



PROPOSED NEW 15ML RESERVOIR AND 1.2KM PIPELINE, LENASIA SOUTH, GAUTENG PROVINCE

ENVIRONMENTAL SCREENING REPORT

DRAFT

MAY 2014



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1 TITLE AND APPROVAL PAGE

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1 INTRODUCTION

Johannesburg Water has appointed Nema Consulting as its Independent Environmental Consultant amongst others to conduct Environmental Screenings, Environmental Impact Assessments (where triggered) and to act as its Environmental Control Officer (ECO) on certain prescribed construction projects.

Johannesburg Water therefore requested Nema Consulting to undertake an Environmental Screening for the proposed construction of a new reservoir and pipeline in Lenasia South, Gauteng province. The new reservoir will be 15Ml and will supplement the existing 6Ml Lenasia High Level (HL) reservoir. The new ND450 HDPE pipeline will be approximately 1.2km in length with a 366mm internal diameter, and will follow the same route and servitude as the existing Asbestos Cement pipe.

Additional capacity is needed at the Lenasia HL reservoir in order to supply adequate water to Lenasia South ext.1 and 4, Migson Manor (Lenasia South ext.7), Zakariyya Park and additional areas of Vlakfontein Proper, Finetown, Hospital Hill and Lehae. The demand of these areas supplied by the existing Lenasia HL reservoir is higher than the supply to the reservoir resulting in insufficient head at the reservoir.

The purpose of a screening is to provide clarity on the current site sensitivities. This determines whether or not a development proposal requires environmental assessment and if so, what level of assessment is appropriate (DEAT, 2002). Screening, is thus a decision making process that is initiated during the early stages of the development of a proposal. Two main types of Environmental Screening occur: 1) Pre-Application Screening and 2) Mandatory Screening (DEAT, 2002). Pre-Application Screening is usually undertaken as a formal process, typically at the discretion of the development proponent and aims to provide an opportunity for key environmental issues to be anticipated at the earliest opportunity (DEAT, 2002) (**Figure 1**).

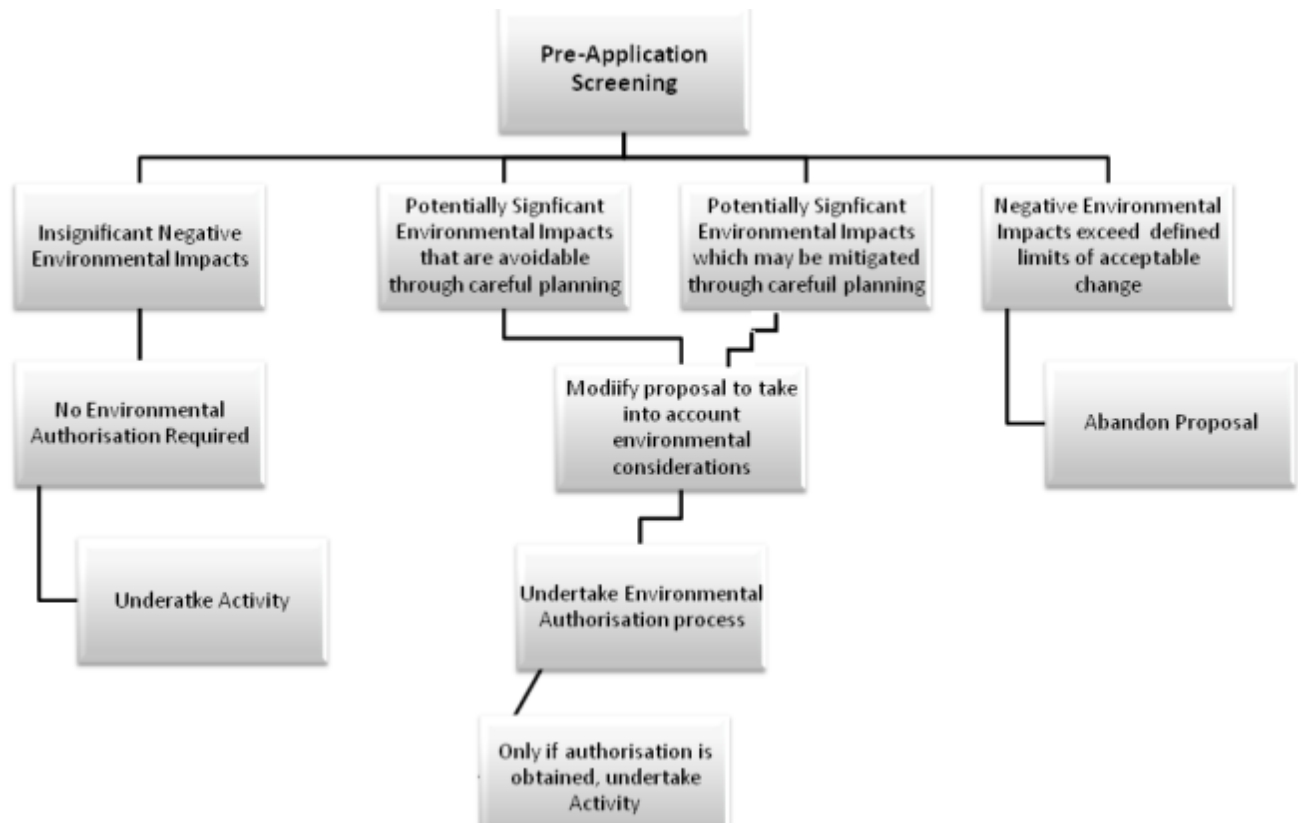


Figure 1: Pre-Application Screening Process (Adapted from DEAT, 2002).

The aim of this Environmental Screening was to identify any sensitive features so to provide guidance on decision-making.

General guidance regarding requisite legislation will also be provided based on the current design layout for the proposed pipeline replacement. It should be noted that should this information change, the listed activities triggered may also change.

2 SCOPE OF WORK

The Desktop Environmental Screening of the site includes the following factors:

1. Biophysical factors including:
 - a. Climate
 - b. Topography;
 - c. Geology;
 - d. Hydrology;
 - e. Biodiversity and;
 - f. Protected Areas
2. Social Factors including:
 - a. Agricultural Potential
 - b. Heritage Impacts and;
 - c. Surrounding land use
3. Legal Requirements and Frameworks

3 SITE LOCATION

The proposed development is situated in the township of Lenasia South, City of Johannesburg Metropolitan Municipality in Gauteng Province (**Figure 2**). Lenasia is approximately 35km south west of the Johannesburg central business district. The new reservoir will be constructed on the North-western side of the existing Lenasia HL reservoir (26°22'32.90"S; 27°51'52.93"E) (**Figure 3**). The proposed site belongs to the Gauteng Provincial Department.

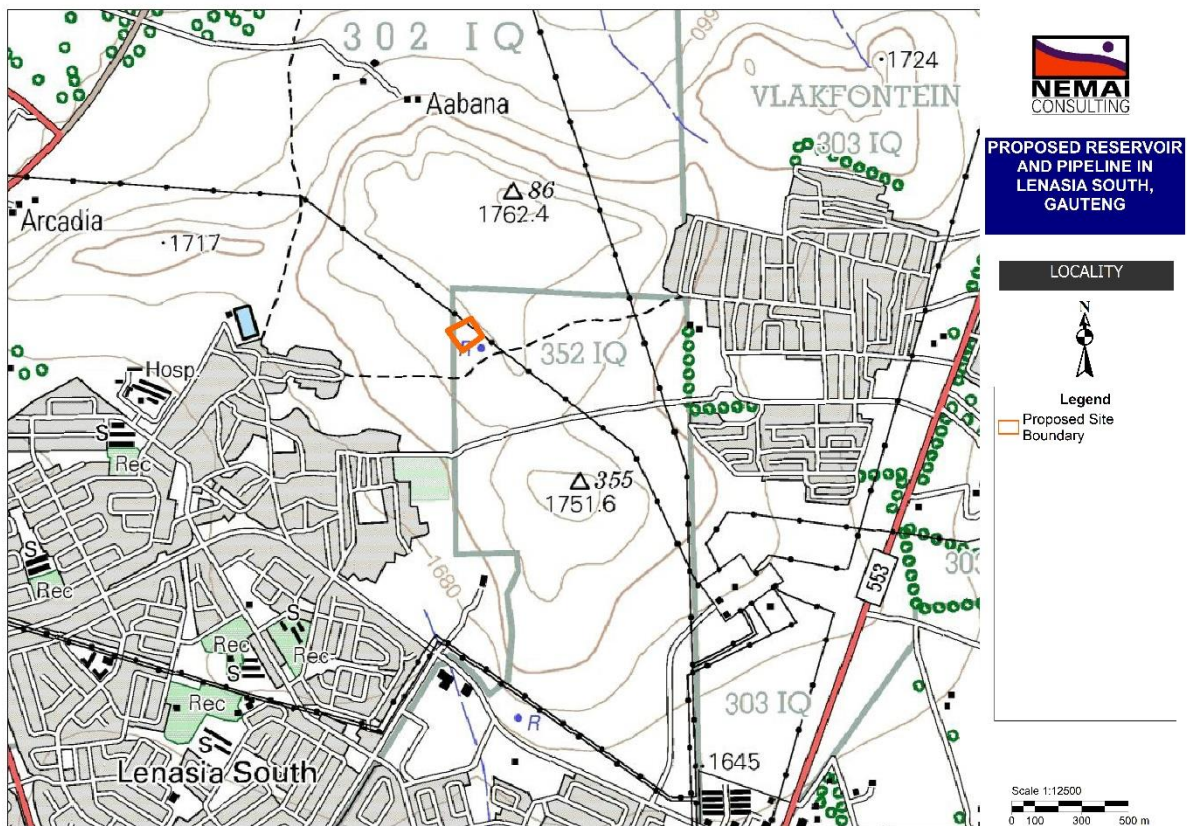


Figure 2: 1: 12 500 Topographical Map.

