

**PROPOSED MARIKANA TOWNSHIP
ESTABLISHMENT ON PORTION 20 OF DORP
GRONDEN LADYBRAND 451, MANTSOPA
LOCAL MUNICIPALITY**

FINAL SCOPING REPORT FOR SUBMISSION

REF: Not yet allocated

Prepared for:



human settlements

Department of
Human Settlements
FREE STATE PROVINCE

Compiled by:



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Aug 2021

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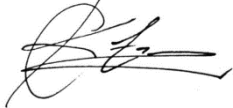
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QUALITY CONTROL

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DATE

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EAP Qualifications	MSc Environmental Management (UP) FSC Forest Management Auditing Principles Certificate (2015) ISO 14001: Lead Auditors Course Certificate (2014) Imbewu Law Training Certificate (2012) Certificate in Sustainability for Professionals PPSD4 seminar, London UK (2006)
EAP Experience	Over 15 years' experience in conducting the following processes pertaining to commercial, municipal, agricultural and mining applications:

- Scoping & EIR and Basic Assessments (ECA, NEMA, EIA Regulations 2006, 2010 and 2014)
- Waste License Applications
- Water Use License Applications (WULAs)
- Waste Management License Application
- Mining Right Applications and Mining Closure
- 24G Rectification Applications
- Pre-Feasibility Studies and Due Diligence Studies
- Environmental Risk Assessments
- Environmental Training

SECTION A: EXECUTIVE SUMMARY

INTRODUCTION

The report constitutes as the Final Scoping Report for the proposed Free State Department of Human Settlements (FSHS) mixed-use residential development of Portion 20/451, Ladybrand. The proposed development mainly intends to construct residential settlements; however, provision is made for alternative land uses, including institutional (primary and secondary school), commercial and/or business and retail to provide essential services to the community.

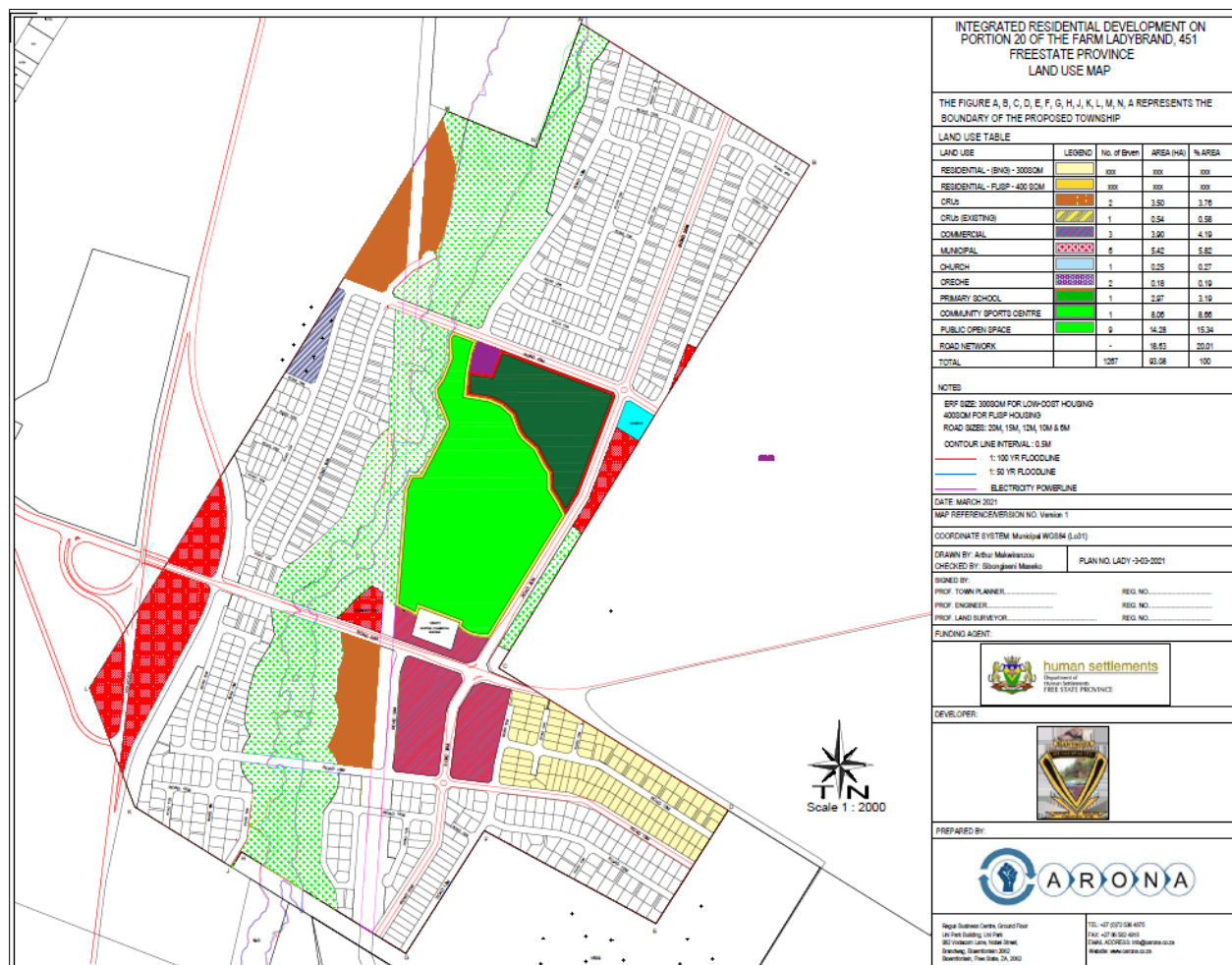


Figure 1: Proposed Site Layout Portion 20/451

LOCATION

The site coordinates are

29°12'1.85"S 27°28'20.21"E

Table 3: Property Description

Farm	Farm Dorp Gronden Ladybrand 451
LPI Code	F0210000000045100020
Local Municipality	Mantsopa Local Municipality
Nearest Town	Ladybrand
Ward Number	7
District Municipality	Thabo Mofutsanyane District Municipality

FINDINGS OF SPECIALIST INVESTIGATIONS

- Loss of vegetation and alteration of natural habitat
- Alteration of the flow drivers and wetlands within the project area.
- Loss of agricultural land
- Addressing the need for housing and services in Ladybrand
- Job creation and skills development
- Visual Impact

PROJECT ALTERNATIVES

Based on the outcome of the wetland assessment report, the following layout alternatives are considered:

- Layout Alternative 1: Mixed used development within the wetland buffer
- Layout Alternative 2: Mixed use development outside of the recommended 50m wetland buffer

PUBLIC PARTICIPATION

Public Participation took place from **Monday, 28 June 2021 – Tuesday, 27 July 2021** via a newspaper advert, site notices, public meetings, hand delivery of notices to adjacent landowners and relevant state

departments, bulk sms and email notifications. There are some concerns from adjacent landowners regarding the impact of the project on various aspects.

Please refer to the Comments and Response Report (CRR) attached as **Appendix 4**.

CONCLUSIONS AND RECOMMENDATIONS

It is recommended that the application is allowed to move to the Draft EIA Phase so that issues can be further investigated and assessed.

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- Heritage Impact Assessment Report
- Biodiversity Report
- Soil and Land Capability
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SECTION B: INTRODUCTION

1. DESCRIPTION OF PROPOSED ACTIVITY

The Free State Department of Human Settlements (FSHS) as supported by the Housing Development Agency (HDA) proposes the mixed-use residential development of Portion 20/451, Ladybrand. The proposed development mainly intends to construct residential settlements; however, provision is made for alternative land uses, including institutional (primary and secondary school), commercial and/or business and retail to provide essential services to the community. The site is located east of Ladybrand, east of Bloemfontein near the Lesotho border in the Free State Province.

Housing is an intense issue which requires immediate attention and must be clearly understood by the National and Provincial government. The Free State Department of Human Settlements (FSHS) as supported by the Housing Development Agency (HDA) intends to eliminate the informal settlements currently situated in the area. The Marikana township development aims to establish the following:

- 2000 low-cost housing units,
- 1000 m² Retail Centre,
- 1000 m² community clinic,
- Primary school to cater for 500 learners,
- Secondary school to cater for 300 learners and
- Crèche for 100 children.

2. LOCALITY

The site coordinates are
29°12'1.85"S 27°28'20.21"E

Table 4: Property Description

Farm	Farm Dorp Gronden Ladybrand 451
LPI Code	F02100000000045100020
Local Municipality	Mantsopa Local Municipality
Nearest Town	Ladybrand
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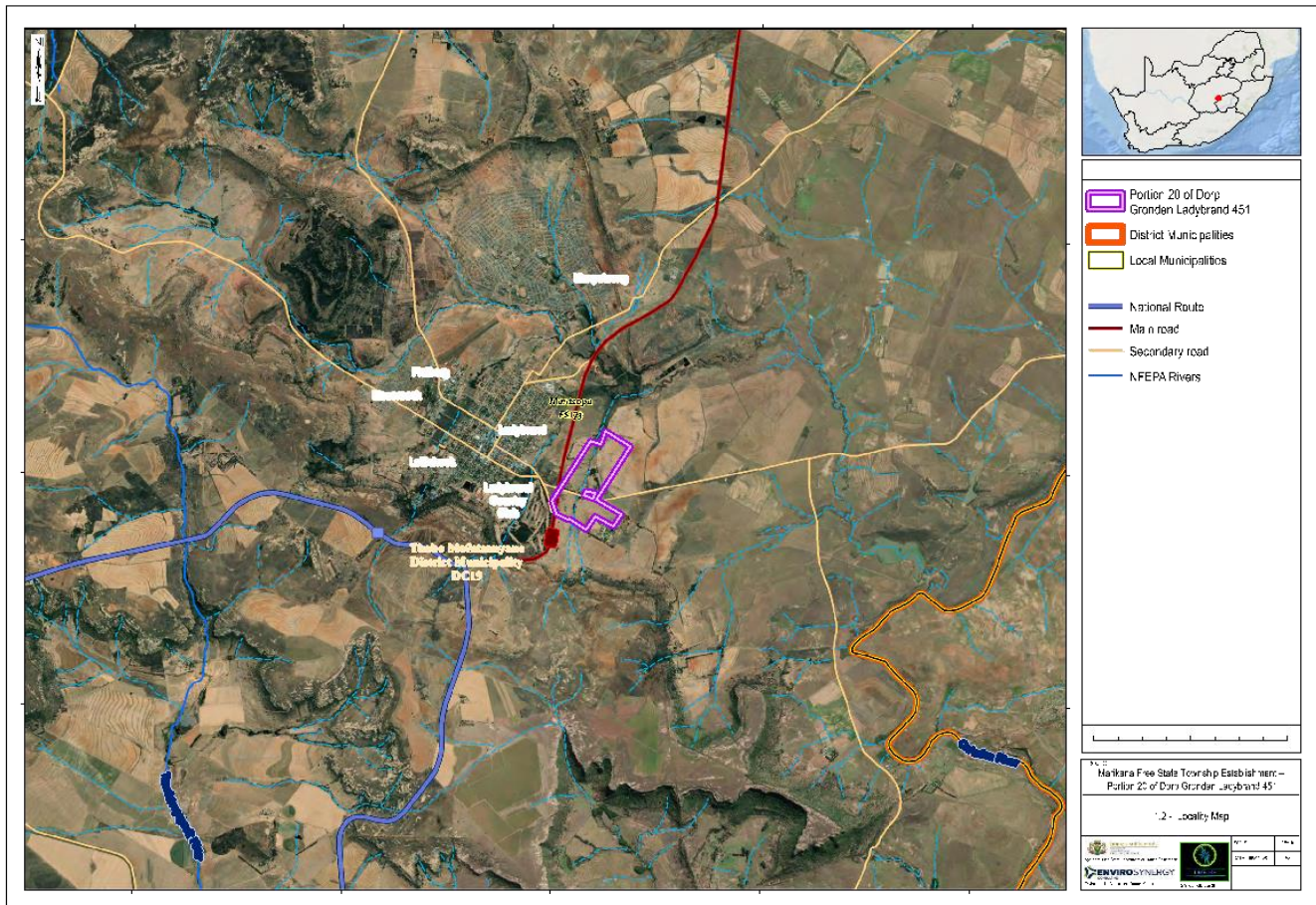


Figure 2: Locality Map

3. INFRASTRUCTURE REQUIREMENTS

3.1 Water and Sanitation

The civil engineering infrastructure will be designed according to the Guidelines for Human Settlement Planning and Design Vol.2 (Red Book 2005) and local authority requirements. Typical preliminary services scheme layouts are included in the appendices for information. Details services layouts will be finalised during the detail design phase of the project. It is envisaged that all civil engineering infrastructure within the proposed development will be private and installed by the developer.

