

SCOPING REPORT

SOUTH AFRICA HAPPY ISLAND

WATER WORLD

COMMENT PERIOD: 27 SEPTEMBER TO 27 OCTOBER 2016

Proponent:

South Africa Happy Island Water World



Report Compiled by:



Prism EMS

PO Box 1401
Wilgeheuwel
Johannesburg
1736

Tel: 011 475 0210
Fax: 086 601 4800
E-Mail: prism@prismems.co.za

Report Authors:

Mrs. V. Stippel (*MSc. Ecol, Env, & Cons*)

Report Co-Authors:

Ms. C. Lubbe (*BSc. (Hons) Ecol, Env, & Cons*)
Mr. DW Botha (*(M.A. Env. Man.)(PHED)*)

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1 INTRODUCTION

According to the Mogale City Local Municipality (MCLM) Integrated Development Plan (IDP), the Municipality's tourism programme aims to expand tourism in the area which will have numerous economic spin-offs (MCLM IDP, 2016). In addition, as tourism is a labour-intensive-peoples-based industry, increased tourism and recreational facilities will also increase both direct and indirect employment in the area. It is for this reason that the LED Strategy includes a specific focus on tourism development in the region.

The area currently has numerous tourism and recreational facilities. These include:

- The Cradle of Humankind which is one of the world's richest sources of knowledge about the development of man, was declared as a World Heritage Site by UNESCO in December 1999. The Cradle includes the Sterkfontein Caves as well as Maropeng;
- The Wondercave which is located in the Kromdraai Valley, near Sterkfontein. The Wondercave is famous for its stalagmites and stalactites which are up to 16m high;
- The Crocodile River Arts and Crafts Ramble which offers more than 100 artists and craftspeople original paintings, sculptures and art objects;
- Magalies Meander is a collection of artist studios, farm stalls and restaurants that lies below the southern ridge of the Magaliesburg mountains. There is a wide variety of accommodation on offer supplemented by activities such as rock climbing, horse riding, fly fishing, hot-air ballooning and microlighting;
- Kromdraai Hiking Trails which can be taken through the spectacular Kromdraai Conservancy, which lies in the Cradle of Mankind world heritage site. In addition to the beautiful surroundings the trail passes along a gold mine, the Rainbow Trout Farm and the Wondercaves;
- Paddle Power provides adventure activities including canoeing, horse riding, mountain biking and hiking along the river and mountain trails; and
- The Magaliesburg Express which is a relaxing train ride from Johannesburg to Magaliesburg on the first Sunday of every month.

However, despite the existing tourism in the Municipality, the MCML IDP notes the need for "Product rejuvenation/innovation" which aims to improve and link different tourism facilities, including attractions, leisure activities, accommodation and complementary products to create a more varied "package" of products can be presented to potential markets.

Waterparks (amusement parks that feature water play areas) as a tourism/recreational industry are relatively new in South Africa with only two main waterparks occurring in the country (Valley of the Waves in Sun City and UShaka Marine World). For this reason, they represent an opportunity to add to the existing tourism/recreational attractions in the MCLM area.

In line with the above, **South Africa Happy Island Water World (Pty) Ltd** proposes to develop a recreational waterpark on Portion 169, 170, 173 and 174 of the farm Rietfontein 189 IQ situated in the

Mogale City Municipality. The proposed development involves the development of a number of recreational waterpark facilities on approximately 35 hectares of land which is currently zoned as Agricultural. The development area of the site is approximately 26 hectares. A number of recreational waterpark facilities will be put in place including:

- A number of pools such as an Adult Swimming Pool, Baby Pool, Children’s Pool and Wave Pool;
- Slides and Rides such as Aqua Loop, Speed Twister, Lazy River, Super Tube and Tornado Ride; and
- Recreational areas such restaurants and cafés will also be included as part of the development.

Some examples of the proposed Waterpark attractions are provided below:



Figure 1- 1. Proposed Waterpark attractions

In addition, the proposed development also involves the provision of all necessary services to the development including water, sanitation, stormwater and roads.

South Africa Happy Island Water World (Pty) Ltd has appointed **Prism Environmental Management Services** (Prism EMS) as the independent Environmental Assessment Practitioner (EAP) to undertake the required environmental authorisation processes required by a host of environmental legislation. Such process referred to as an **Environmental Authorisation process** and the details of which are discussed and described in the contents of this report.

1.1 Application

An application for the Environmental Authorisation was lodged with the competent authority on the 22th September 2016, and acknowledgement of receipt of the application with instruction to proceed was issued on the 22th September 2016, under the following reference number:

- **Gaut: 002/15-16/E0273**

1.2 Report Outline

The format of the Scoping Report has been aligned with the requirements contained in Appendix 2 of the EIA Regulations, 2014 promulgated under the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended. The required report contents and how it is structured in this report is indicated in Table 1-1 below.

Table 1-1: Required contents of the scoping report.

Appendix 2 of the EIA Regulations, 2014	Reference in Report
2(a) Details of the: (i) EAP who prepared the report; and (ii) Expertise including CV	Section 1.3 Section 10.1
2(b) Location of the activity including: (i) 21-digit SG code of each parcel (ii) Physical address of farm (iii) Co-ordinates of property boundary	Section 1.6 Section 1.6 Section 1.6
2(c) Plan locating the proposed activity	Section 1.6 Figure 1-2
2(d) description of the scope of the activity (i) Listed activities (ii) Description of the activities to be undertaken (structures and infrastructure)	Section 4.2 Section 4.3
2(e) Policy and legislative context including legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments	Section 2
2(f) Motivation for the need and desirability for the proposed development	Section 5
2(h) Description of the process followed of the proposed activity, site and location: (i) Alternatives (ii) Public participation process (iii) Summary of issues raised by I&AP's (iv) Environmental attributes (v) Potential Environmental Impacts (vi) Methodology to determine potential impacts	Section 6 Section 7 Section 7.2.5 & Section 10.7 Section 3 Section 8.5 Section 8.3

Appendix 2 of the EIA Regulations, 2014	Reference in Report
(vii) Positive and negative impacts	Section 8.3
(viii) Possible mitigation measures	Section 8.4
(ix) Outcome of the site selection matrix	Section 6
(x) Motivation for not considering alternatives	
(xi) Concluding statement indicating preferred alternatives	
2(i) Plan of Study	
(i) Alternatives	Section 8
(ii) Environmental Impact Assessment process	
(iii) Specialists	
(iv) Method of assessing environmental impacts	
(v) Method of assessing duration and significance	
(vi) Stages when competent authority is to be consulted	
(vii) Public participation particulars	Section 7
(viii) Tasks to be undertaken in EIA process	
(ix) Management measures and monitoring	
2(j) Undertaking: EAP	Section 9
2(k) Undertaking: Level of Agreement	Section 9
2(l) Information specified by the competent authority	Section 10.7
2(m) Any other matter	Not currently applicable

1.3 Environmental Assessment Practitioner

Prism EMS have been appointed to undertake the required Environmental Authorisation process in terms of the required Environmental Impact Assessment. Details and expertise of the Environmental Assessment Practitioner (EAP) who prepared the Scoping Report is provided in Table 1-2 and Curriculum Vitae is appended in Section 10.1.

Table 1-2.: Details of the EAP.

EAP:	Vanessa Stippel
Company:	Prism Environmental Management Services
Qualifications:	MSc. Ecology, Environment and Conservation
Experience:	5 years
Affiliation/ Registration	Professional Member of Southern African Institute of Ecologists and Environmental Scientists SACNASP Registration pending final approval.
Address:	PO Box 1401, Wilgeheuwel, 1736
Tel:	087 985 0951

Fax:	086 601 4800
Email:	vanessa@prismems.co.za

Designation	Name	Qualification	Professional Registration	Specialist Assessment
Prism EMS Team				
Contact Details	Post: PO Box 1401, Wilgeheuwel, Johannesburg, 1736		Tel: 087 985 0951 Fax: 086 601 4800 Email: prism@prismems.co.za www.prismems.co.za	
Senior Environmental Assessment Practitioner	Ronaldo Retief	MSc Zoology BSc.Hons (Zoology) BSc (Natural & Environmental Science)	SACNASP Pr. Sci. Nat. (400134/10)	Environmental Impact Assessment Review
Senior Environmental Assessment Practitioner	Candis Lubbe	BSc. (Hons) Ecology, Environment and Conservation	SACNASP Registration process	in Environmental Impact Assessment Review
Principal EAP	De Wet Botha	MA. (PHED) Environmental Management	SACNASP Registration process	in Project Management

1.4 Authorities

The following competent authority are involved in the decision making process:

- Gauteng Department of Agriculture and Rural Development (GDARD), with reference to activities under the:
 - EIA Regulations and Listing Notices, 2014 (NEMA)

1.5 Applicant

The applicant is the entity that will assume responsibilities as the holder of the environmental authorisation if granted. Details of the applicant and landowner are contained in Table 1-3.

Table 1-3.: Details of the Applicant.

Applicant:	South Africa Happy Island Water World (Pty) Ltd
Landowner:	South Africa Happy Island Water World (Pty) Ltd
Trading Name:	As above
Contact Person:	Zou Xingxing
Address:	45 Clifford Road, Chancliff, Krugersdorp, 1738
Tel:	0734585769/ 0632648040
Fax:	None
Email:	109206629@qq.com / 306156745@qq.com

1.6 Location

The site is collectively situated on Portion 169, 170, 173 and 174 of the farm Rietfontein 189 IQ situated in Ward 23 of MCLM. The site is situated east and adjacent to Lake View Drive and west and adjacent to Valley Drive, in the Muldersdrift area. Access is easiest gained for Muldersdrift Road, via Valley Drive. The site is currently developed with residential units and some outbuildings. The corner point coordinates of the site are indicated in Table 1-4.

Table 1-4.: Corner Point Coordinates

Corner	Coordinates
1	26° 2'12.28"S; 27°53'34.24"E
2	26° 2'3.72"S; 27°54'1.88"E
3	26° 2'16.01"S; 27°54'8.45"E
4	26° 2'25.18"S; 27°53'38.52"E

The Surveyor General 21-digit diagram numbers for the affected properties are provided in Table 1-5 below.

Table 1-5.: Surveyor General Diagram Numbers.

Portion	Surveyor General Diagram number
169	T0IQ00000000018900169
170	T0IQ00000000018900170
173	T0IQ00000000018900173
174	T0IQ00000000018900174

Refer to Figure 1-2 below for a visual indication of the sites location in relation to major roads and towns.

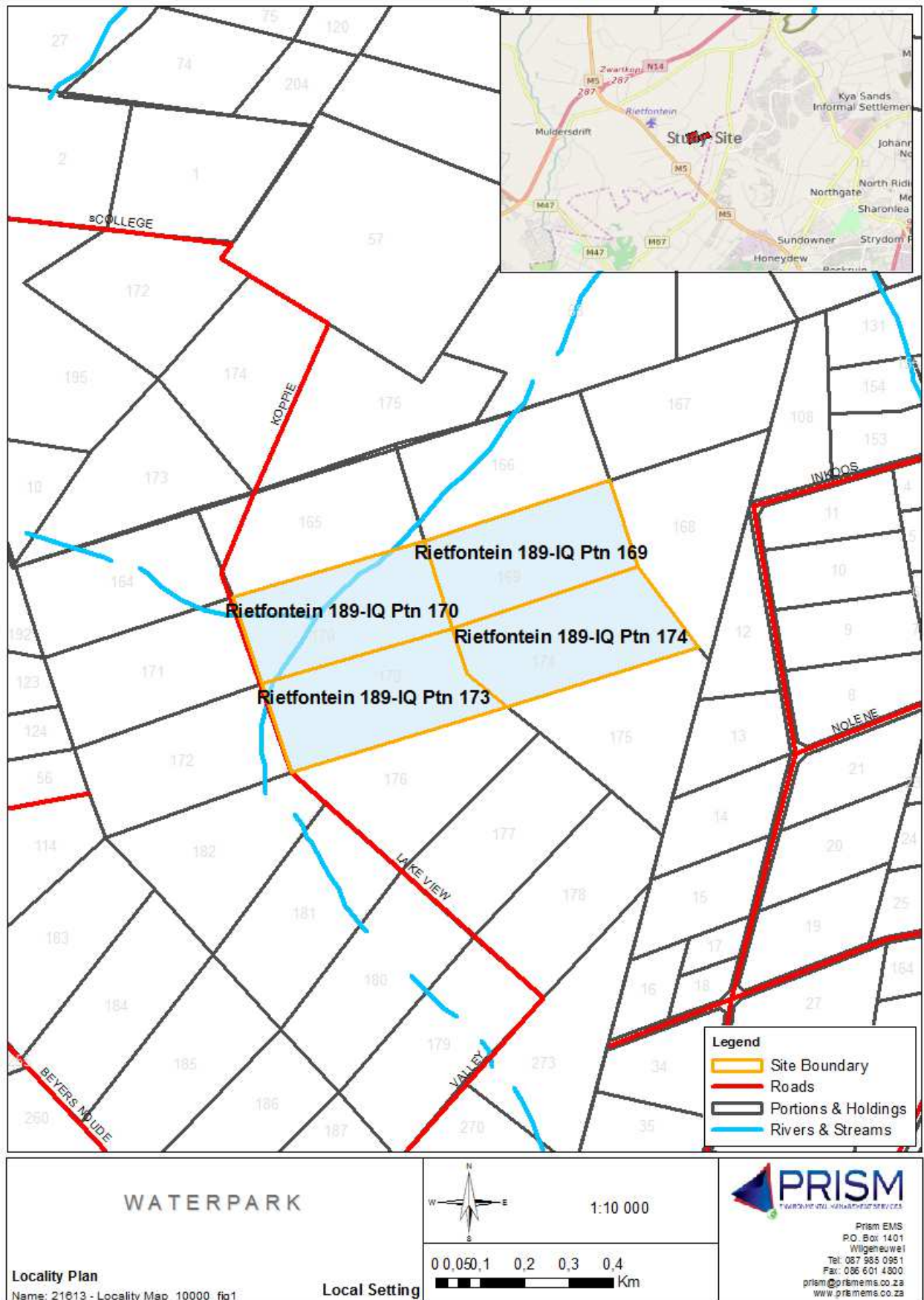


Figure 1-2: Locality map of the site in relation to major roads and towns.

2 LEGISLATIVE FRAMEWORK

This section aims to provide an overview of key policy, legislation, plans, guidelines and municipal development planning frameworks triggered by the proposed project. The requirements set out in these Act's and Regulations will be adhered to through the scoping and impact assessment phases of the project.

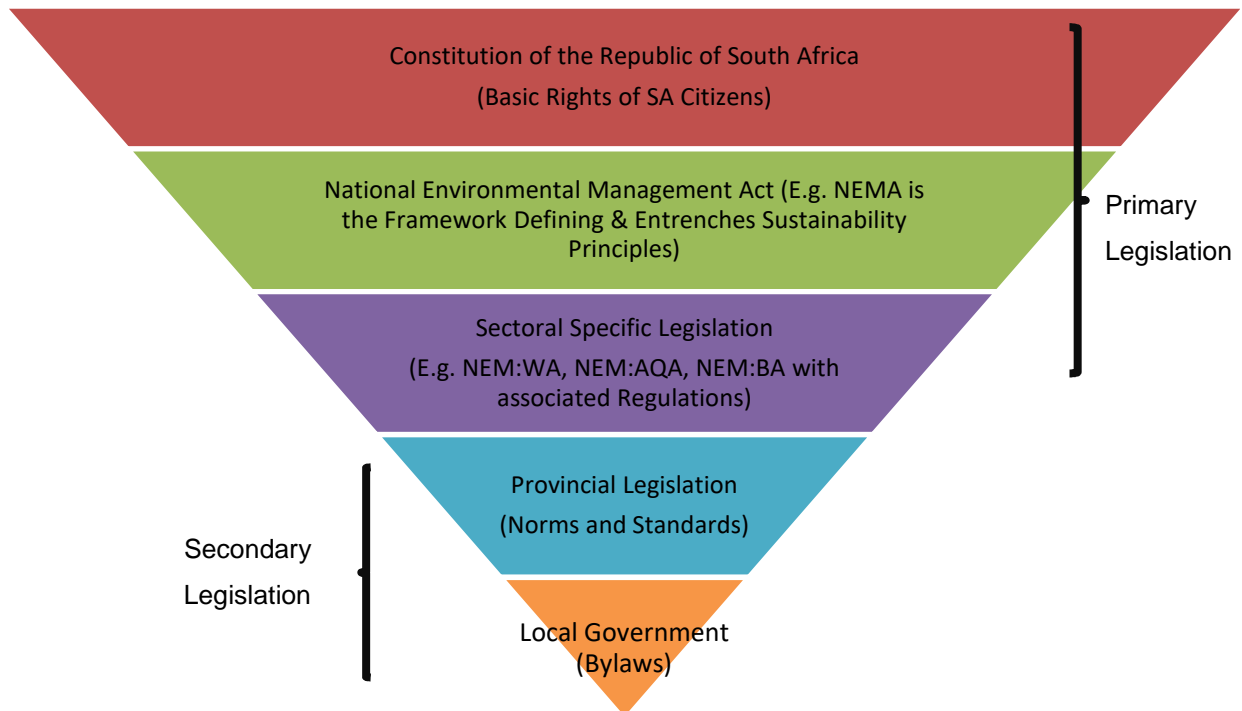


Figure 2-1: South African Environmental Legislation Hierarchy.

