommending that the following be included in the EMP (Bokamoso presume they mean EIA Report):

- Ecological study (Refer to Section 6.2.1, 6.2.2 and 6.2.3, and Appendix D5a, D5b, and D5c);

- Delineation of the affected streams and drainage lines (Refer to Section 6.1.2.1 and Appendix D4a and Appendix D1a, D1avi and D1avii);
- Zoning of open spaces in the layout plan (Approximately 460ha of the 968ha site has been zoned "Special" to conserve environmental sensitive areas such as ridges and watercourses, Refer to Appendix D1a);
- Stormwater management system that prevent pollution (Refer to Section 7.6.3 and Appendix D9e);
- Waste management system (Refer to Planning and Design Phase of EMPr attached as Appendix F);
- Sound sewerage treatment system preventing pollution (Refer to Section 7.6.2 and Appendix D9a);
- Fire management plan (Refer to Planning and Design Phase of EMPr attached as Appendix F);
- Investigate crematorium instead of graveyard **(not investigated due to not in line with intended residents cultural practices);**
- Sufficient space for agricultural practices (Approximately 230ha zoned as "Agriculture", Refer to Appendix D1a); and
- Sufficient space for sports grounds (Five erven 5ha in extent are zones "Special" for public open space, swimming pool, sports and recreation, Refer to Appendix D1a).

Only one response was received from MDARDLEA on the Draft EIA Report from all Stakeholders and registered I&APs.

MDARDLEA commented on the Draft EIA Report on 10 August 2018 **(Refer to Appendix B12)** requesting the following changes to be affected to the Final EIA Report:

1. This office notes the content of the minutes of a meeting that took place on 6 June 2018 with yourself, the applicant, and senior managers of the Department of Water and Sanitation, City of Mbombela, and this Department, wherein there was agreement that, in the event that a positive authorisation is issued in terms of NEMA, that such authorisation must be subject to the availability of bulk water (i.e. No commencement

of construction activities until there is confirmation of water supply, which includes various authorisations such as the environmental authorisations from the relevant competent authority in terms of NEMA for the construction of required infrastructure).

The competent authority noted that if Environmental Authorisation be granted, it will be subject to the availability of bulk water.

2. The layout plan must be revised and submitted in a more legible format (i.e. Larger), and must include a land use table that aligns with the description on page 46 of the EIAR. Please also ensure that the stands to be zones open space are distinguishable from the stands that will be zoned for agricultural purposes, and that the 1:100 year flood line, all buffers, and all attenuation dams, are clearly visible. All changes required as a result of comments herein must also be incorporated.

   The layout was amended to correlate with the land use zones on P.46 of the Draft EIA Report. The Layout is included in A1 format as Appendix D1a to this report with a land use table on a separate A4 page.

3. Please provide the threshold applicable to the removal of indigenous vegetation, noting that 452ha has been indicated to be used for open space and conserving environmentally sensitive areas.

   Approximately 508ha (of 968ha) of indigenous vegetation will be cleared to cater for the proposed development.

4. Please explain why the stands intended for conserving environmentally sensitive areas will not be zoned as open space.

   The stands intended for environmental conservation (approximately 460ha) were zoned "Special" with the specific purpose and land use of conserving sensitive environmental areas. If the environmental sensitive areas were zoned as "Public Open Space" it would not prevent development of these areas, based on this land use catering for parks, swimming pools, sports and recreation over and above catering for public open space.

5. Without any detail in respect of the proposed 'lodge', the associated activity cannot be authorised as part of this application. An application for such an activity will need to be submitted separately when the detail becomes available.

   The listed activity associated with the lodge has been removed from the application and a separate EIA will be carried out for the lodge as instructed by MDARDLEA, as soon as additional information becomes available.

6. The revised layout plan must specify that stands earmarked for activities that require separate environmental authorisation will be applied for separately.

   The revised layout plan denotes the activities for which separate environmental authorisation will be requested in pink; the lodge, the dam expansion and the solar farm.

7. The proposed solar farm was only identified after the EIA application process has commenced. It appears that the proposed site is located on an area that was to be conserved due to its environmental sensitivity. There is also no analysis of associated impacts, including visual impacts. Please clarify.

   The listed activity associated with the solar farm has been removed from the application and a separate EIA will be carried out for the solar farm as instructed by MDARDLEA, as soon as additional information becomes available.

8. In response to this Department's comments dated 5 March 2018 on the final scoping report in respect of the requirement to analyse bridge design as part of the EIA process (to be informed by specialist input), and the request to provide the co-ordinates of their final positions (which positions reflect lowest impact), you refer this office to Section 6.2.3 and Appendices D5d, D5e and D9a. These references provide no detail in relation to the abovementioned requests.

Appendix 6.2.3 has been updated to reflect the GPS coordinates of each planned bridge crossing as well as an explanation as to why a specific bridge design was selected.

9. Existing infrastructure cannot be authorised retrospectively. As per this Department's comments on 5 March 2018, the existing cemetery cannot form part of this application – only the intended expansion. While you have applied for the expansion activity, the layout plan must still illustrate where the expansion is located. Currently the layout only refers to a stand to be zoned for the purposes of a cemetery, and it's not clear if this stand includes the existing cemetery. The site suitability for a cemetery was also to be included in the terms of reference in the geotechnical report, however there is no reference to a cemetery in that report. It appears that the cemetery site falls within geotechnical zones C1 and C2, where C1 is characterised by slopes >15%, >90% hard rock excavation, and is susceptible to ponding of surface water and a shallow perched ground water table. This must be addressed.

   The layout plan has been amended to show where the expansion of the existing cemetery is planned. Results from the Geotech and Geohydrological studies were utilised to motivate the expansion of the existing cemetery.

10. You have applied for Activity 66 of GNR 983 (as amended) and Activity 23 of GNR 985 (as amended), as it is intended to expand the existing dam on site. For this activity to be considered, you are required to provide the design detail (i.e. Expansion capacity, if the wall is considered, you are required to provide the design detail (i.e. expansion capacity, if the wall is being raised by how much etc.), and analyse the associated aquatic and ecological impacts.

    Listed activities relating to the expansion of the existing on-site dam has been removed from the application and a separate EIA will be conducted as instructed by MDRADLEA, as soon as additional information becomes available.

11. You have explained that you are applying for Activity 19 of GNR 985 (as amended) for the purposes of constructing bridges. Again, as requested in our previous comments, location and design of all bridges is required. You are also required to confirm whether this activity is applicable to the construction of attenuation ponds and the proposed expansion of the on-site dam.

    Refer to point 8 above pertaining to bridges.

    Activity 19 of LN 1 (GNR 983) applies to:

    - The construction of bridges; and
    - the construction of in-stream attenuation ponds.