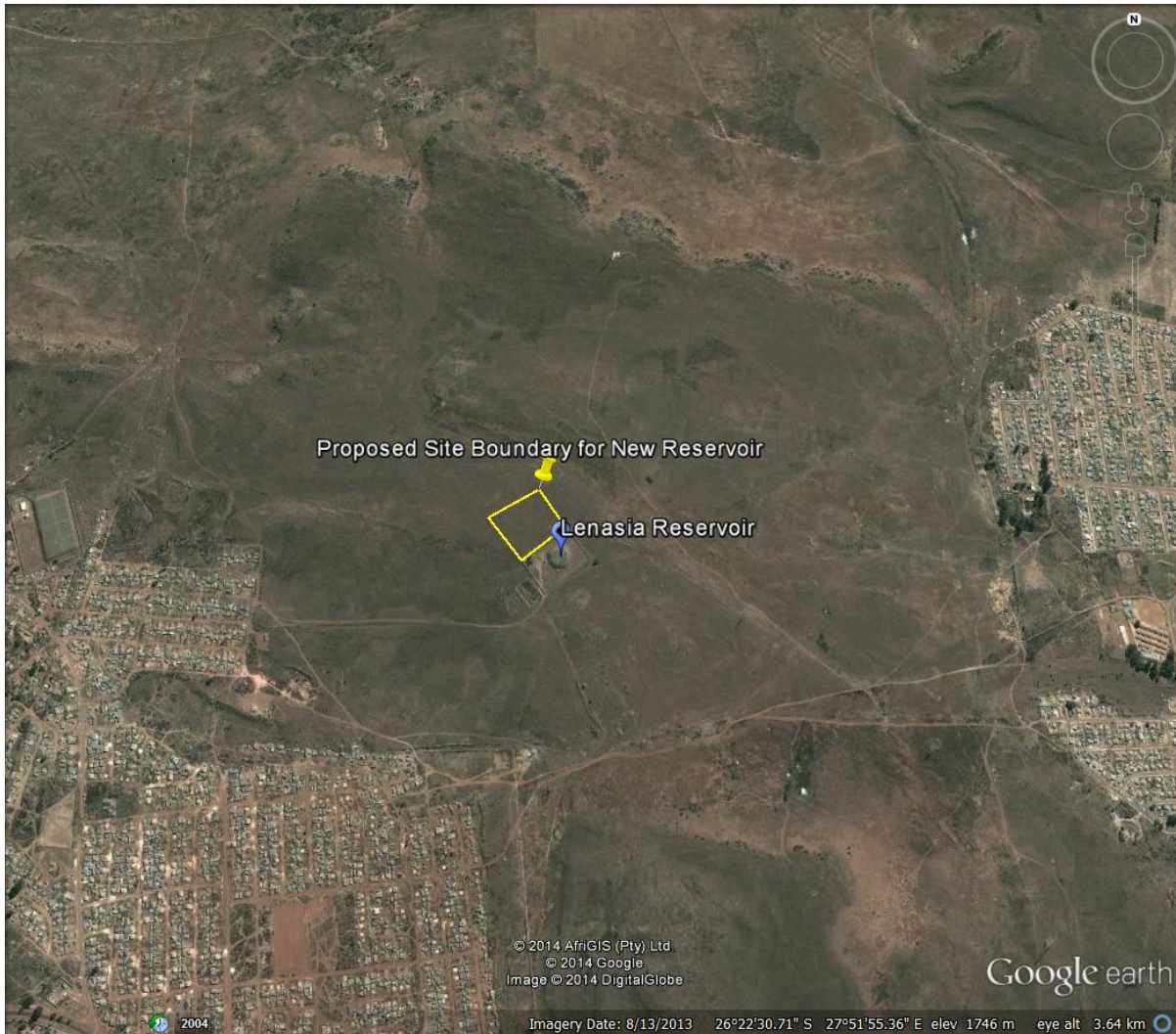


Figure 3: Google Earth Map of Proposed Site.

4 BIOPHYSICAL FACTORS

The site was screened on a desktop level using GIS as a spatial tool to identify sensitive environmental features.

4.1 Topography

The proposed site occurs in slightly undulating areas (**Figure 4**). However, the site does not occur on ridges (**Figure 5**).

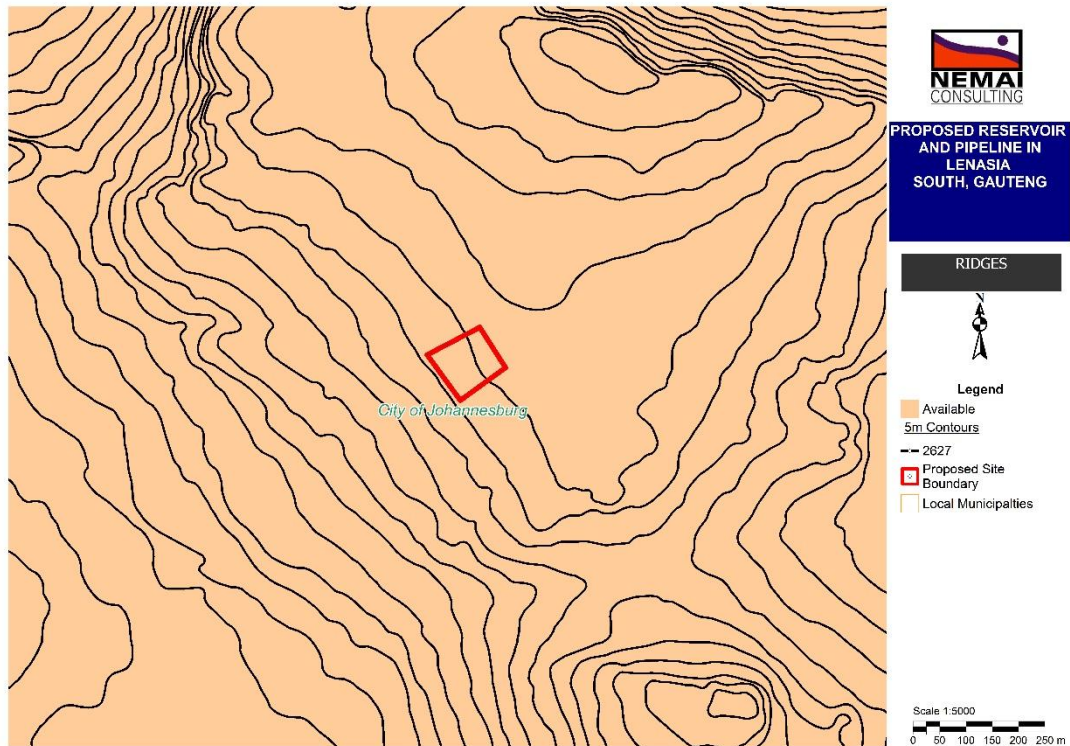


Figure 4: 5m Contour Lines



Figure 5: Ridges in proximity to the proposed site.

4.2 Geology

The study site is underlain with sediments from the Transvaal (**Figure 6**).



Figure 6: Geology.

A geotechnical survey will need to be conducted to determine the final positioning of the reservoir.

4.3 Surface Water

The site falls in the Upper Vaal Water Management Area (WMA) (**Figure 7**). According to the Water Research Commission (WRC) (2004), some key features of the area include:

- The Upper Vaal water management area lies in the eastern interior of South Africa. Large quantities of water are transferred into the area from two neighboring areas, as well as water sourced from the Upper Orange River via Lesotho.
- Large quantities of water are transferred out to three other water management areas, which are dependent on water from the Upper Vaal water management area to meet much of their requirements.
- The Upper Vaal water management area is highly developed and impacted upon by human activity.

