Draft Basic Assessment Report for Thulasizwe Shopping Centre and Filling Station, Mzinti, Nkomazi Local Municipality, Mpumalanga Province

30 April 2024

CORE Environmental Services
Anne-Mari Hitge *(Cert. Sci. Nat.)*
Professional Registration -
SACNASP: 300067/15
EAPASA: 2020/602

EXECUTIVE SUMMARY

ThulaSizwe Trust is proposing to construct a shopping centre on the outskirts of the Mzinti Village in Nkomazi, adjacent to the D797 provincial route, linking Kamhlushwa with Tonga within the Mpumalanga Province. The shopping centre will cover an area of 3Ha and consist of the following:

- Filling station with a storage capacity of 126 000 litres;
- Various businesses and commercial developments.

In accordance with the National Environmental Management Act 107 of 1998, GNR 983 of 2014 (as amended in 2017), an Environmental Authorisation (EA) is required before these construction activities can commence and for this reason, ThulaSizwe Trust appointed **Core Environmental Services** to apply for the EA by means of conducting a Basic Environmental Impact Assessment process as regulated within General Notice Regulation 982, 2014 (as amended in 2017).

The proposed development site is located on portion 0 of the farm Matabula 701-JU, within Mzinti Township, approximately 30km south-east of Malalane town.
Coordinates:
25°41'7.83"S
31°43'52.68"E

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

- Distributing English Background Information Documents (BIDs) to all registered I&APs, 21 July 2023, proof of which is attached in **Annexure C.2**;
- Placement of media advert in a local newspaper (The Mpumalanga News) on 26 July 2023 (see **Annexure C.3**).
- Placing of a notice at the proposed site took place on 12 July 2023 (see **Annexure C.4**);

To inform the Environmental Impact Assessment Process, various specialist assessments were undertaken. These assessments undertaken included a Heritage Impact Assessment, Ecological Impact Assessment, Geotechnical Assessment and Traffic Impact Assessment. The findings of the assessments undertaken is noted in Section 5 and also attached as Appendix D.

Following the assessment by means of desktop review, site investigation and specialist assessments undertaken, it was determined that the construction and operational activities are likely to result in the following environmental and socio-economic impacts. The identified impacts are listed below and discussed in Section 7:

- *Impact on biodiversity;*
- *Generation of dust;*
- *Impact on soil (soil erosion and soil pollution);*
- *Impact on water resources;*
- *Traffic;*
- *Sanitation and waste generation;*
- *Socio-economic impact.*

From the environmental statement as indicated within the table below, it is evident that the impacts can be reduced to be of low to very low significance if mitigation measures are implemented and adhered to. Recommendations have however been made to address the impacts which could affect the

biophysical and socio-economic environment. A summary of the impacts assessed ae provided below:

IMPACT	SIGNIFICANCE BEFORE MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION MEASURES
Construction Phase Impacts		
Impact on biodiversity	Low	Very Low
Generation of dust	Low	Very Low
Soil Pollution	Low	Very Low
Soil Erosion	Low	Very Low
Excessive water use	Medium	Low
Sanitation and Waste generation and dispoal	Medium	Low
Temporary job opportunities	Medium (+)	Medium (+)
Health and safety during construction	Low	Very Low
Operational Phase Impacts		
Spreading of alien invasive species	Medium	Low
Soil Erosion and improper storm water management	Medium	Low
Excessive water use resulting to the depletion of ground water resources	High	Low
Waste generation and disposal	High	Low
Traffic Impact	Medium	Low
Permanent Job Opportunites	High (+)	High (+)
Improved livelihood of the surrounding community	High (+)	High (+)

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

Contents

LIST OF FIGURES

LIST OF TABLES

APPENDICES

APPENDIX A: MAPS

APPENDIX B: SITE PHOTOS

APPENDIX C: PUBLIC PARTICIPATION PROCESS

APPENDIX D: SPECIALIST ASSESSMENTS

APPENDIX E: DRAFT ENVIRONMENTAL MANAGEMENT PLAN

1. OVERVIEW OF THE PROJECT

1.1 Introduction

ThulaSizwe Trust is proposing to construct a shopping centre on the outskirts of the Mzinti Village in Nkomazi, adjacent to the D797 provincial route, linking Kamhlushwa with Tonga within the Mpumalanga Province. The shopping centre will cover an area of 3Ha and consist of the following:

- Filling station with a storage capacity of 126 000 litres;
- Various businesses and commercial developments

In accordance with the National Environmental Management Act 107 of 1998, GNR 983 of 2014 (as amended in 2017), an Environmental Authorisation (EA) is required before these construction activities can commence and for this reason, ThulaSizwe Trust appointed **Core Environmental Services** to apply for the EA by means of conducting a Basic Environmental Impact Assessment process as regulated within General Notice Regulation 982, 2014 (as amended in 2017).

1.2 Location

The proposed development site is located on portion 0 of the farm Matabula 701-JU, within Mzinti Township, approximately 30km south-east of Malalane town.

Coordinates:
25°41'7.83"S
31°43'52.68"E

Please refer to the locality map below, Figure 1.

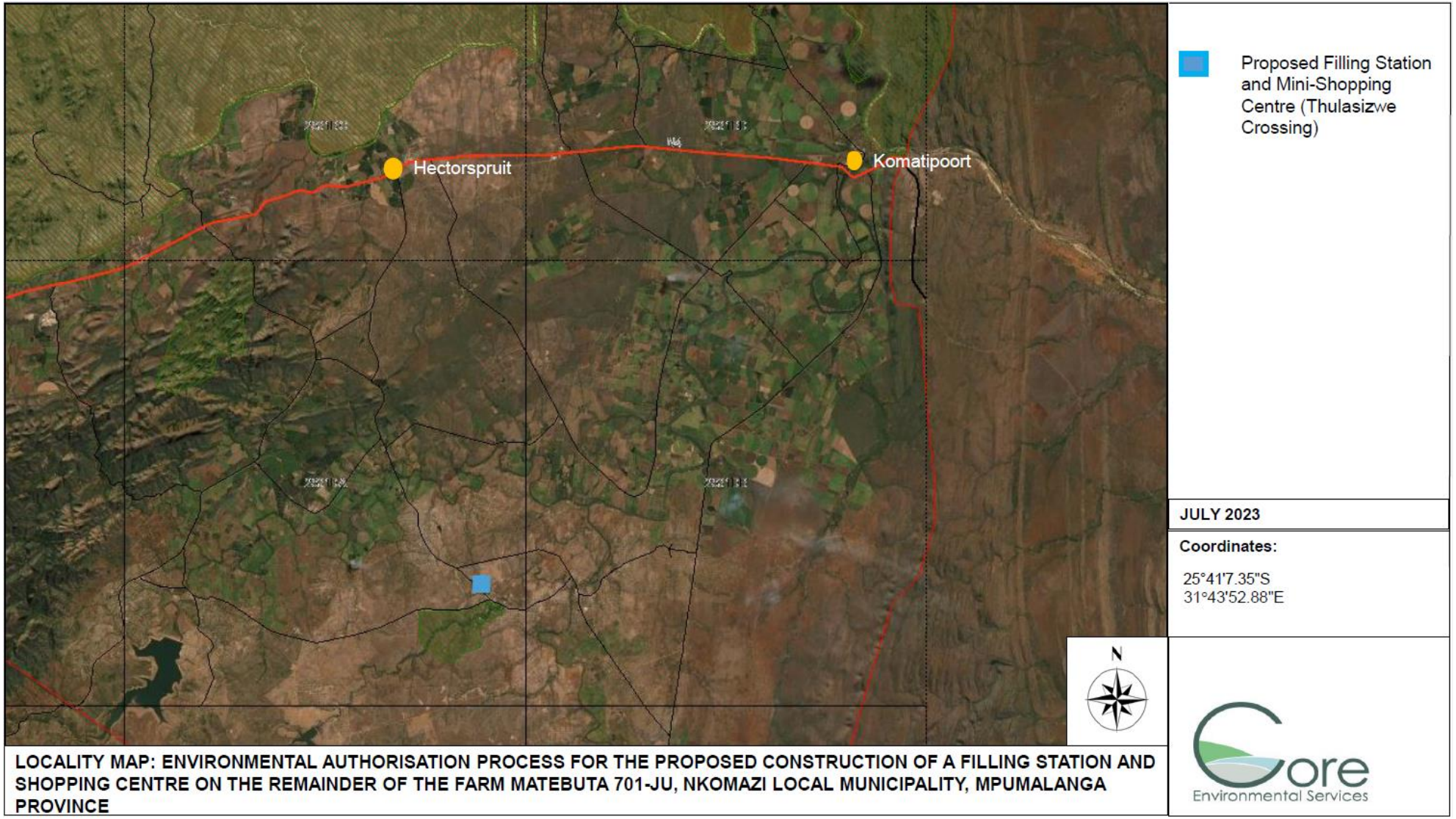

FIGURE 1: LOCALITY MAP FOR THE PROPOSED THULAZISWE SHOPPING CENTRE AND FILLING STATION, MZINTI, NKOMAZI LOCAL MUNICIPALITY, MPUMALANGA