    The expansion of the on-site dam shall be submitted as a separate application, as instructed by MDARDLEA.

12. Provide the co-ordinates of the proposed reservoir. Your activity table (page 16) makes reference to the construction of four reservoirs with a combined storage capacity of 6.5Ml, whereas the layout plan refers to one new 4.5 Ml reservoir. Please clarify.

    Coordinates of the reservoirs proposed have been included under Section 7.6.1 in this EIA Report, as requested by MDARDLEA.

Activity 1 of Listing 1 was identified as being triggered by the proposed solar farm subsequent to public participation having commenced. A mail notification was distributed to all registered I&APs on 25 May 2018 notifying I&APs that the activity will be added to the amended application from to be submitted as part of this EIA report. The listed activity associated with the solar farm has been removed from the application and a separate EIA will be carried out for the solar farm as instructed by MDARDLEA, as soon as additional information becomes available.

9. INSTITUTIONAL ENVIRONMENT

The study area falls within the jurisdiction of Mbombela Local Municipality, Ehlanzeni District Municipality, Mpumalanga Province.

Nkosi City is an integrated human settlements development project based on the Rural Transformation Model comprising of agricultural units, social and bonded housing, schools, institutional buildings, commercial and industrial properties, sports facilities, public transport facilities, waste water treatment works, water reticulation, stormwater management infrastructure, electrical infrastructure, waste management facilities, private open space, and the potential upgrading of dams and construction of reservoirs on land 968ha in extent.

Therefore, the following institutional framework documents are relevant to the proposed Nkosi City Integrated Human Settlement Development on the farm Nkosi City 1002 JU.

9.1 On a National Level

9.1.1 National Environmental Management Act, 1998 (Act No. 107 of 1998, as amended) (NEMA)

NEMA provides for co-operative, environmental governance by establishing principles for decision-making on matters affecting the environment, institutions that will promote co-operative governance and procedures for co-ordinating environmental functions exercised by organs of state, and to provide for matters connected therewith.

Integrated Environmental Management

- Integrated Environmental Management (IEM) is a philosophy, which prescribes a code of practice for ensuring that environmental considerations are fully integrated

into all stages of the development process. This philosophy aims to achieve a desirable balance between conservation and development.

In terms of the 2014 Environmental Impact Assessment (EIA) Regulations of the National Environment Management Act, 1998 (Act No. 107 of 1998, as amended) published 4 December 2014 (and updated on 7 April 2017) a Basic Assessment Report is required for activities listed in Notices R983 and R985, and a Scoping and Environmental Impact Assessment is required for activities listed in Notice R984.

The proposed development triggers listed activities in Listing Notice 1 (R.983), 2 (R.984), and 3 (R.985) and therefore a Scoping and Environmental Impact Assessment process is followed.

9.1.2 The National Water Act, 1998 (Act No. 36 of 1998)

The purpose of this Act is to ensure that the nation's water resources are protected, used, developed, conserved, managed, and controlled in ways that takes into account, amongst other factors, the following:

- Meeting the basic human needs of present and future generations;
- Promoting equitable access to water;
- Promoting the efficient, sustainable and beneficial use of water in the public interest;
- Reducing and preventing pollution and degradation of water resources;
- Facilitating social and economic development; and
- Providing for the growing demand for water- use.

In terms of the Section 21 of the National Water Act, the developer will have to apply for a Water Use Licence for construction of services such as road crossings across non-perennial streams occurring on site, for the discharge of effluent emanating from the proposed onsite Waste Water Treatment Works. The National Water Act also requires that where applicable

the 1: 100-year flood line be indicated on all development drawings submitted for approval.

9.1.3 Water Services Act, 1997 (Act No. 108 of 1997)

The purpose of this Act is to ensure the regulation of national standards and measures to conserve water taking into account, amongst other factors, the following:

- Basic sanitation;
- Basic water supply;
- Interruption in provision of water services;
- Quality of potable water;
- Control of objectionable substances;
- Disposal of grey water;
- Use of effluent; and
- Quantity and quality of industrial effluent discharged into a sewerage system.

Mbombela Local Municipality is the responsible Water Service Authority. There is currently a shortage of water within the municipal areas which is deterring future development and economic growth. Existing off site dams will have to be upgraded and new dams constructed in order to supply bulk water to the proposed development and to Mbombela. Negotiations with the relevant Stakeholders commenced and details are contained in this report.

9.1.4 National Environmental Management: Air Quality Act (Act No. 39 of 2004), as amended

This act replaced the Atmospheric Pollution Prevention Act (Act No. 45 of 1965).
The purpose of the Act is "To reform the law regulating air quality in order to protect the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development while

promoting justifiable economic and social development; to provide for national norms and standards regulating air quality monitoring, management and control by all spheres of government; for specific air quality measures; and for matters incidental thereto."

The Act describes various regulatory tools that should be developed to ensure the implementation and enforcement of air quality management plans. These include:

- Priority areas, which are air pollution 'hot spots';
- Listed activities, which are 'problem' processes that require an Atmospheric Emission Licence;
- Controlled emitters, which includes the setting of emission standards for 'classes' of emitters, such as motor vehicles, incinerators, etc.;
- Control of noise; and
- Control of odours.

The proposed development does not trigger any regulatory tools in terms of the Act, however during the construction phase, generation of dust and noise could become a factor to the Kruger National Park and or the Mthethomusha Nature Reserve.

9.1.5 National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)

The purpose of the Biodiversity Act is to provide for the management and conservation of South Africa's biodiversity within the framework of the NEMA and the protection of species and ecosystems that warrant national protection. As part of its implementation strategy, the National Spatial Biodiversity Assessment was developed.

Although the proposed development site does not fall within a Critical Biodiversity Area identified in terms of the Mpumalanga Conservation Plan it is classified as Ecological Support Area (ESA) Protected Area Buffer, the Faunal Assessment conducted identified the Rocky Outcrops occurring on site as having high biodiversity value and the Thickets and Closed Woodland as having a Moderate biodiversity value.

The Flora Assessment conducted established that the greater part of the proposed development site in a natural condition and identified three protected tree species and 13 Mpumalanga protected plants as well as two Species of Conservation Concern occurring onsite. A Biodiversity permit from DAFF will be required if the protected tree species identified, occur within areas to be developed.

The Avi-fauna assessment conducted recommended that a 32m buffer be applied along the Geraamtespruit forming the southern boundary of the site.

9.1.6 National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003, as amended)

The purpose of this Act is to provide the protection, conservation and management of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes.

Due to the proposed development site occurring within an area declared as protected in terms of the Act and occurring within 5km of the Kruger National Park as well as the Mthethomusha Nature Reserve, KNP and SANParks were registered as I&AP and consulted during the EIA process regarding potential impacts.