3.1.1 Water Demand Estimation

Set out below is the anticipated water demand for **PORTION 20/451**. The bulk water demand for the full development (existing and proposed) is summarised below.

Table 5: Water Demand Estimation Portion 20/451

Zoning/Land Use	Area	Unit Demand	AADD	SDD	Peak Factor	Design Peak Flow
	(m ²)	(ℓ/100m ² /day)	(kt/day)	(ℓ/s)		(ℓ/s)
Commercial/Business	18,900	800	151.20	2.63		
Education/Schools	50,000	100	50.00	0.87		
Erven Residential/Domestic	537,400	80	429.92	7.46		
High Density Residential/Domestic (>60 units/Ha)	170 Units	700	119.00	2.07		
Community Facilities	18,900	600	113.40	1.97		
Hospital	0	1200	0.00	0.00		
Hostel/Student Accommodation	0	600	0.00	0.00		
Roads & Open Space/Landscaping	292,100	0	0.00	0.00		
		Total	863.52	15.00	4.22	63.30
Note:						
- Equivalent Erven (ee) = 863.52						
- AADD – Average Annual Daily Demand						
- SDD – Seasonal Daily Demand (AADD × 1.5)						
- Design Peak Flow – SDD × Peak Factor						
- All demand estimation subject to architectural/townplanning scheme and area schedules						

3.1.2 Internal Potable Water Design

It is anticipated that the development will have one metered bulk connection point. The internal reticulation will be buried underground pipework, suitably designed to account for flow and pressure. Firefighting water will be drawn off the domestic supply. Wet services engineers must be consulted to route fire water systems through buildings.

3.1.3 External Potable Water Design

The layout below shows the proposed connection point to bulk water infrastructure that will supply the development. All costs related to the connection to bulk municipal water are to be borne by the developer. Comments from the local authority of their existing water network and the proposed development's water demands are required – Pending comments from the local authority, the following assumptions have been

made: To serve the number of residential units proposed, existing water supply infrastructure may require upgrades. It is assumed that there is a bulk line running east-west as shown below to provide confirmation on available pressure and capacity of the existing bulk municipal system.



Figure 3: Existing Water Supply Infrastructure

3.1.4 Internal Sewer Design

The proposed sanitation layout for **PORTION 20/451** is still to be confirmed when township layout is available. The proposed development will be serviced with a street front, gravity waterborne reticulation network. Set out below are the anticipated sewer discharges for the proposed development.

Table 6: Anticipated Sewer Discharge for Portion 20/451

Zoning/Land Use	Area	Unit Discharge	Daily Wet Flow	Peak Daily Wet Flow	Peak Factor	Peak Wet Winter Flow
	(m ²)	(ℓ/100m ² /day)	(kℓ/day)	(ℓ/s)		(ℓ/s)
Commercial/Business	18,900	560	105.84	0.00		
Education/Schools	50,000	70	35.00	0.00		
Erven Residential/Domestic	537,400	56	300.94	1.01		
High Density Residential/Domestic (>60 units/Ha)	170	490	83.30	8.71		
Community Facilities	18,900	420	79.38	2.41		
Hospital	0	840	0.00	2.30		
Hostel/Student Accommodation	0	420	0.00	0.00		
Roads & Open Space/Landscaping	292,100	0	0.00	3.06		
		Total	604.46	17.49	1.15	20.11
Note:						
- Peak Daily Wet Flow (PDWF) – (Daily Wet Flow × 2.5)						
- Peak Wet Winter Wet Flow (PWWF) as Design Flow – PDWF × 1.15 (15% stormwater infiltration)						
- All demand estimation subject to architectural/townplanning scheme and area schedules						

3.1.5 External Sewer Design

The layout below shows the proposed link to connection point(s) to bulk sewer infrastructure/WWTW that will service the development. All costs related to the connection to the bulk sewer are to be borne by the developer. A new sewer link is required to connect to the bulk existing sewer system that connects to the existing waste water treatment facility. **Mantsopa Local Municipality** to provide information on available capacity of the existing bulk municipal system and related waste water treatment facilities. It is possible that the construction of an onsite water treatment facility will be required.



Figure 4: Proposed Sewer Connection Point(s)

3.2 Roads and Associated Stormwater

It is anticipated that there will be surfaced roads/hardscaping throughout the development. Stormwater control will generally be via a typical kerb and channel combination with pick up points at stormwater kerb/grid inlets into catch pits discharging into concrete a hybrid piped and open channel Stormwater conveyance system. The design of the stormwater system is to be based on the minor flood except at critical points (low points) where the system is to be designed to accommodate the major flood and checked for the 1:50 and 1:100-year floods.

A worst-case scenario must be considered, where allowance is made for an overland flood route from low points if pipes or channels fail. If necessary, overtopping of roads during major floods may be permitted, however precautions must be taken to reduce and control erosion damage (or the road or embankment). Overland flow routes may require the imposition of servitudes or building line restrictions.

Roads and parking areas should be designed to collect stormwater runoff and convey it efficiently and safely. Stormwater is to be intercepted by suitably designed catch pits/kerb inlets at regular intervals into a hybrid piped and open channel stormwater system. Piped systems are to be designed for the required return period.

The objectives of a stormwater management plan are to provide guidelines where the following is to be achieved:

- Prevent downstream flooding due to a change in catchment characteristics;
- Protect property and life from damage caused by stormwater and flooding;
- Prevent soil erosion and consequential downstream damage;
- Provide for the safe and efficient removal of stormwater runoff from the site.

3.2.1 Runoff from External Sources

Options available where higher lying catchments discharge runoff into the development:

1. *Accept Runoff*: accept the runoff through development minor and major systems. Sizing of relevant systems will have to be adjusted to accommodate runoff from high lying areas.
2. *Divert Runoff*: channels/berms to reroute runoff around the development site

As shown in **Figure 5**, a berm should be introduced along the eastern and western boundaries of the site to divert runoff from the residences within the proposed new township. These berms may be converted into road as land to the east and west gets proclaimed and becomes available for township development. A road-channel combination is recommended along the boundaries of the site. This road a channel combination will accept runoff from higher lying areas and direct this runoff appropriately.



Figure 5: Proposed Stormwater Management from External Runoff

3.2.2 Attenuation

Due to urbanization and the inevitable change in catchment characteristics, developments tend to reduce natural rainfall infiltration and increase stormwater runoff. This increases flood damage risks downstream unless adequate measures are taken to attenuate flood peaks. Attenuation can be achieved through the introduction of landscaped water features or underground tanks. In this instance there are no statutory requirements that the designer is aware of that requires on-site attenuation. In fact, the provision of an on-site attenuation facility may reduce the housing stock yield from the property as valuable land will have to be set aside for the sole function of attenuation. Introducing attenuation however remains best practice, promoting sustainability and resilience.

Shown in **Figure 6** below attenuation facilities would ideally introduce along the existing floodplain at strategic locations.



Figure 6: Regional Attenuation and Existing Stormwater Infrastructure

4. LEGAL REQUIREMENTS APPLICABLE TO THE APPLICATION

4.1 Constitution of the Republic of South Africa (Act 108 of 1996)

The legal foundation for environmental law in South Africa originates in the Constitution of the Republic of South Africa, Act 108 of 1996. All environmental aspects should be interpreted within the context of the Constitution. The Constitution has enhanced the status of the environment by virtue of the fact that environmental rights have been established (Section 24) and because other rights created in the Bill of Rights may impact on environmental management.

4.2 NEMA (as amended) and the Environmental Impact Assessment Regulations

The National Environmental Management Act (No. 107 of 1998) is South Africa's key environmental legislation and provides for co-operative, environmental governance by establishing principles of decision-making on matters affecting the environment, institutions that will promote co-operative governance and

procedures for co-ordinating environmental functions exercised by organs of state. The principles of the Act are as follows:

- Environmental Management must place people and their needs at the forefront of its concern;
- Development must be socially, environmentally and economically sustainable;
- Environmental Management must be integrated, acknowledged that all elements of the environment are linked and interrelated;
- Equitable access to environmental resources, benefits and services to meet basic human needs and ensure human well-being must be pursued;
- The participation of all interested and affected parties in environmental governance must be promoted and decisions must take into account the views of all interested and affected parties.

The key objective of NEMA is to give effect to the environmental right (section 24) in the Constitution. Section 24 of NEMA deals with activities that require environmental authorisation and which are therefore subject to the EIA Regulations.

The following listed activity in terms of the Environmental Impact Assessment (EIA) Regulations of 2014 (as amended in 2017, namely GNR 324, 325 and 327) is being applied for:

Table 7: Listed Activities being applied for

Activity No(s):	Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 1 of the EIA Regulations, 2014 as amended	Describe the portion of the proposed project to which the applicable listed activity relates.
9	GNR 327 of April 2017	The total stormwater and potable water infrastructure could exceed 1000m and will have an internal diameter exceeding 0.36m and 120 l/second throughput capacity.
10	GNR 327 of April 2017	Bulk sewer pipes will be required to reach the existing waste water treatment works. The pipes will have an internal diameter exceeding 0.36m and 120 l/second throughput capacity.
11	GNR 327 of April 2017	The development of facilities or infrastructure for the transmission (with a capacity of more than 33 but less than 275 kilovolts) and distribution of electricity to service the development should Eskom not have sufficient capacity

12	GNR 327 of April 2017	The construction of access roads, stormwater outlet structures (i.e. attenuations ponds) and culverts within the wetland area (and within the 32m buffer) will exceed a 100m ² threshold.
13	GNR 327 of April 2017	The storage of potable water in a reservoir with a capacity of 50 000m ³ or more could be required.
19	GNR 327 of April 2017	The construction of access roads, stormwater outlet structures and culverts within the wetland area (and within the 32m buffer) could require infilling of material of more than 10 m ³ in the wetland.
24	GNR 327 of April 2017	Access roads within the development could have a reserve wider than 13,5 meters,
28	GNR 327 of April 2017	Mixed use development of 93.08 ha on land outside the urban area that was previously used for agricultural purposes.
Activity No(s):	Provide the relevant Scoping and EIA Activity(ies) as set out in Listing Notice 2 of the EIA Regulations, 2014 as amended	Describe the portion of the proposed project to which the applicable listed activity relates.
9	GNR 325 of April 2017	The installation of a substation or transformer (with a capacity of 275 kilovolts or more) could be required to service the development should Eskom not have sufficient capacity
15	GNR 325 of April 2017	Mixed use development of 93.08 ha including the removal of indigenous vegetation (Basotho Montane Shrubland and Eastern Freestate Clay Grassland)
25	GNR 325 of April 2017	On site treatment of sewerage of 15 000m ³ or more could be required if the development cannot tie into the existing sewerage network
Activity No(s):	Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 3 of the EIA Regulations, 2014 as amended	Describe the portion of the proposed project to which the applicable listed activity relates.
12	GNR 325 of April 2017 iv. Areas within a watercourse or wetland; or within 100 metres from	The project will require the removal of 300m ² of indigenous vegetation (Basotho Montane Shrubland and Eastern Freestate Clay Grassland) within 50m from a wetland area.

	the edge of a watercourse or wetland.	
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4.3 The National Water Act (Act No 36 of 1998)

The National Water Act (Act 36 of 1998) is the fundamental law for managing South Africa's water resources. The purpose of the Act is to ensure that water resources of the nation are protected, used, developed, conserved and controlled. It is concerned with the allocation of equitable access and the conservation of water resources within South Africa. The National Water Act (Act 36 of 1998) repeals many of the powers and functions of the Water Act (Act 54 of 1956).

The proposed development must uphold the principles of the National Water Act through the sustainable use of surface and groundwater, not infringing upon the equitable portion set aside for ecological functions and basic human needs, registering and licensing all water uses and properly monitoring and managing this scarce resource. A Water use license has already been applied for and is running concurrently with this EIA process - Ewulaa – Ref WU21041

4.4 National Environmental Management: Waste Act (Act No.59 of 2008)

The National Environmental Management: Waste Act, No 59 of 2008 came into effect on 1 July 2009. The main objectives of the Waste Act are as follows:

- Promote an integrated approach in dealing with waste, which focuses on prevention, minimization and responsible disposal of waste.
- Ensure that waste is properly managed in order to minimise its potential to cause damage to the socio-economic and biophysical environments.

Chapter 4 sets out waste management measures. In particular, Part 3 (reduction, re-use, recycling and recovery of waste) and Part 5 (storage, collection and transportation of waste) are of relevance to the construction phase of the Project. The project will apply to all the relevant norms and standards.