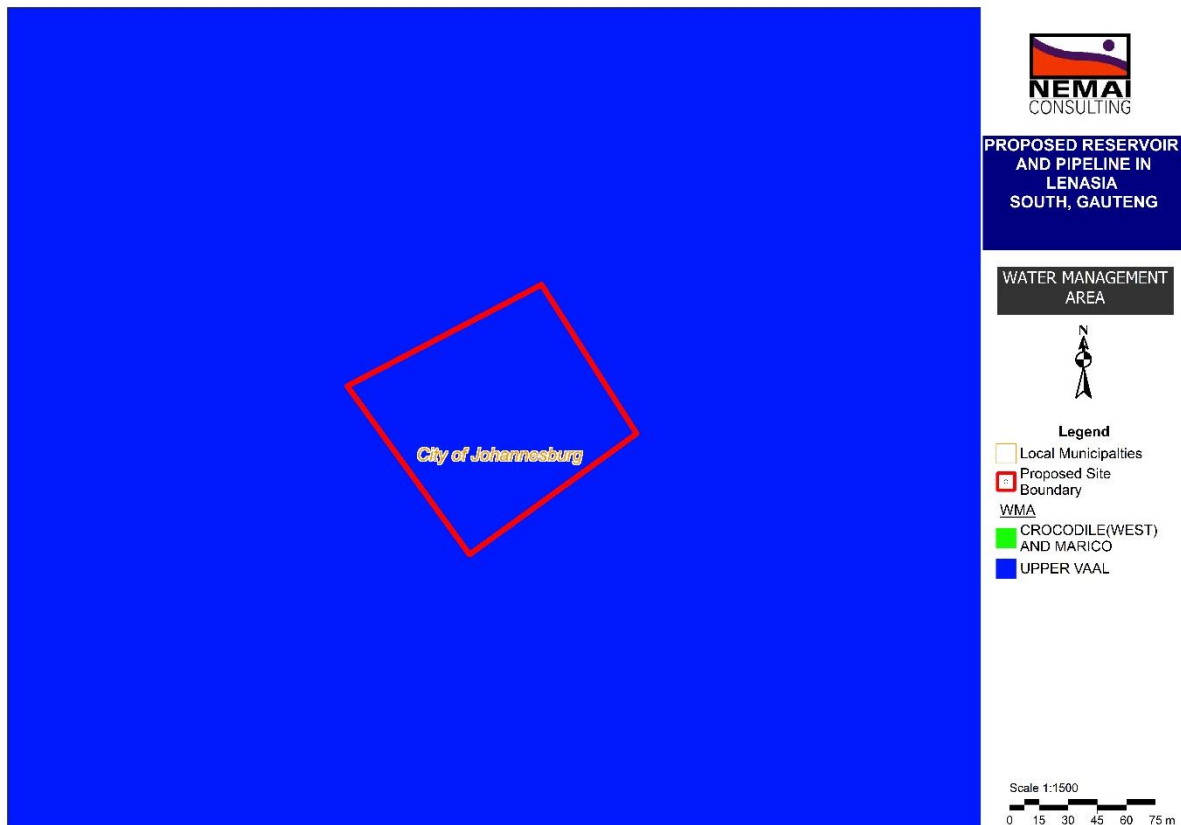


Figure 7: Water Management Area.

No watercourses were found to occur within 32m of the proposed site (**Figure 8**). No wetlands were found to occur within 500m of the proposed site.

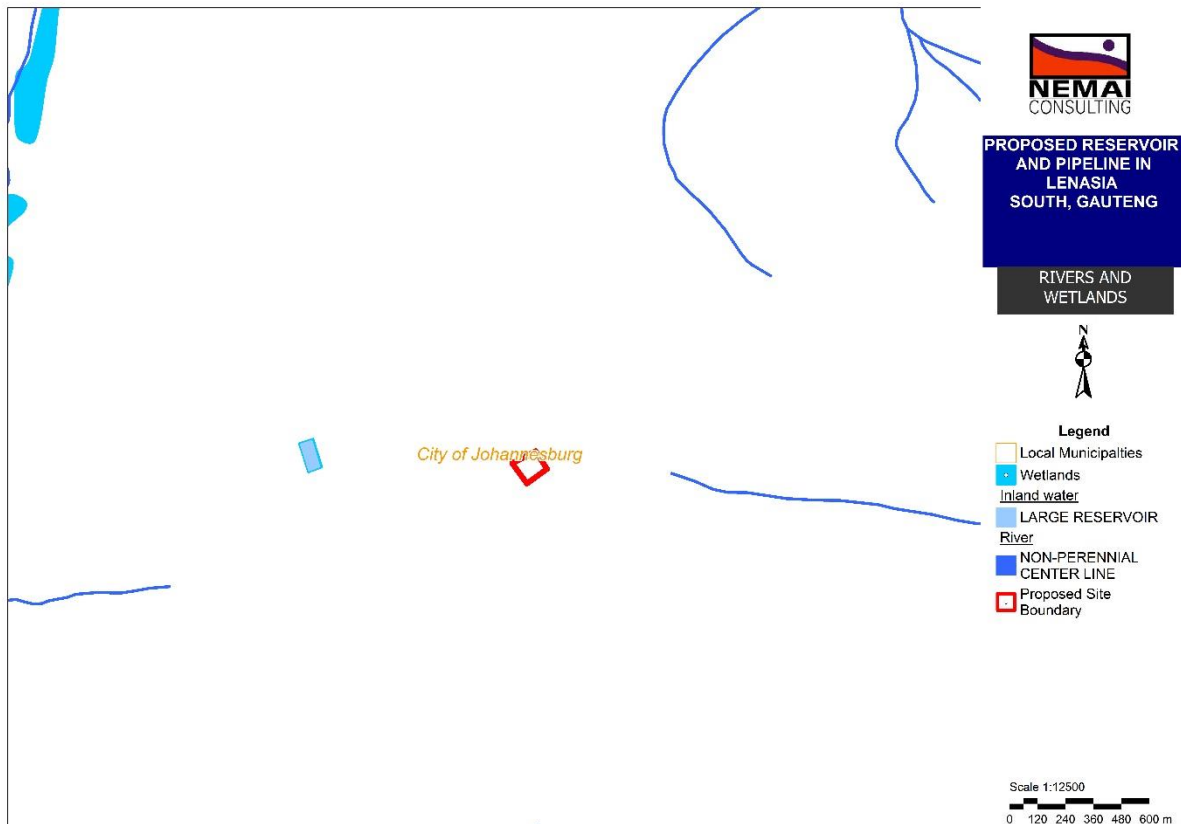


Figure 8: Surface Water.

No NEMA activities regarding watercourses would thus be triggered as the site is more than 32m from a watercourse. There are no wetlands around the site and thus a wetland buffer of 500m does not apply. Further, it is unlikely that work would fall within the 1: 100 year flood line or the delineated riparian area and thus no Water Use License Application is required.

4.4 Biodiversity

4.4.1 Veld Description

The site falls within the Savanna Biome (**Figure 9**) and is characterised by the Gauteng Shale Mountain Bushveld (**Figure 10**). The Gauteng Shale Mountain Bushveld vegetation type is found in Gauteng and Northern-West Provinces. It occurs mainly on the ridge of the Gatsrand south of Carletonville-Westonaria-Lenasia. Vegetation is a short, semi-open thicket dominated by a variety of woody species (Mucina and Rutherford, 2006).

Important taxa include *Acacia caffra*, *Dombeya rotundifolia*, *Acacia karoo*, *Celtis africana*, *Combretum molle*, *Cussonia spicata*, *Englerophytum magalismontanum*, *Protea caffra*, *Rhus leptodictya*, *R. magalismontana*, *Vangueria infausta*, *Zanthoxylum capense*, *Ziziphus mucronata*, etc. (Mucina and Rutherford, 2006).

The conservation status of this vegetation type is classified as Vulnerable with a national conservation target of 24%. Less than 1% is statutorily conserved in the Skanskop and Hartebeesthoek Nature Reserves, Magaliesberg Nature Area and Groenkloof National Park. Additionally, over 1% is conserved in other reserves including the John Nash Nature Reserve, Cheetah Park and Hartebeesthoek Radio Astronomy Observatory. About 21% is already transformed, mainly by urban and built-up areas, mines and quarries, cultivation and plantations. Wattles are a common invasive plant species in places (Mucina and Rutherford, 2006).



Figure 9: Biome.

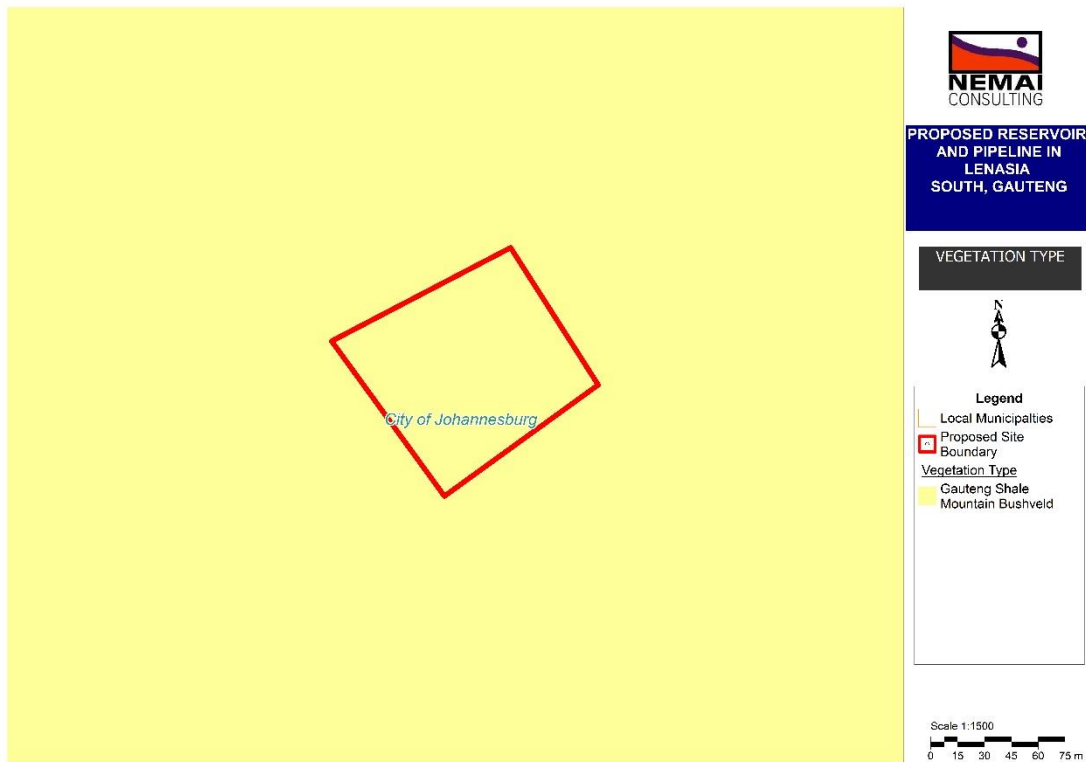


Figure 10: Vegetation Type.