9.1.7 National Heritage Resources Act, 1999 (Act 25 of 1999) (NHRA)

The National Heritage Resources Agency (NHRA) requires heritage resources impact assessments for various categories of development stipulated in section 38 of the Act. It also provides for the grading of heritage resources and the implementation of a three-tier level of responsibilities and functions for heritage resources to be undertaken by the State, provincial authorities, depending on the grade of the heritage resource. The Act defines cultural significance, archaeological and paleontological sites and materials (section 35), historical sites and structures (section 34), and graves and burial sites (section 36) that fall

under its jurisdiction. Archaeological sites and material are generally those resources older than a 100 years, including gravestones and grave dressing. Procedures for managing graves and burial grounds are set out in section 36 of the NHRA. Graves older than 100 years are legislated as archaeological sites and must be dealt with accordingly.

In Section 38 of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) the following categories are listed as triggers for a Heritage Impact Assessment;

38. (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as-

(a) the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300 m in length;

(b) the construction of a bridge or similar structure exceeding 50 m in length;

(c) any developments or other activity which will change the character of the site-

(i) exceeding 5000 m² in extent; or

(ii) involving three or more existing erven or subdivisions thereof: or

(iii) involving three or more erven or divisions thereof which has been consolidated within the past five years; or

(iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provisional heritage resources authority;

(d) the re-zoning of a site exceeding 10 000 m² in extent; or

(e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority.

A Phase 1 Heritage Impact Assessment conducted identified an existing cemetery on site which has been catered for in the preliminary layout of the proposed development site. The HIA has been submitted to MPHRA in order to obtain Environmental Authorisation of the recommendations made in the HIA.

9.1.8 National Veld and Forest Fire Act, 1998 (Act No. 101, 1998)

The purpose of this Act is to prevent and combat veldt, forest, and mountain fires throughout the Republic. Furthermore, the Act provides for a variety of institutions, methods and practices for achieving the prevention of fires.

Mitigation measures for the prevention of fires during the construction phase of the proposed development and during operational phase within areas to be zoned for conservation purposes are critical considering the close proximity to the proposed development site of the Kruger National Park and will be included in the EMPr.

9.1.9 Conservation of Agricultural Resources Act (Act No. 43 of 1983)

This Act provides for control over the utilization of natural agricultural resources of South Africa in order to promote the conservation of soil, water sources and the vegetation as well as the combating of weeds and invader plants; and for matters connecting therewith.

According to the available sources the proposed development site is suitable for grazing. An Agricultural Potential Study conducted concluded that the proposed development site is mostly suitable for grazing. An Agricultural Business Plan is thus proposed. A copy of the Agricultural Potential Survey shall be submitted to the National Department of Agriculture Forestry and Fisheries: Directorate Land Use and Soil Management, as requested.

9.1.10 National Road Traffic Act, 1996 (Act No. 93 of 1996)

This Act provides for all road traffic matters which shall apply uniformly throughout the Republic and for matters connected therewith.

A preliminary Traffic Impact Study (TIS) conducted identified external as well as internal road upgrades required in order to cater for the proposed development. The proposed road upgrades have to be approved by the Mpumalanga Department of Public Works

Roads and Transport as well as Mbombela Local Municipality. The proposed new route linking to the KNP gate was discussed with SANPARKS at length but it was mutually agreed not to include this road as part of the Nkosi City infrastructure development.

9.1.11 Spatial Planning and Land Use Management Act, 2013 (Act No. 16 of 2013)

The purpose of the ordinance is to consolidate and amend laws relating to town-planning and the establishment of townships.

The proposed development triggers a Section 44 township establishment application in terms of the Mbombela By-Law on Spatial Planning and Land Use Management Act which has been submitted to the CoM for approval.

9.1.12 National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008), as amended

The Act aims to consolidate waste management in South Africa, and contains a number of commendable provisions, including:

- The establishment of a national waste management strategy, and national and provincial norms and standards, for amongst other, the classification of waste, waste service delivery, and tariffs for such waste services;
- Addressing reduction, re-use, recycling and recovery of waste;
- The requirements for industry and local government to prepare integrated waste management plans;
- The establishment of control over contaminated land;
- Identifying waste management activities that requires a Licence, which currently include facilities for the storage, transfer, recycling, recovery, treatment and disposal of waste on land;
- Co-operative governance in issuing Licences for waste management facilities, by means of which a licensing authority can issue an integrated or consolidated

Licence jointly with other organs of state that has legislative control over the activity; and

- The establishment of a national waste information system.

The waste management facilities which were initially planned as part of Nkosi City will no longer be developed. Waste will be disposed of at a Municipal Tekwane West Central Waste Disposal Site (Class GLB+). Refer to Section 7.6.4.

9.1.13 Occupational Health & Safety Act (OHSA), 1993 (Act No. 85 of 1993), as amended

The Act was created to provide for the health and safety of persons at work and for the health and safety of persons in connection with the use of plant and machinery; the protection of persons other than persons at work against hazards to health and safety arising out of or in connection with the activities of persons at work; to establish an advisory council for occupational health and safety; and to provide for matters connected therewith.

Regulations of the Act will apply during the construction phase of the proposed development and is covered in the EMPr.

9.2 On a Provincial Level

9.2.1 Mpumalanga Protected Area Expansion Strategy (2009 – 2028)

The Mpumalanga Protected Area Expansion Strategy serves as provincial framework for integrated coordinated and uniform approach in expansion of the provincial Protected Areas in line with the National Protected Area Expansion Strategy.

The proposed development does not form part of an area denoted as priority in terms of the Mpumalanga Protected Area Expansion Strategy; however, Mpumalanga Tourism and Parks Agency as well as the Kruger National Park were consulted regarding potential

impacts of the proposed development on the surrounding environment.

9.2.2 Mpumalanga Biodiversity Conservation Plan, 2006

The objectives of the Mpumalanga Biodiversity Conservation Plan are: To guide the Mpumalanga Tourism Parks Agency in implementing its biodiversity mandate, including working with landowners to improve the provincial protected area network. To provide biodiversity information that supports land-use planning and helps to streamline and monitor environmental decision-making.

The Mpumalanga Biodiversity Conservation Plan (MBCP) identifies the area as mostly natural with modified areas scattered throughout. No Critical Biodiversity Areas are found on site; however, the entire site falls within an area classified as Ecological Support Area protected area buffer.

9.2.3 Mpumalanga Nature Conservation Act, 1998 (Act No.10 of 1998)

The purpose of the Act is to consolidate laws relating to conservation in the Province. The Act covers management of wild animals, problem animals, fisheries, and protected plants, endangered and rare species of fauna and flora, and cave formations.