FIGURE 2: PROJECT AREA FOR THE PROPOSED THULAZISWE SHOPPING CENTRE AND FILLING STATION, MZINTI, NKOMAZI LOCAL MUNICIPALITY, MPUMALANGA

1.3 Details of the EAP

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

1.4 Policy Legal and Administrative Framework

1.4.1 National Environmental Management Act, 107, 1998

In accordance with the National Environmental Management Act 107, 1998, GNR983, 2014 (as amended in 2017), the following listed activities applies for the project and therefore requires Environmental Authorisation.

TABLE 1: LISTED ACTIVITIES APPLIED FOR IN TERMS OF NEMA 107, OF 1998

Listed Activity in terms of GNR983, GNR984, and GNR985 of 2014 (as amended)	Description
GNR 983, Activity 14: *The development and related operation of facilities or infrastructure for the storage, or for the storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of 80 cubic metres or more but not exceeding 500 cubic metres.*	ThulaSizwe Trust is proposing to establish a filling station with a storage capacity of 126000 litres.
GNR 983, 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.*	The total area to be cleared of indigenous vegetation equates to 3Ha.

GNR 983, Activity 28: *Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture on or before 1 April 1998, and where such development (ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare.*	The project area was previously used for agricultural purposes (game/cattle farming) and it is proposed that 3Ha will now be converted for commercial development.

Other national, provincial or local legislation applicable to the proposed project, is indicated in Table 2, below.

TABLE 2: LEGISLATION APPLICABLE TO THE PROJECT

Applicable legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments considered	**Project application and type (permit / licence / authorisation / comment)**
The Constitution of South Africa, Act No. 108 of 1996	ThulaSizwe Trust will be required to adhere to the Environmental Management Programme (EMPr) requirements to ensure that social and environmental management considerations are considered and implemented. As per Section 25 the Constitution, a public participation process (PPP) was and will continue to be undertaken, as this is considered to be an essential mechanism for informing stakeholders of their rights and obligations in terms of the project.
National Environmental Management Act, 1998 (Act No. 107 of 1998)	As listed activities are triggered by the proposed construction of the Shopping Centre, Environmental Authorisation is required in terms of NEMA 107, 1998 and must subsequently be applied for by means of undertaking a Basic Assessment process.
National Environmental Management: Waste Act 59 of 2008	The Act aims to reform the law regulating waste management in order to protect health and the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development. As waste will be generated (domestic and hazardous waste), regulations with regards to the storage and disposal of such waste must comply with the National Environmental Management: Waste Act of 2008.
National Water Act, 1998 (Act No. 36 of 1998)	Water resources must subsequently be managed in accordance with the National Water Act 36 of 1998.
Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983)	The Act provides for the control over the utilisation of the natural agricultural resources of the Republic in order to promote the conservation of soil, water, and

	vegetation and the combatting of weeds and invader plant species. ThulaSizwe Trust must comply with the regulations included within the CARA 43 of 1983, to ensure the preservation of soil, water resources, and vegetation and prevent the spreading of invader plant species.
National Heritage Resources Act, 1999 (Act No 25 of 1999)	This legislation aims to promote good management of the national estate, and to enable and encourage communities to nurture and conserve their legacy so that it may be bequeathed to future generations. As the area to be transformed is larger than 5 000m^2, the South African Heritage Resources Act, 1999, states that a Heritage Impact Assessment must be undertaken. For this reason, the assessment was undertaken and the findings of the report are detailed in Section 5.
Mpumalanga Spatial Development Framework (MSDF) Draft (2013)	The MSDF has a vision to provide: *"a sustainable urban and rural spatial development pattern focussed on a modern, ecologically sustainable economy, supported by a suitably skilled labour force and providing for quality of living* [emphasis added]*."* The underlined portions of the Vision address those aspects which are applicable to this project: ● The shopping centre will provide permanent job opportunities to employees. ● The implementation of the Environmental Management Programme (EMPr) associated with this application will ensure that the quality of the environment directly and indirectly affected by the operations of the commercial activities does not deteriorate or is limited as far as reasonably possible.
Nkomazi Local Municipality Integrated Development Plan (IDP)	Nkomazi Local Municipality Integrated Development Plan (IDP). The primary objectives of the IDP are to foster economic growth that creates jobs and improve infrastructure within the province. Job opportunities will be created by the proposed commercial activities which supports economic growth within the area.

1.5 Description of the project

The project aims to build a shopping centre that offers customers a contemporary and hassle-free shopping experience. The shopping centre will be a one-story building with a primary goal of establishing the following:

- various retail stores including line shops and anchor shops,
- a food court/restaurants;
- a filling station; and
- ample parking

Information obtained from the Services Report, (*Mutsasa Manyisa Consulting Engineers, August 2023),* notes that in terms of water supply, service will mainly be a combination of a bulk network linked to smaller pipes such as 75mm diameter pipes that provide water in the project area. These will link to a sustainable self-sufficient source which will consist of a borehole and temporary storage tanks for the shopping centre. According to the service report, the shopping centre will have a projected annual water demand of approximately 91 250m^3. The boreholes have been drilled and the yield of these boreholes are yet to be confirmed. The components of the water supply system will consist of the following:

- 75mm minimum bulk and internal water reticulation pipework;
- 160mm internal bulk and fire reticulation pipework
- 180kl elevated tank (provided an automatic standby generator is installed). If no generator is installed, a 360kl elevated tank will be required;
- 550kl ground storage reservoir;
- Bulk pipeline from borehole of 250mm diameter;
- Borehole capable of producing 25l/s flow rate;
- It is suggested that a rainwater harvesting system also be employed to provide augmentation to the water supply.

In terms of sewage reticulation, it is proposed that the service will be a network of minimum 110mm diameter pipes that are linked to provide sewer services in the project area. These then link to an on-site green sewage treatment solution that is eco-friendly. The sewer system proposed would have to accommodate an annual demand of 215 424m^3. The development requirements therefore include the following:

- Sewer mains and internal drainage;
- Sewer manholes;
- Sewer treatment system which will include a green system that also allow for harvesting or the effluent. Bio Sewage System which will utilise a multi-stage system that is designed to breakdown wastewater using mechanisms inspired by nature, and by using a series of anaerobic, anoxic and aerobic reactors OR bio-plant constructed wetland treatment systems. This will easily incorporate a black water and grey water system into the sewer system to recover water that may be utilised for irrigation, to suppress dust and to wash vehicles. Additional treatment may be installed to improve the water quality to drinking standards.

As for the roads and stormwater management proposed within the development, it is noted that internal roads will be constructed with a minimum of 6m wide, linked to regional provincial road D979 through the existing intersection from Vlakbult. Further to the structural design of the road pavement, structures that are of a functional, visual and prohibitive nature will be included in the construction. These include but are not limited to the following:

- Stormwater attenuation pond to reduce the risk of erosion;
- Stormwater control structures (stormwater pipes, kerb inlets, drains etc.;
- Construction of erosion protection structures; and
- Construction of road ancillary structures (guardrails, speed humps, road signage and
- markings, paved entrances etc.)

