Final Basic Assessment Report for Medi-Prime Hospital, Mzinti, Nkomazi Local Municipality, Mpumalanga Province

2 April 2024

CORE Environmental Services
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SACNASP: 300067/15
EAPASA: 2020/602

EXECUTIVE SUMMARY

Injongo Investment (Pty) Ltd is proposing to construct a 100-bed hospital of approximately 5Ha in extent within the Mzinti Township, near Malalane, in Mpumalanga. This proposed 100-bed hospital will also consist of the following:

- Medical Suites;
- Temporary Mortuary;
- Coffee Shoppe;
- Parking Area;
- Covered refuse area and
- Water tanks

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.

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°40'55.71"S
31°44'7.56"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, 27 October 2023, proof of which is attached in Annexure C.2;
Placement of media advert in a local newspaper (The Mpumalanga News) on 4 October 2023 (see Annexure C.3).
Placing of a notice at the proposed site took place on 23 September 2023 (see Annexure C.4);

Following the initial review period of the Draft Basic Assessment Report in November 2023, a Geohydrological Assessment was undertaken to determine the availability of groundwater to the supply the requirements for the proposed hospital. The findings of the assessment have been included within the Report and is also found attached. For this reason, all Stakeholders and I&AP's are provided with another opportunity to review the Basic Assessment Report and provide comments thereto.

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 thereafter:

- *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 that 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

1. OVERVIEW OF THE PROJECT

1.1 Introduction

Injongo Investment (Pty) Ltd is proposing to construct a 100-bed hospital of approximately 5Ha in extent within the Mzinti Township, near Malalane, in Mpumalanga. This proposed 100-bed hospital will also consist of the following:

- Medical Suites;
- Temporary Mortuary;
- Coffee Shoppe;
- Parking Area;
- Covered refuse area and
- Water tanks

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.

Injongo Investment Company (Pty) Ltd subsequently 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°40'55.71"S
31°44'7.56"E

Please refer to the locality map below, Figure 1.

FIGURE 1: LOCALITY MAP FOR THE PROPOSED MEDI-PRIME HOSPITAL, MZINTI, NKOMAZI LOCAL MUNICIPALITY, MPUMALANGA

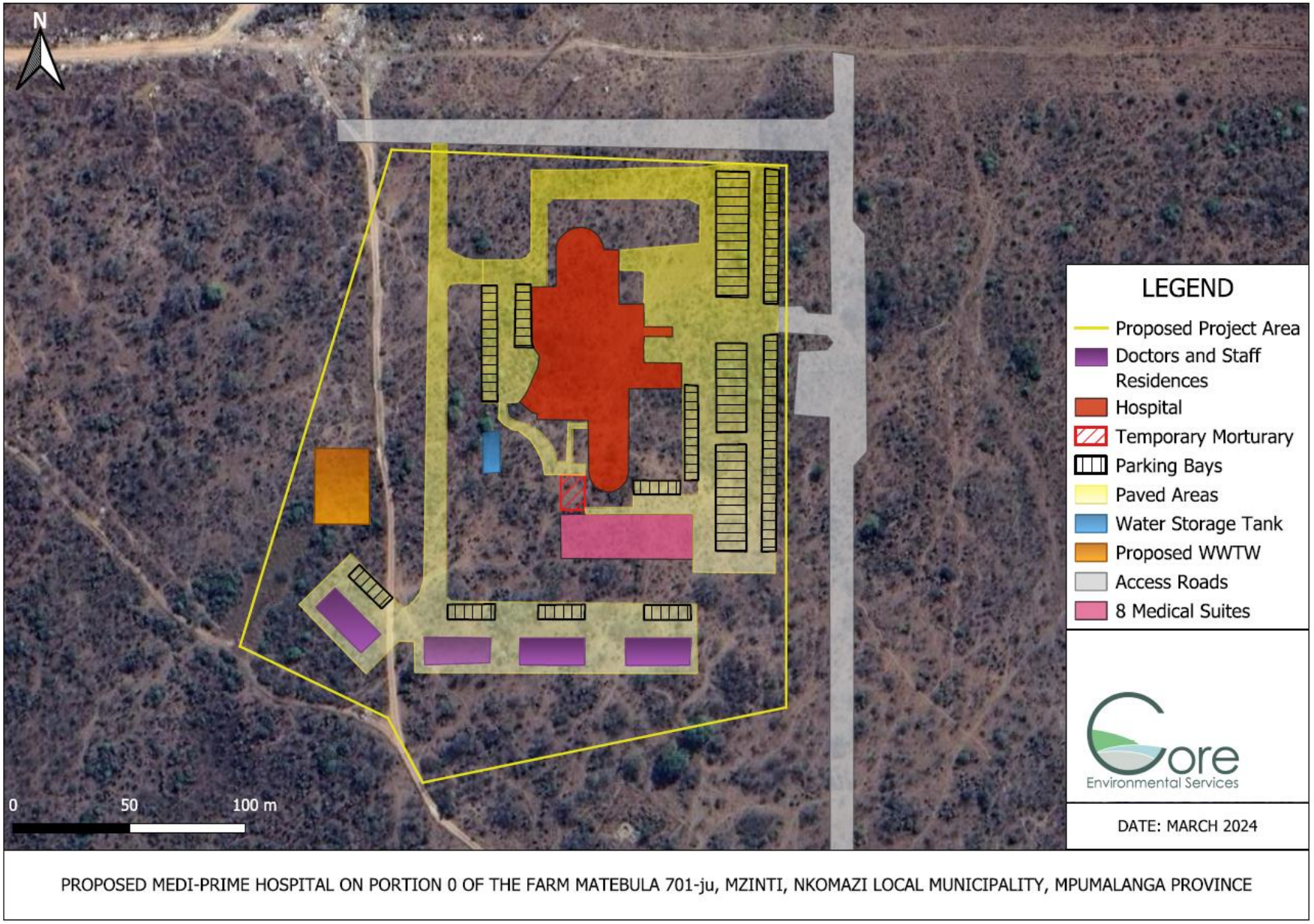

FIGURE 2: LAYOUT MAP FOR THE PROPOSED MEDI-PRIME HOSPITAL, MZINTI, NKOMAZI LOCAL MUNICIPALITY, MPUMALANGA

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 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 equates to 5Ha.
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 5Ha will now be converted for the purposes of a hospital.