4.4.2 Threatened Ecosystems

The South African National Biodiversity Institute (SANBI), in conjunction with the Department of Environmental Affairs and Tourism (DEAT), released a draft report in 2009 entitled “Threatened Ecosystems in South Africa: Descriptions and Maps” to provide background information on the abovementioned List of Threatened Ecosystems (SANBI, 2009). The purpose of this report was to present a detailed description of each of South Africa’s ecosystems and to determine their status using a credible and practical set of criteria. The following criteria were used in determining the status of threatened ecosystems:

- Irreversible loss of natural habitat;
- Ecosystem degradation and loss of integrity;
- Limited extent and imminent threat;
- Threatened plant species associations;
- Threatened animal species associations; and
- Priority areas for meeting explicit biodiversity targets as defined in a systematic conservation plan.

In terms of section 52(1) (a), of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004), a national list of ecosystems that are threatened and in need of protection was gazetted on 9 December 2011 (Government Notice 1002 (<http://bgis.sanbi.org/ecosystems/project.asp>)). The list classified all threatened or protected ecosystems in South Africa in terms of four categories; *Critically Endangered* (CR), *Endangered* (EN), *Vulnerable* (VU) or *Protected*. The purpose of categorising these ecosystems is to prioritise conservation areas in order to reduce the rates of ecosystem and species extinction, as well as preventing further degradation and loss of structure, function, and composition of these ecosystems. It is estimated that threatened ecosystems make up 9.5% of the land in South Africa, with critically endangered and endangered ecosystems accounting for 2.7%, and vulnerable ecosystems 6.8% of the land area. It is therefore vital that Threatened Terrestrial Ecosystems inform proactive and reactive conservation and planning tools, such as Biodiversity Sector Plans, municipal Strategic Environmental Assessments, Environmental Management Frameworks, Environmental Impact Assessments and other environmental applications (Mucina *et al.*, 2006).

The study area does not fall within any threatened ecosystems. The closest threatened ecosystem is the Soweto Highveld Grassland (**Figure 11**)

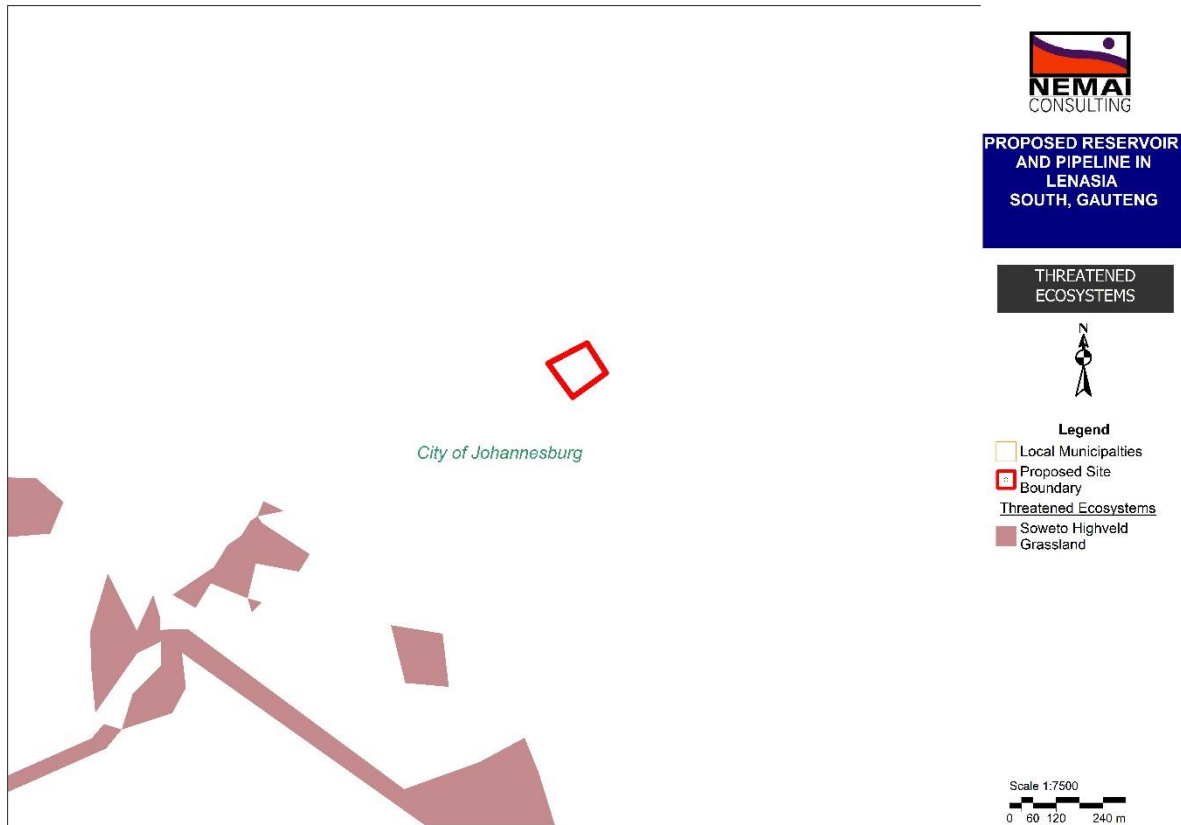


Figure 11: Threatened Ecosystems.

4.4.3 Flora

The proposed development is located within the 2627BD quarter degree square in terms of the 1:50 000 grid of South Africa. The Pretoria Computerised Information System (PRECIS) list of Red Data plants was obtained from South African National Biodiversity Institute (SANBI) (<http://posa.sanbi.org/searchspp.php>). The list was consulted to verify the record of occurrence of the plant species seen in the vicinity of the proposed development. The site sampled is also only a very small portion of the whole grid and so habitats suitable for certain species in the PRECIS list may not be present at the areas sampled. A list of the threatened plant species were is provided in the Table below.

Table 1. Red Data Plant species recorded in grid 2627BD which could potentially occur in the study area (SANBI data).

Family	Species	Threat status	SA Endemic	Growth forms
Asteraceae	<i>Cineraria longipes</i> S.Moore	Vulnerable	No	Dwarf shrub
Mesembryanthemaceae	<i>Lithops lesliei</i> (N.E.Br.) N.E.Br. subsp. <i>lesliei</i>	Near Threatened	No	Succulent

4.4.4 Fauna

A desktop study was done for fauna species that might occur in the proposed study site to predict if any possible Red data species could be present in the site.

4.4.4.1 Birds

Important Bird Areas (IBAs) form a network of sites, at a biogeographic scale, which are crucial for the long-term viability of naturally occurring bird populations (Barnes, 2000). Conservation and planning tools were consulted for relevancy for this project, and found no Important Bird Area (IBA) occurs in the study area. The nearest IBA (Suikerbosrand Nature reserve) is approximately 31Km away from the proposed site (**Figure 12**).

According to SANBAP 2 (Southern African Bird Atlas Project 2), no threatened bird species occur in the proposed site area.