The following Acts, Regulations, By-Laws and Guidelines are applicable to the proposed Waterpark development.

2.1 Constitution of the Republic of South Africa

Section 24 of the Constitution states that –

“Everyone has the right to -

- a) an environment that is not harmful to their health or well-being; and*
- b) have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that –*
 - (i) Prevent pollution and ecological degradation;*
 - (ii) Promote conservation; and*
 - (iii) Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.”*

2.2 National Environmental Management Act (NEMA), 1998 (Act No. 107 of 1998)

The NEMA is the umbrella framework for all environmental legislation primarily to assist with implementing the environmental rights of the Constitution (refer to Section 2.1). The NEMA provides fundamental principles required for environmental decision making and to achieve sustainable development. It also makes provision for duty of care to prevent, control and rehabilitate the effects of significant pollution and environmental degradation, and prosecute environmental crimes. These principles must be adhered to, and taken into consideration during the impact assessment phase.

NEMA defines “environment” as –

“the surroundings within which humans exist and that are made up of –

- (i) the land, water and atmosphere of the earth;*
- (ii) micro-organisms, plants and animal life;*
- (iii) any part or combination of (i) or (ii) and the interrelationship among and between them; and*
- (iv) the physical, chemical, aesthetic and cultural, properties and conditions of the foregoing that influence human health and well-being.”*

Section 24D and 24(2) of the NEMA makes provision for the publication of list and associated regulations containing activities identified that may not commence without obtaining prior environmental authorisation from the competent authority. These regulations are referred to as the EIA Regulations and are interpreted hand in hand with the various listed activities discussed further below.

2.2.1 Environmental Impact Assessment Regulations, 2014 (GN R 982 of 4 December 2014)

The EIA regulations were promulgated in terms of Section 24 of the NEMA, for the purpose of providing methodologies and specific requirements for the undertaking of an EIA. The Regulations stipulate that any proposed activity listed in the associated notices must undertake either a Basic Assessment (BA) or Scoping & Environmental Impact Report (S&EIR) in order to obtain an environmental authorisation (if granted by the competent authority) before the commencement of the specified listed activity. The EIA Regulations provide the minimum requirements for appointing an Environmental Assessment Practitioner (EAP) and for undertaking the relevant Public Participation Process (PPP) as required. They also detail the contents of the impact assessment reports and all other aspects associated with BA and/or EIAs.

The following listed activities have been identified in terms of the subsequent Government Notices:

2.2.1.1 Listing Notice 1: GN R 983 of 4 December 2014

Activities listed under this process require a Basic Assessment process to be undertaken. Refer to Section 4.1 for a description of the specific listed activities that pertain to this project.

2.2.1.2 Listing Notice 2: GN R 984 of 4 December 2014

Activities listed under this process require Scoping and EIA to be undertaken. Refer to Section 4.1 for a description of the specific listed activities that pertain to this project. Due to the fact that Activity 15 of Listing Notice 2 is triggered, a S&EIR process will be undertaken for the proposed Waterpark development.

2.2.1.3 Listing Notice 3: GN R 985 of 4 December 2014

Activities listed under this process require a Basic Assessment process to be undertaken but only in specified geographic areas. Refer to Section 4.1 for a description of the specific listed activities that pertain to this project.

2.3 National Water Act (NWA), 1998 (Act No. 36 of 1998)

The NWA is the primary regulatory legislation; controlling and managing the use of water resources as well as the pollution thereof and is implemented and enforced by the Department of Water and Sanitation (DWS¹). Section 21 of the NWA lists water uses that must be licensed unless it is listed in the schedule (existing lawful use) and/or is permissible under a general authorisation, or if a responsible authority waives the need for a Water Use Licence. Section 21 water uses include:

- Section 21(a): taking water from a water resource
- Section 21(b): storing water
- Section 21(c): impeding or diverting the flow of water in a watercourse
- Section 21(d): engaging in a stream flow reduction activity contemplated in section 36
- Section 21(e): engaging in a controlled activity as identified in Section 37 (1) or declared under Section 38 (1).
- Section 21(f): discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall, or other conduit.
- Section 21(g): disposal of waste (i.e. effluent from sewage works) in a manner which may detrimentally impact on a water resource;
- Section 21 (h): disposing in any manner of water which contains waste from, or which has been heated in, any industrial or power generation process.
- Section 21 (i): altering the bed, banks, course or characteristics of a watercourse.
- Section 21 (j): removing, discharging, or disposing of water found underground if it necessary for the efficient continuation of an activity or for the safety of people.
- Section 21(k): using water for recreational purposes.

Applicable definitions included in the NWA include watercourse which is defined as “(a) a river or spring; (b) a natural channel in which water flows regularly or intermittently; (c) a wetland, lake or dam into which, or from which, water flows; and (d) any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse (and a reference to a watercourse includes, where relevant, its bed and banks). The Act also defines a wetland as “land which is transitional between terrestrial and aquatic systems where

¹ Previously referred to as the Department of Water Affairs

the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil”.

The recently published General Authorisation in terms of Section 39 of the NWA for water uses as defined in Section 21(c) or section 21(i) (GN 509 of 2016) also defines the regulated area of a watercourse as meaning: (a) *The outer edge of the 1 in 100 year flood line and /or delineated riparian habitat, whichever is the greatest distance, measured from the middle of the watercourse of a river, spring, natural channel, lake or dam;* (b) *In the absence of a determined 1 in 100 year flood line or riparian area the area within 100m from the edge of a watercourse where the edge of the watercourse is the first identifiable annual bank fill flood bench (subject to compliance to section 144 of the Act); or (c) A 500 m radius from the delineated boundary (extent) of any wetland or pan.*

Due to the fact that the proposed development involves construction related activities on the existing dam walls and within the regulated area of the watercourse, Section 21 (c) and (i) water uses require a Water Use Licence in terms of Section 21 of the NWA.

In addition, the proposed development also includes abstraction of groundwater and storage of water and thus Section 21 (a) and (b) water uses are triggered.

Lastly, the proposed development includes treatment of wastewater in a sewerage package plant as well as use of treated water for irrigation purposes. As such, Section 21 (e) and (g) water uses are also triggered.

Section 21 (k) – Using water for recreational purposes is also triggered.

Therefore, the following listed water uses that require a Water Use License according to Section 21 of the NWA are triggered for the proposed project:

- Section 21(a): taking water from a water resource
- Section 21(b): storing water
- Section 21(c): impeding or diverting the flow of water in a watercourse
- Section 21(e): engaging in a controlled activity as identified in Section 37 (1) or declared under Section 38 (1).
- Section 21(g): disposal of waste (i.e. effluent from sewage works) in a manner which may detrimentally impact on a water resource;
- Section 21 (i): altering the bed, banks, course or characteristics of a watercourse.
- Section 21(k): using water for recreational purposes.

An integrated Water Use Licence Application (IWULA) will be undertaken. Public participation for the IWULA process will be combined with the S&EIA process.

2.4 National Heritage Resource Act (NHRA), 1999 (Act No. 25 of 1999)

The NHRA provides for the protection and management of South Africa's heritage resources. The South African National Heritage Resources Agency (SAHRA) is the administering authority in regards to all matters relating to heritage resources. A heritage resource refers to any historically important feature such as graves, trees, archaeology, culturally significant symbols, spaces, landscapes and fossil beds as protected heritage resources. In terms of Section 38 of the NHRA, SAHRA can call for a Heritage Impact Assessment (HIA) for certain categories of development. The NHRA also makes provision for the assessment of heritage impacts as part of an EIA process and indicates that if such an assessment is deemed adequate, a separate HIA is not required.

Section 38 (1) of the NHRA notes that the relevant heritage authority should be notified provided with details such as location, nature and extent of the following developments:

- (a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
- (b) the construction of a bridge or similar structure exceeding 50 m in length;
- (c) any development or other activity which will change the character of a site—
 - (i) exceeding 5 000 m² in extent; or
 - (ii) involving three or more existing erven or subdivisions thereof; or
 - (iii) involving three or more erven or divisions thereof which 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;
- (d) the re-zoning of a site exceeding 10 000 m² in extent; or
- (e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority,

Although no known heritage resources occur at the proposed site, a HIA will be undertaken as part of the EIA Phase and will be included in the EIA Report. Furthermore, the Provincial Heritage Resources Agency of Gauteng (PHRA-G) and SAHRA will be notified and provided an opportunity to comment on the Draft Scoping Report.

2.5 National Environmental Management: Biodiversity Act (NEM:BA), 2004 (Act No. 10 of 2004)

The NEM:BA aims to provide for the management and conservation of South Africa's biodiversity within the framework of the NEMA. The purpose of the NEM:BA is to protect ecosystems and the species within as well as the promoting of sustainable use of indigenous biodiversity. During any environmental authorisation process the following regulations are considered and researched if at any stage the following regulations are applicable:

- Alien and Invasive Species Regulations;
- Alien and Invasive Species List;

- Lists of Critically Endangered, Endangered, Vulnerable and Protected Species; and
- Threatened or Protected Species Regulations.

2.6 National Environmental Management: Waste Management Act (NEM:WA), 2008 (Act No. 59 of 2008)

The NEM:WA aims to regulate waste management in South Africa in order to protect health and the environment through the provision of reasonable measures for the prevent pollution and ecological degradation.

The Act includes regulations which provide a list of waste management activities that require a waste management licence terms of NEM:WA (GN 921 of 29 November 2013). Activities related to treatment of effluent, wastewater or sewage are however excluded and do not require a waste management licence.

Based on the above, no waste management licence is required for the proposed Waterpark. Waste will be collected by municipal waste collectors and disposed of at the municipal landfill.

Storage Facilities in excess of 100m³ (general waste) or 80m³ (hazardous) (if required) will comply with the Norms and Standards for the Storage of Waste.

2.7 National Environmental Management: Air Quality Act (NEM:AQA), 2004 (Act No. 39 of 2004)

The aim of NEM:AQA is to regulate air quality in order to protect the environment from pollution and ecological degradation.

The proposed Waterpark development does not trigger any activities that require an Air Emissions Licence. Dust produced during the construction phase will be managed through the implementation of mitigation measures which will be included in the Environmental Management Programme (EMPr).

2.8 Other Legislation and Guidelines

2.8.1 Bylaws

The following By-laws have been published by MCLM to provide a framework for its operation and management and must be adhered to by the proposed development.

2.8.1.1 Mogale City Local Municipality: Water Services By-laws

This bylaw prescribes and elaborates on the use and related activities of water in the MCLM and must therefore be considered during any EIA process in the area.

The by-laws note that should an EIA be required before the provision of services can be approved, the applicant will be responsible for carrying out such EIA. It also notes that once environmental approval has

been granted and the provision of water services has been approved by the Municipality, it is the responsibility of the applicant to ensure that all laws and conditions affected by the provisions of water services and relating to environmental management and control are complied with. Failure to comply with Section 24g of the NEMA may result in a fine and/or imprisonment.

In addition, the by-laws note that any developments which may, directly or indirectly, have an influence on the natural water balance and/or water quality in the Cradle of Humankind World Heritage Site, must be approved in writing by the Executive Manager: Infrastructure of the Municipality or his successor in title. Such developments include, but are not limited to, boreholes, French drains, conservancy tanks, septic tanks, VIP latrines, and all works associated with water installations and sanitation installations.

The by-laws also provide requirements for the use of boreholes, storage tanks, discharge into wastewater, treatment of sewerage, and stormwater.

2.8.2 Guidelines

The following guidelines have been adopted by the applicant in the pursuit of best practice and sustainable development and are considered in the management measures and mitigation of impacts identified.

- Guidelines on Need and Desirability (DEA&DP, 2010);
- Guidelines on Alternatives (DEA&DP, 2010);
- Guidelines on Public Participation (DEA&DP, 2011);
- IEMS Guidelines series (DEA&DP, 2014);
- Gauteng Spatial Development Framework (SDF);
- Gauteng Provincial Environmental Management Framework (EMF); and
- National Development Plan 2030.

3 DESCRIPTION OF THE RECEIVING ENVIRONMENT

This section describes the biophysical and socio-economic environment that may be affected and the known baseline conditions, which may be affected by the proposed Waterpark development.

3.1 Local Climate

The climatological data for the Muldersdrift area is provided below.

3.1.1 Overview

3.1.1.1 Temperature

The average recorded temperatures range from 3°C (average minimum) - 26°C (average maximum) (Figure 3-1.). Information from the MCLM Baseline Assessment Report (Mogale City Local Municipality, 2013) notes that high temperatures are usually experienced between the months of October to March. The highest maximum temperature of 36.10C was measured in January 1973.

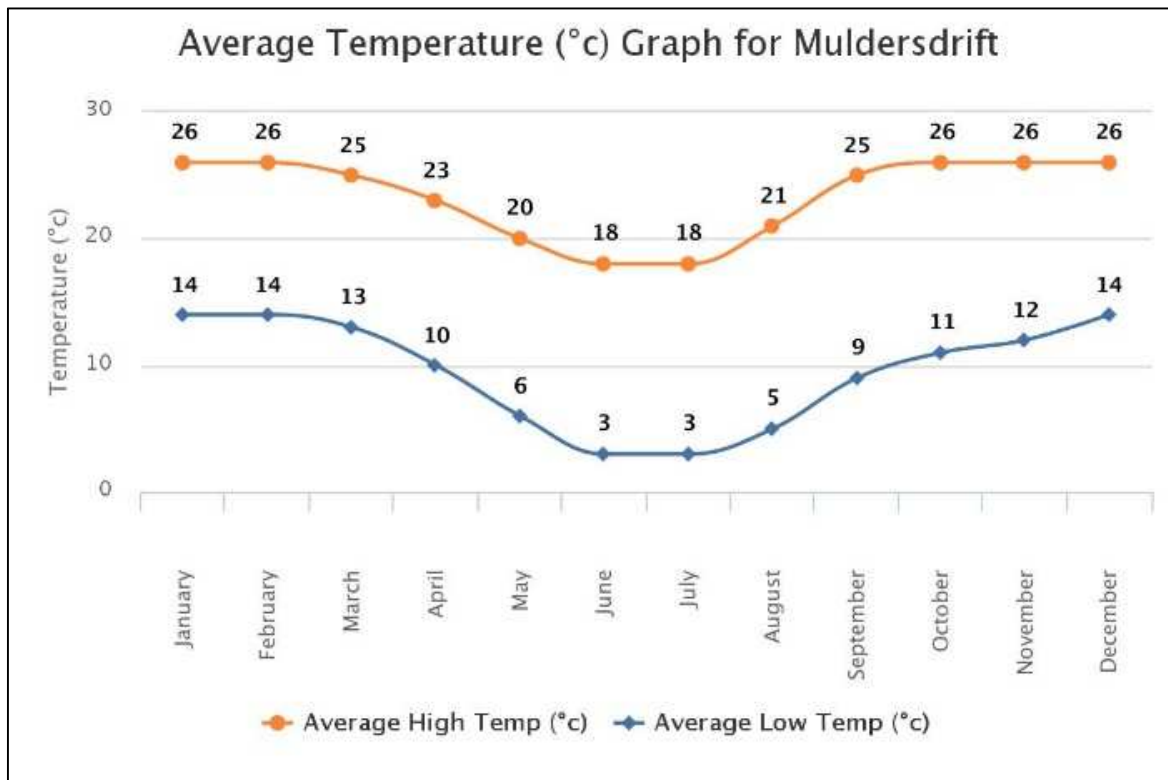


Figure 3-1: Average Temperature data for Muldersdrift (World Weather Online)

3.1.1.2 Rainfall

The average annual rainfall in the area is between 0 and 150mm per month. According to the MCLM Baseline Assessment Report (Mogale City Local Municipality, 2013), the highest monthly maximum in 29 years was 440 mm recorded in 1978.