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	Injongo Investment Company (Pty) Ltd 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 Medi-Prime Hospital, 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 medical waste), regulations with regards to the storage and disposal of such waste must comply with the National Environmental Management: Wast 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.
National Health Act, 2003 (Act No. 61 of 2003)	The National Health Act 61 of 2003 intends to provide a framework for a structured uniform health system within the Republic, taking into account the obligations imposed by the Constitution and other laws on the national, provincial and local governments with regard to health services. As the application is for the construction and operation of a hospital, the operations of the hospital must comply with the regulations stipulated within the National Health Act of 2003.
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. Injongo Investment Company 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, a Heritage Impact Assessment was undertaken. 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 hospital 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

This proposed 100-bed hospital will also consist of the following:

- Medical Suites;
- Doctors and Staff Residence;
- Temporary Mortuary;
- Coffee Shoppe;
- Parking Area;
- Covered refuse area and
- Water tanks

No bulk municipal water is available and therefore water will be provided from boreholes located within the project area and stored in JoJo Tanks. It will be ensured that the quality of water complies with the guidelines in terms of SANS 241-1:2015. A Geohydrological Assessment was undertaken and it was determined that the borehole could deliver a sustainable yield of 40.32 Kl/d, which equates to 14 716.8 Kl/a.

The water demand is indicated in Table 3 below:

TABLE 3: WATER DEMAND TABLE

Description	Value No.	Develop Area	Water Demand / Unit	Demand (KL/Day)
Hospital	Beds	100	0.06	6
Medical Suites	Area	2260	0.4/100	9.04
Docters & Staff residence	Area	2584	0.7/100	18.088
Add 5% Water Losses				1.8064
TOTAL (KL/d)				**34.93**
TOTAL (KL/a)				**12 749.50**

As the borehole can deliver 14 716.8 kilolitres per annum, which is above the demand of 12 749.50 kilolitres per annum, the borehole will be able to supply the hospital with sufficient water.

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

- Domestic waste
- Sewage/Effluent
- Medical Waste

The project area is 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.

No bulk sewer is available for the proposed development and for this reason a new 30KL/day wastewater treatment plant is proposed to be constructed. The sewerage purification plant (package plant) must be placed as such that all of the buildings will be able to drain towards this plant (taking cognisance of minimum slope gradients). The estimated sewerage generated by the proposed development is indicated in Table 4 below:

TABLE 4: SEWAGE DISCHARGE CALCULATION

Description	Value No.	Sewer Demand / Unit	Demand (KL/Day)
Hospital	Beds	80% of water	4.8
Medical Suites	Area	80% of water	7.232
Docters & Staff residence	Area	75% of water	13.566
Sub Total			27.998
Add Water Infiltration			1.3999
TOTAL			**29.40**

This type of system consists of the following three major components:

- Pre-digestion in the form of the septic tanks;

- Bio – Reactor;
- Pathogen Treatment.

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 to the area to fulfill the basic needs for the community members.

At present, there is no hospital within the Mzinti Community and the nearest hospital is located in Tonga, namely the Tonga Public Hospital, which is at least 10km east of the proposed Medi-Prime Hospital.

The applicant, Injongo Investment believes that every South African especially those in the rural areas should have access to affordable quality health care services and proper shelter within those communities without any form of prejudice. Injongo Investment facilitates the transfer of patients from public to private hospitals, and also helps with the management of these patients, under the umbrella of the Road Accident Fund. The Medi-Prime Hospital, would therefore be an upgrade from the public hospital provided in Tonga, providing affordable quality healthcare to the surrounding community which is mostly rural.

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 north-eastern corner of the proposed property. There are no valleys or ridges within or adjacent to the proposed site area.

The altitude of the site is noted as 270m above sea level.

2.2 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.

2.3 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. Directly north of the project site is an operational borrow pit as well as an ESKOM Transmission Line. It is unknown whether the borrow pit is being operated legally in terms of the Environmental Management Act 107, of 1998, and/or the Mineral and Petroleum Resources Development Act 28 of 2008. The access to the proposed project area is scattered with litter and being used as a dumping site.

2.4 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.