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

The National Environmental Management: Biodiversity Act (Act 10 of 2004) or NEMBA provides for the management and conservation of South Africa's biodiversity within the framework of NEMA. This Act allows for the protection of species and ecosystems that warrant national protection, the sustainable use of indigenous biological resources, the fair and equitable sharing of benefits arising from bio-prospecting involving indigenous biological resources and the establishment and functions of the South African National Biodiversity Institute. Key elements of the Act are:

The management and conservation of South Africa's biodiversity and its components;

- The identification, protection and management of species of high conservation value;
- The identification, protection and management of ecosystems and areas of high biodiversity value;
- The sustainable use of indigenous biological resources

A wetland and ecological study was undertaken to assess the status quo of the area. The proposed development must properly monitor, manage and conserve the biological diversity found in the study area. The proposed development managers must maintain ecological integrity and protect threatened species, Alien and invasive species must be removed and/ or managed.

4.6 Conservation of Agricultural Resources Act (Act 43 of 1983) (CARA)

The Conservation of Agricultural Resources Act aims to provide control over the utilisation of natural agricultural resources in order to promote the conservation of soil, water resources and vegetation and to combat weeds and invasive plants. Section 6 makes provision for control measures to be applied to achieve objectives of this Act.

As part of a National strategy towards gaining control of invasive alien plant species and weeds, the Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983), as amended, stipulates that landowners are legally responsible for the control of invasive alien plants on their properties. Alien plants are rendering agricultural land uses and therefore if weeds or invader plants occur contrary to the provisions of these regulations, the land user must control them by means of any of the control methods that are appropriate for the species concerned. Any action taken to control weeds or invader plants must be executed with caution and in a manner that will have minimal environmental impact.

The developer has a responsibility to implement and maintain any soil conservation works and to properly conserve natural resources and combat weeds and invasive plants.

4.7 National Heritage Resources Act (No. 25 of 1999)

The Provincial Heritage Resources Agency (PHRA) is tasked with protecting heritage resources of national significance. Under Section 38 of the National Heritage Resources Act, all new developments which will change the character of a site and which exceed an area of 5 000 m², must at the very preliminary stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development..

A Phase 1 Heritage Impact Assessment was undertaken.

4.8 National Building Regulations and Building Standards Act (Act No. 103 of 1997)

The Act aims “To promote for the promotion of uniformity in the law relating to the erection of buildings in the areas of jurisdiction of local authorities for the prescribing of building standards and for the matters connected therewith

The Developer should comply with procedures and process to be followed before the development can be erected. A township application has been submitted to the Local Authority

4.9 The Local Government: Municipal Systems Act, 2000 Act No.32 of 2000)

Promulgated to provide for the core principles, mechanism and processes that are necessary to enable municipalities to move progressively towards the social and economic upliftment of local communities, and ensures universal access to essential services that are affordable to all. This Act sets out procedures for integrated development plans (IDPs), a component of which is the Spatial Development Framework (SDF)

The relevant SDF and IDP have been consulted.

4.10 The Development Facilitation Act (Act No. 67 of 1995)

The purpose of this legislation is to introduce extraordinary measures to facilitate and speed up the implementation of reconstruction and development programmes and projects in relation to land in both the rural and urban environment.

The general principles for land development state that policy, administrative practice and law should promote, both efficient and integrated land development by encouraging environmentally sustainable land development practices and processes. The proposed residential development aims to prioritise education and health to radically improve access and quality, building more homes, a modern, integrated, affordable, accessible and reliable public transport system, and working towards a comprehensive social security system to protect the wellbeing of the people and society. This will also ensure that communities are safe by ensuring there is security in local streets, homes, schools, and borders. These interventions will be accompanied by the development of an appropriate macroeconomic framework to support the transformation of the economy to serve all people.

4.11 Mantsopa Local Municipality Integrated Development Plan (IDP)

Integrated development planning is a process through which the municipality prepares a strategic development plan, which extends over five years. Integrated development plan as an instrument lies at the centre of the system of developmental local government in South Africa and represents the driving force for making municipalities strategic, inclusive, responsive, and performance-driven.

: The project is in line with the 2020/2021 IDP, which has identified the following five (5) key performance areas, as they are indicated as follows:

1. Service delivery and infrastructure development
2. Good governance
3. Institutional development and transformation
4. Local Economic Development (LED)
5. Financial viability and management

4.12 Free State Growth and Development Strategy (FSGDS)

The provincial government of Free State has developed a Free State Provincial Growth and Development Strategy (PGDS) Free State Vision 2030. The PGDS is the fundamental policy framework for the Free State Provincial Government. It is the embodiment of the broad strategic policy goals and objectives of the province in line with national policy objectives. The Strategy addresses the key and most fundamental issues of development, spanning the social, economic and political environment. It constantly considers annual provincial priorities and sets broad targets in terms of provincial economic growth and development, service delivery and public service transformation. The Strategy has identified six priority areas of intervention in the province, namely;

1. Inclusive Economic growth and sustainable job creation;
2. Education innovation and skills development
3. Improved quality of life
4. Sustainable Rural Development
5. Efficient Administration and Good Governance
6. Building social cohesion

Relevance to the Project: The project will answer most of the above priority areas, especially:

- Inclusive Economic growth and sustainable job creation;
- Improved quality of life
- Sustainable Rural Development

4.13 Integrated Environmental Management (IEM)

IEM is a philosophy for ensuring that environmental considerations are fully integrated into all stages of the development process. This philosophy aims to achieve a desirable balance between conservation and development (DEAT, 1992). The IEM guidelines intend encouraging a pro-active approach to sourcing, collating and presenting information in a manner that can be interpreted at all levels.

The DEA Integrated Environmental Management Information Series guidelines are also considered during this S&EIR application process.

4.14 National Spatial Biodiversity Assessment

The National Spatial Biodiversity Assessment (NSBA) classifies areas as worthy of protection based on its biophysical characteristics, which are ranked according to priority levels.

4.15 Protected species – Provincial Ordinances

Provincial ordinances were developed to protect particular plant species within specific provinces. The protection of these species is enforced through permitting requirements associated with provincial lists of protected species. Permits are administered by the Provincial Departments of Environmental Affairs

SECTION C: THE RECEIVING ENVIRONMENT

1. BIOPHYSICAL ENVIRONMENT

1.1 Land Use on site

From a land use perspective, the area consists mainly of existing informal settlements. Sheep and goat farming is practiced over most of the area. Cultivation is restricted to isolated patches. Very little indigenous vegetation is available.

The project area has four (4) primary land uses namely:

- Infrastructure;
- Drainage lines & wetland areas;
- Veld and
- Cropped areas (Sunflowers).



Figure 7: Existing Infrastructure on Portion 20/451



Figure 8: Cropped Areas (Sunflowers) on Portion 20/451

1.2 Geohydrology & Topography

The topography of an area is generally a good practical indicator for identifying those parts in the landscape where wetlands and pans are likely to occur. Generally, wetlands occur as a valley bottom unit however wetlands can also occur on steep to mid slopes where groundwater discharge is taking place through seeps and where pans can collect water in a depression (DWAF, 2005). In order to classify a wetland/pan system, the localised landscape setting must be taken into consideration through ground-truthing of the study site after initial desktop investigations (Ollis *et al.*, 2014). Mudstones and sandstones of the Adelaide Formation (Beaufort Group) underlie this flat to slightly undulating terrain in the north, while the Tarkastad Formation (Beaufort Group) dominates the geology in the south. Dolerite dykes and sills as well as sandstone outcrops, resistant to weathering, form isolated hills and ridges (Gm 5 Basotho Montane Shrubland) that create a broken landscape, especially in the southern parts of the unit. Sepane, Arcadia, Estcourt and Rensburg forms dominate the moist bottomlands while the Glenrosa, Bonheim, Avalon, Clovelly and Mayo forms dominate the outcrops and slightly elevated areas (Mucina & Rutherford, 2006).

The site falls within the quaternary drainage region D22H which is part of the Orange Water Management Area. The geographic extent of the Orange water management area largely corresponds with that of the Northern Cape Province, with very small components falling within the Western Cape, Free State and Lesotho on the southern and eastern boundaries respectively. It borders on Namibia in the north-west and on Botswana in the northern extreme (DWS, 2016).

1.3 Climate

Summer-rainfall region, with MAP of around 630 mm. Much of the precipitation falls in form of thunderstorms between November and March. One of the coldest regions of the Highveld with frost frequent in winter (Mucina & Rutherford, 2006). Wepener and Harrismith receive 629 mm and 624 mm, respectively, while some patches found closer to the Maloti Mountain range (such as on Qwaqwa Mountain near Phuthaditjhaba) may receive more than 1 400 mm in particularly wet years. Most of the rain falls in summer and much of it as convectional rain, with torrential storms. The overall MAT is 13.7°C. Summers are wet and hot, while winters are (as a rule) dry and with frequent frost. Snowfall is a rare event (Mucina & Rutherford, 2006).

The climate is typically warm and temperate and receives a significant amount of rainfall throughout the year. The average annual temperature is 14.8 °C and receives a total annual precipitation of approximately 696 mm per year.

1.4 Vegetation of the area

The area consists of flat to gently rolling land surfaces covered with grassland dominated by *Eragrostis curvula*, *Themeda triandra*, *Cymbopogon pospischilii*, *Eragrostis plana*, *Setaria sphacelata*, *Elionurus muticus* and *Aristida congesta*. Overgrazing in certain areas and selective grazing of the grassland create a patchy appearance, with dominant and diagnostic species associated with small to large patches of a few hectares in diameter (Mucina & Rutherford, 2006).

According to DWAF (2005), vegetation is regarded as a key component to be used in the delineation procedure for wetlands. Vegetation also forms a central part of the wetland definition in the National Water Act, Act 36 of 1998. However, using vegetation as a primary wetland indicator requires an undisturbed condition (DWAF, 2005). Minor disturbances were however noted in the wetland systems making it difficult to rely solely on vegetation as a wetland indicator. Disturbances included the presence of alien invasive species, minor erosion, grazing and crops within the area.

Despite this, a number of wetland species were identified within the wetland system including reeds, grasses and sedges. These hydrophytic riparian vegetation consisted of mainly of *Cyperus* spp., *Typha capensis*, and *Persicaria* spp. **The majority of the study site consisted of alien invasive vegetation and very little indigenous vegetation;** however vegetation normally associated with that area is listed in Appendix B depicted from plant species (POSA) list from SANBI (2021) for the Ladybrand area. No red listed floral species were found to occur within this area. The study area was dominated by alien invasive plants and cultivated lands application area.

1.5 Wetlands

The hydrophytic riparian vegetation consisted of mainly of *Cyperus spp.*, *Typha capensis*, and *Persicaria spp*

Two unchanneled valley bottom wetlands were identified within the 500 m buffer of the proposed development. The unchanneled valley bottom wetlands is depicted as HGM 1 and HGM 2. These wetlands are characterised by their location on valley floors and the absence of a channel flowing through the wetland. Dominant water inputs to these wetlands are from/into a channel, in this instance an upstream source, flowing through the wetland either as surface flows resulting from flooding or as subsurface flow. Water generally moves through the wetland as diffuse surface flow although occasionally as short-lived concentrated flows during flood events (Kotze *et al.*, 2008; Ollis *et al.*, 2013). Sections of these wetlands have been transformed into agricultural land.



Figure 9: Wetland Delineation Map PORTION 20/451

The Preliminary Guideline for the Determination of Buffer Zones for Rivers, Wetlands and Estuaries, MacFarlane *et al.* (2014) was implemented. The calculated results **indicate that a 50 m buffer** is appropriate for the protection of the ecosystem services provided for the delineated wetlands. Any irrigation and any development under a water use authorisation will occur outside of these 50 m recommended buffer zones

Buffer zones outside the boundary of wetlands and riparian habitats are required to ensure that the ecotones between aquatic and terrestrial environments are conserved. These ecotones have a high ecological significance and have been shown to perform a wide range of functions, and on this basis, have been proposed as a standard measure to protect water resources and associated biodiversity.



Figure 10: Proposed Wetland Buffer PORTION 20/451

The wetlands were found to be in **moderately modified (Category C)** state due to the Vegetation, Geomorphological and Hydrological properties of the wetland as a result of damming, however this wetland was found to be moderately sensitive according to the EIS assessment and intermediate with the provision of Ecoservices. The wetlands received moderate scores, indicating that this wetland is a slightly transformed system with grazing, crop cultivation and alien invasive plants, damming, road crossings and pollution from informal settlements. A protection buffer of 50 m is recommended around the floodplain wetland systems to ensure that the functioning of this wetland is not disturbed.

1.6 Hydropedology

The terrain analysis was conducted using the processing tools within the QGIS mapping software. The SAGA terrain analysis tools were used to determine the Digital Elevation Model (DEM) **Figure 11**. The project area

situated in an overall concave shaped topography, with the drainage running through the centre of the project area towards the North. The project elevation ranges from 1600 masl to 1540 masl. The slopes in the project area ranged from 1% in the flatter foot-slope areas to approximately 15% on the outer edges of the project area. The project area has a North facing aspect.