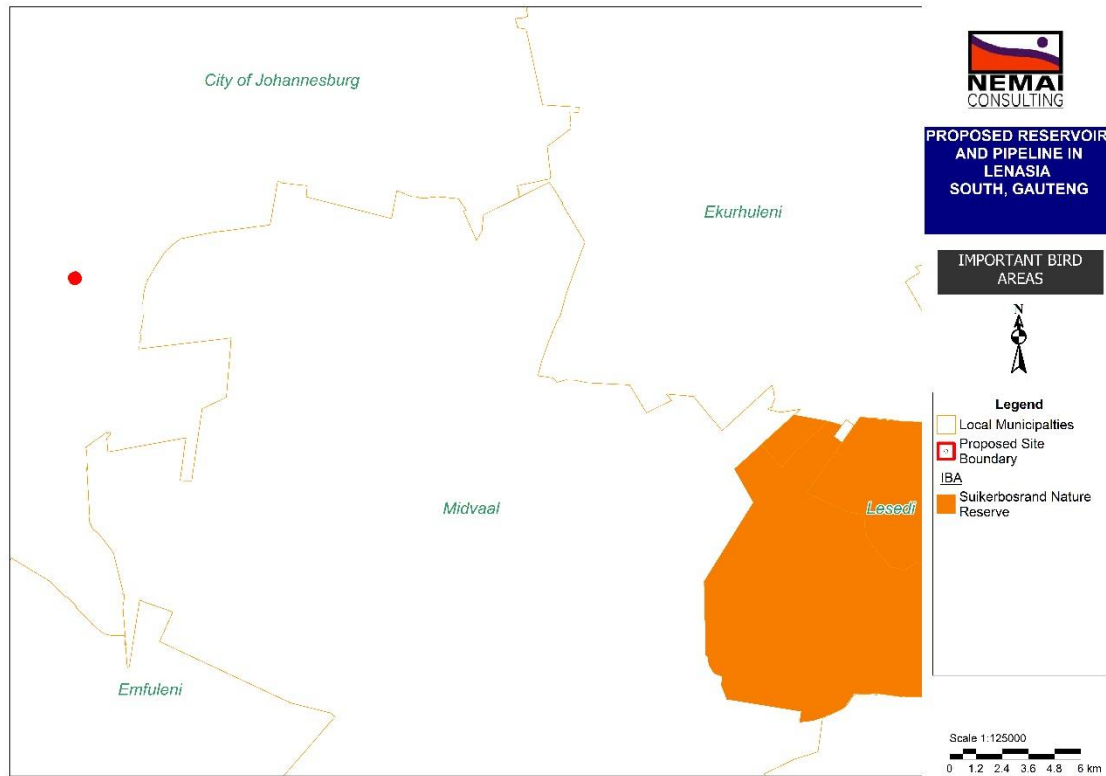


Figure 12: Important Bird Areas.

4.4.4.2 Mammals

According to the Animal Demography Unit (http://vmus.adu.org.za/vm_sp_list.php), the following mammals have been recorded in 2627BD grid cell:

Table 2. Mammal species recorded in grid 2627BD which could occur in the study area.

Family	Genus	Species	Common name	Red list category	No. records
Herpestidae	<i>Atilax</i>	<i>paludinosus</i>	Water Mongoose	Least Concern	1
Macroscelididae	<i>Elephantulus</i>	<i>myurus</i>	Rock Elephant-shrew	Least Concern	3
Muridae	<i>Aethomys</i>	<i>namaquensis</i>	Namaqua Rock Mouse	Least Concern	1
Muridae	<i>Malacothrix</i>	<i>typica</i>	Large-eared Mouse	Least Concern	2
Muridae	<i>Mastomys</i>	<i>natalensis</i>	Natal Multimammate Mouse	Least Concern	3
Muridae	<i>Mystromys</i>	<i>albicaudatus</i>	White-tailed Rat	Endangered	4
Muridae	<i>Otomys</i>	<i>irroratus</i>	Vlei Rat	Least Concern	1
Muridae	<i>Tatera</i>	<i>brantsii</i>	Highveld Gerbil	Least Concern	7
Soricidae	<i>Crocidura</i>	<i>mariquensis</i>	Swamp Musk Shrew	Data Deficient	2

4.4.4.3 Reptiles

According to the reptile data sourced by Virtual Museum of African Mammals (http://vmus.adu.org.za/vm_sp_list.php), there are reptile species that were recorded in grid cell 2627BD. These species are shown in the **Table 3** below.

Table 3. Reptile species recorded in grid 2627BD which could occur in the study area.

Family	Genus	Species	Common name	Red list category	No. records
Agamidae	<i>Agama</i>	<i>aculeata</i>	Distant's Ground Agama	Least Concern (SARCA 2014)	1
Agamidae	<i>Agama</i>	<i>atra</i>	Southern Rock Agama	Least Concern (SARCA 2014)	2
Atractaspididae	<i>Aparallactus</i>	<i>capensis</i>	Black-headed Centipede-eater	Least Concern (SARCA 2014)	53
Atractaspididae	<i>Atractaspis</i>	<i>bibronii</i>	Bibron's Stiletto Snake	Least Concern (SARCA 2014)	1
Atractaspididae	<i>Homoroselaps</i>	<i>dorsalis</i>	Striped Harlequin Snake	Near Threatened (SARCA 2014)	1
Chamaeleonidae	<i>Chamaeleo</i>	<i>dilepis</i>	Common Flap-neck Chameleon	Least Concern (SARCA 2014)	1
Colubridae	<i>Boaedon</i>	<i>capensis</i>	Brown House Snake	Least Concern (SARCA 2014)	3
Colubridae	<i>Crotaphopeltis</i>	<i>hotamboeia</i>	Red-lipped Snake	Least Concern (SARCA 2014)	3
Colubridae	<i>Dasypeltis</i>	<i>scabra</i>	Rhombic Egg-eater	Least Concern (SARCA 2014)	3
Colubridae	<i>Lycophidion</i>	<i>capense</i>	Cape Wolf Snake	Least Concern (SARCA 2014)	1
Colubridae	<i>Prosymna</i>	<i>sundevallii</i>	Sundevall's Shovel-snout	Least Concern (SARCA 2014)	3

Colubridae	<i>Psammophis</i>	<i>crucifer</i>	Cross-marked Grass Snake	Least Concern (SARCA 2014)	2
Colubridae	<i>Psammophylax</i>	<i>rhombeatus</i>	Spotted Grass Snake	Least Concern (SARCA 2014)	6
Colubridae	<i>Pseudaspis</i>	<i>cana</i>	Mole Snake	Least Concern (SARCA 2014)	1
Colubridae	<i>Telescopus</i>	<i>semiannulatus</i>	Eastern Tiger Snake	Least Concern (SARCA 2014)	1
Cordylidae	<i>Cordylus</i>	<i>vittifer</i>	Common Girdled Lizard	Least Concern (SARCA 2014)	2
Elapidae	<i>Hemachatus</i>	<i>haemachatus</i>	Rinkhals	Least Concern (SARCA 2014)	4
Gekkonidae	<i>Pachydactylus</i>	<i>capensis</i>	Cape Gecko	Least Concern (SARCA 2014)	7
Gerrhosauridae	<i>Gerrhosaurus</i>	<i>flavigularis</i>	Yellow-throated Plated Lizard	Least Concern (SARCA 2014)	2
Leptotyphlopidae	<i>Leptotyphlops</i>	<i>scutifrons</i>	Eastern Thread Snake	Not listed	3
Scincidae	<i>Trachylepis</i>	<i>capensis</i>	Cape Skink	Least Concern (SARCA 2014)	2
Scincidae	<i>Trachylepis</i>	<i>varia</i>	Variable Skink	Least Concern (SARCA 2014)	2
Testudinidae	<i>Kinixys</i>	<i>lobatsiana</i>	Lobatse Hinged Tortoise	Least Concern (SARCA 2014)	1
Typhlopidae	<i>Rhinotyphlops</i>	<i>lalandei</i>	Delalande's Beaked Blind Snake	Least Concern (SARCA 2014)	2
Viperidae	<i>Causus</i>	<i>rhombeatus</i>	Rhombic Night Adder	Least Concern (SARCA 2014)	2

4.4.4.4 Amphibians

According to the frog data sourced by Virtual Museum of African Mammals (http://vmus.adu.org.za/vm_sp_list.php), the frog species that were recorded in grid cell 2627BD are shown in **Table 4** below.

Table 4. Amphibian species recorded in grid 2627BD which could occur in the study area.

Family	Genus	Species	Common name	Red list category	No. records
Bufonidae	<i>Amietophrynus</i>	<i>gutturalis</i>	Guttural Toad	Least Concern	5
Bufonidae	<i>Schismaderma</i>	<i>carens</i>	Red Toad	Least Concern	3
Hyperoliidae	<i>Kassina</i>	<i>senegalensis</i>	Bubbling Kassina	Least Concern	7
Hyperoliidae	<i>Semnodactylus</i>	<i>wealii</i>	Rattling Frog	Least Concern	1
Pipidae	<i>Xenopus</i>	<i>laevis</i>	Common Platanna	Least Concern	3
Pyxicephalidae	<i>Amietia</i>	<i>angolensis</i>	Common or Angola River Frog	Least Concern	2
Pyxicephalidae	<i>Amietia</i>	<i>fuscigula</i>	Cape River Frog	Least Concern	2
Pyxicephalidae	<i>Cacosternum</i>	<i>boettgeri</i>	Common Caco	Least Concern	7
Pyxicephalidae	<i>Pyxicephalus</i>	<i>adspersus</i>	Giant Bull Frog	Near Threatened	2
Pyxicephalidae	<i>Tomopterna</i>	<i>cryptotis</i>	Tremelo Sand Frog	Least Concern	3

From the above assessment, a detailed Flora and Fauna Specialist Study would be needed to determine if Red Data Species possibly occur on site.