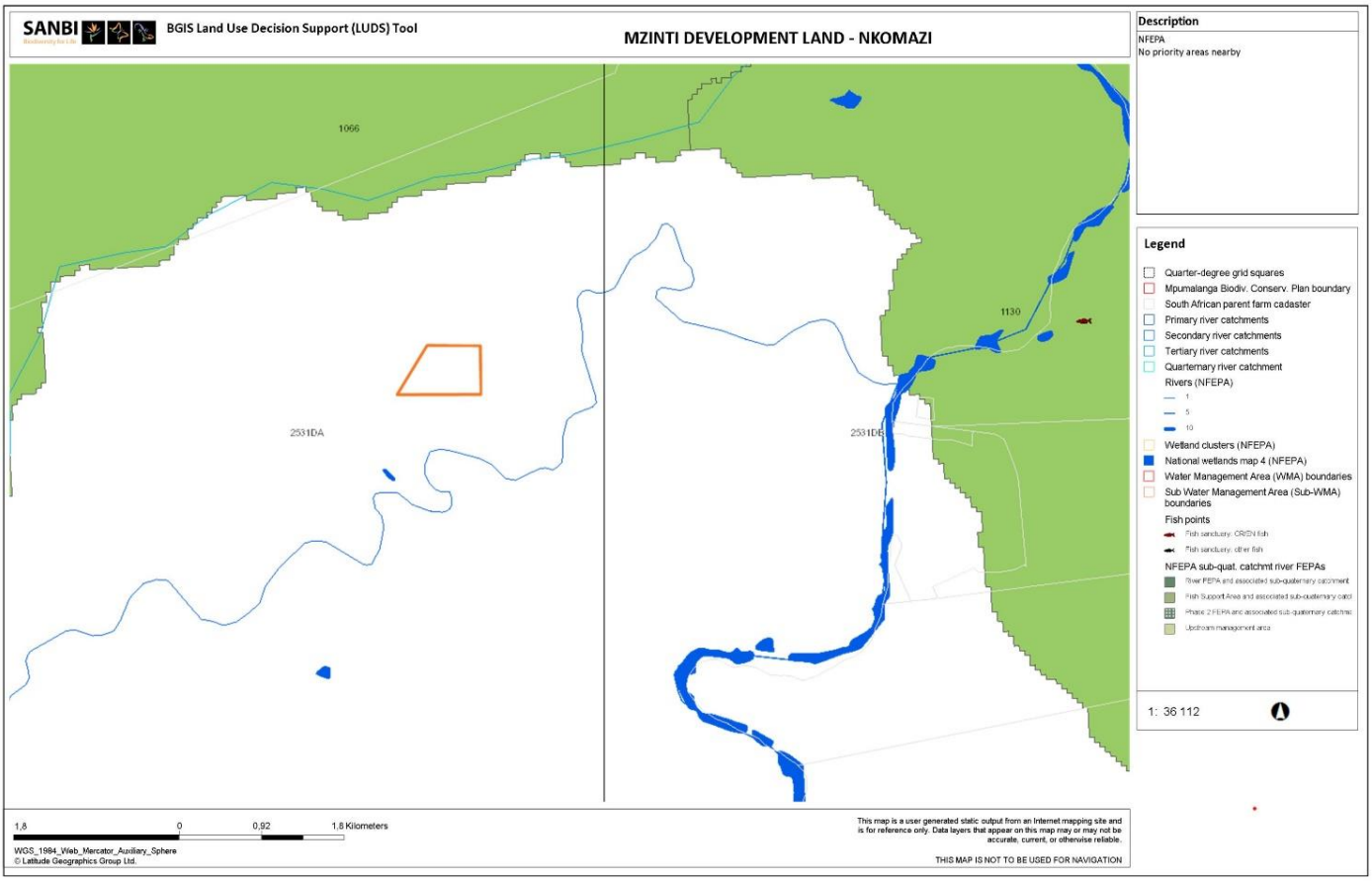

FIGURE 3: NATIONAL FRESHWATER ECOSYSTEM PRIORITY AREAS NEAR PROPOSED MEDI-PRIME HOSPITAL

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.

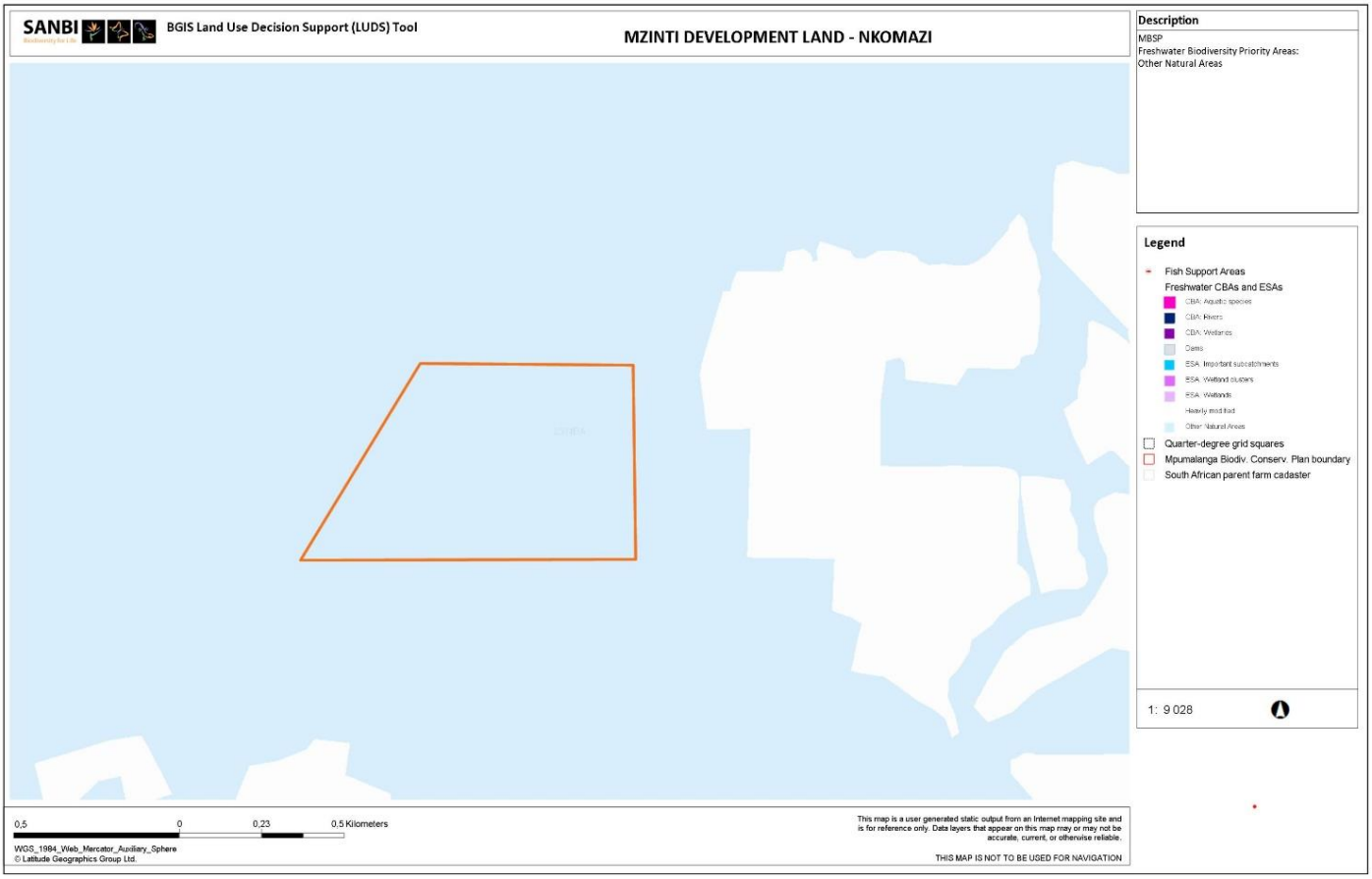

FIGURE 4: AQUATIC BIODIVERSITY SENSITIVITY OF THE PROPOSED PROJECT SITE

2.5 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 categorized as:

- Other Natural Areas
- ESA: Protected Area Buffer Zone (Mahushe Shongwe NR).