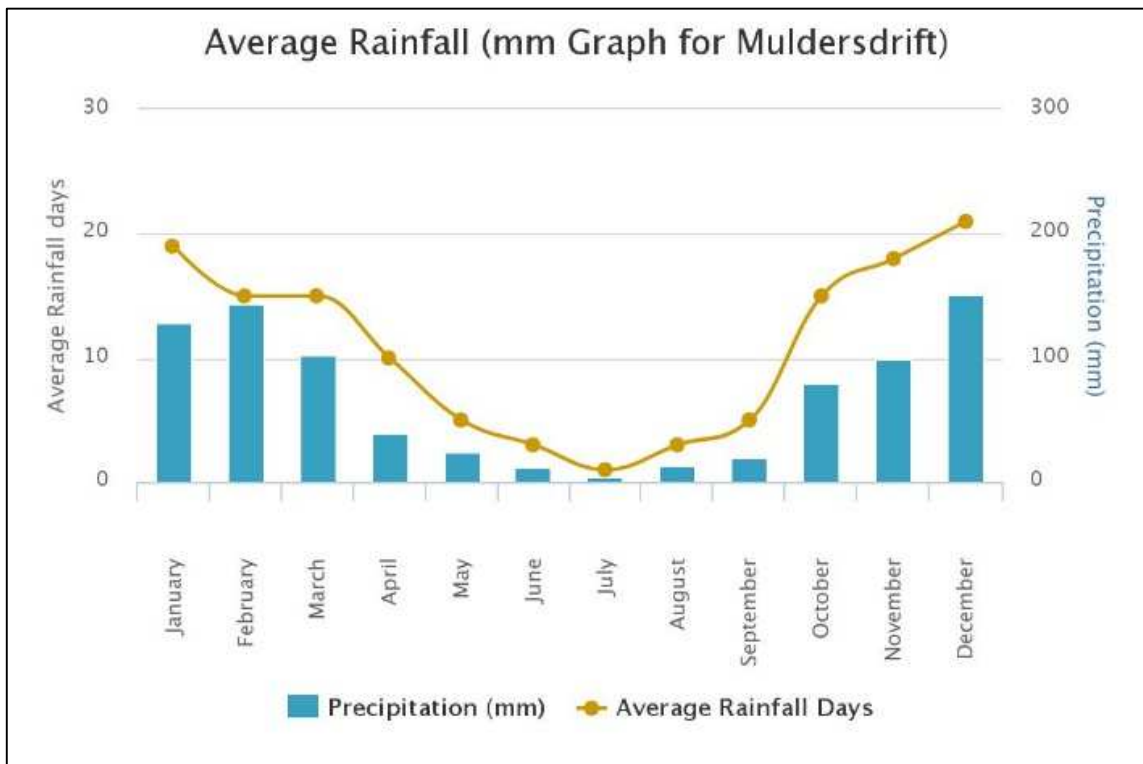


Figure 3-2: Average Rainfall data for Muldersdrift (World Weather Online)

3.1.1.3 Wind

According to the MCLM Baseline Assessment Report (Mogale City Local Municipality, 2013), historic data on wind movement for the municipality is not available. Data for the closest meteorological station in the adjacent City of Johannesburg provides a good source of information for the area with the average annual wind movement recorded at the Johannesburg Botanical Gardens meteorological station revealing that the dominant wind direction between 2007 and 2012 was North North-West (NNW). The strongest winds (2.5 – 5.6 m/s) blowing from the east. Maximum wind speed has been recorded at 11.5 m/s.

3.1.2 Implications

It is not expected that the proposed development will not impact on the existing local climate in the area.

3.2 Topography

3.2.1 Overview

The site has an even slope in a north-westerly direction. The average gradient of the site is 7.1% (1 to 14). There are no ridges present on the site.

3.2.2 Implications

The proposed development will result in minor changes to the topography of the site. Mitigation measures to ensure management of erosion will be included in the EMPr.

3.3 Geology and Soils

3.3.1 Overview

According to the Simplified Geological Map of South Africa, the proposed development is underlain by geology of the Bokkeveld Group.

The Biodiversity Geographic Information System (BGIS) notes that the soil on the site is an association of Classes 1 to 4 (undifferentiated structureless soils). Soils are red, yellow and / or greyish with low to medium base status and have restricted soil depth, excessive or imperfect drainage and potential high erodibility.

3.3.2 Implications

A Geotechnical Study will be undertaken and will be included in the EIA Report. The EMPr will also include measures to mitigate against erosion.

3.4 Land Use

3.4.1 Overview

The site is collectively situated on Portion 169, 170, 173 and 174 of the farm Rietfontein 189 IQ situated in Ward 23 of MCLM. The properties are zoned as “Agricultural” in terms of the Krugersdorp Town Planning Scheme 1980. The site is currently developed with residential units and some outbuildings. There are also a number of dams to the north west of the property as well as numerous exotic trees. The land use around the site is mixed and includes the following uses:

- A nursery and garden centre;
- Truck and car sales businesses;
- A children’s play facility;
- Specialist embroiders;
- Commercial and storage uses;
- Housing complexes;
- Gas sales;
- Cottages;
- Conference and function centres; and
- Normal dwelling houses with associated uses.

3.4.2 Implications

The proposed development will require a change in the zoning of the proposed site to “Special”. A town planning process is currently being undertaken.

3.5 Agricultural Potential

3.5.1 Overview

As mentioned in Section 3.4., the site is currently zoned as agricultural land however according to Agricultural Geo-Referenced Information System (AGIS), the area has only marginal agricultural potential. In addition, the site is not currently used for agriculture.

3.5.2 Implications

The proposed development will not result in any loss of high potential agricultural land. No specialist study is therefore required.

3.6 Existing Services

3.6.1 Overview

According to the Outline Scheme Report (TekCiv Consulting Engineers, 2016) for the proposed development, the following existing services occur in close proximity to the site:

- There is an existing municipal 110mm diameter watermain in Valley Road to the east of the site;
- There is an existing 335mm diameter watermain to the west of the property on Lakeview road;
- There are 4 boreholes with a combined yield of 3000 litres per hour;
- There is no sewerage reticulation in close proximity to the site;
- There is no formal stormwater drainage system in the area; and
- Lakeview road is a rural road with an asphalt surface (to the west of the site) and Valley Road (to the east) is a gravel road.

3.6.2 Implications

An Outline Scheme Report has been compiled and includes information on the existing services in the area. This will be taken into account by both the Townplanning and EIA process to ensure that the proposed development does not negatively impact existing services in the area.

3.7 Availability of Services

3.7.1 Overview

Availability of services will be confirmed in the EIA Phase however the Outline Scheme Report has noted that there is water available for the proposed development. This will be augmented by the 4 boreholes on site, rainwater harvesting and reuse of effluent and grey water for irrigation purposes.

No sewerage facilities are available and thus the proposed development includes a sewerage treatment plant.

Electrical services are currently in the process of being confirmed. As such, more information will be provided in the EIA Report.

3.7.2 Implications

An Outline Scheme Report has been compiled and includes information on the required services for the development. Confirmation of availability of services will also be provided by MCLM and included in the EIA Report.

3.8 Roads

3.8.1 Overview

The proposed development occurs in close proximity to the following roads:

- **Beyers Naude Drive (M5):** This road is classified as a Class 2 road having an east west alignment extending from Auckland Park (City of Johannesburg Metropolitan Municipality) in the east to N14 national freeway to the west. The portion of Beyers Naude Drive between Boland Road (east) and Heritage View Drive (west) is an undivided carriageway comprising of a single lane per direction. The portion of Beyers Naude Drive west of Heritage View Drive towards N14 comprises of two lanes per direction with a centre median. The posted speed limit is 80km/h.
- **Marina Street:** This road is classified as a Class 4 access road having a north south alignment comprising of a single lane per direction. Marina Street connects with Beyers Naude Drive in the south to R114 to the north. Marina Street provides access to commercial, residential and agricultural land use components. Marina Street is regarded as an important north south link.
- **Peter Road:** This road is classified as a Class 4 access road having a north south alignment comprising of a single lane per direction. Peter Street connects with Beyers Naude Drive in the north to Hendrik Potgieter Road (M47) to the south. Peter Road provides access to commercial, residential and agricultural land use components. Similarly, to Marina Street, Peter Road is also an important north south link.
- **Valley Road:** This road is a 5m wide Class 5 road having a north south alignment. Valley Road alignment starts at Beyers Naude Drive in the south and ends in a cal-de-sac to the north just pass the site boundary. The first portion (1km) of Valley Road has an asphalt surface, whereas the remaining portion of its alignment (1.43km) has a gravel surface. The south leg of the intersection of Beyers Naude Drive/Valley Road is an informal gravel access road where access to a truck repair yard is taken. Further along it's alignment, this gravel road services large agricultural holdings.
- **Lakeview Road:** This road is a 5m wide Class 5 road located approximately 930m off Valley Road in the north and bounds the western portion of the site. Lakeview Road ends in a cal-de-sac towards the end of the site boundary. Lakeview Road has an asphalt surface;
- **Rocky Ridge Road:** This road is a 5m wide Class 5 road having a north south alignment.

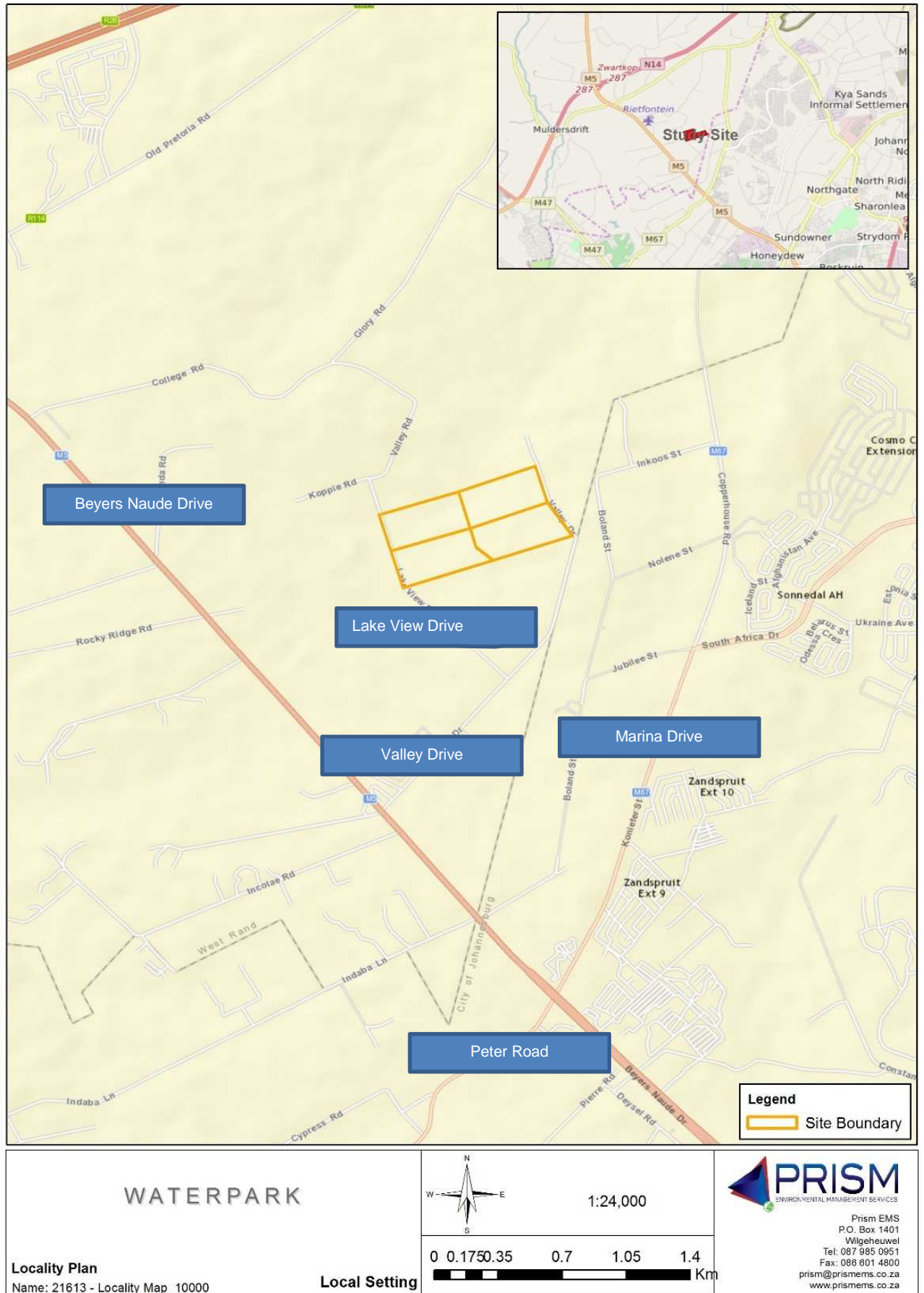


Figure 3-3: Existing Roads Around the Development

There are a number of roads planned through provincial and national road planning processes in the area. These include:

- K31: The 2010 Gauteng Strategic Road Network Planning illustrates the proposed K31 alignment planned on the existing Beyers Naude Drive (M5). The Gauteng Department of Roads and Transport (GDRT) have appointed ILIFA Africa Engineers to undertake a detail design for the proposed K31 alignment. It is planned that K31 be constructed during 2017/2018.
- K56: The 2010 Gauteng Strategic Road Network Planning illustrates the proposed K56 alignment planned approximately 950m west of the intersection of Beyers Naude Drive/Valley Road. It is not known as to when K56 will be constructed. It should be noted that the planned K56 alignment traverses the north eastern portion of the site. The road reserve required for K56 has not yet been expropriated by the GDRT.
- K52: The 2010 Gauteng Strategic Road Network Planning illustrates the proposed K52 alignment planned on the existing R114 which is located approximately 950m west of N14 eastern ramp terminal. It is not known as to when K52 will be constructed. Note that the road reserve required for K52 has not yet been expropriated by the GDRT.
- PWV5: The 2010 Gauteng Strategic Road Network Planning illustrates the proposed PWV5 alignment planned approximately 570m east of Beyers Naude Drive/Marina Street/Peter Road. PWV5 is not expected to be constructed in the near future.



Figure 3-4: 2010 Gauteng Strategic Road Network Planning

3.8.2 Implications

A Traffic Impact Assessment has been undertaken and will be included in the EIA Report to determine that there are no impacts on existing and future roads and to ensure that the proposed development does not

result in unacceptable levels of traffic in the area. Road upgrades will also be undertaken by the development to ensure there is adequate access to the site.

3.9 Noise

3.9.1 Overview

There are no existing noise factors currently emanating from the proposed site. The surrounding areas are populated by low-density residential areas with small to medium size businesses. Some noise may emanate from the existing wedding and conference facility which is adjacent to the proposed site.

3.9.2 Implications

The proposed development may result in increased noise levels from recreational activities on the site. This potential impact will be assessed through a Noise Impact Assessment which will be included in the EIA Report. Relevant mitigation measures (as necessary) will be included in the EMPr.

3.10 Socio-Economic Environment

3.10.1 Overview

According to Census 2011, Mogale City Local Municipality has a total population of 820 995 of people, of which 75,6% are black African, 21,0% are white, 0,8% are coloured, and 2,2% are Indian/Asian. Of those aged 20 years and older, 4,0% have completed primary school, 35,0% have some secondary education, 32,6% have completed matric, and 14,2% have some form of higher education (Figure 3-5).