4.5 Gauteng Conservation Plan

Gauteng Nature Conservation, a component of the Gauteng Department of Agriculture and Rural Development (GDARD) produced the Gauteng Conservation Plan Version 3 (CPlan 3) in December 2010. C-Plan will be critical in ensuring adequate protection of biodiversity and the environment in Gauteng Province (Gauteng Conservation Plan Version 3.3 2011). C-Plan 3.3 includes the following that will be used as input into the National Bioregional Plan for the country:

- *Critical Biodiversity Areas (CBA)* containing Irreplaceable, Important and Protected Areas all merged together into one layer.
- *Ecological Support Areas (ESA)* containing all layers that are part of the entire hierarchy of biodiversity, but it is not possible to include all biodiversity features.

The proposed site occurs in an ESA (**Figure 13**). A CBA occurs south of the proposed site.

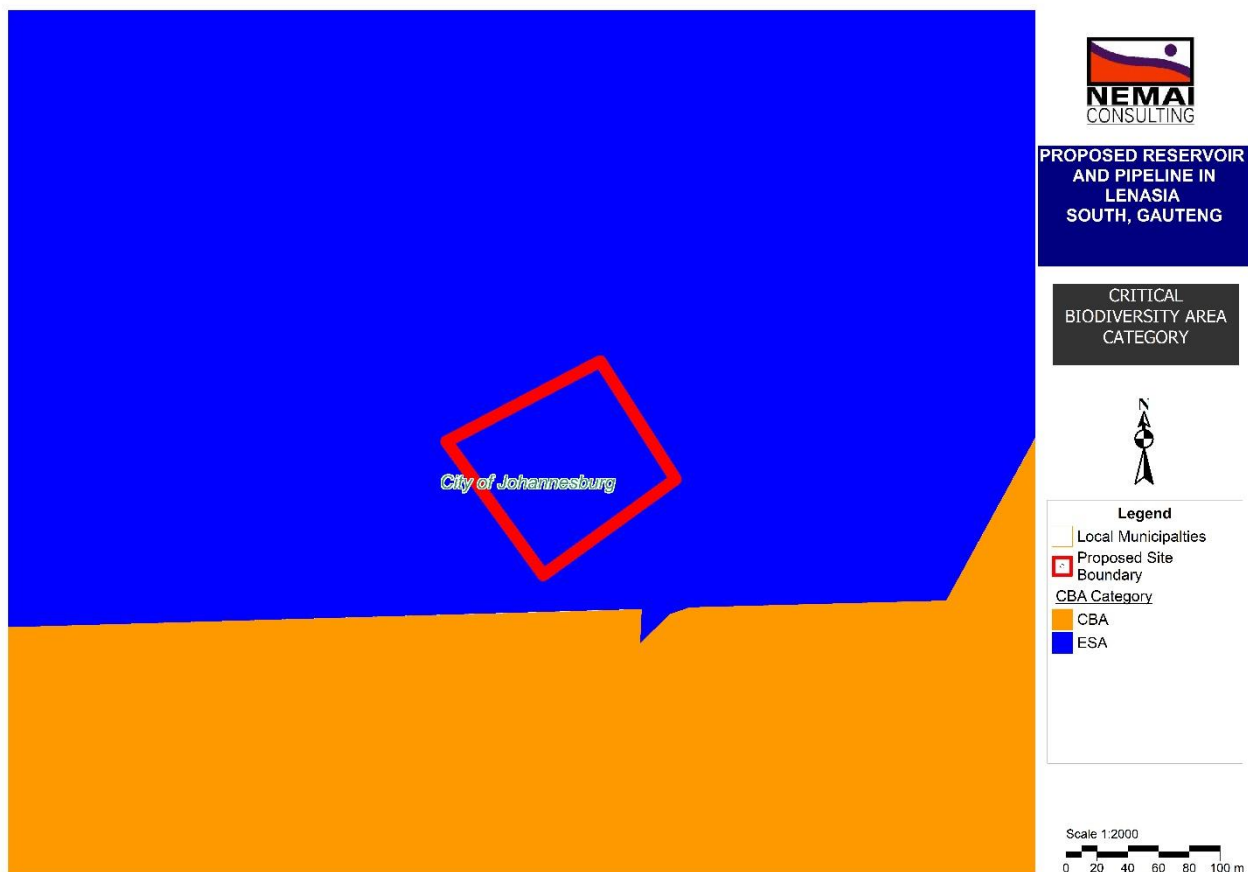


Figure 13: Critical Biodiversity Area Categories.

5 SOCIAL FACTORS

5.1 Agricultural Potential

The site occurs in an area of high agricultural potential (**Figure 14**).

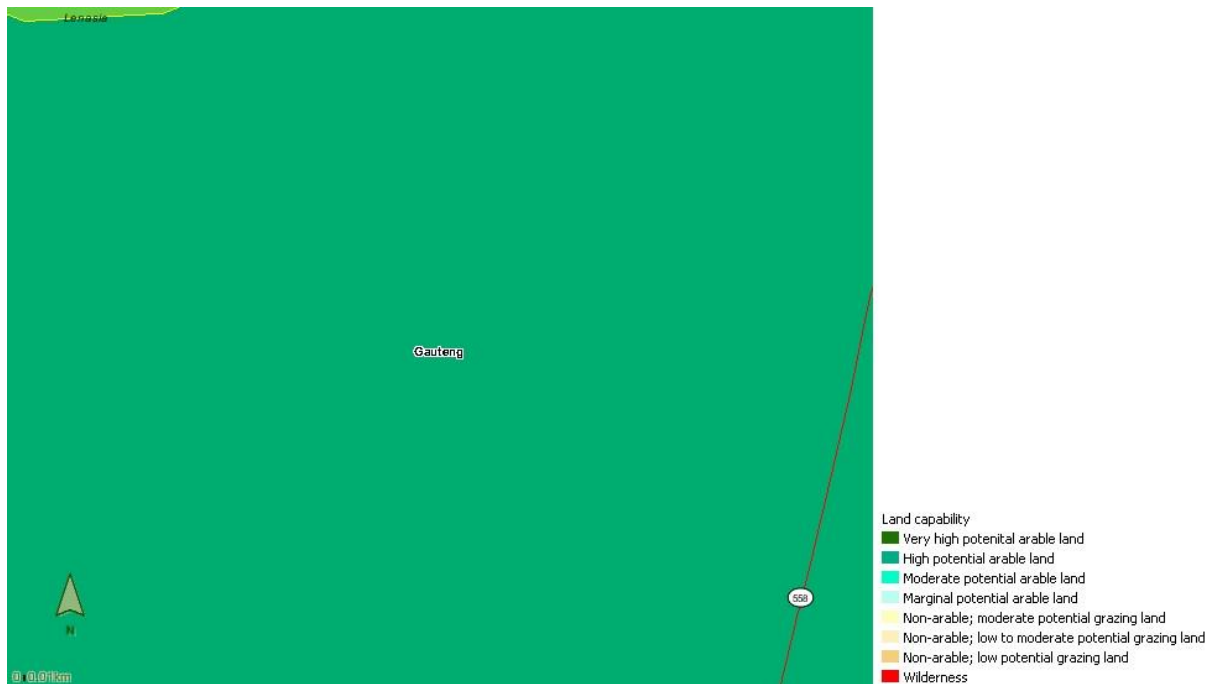


Figure 14: Agricultural Potential.

5.2 Heritage

According to Section 38(1) under Heritage resources management of the National Heritage Act 25 of 1999 the heritage resources in South Africa should be managed in the following:

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

(c) any development or other activity which will change the character of a site –

- i) exceeding 5 000m² in extent, or*
- (ii) involving three or more existing even or subdivisions thereof; or*
- (iii) involving three or more even or divisions thereof which have been consolidated within the past five years; or*
- (iv) the costs of which will exceed a sum set in terms of regulations by*

SAHRA or a provincial heritage resources authority.

According to Section 38 of the National Heritage Resources Act 25 of 1999, any development that exceeds 5 000 m² (or 0.5 Ha) in extent triggers a Heritage Impact Assessment (HIA). The proposed site boundary will require an area of more than 5 000m², thus a Heritage Impact Assessment (HIA) will be required. This will need to be submitted to the Provincial Heritage Resource Authority of Gauteng (PHRAG).

5.3 Surrounding Land Use

The proposed site occurs in unimproved (natural) grassland (**Figure 15**). The site occurs outside the urban town and thus there is a low population density (**Figure 16**).



Figure 15: Land Use.