Ecological Support Area (ESA): Protected Area Buffers. ESA's are "areas that are not essential for meeting (conservation) targets, but play an important role in supporting the functioning of CBA's and that deliver important ecosystem services" (Lötter et al., 2014). Protected Area Buffers are areas that surround

proclaimed protected areas that moderate the negative impacts of land-uses that may affect the ecological functioning of those protected areas.

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

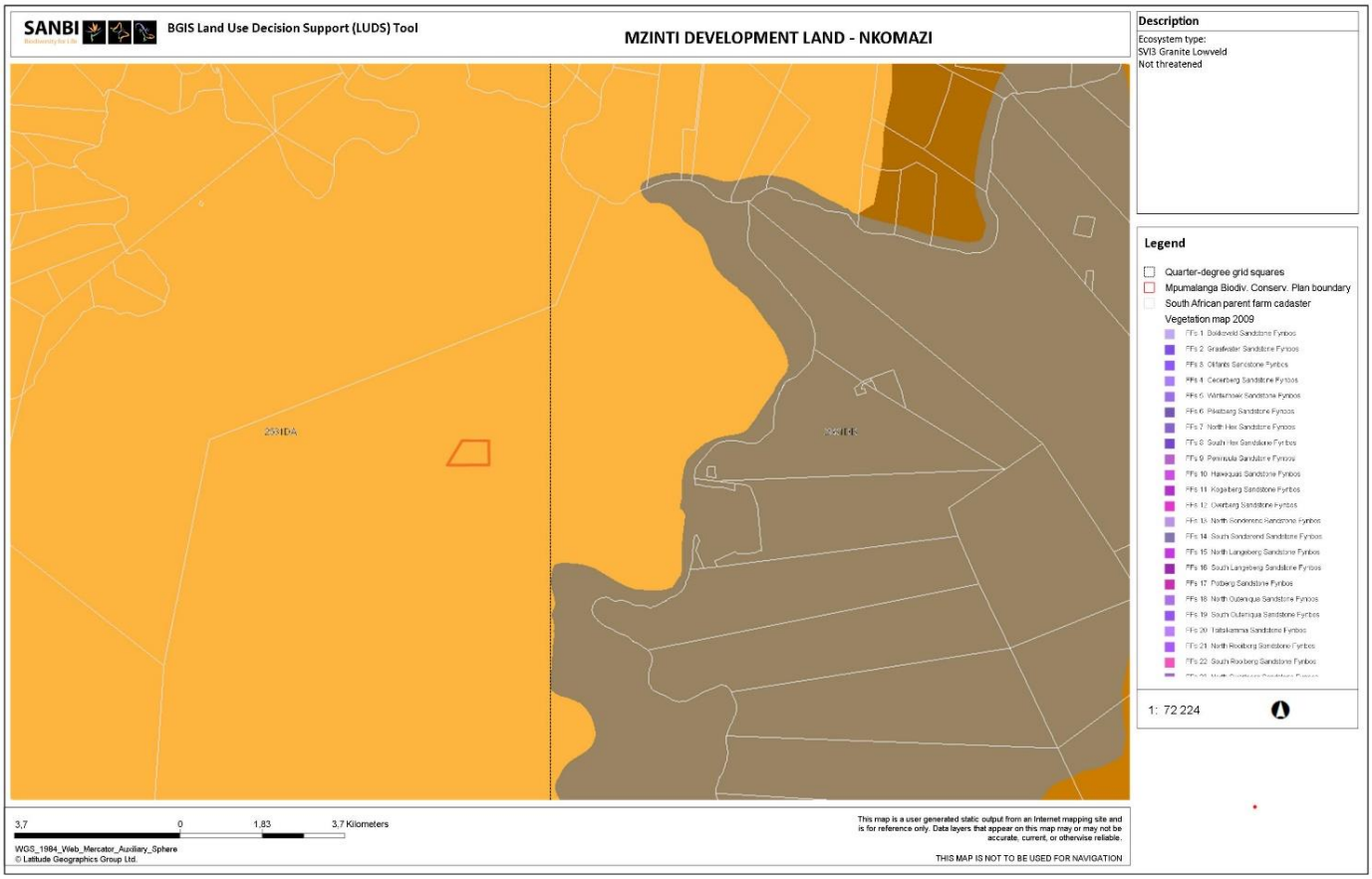

FIGURE 5: VEGETATION TYPE OF THE PROPOSED PROJECT AREA

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 6: LARGE TREES AND SUCCULENTS SUCH AS *EUPHORBIA INGENS* AND *ALOE MARLOTHII* PRESENT ON SITE

FIGURE 7: THE DEGRADATION OF THE SURROUNDING NATURAL ENVIRONMENT DIRECTLY ADJACENT TO THE PROPOSED SITE

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, 27 October 2023, proof of which is attached in **Annexure C.2**;
- Placement of media advert in a local newspaper (The Mpumalanga News) on 4 October 2023 (see **Annexure C.3**).
- Placing of a notice at the proposed site took place on 23 September 2023 (see **Annexure C.4**);

The draft Basic Assessment Report was made available for public comment between 16 November 2023 until 8 January 2024.