The types of waste to be generated by the development includes the following:

- Domestic waste
- Sewage/Effluent
- Hazardous waste (fuel and oil)

The project area is currently not serviced by the Nkomazi Local Municipality and therefore domestic waste will have to be stored temporarily and transported off-site to the nearest registered landfill site. A third-party contractor will be responsible for removing all hazardous substances from the site and disposing of it at a registered hazardous waste disposal site.

1.6 Need and Desirability

Mzinti is an informal township area which expanded quite extensively over the past 10 years. With the expansion of the area, population have also increased significantly within the immediate area, establishing a need for the area to fulfill the basic needs for the community members.

At present, the commercial and business opportunities within Mzinti is insufficient when considering the number of community members residing within the project area. In order to service the members of the community of Mzinti, more business and commercial developments are required to be established and it is believed that the proposed shopping centre would in fact cater to the needs of the surrounding community members by providing a contemporary and hassle-free shopping experience. The shopping centre will be a one-story building, housing various retail stores, including line shops, anchor shops, a food court a fast-food drive through, filling station and ample parking for the convenience of customers.

In addition to the above need for the shopping centre, the development will be creating numerous job opportunities within a community where employment opportunities are very limited. For this reason, the proposed shopping centre and filling station is also desirable.

2. DESCRIPTION OF THE ENVIRONMENT

The project site has already been transformed. Some of the aspects are described below in order to provide a description of the affected and surrounding environment. The description of the affected environment below draws on existing knowledge from published data, previous studies, as well as a site visits to the area.

2.1 Topography

The topography of the proposed site is relatively flat, with the site sloping very slightly towards the south of the proposed property. There are no valleys or ridges within or adjacent to the proposed site area.

Localised flooding will not be a concern with this development. Currently there no drainage structures within the area as there is no development. There are culverts on the existing roads draining away from the area. As there is a shallow stream passing close to the site.

The altitude of the site is noted as 263m above sea level.

2.2 Geology and Soils

A Geotechnical Survey was undertaken by MS Mabuya Civil Laboratory (Pty) Ltd, and it was found that the site was underlain by residual potassic gneiss and migmatite. The expected soil profiles include clay, silt and sand angular gravel, cobbles, or boulders.

The study area was characterised by transported soils present to a depth of 0.90m. The transported soil was then underlain by residual soil which was encountered to a maximum depth of 2.00m below e.g.l. There was no groundwater seepage encountered within the investigated area. The study area does not reflect any risk for the formation of sinkholes or subsidence's caused by the presence of water-soluble rocks (dolomite or limestone), and as such is not deemed "dolomitic land". No natural groundwater seepage was encountered in any of the test pits excavated on site. However, groundwater seepage may be expected at the interface of transported and residual soils (approximately 1.5m) especially after periods of heavy rainfall.

The soils are classified as material of G6 to G7 quality.

2.3 Climate

Mpumalanga is a province where the climate varies due to is topography. The proposed project area is located on the Lowveld Region and has a tropical climate with warm sub-tropical temperatures and experiences high summer rainfalls. The study area experiences a humid and hot weather during summer seasons. The climatic trends of the area suggest summer season precipitation and dryer periods during winter. The area receives a total of about 800-1000 mm of rain over 12 months.

2.4 Land Use

The project area as well as surrounding areas has already been transformed and has been informally urbanized. The areas directly adjacent to the proposed project site are also in process of being transformed to residential.

At present, an application is currently being undertaken to establish the Medi-Prime Hospital to the north of the proposed project area. Should the establishment of the hospital approved it will further motivate the requirement for the Shopping Centre to fulfill the necessities of more people visiting the area.

2.5 Surface and Groundwater

From desktop and site assessment undertaken, it is evident that there is no surface or ground water bodies within the extent of the proposed site. As depicted in Figure 2 below, there are no National Freshwater Ecosystem Priority Areas (NFEPA) on or near the proposed project site.

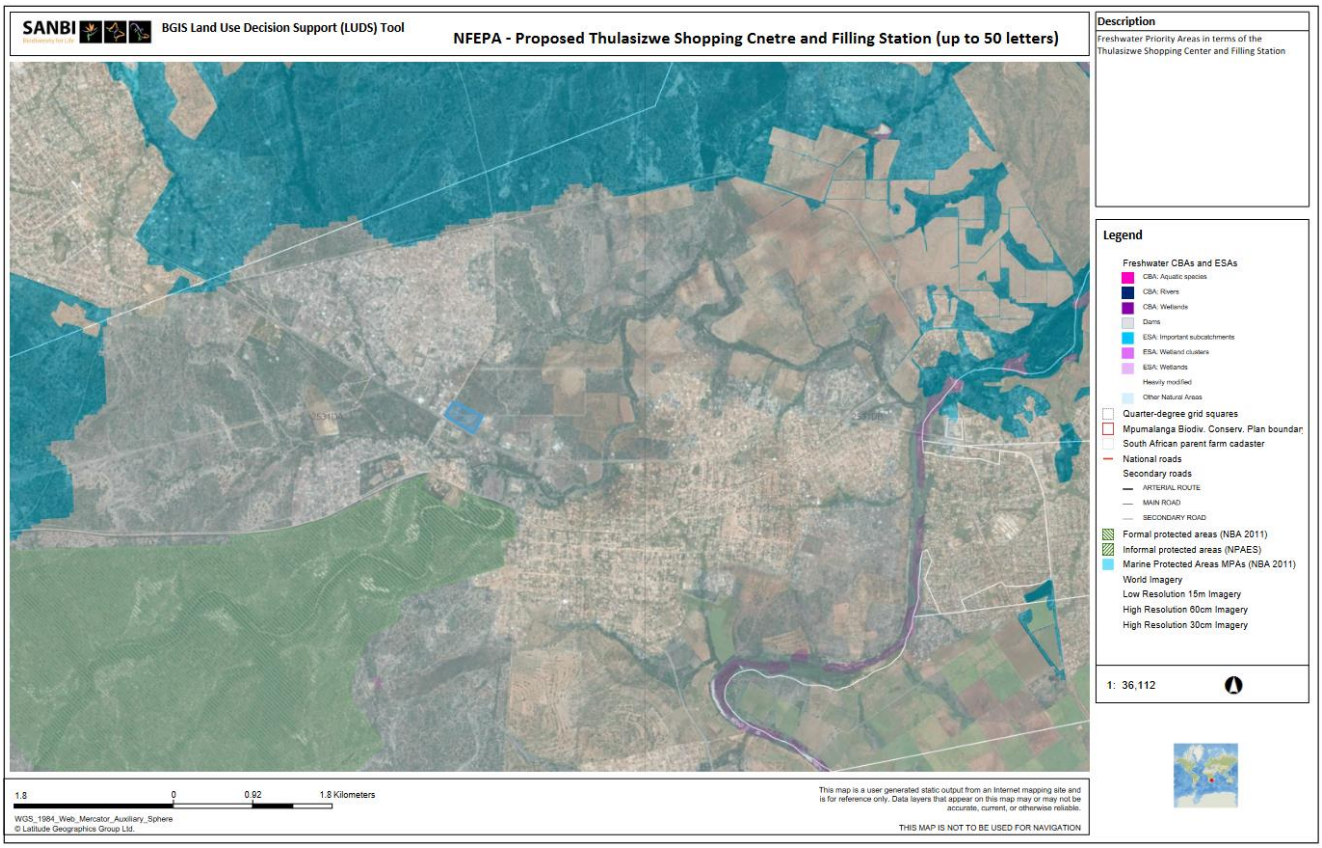

FIGURE 3: NATIONAL FRESHWATER ECOSYSTEM PRIORITY AREAS WITHIN PROPOSED THULASIZWE SHOPPING CENTRE AREA

In terms of the Mpumalanga Biodiversity Sector Plan of 2014, the aquatic priority of the proposed site is noted as “Other Natural Areas”. This classification is relevant to the entire extent of the property and are not required to meet biodiversity targets, and so are not identified as a priority in the MBSP. They do, however, retain much of their natural character. The

biodiversity in these non-priority landscapes may still be of value and contribute to maintenance of viable species populations and natural ecosystem functioning and Other Natural Areas may provide essential ecological infrastructure and ecosystem services. ONAs offer the greatest flexibility in terms of management objectives and permissible land-uses and are generally recommended (along with Modified Areas) as the sites for higher-impact land uses. Primary objectives: An overall management objective should be to minimize habitat and species loss and ensure ecosystem functionality through strategic landscape planning. This classification is relevant to aquatic ecological importance of the northern section of the property.