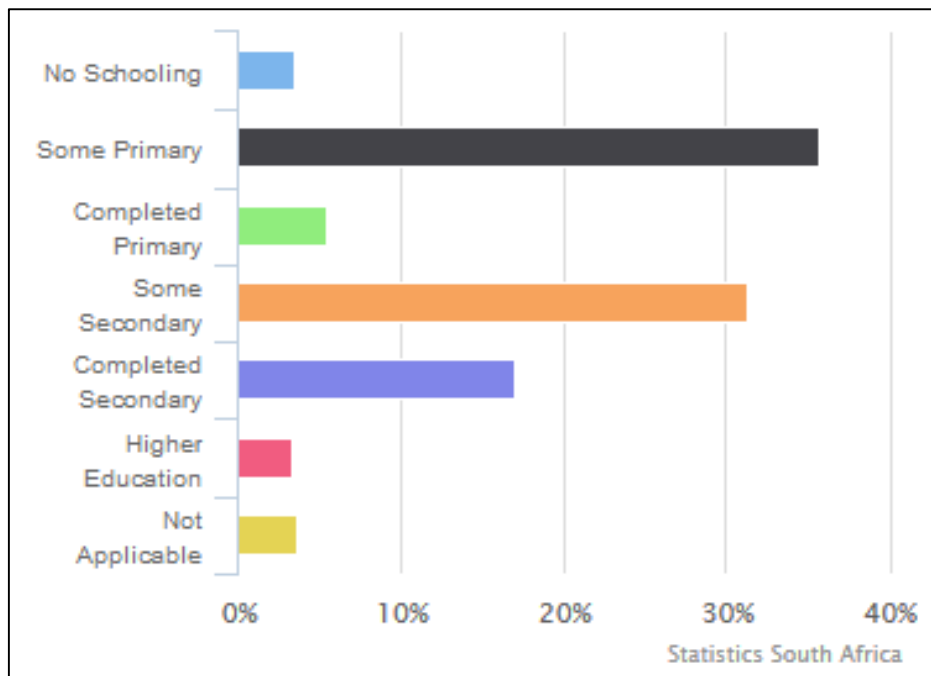


Figure 3-5: Highest level of Education in Mogale City (Statistics South Africa, 2011)

In terms of household number and size, there are 117 373 households in the municipality with an average of 2,9 persons per household. A total of 54,8% households have access to piped water in their dwelling,

32,5% have water in their yard, and only 2,9% households do not have access to piped water. More than 15% of households have no income (Figure 3-6).

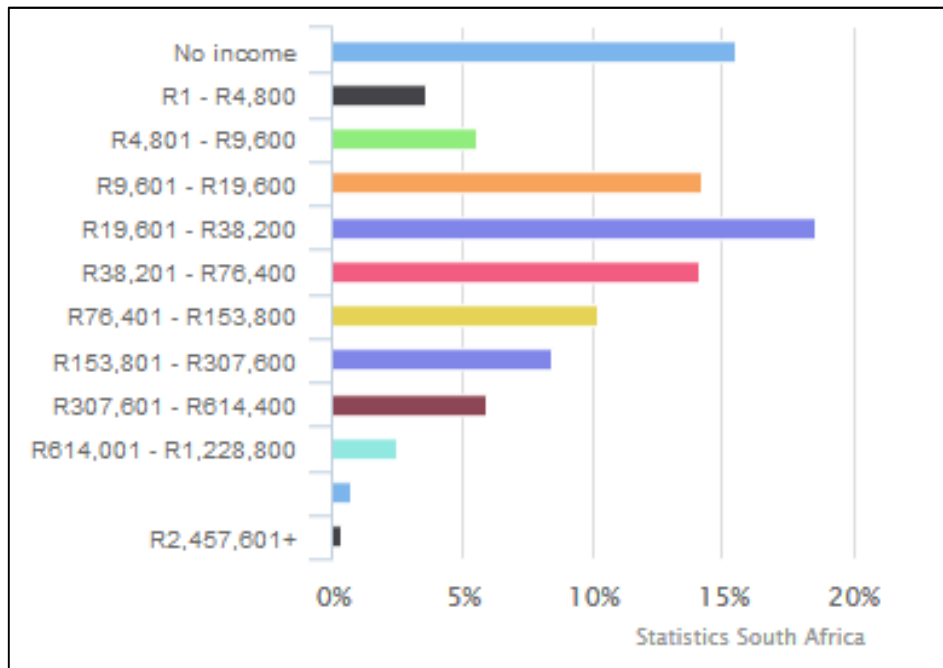


Figure 3-6: Average Household Income (Statistics South Africa, 2011)

In addition, according to Census 2011 data, 134 635 people are economically active (employed or unemployed but looking for work), and of these, 24,6% are unemployed. Of the 60 706 economically active youth (15–34 years) in the area, 32,3% are unemployed (Figure 3-7).

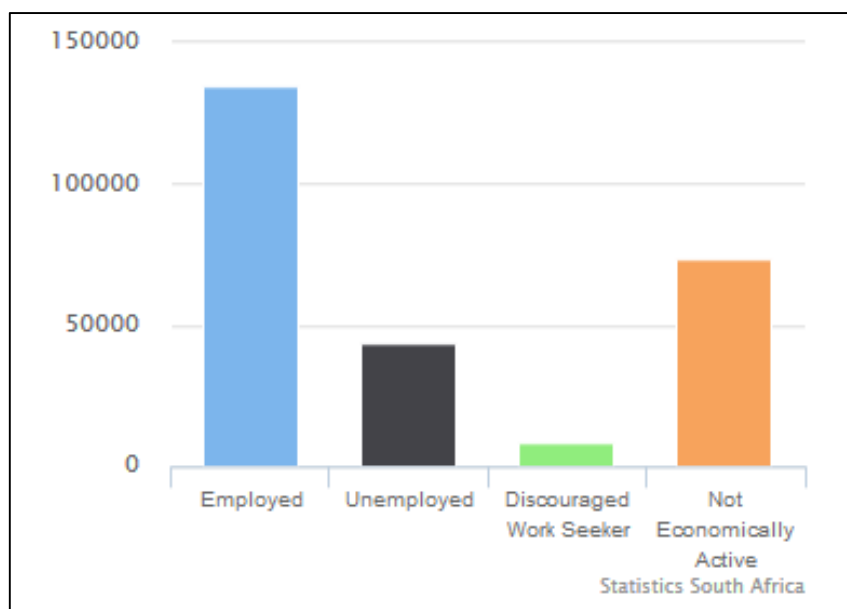


Figure 3-7: Employment for those aged 15-64 (Statistics South Africa, 2011)

3.10.2 Implications

The proposed development will result in approximately R342 million in capital investment in the area. This will have a multiplier effect in the region. In addition, the proposed development will create approximately 400 short term employment opportunities and 550 permanent employment opportunities. Specialist labour during the construction phase will be required from China but will result in opportunities for skills transfer.

3.11 Tourism

3.11.1 Overview

According to the MCLM Tourism Strategy Development Plan (DIT 500, 2013), tourism as an internationally traded services sector has become one of the world's major trade categories. Globally the overall tourism income generated exceeded R15 trillion. In addition, tourism trade accounts for more than 30% of the global exports of commercial services. In South Africa, the Direct Contribution of Travel and Tourism to GDP in 2011 was R79.5bn (2.7% of GDP).

Mogale City is situated about 60 km South West of Pretoria, about 40 km North West of Johannesburg, 35km from Sandton City and it is 20 minutes' drive from Lanseria Airport and 50 minutes' drive from O.R. Tambo Airport. The geographical location of Mogale City allows easy access to the major cities like Pretoria, Johannesburg and Rustenburg in the North West Province and thus provides opportunities for tourism.

The MCLM Tourism Strategy Development Plan (DIT 500, 2013) also notes that the area has a strong tourism product base in heritage sites and adventure venues, which are unique in Gauteng and South Africa. There are adequate accommodation facilities to cater for increased tourist volumes in the medium term and there is a high concentration of tourist attractions in Mogale City within the District. The area is also known to have the best wedding venues in Gauteng. In order to increase tourism in the area, the plan identified a number of opportunities. One of these was the concept of a unique theme park, with a water feature similar to Valley of Waves.

3.11.2 Implications

The proposed development is in line with the Tourism Strategy Development Plan and aims to increase tourism in the area.

3.12 Biodiversity

3.12.1 Overview

3.12.1.1 Threatened Terrestrial Ecosystems

The first national list of threatened terrestrial ecosystems for South Africa was gazetted on 9 December 2011 (National Environmental Management: Biodiversity Act: National list of ecosystems that are threatened and in need of protection, (G 34809, GoN 1002), 9 December 2011). The purpose of listing threatened ecosystems is primarily to reduce the rate of ecosystem and species extinction. This includes preventing further degradation and loss of structure, function and composition of threatened ecosystems.

The purpose of listing protected ecosystems is primarily to preserve witness sites of exceptionally high conservation value.

The proposed development occurs within the Egoli Granite Grassland which is classified as endangered. According to Mucina and Rutherford (2006), only about 3% of this unit is conserved in statutory reserves and a number of private conservation areas. More than two thirds of the unit have already undergone transformation mostly by urbanisation, cultivation or by building of roads.

It should however be noted that the site is already disturbed and has a large number of exotic trees and vegetation (Figure 3-8).



Figure 3-8: Vegetation on Site

3.12.1.2 Gauteng Conservation Plan

Gauteng Conservation Plan (C-Plan) 3.3. is based on the systematic conservation protocol developed by Margules & Pressey (2000) and is based on the principles of complementarity, efficiency, defensibility and flexibility, irreplaceability, retention, persistence and accountability.

The main purpose of C-Plan 3.3 is to serve as the primary decision support tool for the biodiversity component of the Environmental Impact Assessment (EIA) process, to inform protected area expansion and biodiversity stewardship programmes in the province and to serve as a basis for development of Bioregional Plans in municipalities within the province.

According the Gauteng Conservation Plan (C-Plan), part of the proposed site falls within an Ecological Support Area (ESA). ESAs are an imperative part of C-Plan 3 to ensure sustainability in the long term.

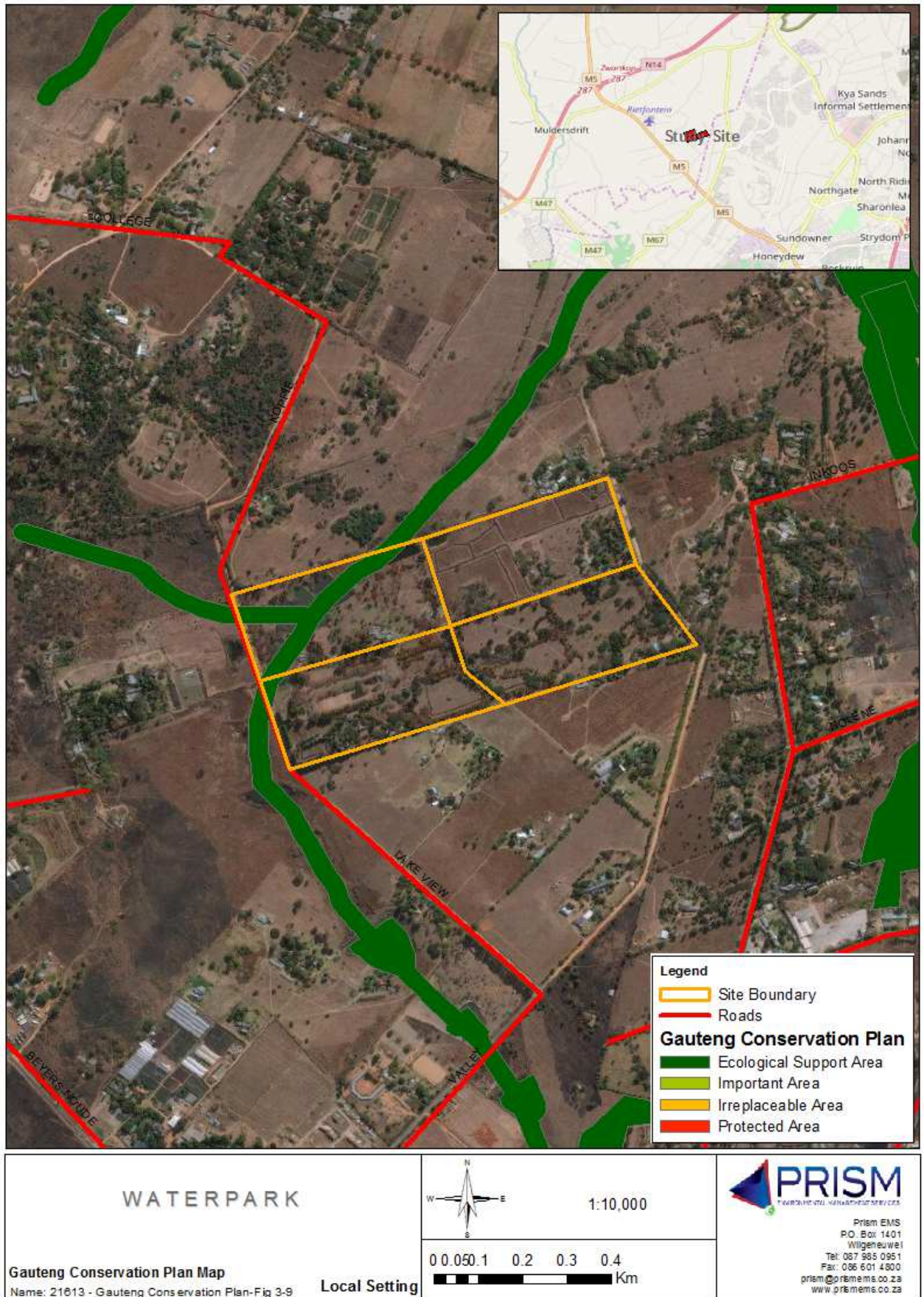


Figure 3-9: Ecological Support Areas

3.12.1.3 *The Gauteng Provincial Environmental Management Framework (GPEMF)*

The GPEMF is a legal instrument in terms of the Environmental Management Framework Regulations, 2010. The purpose of the regulations is to assist environmental impact management including EIA processes, spatial planning and sustainable development.

Most of the proposed development site occurs in Zone 1: Urban Development Zone. The intention with this zone is to streamline urban development activities in it and to promote development infill, densification and concentration of urban development, in order to establish a more effective and efficient city region that will minimise urban sprawl into rural areas.

Part of the site around the watercourse does fall within Zone 2 (High control zone within the urban development zone). This zone is sensitive to development activities. Only conservation should be allowed in this zone. Related tourism and recreation activities must be accommodated in areas surrounding this zone.

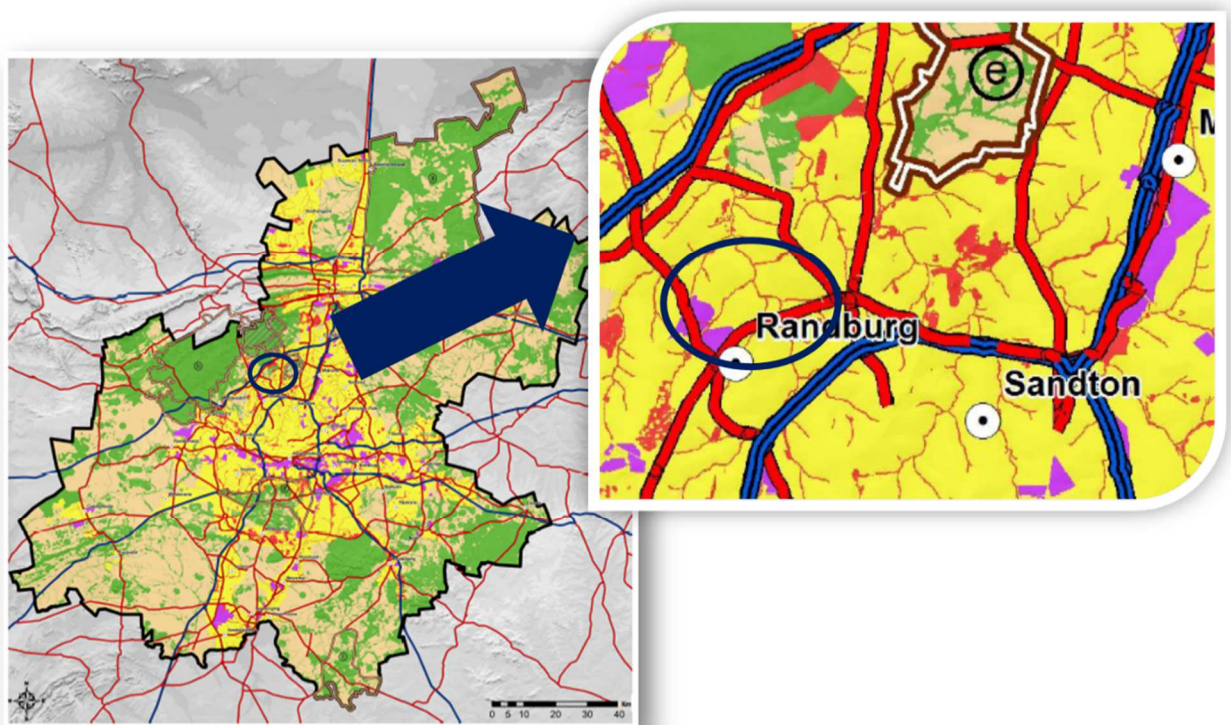


Figure 3-10: GPEMF

3.12.1.4 *Important Bird Areas*

The proposed development does not occur within any Important Bird Area (IBA). The closest IBA is the Magaliesburg which is approximately 5km to the west and 4km to the north.