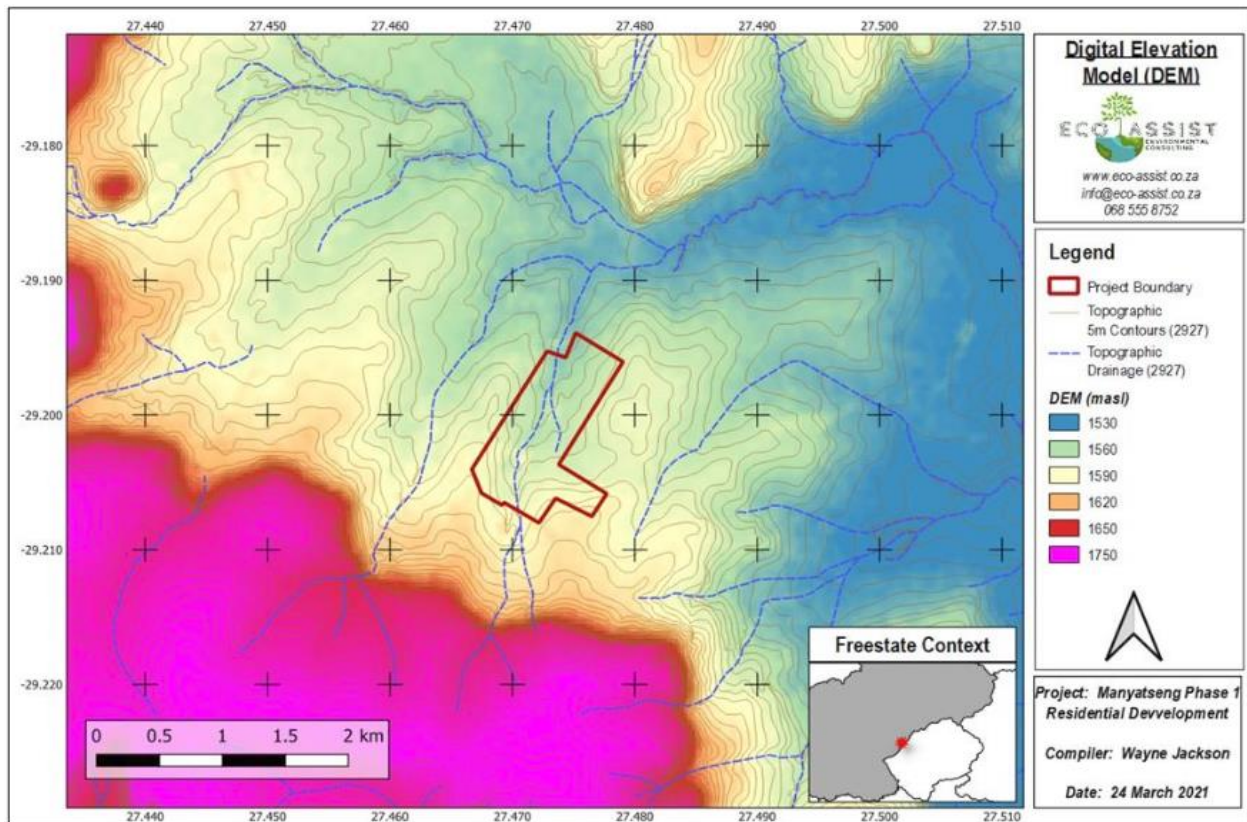


Figure 11: DEM of Area Drainage

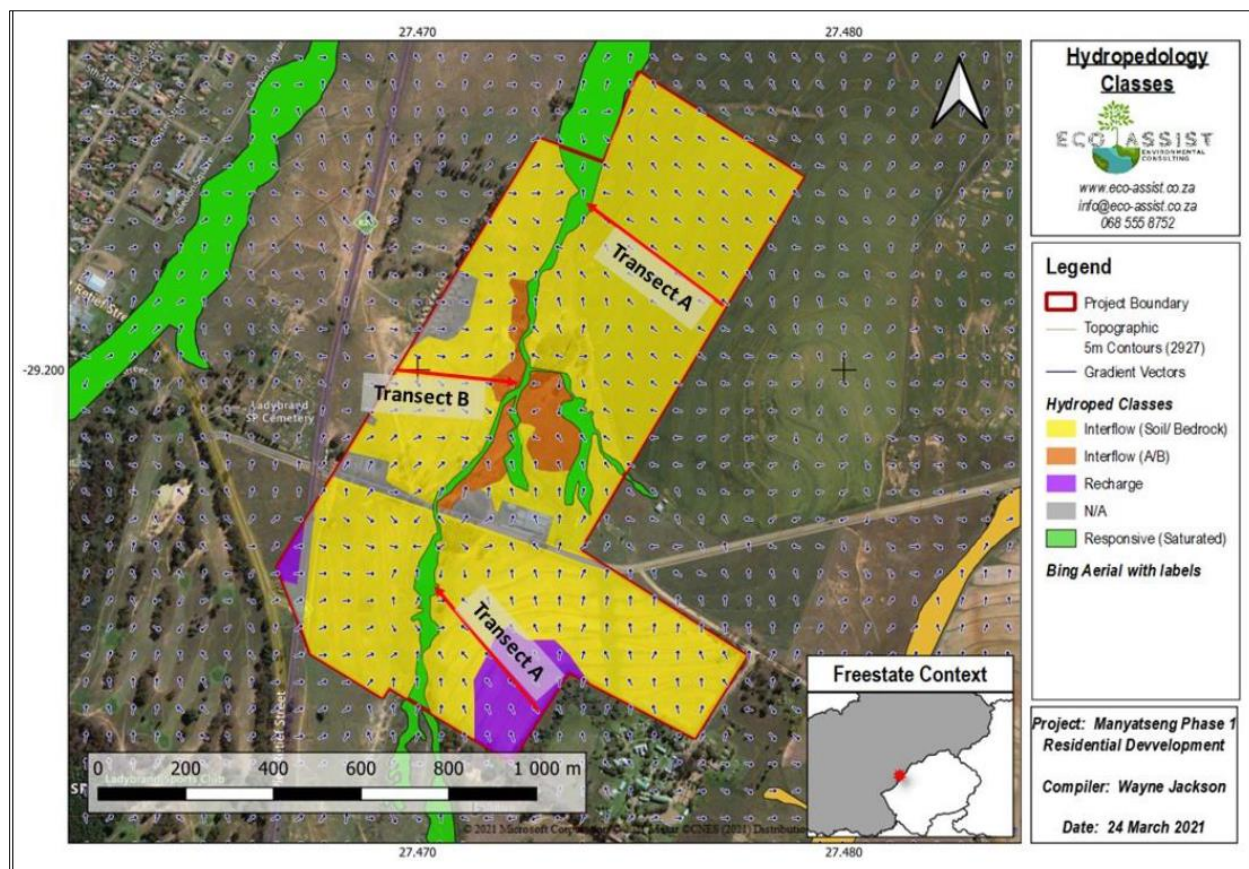


Figure 12: Hillslope hydropedological classification showing the hydrological soil units for the project area

1.7 Soils and Agricultural Potential

Agricultural potential is determined by a combination of soil, terrain and climate features. Land capability classes reflect the most intensive long-term use of land under rain-fed conditions. The land capability is determined by the physical features of the landscape including the soils present. The land potential or agricultural potential is determined by combining the land capability results and the climate capability for the region.

The Oakleaf and Tukulu soil forms with effective depths of 50 cm or deeper, were classified as having a class III (moderate cultivation) capability. The remaining soil forms which include the Westleigh, the Longlands, and the Tukulu's with a shallower routing depth due to wetness between 40 and 50 cm, were classified as having a class IV (light cultivation/intensive grazing) capability. both these classes are considered arable. The wetland areas are classified as class V, and these have a grazing capability, however this is not promoted as an agricultural practice based on wetland legislation. Land capability class III

accounted for 72.83 ha (77.2%) whilst land capability class IV accounted for 11.58 ha (12.3%). Class V was determined to be 5.24 ha (5.6%) and the remaining area was classed as being disturbed.

L3 - Good potential: Infrequent and/or moderate limitations due to soil, slope, temperatures or rainfall. Appropriate contour protection must be implemented and inspected.

Table 8: Land Capability PORTION 20/451

Soil Form	Area (ha)	Percentage (%)
L3	84.41	89.5
Vlei	5.24	5.6
N/A	4.62	4.9
Total	94.27	100

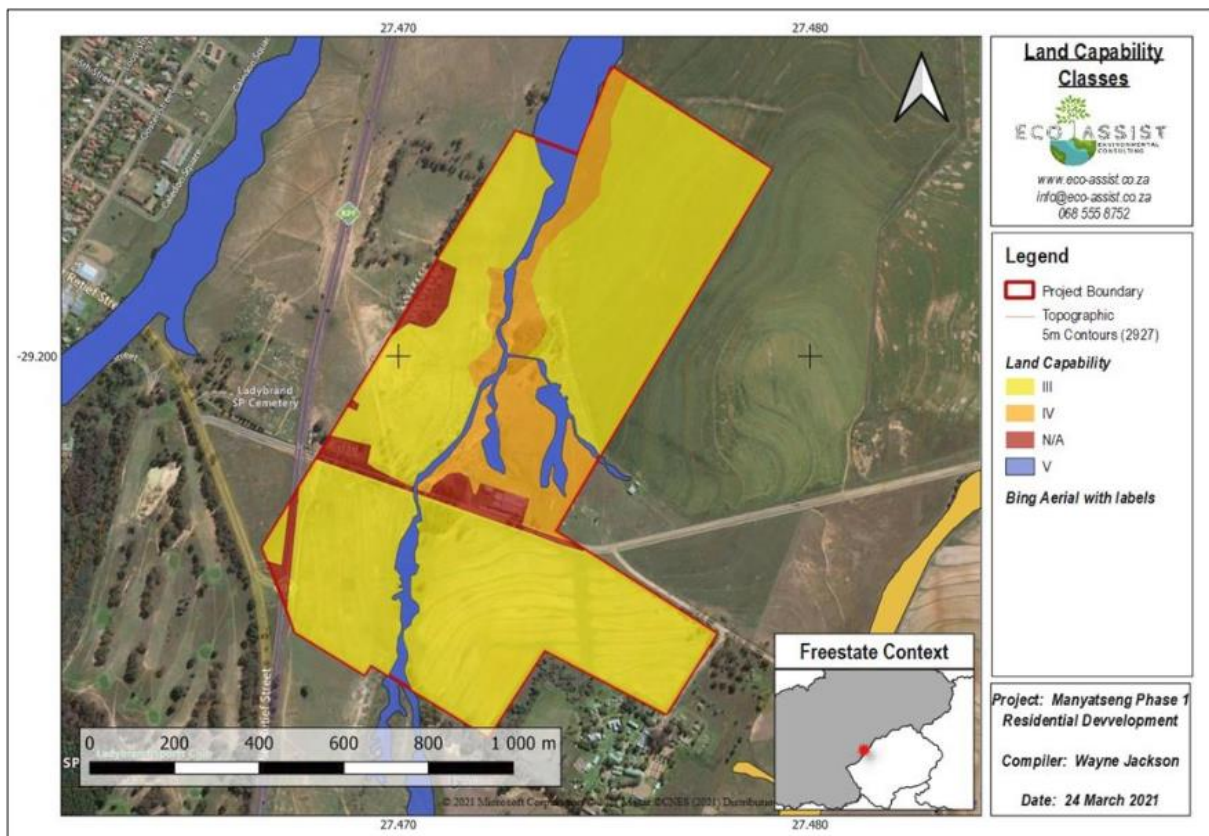


Figure 13: Land Capability Classification PORTION 20/451

1.8 Heritage

There are no visible restrictions or negative impacts in terms of heritage associated with the site;

- In terms of heritage the proposed project may continue; and

- The discovery of subsurface archaeological and/or historical material as well as graves must be taken into account in the Environmental Management Programme;

2. SOCIO-ECONOMIC SETTING

2.1 Municipal Overview

Mantsopa Local Municipality was established on 5 December 2000 and incorporates the areas such as Ladybrand, Hobhouse, Tweespruit, Excelsior, and Thaba Patchoa. It forms part of the Eastern Free State and falls within the Thabo Mofutsanyana District Municipal area.

The municipality borders the Kingdom of Lesotho in the east, Mangaung Local Municipality to the west, and Masilonyana and Setsoto to the north. The languages spoken in Mantsopa are Sesotho, English, and Afrikaans as dominant languages in the Province. Ladybrand is considered the most progressive of all towns and is the most eastern node in the municipal area. Ladybrand municipal area includes Manyatseng, Mauersnek and the surrounding municipal commonages that covered an area of 4 682 ha in size. The town accommodates 34% of the total population of Mantsopa.