2.6 Terrestrial Environment

Terrestrial Ecology: The study area is classified as Lowveld (A10), according to Acocks (1988). The project area falls within the Granite Lowveld Vegetation Type which is classified as Not Threatened (NT). This vegetation type occurs at altitudes of 250 - 700 m above mean sea level and is characterised by tall shrubland with few trees to moderately dense low woodland on deep sandy uplands (Mucina and Rutherford, 2006). Dominant species in this vegetation type are: Acacia nigrescens, Sclerocarya birrea subsp. caffra, Acacia nilotica, Albizia harveyi, Combretum apiculatum, C. imberbe, C. zeyheri, Ficus stuhlmannii, Peltophorum africanum, Pterocarpus rotundifolius, Terminalia sericea, Combretum hereroense, Dichrostachys cinerea, Euclea divinorum, Strychnos madagascariensis, Brachiaria nigropedata, Digitaria eriantha subsp. eriantha, Eragrostis rigidior, Melinis repens, Panicum maximum and Pogonarthria squarrosa (Mucina and Rutherford, 2006).

According to the MBSP category for terrestrial ecosystem priority areas the site is also categorized as “Other Natural Areas”.

It is clear that the site is covered with indigenous vegetation but clearing of vegetation over the past few years is evident.

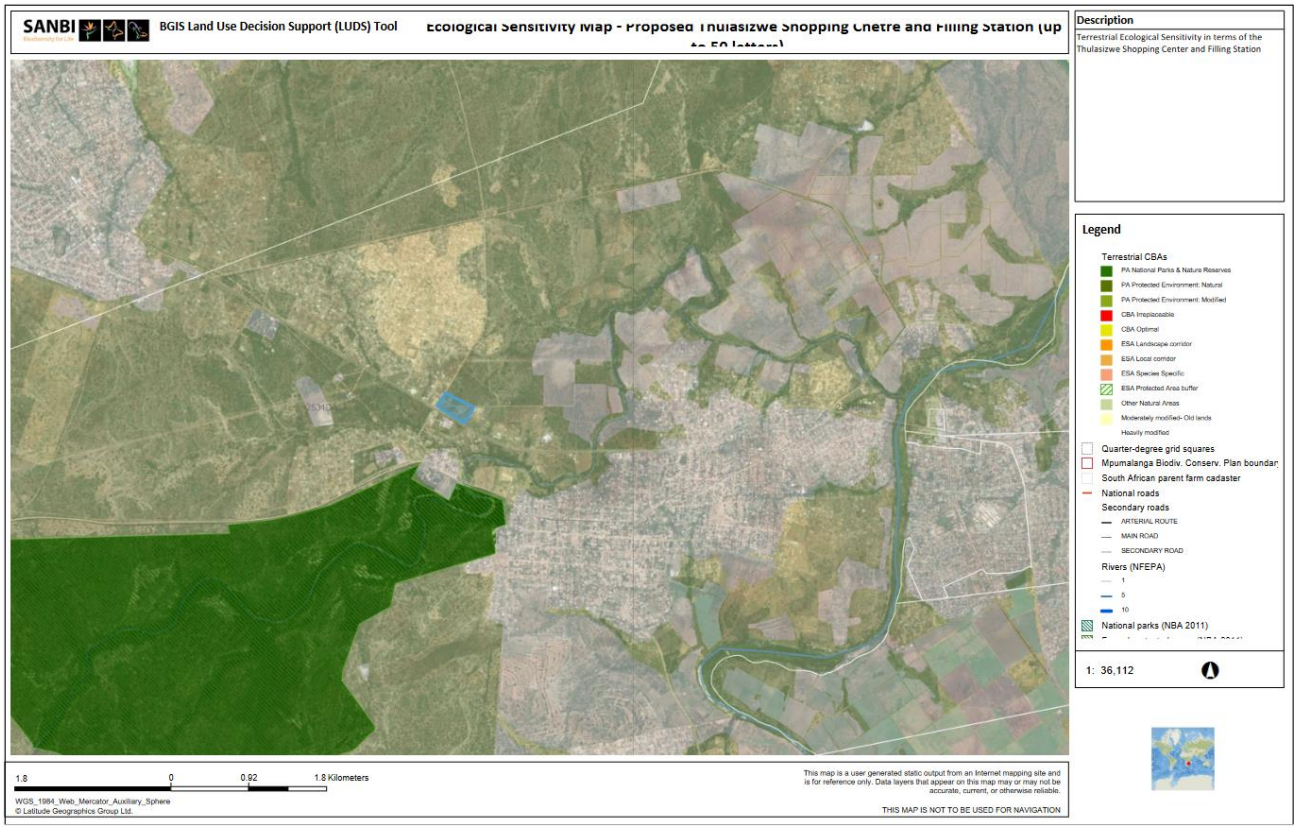

FIGURE 4: TERRESTRIAL ECOLOGICAL SENSITIVITY FOR THE PROPOSED THULASIZWE SHOPPING CENTRE AREA

The vegetation can be classified as closed woodland with the structure consisting mainly of shrubs and medium size trees of the following species: *Dichrostachys cinerea, Grewia bicolor, Phyllanthus reticulatus, Vachellia swazica, Senegalia nigrescens, Combretum apiculatum* and *Terminalia sericea*. Several large trees are present, notably *Aloe marlothii* (Protected, MNCA), *Berchemia zeyheri* (Protected, NFA), *Schotia brachypetala, Sclerocarya birrea* (Protected, NFA) and *Diospyros mespiliformis* (Protected, NFA). No sensitive features or habitats such as wetlands or rock outcrops are present on site. No SCC plant or animals or signs thereof was recorded.

FIGURE 5 AND 6: THE SITE IS COVERED LARGELY WITH INDIGENOUS SHRUBS AND MEDIUM SIZED TREES


FIGURE 7 AND 8: LARGER TREES ARE PRESENT AND PROVIDE SHADE AND TREES FOR ANIMALS

The site assessment confirms the fact that the presence of terrestrial animal species on site is negatively affected by transformation of the natural habitats on site. No SCC animals were recorded on the site and the potential presence of the SCC species indicated by the screening tool was verified via literature review and on-site verification.

Following the specialist assessment, it can be confirmed that the proposed project site is of low ecological sensitivity which is in contrast to the screening tool which suggests a high sensitivity.

3. PUBLIC PARTICIPATION PROCESS

The purpose of this chapter is to provide an outline of the public participation process (PPP) to date and the way forward with respect to the Environmental Authorisation process.

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

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

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

- Distributing English Background Information Documents (BIDs) to all registered I&APs, 21 July 2023, proof of which is attached in **Annexure C.2**;
- Placement of media advert in a local newspaper (The Mpumalanga News) on 26 July 2023 (see **Annexure C.3**).
- Placing of a notice at the proposed site took place on 12 July 2023 (see **Annexure C.4**);

The Draft BA Report is made available for public review between 30 April to 30 May 2024.

To date no comments have been received.

4. CONSIDERATION OF ALTERNATIVES

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

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

4.1 Alternative Selection

4.1.1 Location Alternatives

No other locality alternatives could be investigated as this is the only portion of land provided to Thulasizwe Trust by the Matsamo Traditional Council. As the project area is located adjacent to the main road, the location of the proposed shopping centre and filling station is ideal and therefore no other feasible location alternatives were investigated.

4.1.2 Layout Alternatives

An Ecological Assessment, Heritage Impact Assessment and Geotechnical Investigation was undertaken to establish whether there were any sensitivities on site which required protection which would inform the layout of the proposed shopping centre and filling station layout plan. The specialist assessments undertaken found no sensitivities which required the layout to change to protect any sensitivities.