The Mpumalanga Biodiversity Sector Plan (MBSP) was considered in conducting the Flora assessment as requested by the Mpumalanga Tourism and Parks Agency (MTPA).
According to the MBSP most of the site comprise of Other Natural Areas, with approximately 10% of the site Heavily Modified. Large portions of the site denoted as Other Natural Areas will be preserved as environmental sensitive areas in the form of "Special: land use due to presence of ridges or watercourses.

9.3 On a Local Level

Planning Responsibilities of the Involved Local Authority

The prerogative to plan a development within its jurisdictional area has always constitutionally, in terms of the Local Government Transitional Act, 1993 and recently the Municipal Systems Act, 2000, vested in the local authority involved.

In order to ensure that the proposed development complies with the standards and requirements of the involved local authority, Mbombela Local Municipality, the relevant officials were involved in the planning of the project from the start.

9.3.1 Municipal Systems Act, 2000 (Act No. 32 of 2000)

This Act clearly establishes the Integrated Development Plan and Integrated Spatial Development Framework as guidelines to inform development and processes in this regard.

Mbombela established a Spatial Development Framework as well as Integrated Development Plan.

9.3.2 Mbombela Spatial Development Framework (SDF), 2011-2030

The proposed development site falls within the Mbombela Urban Edge earmarked for new development in terms of the Mbombela Spatial Development Framework, 2011-2030. In terms of the new development area the following uses are encouraged; residential use, full range of community facilities, must fall outside environmental sensitive areas, and make optimum use of agricultural land for cultivation and grazing.

The proposed development complies with the land uses encouraged for new developments in terms of the Mbombela Spatial Development Framework.

9.3.3 Mbombela Integrated Development Plan, 2016-2017

The Mbombela Integrated Development Plan is a five-year strategic planning document through which the municipality conducts community needs analysis and prioritise available resources in accordance with needs identified.

The adjacent township of Daantjie is identified as having insufficient water supply, need for electricity supply, a need for community facilities, need for waste management facilities, and need for formalisation of land tenure.

The proposed Nkosi City Integrated Human Settlement Development will address all of the needs identified in the adjacent township of Daantjie, as listed above.

9.3.4 Mbombela Spatial Planning and Land Use Management By-Law

The Mbombela Spatial Planning and Land Use Management By-law was promulgated in terms of Section 12 and 13 read with Section 21 of the Municipal Systems Act, Act No. 32 of 2000.

The proposed development triggers a Section 44 township establishment application in terms of the Mbombela By-Law on Spatial Planning and Land Use Management, which has been applied for.

9.3.5 Mbombela By-Laws

The following Mbombela Municipality by-laws apply to the proposed development:

- Electricity Supply By-law;
- Drainage and Sanitation Services;
- Water Services;
- Restaurants, Cafes, Eating Houses;

- Refuse (Solid Waste and Sanitary By-law);
- Solid Waste;
- Cemetery Tariffs;
- Tariffs Halls and Sports Grounds;
- Swimming Pool;
- Levies on Vehicles Transporting Persons or Goods;
- Property Rates By-law;
- Wastewater and Industrial Effluent By-law;
- Water Supply Services By-law;
- Mbombela Local Municipality By-law on Liquor Trading; and
- Street Trading By-law.

9.3.6 Issues and impacts related to legislation

- A Section 21 Water Use Licence Application is triggered by the proposed development and associated infrastructure. Bokamoso is in the process of compiling a WULA for all water uses triggered within the Nkosi City development boundary.
- Bulk engineering services will have to be installed or upgraded in order to cater for the proposed development and alternative supply, other than Municipal, was considered for water, sewage and waste handling. A Memorandum of understanding for raising of the Primkop Dam has been drafted and is currently under review by the legal counsel of the WRVCB. A dedicated off-site WWTW situated downstream of Nkosi City is proposed. Domestic waste generated during the construction and management phases of Nkosi City will be disposed of at the Municipal Tekwane West Central Waste Disposal Site (Class GLB+).
- Dust and noise generated during the construction phase of the proposed development could be a nuisance to nature conservation areas within 5km from the proposed development site. Regular dust suppression during construction has been included in the EMPr as mitigation measure. A complaints register at the

construction site camp is also proposed to deal with any public complaints timeously.

- An existing cemetery occurs on site. The expansion of the cemetery has been applied for and has been zoned accordingly of the layout plan.
- Considering the close proximity to the proposed development site of the Kruger National Park, fire prevention during construction and operation of the proposed development is paramount. A fire prevention team will have to work closely with the KNP and surrounding land users regarding prevention of fires on site as well as on surrounding properties. This mitigation measure is included in the EMPr.
- According to the available sources the proposed development site is suitable for grazing and therefore augmentation of soil might be required to make the proposed development site suitable for cultivation. It is recommended that an Agricultural Business Plan be compiled during the construction phase of Nkosi City to advise on type of crops, soil augmentation, irrigation if any etc.
- Regulations of the Occupation Health and Safety Act (as amended) will apply during the construction phase of the proposed development. Refer to EMPr for relevant mitigation measures.
- Internal and external road upgrades required need to be approved by the Mpumalanga Department of Public Works Roads and Transport as well as Mbombela Local Municipality. The TIS has already been submitted to CoM for comment and will be submitted to the Mpumalanga Department: Public Works, Roads and Transport for comment as well.
- The proposed development triggers a Section 44 township establishment application in terms of the Mbombela By-Law on Spatial Planning and Land Use Management, which has been applied for. A Town planning Memorandum was submitted to CoM for developing Nkosi City as Township.
- The Flora Assessment conducted established that the greater part of the proposed development site in a natural condition and identified three protected tree species and 13 Mpumalanga protected plants as well as two Species of Conservation Concern. The protected trees will have to be demarcated prior to construction commencing or a biodiversity permit must be obtained for relocation.

- The proposed development complies with the land uses encouraged for new developments in terms of the Mbombela Spatial Development Framework. No mitigation required.
- The proposed Nkosi City Integrated Human Settlement Development will address all of the needs identified in the adjacent township of Daantjie as per the Mbombela Integrated Development Plan. No mitigation required.

10. Comparative Assessment Between Proposed Development and Alternative 1

10.1 Anticipated Impacts, Including Cumulative Impacts

The impacts/aspects, beneficial and adverse, of the Proposed Nkosi City Integrated Human Settlement Development (proposed alternative), and Alternative 1 – Low density residential, on the receiving environment were identified. The impacts identified during the EIA process as well as the affected environmental characteristics, are indicated and rated per alternative, in **Table 17 and 18** below.