3.12.1.5 *Protected Areas*

The proposed development does not fall within a protected area. The closest protected area Cradle of Humankind World Heritage Site which is approximately 15km to the north-west.

3.12.2 Implications

The proposed development is in line with GPEMF and does not compromise either Zone 1 or Zone 2. In addition, an Ecological Specialist Study will be undertaken to determine the impacts of the proposed development on biodiversity at the site. Due to the disturbed nature of the site, significant impacts are not expected. The proposed development will not impact on existing protected areas or IBAs.

3.13 Surface Water

3.13.1 Overview

The site falls within Quaternary catchment area A21E, and is part of the new Limpopo Water Management Area (WMA) (previously Crocodile (West) and Marico WMA). A number of dams and a watercourse occur along the north-west corner of the site.

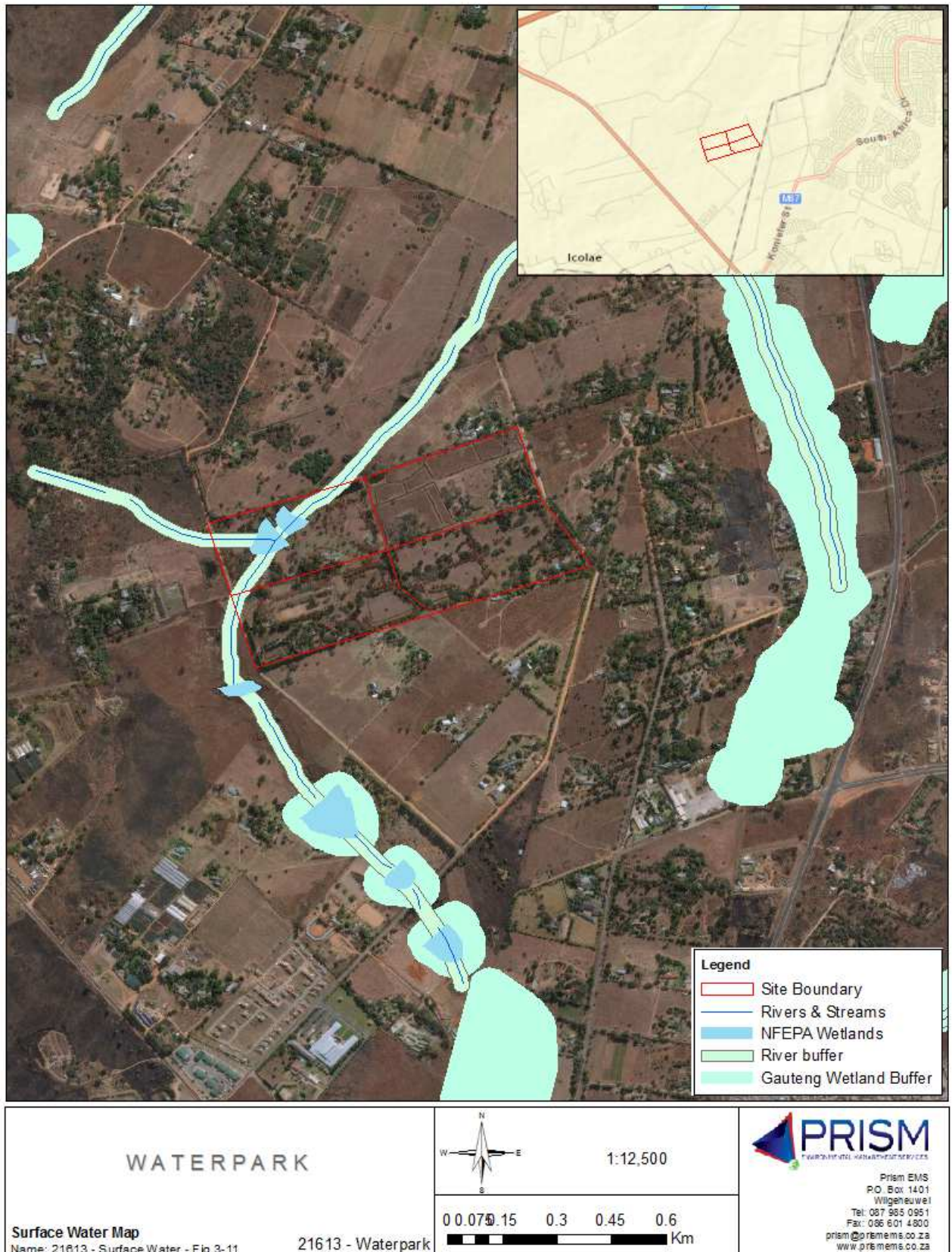


Figure 3-11: Surface Water

3.13.2 Implications

In order to determine the impacts of the proposed development on surface water, an Aquatic Impact Assessment and Wetland Delineation Study will be undertaken and included in the EIA.

3.14 Groundwater

3.14.1 Overview

According to the Categorisation of Groundwater Resource Units (2010) in the Crocodile (West) River Catchment, the resources in A21E were classified as good. Further according to the MCLM State of the Environment Report (Mogale City Local Municipality, 2011), there is approximately 31mil m³/ annum of groundwater resources available for use in the upper Crocodile sub-area.

3.14.2 Implications

The proposed development aims to use the existing 4 boreholes on site to augment water required for facilities (in addition to municipal sources, treated water and rainwater harvesting). Availability and requirements will be confirmed during the EIA and WUL Phases however as mentioned, the proposed development will not be dependent on groundwater resources as most water will be provided from municipal sources. Groundwater will only be used to augment water requirements.

3.15 Archaeology and Cultural Heritage

3.15.1 Overview

The presence and distribution of heritage resources define a 'heritage landscape'. In this landscape, every undisturbed sites are relevant and in addition, because heritage resources are non-renewable, heritage surveys need to investigate an entire project area, or a representative sample, depending on the nature of the project.

In terms of Mogale City, heritage is an important consideration as there are numerous important heritage sites throughout the area including site such as Sterkfontein, Swartkrans, Kromdraai within the Cradle of Humankind which was listed as a World Heritage Site in 1999. There are however no known sites occurring on the proposed development site.

In addition, the South African Heritage Resources Information System (SAHRIS) has instituted a PalaeoMap which indicates sites which may have palaeontological sensitivity. The proposed site occurs in an area which is zoned as 'insignificant' and thus no palaeontological study is required.

3.15.2 Implications

A Phase 1 Heritage Impact Assessment (HIA) will be conducted to determine whether any heritage occurs on site. This will be included in the EIA Report.

4 SCOPE OF PROPOSED PROJECT

4.1 Environmental Authorisation

An “Environmental Authorisation” means an authorisation granted by the competent authority of a listed activity in terms of Section 24 of the National Environmental Management Amendment Act, (Act No. 107 of 1998).

An application for Environmental Authorisation (EA) has been submitted to GDARD and the following reference number has been issued: **Gaut: 002/15-16/E0273.**

As activities under Listing Notice 1, 2 and 3 of the 2014 EIA Regulations are triggered, a Scoping and EIA process is being conducted. The process being followed is detailed in Figure 4-1 below.

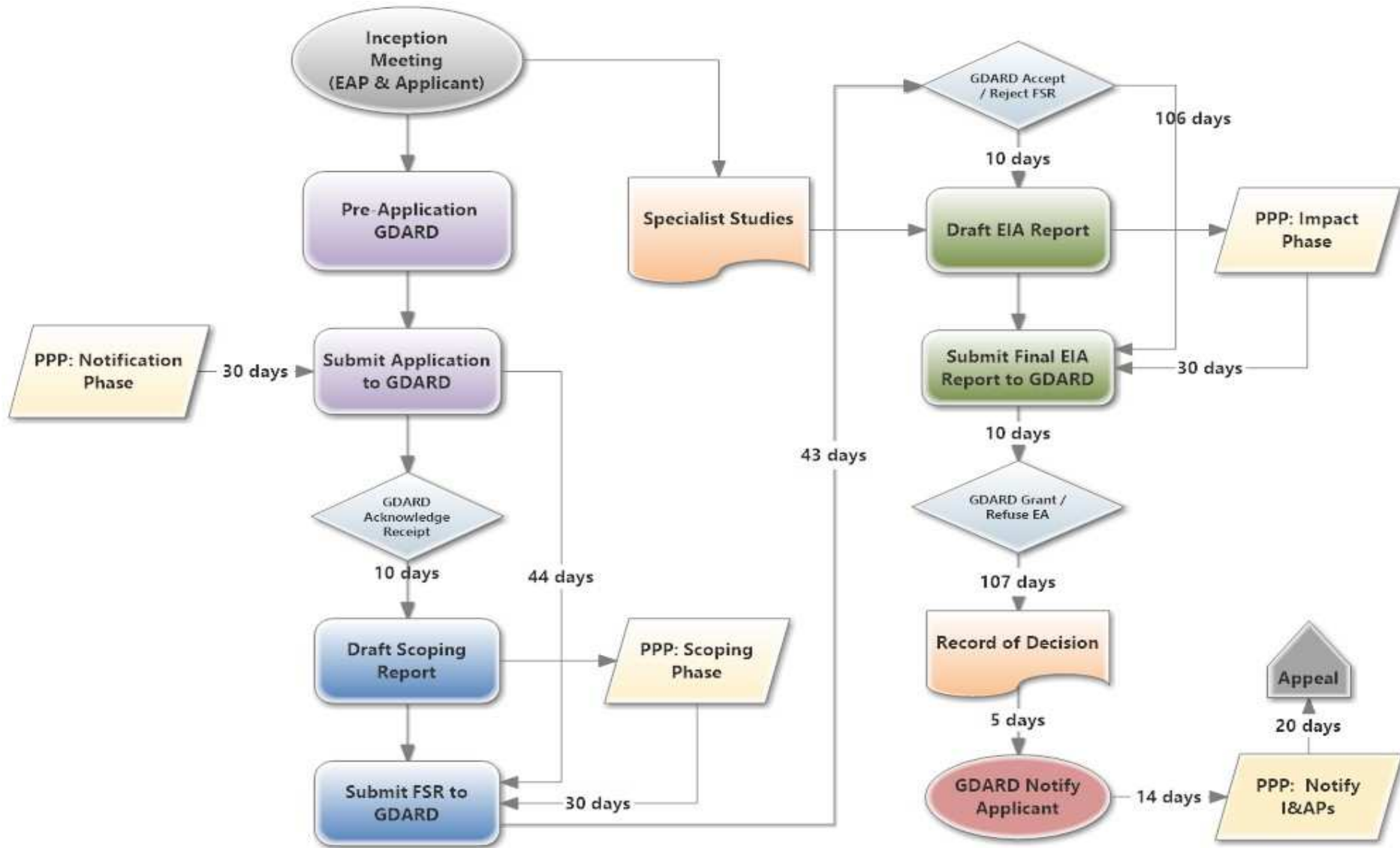


Figure 4-1: Proposed environmental authorisation process.

4.2 Listed Activities

In terms of the EIA Regulations and Listed Activities 2014 (introduced in Section 2.2.1), the activities that are triggered under the Listing Notices for this proposed development are provided in Table 4-1. Refer to Section 2 for a description and overview of the applicable legislative framework.

Table 4-1.: Description of the Listed Activities.

Listing Notice	Activity	Description of Listed Activity	Interpretation
<i>NEMA: Listing Notice 1 (require Basic Assessment)</i>			
GN R 983 4 December 2014	9 (i)	<i>The development of infrastructure exceeding 1000 metres in length for the bulk transportation of water or storm water-</i> <i>(i) with an internal diameter of 0,36 metres or more; or</i> <i>(ii) with a peak throughput of 120 litres per second or more;</i> <i>excluding where-</i> <i>(a) such infrastructure is for bulk transportation of water or storm water or storm water drainage inside a road reserve; or</i> <i>(b) where such development will occur within an urban area.</i>	The proposed development includes the development of stormwater pipes between 0.365m to 1.2m in diameter.
	11 (vii)	<i>The development of-</i> <i>(i) canals exceeding 100 square metres in size;</i> <i>(ii) channels exceeding 100 square metres in size;</i> <i>(iii) bridges exceeding 100 square metres in size;</i> <i>(iv) dams, where the dam, including infrastructure and water surface area, exceeds 100 square metres in size;</i> <i>(v) weirs, where the weir, including infrastructure and water surface area, exceeds 100 square metres in size;</i> <i>(vi) bulk storm water outlet structures exceeding 100 square metres in size;</i> <i>(vii) marinas exceeding 100 square metres in size;</i> <i>(viii) jetties exceeding 100 square metres in size;</i> <i>(ix) slipways exceeding 100 square metres in size;</i> <i>(x) buildings exceeding 100 square metres in size;</i> <i>xi) boardwalks exceeding 100 square metres in size; or</i> <i>(xii) infrastructure or structures with a physical footprint of 100 square metres or more;</i> <i>where such development occurs-</i> <i>(a) within a watercourse;</i>	The proposed development involves the development of infrastructure, buildings and stormwater outlet structures within 32m of a watercourse.

Listing Notice	Activity	Description of Listed Activity	Interpretation
		<p><i>(b) in front of a development setback; or</i> <i>(c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse; -</i> excluding- <i>(aa) the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour;</i> <i>(bb) where such development activities are related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies;</i> <i>(cc) activities listed in activity 14 in Listing Notice 2 of 2014 or activity 14 in Listing Notice 3 of 2014, in which case that activity applies;</i> <i>(dd) where such development occurs within an urban area; or</i> <i>(ee) where such development occurs within existing roads or road reserves.</i></p>	
	19 (i)	<p><i>The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 5 cubic metres from-</i> <i>(i) a watercourse;</i> <i>(ii) the seashore; or</i> <i>(iii) the littoral active zone, an estuary or a distance of 100 metres inland of the high-water mark of the sea or an estuary, whichever distance is the greater but excluding where such infilling, depositing, dredging, excavation, removal or moving-</i> <i>(a) will occur behind a development setback;</i> <i>(b) is for maintenance purposes undertaken in accordance with a maintenance management plan; or</i> <i>(c) falls within the ambit of activity 21 in this Notice, in</i></p>	<p>The proposed development involves construction within a watercourse and will thus involve excavation of more than 5 cubic metres from the watercourse as well as the infilling of more than 5 cubic metres of material into the watercourse.</p>

Listing Notice	Activity	Description of Listed Activity	Interpretation
		<i>which case that activity applies.</i>	
	24 (ii)	<i>The development of- (i) a road for which an environmental authorisation was obtained for the route determination in terms of activity 5 in Government Notice 387 of 2006 or activity 18 in Government Notice 545 of 2010; or (ii) a road with a reserve wider than 13,5 meters, or where no reserve exists where the road is wider than 8 metres; but excluding- (a) roads which are identified and included in activity 27 in Listing Notice 2 of 2014; or (b) roads where the entire road falls within an urban area.</i>	The proposed development involves the construction of internal roads which will be wider than 8 metres.
<i>NEMA: Listing Notice 2 (require Scoping and EIR)</i>			
GN R 984 4 December 2014	15	<i>The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for the undertaking of a linear activity; or maintenance purposes undertaken in accordance with a maintenance management plan.</i>	The proposed development involves the development of approximately 34 hectares of land.
<i>NEMA: Listing Notice 3 (require Basic Assessment)</i>			
GN R 985 4 December 2014	12 (a)	<i>The clearance of an area of 300m² or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. (a) In Eastern Cape, Free State, Gauteng, Limpopo, North West,, and Western Cape provinces. i. Within any critically endangered or endangered ecosystem listed in terms of Section 52 of NEMBA or prior to the publication of such list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment, 2004. ii. Within critical biodiversity areas identified in bioregional management plan. plans; iii. Within the littoral active zone or 100 metres inland from high water mark of the sea or an estuarine functional zone, whichever distance is the greater, excluding where such</i>	The proposed development involves the development of approximately 34 hectares of land. Part of the site falls within an ESA area.