Figure 14: Mantsopa Local Municipality (FS196)

2.2 Population and Gender

The proposed development site forms part of the Mantsopa Ward 7, Thabo Mofutsanyane, Free State and the socio-economic demographics of the ward is as follows. The overall population size of the Mantsopa Local Municipality is represented in coalition to the population age per **Figure 15** a median population age of 32 years; and

- The largest age group being 0-9 years (18%).

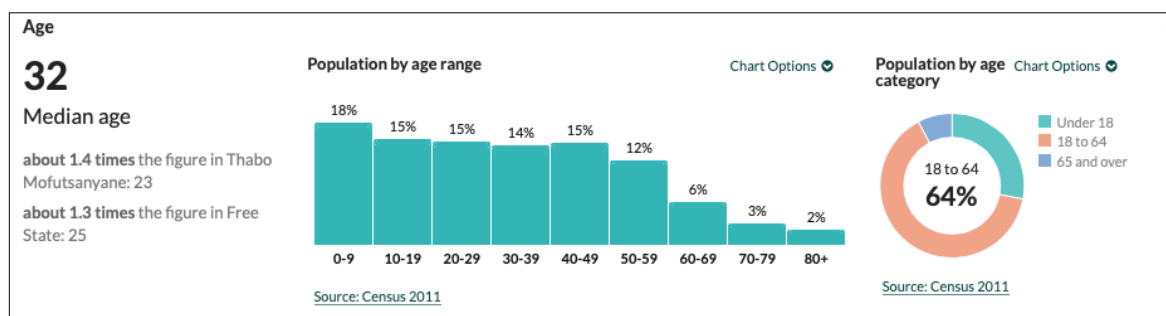


Figure 15: Population Size per Age

The Table below depicts the total population size of Mantsopa Local Municipality as according to gender and language. The respective population resembles:

- Mainly female population, and a
- Predominantly Black African ethnicity.

Table 9: Population per Gender and Home Language, Mantsopa Local Municipality

Population group	Census 2011			CS 2016		
	Male	Female	Total	Male	Female	Total
Black African	21 413	23 713	45 125	22 937	24 374	47 311
Coloured	991	1 016	2 007	865	895	1 760
Indian or Asian	169	128	297	326	119	444
White	1 668	1 699	3 367	1 816	2 194	4 010
Other	162	98	260			
Total	24 402	26 654	51 056	25 943	27 583	53 525

2.2 Households by type of Dwelling

The Figure below represents the type of dwellings in which the population of the Mantsopa Local Municipality resides. The key characteristics being:

- The majority of the population has well-established houses;
- Only 5.3% of the population resides in informal settlements.

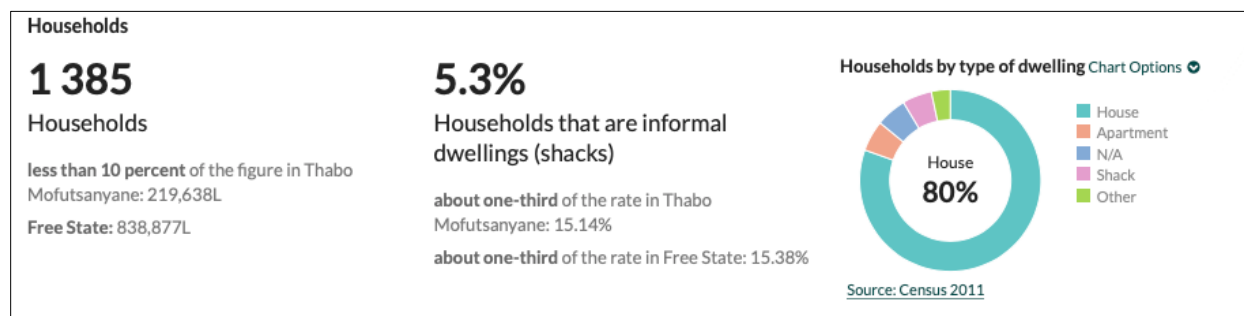


Figure 16: Type of Dwellings

2.3 Water and Sanitation

Figure 17 below represents the availability of clean water facilitated in the Mantsopa Local Municipality. 97.4% of the population has access to water via a regional or local service provider

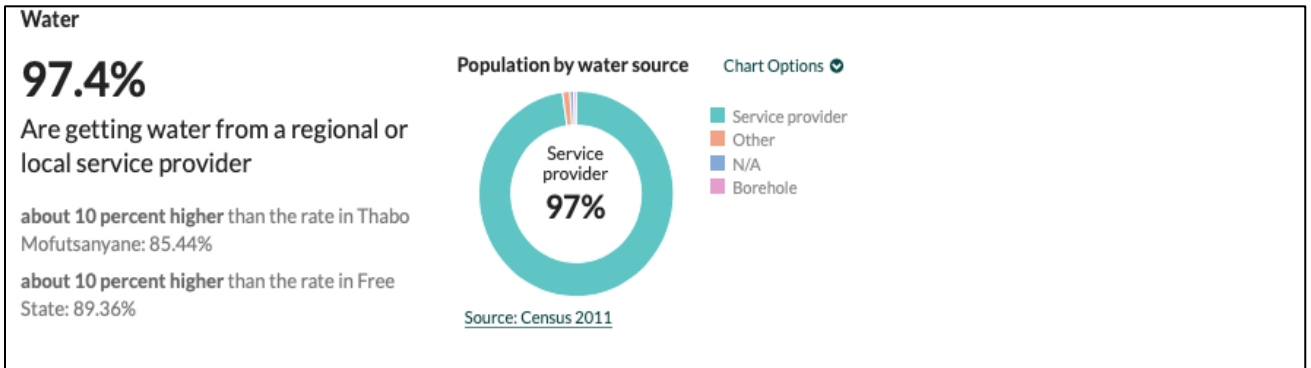


Figure 17: Water and Toilet Accessibility

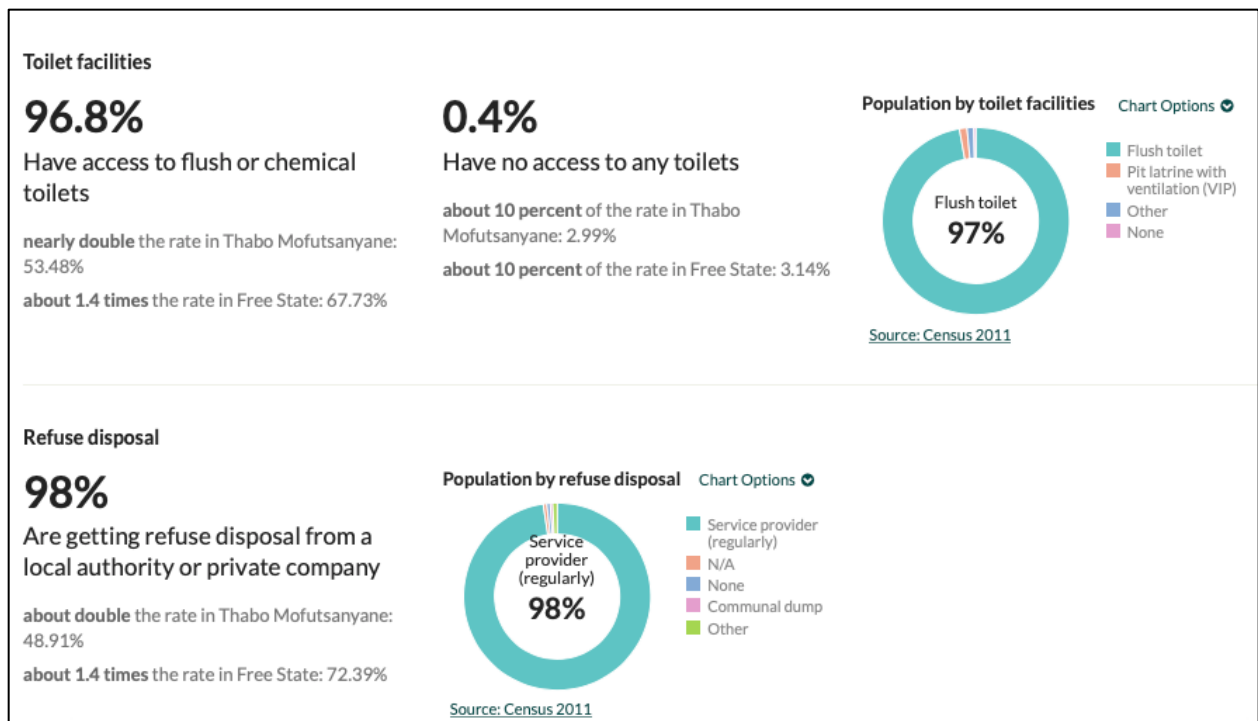


Figure 18: Water and Sanitation Demographic

2.4 Employment and Income

Table 10 signifies the sector in which the population is employed, respective to age, of the Mantsopa Local Municipality.

Table 10: Employment per Age, Ward 7, Ladybrand, Mantsopa Local Municipality

Age group and ward	Type of sector		
	In the formal sector	In the informal sector	Private household
35 - 64 (Adults)			
Ward 7	735	206	185
15 - 34 (Youth)			
Ward 7	444	169	119
15 - 64 Years			
Ward 7	1 179	374	304

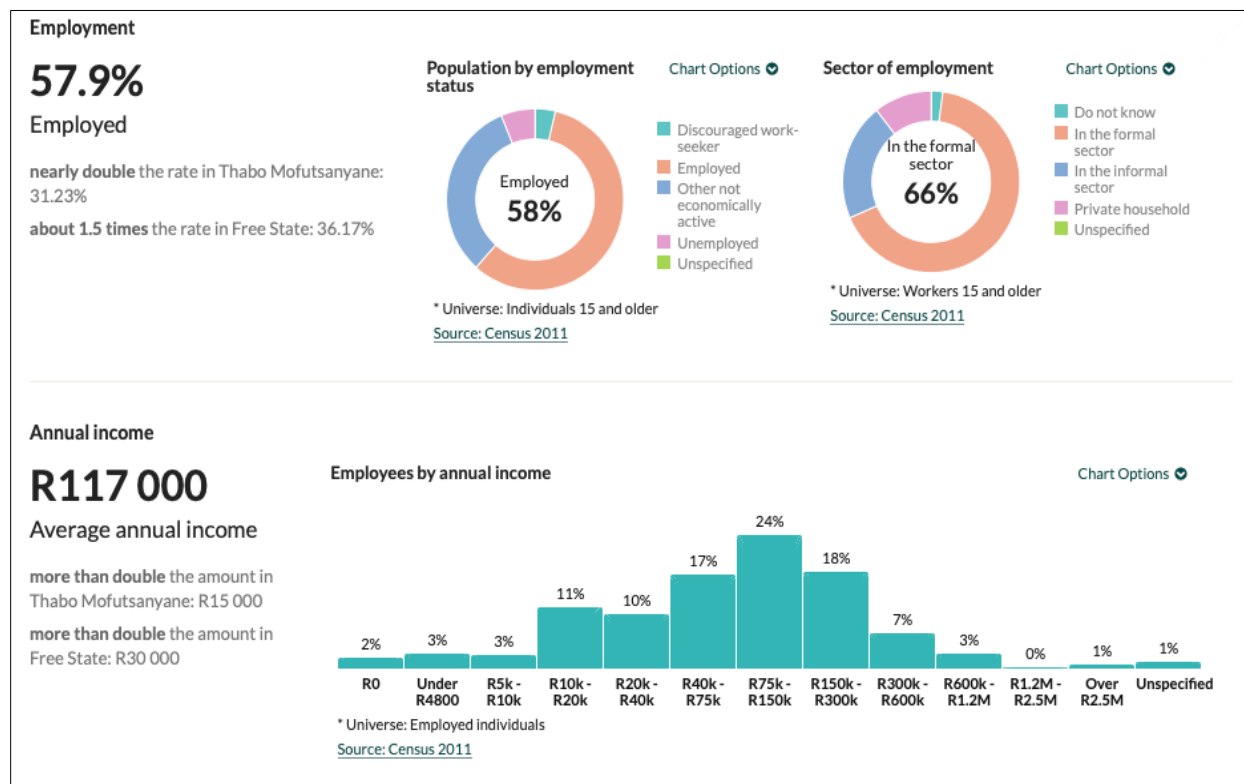


Figure 19: Employment Rate and Average Annual Income

SECTION D: PLAN OF STUDY FOR EIR PHASE

1. SCOPE AND PURPOSE OF THE EIR PHASE

The Scoping Phase aims to identify the key project issues raised by the proponent, consultants and the public; consider project alternatives; and through public participation, ensure consensus is reached regarding the process to be followed in the EIA Phase. At the end of the Scoping Phase, a report is compiled and is known as a *Scoping Report*. Prior to submission of the final Scoping Report to the authorities the public is provided with an opportunity (30 days) to further comment on the matter. Once the draft scoping report has been reviewed by the interested and affected parties, the comments are collated and the report amended as appropriate and finalised. The final Scoping report is then submitted to DESTEA together with a Plan of Study for Environmental Impact Assessment.