4.1.3 No-Go Alternatives

The no-go alternative would be to not authorise the application for the Thulasizwe Shopping Centre and filling station. Should this alternative be favourable, the area will be invaded and informal /semi-formal housing structures will be erected. The area will therefore be cleared of vegetation without the management and controlled environment of conditions set within the Environmental Authorisation. For this reason, the no-go alternative was not found to be the preferred option for the project area.

5. SPECIALIST ASSESSMENT REQUIREMENTS AS IDENTIFIED IN THE SCREENING REPORT

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

5.1 Visual Impact Assessment

The proposed activity is located within an area which is currently being surrounded by areas being transformed informally (without services and the required approvals). Due to the existing transformation of the surrounding area currently taking place, the visual impact of the proposed shopping centre and filling station would not be much different from the current impact and therefore it is the opinion of the EAP that no Visual Impact Assessment is required for the proposed hospital.

5.2 Heritage and Paleontological Impact Assessment

According to the Heritage Resources Act 25, of 1999, a Heritage Impact Assessment is required when more than 5 000 m^2 is impacted or a linear activity is more than 300 m in length. As the project area affected by the proposed hospital is approximately 3Ha, a Heritage Impact Assessment was undertaken by Adansonia Heritage Consultants and the findings of the assessment can be summarised as follows:

Recent housing infrastructure was found to have been established on site between 2017 and 2018. Builder's and road rubble and domestic refuse are also visible within the study area. Mr. Johannes Mokoena (a family member), the Project Manager for the proposed development, assisted during the field survey. He confirmed that there are no burial sites or graves on the property. No archaeological or historical features of significance were observed during the survey.

It is recommended that the applicant be made aware that distinct archaeological material or human remains may only be revealed during the construction operation. It is recommended that earthmoving activities be monitored and if subsurface archaeological material is present an assessment should be done by a qualified archaeologist. Based on the survey and the findings in this report, the specialist found no compelling reason which may prevent the proposed development to continue.

5.3 Terrestrial/Aquatic Biodiversity Assessment / Plant and Animal Species Assessment

Although the areas surrounding the project site has already been transformed, the 3Ha proposed for the shopping centre and filling station is still mostly untransformed and located within an Ecological Support Area: Buffer of a Protected Area (ESA). For this reason, a Terrestrial Biodiversity Assessment was undertaken and the following findings were made:

The vegetation can be classified as closed woodland with the structure consisting mainly of shrubs and medium size trees of the following species: *Dichrostachys cinerea, Grewia bicolor, Phyllanthus reticulatus, Vachellia swazica, Senegalia nigrescens, Combretum apiculatum* and *Terminalia sericea*. Several large trees are present, notably *Aloe marlothii* (Protected, MNCA), *Berchemia zeyheri* (Protected, NFA)*, Schotia brachypetala, Sclerocarya birrea* (Protected, NFA) and *Diospyros mespiliformis* (Protected, NFA).

No sensitive terrestrial biodiversity themes or features such as rocky outcrops are present on site. No sensitive aquatic biodiversity themes or features such as wetlands, were found on site. In addition to this, no SCC plant or animals or signs thereof was recorded on site.

The specialist hereby states with high confidence that the site sensitivity for plant and animal species are low. The following site recommendations and mitigation is proposed relevant to terrestrial plant species:

- Conserve large trees where possible on site.
- Re-introduce indigenous vegetation (indigenous to the local area) as part of landscaping.
- Conserve large trees where possible on site.
- Provide efficient waste management services.
- Provide efficient waste management services.

5.4 Socio-economic Assessment

The proposed project will not have any negative impact on the socio-economic environment. Contrary to this, a number of additional job opportunities will be created during the construction and operational phase of the project, which will have a positive impact on the local community. The additional job opportunities and necessities which would be provided for the area would positively impact the livelihoods of the community members of Mzinti.

As no negative socio-economic impact is expected with the proposed project, it is the opinion of the EAP that no Socio-Economic Impact Assessment is required.

5.5 Geotechnical Investigation

Although the DFFE Screening Tool Report did not require a Geotechnical Investigation to be undertaken, the client undertook such investigation to ensure that the geological and soil profiles would be suitable for the proposed shopping centre development and filling station.

The assessment found that the majority of the site is characterised by transported soils overlaying residual gneiss and migmatite. While this zone is suitable for development, the following adverse geotechnical characteristics must be noted:

- The thick, transported and residual soils encountered on the site are deemed to be potentially collapsible / compressible, requiring the implementation of strengthened foundations and masonry construction or pre-collapse;
- The likely occurrence of seasonal perched groundwater conditions over portions of the project area, possibly requiring the dewatering of foundation and service trenches during

construction and necessitating the installation of damp course to prevent structures from rising damp;
- The occurrence of highly erodible transported and residual soils that may lead to severe surface erosion in areas where a concentration of surface water occurs, requires the implementation of an efficient surface drainage system.

5.6 Traffic Impact Assessment

Although no Traffic Impact Assessment was required to be undertaken by the DFFE Screening Tool Report, the Traffic Impact Assessment was undertaken to ensure that the adjacent roads would be suitable to accommodate the additional traffic flow to and from the proposed development.

D797 road is a national road that passes through the site on the southern side of the site. The road is surfaced and consists of a single lane in each direction on the section of the road adjacent to the proposed development. The width of each lane is approximately 3.5 metres. D2942 road is a provincial road that passes through the site on the western side of the site. The road is unsurfaced on the northern side of D797 road and surfaced on the southern side of D797 road.

D2942 forms an intersection with D797 road. D797 road and D2942 road intersection is located on the southwestern side of the proposed development. The intersection is STOP controlled with D797 being the major road. The intersection sight distance on the intersection was found to be adequate.

Following the Traffic Impact Assessment, the following was noted:

- The proposed development will generate the following trips;
    - Friday PM peak period 119 trips (In) and 112 trips (Out).
    - Saturday PM peak period 205 trips (In) and 176 trips (Out).
- The existing intersections all operate at an undesirable level of service during the design horizon period of 2030;
- The D797 and D2942 roads intersection will need to be upgraded to a signalised intersection and D797 and D2945 roads intersections will need to be replaced by a roundabout in order to improve the level of service;
- Access to the proposed development will be provided by single access from D797 road and single access from D2942 road. The access from D797 road will be a signalised full intersection and access from D2942 road will be a priority controlled full intersection;
- Currently, there is no bus stop in the surrounding area of the site. It is essential to introduce public transportation options to meet the requirements of the local community and alleviate potential traffic congestion resulting from the proposed development;
- The developer should consider paved sidewalks along the proposed site frontage to accommodate pedestrians, where these are not provided.

6. METHODOLOGY OF ASSESSING THE SIGNIFICANCE OF IMPACTS

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

For each impact, the EXTENT (spatial scale), MAGNITUDE and DURATION (time scale) would be described, as shown in Table 3: Assessment criteria for the evaluation of impacts. These criteria are then used to determine the SIGNIFICANCE of the impact, firstly in the case of no mitigation and then with the most effective mitigation measure(s) in place. The mitigation described in the Report represents the full range of plausible and pragmatic measures but does not necessarily imply that they would be implemented.

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

TABLE 3: ASSESSMENT CRITERIA FOR THE EVALUATION OF IMPACTS

Criteria	Category	Description
Extent or spatial influence of impact	**Regional**	Beyond a 30km radius of the candidate site.
	Local	Within a 30km radius of the candidate site.
	Site-specific	On site or within 100 m of the candidate site.
Magnitude of impact (at the indicated spatial scale)	**High**	Natural and/ or social functions and/ or processes are *severely* altered
	Medium	Natural and/ or social functions and/ or processes are *notably* altered
	Low	Natural and/ or social functions and/ or processes are *slightly* altered
	Very low	Natural and/ or social functions and/ or processes are *negligibly* altered
	Zero	Natural and/ or social functions and/ or processes remain *unaltered*
Duration of impact	**Long-term**	More than 10 years after construction
	Medium-term	Up to 5 years after construction
	Construction-term	Up to 3 years

The SIGNIFICANCE of an impact is derived by taking into account magnitude, duration and extent of each impact. The criteria employed in arriving at the different significance ratings is shown in Table 4.