To date, the following comments were received:

TABLE 5: COMMENT AND RESPONSE REPORT

COMMENT RECEIVED	RESPONSE / ADDRESSED IN THE REPORT
DARDLEA – 4 December 2023	
1. According to page 8 of the Civil Engineering Service Report a borehole will be utilized to supply water for the proposed development. Please note that a yield borehole testing must be undertaken in order to confirm that once the water is converted to primary use it can meet the demand; and/or whether the proposed boreholes can be reliably and sustainably to meet the development's water demand and that such boreholes are supported by Department of Water and Sanitation and the local municipality.	1. A Geohydrological Assessment was undertaken to determine the yield of the borehole and it was determined that the borehole would be able to sustainably supply the demand for water for the proposed Medi-Prime Hospital. Please refer to Section 1.5 of the Final Basic Assessment Report as well as Appendix D3 for the Geo-Hydrological Assessment undertaken.
2. You are reminded that the final basic assessment report must include a map at an appropriate scale that superimposes all activities applied for, including their associated structures and infrastructure, on the environmental sensitivities of the development footprint, indicating any areas that must be avoided, including buffers.	2. Please find attached superimposed layout map attached as Appendix A2. It must however be noted that no sensitivities were identified within the perimeter of the proposed site.
3. The change in hydrology that will occur as a result of the proposed development is a key environmental impact that must be analysed. A storm water management plan must be provided, which must be informed by wetland/riparian/watercourse studies, as well as a hydrological study, noting that this Department does not support the direct introduction of storm water into any watercourse without prior management, such as attenuation. Such management measures must be included and assessed as part of the final basic assessment report process. Where attenuation is proposed, such must be included on the layout plan, and minimum attenuation requirements must be calculated and provided.	3. As noted within the Ecological Assessment undertaken, there are no watercourses within or within 500m of the project site. For this reason, no hydrological assessment was undertaken, nor was there a requirement for a wetland/riparian assessment to be undertaken. The area surrounding the project site has not been formalised and therefore, there are no proper stormwater channels within the project area. The management of stormwater have however been addressed within the Engineering Services Report, included within Appendix D.
4. The final BAR must provide proof that all potential and registered I&AP's, including all the Organs of State, were provided with access to and an opportunity to comment on the draft BAR following submission of the application form (Regulation 40(3).	4. Noted, proof of distribution of the Draft Basic Assessment Report is attached as Appendix C6.
5. The final basic assessment report must include an issues and response report, as well as copies of and responses to comments received from all I&APs, including these comments.	5. Issues and Response Report is included as Appendix C8.

Ehlanzeni District Municipality Comments – 15 January 2024	
1. The building structures for the proposed development must comply with the requirements of the National Building Regulations and Building Standards Act, Act 103 of 1977	1. Condition have been included within the EMPr
2. The building plans of the proposed development must be submitted to Nkomazi Local Municipality and Ehlanzeni District Municipality: Community Services Department for approval prior construction	2. The applicant appointed a town planner to undertake the required approvals in terms of the Spatial Planning and Land Use Management Act, 2013. It is also noted that the building plans must be approved by the Nkomazi Local Municipality prior to construction. This condition has been included within the EMPr.
3. The capacity of the borehole must meet the water demand for the proposed development and must be placed far away from possible contaminant sources but close to the hospital	3. A Geohydrological Assessment was undertaken to determine the yield of the borehole and it was determined that the borehole would be able to sustainably supply the demand for water for the proposed Medi-Prime Hospital. Please refer to Section 1.5 of the Final Basic Assessment Report as well as Appendix D3 for the Geo-Hydrological Assessment undertaken.
4. Regular testing of the water for the borehole must be conducted. The quality of water supply on the premises must comply with the specifications of the SANS 241 for drinking water, with regards to microbiological, chemical and physical quality.	4. Condition have been included within the EMPr
5. Relevant registration and Water Use License must be obtained from the Competent Authority prior commencement of the proposed development.	5. The applicant is in the process of undertaking the required approval process in terms of the National Water Act 36, of 1998
6. Waste management activities during all phases of the development, specifically those relating to the transport, temporary storage and handling of waste, must take place in accordance with relevant provisions of the NEM:WA (Act 59 of 2008), the applicable national norms and standards, or with any future guidelines, standards or legislation pertaining to waste classification, handling storage and/or disposal that my supersede the provisions of the current requirements on all phases of the development.	6. Requirement is included within the EMPr
7. The handling, storage and disposal of any Health Care Risk Waste from the hospital as proposed should be done in accordance with the requirements of SANS 10248 and relevant regulations.	7. Requirement is included within the EMPr
8. All contractors and sub-contractors appointed for waste management activities must be accredited or licenced to render such service.	8. Requirement is included within the EMPr

9. Waste resulting from construction must be disposed of at an approved landfill site, which the name must be mentioned in the report.	9. Requirement is included within the EMPr.
10. Refuse bins and a designated refuse storage area must be available on the premises for the storage of waste pending removal/disposal.	10. Requirement is included within the EMPr.
11. The use of portable toilets during the construction phase must be managed by an approved service provider and disposal certificates must be kept onsite for audit purposes.	11. Requirement is included within the EMPr.
12. Transfer and storage areas must be adequately designated to manage and contain accidental spills into stormwater. This requires appropriate design for isolation, containment and treatment.	12. Requirement is included within the EMPr.
13. Adequate ablution facilities and change rooms must be provided for the employees/patients onsite, during all phases of the development.	13. Requirement is included within the EMPr
14. Separate ablution facilities and change rooms are recommended for male and female employees working on site depending on the number of employees on site.	14. Requirement is included within the EMPr
15. Adhere to the NEM: Biodiversity Act (Act 10 of 2004) and the MBSP, 2014 and the National Forests Act, (Act 84 of 1998) as amended.	15. Requirement is included within the EMPr
16. Clearing of vegetation during construction phase must make provision for conservation corridors to facilitate and maintain ecological function.	16. Requirement is included within the EMPr
17. The proposed development must ensure that the conservation of indigenous plants is promoted through preservation of the plants.	17. Requirement is included within the EMPr
18. Appropriate measures must be in place to prevent surface and ground water contamination from spillages to reduce the impact of runoff on nearby wetland and other watercourses.	18. Requirement is included within the EMPr
19. Waste storage areas must have banded wall to contain any potentially polluting materials that can lead to ground contamination.	19. Requirement is included within the EMPr
20. Proper storm water management practises should be applied throughout the construction and operation phase of the facility to avoid unnecessary erosion.	20. Requirement is included within the EMPr
21. All spillages must be cleaned immediately as it is practically possible to avoid soil and water pollution	21. Requirement is included within the EMPr
22. A soil management plan must be in place to prevent soil erosion and encourages re-vegetation	22. Requirement is included within the EMPr
23. Excessive, disruptive and displeasing noise emanating from any activity on the premises must be controlled to ensure acceptable levels so that tranquillity is maintained.	23. Requirement is included within the EMPr