Listing Notice	Activity	Description of Listed Activity	Interpretation
		<p><i>removal will occur behind the development setback line on erven in urban areas; or</i></p> <p><i>iv. On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning.</i></p>	
	14 (b)	<p><i>The development of-</i></p> <p><i>(i) canals exceeding 10 square metres in size;</i></p> <p><i>(ii) channels exceeding 10 square metres in size;</i></p> <p><i>(iii) bridges exceeding 10 square metres in size;</i></p> <p><i>(iv) dams, where the dam, including infrastructure and water surface area, exceeds 10 square metres in size;</i></p> <p><i>(v) weirs, where the weir, including infrastructure and water surface area, exceeds 10 square metres in size;</i></p> <p><i>(vi) bulk storm water outlet structures exceeding 10 square metres in size;</i></p> <p><i>(vii) marinas exceeding 10 square metres in size;</i></p> <p><i>(viii) jetties exceeding 10 square metres in size;</i></p> <p><i>(ix) slipways exceeding 10 square metres in size;</i></p> <p><i>(x) buildings exceeding 10 square metres in size;</i></p> <p><i>xi) boardwalks exceeding 10 square metres in size; or</i></p> <p><i>(xii) infrastructure or structures with a physical footprint of 10 square metres or more;</i></p> <p><i>where such development occurs-</i></p> <p><i>(a) within a watercourse;</i></p> <p><i>(b) in front of a development setback; or</i></p> <p><i>(c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse; -</i></p> <p><i>excluding-</i></p> <p><i>(aa) the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour;</i></p> <p><i>(b) In Gauteng</i></p> <p><i>i. A protected area identified in terms of NEMPAA excluding conservancies.</i></p>	<p>The proposed development involves the development of infrastructure, buildings and stormwater outlet structures within 32m of a watercourse that falls within an ESA area.</p>

Listing Notice	Activity	Description of Listed Activity	Interpretation
		<p><i>ii. National Protected Area Expansion Strategy Focus Areas;</i> <i>iii. Gauteng Protected Area Expansion Priority Areas;</i> <i>iv. Sites identified as Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs) in the Gauteng Conservation Plan or in bioregional plans; -</i> <i>v. Sites identified within threatened ecosystems listed in terms of the National Environmental Management Act: Biodiversity Act (Act No. 10 of 2004);</i> <i>vi. Sensitive areas identified in an environmental management framework adopted by relevant environmental authority;</i> <i>vii. Sites or areas identified in terms of an International Convention</i> <i>viii. Sites managed as protected areas by provincial authorities, or declared as nature reserves in terms of the Nature Conservation Ordinance (Ordinance 12 of 1983) or the National Environmental Management: Protected Areas Act (Act No. 57 of 2003);</i> <i>ix. Sites designated as nature reserves within municipal SDFs; or</i> <i>x. Sites zoned for conservation or public open space or equivalent zoning.</i></p>	

The above listed activities trigger both basic assessment **and** scoping and impact assessment reporting processes, therefore a consolidated assessment process is required to be undertaken where the more detailed/thorough impact assessment process is to be followed i.e. **Scoping and EIR**.

4.3 Description of Project Activities

The proposed development involves the development of recreational facilities related to the proposed Waterpark as well as associated services. An overview of the various facilities is provided in the subsections that follow.

4.3.1 Recreational facilities

A number of recreational waterpark facilities will be put in place including:

- A number of pools such as an Adult Swimming Pool, Baby Pool, Children’s Pool and Wave Pool; and
- Slides and Rides such as Aqua Loop, Speed Twister, Lazy River, Super Tube and Tornado Ride.

In addition, recreational areas such restaurants and cafés will also be included as part of the development.

4.3.2 Access and Parking

Proposed entry to the Waterpark will be provided from Lakeview Road with a one-directional dual lane internal road which will lead to the parking facilities. An exit road will be provided onto Valley Road (Figure 4-2).

A Traffic Impact Assessment has been undertaken and in line with the requirements of the report, road upgrades and rehabilitation will also be undertaken as follows:

- Intersection of Beyers Naude Drive and Valley Road
- Signalisation of the intersection
- A 30m slip lane (yield) on the north approach
- An additional dedicated right turn lane (60m) on the south approach
- A shared slip lane (yield) and through lane (30m) on the east approach
- An additional receiving lane (30m) on the east leg of the intersection
- Valley Road upgrades: Rehabilitate and widen Valley Road.
- Lakeview Road upgrades: Rehabilitate and widen Lakeview Road.

An overview of the road upgrades required as part of the development is included in Figure 4-3 below.

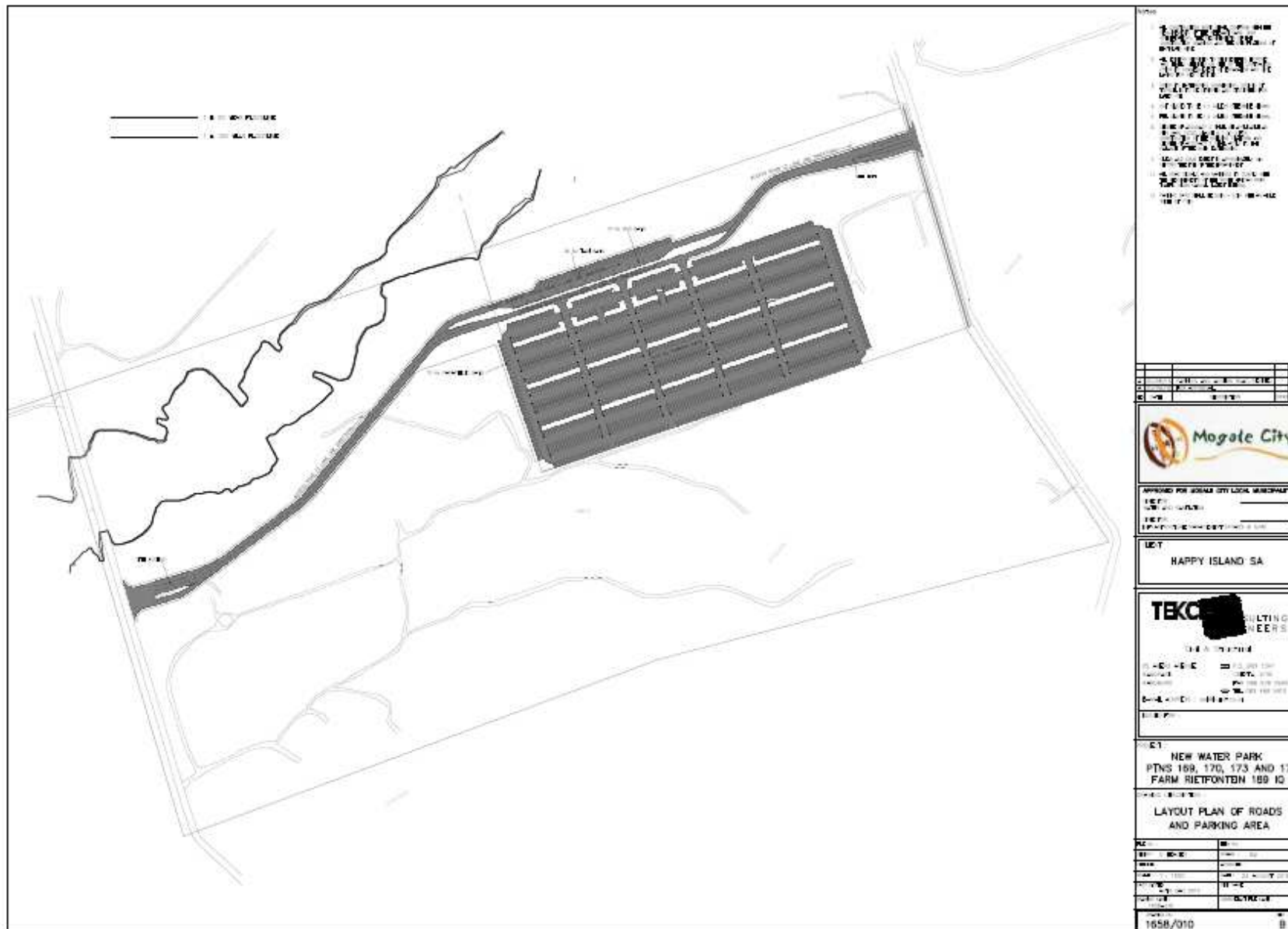


Figure 4-2: Internal entry and exit roads and parking

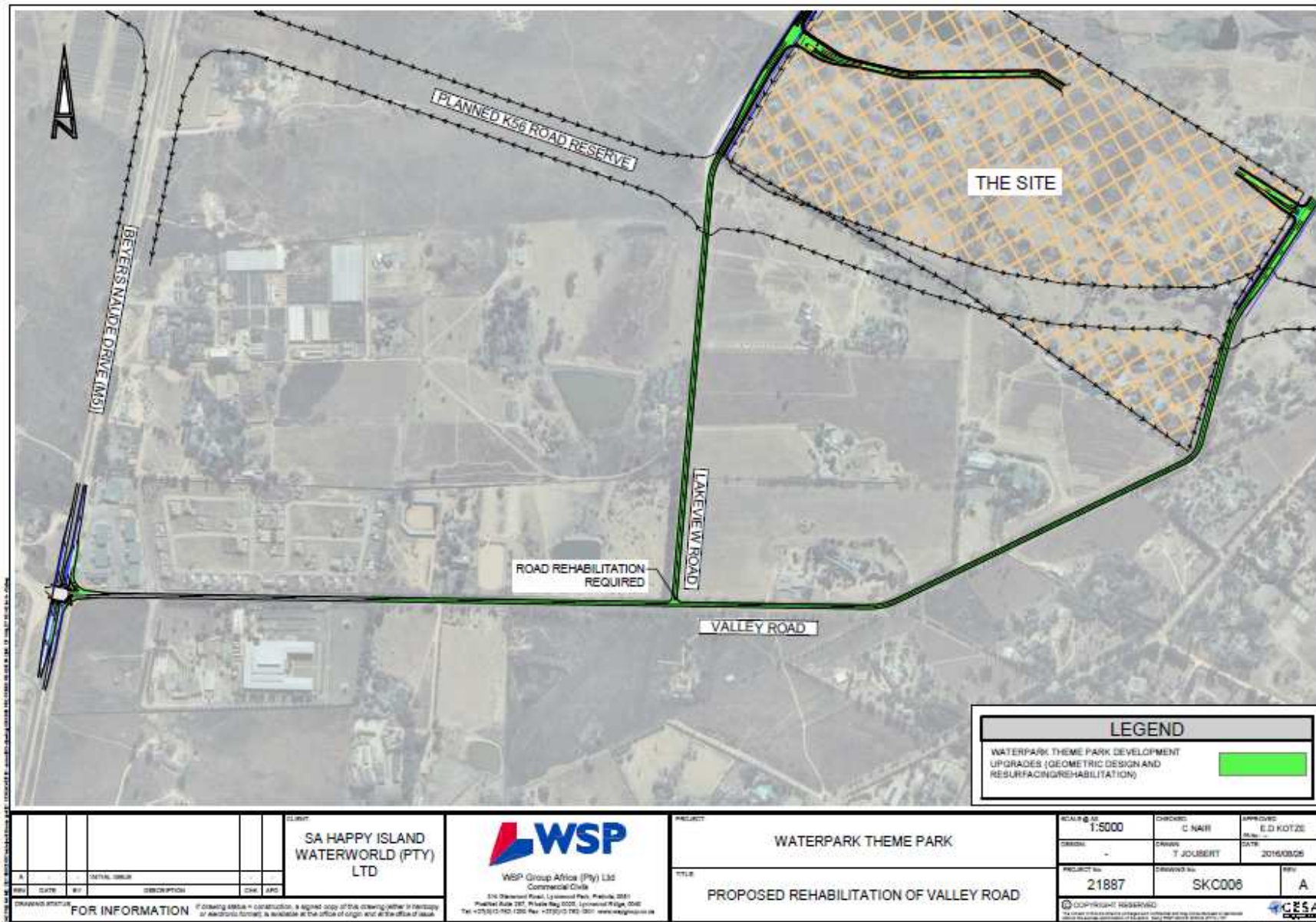


Figure 4-3: Proposed road rehabilitation and upgrades

4.3.3 Water

Water demand was based on the sewerage flow discharge obtained from the United States of America for recreational parks. The value for sewerage was increased by 20% to obtain water demand. Based on this, the combined water demand was calculated as 79 2000 litres per day for the high season and 38 200 litres per day for the low season. The peak flow was therefore estimated as 3.67 litres per second for the high season and 1.77 litres per second for the low season.

Water will be sourced from municipal sources and will be supplemented by existing boreholes on site. A standard bulk water connection will be provided from the existing 110mm diameter watermain in Valley road. This water will be used to provide potable water to the development and will service the office buildings, reception areas, change rooms and restaurants. It will also provide water for the fire flow.

A number of storage tanks will be included on site to provide approximately 26 400 litres of water for emergency use. In addition, rainwater harvesting is also planned: during periods of rainfall, rainwater will be harvested and stored in tanks and the existing large dams on site. The water will then be abstracted from the dam, treated and recycled for the purpose of augmenting the water supply to water activities and features. Brown and grey water from the development will also be reused and will gravitate to the proposed sewerage package plant where it will be treated to meet the required DWS specifications for safe discharge. This water will be used for irrigation of the landscaped areas.

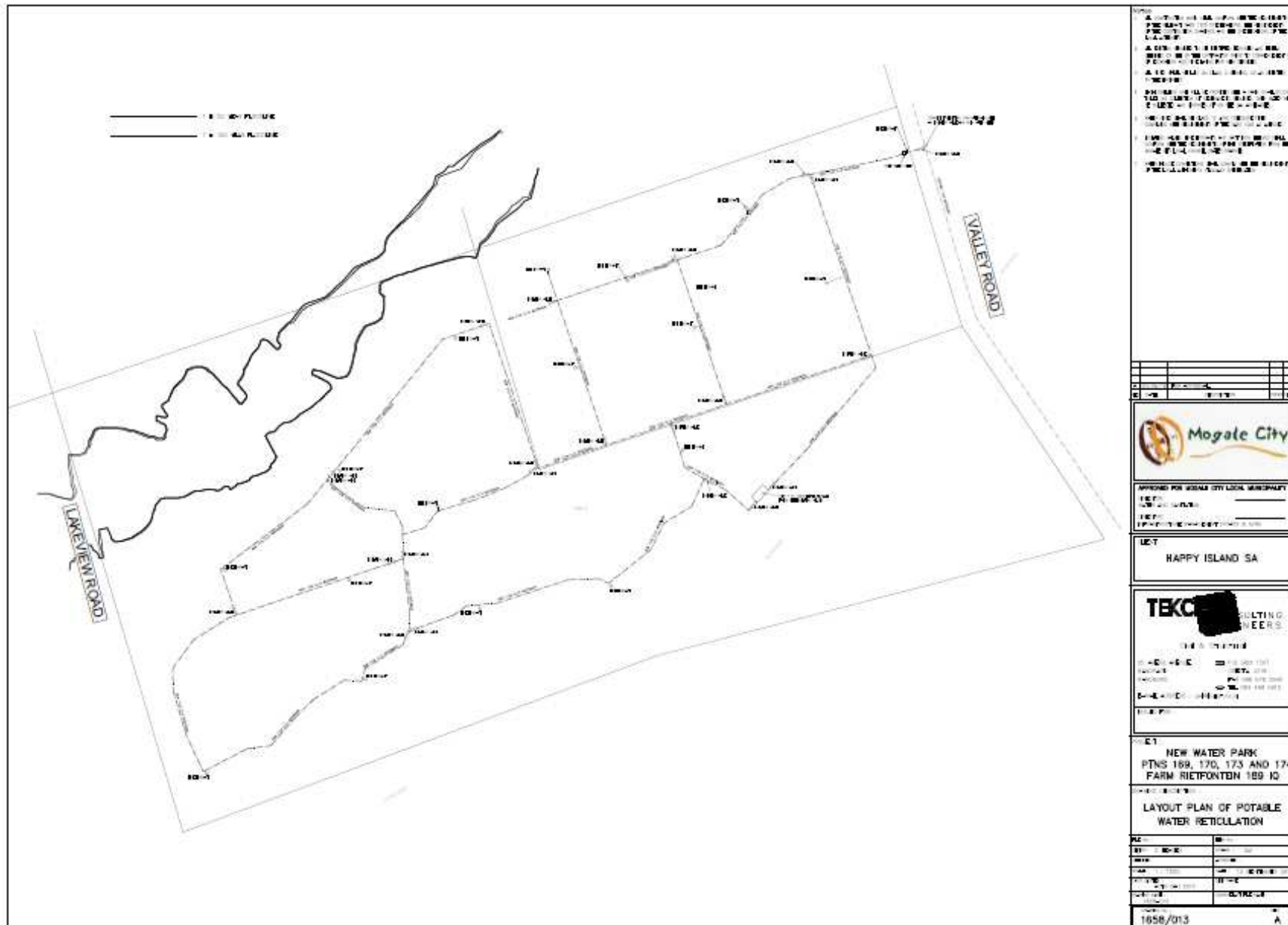


Figure 4-4: Proposed Water Reticulation

4.3.4 Sewer

The sewerage flow discharge was estimated based on the sewerage flow discharge obtained United States of America for recreational parks and was calculated as 66 000 litres per day for the high season and 31 850 litres per day for the low season. The peak design flow was therefore calculated as 1.32 litres per second in the high season and 0.64 litres per second in the low season.