TABLE 4: DEFINITION OF SIGNIFICANCE RATINGS

Significance ratings	Level of criteria required
High	• High magnitude with a regional extent and long-term duration • High magnitude with either a regional extent and medium-term duration or a local extent and long-term duration • Medium magnitude with a regional extent and long-term duration
Medium	• High magnitude with a local extent and medium-term duration • High magnitude with a regional extent and construction period or a site-specific extent and long-term duration • High magnitude with either a local extent and construction period duration or a site-specific extent and medium-term duration • Medium magnitude with any combination of extent and duration except site specific and construction period or regional and long term • Low magnitude with a regional extent and long-term duration
Low	• High magnitude with a site-specific extent and construction period duration • Medium magnitude with a site-specific extent and construction period duration • Low magnitude with any combination of extent and duration except site specific and construction period or regional and long term • Very low magnitude with a regional extent and long-term duration
Very low	• Low magnitude with a site-specific extent and construction period duration • Very low magnitude with any combination of extent and duration except regional and long term
Neutral	• Zero magnitude with any combination of extent and duration

Once the significance of an impact has been determined, the **PROBABILITY** and **CONFIDENCE** of this impact are determined using the rating systems outlined in Table 5 and Table 6. The significance of an impact should always be considered in concert with the probability of that impact occurring. Lastly, the **REVERSIBILITY** of the impact is estimated using the rating system outlined in Table 7**.**

TABLE 5: DEFINITION OF PROBABILITY RATINGS

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

TABLE 6: DEFINITION OF CONFIDENCE RATINGS

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

TABLE 7: DEFINITION OF REVERSIBILITY RATINGS

Reversibility ratings	Criteria
Irreversible	The activity will lead to an impact that is in all practical terms permanent.
Reversible	The impact is reversible within 2 years after the cause of the impact is removed.

7. ENVIRONMENTAL IMPACT ASSESSMENT

The proposed hospital will affect the biophysical and social environment during the construction and operational phases of the development and therefore these impacts are in Section 7.1 and 7.2 below.

7.1 Impacts during construction phase

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

- *Impact on biodiversity;*
- *Generation of dust;*
- *Impact on soil (soil erosion and soil pollution);*
- *Impact on water resources;*
- *Sanitation and waste generation;*
- *Socio-economic impact.*

7.1.1 Impact on biodiversity

Description of the potential impact

The area surrounding the project area has already been cleared of vegetation due to the surrounding informal urbanisation.

A Terrestrial Biodiversity Assessment was undertaken, and it was found that the sensitivity of the terrestrial biodiversity of the proposed site is low due to the ongoing wood harvesting being undertaken on site and clearance activities undertaken within the surrounding area. Several large trees are present, notably *Aloe marlothii* (Protected, MNCA), *Berchemia zeyheri* (Protected, NFA)*, Schotia brachypetala, Sclerocarya birrea* (Protected, NFA) and *Diospyros mespiliformis* (Protected, NFA). However, no sensitive features or habitats such as wetlands or rock outcrops are present on site. No SCC plant or animals or signs thereof were recorded.

In order to construct the shopping centre, the vegetation will have to be cleared and these species will have to be removed. The clearance of vegetation would result to the loss and fragmentation of habitat.

Significance of the impact

As noted above, the sensitivity of the terrestrial biodiversity of the proposed shopping centre is low due to the ongoing wood harvesting and informal settlements in the surrounding area. The habitat has already been fragmented by the surrounding activities. Due to the low sensitivity and existing fragmentation of the habitat, the magnitude of the impact is low.

The impact is of site-specific extent and long-term duration as the vegetation will be permanently lost. For this reason, the significance of the impact is rated as low prior to the implementation of mitigation measures. The implementation of mitigation measures would further reduce the impact to be of very low significance

TABLE 8: IMPACT ASSESSMENT – BIODIVERSITY DURING CONSTRUCTION

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Magnitude	Extent	Duration	Probability	Impact Rating	Impact Rating
Impact on biodiversity [NEGATIVE]	Low	Site specific	Long-term	Probable	Low	Very Low

Mitigation measures

- The footprint of activities associated with construction activities must be restricted to project area.
- As far as possible, large trees must be conserved.
- Permit must be obtained for the removal and/or relocation of any protected flora.
- Re-introduce indigenous vegetation as part of landscaping.
- Provide efficient waste management services
- Stipulations of the Environmental Management Program (EMPr) should be adhered to during the construction phases of the project.

7.1.2 Generation of dust

Description of the potential impact

Soil is disturbed during the construction phase of the project which increases the possibility of dust generation affecting adjacent owners and road users.

Significance of the impact

The construction site is located within a township, with residents surrounding the project site. For this reason, the impact is regarded to be of medium magnitude as natural and/ or social functions and/ or processes could be *notably* altered. The impacts associated with the generation of dust is however of short duration and site-specific extent and is therefore assessed to be of low significance prior to the implementation of mitigation measures.

Mitigation measures are however recommended to minimise the generation of dust.

TABLE 9: IMPACT ASSESSMENT – GENERATION OF DUST DURING CONSTRUCTION

MPACT	BEFORE MITIGATION					AFTER MITIGATION
	Magnitude	Extent	Duration	Probability	Impact Rating	Impact Rating
Dust generation [NEGATIVE]	Medium	Site Specific	Short-term	Probable	Low	Very Low

Mitigation measures

- Areas may not be disturbed and left unattended for long periods of time;
- Construction site must be sprayed with water to limit the generation of dust of the surfaces if required.

7.1.3 Impact on soil

Description of the potential impact

The construction process will remove vegetation cover on site and disturb the soil surface which could lead to occurrence of soil erosion. The topography of the site slopes is however relatively flat, which reduces the possibility of erosion occurring.

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

Significance of the impact

During establishment, soil could be impacted by the following:

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

The significance of soil pollution as well as soil erosion is of medium magnitude, site specific and short duration and for this reason the impact is of low significance prior to the implementation of mitigation measures.

TABLE 10: IMPACT ASSESSMENT – IMPACT ON SOIL DURING CONSTRUCTION

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

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

Mitigation measures

- To minimise the possibility of erosion, it is recommended that no disturbed areas be left unattended. Disturbance and removal must be restricted to the footprint of the site.
- Measures to reduce the velocity of water, must be taken on areas prone to erosion.
- Should there be any spillage of hazardous substances during the construction activities, soil must be removed up to a depth of 300mm and be disposed of at a registered hazardous waste disposal facility. Proof of such disposal must be kept on file.

7.1.4 Impact on water resources

Description of the potential impact

As noted in the description of the project area, there are no surface or ground water bodies within a close proximity to the project site. The only impact on water resources which must be taken into account is the use of water for construction purposes.

Water during construction must be used sparingly and it is noted that if water is abstracted from boreholes or any surface water body for this purpose, a Water Use License must be obtained for the abstraction.

Significance of the impact

As there are no surface of ground water bodies within the perimeter or within a close proximity to the site, the only impact to be considered is the use of water during the construction phase. Water for construction must be used sparingly and if water is not conveyed to the construction site, but abstracted from a surface or groundwater resource, such abstraction practises must be undertaken in accordance with the National Water Act 36 of 1998. And conditions of the Water Use License must be complied with.

TABLE 11: IMPACT ASSESSMENT – IMPACT ON WATER RESOURCES DURING CONSTRUCTION

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Magnitude	Extent	Duration	Probability	Impact Rating	Impact Rating
Excessive water use [NEGATIVE]	**Medium**	**Local**	**Short-term**	**Probable**	**Medium**	**Low**

Mitigation measures

- Water used during the construction process must be monitored and metered;
- Any leaking taps or hoses must be closed immediately;
- If water is abstracted from a surface or ground water resource, abstraction must comply with the Water Use License issued.