The EIR phase will focus on the proposed Marikana Housing Development and the associated impacts thereof. The next step of the S&EIR process is the development of guidelines for the execution of the impact assessment and the compilation of an Environmental Impact Report, as well as an Environmental Management Programme (EMPr). The compilation of these documents will take into account all comments and concerns raised by I&APs which are captured within the Comments and Responses Report as well as the findings of various specialist studies.

The Final EIR and EMPr will be submitted to the Competent Authority for consideration.

2. GUIDING PRINCIPLES FOR AN EIA

The EIA must take an open participatory approach throughout. This means that there should be no hidden agendas, no restrictions on the information collected during the process and an open-door policy by the proponent. Technical information must be communicated to stakeholders in a way that is understood by them and that enables them to meaningfully comment on the project.

There should be ongoing consultation with Interested and Affected Parties (I&APs) representing all walks of life. Sufficient time for comment must be allowed. The opportunity for comment should be announced on an on-going basis. There should finally be opportunities for input by specialists and members of the public. Their contributions and issues should be considered when technical specialist studies are conducted and when decisions are made.

The eight guiding principles that govern the entire process of EIA are as follows (see Figure 20 below):

- **Participation:** An appropriate and timely access to the process for all interested parties.
- **Transparency:** All assessment decisions and their basis should be open and accessible.
- **Certainty:** The process and timing of the assessment should be agreed in advance and followed by all participants.
- **Accountability:** The decision-makers are responsible to all parties for their action and decisions under the assessment process.
- **Credibility:** Assessment is undertaken with professionalism and objectivity.
- **Cost-effectiveness:** The assessment process and its outcomes will ensure environmental protection at the least cost to the society.
- **Flexibility:** The assessment process should be able to adapt to deal efficiently with any proposal and decision making situation.
- **Practicality:** The information and outputs provided by the assessment process are readily usable in decision making and planning.



Figure 20: The Eight Guiding Principles for the EIA Process

An S&EIR process is considered as a project management tool for collecting and analysing information on

the environmental effects of a project. As such, it is used to:

- Identify potential environmental impacts;
- Examine the significance of environmental implications;
- Assess whether impacts can be mitigated;
- Recommend preventive and corrective mitigating measures;
- Inform decision makers and concerned parties about the environmental implications; and
- Advise whether development should go ahead.

An S&EIR process typically has four phases, as illustrated in **Figure 21 below**. The Public Participation process forms an integral part of all four phases and is discussed in greater detail in Section E.

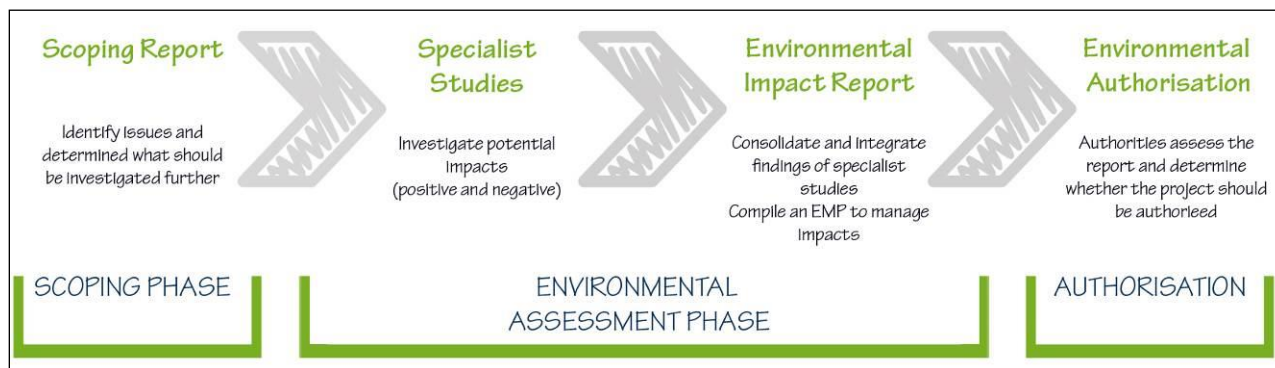


Figure 21: Flow Diagram of the Scoping and EIR Process

3. SPECIALIST INVESTIGATIONS AND SCOPE OF WORK

Table 11: Specialist Details

Specialist	Report	Qualifications
Leonie Marais	Heritage Impact Assessment (HIA)	BA (Archaeology and Cultural History) (UP) BA (Hons) Cultural History (UP) Post Grad. Diploma in Museum Science (UP) Diploma in Basic Principles of Public Relations (Damelin) Cert Conservation of Traditional Buildings (Univ of Canberra) Management Development Programme (UP) Post Grad Dip (Heritage) (WITS) Accredited member: SA Society for Cultural History (CH002)

<p>Joppie Schrijvershof Oasis Environmental Specialists (Pty) Ltd</p>	<p>Wetland and Ecological Assessment</p>	<p>MSc (NWU- Aquatic Science) Pri Sci Nat: 115553</p>
<p>Wayne Jackson (Eco Assist Environmental Consulting (Pty) Ltd)</p>	<p>Soils, Land Capability and Land Use Assessment Hydropedological Impact Assessment</p>	<p>BSc. Soil Science & Hydrology <i>Cert.Sci.Nat. (Registration 119037)</i></p>

3.1 Heritage Impact Assessment

Leonie Marais was appointed by EnviroSynergy to carry out a Phase 1 Heritage Impact Assessment (HIA) the proposed development of Manyatseng Phase 1, Ladybrand in the Free State Province. The site visit took place on 8 March 2021.

The objective of this Phase 1 Heritage Impact Assessment (HIA) was to gain an overall understanding of the heritage sensitivities of the area and indicate how they may be impacted on through development activities. The site survey took place on 8 March 2021.

A baseline study was conducted to identify and compile a comprehensive inventory of sites of cultural heritage within the proposed project area, which include:

- (i) all sites of archaeological interest;
- (ii) all buildings and structures older than 60 years;
- (iii) landscape features include sites of historical events or providing a significant historical record or a setting for buildings or monuments of architectural or archaeological importance, historic field patterns and graves.

The baseline study also included a desk-top research and a field survey.

3.2 Wetland and Ecological Assessment

The scope of work entailed to the Wetland Assessment following:

- Identify and delineate any wetland, channel areas and/or watercourses associated within the study boundary according to the Department of Water Affairs’ “Practical field procedure for the identification and delineation of wetlands and riparian areas”;

- Determine the Present Ecological Status (PES) and Functional Integrity of identified wetlands within a 500 m buffer within the mining boundary using the WET-Health and Wet-EcoServices approach;
- Determine the Ecological Services, Importance and Sensitivity of identified watercourses using the latest applicable approach as supported by the DWS (formally DWA);
- Determine and assess the significance of the impacts caused by the proposed development on any associated wetlands or watercourses;
- Identifying, describing and rating potential impacts/risks to the rivers/streams/wetlands and recommend mitigation measures for the identified impacts to minimise the negative impacts; enhance any positive impacts; and
- Indicate the minimum buffer required to protect any wetland/ watercourses identified within the study boundary.

The scope of work entailed to the biodiversity assessment following:

- The scope of work entailed to the Ecological Desktop Assessment following:
- An examination of onsite and SANBI GIS databases on Endemic and Red Data faunal and floral species in the study area;
- A literature research on Red Data Book species predicted to occur in the study area;
- Identify potential negative impacts on any biodiversity from the mining areas and assess the
- significance of these impacts;
- Provide recommended mitigation measures for the identified impacts in order to avert or lower the significance of the negative impacts; and
- Identify any sensitive areas.

3.3 Soils, Land Capability and Land Use Assessment

The scope requires that an agricultural potential assessment be conducted for the project area as per the Provincial and National Departments of Agriculture recommendations:

- Assess and discuss historic climate statistics;
- Assess and discuss the terrain features using 5 m contours;
- Assess and discuss current agricultural land use on site;
- Conduct soil assessment as described in the methodology;
- Assess and discuss agricultural land potential (eight class scale);
- Discuss the impact of the proposed land use change on loss of agricultural land production (If any);
- Recommend best location for proposed remediation activity to reduce any impacts;
- Compile informative reports and maps on current land use and agricultural land potential;
- Discuss the impact of the proposed land use change on loss of agricultural land production.

3.4 Hydropedological Assessment

A hydrogeology assessment on a local scale, a hillslope scale, or a catchment scale must be completed in cases where the infiltration or sub-surface hydrology is expected to be affected by a proposed activity. A wide variety of services must be provided (i.e. modelling, classification of soil, hydrogeological soil types and hillslope hydrology), depending on the intensity of the proposed activity. The following terms of reference have been identified to meet the criteria of such a hydrogeology assessment:

- Conduct field work to acquire information regarding soil physical properties and morphology of soils;
- Construct conceptual models of hydrological response for each of the transects based on hydrogeological interpretations;
- Assess dominant hydrogeological flow paths through the dominant soil forms/associations;
- Determine (conceptually) the extent of disturbance to the natural hydrogeological model; and
- Compile a report which includes recommendations and conclusions regarding the proposed activity to ultimately inform and guide the Environmental Assessment Practitioner (EAP) and regulatory authorities, enabling informed decision making.

4. METHODOLOGY OF THE EIR PHASE

4.1 Identification of Key Environmental Issues

An environmental issue is defined as “a generally expressed concern or impact” raised in an EIA process. Scoping is the process whereby issues are raised with regards to a proposed activity. An important element of Scoping is to evaluate the issues that were raised during the public participation and technical processes and ensure that those identified as key issues are included within the scope of the EIA process.

Registered and Interested affected parties were given the opportunity to comment on the Project. Comments and Concerns received to date have been captured. Comments raised and included in the Comments and Responses Report. Comments raised will be included in the Comments and Responses Report.

4.2 Impact Assessment and Ranking Methodology

The assessment and evaluation of environmental impacts is often complicated by the subjective nature of these impacts. Ideally, the degree of severity or significance of a particular impact should be expressed in quantitative terms, against a quantitative assessment of the conditions that pertained before a particular activity started. There must also be some expression as to whether a particular impact is desirable or not, as the desirability of an impact will depend largely on the attitude and experience of the assessment team, subjectivity is unavoidable. In order to address these issues and to provide a basis for comparison of the

different impacts associated with the activities, a number of standard definitions and approaches will be used. For the purpose of assessing impacts of the proposed project has been divided into the following phases:

4.3 Impact Rating Assessment Approach

The activities arising from each of these phases were included in the impact assessment tables. This was done to identify activities that require certain environmental management actions to mitigate the impacts arising from them. The assessment of the impacts was conducted according to a synthesis of criteria as set out below.

Table 12: Impact Phases

Construction Phase:	All the construction related activities on site, until the contractor leaves the site. Estimated to take 12 months.
Operational Phase	All activities, including the operation and maintenance of the proposed development.
Decommissioning & Closure	When the activity has ceased and decommissioning occurs.

Assessment Weighting – Each aspect within an impact description was assigned a series of quantitative criteria. Such criteria are likely to differ during the different stages of the project’s life cycle. To establish a defined base upon which it becomes feasible to make an informed decision, it will be necessary to weigh and rank all the identified criteria.

Ranking, Weighting and Scaling – For each impact under scrutiny, a scaled weighting factor will be attached to each respective impact. The purpose of assigning such weightings serve to highlight those aspects considered the most critical to the various stakeholders and ensure that each specialist’s element of bias is taken into account. The weighting factor also provides a means whereby the impact assessor can successfully deal with the complexities that exist between the different impacts and associated aspect criteria. Simply, such a weighting factor is indicative of the importance of the impact in terms of the potential effect that it could have on the surrounding environment. Therefore, the aspects considered to have a relatively high value will score a relatively higher weighting than that which is of lower importance.