Table 17: Comparative assessment between Proposed Development Alternative and Alternative 1 prior to mitigation

Environmental Aspects **Key to impacts:** ☺ L – Low Positive ☺ M – Medium Positive ☺ H – High Positive ☹ L – Low Negative ☹ M – Medium Negative ☹ H – High Negative 😐 N – Neutral	**Physical**				**Biological**		**Socio-Economical**									**Institutional**				**Total of Impacts**
	Geology and Soils	Hydrology	Topography	Climate	Fauna	Flora	Qualitative Environment Visual, Noise, Pollution, Security	Compatibility of Land-Use	Availability of municipal services	Upgrading of Municipal Services	Economic Impact Local Authority	Economic Impact I&APs	Economic Impact Private Sector	Cultural and Historical	Impact on high agricultural potential land	In line with IDP	In line with SDF or other frameworks and open space plans	In line with policies and guidelines	In line with legislation	
CONSTRUCTION PHASE **Preliminary Issues and Impacts**																				
Preferred Alternative "Integrated Human Settlement"	☹ H	☹ M	☹ L	😐 N	☹ M	☹ H	☹ M	☺ H	☹ H	☺ L	☺ H	☺ M	☺ H	😐 N	☺ M	☺ H	☺ H	☺ H	☺ M	☺ H x 6 ☺ M x 3 ☺ L x 1 😐 N x 2 ☹ L x 1 ☹ M x 3 ☹ H x 3
Alternative 1 "Low density residential"	☹ H	☹ M	☹ L	😐 N	☹ M	☹ H	☹ M	☹ L	☹ H	☺ H	☺ M	☺ L	☺ H	☹ L	☹ M	☹ L	☹ L	☹ L	☹ L	☺ H x 2 ☺ M x 1 ☺ L x 1 😐 N x 1 ☹ L x 7 ☹ M x 4 ☹ H x 3

Environmental Aspects **Key to impacts:** ☺ L – Low Positive ☺ M – Medium Positive ☺ H – High Positive ☹ L – Low Negative ☹ M – Medium Negative ☹ H – High Negative 😐 N – Neutral	**Physical**				**Biological**		**Socio-Economical**									**Institutional**				**Total of Impacts**
	Geology and Soils	Hydrology	Topography	Climate	Fauna	Flora	Qualitative Environment Visual, Noise, Pollution, Security	Compatibility of Land-Use	Availability of municipal services	Upgrading of Municipal Services	Economic Impact Local Authority	Economic Impact I&APs	Economic Impact Private Sector	Cultural and Historical	Impact on high agricultural potential land	In line with IDP	In line with SDF or other frameworks and open space plans	In line with policies and guidelines	In line with legislation	
OPERATIONAL PHASE **Preliminary Issues and Impacts**																				
Preferred Alternative "Integrated Human Settlement"	😐 N	😐 N	😐 N	😐 N	☺ M	☺ M	☺ H	☺ M	😐 N	☺ M	☺ M	☺ H	☺ M	😐 N	☺ M	☺ H	☺ H	☺ H	☺ M	☺ H x 5 ☺ M x 8 😐 N x 6
Alternative 1 "Low density residential"	😐 N	😐 N	😐 N	😐 N	☹ L	☹ L	☺ L	☹ H	😐 N	☺ M	☺ M	☺ L	☺ M	😐 N	☹ H	☹ L	☹ L	☹ L	☹ L	☺ M x 3 ☺ L x 2 😐 N x 6 ☹ L x 6 ☹ H x 2

Table 18: Comparative assessment between Proposed Development Alternative and Alternative 1 following mitigation

Environmental Aspects **Key to impacts:** ☺ L – Low Positive ☺ M – Medium Positive ☺ H – High Positive ☹ L – Low Negative ☹ M – Medium Negative ☹ H – High Negative 😐 N – Neutral	**Physical**				**Biological**		**Socio-Economical**								**Institutional**				**Total of Impacts**
	Geology and Soils	Hydrology	Topography	Climate	Fauna	Flora	Qualitative Environment Visual, Noise, Pollution, Security	Compatibility of Land-Use	Availability of municipal services	Upgrading of Municipal Services	Economic Impact Local Authority	Economic Impact I&APs	Economic Impact Private Sector	Cultural and Historical	Impact on high agricultural potential land	In line with IDP	In line with SDF or other frameworks and open space plans	In line with policies and guidelines	In line with Water Act and other legislation	
CONSTRUCTION PHASE **Preliminary Issues and Impacts**																			
Preferred Alternative "Integrated Human Settlement"	☹ L	☹ L	😐 N	😐 N	☹ L	☹ M	☹ L	☺ H	☺ L	☺ L	☺ H	☺ M	☺ M	😐 N	☺ M	☺ H	☺ H	☺ H	☺ H	☺ H x 6 ☺ M x 3 ☺ L x 2 😐 N x 3 ☹ L x 4 ☹ M x 1
Alternative 1 "Low density residential"	☹ L	☹ L	☹ L	😐 N	☹ M	☹ M	☹ L	☹ L	☺ M	☺ H	☺ M	☺ L	☺ L	😐 N	☹ M	☹ L	☹ L	☹ L	☹ L	☺ H x 1 ☺ M x 2 ☺ L x 2 😐 N x 2 ☹ L x 9 ☹ M x 3

Environmental Aspects **Key to impacts:** ☺ L – Low Positive ☺ M – Medium Positive ☺ H – High Positive ☹ L – Low Negative ☹ M – Medium Negative ☹ H – High Negative 😐 N – Neutral	**Physical**				**Biological**		**Socio-Economical**									**Institutional**				**Total of Impacts**
	Geology and Soils	Hydrology	Topography	Climate	Fauna	Flora	Qualitative Environment Visual, Noise, Pollution, Security	Compatibility of Land-Use	Availability of municipal services	Upgrading of Municipal Services	Economic Impact Local Authority	Economic Impact I&APs	Economic Impact Private Sector	Cultural and Historical	Impact on high agricultural potential land	In line with IDP	In line with SDF or other frameworks and open space plans	In line with policies and guidelines	In line with Water Act and other legislation	
OPERATIONAL PHASE Preliminary Issues and Impacts																				
Preferred Alternative "Integrated Human Settlement"	😐 N	😐 N	😐 N	😐 N	☺ H	☺ H	☺ H	☺ M	😐 N	☺ M	☺ M	☺ H	☺ M	☺ M	☺ M	☺ H	☺ H	☺ H	☺ H	☺ H x 8 ☺ M x 6 😐 N x 5
Alternative 1 "Low density residential"	😐 N	😐 N	😐 N	😐 N	😐 N	😐 N	☺ L	☹ H	😐 N	☺ M	☺ M	☺ L	☺ L	☺ L	☹ H	☹ L	☹ L	☹ L	☹ L	☺ M x 2 ☺ L x 4 😐 N x 7 ☹ L x 4 ☹ H x 2

Although the impacts of the alternatives are very similar, the **Proposed Development Alternative** is regarded as being the most beneficial of the alternatives due to being in line with local spatial planning.