7.1.5 Sanitation and waste generation

Description of the potential impact

During construction, domestic and construction waste is generated. The township of Mzinti is not being serviced as it is an informal township area at this point in time. Waste generated during the construction phase is therefore stored and removed from site to a registered waste disposal site. Construction and domestic waste could have a significant impact on the surrounding environment as it is clear that some areas within Mzinti Township are currently being utilised as a dumping site. Improper waste management would further exacerbate the current waste generation and disposal challenges faced by the community members of Mzinti Township.

Significance of the impact

Improper waste disposal and sanitation practises will negatively impact the surrounding environment which is already being impacted negatively. Due to the existing situation within the surrounding area, the magnitude of the impact is medium. Waste will have to be stored and transported to the nearest registered landfill site and for this reason, the impact is of local extent. The impact is however of short duration during the construction phase and therefore the impact is of medium significance prior to the implementation of mitigation measures.

TABLE 12: IMPACT ASSESSMENT – SANITATION AND WASTE DURING CONSTRUCTION

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Magnitude	Extent	Duration	Probability	Impact Rating	Impact Rating
Waste generation and disposal [NEGATIVE]	**Medium**	**Local**	**Short-term**	**Probable**	**Medium**	**Low**

Mitigation Measures

- Construction waste can be stored temporarily on an area demarcated specifically for this purpose. Construction waste must then be removed from site regularly;
- Waste storage area must be demarcated, and waste must be separated and then be removed to a registered waste disposal site on a regular basis;

- Chemical toilet facilities must be provided to construction workers and must be cleaned and maintained regularly;
- Sufficient refuse bins must be provided on site during construction; and
- Waste must not be left to decay on site.

7.1.6 Socio-Economic Impact

Description of the potential impact

During the construction activities, various temporary job opportunities are created which will have a positive socio-economic impact on the livelihood of the surrounding community.

In terms of safety and security, there is always risk associated when working with machinery and therefore it is essential that all workers comply with the Health and Safety Act 85 of 1993.

Significance of the impacts

Based on the methodology detailed in **Section 5**, the following ratings have been assigned to the 'employment opportunities' and impact associated with health and safety of employees, respectively.

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

TABLE 13: IMPACT ASSESSMENT – SOCIO-ECONOMIC IMPACT DURING CONSTRUCTION

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

Mitigation measures

The applicant and/or project manager must ensure that local residents receive preference for job opportunities where local labour might be required.

It is imperative that all personnel adhere to the Occupational Health and Safety Act 85 of 1998 and that no personnel enter any other surrounding properties.

7.2 Impacts during the Operational Phase

During operation, the activities associated with the shopping centre and filling station are likely to result in the following environmental and socio-economic impacts:

- *Impact on biodiversity*
- *Impact on soil;*
- *Impact on water resources;*
- *Generation of waste and waste disposal;*
- *Traffic Impact: and*
- *Socio-economic impact.*

7.2.1 Impact on biodiversity

Description of the potential impact

During operation, vegetation will be permanently lost and fragmented. The disturbed area could also lead to the spread of alien invasive species if left unattended and not rehabilitated.

Significance of the impact

Invasion of alien invasive species and use of pesticides and herbicides:

When natural vegetation is removed and activities are undertaken, the opportunity for invasive plant species within the perimeter of the site will increase and will be problematic if not adequately removed or managed. Alien vegetation is normally removed mechanically or chemically. Using harmful chemicals would kill all pest and alien vegetation but also affect other insects and mammals which must be protected. Mechanical removal or removal of alien vegetation by hand is therefore preferred above the chemical treatment thereof.

The impact of alien vegetation and the control thereof is of medium magnitude due to the project area being located within an ESA. The extent of the impact is local and of long-term duration and for this reason the spreading of alien invasive species is rated to be of medium significance prior to the implementation of mitigation measures.

TABLE 14: IMPACT ASSESSMENT – BIODIVERSITY DURING OPERATION

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Magnitude	Extent	Duration	Probability	Impact Rating	Impact Rating
Spreading of alien invasive species [NEGATIVE]	**Medium**	**Local**	**Long-term**	**Probable**	**Medium**	**Low**

Mitigation measures

- An Invasive Species Management Programme must be compiled and complied with during the operational phase of the project;
- All indigenous tree species and vegetation used for landscaping, must be taken care of and maintained.
- Stipulations of the Environmental Management Program (EMPr) should be adhered to during the establishment and operational phases of the project.

7.2.2 Impact on soil

Description of the potential impact

During operation, hardened surfaces can give rise to the increase in the flow of water during storm events, resulting in erosion on areas surrounding the site if storm water structures are inadequate. The Geotechnical Investigation noted that the area is suitable for development, however, the occurrence of highly erodible transported and residual soils that may lead to severe surface erosion in areas where a concentration of surface water occurs, requires the implementation of an efficient surface drainage system. Should this not be implemented on such areas, the areas could easily be eroded.

It is proposed that the removal of storm water from the road surface and the entire development will be via open surface channels.

Significance of the impact

During operation, soil could be impacted by erosion, which results to the loss of topsoil, impacting the revegetation capability of the surrounding environment. The slope of the project area is however flat and therefore the possibility of soil being eroded is reduced, minimising the magnitude of the impact to be medium. The impact is site specific and of long-term duration and for this reason the impact is rated to be of medium significance prior to the implementation of mitigation measures.

TABLE 15: IMPACT ASSESSMENT – IMPACT ON SOIL DURING OPERATION

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Magnitude	Extent	Duration	Probability	Impact Rating	Impact Rating
Erosion / Improper storm water management [NEGATIVE]	**Medium**	**Site Specific**	**Long-term**	**Probable**	**Medium**	**Low**

Mitigation measures

- Permanent measures must be taken on areas prone to erosion. These measures can include gabions or revegetation with indigenous plant species.
- A proper storm water management plan must be drafted and implemented.

7.2.3 Impact on water resources

Description of the potential impact

The project area is not serviced by the Nkomazi Local Municipality and therefore water will be dependent on the abstraction of on-site boreholes. As noted in the description of the project, 91 250 m^3 per annum is required for the operations of the hospital and associated activities. Excessive use of water during operation could deplete the ground water resources, resulting in a negative impact on ground water resources within the catchment.

Significance of the impact

Water abstracted from ground water resources must comply with the regulations and conditions as stipulated within the National Water Act 36 of 1998. As stipulated within the NWA 36, of 1998, a Water Use License is required for the abstraction of any water resource and compliance with the conditions of such WUL would be required. Should the applicant exceed the volume of water to be authorised (if approved), thereby abstracting more than the recharge, the magnitude of the impact is regarded as high, as this would have a significant impact on the ground water resources within the catchment. The impact would be of local extent and long-term duration and therefore be of high significance prior to the implementation of mitigation measures. Implementing mitigation measures to ensure that water is abstracted in accordance with the volume authorised (if approved), would reduce the significance of the impact to be of low significance.

TABLE 16: IMPACT ASSESSMENT – IMPACT ON WATER DURING OPERATION

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Magnitude	Extent	Duration	Probability	Impact Rating	Impact Rating
Excessive water use resulting to the depletion of ground water resources. [NEGATIVE]	**High**	**Local**	**Long-term**	**Probable**	**High**	**Low**

Mitigation Measures

- Stipulations of the Environmental Management Program (EMPr) should be strictly adhered to during the operational phase of the project.
- Abstraction of water must be undertaken in accordance with the regulations stipulated within the NWA 36, of 1998;
- Should a Water Use License be issued, conditions of such WUL must be adhered to.

7.2.4 Generation of waste and waste disposal

Description of the potential impact

As noted previously, the area is not serviced by the Nkomazi Local Municipality and therefore waste generation and disposal must be addressed by the applicant. Improper waste storage and disposal could lead to detrimental environmental impacts.

The types of waste generated by a hospital includes the following:

- Domestic waste
- Sewage/Effluent
- Hazardous waste such as oils and/or fuel spills etc.

The treatment of effluent is discussed in Section 1.5 and it is noted that an on-site green sewage treatment system will be constructed to effectively treat and dispose of sewage and effluent generated. The treated effluent will then be used for irrigation purposes.