24. All activities with the potential to cause any form of noise must be conducted during normal working hours to minimize exposure to the potential receptors, or as specified and approved by the contractor	24. Requirement is included within the EMPr
25. All employees to be appointed must all undergo induction training regarding safety, health and environmental issues before commencement of any activities.	25. Requirement is included within the EMPr
26. All employees must be provided with adequate personal protective equipment during the construction phase and the actual operation of the site e.g., waste handles and operational staff.	26. Requirement is included within the EMPr
27. Safety procedures must be in place and warning signs clearly displayed	27. Requirement is included within the EMPr
28. All vehicles to be utilised must all be roadworthy and always maintained in good condition and the drivers must be in possession of a valid drivers license	28. Requirement is included within the EMPr
29. The applicant of the proposed development must be responsible for compliance with the provisions for Duty of Care and remediation of environmental damage contained in Section 28 of the NEMA.	29. The applicant of the proposed development must be responsible for compliance with the provisions for Duty of Care and remediation of environmental damage contained in Section 28 of the NEMA.
30. The final assessment report should clearly indicate which alternatives explored in the BAR report will be chosen. The preferred alternative must have the lowest environmental impact of all the explored alternatives.	30. The alternatives are described in Section 4 and the No-Go Alternative was also assessed in Section 7 of the Report.
31. Access road to the development site should be safe and accessible.	31. Requirement is included within the EMPr
32. Once construction is done, the developer must apply for a Health Certificate and Certificate of Competency with the Ehlanzeni District Municipality: Community Services Department (Municipal Health Services)	32. Requirement is included within the EMPr
33. The proposed area must be regularly monitored for possible land invasion as currently their rate of development is increasing at a high speed.	33. The applicant is aware of the current surrounding invasions and is regularly monitoring the project area
34. The mortuary requirements should adhere to National Health Act 61 of 2003, Regulation R363.	34. Requirement is included within the EMPr
35. The developer must inform the Nkomazi Local Municipality of the ongoing illegal dumping occurring in the proposed site.	35. Comment is noted
36. Relevant consultations must also be done with the Department of Health.	36. Comment is noted

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 Injongo Investments (Pty) Ltd by the Matsamo Traditional Council.

4.1.2 Layout Alternatives

A Heritage Impact Assessment and Ecological Assessment was undertaken to determine whether there are any sensitivities on site which could require the proposed layout to be amended to avoid such sensitivities. Following the specialist assessments, no sensitivities were found which required any amendment to the proposed layout. For this reason, no other layout alternative was investigated.

4.1.3 Activity Alternative

When considering activity alternatives, alternatives which could be considered includes the construction of something other than the proposed Medi-Prime hospital on the proposed project area. Injongo Investment (Pty) Ltd is however in the business of medical care and as they have been provided with this portion of property by the Matebula Trust, Injongo Investment does not specialise in any other field.

The only other activity alternatives which can be considered is the method for wastewater disposal. As the project area is not serviced, the available options include either the use of septic tanks or the construction of a wastewater treatment plant. As the hospital will be accommodating 100 people, without doctors and other medical staff, the use of septic tanks would not be feasible. For this reason, the only feasible activity alternative which could be considered is the use of a wastewater treatment plant.

4.1.4 No-Go Alternatives

The no-go alternative would be to not authorise the application for the Medi-Prime Hospital. Should this alternative be favourable, the potential for the local community to be provided with local health care services, and the potential job opportunities will be lost and residents of Mzinti will have to travel further from their place of residence to obtain such services.

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 hospital 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 5Ha, a Heritage Impact Assessment was undertaken by Adansonia Heritage Consultants and the findings of the assessment can be summarised as follows:

Recent housing infrastructure is developing on the eastern, western and southern sides of the proposed project site. The dumping of domestic refuse is taking place on a large scale to the north of the property, near a borrow pit. Mr. Johannes Mokoena, a resident in the area, confirmed that there are no burial sites or graves within the proposed development. A family graveyard is visible to the south, outside of 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 Biodiversity Assessment / Plant and Animal Species Assessment

Although the areas surrounding the project site has already been transformed, the 5Ha proposed for the hospital is still 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 features or habitats such as wetlands or rock outcrops are present on site. No SCC plant or animals or signs thereof was recorded. The specialist hereby states with high confidence that the site sensitivity for plant species is 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.

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

- Re-introduce indigenous vegetation (indigenous to the local area) after completion in order to provide shade and habitat for animals.

Terrestrial biodiversity is low due to the transformed state of the larger local area as well as the modifications to the natural environment on site. No SCC plants or animals were recorded or are likely to be present. The following site recommendations and mitigation is proposed relevant to terrestrial biodiversity:

- Conserve large trees where possible on site.
- Provide efficient waste management services.

Aquatic biodiversity is very low due to the transformed state of the larger local area as well as on site. No aquatic biodiversity themes or features are present on site. The following site recommendations and mitigation is proposed relevant to aquatic biodiversity:

- Provide efficient waste management services.

5.4 Geo-Hydrological Assessment

A Geo-Hydrological Assessment was undertaken by Muthwa Geo-Engineering Services to determine whether sufficient water is available for the required water demand for the hospital. The aim of the pumping test was to determine the sustainable abstraction yield of the borehole. Furthermore, the interpretation of the aquifer test allows for aquifer parameter calculations to determine hydraulic conductivity (transmissivity), storability and more.