10.2 Competitive Assessment between Proposal and Alternatives

From the tables above it can be concluded that the **Proposed Development, the Nkosi City Integrated Human Settlement Development**, is the most suitable alternative for the proposed development site.

The proposed development alternative – Nkosi City Integrated Human Settlement Development has more positive physical and biological impacts during the construction and operational phase before and after mitigation than Alternative 1 – Low density residential.

From a **socio-economic** point of view, the **Proposed Development** is regarded as the preferred alternative, because it is in line with **Mbombela Spatial Development Framework** in terms of areas identified for new development where the following are encouraged; residential use, full range of community facilities, must fall outside environmental sensitive areas, and make optimum use of agricultural land for cultivation and grazing. The proposed integrated human settlement development is also compatible with surrounding land use, as opposed to **Alternative 1 – low density residential**. The proposed development will also alleviate some of the backlog relating to provision of housing which currently exist within Mbombela.

The **Proposed Development** would contribute to **the upgrading of services and infrastructure** in the area as well as the generation of employment opportunities and will result in a self-sustaining integrated community. Water supply is currently preventing future development and economic growth within Mbombela. The upgrading of Primkop Dam shall not only provide water to Nkosi City, but also to a greater area allowing for development. Alternative 1 will not provide for a self-sustaining community and will increase pressure on the local authority in terms of service provision and job creation.

From an **Institutiona**l point of view, the **Proposed Development** is regarded as the preferred alternative due to complying with principles of the Mbombela By-law on Spatial Planning Land Use Management, the Mbombela IDP and Mbombela SDF.

11. METHODOLOGY OF ASSESSING SIGNIFICANCE OF IMPACTS THAT HAVE BEEN IDENTIFIED

11.1 Description of Significance Assessment Methodology

The significance of Environmental Impacts was assessed in accordance with the following method:

Significance is the product of probability and severity. Probability describes the likelihood of the Impact actually occurring, and is rated as follows:

Improbable	Low possibility of impact to occur either because of design or historic experience	Rating = 2
Probable	Distinct possibility that impact will occur	Rating = 3
Highly probable	Most likely that impact will occur	Rating = 4
Definite	Impact will occur, in the case of adverse impacts regardless of any prevention measures	Rating = 5

The severity factor is calculated from the factors given to "intensity" and "duration". Intensity and duration factors are awarded to each impact, as described below.

The Intensity factor is awarded to each impact according to the following method:

Low intensity	natural and manmade functions not affected	Factor 1
Medium intensity	environment affected but natural and manmade functions and processes continue	Factor 2
High intensity	environment affected to the extent that natural or manmade functions are altered to the extent that it will temporarily or permanently cease or become dysfunctional	Factor 4

Duration is assessed and a factor awarded in accordance with the following:

Short term	<1 to 5 years	Factor 2
Medium term	5 to 15 years	Factor 3
Long term	impact will only cease after the operational life of the activity, either because of natural process or by human intervention	Factor 4
Permanent	mitigation, either by natural process or by human intervention, will not occur in such a way or in such a time span that the impact can be considered transient	Factor 4

The Severity Rating is obtained from calculating a severity factor, and comparing the severity factor to the rating in the table below. For example:

The Severity factor = Intensity factor X Duration factor

= 2 x 3

= 6

A Severity factors of six (6) equals a Severity Rating of Medium severity (Rating 3) as per table below:

Calculated values 2 to 4	Low Severity	Rating 2
Calculated values 5 to 8	Medium Severity	Rating 3
Calculated values 9 to 12	High Severity	Rating 4
Calculated values 13 to 16	Very High severity	Rating 5

A Significance Rating is calculated by Multiplying the Severity Rating with the Probability Rating.

The Significance Rating should influence the development project as described below:

Significance Rating 4 to 6	Low significance	Positive impact and negative impacts of low significance should have no influence on the Proposed Development Project.
Significance Rating >6 to 15	Medium significance	Positive Impact: Should weigh towards a decision to continue Negative Impact: Should be mitigated to a level where the impact would be of medium significance before project can be approved

Significance Rating 16 and more	High significance	Positive impact: Should weigh towards a decision to continue, should be enhanced in final design. Negative impact: Should weigh towards a decision to terminate proposal, or mitigation should be performed to reduce significance to at least medium significance rating

In the past Bokamoso received some criticism from a party who argued that Bokamoso use a significance methodology, which applies a simple mathematical formula to Environmental Aspects with significantly different sensitivity values. The accurateness of the final significance as reflected in the significance tables was a concern.

The significance methodology used by Bokamoso Environmental is a methodology that is used by various Environmental Consultants across the world and this method was also communicated to EAPs during EIA courses. No methodology can be 100% accurate to a numerical value where the environment is concerned, because it cannot be measured. Furthermore, environmental impacts are often based on opinions and former experience, because certain environmental aspects (i.e. views, "Sense of Place" etc.) are experienced different by everyone.

Numerical values are only an indication of the significance or severance of impacts. If we do not agree with the outcome of the assessment, we will adjust the numerical value to reflect a more realistic significance. The methodology only acts as an aid to the environmental consultant and the consultant need to use his/her experience in the field together with the methods in order to reach a realistic significance of impacts. Bokamoso, in particular MS Lizelle Gregory, has extensive experience in the field of impact assessments.

11.2 Significance Assessment of Anticipated Impacts of the Preferred Alternative

Impacts indicated under each section of the environment were each assessed according to the above methodology. Table 19 below contains the results of the significance assessment.

Table 19: Result of Significance Assessment of Impacts associated with the Proposed Mixed Use Development (following mitigation)

Impact	Probability Rating	Severity Rating		Severity Factor	Severity Rating	Significance Rating
		Intensity	Duration			
CONSTRUCTION PHASE						
Beneficial Impacts						
Address need for social facilities in the ward	5	2	4	8	3	15 Medium
Address need for economic opportunities	5	2	4	8	3	15 Medium
Comply with local development plans	5	2	4	8	3	15 Medium
Conserve sensitive environments/aspects identified as part of the development layout	4	2	4	8	3	12 Medium
Adverse Impacts						
Soils are highly erodible and there are already clear signs of erosion on the site	3	2	2	4	3	9 Low
The soils are highly permeable	3	2	2	4	3	9 Low
Granites are often associated with collapsible soils and unstable slopes	3	2	2	4	3	9 Low
Sand mining occurs on site resulting in destruction of topsoil, exposed areas, potential erosion, and potential siltation of watercourses	3	2	2	4	3	9 Low