Table 13: Impact Criteria and Assigned Rating

INTENSITY (MAGNITUDE)		ASSIGNED QUANTITATIVE SCORE
The intensity of the impact is considered by examining whether the impact is destructive or benign, whether it has a significant, moderate or insignificant.		
(L)ow	The impact alters the affected environment in such a way that the natural processes or functions are not affected.	1
(M)edium	The affected environment is altered, but functions and processes continue, albeit in a modified way.	3
(H)igh	Function or process of the affected environment is disturbed to the extent where it temporarily or permanently ceases.	5
DURATION		
The lifetime of the impact, that is measure in relation to the lifetime of the proposed development.		
(S)hort term	The impact will either disappear with mitigation or will be mitigated through a natural process in a period shorter than that of the construction phase.	1
(SM) Short - Medium term	The impact will be relevant through to the end of a construction phase.	2
(M)edium	The impact will last up to the end of the development phases, where after it will be entirely negated.	3
(L)ong term	The impact will continue or last for the entire operational lifetime (i.e. exceed 20years) of the development, but will be mitigated by direct human action or by natural processes thereafter.	4
(P)ermanent	This is the only class of impact, which will be non-transitory. Mitigation either by man or natural process will not occur in such a way or in such a time span that the impact is transient.	2
SPATIAL SCALE / EXTENT		
Classification of the physical and spatial aspect of the impact.		
(F)ootprint	The impacted area extends only as far as the activity, such as footprint occurring within the total site area.	1
(S)ite	The impact could affect the whole, or a significant portion of the site.	2
(R)egional	The impact could affect the area including the neighbouring farms, the transport routes and the adjoining towns.	3
(N)ational	The impact could have an effect that expands throughout the country (South Africa).	4
(I)nternational	Where the impact has international ramifications that extend beyond the boundaries of South Africa.	5

PROBABILITY		
This describes the likelihood of the impact occurring. The impact may occur for any length of time during the life cycle of the activity. The classes are rated as follows:		
(I)mprobable	The possibility of the Impact occurring is none, due to the circumstances or design. The chance of this Impact occurring is zero (0%).	1
(P)ossible	The possibility of the Impact occurring is very low, due either to the circumstances or design. The chance of this Impact occurring is defined as 25% or less.	2
(L)ikely	There is a possibility that the impact will occur to the extent that provisions must therefore be made. The chances of the Impact occurring is defined as 50%.	3
(H)ighly Likely	It is most likely that the Impacts will occur at some stage of the development. Plans must be drawn up before carrying out the activity. The chances of this impact occurring is defined as 75%.	4
(D)efinite	The impact will take place regardless of any prevention plans, and only mitigation actions or contingency plans to contain the effect can be relied on. The chance of this impact occurring is defined as 100%.	5
WEIGHTING FACTOR		
Subjective score assigned by Impact Assessor to give the relative importance of a particular environmental component based on project knowledge and previous experience.		
(L)ow	The impact alters the affected environment in such a way that the natural processes or functions are not affected.	1
LOW- MEDIUM	The affected environment is altered, but functions and processes continue, albeit in a modified way.	2
MEDIUM (M)	Function or process of the affected environment is disturbed to the extent where it temporarily or permanently ceases.	3
MEDIUM-HIGH		4
HIGH (H)		5
Mitigation Measures		
Mitigation measures were recommended in order to enhance benefits and minimise negative impacts and address the following: <u>Mitigation objectives:</u> what level of mitigation must be aimed at: For each identified impact, the specialist must provide mitigation objectives (tolerance limits) which would result in a measurable reduction in impact. Where limited knowledge or expertise exists on such tolerance limits, the specialist must make an “educated guess” based on his/ her professional experience; <u>Recommended mitigation measures:</u> For each impact the specialist must recommend practicable mitigation actions that can measurably affect the significance rating. The specialist must also identify management actions, which could enhance the condition of the environment. Where no mitigation is considered feasible, this must be stated and reasons provided; <u>Effectiveness of mitigation measures:</u> The specialist must provide quantifiable standards (performance criteria) for reviewing or tracking the effectiveness of the proposed mitigation actions, where possible; and		

Recommended monitoring and evaluation programme: The specialist is required to recommend an appropriate monitoring and review programme, which can track the efficacy of the mitigation objectives. Each environmental impact is to be assessed before and after mitigation measures have been implemented. The management objectives, design standards, etc., which, if achieved, can eliminate, minimise or enhance potential impacts or benefits. National standards or criteria are examples, which can be stated as mitigation objectives.

HIGH	0.2
MEDIUM-HIGH	0.4
LOW TO MEDIUM	0.6
LOW	1

Table 14: Description of bio-physical assessment parameters with its respective weighting

Extent	Duration	Intensity	Probability	Weighting Factor (WF)	Significance Rating (SR)	Mitigation Efficiency (ME)	Significance Following Mitigation (SFM)
Footprint 1	Short term 1	Low 1	Probable 1	Low 1	Low 0-19	High 0,2	Low 0-19
Site 2	Short to medium 2	Medium 2	Possible 2	Low to medium 2	Low to medium 20-39	Medium to high 0,4	Low to medium 20-39
Regional 3	Medium term 3	High 3	Likely 3	Medium 3	Medium 40-59	Medium 0,6	Medium 40-59
National 4	Long term 4	Very High 4	Highly Likely 4	Medium to high 4	Medium to high 60-79	Low to medium 0,8	Medium to high 60-79
International 5	Permanent 5	Catastrophic 5	Definite 5	High 5	High 80-100	Low 1,0	High 80-100

Table 15: Significant Rating Scale without mitigation

Potential Impacts Without Mitigation Measures (WOM)		
Following the assignment of the necessary weights to the respective aspects, criteria are summed and multiplied by their assigned weightings, resulting in a value for each impact (prior to the implementation of mitigation measures).		
SIGNIFICANT RATING EQUATION		
Significant Rating (SR) = (Extent + Intensity + Duration) x Probability		
S=0	INSIGNIFICANT	The impact will be mitigated to the point where it is regarded as insubstantial.
SR < 30	LOW (L)	The impact will be mitigated to the point where it is of limited importance.
20 < SR < 39	LOW- MEDIUM	The impact is of importance, however, through the implementation of the correct mitigation measures such potential impacts can be reduced to acceptable levels;
40 > SR < 59	MEDIUM (M)	Notwithstanding the successful implementation of the mitigation measures, to reduce the negative impacts to acceptable levels, the negative impact will remain of

		significance. However, taken within the overall context of the project, the persistent impact does not constitute a fatal flaw.
60<SR>79	MEDIUM-HIGH	The impact is of major importance but through the implementation of the correct mitigation measures, the negative impacts will be reduced to acceptable levels.
80<SR > 100	HIGH (H)	The impact is of major importance. Mitigation of the impact is not possible on a cost-effective basis. The impact is regarded as high importance and taken within the overall context of the project, is regarded as a fatal flaw. An impact regarded as high significance, after mitigation could render the entire development option or entire project proposal unacceptable.

4.4 Cumulative Impacts Assessment Approach

Cumulative impacts can arise from one or more activities. A cumulative impact may result in an additive impact i.e. where it adds to the impact which is caused by other similar impacts or an interactive impact i.e. where a cumulative impact is caused by different impacts that combine to form a new kind of impact. Interactive impacts may be either countervailing (the net adverse cumulative impact is less than the sum of the individual impacts) or synergistic (the net adverse cumulative impact is greater than the sum of the individual impacts). Possible cumulative impacts of the development were evaluated.

Three (3) general steps, which are discussed below, were utilised in the assessment of cumulative impacts.

Determining the Extent of Cumulative Impacts

To initiate the process of assessing cumulative impacts, it is necessary to determine what the extent of potential cumulative impacts will be. This will be done by adopting the following approach:

- Identify potentially significant cumulative impacts associated with the proposed activity;
- Establish the geographic scope of the assessment;
- Identify other activities affecting the environmental resources of the area; and
- Define the goals of the assessment.

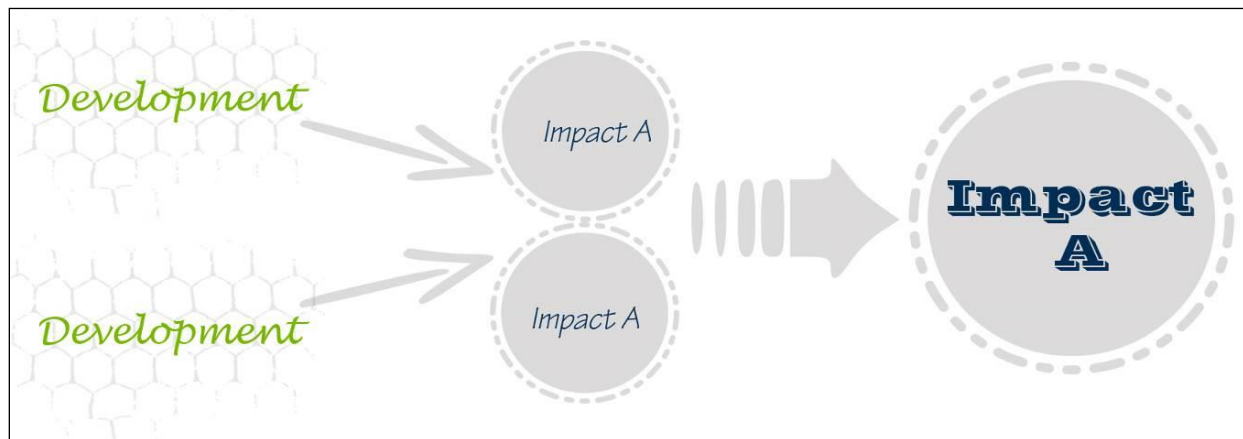


Figure 22: The Identification of Cumulative Impacts

Describing the Affected Environment

The following approach was used for the compilation of a description of the environment:

- Characterise the identified external environmental resources in terms of their response to change and capacity to withstand stress;
- Characterise the stresses affecting these environmental resources and their relation to regulatory thresholds; and
- Define a baseline condition that provides a measuring point for the environmental resources that will be impacted on.

Assessment of Cumulative Impacts

The general methodology which was used for the assessment of cumulative impacts comprised of the following:

- An identification of the important cause-and-impact relationships between proposed activity and the environmental resources;
- A determination of the magnitude and significance of cumulative impacts; and
- The modification, or addition, of alternatives to avoid, minimize or mitigate significant cumulative impacts.

Table 16: Example of an Impact Table

Final Scoping Report for Submission: Proposed Marikana Township Establishment

Nature		Status	-
Impact source(s)			
Affected stakeholders			
Magnitude	<i>Extent</i>		
	<i>Intensity</i>		
	<i>Duration</i>		
	<i>Reversibility</i>		
	<i>Probability</i>		
Significance	<i>Without mitigation</i>		H
	<i>With mitigation</i>		L
Confidence			

SECTION E: PUBLIC PARTICIPATION

1. INTRODUCTION

The Public Participation Process (PPP) forms an integral component of the Environmental Impact Assessment Process by affording Interested and Affected Parties (I&APs) the opportunity to identify environmental issues and concerns relating to the proposed development, which they feel should be addressed in the Environmental Impact Assessment Process. The National Environmental Management Act (No. 107 of 1998) states in Section 2(4)(f),

“the participation of all interested and affected parties in environmental governance must be promoted, and all people must have the opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation, and participation by vulnerable and disadvantaged persons must be ensured”.

Public Participation as set set out in Chapter 6, Regulations 39-44 of GN No. R. 326 will undertake as follow:

- a. Give notice, in writing, of the proposed application to –to the Competent Authority and any organ of state which has jurisdiction in respect of any aspect of the activity;
- b. Open and maintain a register of all Interested and Affected Parties (I&APs) in respect of the application in accordance with Regulation 42 of GN No. R. 326;
- c. Consider all comments and representations received from I&APs following the public participation process
- d. Subject the application to Scoping by identifying –
 - Issues that will be relevant for consideration of the application;
 - The potential environmental impacts of the proposed activity;
 - Impacts that may require further investigation in the form of specialist studies; and
 - Alternatives to the proposed activity that are feasible and reasonable.
- e. Prepare a Scoping Report in accordance with Appendix 2 of GN No. R. 326;
 - Give all registered I&APs an opportunity to comment on the Scoping Report in accordance with Regulation 43 of GN No. R. 326 (30 days or 50 days max)
 - Submit the Scoping Report and plan of study for EIA to the relevant Competent Authority.
 - Receive instruction form the Competent Authority to proceed with the EIA process
- f. Prepare the EIA and EMP Reports in accordance with Appendix 3 of GN No. R. 326;
 - Give all registered I&APs an opportunity to comment on the Draft EIA and EMP Report in accordance with

- Regulation 43 of GN No. R. 326 (30 days or 50 days max)
- g. Submit the Final EIA Report compiled in terms of Appendix 3 of GN No. R. 326 to the Competent Authority, together with:
 - Results of the public participation process to date;
 - Reports of specialist studies undertaken;
 - An Environmental Management Programme (EMP), compiled in terms of Appendix 4 of GN No. R.326; and
 - Any other information that is required in order for the authority to make an informed decision

2. IDENTIFICATION OF INTERESTED AND AFFECTED PARTIES

I&AP's representing the following sectors of society have been identified in terms of Regulation 55 of the EIA Regulations R543 of 2010 (see Appendix 5 for a complete preliminary I&AP distribution list):

- Provincial Authorities;
- Local Authorities;
- Ward Councillors;
- Parastatal/ Service Providers;
- Non-governmental Organisations;
- Local forums/ unions; and
- Adjacent Landowners.