Following the assessment undertaken, it revealed that the borehole can yield 1.1 l/s for a duration of 8 hours and recovers after 240 minutes. This means that the borehole can sustainably supply 40 320 litres per day (14 716 m^3/annum) which is sufficient for the annual demand of 12 749.

TABLE 6: MANAGEMENT AND RECOMMENDATION OF OPTIMUM USE OF BOREHOLE

Borehole NO.	Coordinated WGS 84		Basic Information		Management recommendations			
	Latitude	Longitude	BH Depth [m]	SWL [m]	Pump Setting [m]	Pumping Duration [Hrs]	Yield [l/s]	Daily. Abs [l/day]
Mzinti BH01	25.681088° S	31.736136°E	100	23.3	95	8	1.1	40 320
Total Abstraction in 12 hrs							1.1	47 520

The following conclusions are however made:

- The chlorine dosage system must be installed to purify this borehole water.
- To remove the E.coli and total coliforms needs effective disinfection, either with chemical (e.g. chlorine), or physical methods (e.g. ultra-filtration or UV light).
- A proper pumping schedule must be given to the pump operator or an automatic float switch must be installed to maintain and sustain the lifespan of the borehole.
- A borehole cage must be installed to protect the borehole pump from theft.
- The borehole needs to be registered with the water authority or Department of Water and Sanitation.

5.5 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. In addition to the additional job opportunities to be provided, Mzinti will be provided with the required health care services which would also have a positive impact on the livelihoods of the community members.

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.

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 7: 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 7: 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 6.

TABLE 8: 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 7 and Table 8. 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 9**.**

TABLE 9: 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 10: 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 11: 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 of the area as well as sand mining activities being undertaken directly adjacent and north of the proposed site. The access to the proposed project site is currently also used as a dumping site and is therefore extremely degraded and being further degraded by ongoing unauthorised activities.

A Terrestrial Biodiversity Assessment was undertaken, and it was found that the sensitivity of the terrestrial biodiversity of the proposed hospital 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). 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.

In order to construct the hospital, the vegetation will have to be cleared and these species will have will 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 hospital 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.

Should the no-go alternative be preferred, no vegetation would be cleared for the construction of the proposed hospital and the area would remain as is for the construction phase. For this reason, the impact on biodiversity during the construction phase for the no-go alternative, is rated as neutral.

TABLE 12: 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**
Impact on biodiversity **(No-Go Alternative)**	**Neutral**	**N/A**	**N/A**	**N/A**	**Neutral**	**Neutral**

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.

Should the no-go alternative be preferred, no dust would be generated during the construction phase and therefore the impact is regarded as neutral.

TABLE 13: 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**
Dust generation **(No-Go Alternative)**	**Neutral**	**N/A**	**N/A**	**N/A**	**Neutral**	**Neutral**

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.

Should the no-go alternative be preferred, there would be no impact on soil during the construction phase and therefore the impact is regarded as neutral.

TABLE 14: 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**
Soil pollution **(No-Go Alternative)**	**Neutral**	**N/A**	**N/A**	**N/A**	**Neutral**	**Neutral**
Erosion [NEGATIVE]	**Medium**	**Site Specific**	**Short-term**	**Probable**	**Low**	**Very Low**
Erosion **(No-Go Alternative)**	**Neutral**	**N/A**	**N/A**	**N/A**	**Neutral**	**Neutral**

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.

Should the no-go alternative be preferred, there would be no impact on water resources during the construction phase and therefore the impact is regarded as neutral.

TABLE 15: 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**
Excessive water use **(No-Go Alternative)**	**Neutral**	**N/A**	**N/A**	**N/A**	**Neutral**	**Neutral**

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. 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 the area adjacent to the proposed hospital site is 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.

Should the no-go alternative be preferred, no waste will be generated during the construction phase and therefore the impact is regarded as neutral.

TABLE 16: 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**
Waste generation and disposal **(No-Go Alternative)**	**Neutral**	**N/A**	**N/A**	**N/A**	**Neutral**	**Neutral**

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.

Should the no-go alternative be preferred, no job opportunities would be created and there would be no health and safety risk for any construction workers during the construction phase. For this reason the impact associated with the no-go alternative would be neutral.

TABLE 17: 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 (+)**
Job opportunities **(No-Go Alternative)**	**Neutral**	**N/A**	**N/A**	**N/A**	**Neutral**	**Neutral**
Health and Safety **[NEGATIVE]**	**Medium**	**Site Specific**	**Short-term**	**Probable**	**Low**	**Very Low**
Health and Safety **(No-Go Alternative)**	**Neutral**	**N/A**	**N/A**	**N/A**	**Neutral**	**Neutral**

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 hospital 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.

Should the no-go alternative be preferred, no vegetation would be cleared for the purpose of the proposed hospital. However, due to the current rate of land invasions within the surrounding project area, the area will then be invaded by community members without the implementation of mitigation and management measures. The impact on the biodiversity would therefore be negative and of medium significance if the project area is not used for the Medi-Prime Hospital. This impact would however be reduced if the proposed hospital is constructed within the proposed project area and mitigation measures are implemented.

TABLE 18: 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**
Impact on biodiversity **(No-Go Alternative)**	**Medium**	**Site specific**	**Long-term**	**Definite**	**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. 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.

Should the no-go alternative be preferred, the proposed hospital would not be constructed on the project area, however, due to the current rate of land invasions within the surrounding project area, the area will then be invaded by community members without the implementation of mitigation and management measures. The impact on the soil would therefore be negative and of high significance if the project area is not used for the Medi-Prime Hospital, as stormwater would not be managed properly. This impact would however be reduced if the proposed hospital is constructed within the proposed project area and mitigation measures proposed for the hospital are implemented.

TABLE 19: 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**
Erosion / Improper storm	**High**	**Site specific**	**Long-term**	**Probable**	**High**	**Low**

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Magnitude	Extent	Duration	Probability	Impact Rating	Impact Rating
water management **(No-Go Alternative)**						

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, 12 750 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.

The applicant is in process of drilling the required boreholes on the property to confirm the availability of water for the demand required.

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 medium, 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 medium 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.