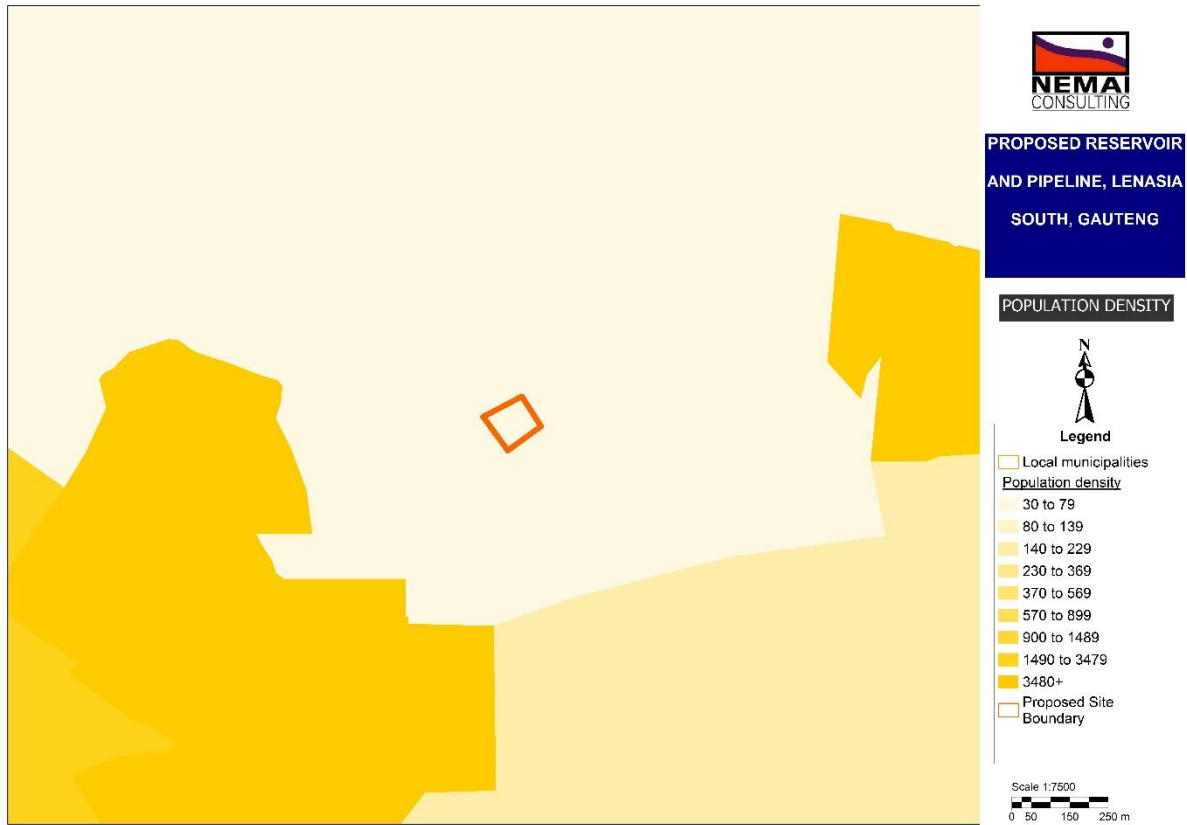


Figure 16: Population Density.

5.4 Urban Edge

The proposed site occurs just outside the urban edge (**Figure 17**).

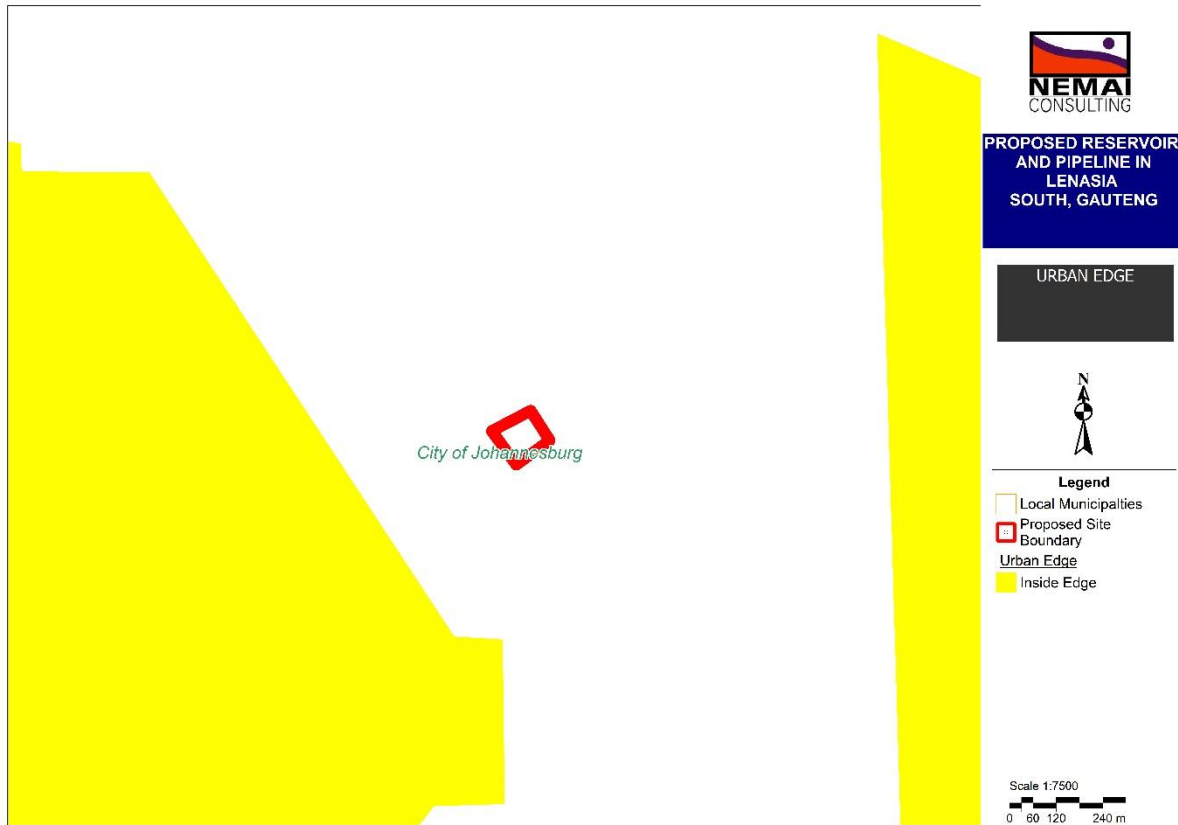


Figure 17: Urban Edge.

6 ENVIRONMENTAL LEGAL FRAMEWORK

6.1 Legislation

Development and conservation planning must be contextualised within the framework of national government, provincial government, district municipality and local municipality's legal, regulatory and policy.

Environmental law provides mechanisms for the management and conservation of environmental features and the sustainability of new development. The importance of environmental management is to make responsible use of natural, economic and human resources in ways that protect and improve the environment.

Environment law is divided into various sections and most laws applicable to protection and management of the environment were developed to protect and manage specific sectors.

The most common laws applicable to environment management are described in the following sections.

6.1.1 The Constitution of South Africa (108 of 1996)

Environmental Rights

Section 24 of the Constitution deals with Environmental Rights and gives the right to all citizens: *“to an environment that is not harmful to their health and well being; and to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that:*

- *Prevent pollution and ecological degradation;*
- *Promote conservation; and*
- *Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development”.*

The Constitution of South Africa is the highest form of law enforceable on any individual or organisation. This section therefore provides the basic environmental rights to all citizens to safe and healthy environment.

6.1.2 The National Environmental Management Act (Act 107 of 1998)

The NEMA is considered the overarching act in terms of environmental legislation. Every act that relates to environmental matters is directly or indirectly linked to the NEMA and provisions are made in acts that followed publication of NEMA 1998 to accommodate conditions specified in various acts.

The National Environmental Management Amendment Act (NEMAA) act was promulgated in 2008 and was aimed at substituting certain definitions, further regulating environmental authorisations and to effect certain textual alterations.

NEMAA provides for cooperative governance and establishes principles for decision-making on matters affecting the environment such as:

- People and their needs must be placed at the forefront of environment management;
- Development must be sustainable and therefore requires avoidances of pollution and degradation of the environment, disturbances of landscapes and sites of cultural heritage
- The integrated nature of the environment and that responsibility for environmental management exists throughout the life cycle of an activity (from cradle to grave);
- Public Participation;
- Transparent decision making; and
- Intergovernmental co-ordination and harmonisation of policies, legislation and actions.

Chapter Five of NEMA provides for Integrated Environmental Management and defines the general objectives of IEM. Minimum procedures are laid down with respect to investigating, assessing and communicating the potential impacts of activities.

Section 24 of NEMA provides for Environmental Management Frameworks through provisions for the identification of sensitive and geographical areas. Chapter Eight of NEMA specifies the sensitive and geographical areas mentioned above and maps created as a result thereof to be used as environmental management framework.

6.1.3 The National Environmental Management: Air Quality Act (Act 39 of 2004)

The purpose of this act was to reform the law regulating air quality by providing measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development.

The acts aims to promote justifiable economic and social development; to provide for national norms and standards regulating air quality monitoring, management and control by all spheres of government; and for specific air quality measures

6.1.4 The National Environmental Management: Biodiversity Act (Act 10 of 2004)

The purpose of the National Environment Management Biodiversity Act (NEMBA) is to provide for the management and conservation of South Africa's biodiversity within the framework of the National Environmental Management Act (Act 107 of 1998).

The Act allows for the publication of provincial and national lists of ecosystems that are threatened and in need of protection. The list should include:

- *Critically Endangered Ecosystems*, which are ecosystems that have undergone severe ecological degradation as a result of human activity and are at extremely high risk of irreversible transformation.
- *Endangered Ecosystems*, which are ecosystems that, although they are not critically endangered, have nevertheless undergone ecological degradation as a result of human activity.
- *Vulnerable Ecosystems*, which are ecosystems that have a high risk of undergoing significant ecological degradation.
- *Protected Ecosystems*, which are ecosystems that are of a high conservation value or contain indigenous species at high risk of extinction in the wild in the near future.