Domestic waste will be stored within an area specifically provided for this purpose, until it is removed from site to the nearest registered landfill site for disposal.

Hazardous waste such as used oil, and fuel/diesel spillages could also be generated during the operational phase of the development. Such waste must be separated from domestic waste and be stored on and within an impermeable container until it can be removed from site by a registered third-party contractor specialising in the removal of hazardous waste. Improper storage and/or disposal of such waste would have a negative impact on the surrounding environment.

Significance of the impacts

As the area is not being serviced by the local municipality, proper storage of domestic and well as medical waste until removal is prudent. Improper waste storage and ineffective effluent treatment could lead to detrimental environmental impacts and impact the health of the surrounding community members.

Improper storage and disposal of hazardous waste would also result to a significant health hazard for members of the surrounding community. For this reason, only registered hazardous waste collection and removal service providers may be used for the collection and transportation of such waste.

Taking the environmental and health aspects of the site into consideration, the impact of waste generation and disposal is of high magnitude, local extent and long-term duration. For this reason, the impact is rated to be of high significance prior to the implementation of mitigation measures. However, if

the correct waste storage and removal procedures are adhered to, the impact is minimised to be of low significance.

TABLE 17: IMPACT ASSESSMENT – GENERATION OF WASTE AND WASTE DISPOSAL DURING OPERATION

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Magnitude	Extent	Duration	Probability	Impact Rating	Impact Rating
Waste generation and disposal [NEGATIVE]	**High**	**Local**	**Long-term**	**Probable**	**High**	**Low**

Mitigation measures

- Domestic waste must be separated from hazardous waste and stored separately until it can be removed to a registered waste disposal facility;
- Compliance with applicable regulations stipulated within the National Environmental Management: Waste Act 59 of 2008 and National Health Act 61, of 2003 must be considered;
- The Sewage Treatment Package Plant must be maintained regularly to ensure that the package plant is working optimally;
- The applicant must appoint a certified third-party contractor for the removal of hazardous waste,. Proof of disposal must be provided to the applicant;
- Sufficient refuse bins must be available on site to reduce the possibility of littering on site during operation.

7.2.5 Traffic Impact

Description of the potential impact

Access to the proposed development will be provided single access from D797 road and single access from D2942 road. The D797 and D2942 roads intersection will need to be upgraded to a signalised intersection and D797 and D2945 roads intersections will need to be replaced by a roundabout in order to improve the level of service. If these intersections are not upgraded as part of the project to accommodate the additional traffic generated, traffic flow to and from the shopping centre could become congested and could also become a safety hazard for motorists and pedestrians within the immediate area.

Significance of the impacts

The magnitude of the impact is rated as high, with a site-specific extent and long-term duration which would result to the impact being of medium significance prior to the implementation of mitigation measures.

TABLE 18: IMPACT ASSESSMENT – TRAFFIC IMPACT DURING OPERATION

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Magnitude	Extent	Duration	Probability	Impact Rating	Impact Rating
Traffic Impact [NEGATIVE]	**High**	**Site Specific**	**Long-term**	**Probable**	**Medium (-)**	**Low (-)**

Mitigation measures

- The D797 and D2942 roads intersection will need to be upgraded to a signalised intersection and D797 and D2945 roads intersections will need to be replaced by a roundabout in order to improve the level of service;
- Access to the proposed development will be provided single access from D797 road and single access from D2942 road. The access from D797 road will be a signalised full intersection and access from D2942 road will be a priority controlled full intersection.
- Currently, there is no bus stop in the surrounding area of the site. It is essential to introduce public transportation options to meet the requirements of the local community and alleviate potential traffic congestion resulting from the proposed development.
- The developer should consider paved sidewalks along the proposed site frontage to accommodate pedestrians, where these are not provided.

7.2.5 Socio-economic Impact

Description of the potential impact

The shopping centre will be providing much needed permanent job opportunities to some of the residents of Mzinti. The provision of these job opportunities will impact the livelihoods of the employed positively as it provides an opportunity for these workers to provide for their families.

Significance of the impacts

Based on the methodology detailed in **Section 6**, the following ratings have been assigned to the 'employment opportunities' impact before and after mitigation. The magnitude of the socio-economic impact is high, while the impact is of local extent and long-term duration. The impact is therefore of high (+) significance.

TABLE 19: IMPACT ASSESSMENT – SOCIO-ECONOMIC IMPACTS DURING OPERATION

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Magnitude	Extent	Duration	Probability	Impact Rating	Impact Rating
Job opportunities **[POSITIVE]**	**High**	**Local**	**Long-term**	**Probable**	**High (+)**	**High (+)**
Improved livelihood of the surrounding community **[POSITIVE]**	**High**	**Local**	**Long-term**	**Probable**	**High (+)**	**High (+)**

Mitigation measures

Creating jobs and business opportunities for the local community will have a positive impact. No mitigation measures would be required to further enhance this impact; however, the applicant must ensure that local residents receive preference for job opportunities.

7.3 Environmental Impact Statement

The table below summarises the impact assessed during the construction and operational phases of the Thulasizwe Shopping Centre and Filling Station. From the table below it is evident that the impacts can be reduced to be of low to very low significance if mitigation measures are implemented and adhered to.

TABLE 20: ENVIRONMENTAL IMPACT STATEMENT

IMPACT	SIGNIFICANCE BEFORE MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION MEASURES
Construction Phase Impacts		
Impact on biodiversity	Low	Very Low
Generation of dust	Low	Very Low
Soil Pollution	Low	Very Low
Soil Erosion	Low	Very Low
Excessive water use	Medium	Low
Sanitation and Waste generation and dispoal	Medium	Low
Temporary job opportunities	Medium (+)	Medium (+)
Health and safety during construction	Low	Very Low
Operational Phase Impacts		
Spreading of alien invasive species	Medium	Low
Soil Erosion and improper storm water management	Medium	Low
Excessive water use resulting to the depletion of ground water resources	High	Low
Waste generation and disposal	High	Low
Traffic Impact	Medium	Low
Permanent Job Opportunites	High (+)	High (+)
Improved livelihood of the surrounding community	High (+)	High (+)

8. RECOMMENDATIONS AND WAY FORWARD

8.1 Assumptions and Limitations

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

- The information provided by the proponent was used to compile the Draft Basic Assessment Report and no information received which could change the outcome of the Environmental Authorisation process, has been withheld.
- The scope of this investigation is limited to assessing the environmental impacts associated with the construction and operation of the Shopping Centre and filling station.
- The conclusion and recommendations proposed are based solely on the information, scope of works as agreed with the proponent.

8.2 Conclusion

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

The assessment of the possible impacts associated with the construction and operational activities, concluded that the impact on the surrounding environment is of **low significance** if mitigation measures are implemented.

Recommendations have however been made to address the impacts which could affect the biophysical and socio-economic environment and especially with waste management practises. Recommendations for the mitigation of impact are included within Section 7 and also the Draft Environmental Management Plan attached.

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

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

8.3 Way Forward

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

9. REFERENCES

National Environmental Management Act 107, of 1998

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

Mpumalanga Biodiversity Conservation Plan, 2014

National Water Act 36, 1998

National Environmental Management Biodiversity Act, 2004

The Constitution of South Africa, Act No. 108 of 1996

National Environmental Management: Waste Act 59 of 2008

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

National Heritage Resources Act, 1999 (Act No 25 of 1999)

Phase 1 Archaeological and Heritage Impact Assessment for the proposed shopping centre and filling station within Mzinti Township, Adansonia Heritage Consultants, C van Wyk Rowe, August 2023

Traffic Impact Assessment for the Thulasizwe Crossing Shopping Plaza, Mutasa Manyisa Consulting Engineers, 2023

Engineering Services Report for the proposed Thulasizwe Crossing Shopping Plaza, Mutasa Manyisa Consulting Engineers, August 2023

Geotechnical Investigation Report for the construction of structures within the Thulasizwe Farming, Report Ref MsTR-055/MSJ4600-23, MS Mabuya Civil Laboratory, June 2023

Ecological Site Verification Report for the retail centre and filling station development Mzinti, Afrika Enviro & Biology, August 2023