Impact	Probability Rating	Severity Rating		Severity Factor	Severity Rating	Significance Rating
		Intensity	Duration			
Availability of water for the proposed agricultural activities	4	2	2	4	2	8 Low
The site is regarded as being suitable for grazing and not cultivation	4	2		4	2	8 Low
The areas with the highest agricultural potential are the lower lying areas with deeper soils that have high conservation value	3	2	2	4	3	9 Low
Three wetlands occur within 500m from the proposed development site, one of which is pristine	3	2	2	4	3	9 Low
The proposed development is affected by the 1:100-year flood lines of several non-perennial streams	3	2	2	4	3	9 Low
The proposed development triggers a section 21 (c) and (i) WULA for construction within 500m from a watercourse	3	2	2	4	3	9 Low
Availability of groundwater to sustain the proposed development is unknown and needs to be ascertained	3	2	2	4	3	9 Low
Sand mining occurring on the proposed development site	3	2	2	4	3	9 Low
Potential for surface and groundwater pollution, siltation, and erosion problems due	3	2	2	4	3	9 Low

Impact	Probability Rating	Severity Rating		Severity Factor	Severity Rating	Significance Rating
		Intensity	Duration			
to erodible soils						
The proposed cemetery might have an impact on groundwater	2	1	2	2	2	4 Low
The central part of the proposed development site comprises of rocky hills	3	2	2	4	3	9 Low
The proposed development site is not flat	3	2	2	4	3	9 Low
Should the construction phase be scheduled for the summer months, erosion could be an issue due to soil type	2	1	2	2	2	4 Low
Three protected tree species identified on site	3	2	2	4	3	9 Low
Protected plants as well as two Species of Conservation Concern were positively identified on site	3	2	2	4	3	9 Low
Highly sensitive environmental areas occur on site	3	2	2	4	3	9 Low
Red Listed Half-collared Kingfisher and the African Finfoot have the potential off occurring along the Geraamte Spruit	3	2	2	4	3	9 Low
Due to proximity to KNP habitat lost as a result of the proposed development is more likely to have a regional than a local impact	3	2	2	4	3	9 Low
Non-perennial tributaries of the Nsikazi	3	2	4	8	3	9 Low

Impact	Probability Rating	Severity Rating		Severity Factor	Severity Rating	Significance Rating
		Intensity	Duration			
River flow through the proposed development site into the Crocodile River which forms the southern boundary of the Kruger National Park						
Dissolved Oxygen levels indicate possible Eutrophication	3	2	2	4	3	9 Low
An existing cemetery occurs on site which the heritage specialist recommended be preserved in situ	2	1	4	4	2	4 Low
Proximity of the proposed development site to the KNP	3	2	4	8	3	9 Low
Noise caused due to proximity of the proposed development to the Kruger National Park	3	2	4	8	3	9 Low
Noise caused due to proximity to the Township of Daantjie	3	2	2	4	2	6 Low
There is insufficient water available to cater for the proposed development in terms of source, storage capacity and bulk water reticulation	4	2	2	4	2	8 Low
Existing municipal bulk water infrastructure will have to be upgraded and storage doubled by 2023 in order to cater for future development within the area	5	2	2	4	2	10 Low
An off-site sewage package plant to be	3	2	4	8	3	9 Low

Impact	Probability Rating	Severity Rating		Severity Factor	Severity Rating	Significance Rating
		Intensity	Duration			
constructed to cater for sewage generated						
Post-development flood peak levels will exceed pre-development flood peak levels due to increased impermeable surfaces	4	1	4	4	2	8 Low
Several potential external road upgrades were identified as part of the Traffic Impact Study (TIS) which requires approval from CoM Roads and The Mpumalanga Department: Public Works, Roads and Transport	4	2	2	4	2	8 Low
The proposed service infrastructure such as roads crossing streams, as well as the actual development triggers water uses which requires licensing by means of a WULA	4	2	2	4	2	8 Low
External bulk electrical supply line required as well as new on-site substation to cater for the proposed development	3	2	2	4	2	6 Low
The proposed 132kV/11kV Nkosi City/Simunye Substation location occur within a watercourse and its buffer	3	2	2	4	2	6 Low
Groundwater yield as groundwater supply as alternative water	3	2	2	4	3	9 Low

Impact	Probability Rating	Severity Rating		Severity Factor	Severity Rating	Significance Rating
		Intensity	Duration			
supply source is unknown						
OPERATION PHASE						
Beneficial Impacts						
Address housing backlog in Mbombela	5	2	4	8	3	15 Medium
Address need for economic opportunities	5	2	4	8	3	15 Medium
Comply with local development plans	5	2	4	8	3	15 Medium
Conserve sensitive environments/aspects identified as part of the development layout	4	2	4	8	3	12 Medium
Development in line with Local SDF	5	4	4	16	5	25 High
Adverse Impacts						
The site is regarded as being suitable for grazing and not cultivation	3	2	4	8	3	9 Low
The areas with the highest agricultural potential are the lower lying areas with deeper soils that have high conservation value	3	2	4	8	3	9 Low
The proposed development triggers a section 21 (c) and (i) WULA for construction within 500m from a watercourse	3	2	4	8	3	9 Low
Potential for surface and groundwater pollution, siltation, and erosion problems due to erodible soils	3	2	4	8	3	9 Low
Non-perennial tributaries of the Nsikazi River flow through the proposed development	3	2	4	8	3	9 Low

Impact	Probability Rating	Severity Rating		Severity Factor	Severity Rating	Significance Rating
		Intensity	Duration			
site into the Crocodile River which forms the southern boundary of the Kruger National Park						
The proposed cemetery might have an impact on groundwater	3	2	4	8	3	9 Low
There is insufficient water available to cater for the proposed development in terms of source, storage capacity and bulk water reticulation	2	2	4	8	3	6 Low
Existing municipal bulk water infrastructure will have to be upgraded and storage doubled by 2023 in order to cater for future development within the area	2	2	4	8	3	6 Low
Several potential external road upgrades were identified as part of the Traffic Impact Study (TIS) which requires approval from CoM and The Mpumalanga Department: Public Works, Roads and Transport	3	2	4	8	3	9 Low
The proposed service infrastructure such as roads crossing streams, as well as the actual development triggers water uses which requires licensing by means of a WULA	2	2	4	8	3	6 Low

11.3 Discussion of Significance Assessment

The proposed Nkosi City Integrated Human Settlement Development is in line with the Mbombela Spatial Development Framework (SDF), 2011-2030 in that the development will adhere to the above objectives of the SDF by providing community facilities and accommodating environmentally sensitive areas as part of the proposed township layout. The fact that the development is in line with the local SDF is regarded as having a High positive impact as denoted in **Table 19** above.

Other positive impacts which will result from the proposed development include: the development will address the existing housing backlog within Mbombela, address the need for economic opportunities, and conserve sensitive environmental areas as part of the proposed development layout. All of the aforementioned positive impacts have a Medium significance.