3. PUBLIC ANNOUNCEMENT AND AVAILABILITY OF THE DRAFT SCOPING REPORT

The project was announced on **29 JUNE 2021** in the following manner (see **Appendix 5** for public announcement documentation):

- Publication of a newspaper advert (in English) in the Mantsopa Rekord on **24 June 2021**
- Placing of 4 site notices (in English) in and around the site at conspicuous places on **22 June 2021**
- Distribution of letters by by hand/ post/ email to I&APs including Registration and Comment Sheets. Hand deliveries of the project notices to adjacent land owners and the Ward Councillor (of Ward 6) took place on **22 June 2021**

- An onsite stakeholder meeting with landowners and occupiers of the land took place on 22 June 2021 with the help of local Ward Councillors
- An electronic copy of the report was sent via email to the Ward Councillor of Ward 7.
- The following State Departments was notified:
 - Thabo Mofutsanyane District Municipality (Hand delivery of hard copy report and soft copy)
 - SAHRIS
 - Department of Human Settlements, Water and Sanitation
 - Eskom
 - DAFF : Land Use and Soil Management
 - SANRAL
 - Free State Department of Rural Development and Land Reform
 - Free State Department of Economic, Small Business Development, Tourism and Environmental Affairs

4. FINAL SCOPING REPORT

The Final Scoping Report (FSR) was updated with comments and/or concerns raised by I&APs during the commenting period of the DSR.

5. PUBLIC REVIEW OF THE DRAFT ENVIRONMENTAL IMPACT REPORT

A period of 30 calendar days will be provided to the General Public and State Departments for the review and commenting phase of the Draft Environmental Impact Report (EIR) including the Draft Environmental Management Programme (EMPr) and all specialist studies.

The availability of the Draft EIR and supporting documents will be announced by the following means:

- Distribution of letters by hand/ post/ email to all registered I&AP's.

In addition, the Draft EIR will be distributed for comment as follows:

- Digital SMS notification;
- Hand-delivered/ couriered to the relevant authorities; and
- Newspaper advertisement

6. FINAL ENVIRONMENTAL IMPACT REPORT AND ENVIRONMENTAL MANAGEMENT PROGRAMME (EMP)

The Final EIR and the EMP will be updated with comments and/ or concerns as raised by I&APs during the commenting period of the Draft EIR. The Final EIR will be submitted to the Competent Authority for decision-making

7. MEETINGS

Public and/ or Stakeholder meetings was arranged by the respective ward councillors between 22 and 23 June 2021. The ward councillors had informed the public as to the intended development project proposed on site and arranged a meeting with all interested and affected populations during which all necessary information was given in the presence of the EnviroSynergy team. The information conveyed by the representative EnviroSynergy members was translated by the ward councillors to ensure a greater understanding of the proposed development. All persons present at the meeting was required to sign an attendance register and provide contact details to receive more information about the development per sms.

All concerns mentioned during the meeting was noted and responded to as factually accurate as possible. The meetings provided the EnviroSynergy team the best possible platform in which to inform all possible interested and affected persons on the matter and succeeded to do so.



Figure 23: Stakeholder meeting with community members at Ptn 20

SECTION F: IDENTIFICATION OF IMPACTS

1. IDENTIFICATION OF IMPORTANT ENVIRONMENTAL IMPACTS

The key environmental impacts listed in the following section have been determined through:

- Legislation; and
- Experience of the Environmental Assessment Practitioner (EAP)
- Specialist Investigations

2. PRELIMINARY IMPACTS

The following issues were initially identified and, amongst others, will be carried forward into the EIR phase for further investigation and assessment:

- Loss of vegetation and alteration of natural habitat
- Alteration of the flow drivers and wetlands within the project area.
- Loss of agricultural land
- Addressing the need for housing and services in Ladybrand
- Job creation and skills development
- Visual impact

SECTION G: ALTERNATIVES

1. PROJECT ALTERNATIVES

The Regulations in terms of NEMA require that alternatives to a proposed activity be considered. According to DEAT (2006) alternatives are different means of meeting the general purpose and need of a proposed activity. Alternatives may include:

- Location or site alternatives;
- Activity alternatives;
- Process or technology alternatives;
- Temporal alternatives;

The no-go alternative which is the option of not undertaking the proposed activity or any of its alternatives. Only alternatives that are feasible and reasonable needs to be included as alternatives in the EIA and further investigated. Certain projects may not have any feasible and reasonable location alternatives for the specific project and other types of alternatives must rather be considered. A large-scale lower income housing development, including ancillary services, has very specific property requirements. This causes paucity in feasible alternative sites available for development on a given time in a given area.

2. SITE ALTERNATIVES

Before deciding on Marikana low cost housing development the developers went through a process of obtaining a suitable and feasible parcel of land. Development land must be able to fulfil the requirements of the intended development, and must also be obtainable to the developer. Alternative sites cannot be considered if there is no opportunity of actually obtaining those sites for development, or if none are available. PORTION 20/451 site was chosen because it was the most feasible option for the intended type of development, and the only available property given the urgency for development of low cost housing to meet the growing housing demand. The developer could not obtain other feasible sites for the intended type and size of the development in the intended area and within the available project budget and time scale.

3. LAYOUT ALTERNATIVES

Based on the outcome of the wetland impact assessment report, the following layout alternatives are considered:

- Layout Alternative 1: Mixed used development within the wetland buffer
- Layout Alternative 2: Mixed use development outside of the recommended 50m wetland buffer

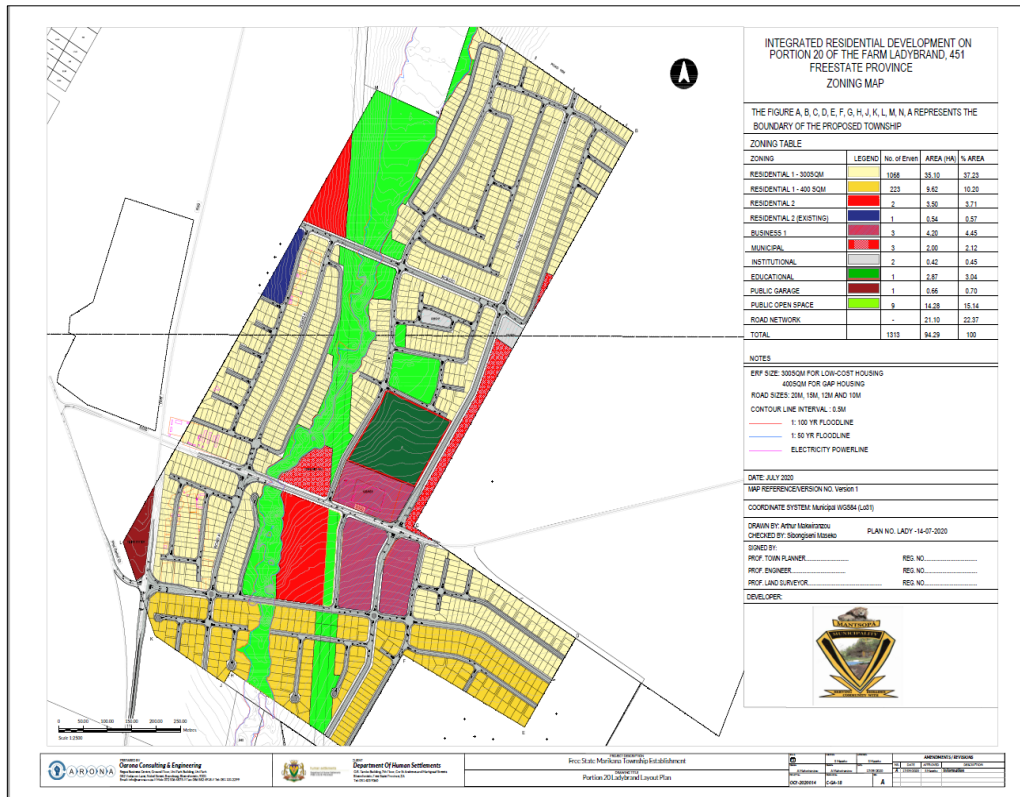


Figure 24: Layout Alternative 1 Without 50m Wetland Buffer

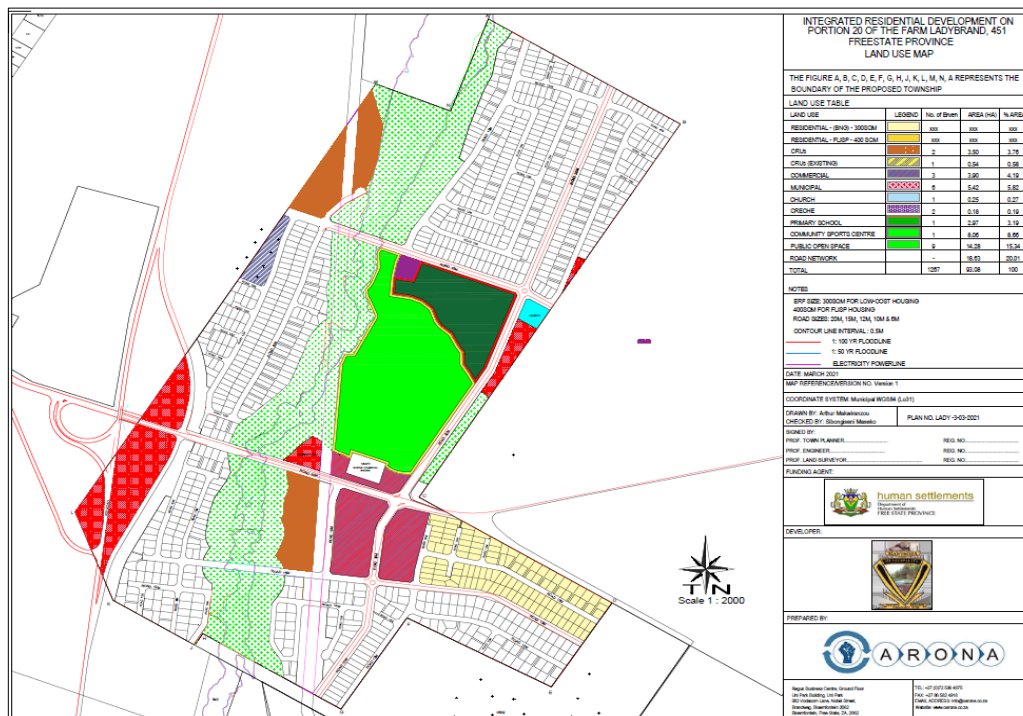


Figure 25: Layout Alternative 2 Incorporating 50m Wetland Buffer

4. NO-GO ALTERNATIVE

The no-go alternative will keep the site in its current state. This acts as a baseline scenario (even in cases where the no-go alternative is not a realistic alternative. Currently the site is inhabited with informal dwellers and it would be better to have a formal settlement than an unplanned settlement.

SECTION H: NEED AND DESIRABILITY OF THE PROJECT

Housing is an intense issue which requires immediate attention and must be clearly understood by the National and Provincial government. The Free State Department of Human Settlements (FSHS) as supported by the Housing Development Agency (HDA) intends to eliminate the informal settlements currently situated in the area.

This Medium-Term Strategic Framework (MTSF) is Government's strategic plan for the 2019-2024. The MTSF highlights the Government's support for a competitive economy, the creation of decent work opportunities and encouragement of investment. The introduction of a long-term plan brings greater coherence and continuity to the planning system and means that the MTSF now becomes a five-year building block towards the achievement of the vision and goals of the country's long-term plan.

The 2019-2024 electoral mandates focus on the following priorities:

1. Transforming the economy to serve all people
- 2. Advancing social transformation**
3. Stepping up the fight against corruption throughout society and safeguarding
4. Re-building and renewing a capable and developmental state
5. Advancing nation-building and social cohesion
6. Building a better Africa and a better world

The Marikana development will address Goal 5 of the MTSF in “Advancing social transformation”

To continue to make education and health priorities to radically improve access and quality, building more homes, a modern, integrated, affordable, accessible and reliable public transport system, and working towards a comprehensive social security system to protect the wellbeing of the people and society. This will also ensure that communities are safe by ensuring there is security in local streets, homes, schools, and borders. This includes the fight against gender-based violence, drugs, and gangsterism.

SECTION I: CONCLUSION AND RECOMMENDATIONS

This report presents the Final Scoping Study undertaken as part of the EIA process for the proposed Marikana development. The Scoping Study included a technical investigation and a public participation component to identify key issues associated with the project. To date no fatal flaws and issues have been raised. It is recommended that the EIA process proceed to the EIR phase.

APPENDIXES

- Appendix 1: Locality Map
- Appendix 2: Site Layout
- Appendix 3: Specialist Reports
 - Heritage Impact Assessment Report
 - Biodiversity Report
 - Soil and Land Capability
 - Hydrological Assessment
- Appendix 4: Public Participation
- Appendix 5: Photograph Plate
- Appendix 6: Authority Correspondence
- Appendix 7: DEA Screening Report
- Appendix 8: Other