Should the no-go alternative be preferred, the proposed hospital would not be constructed on the project area, and water would not be abstracted for the purpose of the hospital. However, due to the current rate of land invasions within the surrounding project area, the area will then be invaded by community members without the implementation of mitigation and management measures. Water abstraction would therefore not be metered or managed and the impact on water resources would be negative and of high significance

if the project area is not used for the Medi-Prime Hospital. This impact would however be reduced if the proposed hospital is constructed within the proposed project area and mitigation measures proposed for the hospital are implemented.

TABLE 20: 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]	**Medium**	**Local**	**Long-term**	**Probable**	**Medium**	**Low**
Excessive water use resulting to the depletion of ground water resources. **(No-Go Alternative)**	**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
- Medical Waste

The treatment of effluent is discussed in Section 1.5 and it is noted that a new 30KL/day Sewer Treatment Package Plant will be constructed to effectively treat and dispose of sewage and effluent generated.

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.

Medical waste will also be stored separately in accordance with the National Health Act 61, of 2003 as well as the National Environmental Management: Waste Act 59 of 2008. Medical waste will be regarded as hazardous waste and be removed and transported to a facility which would dispose of such waste accordingly. For this project, only the storage and transportation of medical waste is assessed.

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 as well as the patients receiving health treatment at the hospital.

Improper storage and transportation of medical waste would also result to a significant health hazard for patients and members of the surrounding community. For this reason, only registered waste collected 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.

Should the no-go alternative be preferred, the proposed hospital would not be constructed on the project area, however, due to the current rate of land invasions within the surrounding project area, the area will then be invaded by community members without the implementation of mitigation and management measures. At present some of the surrounding area is already being utilized as a dumping site and should the Medi-Prime Hospital not be constructed; it is very likely that the project area will be invaded, and no proper waste management measures would be implemented. The impacts resulting from improper waste generation and management would therefore have a highly negative impact on the surrounding environment. This impact would however be reduced if the proposed hospital is constructed within the proposed project area and mitigation measures proposed for the hospital are implemented.

TABLE 21: 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**
Waste generation and disposal **(No-Go Alternative)**	**High**	**Local**	**Long-term**	**Probable**	**High**	**Low**

Mitigation measures

- Domestic waste must be separated from hazardous and medical 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 domestic waste, hazardous waste, as well as medical 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 development will be provided from a municipal gravel road which is located within a close proximity and to the west of the application site. It would be recommended for this gravel road to be upgraded and tarred to accommodate the additional traffic flow to and from the hospital. The access road turning from the municipal gravel road towards the hospital site, which is currently being utilised to access the borrow pit, would also have to be upgraded and surfaced to ensure uninterrupted flow of traffic to and from the hospital.

If the access roads are not upgraded as part of the project to accommodate the additional traffic generated, traffic flow to and from the hospital 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.

Should the no-go alternative be preferred, the proposed hospital would not be constructed on the project area, and the amount of traffic to be generated to and from the proposed hospital would not be relevant. However, due to the current rate of land invasions within the surrounding project area, the area will then be invaded by community members without the implementation of mitigation and management measures and therefore some additional traffic flow to and from the area can be expected. The impact of traffic flow to and from the project site associated with the no-go alternative would therefore be of medium significance. It must however be noted that if the area is invaded, no proper road infrastructure and access would be provided.

TABLE 22: 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**
Traffic Impact **(No-Go Alternative)**	**Medium**	**Local**	**Long-term**	**Definite**	**Medium**	**Low**

Mitigation measures

- The existing gravel roads must be upgraded to accommodate the additional traffic flow to be generated by the hospital.
- Detailed designs of the upgrading of the existing access roads must be undertaken.

7.2.5 Socio-economic Impact

Description of the potential impact

Although nurses and doctors will be providing the services at the Hospital, various other unskilled labour will also be required. The hospital will therefore provide 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.

In addition to the job opportunities created, the hospital will be providing health care services to the community, thereby improving the livelihoods of the surrounding community members.

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.

Should the no-go alternative be preferred, health care services would not be provided for the community members of Mzinti, nor will additional job opportunities be created. For this reason, the socio-economic impact association with the no-go alternative is regarded as being highly negative. The construction of the hospital at the proposed location, will however mitigate the impact to be of highly positive significance.

TABLE 23: 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 (+)**
Job opportunities **(No-Go Alternative)**	**High**	**Local**	**Long-term**	**Probable**	**High (-)**	**High (+)**
Improved livelihood of the surrounding community **[POSITIVE]**	**High**	**Local**	**Long-term**	**Probable**	**High (+)**	**High (+)**
Improved livelihood of the surrounding community **(No-Go Alternative)**	**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 Medi-Prime Hospital. 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 24: ENVIRONMENTAL IMPACT STATEMENT (PREFERRED ALTERNATIVE)

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	Medium	Low
Waste generation and disposal	High	Low
Traffic Impact	Medium	Low
Permanent Job Opportunites	High (+)	High (+)
Improved livelihood of the surrounding community	High (+)	High (+)

TABLE 25: ENVIRONMENTAL IMPACT STATEMENT (NO-GO ALTERNATIVE)

IMPACT	SIGNIFICANCE BEFORE MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION MEASURES
Construction Phase Impacts		
Impact on biodiversity	Neutral	Neutral
Generation of dust	Neutral	Neutral
Soil Pollution	Neutral	Neutral
Soil Erosion	Neutral	Neutral
Excessive water use	Neutral	Neutral
Sanitation and Waste generation and dispoal	Neutral	Neutral
Temporary job opportunities	Neutral	Neutral
Health and safety during construction	Neutral	Neutral
Operational Phase Impacts		
Spreading of alien invasive species	Medium	Low
Soil Erosion and improper storm water management	High	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 Final Basic Assessment Report, the following has been assumed:

- The information provided by the proponent is accurate and unbiased, and no information that could change the outcome of the Environmental Authorisation process has been withheld.
- The scope of this investigation is limited to assessing the environmental impacts associated with the construction and operation of the Medi-Prime Hospital.
- 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.