Based on this, the sewer reticulation will consist of 110 mm diameter and 160 mm diameter uPVC Class 34 Heavy Duty Solid wall piping with a mix of precast concrete manholes and rodding eyes.

Sewer will gravitate down to the sewer treatment plant where the sewerage will be treated for irrigation purposes.

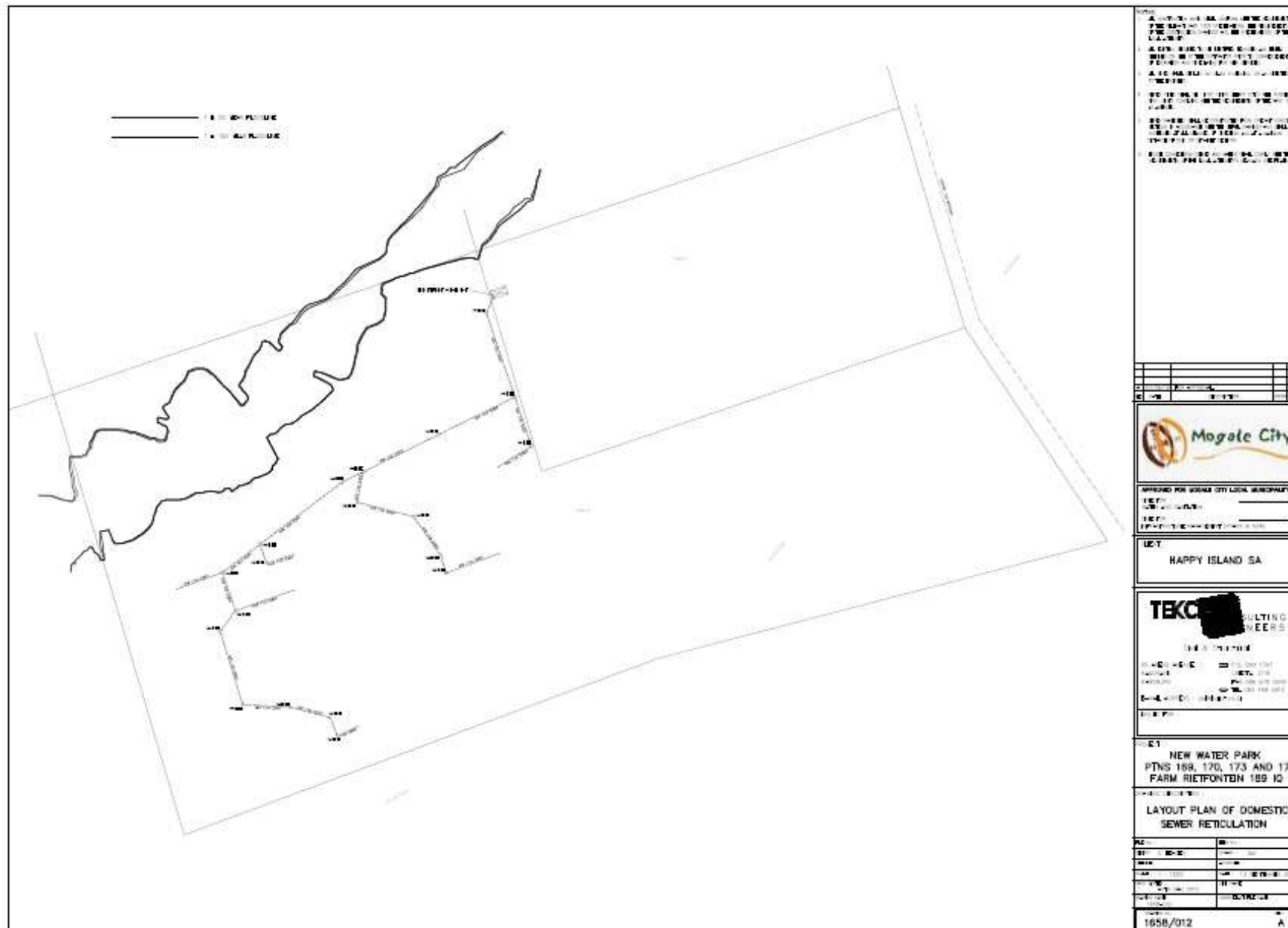


Figure 4-5: Proposed sewerage reticulation

4.3.5 Stormwater

Stormwater was designed based on a 2-year interval for minor storms and a 100-year interval for major storms and consists of surface runoff draining into drainage channels sited so that surface water is directed away from the water activities and facilities and conveyed instead down to the field inlets and grid inlets and into the stormwater pipe system.

Stormwater from hardstanding areas will be collected by kerb inlets and into the stormwater pipe system. The pipe system will convey water down to the attenuation pond. Minor flow will flow directly through the attenuation pond to the outlet structure and then connect via a 1200mm diameter pipe to the natural watercourse. The stormwater will not exceed the pre-development runoff. The major flow will be attenuated in an attenuation pond of 7000 litres.

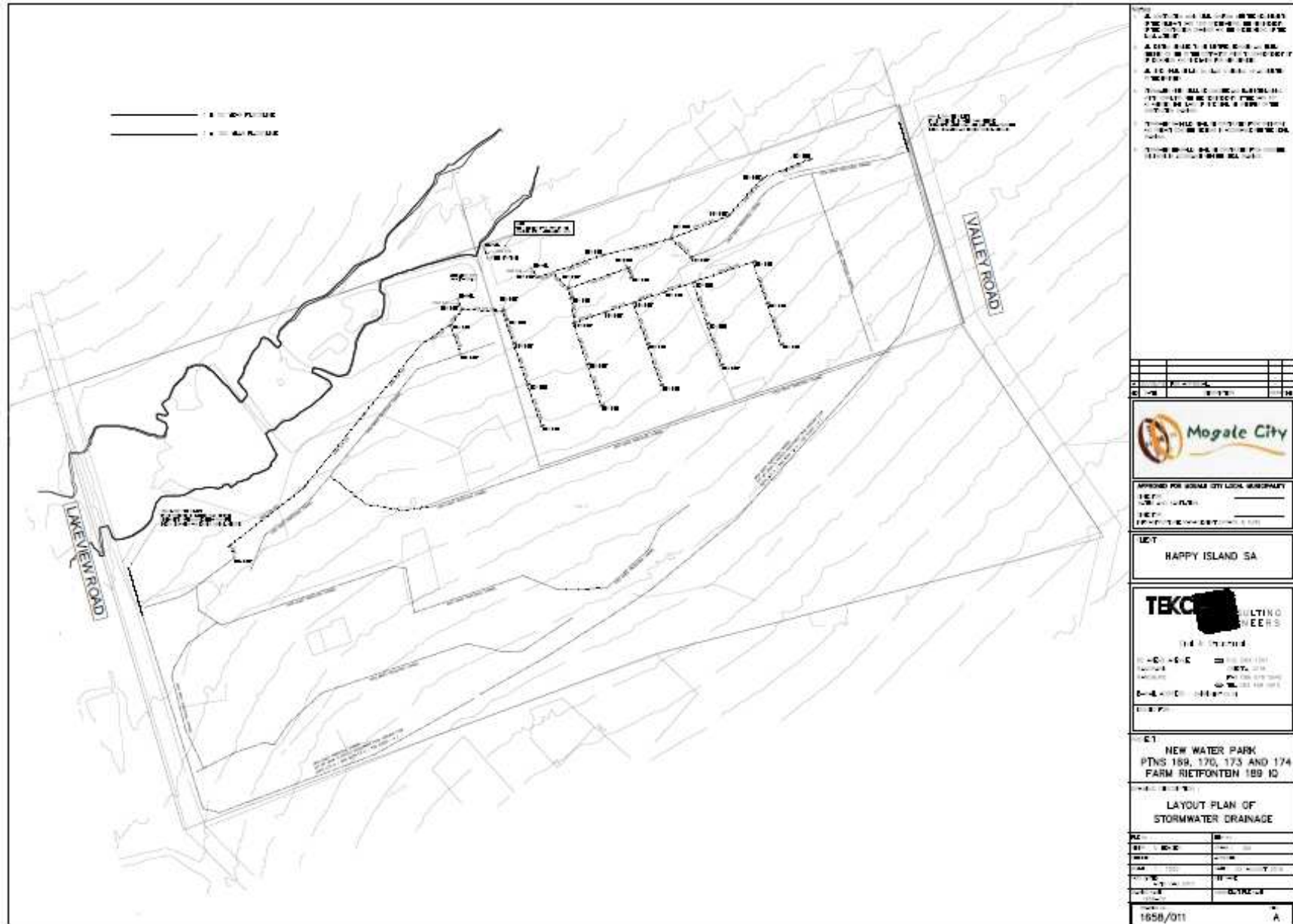


Figure 4-6: Proposed Stormwater

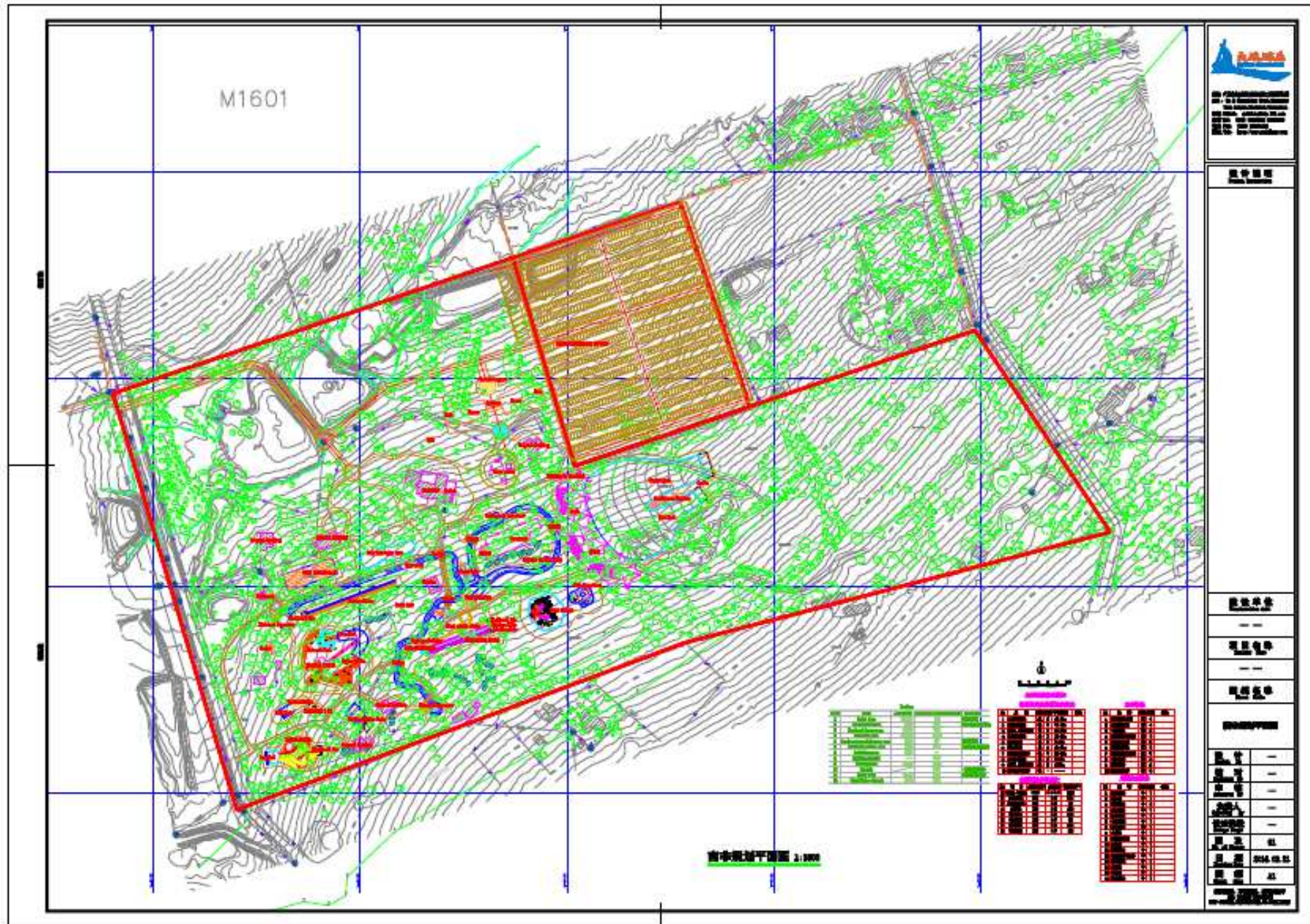


Figure 4-7: Proposed layout of the development

4.3.6 Timeframes

The proposed development will be constructed according to the following preliminary timeframes, see Table 4-2:.

Table 4-2: Operational hours for construction phases.

Period	Open	Close
Weekdays	07:00	18:00
Saturdays	07:00	15:00
Sunday	Only when required	
Public holidays	Only when required	

4.3.7 Ancillary Infrastructure Required For Construction

No major infrastructure is required on site for the construction of the development. The required ancillary infrastructure for the purposes of supporting services is discussed below.

4.3.7.1 Security

A construction camp will be erected on site for the duration of the construction. This camp will be fenced for security purposes. A security guard will also be posted on site during non-operational times. A wall will be erected around the property boundary as part of the development project.

4.3.7.2 Sanitation

During the construction phase of the project, chemical toilets will be placed on site for the duration of the construction phase.

4.3.7.3 Construction Camp and Laydown Areas

Designated areas will be established during the construction phase for construction equipment and vehicles. This area will be outside all sensitive areas (delineated wetlands etc.).

4.4 Project Life-Cycle

To adequately consider the impacts associated with the proposed Waterpark development, the major activities during each phase of the project life-cycle are listed below:

- Feasibility Studies
 - Technical, economic and environmental screening of alternatives;
 - Development of Outline Scheme Report;
 - Geotechnical Assessment; and
 - Environmental Authorization and WULA process.
- Pre-construction Phase
 - Detailed layouts and services designs;
 - Procurement process for Contractors;

- VISA process for skilled workers from China; and
- Procurement of other necessary materials.
- Construction Phase
 - Appointments and site camp set up:
 - Appoint Environmental Control Officer;
 - Set up site camp with temporary offices and administrative facilities;
 - Set up ablutions;
 - Set up access control, security; signage and lighting;
 - General materials storage and laydown areas
 - Construction employment;
 - Change-houses, chemical toilets and showering facilities (linked to conservancy tanks – removal of contents by exhauster vehicle and disposal at permitted facility); and
 - Temporary waste storage areas; these shall be established and managed in accordance with EMPr requirements to be developed in the EIA phase.
 - Sourcing of construction materials and equipment:
 - All bulk materials (aggregate, cement, steel etc.) will be sourced from existing lawful commercial sources; there will be no direct mining, harvesting or extraction of natural resources.
 - Excavation and earthworks
 - Removal of existing surfacing material where necessary (concrete, asphalt etc.) which could involve excavation below ground level;
 - Levelling and compaction using heavy machinery / earthmoving equipment.
 - Potential for excavations and trenching in order to lay of below ground level equipment (cables, pipes, sumps, drainage etc.);
 - Construction work within the existing dams;
 - Potential for excavation dewatering in the event of water-table interception;
 - Use of general mechanical equipment within construction areas (generators, cutting and welding equipment, compressors etc.).
- Operation Phase:
 - Operation of service facilities;
 - Maintenance of infrastructure;
 - Recreational use of Waterpark by Visitors.
- Decommissioning Phase
 - Decommissioning of the Waterpark and associated services is not envisioned. However, should decommissioning be required the activity will need to comply with the appropriate environmental legislation and best practices at that time.