All of the negative impacts identified during the construction as well as the operational phase have a Low significance following mitigation.

Measures that are recommended in this EIA Report and the Environmental Management Programme will mitigate the adverse impacts to an acceptable level i.e. Low significance. No "Fatal Flaw" adverse impacts, or adverse impacts that cannot be adequately mitigated, are associated with the proposed Nkosi City Integrated Human Settlement Development.

12. CONCLUSION

No "Fatal Flaws" were identified that could prevent the proposed Nkosi City Integrated Human Settlement Development from being implemented.

From an **Ecological** point of view all sensitive environments identified on site were catered for as part of the proposed development layout. A wetland identified on the eastern corner of the site resulted in a 50m buffer being applied and the Nkosi City layout being amended. The cemetery is a historical site due to its age and has to be preserved in situ as part of the proposed development, but will also be expanded, thus the proposed layout caters for "Cemetery" land use zone. The small dam occurring on site will be retained and potentially enlarged to supplement Nkosi City water supply. Ridges occurring on site were excluded from development and zoned "Special" in order to cater from ecological preservation of this feature classified as highly sensitive.

From a **social and economic** point of view, the development of the study area holds many advantages. To follow now are only a view of the development benefits as identified in this EIA Report:

- Provide bulk water supply to region and not just Nkosi City;
- Partly address the existing housing backlog within Mbombela;
- Create a self-sustaining township using the urban farm concept;
- Address the need for economic opportunities; and
- Address need for social facilities in the ward.

Need for housing

The City of Mbombela has a register of 35 000 people waiting for houses. The RDP houses associated with the "residential 1" land use will cater for approximately 2 300 of the 35 000 backlog.

Walk-up apartments are intended to be rental stock, to cater for individuals who do not qualify for RDP housing. Bonded/GAP Housing will be sold and are intended for families

with an income of R 15 000. Commercial banks have a subsidy scheme which assist Bonded/GAP Housing buyers with deposits.

Nkosi City is strategically located to cater for the needs of the Mpakeni Traditional Authority as per the land right holder's resolution. The following community requirements will be met:

- Ward 2 community members will be employed during construction and operational phase of the proposed development;
- Local small to medium enterprises will be afforded the opportunity to rent business space within the proposed shopping centre(s);
- Skills will be transferred during construction and operation; and
- Farmers with rights on the area earmarked for Nkosi City will be afforded the opportunity to be incorporated into the Agricultural Cooperation of the development where they will run a commercial agricultural business.

From an **institutional point** of view, the proposed development layout is in line with the Mbombela Spatial Development Framework (SDF), 2011-2030 in that the development will adhere to the above objectives of the SDF by providing community facilities and accommodating environmentally sensitive areas as part of the proposed township layout. The fact that the development is in line with the local SDF is regarded as having a High positive impact.

Nkosi City will address the following national objectives:

- Job creation;
- Service delivery;
- RDP and subsidized housing;
- Close proximity between homes and workplaces;
- Provision of educational and social facilities; and
- Creation of self-sustaining environment providing for commercial opportunities.

13. RECOMMENDATION

Considering that the proposed development is the first of its kind in the country i.e. a flagship project, and that it will contribute significantly to the socio-economics of the City of Mbombela and Mpumalanga Province, it is recommended that MDARDLEA consider the findings of this report and recommendations listed below in issuing Environmental Authorisation for the proposed Nkosi City Integrated Human Settlement Development.

As result if the proposed development site being mostly suitable for grazing and not for cultivation, an **Agricultural Business Plan** must to be compiled which identifies the various types of agriculture (i.e. grazing, hydroponics in tunnels; in-situ agricultural activities, abattoirs, feed lots, chicken houses etc.) to be exercised in the different agricultural clusters as identified on the proposed layout map. The Agricultural Business Plan must also include water requirements and financial figures for the various types of agriculture.

A positive **Record of Decision must be obtained from Mpumalanga Heritage Resources Agency** for preserving the existing historic cemetery as part of the Nkosi City development.

The **Township Establishment** must be approved by City of Mbombela.

Mpumalanga Department: Public Works, Roads and Transport as well as City of Mbombela**:** Roads & Storm Water has to provide in **principal support/approval of the proposed external road upgrades, and a detailed TIS or Site Traffic Impact Assessment must be compiled and approved per development Phase prior to construction commencing.**

Due to the proximity to the Kruger National Park **mitigation measures associated with noise** generated during the construction phase included in the EMPr must be adhered to and an **Environmental Complaints Register** must be kept on site during the construction phase, to record any complaints received, specifically pertaining to noise.

Service upgrades are to be affected in accordance with Service Reports compiled in order to give effect to the Proposed Nkosi City Integrated Human Settlement Development.

A Water Use Licence Application for all water uses triggered by the proposed development and associated on-site infrastructure must be submitted to DWS prior to development commencing and Licence conditions to be complied with during construction.

The developer has to conduct a separate EIA process for the following infrastructure as instructed by MDRADLEA:

- **Proposed 1.25MW on-site solar farm;**
- **Proposed expansion of the existing on-site dam; and for the**
- **Proposed lodge.**

It is also recommend that the following be compiled for the proposed development and included as prerequisites in the Environmental Authorisation, if the proposed development is approved: **Fire Management Plan, Alien Eradication Programme, and a Waste Management Plan**.

It is recommended that **an EIA application as well as a Water Use Licence Application for the proposed off-site WWTW be applied for and approved** prior to construction of Nkosi City commencing.

Considering the current shortage of water within the City of Mbombela which curtails economic and social development which is of concern to MDARDLEA, it is recommended that the **EIA application for the upgrading of Primkop Dam as well as a Water Use Licence Application must be lodged and authorised**, prior to construction of Nkosi City commencing.

Primkop Dam is preferred bulk water supply option but could be replaced with smaller dams in close proximity to the proposed Nkosi City Integrated Human Settlement Development, if deemed feasible. An off-site WWTWs is proposed due to the availability of land and the fact that the WWTWs might also serve other areas within close proximity to Nkosi City.

Considering the extent of this flagship project and that the City of Mbombela, the Department of Water and Sanitation as well as the Mpumalanga Province will benefit from the implementation of this development and associated bulk infrastructure, MDARDLEA is respectfully requested, as per the project meeting held at Mbombela on 6 June 2018, to consider issuing a conditional environmental authorisation related to the provision of bulk water within a specified timeframe.

Although Bokamoso comprehends that the development cannot be approved without the provision of the necessary services, funding cannot be secured without Environmental Authorisation having been granted.

As soon as Environmental Authorisation is granted, applications for bulk water supply and bulk sewerage infrastructure will commence, due to funding which will become available as a result of positive Environmental Authorisation having been obtained.