Similarly, the Act allows for the listing of endangered species, including critically endangered species, endangered species, vulnerable species and protected species. A person may not carry out a restricted activity (including trade) involving listed threatened or protected species without a permit.

Due to the sensitive nature of this area and the potential Red Data List Species, it is suggested that a Flora and Fauna Scan be undertaken. Further, an Environmental Management Programme (EMPr) based on best practices should be compiled. The EMPr should include the recommendations of the Flora and Fauna Scan.

6.1.5 The National Environmental Management: Protected Areas Amendment Act (Act 15 of 2009).

The purpose of NEMPAA is to amend the National Environmental Management: Protected Areas Act, 2003, so as to provide for:

- A comprehensive list in the schedule of all national parks;
- The assignment of national parks, special nature reserves and heritage sites to the South African National Parks;
- Flight corridors and permission of the management authority to fly over special nature reserve, national park or heritage site; and
- Specific areas available for training and testing of aircraft.

This act creates a national system of protected areas in order to protect and conserve ecologically viable areas representative of biodiversity in the country. It further seeks to achieve co-operative environmental governance and to promote sustainable and equitable utilisation and community participation.

The legislation requires the State to act as trustee of protected areas, and to implement the Act 'in partnership with the people' to achieve the progressive realisation of the environmental rights contained in Section 24 of the Constitution.

Once an area is declared protected, the Minister must appoint management authorities, who in turn must prepare management plans for the special nature reserve, national park, nature reserve or protected environment. These plans must, amongst other things, contain the terms and conditions of any applicable biodiversity management plan, procedures for public participation, including participation by the owner (if applicable), any community or other interested party, and where appropriate, the implementation of community-based natural resource management.

The management authority may enter into an agreement with another organ of state, a local community, an individual or other party for the co-management of the area by the parties, or the regulation of human activities that affect the environment in the area.

6.1.6 EIA Regulations (2010) Government Notice No. R. 543, 544, 545, 546

The EIA regulations of 2010 provide amended listed activities which may trigger Basic Assessment or Scoping and Environmental Impact Assessment processes. It provides guidelines on a number of aspects including Public Participation. It also provides the listed activities which trigger a Basic Assessment Process and Scoping and EIA process.

In terms of the proposed reservoir and pipeline in Lenasia South, the following should be noted:

- The proposed reservoir is 15MI
 - This capacity is less than 50 000m³ therefore Activity No.12 of GN. 544 is not triggered.
 - This capacity is over 250 m³; however, the proposed reservoir does not occur in an area identified as irreplaceable or important in the Gauteng Conservation Plan. Therefore Activity No. 2 of GN. 546 is not triggered.
- The area for the proposed reservoir is within a rural area, and will require the transformation of undeveloped land of approximately 0.9 hectares. Thus because the area to be transformed is less than 1 hectare, Activity No. 23(ii) of GN. 544 is not triggered.
- The proposed pipeline to link the proposed reservoir to the existing reservoir is 1200m in length, 366mm internal diameter; and a peak throughput of 269 l/s. Therefore Activity No, 9 of GN. 544 will be triggered.
- The pipeline will not occur within 32m of a watercourse; and
- The pipeline will not occur within 500m of a wetland.

Thus a **Basic Assessment Process** is required in order to obtain **Environmental Authorisation**. The table below describes the listed activities triggered as a result of the development.



Table 5. Listed activities applicable

Notice No	Activity number	Activity description
GN. 544	9 (i and ii)	<p>The construction of facilities or infrastructure exceeding 1000 metres in length for the bulk transportation of water, sewage or storm water -</p> <p>(i) with an internal diameter of 0,36 metres or more; or (ii) with a peak throughput of 120 litres per second or more,</p> <p>excluding where:</p> <p>a. such facilities or infrastructure are for bulk transportation of water, sewage or storm water or storm water drainage inside a road reserve; or b. where such construction will occur within urban areas but further than 32 metres from a watercourse, measured from the edge of the watercourse.</p>

6.1.7 National Heritage Resources Act (Act 25 of 1999)

The purpose of the NHRA is to protect and promote good management of South Africa's heritage resources, and to encourage and enable communities to nurture and conserve their legacy so it is available to future generations.

The Act makes heritage resources of cultural significance or other special value part of the national State, and therefore places them under the care of the South African Heritage Resources Agency (SAHRA).

Heritage resources may include buildings, historic settlements, landscapes and natural features, burial grounds and certain moveable objects, including objects of decorative art or scientific interest. Provincial and municipal authorities also play a role in managing provincial heritage resources and local-level functions.

New landowners should be made aware of any pre-existing heritage sites or objects located on their properties, and be further educated on their responsibilities regarding those sites or objects. They may also wish to approach heritage authorities in order to obtain a designation for a particular site or object under this Act.

According to Section 38 of the National Heritage Resources Act 25 of 1999, any development that exceeds 5 000 m² (or 0.5 Ha) in extent triggers a Heritage Impact Assessment (HIA). The proposed site boundary will require an area of more than 5 000m², thus a Heritage Impact Assessment (HIA) will be required. This will need to be submitted to the Provincial Heritage Resource Authority of Gauteng (PHRAG).

6.1.8 National Water Act (Act 36 of 1998)

The National Water Act (NWA), 1998 (Act No. 36 of 1998), aims to manage national water resources in order to achieve sustainable use of water for the benefit of all water users. This requires that the qualities of water resources are protected, and that integrated management of water resources takes place.

According to Section 21(c) and (i) Water Use Authorisation Application Process by the Department of Water Affairs and Forestry, any development within 500m of a wetland boundary triggers a Water Use License Application (WULA). There are no rivers or wetlands on or near the site, therefore no Aquatic Delineation or WULA will be required.

6.1.9 National Environmental Management Waste Act (Act 59 of 2008)

This act was developed to reform the law regulating waste management in order to protect health and the environment.

This act places a high liability on waste producers and government to supply adequate waste removal, treatment and disposal facilities to ensure that waste is not threatening the health and safety of citizens.

Waste management was previously conducted in terms of the NWA and several sections of law have been repealed by NEMWA. This act must be read with NEMA and application must be guided by principles set out in section 2 of NEMA.

No waste activities will take place and thus no Waste Management License is required.

6.1.10 The Environmental Conservation Act (Act 73 of 1989)

The objective of the Environmental Conservation Act (ECA) is to provide for the effective protection and controlled utilisation of the environment. This Act was historically the main act that governed environmental management in South Africa.

Several sections of ECA have been repealed by various pieces of legislation mentioned in this section. ECA should therefore always be read in conjunction with NEMA and other legislation applicable to the subject in question.

6.1.11 The National Forests Act (Act 84 of 1998)

The purpose of this Act includes the following:

- To promote the sustainable management and development of forests for the benefit of all;
- To create the conditions necessary to restructure forestry in State forests;
- To provide special measures for the protection of certain forests and trees;
- To promote the sustainable use of forests for environmental, economic, educational, recreational, cultural, health and spiritual purposes;
- To promote community forestry; and
- To promote greater participation in all aspects of forestry and the forest products industry by persons disadvantaged by unfair discrimination.

6.1.12 Conservation of Agricultural Resources Act (Act 43 of 1983)

CARA seeks to provide for the conservation of natural agricultural resources by maintaining the production potential of land, combating and preventing erosion and weakening or destruction of water resources, protecting vegetation and combating weeds and invader plant species.

CARA generally does not apply to any land situated in an urban area (which is land under the control of a local authority, excluding any commonage or other land used for agricultural purposes; or any land that is subdivided). However, the provisions relating to weeds and invader plants do apply in urban areas.

6.2 Environmental Authorisations Required

Based on the Environmental Screening undertaken, environmental authorisation is required and a Basic Assessment will need to be undertaken to achieve this.

It is also necessary for a HIA to be submitted to PHRA-G.

It is also suggested that a Flora and Fauna Scan be undertaken, the findings of which should be incorporated into an EMPr to be submitted to DEA.

6.3 Guidelines, Frameworks and Plans

Although not included in this screening exercise, other guidelines, frameworks (e.g. Spatial Development Framework, Environmental Management Framework, Strategic Environmental Assessment), plans (e.g. Integrated Development Plans) and provincial, district and local policies and strategies will also need to be considered during any environmental authorisation process that may be necessary for any development at the site.

7 CONCLUSIONS

The identification of the relevant environmental authorisations required for the project was undertaken against the backdrop of the current available information.

In addition, once the project team has reached consensus on the appropriate listed activities, it is recommended that pre-consultation be conducted (including a site visit) with the relevant government authorities *to confirm the following:*

- *Relevant activities that require approval;*
- *Requisite protocols to be followed; and*
- *The authorities' information requirements.*

Based on the description of the project contained in the preliminary design report as well spatial information on watercourses, wetlands, vegetation types and threatened ecosystems, the following is required:

- Environmental Authorisation;
- HIA; and
- A Flora and Fauna Scan.

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