5 MOTIVATION FOR NEED AND DESIRABILITY

In terms of Section 2 (f) of Appendix 2 of GN 921 of 4 December 2014, this section discusses the need and desirability of the project. The format contained in the Guideline on Need and Desirability (DEA&DP, 2009) has been used in Table 5-1.

However, in summary, there is a need for active recreation facilities in Gauteng. In addition, the proposed development is in line with the MCLM Tourism Strategy Development Plan (DIT 500, 2013) which identified the concept of a unique theme park, with a water feature similar to Valley of Waves as an opportunity to increase tourism in the area.

The location of the application site ensures that it can be considered accessible presently and in the future. It is very accessible from Road 374 [K31] whilst the future Road K56 will assist to provide additional access to the development in the future. This road should have access to the local areas every 600 m.

In terms of the “Precinct Plan For The Muldersdrift Development Zone, 2011” the properties are located in a “High Density Residential Development Zone” where high density residential, limited retail and social and community facilities are preferred. However, urban support facilities and uses related to the hospitality and tourism industry will also be supported in this development zone. This implies that the proposed development is in line with the development proposals for the area and can be supported. Also, work opportunities are urgently required for the population that is growing fast in the nearby areas in Mogale City and the region.

In terms of the desirability of the development on the proposed site, the following can be noted:

- The development will be situated on the periphery of the urban development in the area on a site that is large enough to be developed for the proposed water park.
- The proposed development is in line with the “Precinct Plan” for the area.
- The site to be developed already contains several houses, buildings, and facilities of which most will be retained. It will be utilized for purposes directly related to the water park.
- Trees have been planted over the whole of the site giving it a special character and the trees will be retained as far as possible.
- The wooded character of the site screens it from outside view and will also screen the proposed development.
- The required infrastructure already serves the existing development on the properties and can be utilized in the further development which will be “green” as far as possible.
- The site can be accessed from 2 sides and a collector road connects it to Beyers Naude Drive. It is therefore, accessible from its service area.
- The proposed water park will provide work opportunities to persons living in the area.
- The development will be based on existing examples overseas which are successful. Standards will be adapted to conform to local Municipal standards.

- It is expected that the development will broaden the tourism basis in the area and many other facilities may be stimulated by the development.
- The development will be undertaken under the control and supervision of a professional team ensuring that all the applicable standards will be met.
- The area lacks a facility for active recreation for the surrounding residential areas in Mogale City and the other Municipalities.

Table 5-1: Need and Desirability

No.	Question	Response
NEED ('timing')		
1.	Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved Spatial Development Framework (SDF) agreed to by the relevant environmental authority? (i.e. is the proposed development in line with the projects and programmes identified as priorities within the IDP).	Yes, the proposed aims to increase tourism in the area which is in line with the 2016 – 2021 MCLM IDP. It also falls within the urban development zone in the MCLM SDF. As mentioned above, in terms of the "Precinct Plan For The Muldersdrift Development Zone, 2011" the properties are located in a "High Density Residential Development Zone" where high density residential, limited retail and social and community facilities are preferred. However, urban support facilities and uses related to the hospitality and tourism industry will also be supported in this development zone. This implies that the proposed development is in line with the development proposals for the area and can be supported.
2.	Should development, or if applicable, expansion of the town/area concerned in terms of this land use (associated with the activity being applied for) occur here at this point in time?	Yes, the proposed development aims to provide recreational facilities in the area. It will also result in substantial investment in the area which will have economic benefits in the area. It will also provide a number of employment opportunities which are required in the area.
3.	Does the community/area need the activity and the associated land use concerned (is it a societal priority)? This refers to the strategic as well as local level (e.g. development is a national priority, but within a specific local context it could be inappropriate)	Yes, tourism development is a focus in the MCLM IDP. Further, the MCLM Tourism Strategy Development Plan (DIT 500, 2013) identified the concept of a unique theme park, with a water feature similar to Valley of Waves as an opportunity to increase tourism in the area. In addition, tourism is a national priority and contributes significantly to economic development. The national tourism sector strategy provides a

No.	Question	Response
		blueprint for the sector to meet the growth targets contained in the new growth path.
4.	Are the necessary services with appropriate capacity currently available (at the time of application), or must additional capacity be created to cater for the development?	A Outline Scheme Report has been compiled and has informed the proposed development. Where necessary services infrastructure will be put in place and will link to existing municipal services. A sewerage package plant will be put in place to deal with sewerage and to treat grey and brown water for reuse. Letters from MCLM confirming availability of services will be included in the EIA Report.
5.	Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of services)?	The proposed development is not planned for by the MCLM but is in line with their initiatives. A Outline Scheme Report has been compiled and has informed the proposed development. Where necessary services infrastructure will be put in place and will link to existing municipal services. A sewerage package plant will be put in place to deal with sewerage and to treat grey and brown water for reuse. Letters from MCLM confirming availability of services will be included in the EIA Report.
6.	Is this project part of a national programme to address an issue of national concern or importance?	The proposed development is not part of a national plan however as mentioned above, the proposed development is in line with local, provincial and national strategies to increase tourism development in the country.
DESIRABILITY ('placing')		
7.	Is the development the best practicable environmental option (BPEO) for this land/site?	The BPEO will only be determined following a comparative analysis of the feasible alternatives during the EIA Phase.
8.	Would the approval of this application compromise the integrity of the existing approved municipal IDP and Spatial Development Framework (SDF) as agreed to by the relevant authorities?	No, it is not anticipated that the proposed project will contradict or be in conflict with the municipal IDPs and SDFs as in both documents, as the proposed site occurs within the urban development zone. In addition, the proposed aims to increase tourism in the area which is in line with the 2016 – 2021 MCLM IDP. In terms of the "Precinct Plan For The Muldersdrift Development Zone, 2011" the properties are located in a "High Density Residential Development Zone"

No.	Question	Response
		<p>where high density residential, limited retail and social and community facilities are preferred. However, urban support facilities and uses related to the hospitality and tourism industry will also be supported in this development zone. This implies that the proposed development is in line with the development proposals for the area and can be supported.</p>
9.	<p>Would the approval of this application compromise the integrity of the existing environmental management priorities for the area (e.g. as defined in EMFs), and if so, can it be justified in terms of sustainability considerations?</p>	<p>The impacts of the proposed activity will be assessed in the EIA Phase however; an ESA area does occur over part of the site. This is being taken into account and the wetland delineation and floodlines have informed the proposed development layout.</p> <p>In terms of the GPEMF, the site occurs in Zone 1 and 2 and would thus not compromise the integrity of the EMF.</p>
10.	<p>Do location factors favour this land use (associated with the activity applied for) at this place? (this relates to the contextualisation of the proposed land use on this site within its broader context).</p>	<p>Yes, the proposed development is easily accessible. It will be situated on the periphery of the urban development in the area on a site that is large enough to be developed for the proposed water park. Furthermore, the development is in line with the "Precinct Plan" for the area and the proposed site already contains several houses, buildings, and facilities of which most will be retained. It will be utilized for purposes directly related to the water park.</p>
11.	<p>How will the activity or the land use associated with the activity applied for, impact on sensitive natural and cultural areas (built and rural/natural environment)?</p>	<p>The impact of the proposed activity on sensitive features such as a whole will be assessed in detail in the EIA Phase.</p> <p>For a desktop assessment, see compilation of significant environmental issues associated with the proposed development in Section 8.</p>
12.	<p>How will the development impact on people's health and wellbeing (e.g. i.t.o. noise, odours, visual character and sense of place, etc)?</p>	<p>This will be assessed in more detail during the EIA Phase.</p> <p>For a desktop assessment, see compilation of significant environmental issues associated with the proposed development in Section 8.</p>

No.	Question	Response
13	Will the proposed activity or the land use associated with the activity applied for, result in unacceptable opportunity costs?	The impact of the proposed activity will be assessed in detail in the EIA Phase. For a desktop assessment, see compilation of significant environmental issues associated with the proposed development in Section 8.
14	Will the proposed land use result in unacceptable cumulative impacts?	Cumulative impacts, as considered in Section 8 will be evaluated in the EIA Phase

6 PROCESS FOLLOWED TO REACH THE PROPOSED PREFERRED ACTIVITY, SITE AND LOCATION WITHIN SITE

6.1 Nature of the Activities

The nature of the activities to be undertaken is to permanently transform the property to a Waterpark. The development will consist of private roads, parking, recreational waterpark infrastructure, restaurants, offices and services. The project is designed to co-exist along the proposed K56 road development, planned to be constructed through the existing site.

6.2 Alternatives

According to the 2014 EIA Regulations, alternatives are defined as:

“Different means of meeting the general purpose and requirements of the activity, which may include alternatives to the-

(a) property on which or location where the activity is proposed to be undertaken;

(b) type of activity to be undertaken;

(c) design or layout of the activity;

(d) technology to be used in the activity; or

(e) operational aspects of the activity;

and includes the option of not implementing the activity”

In line with the Regulations, a number of alternatives have been assessed for the proposed development. These include:

- Layout alternatives;
- Technology Alternatives; and
- The No -Go Option.

More information on each of these alternatives is provided below.

6.2.1 Layout Alternatives

Two layout alternatives have been developed. The first of these focused only on the development of Portion 170, 173 and 174 of Farm Riefffontein 189 IQ and included parking on and along the watercourses to the north of the properties (Figure 6-1).

With this alternative, access to the site is through the existing watercourse and the entrance facilities are in close proximity to the watercourse.

Layout Alternative 2 in contrast included the development of Portion 169 in addition to Portion 170, 173 and 174 of Farm Riefffontein 189 IQ.

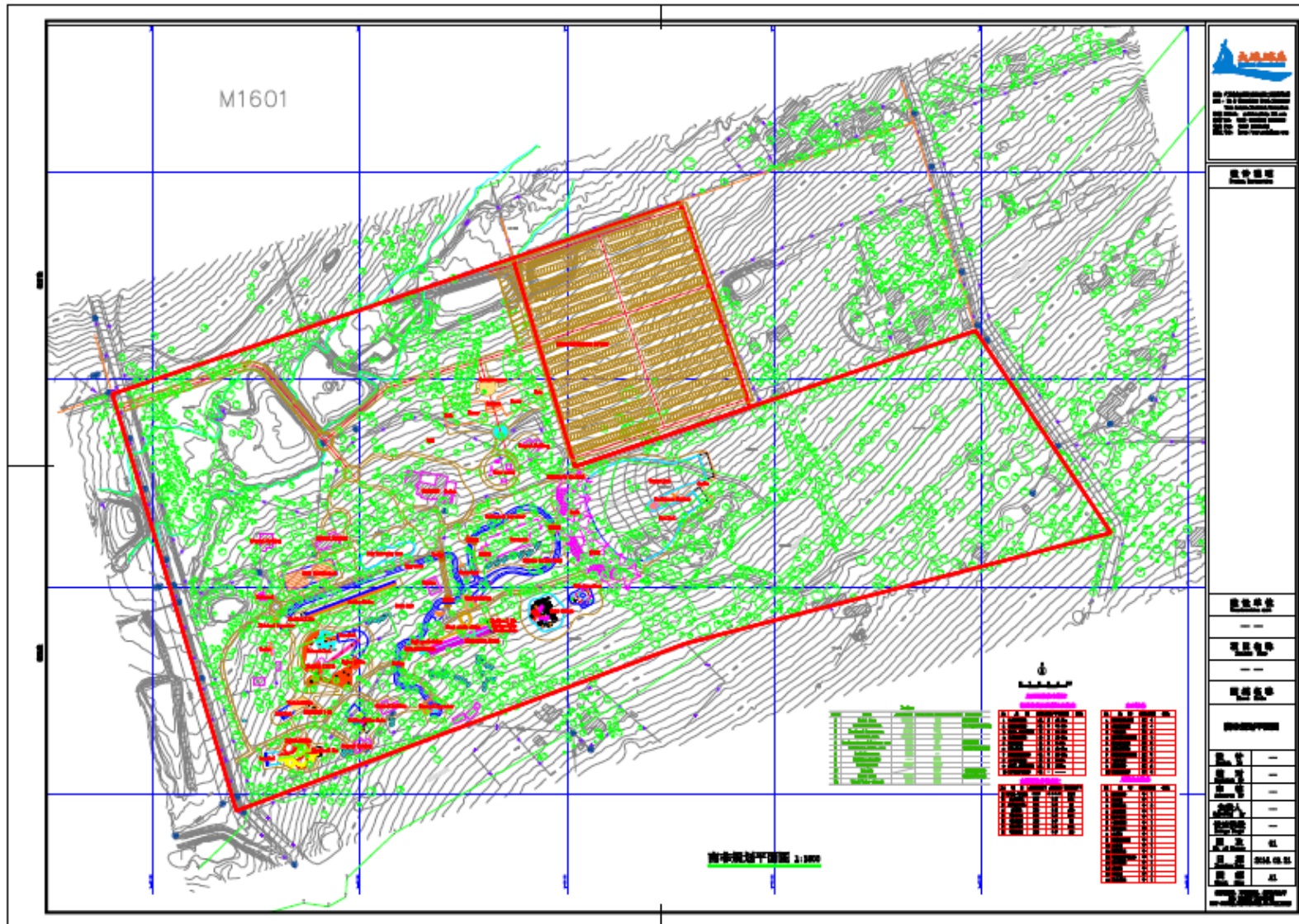


Figure 6-2: Layout Alternative 2

In this alternative, a parking area will be developed on Portion 169 leaving the existing dams and watercourse along the north of the properties intact as shown in Figure 6-2. In addition, with layout alternative 2, there is a dedicated entry and exist road for improved safety.

6.2.2 Technology Alternatives

As mentioned, a sewerage package plant is required on site to treat wastewater to acceptable levels for irrigation of the landscaped areas. Two potential alternatives are being assessed:

- MBBR Maxi SewaPak; and
- AM Biorotor BR4000.

Treatment Alternative 1 consists of the MBBR Maxi SewaPak. With this option, sewage is fed into the container from a constructed equalization tank, with Pre Screen area. From the equalization tank area, the sewage is pumped to the treatment plant.

The Maxi Plant consists of the following units:

- Two moving bed bioreactors in series where a sludge return pump feeds a small quantity of sludge back to the first reactor tank on a periodic basis. The reactor is filled with a large surface area plastic bio-media and has an overflow screen at the upper liquid level and into the second reactor.
- A clarifier - The inclined plate clarifier receives effluent from the second bioreactor and separates the sludge from the clear water. The sludge accumulates at the bottom of the inner cone and the clear water flows over the launder channel and out to a relay tank. The clarifier is drained via a valve at the base, and pumped via solids separation cyclone on a timer basis to an outside sludge tank on a preset time basis.
- An optional sterilising system using chlorine kills any bacteria in the effluent as it passes through on the discharge pipe. Ultra Violet sterilisation is also available.
- Normally the settled water is then filtered through a tertiary filtration process for further quality improvement. This is an option and is subject to the client's requirements.

Treatment Alternative 2 is the AM Biorotor BR4000. With this option, the effluent will flow to a Balance Tank (or equalisation tank) as the peak flow is too high to go directly to a treatment plant. The Balance Tank can either be constructed as part of the AM BIOROTOR or can be a separate unit that can be buried. The Balance/ Septic Tank is fitted with duty and standby submersible pumps. The effluent will be pumped into a single BR4000 Blivet all-in-one package sewage treatment plant/s. From the Blivet the treated effluent is disinfected in a flow proportional chlorinator and then flows through a 30minute contact tank. It can then be discharged for irrigation or to a storage tank. If in future, there is an increase in the loads then one or more additional units can be installed in parallel (Figure 6-3).

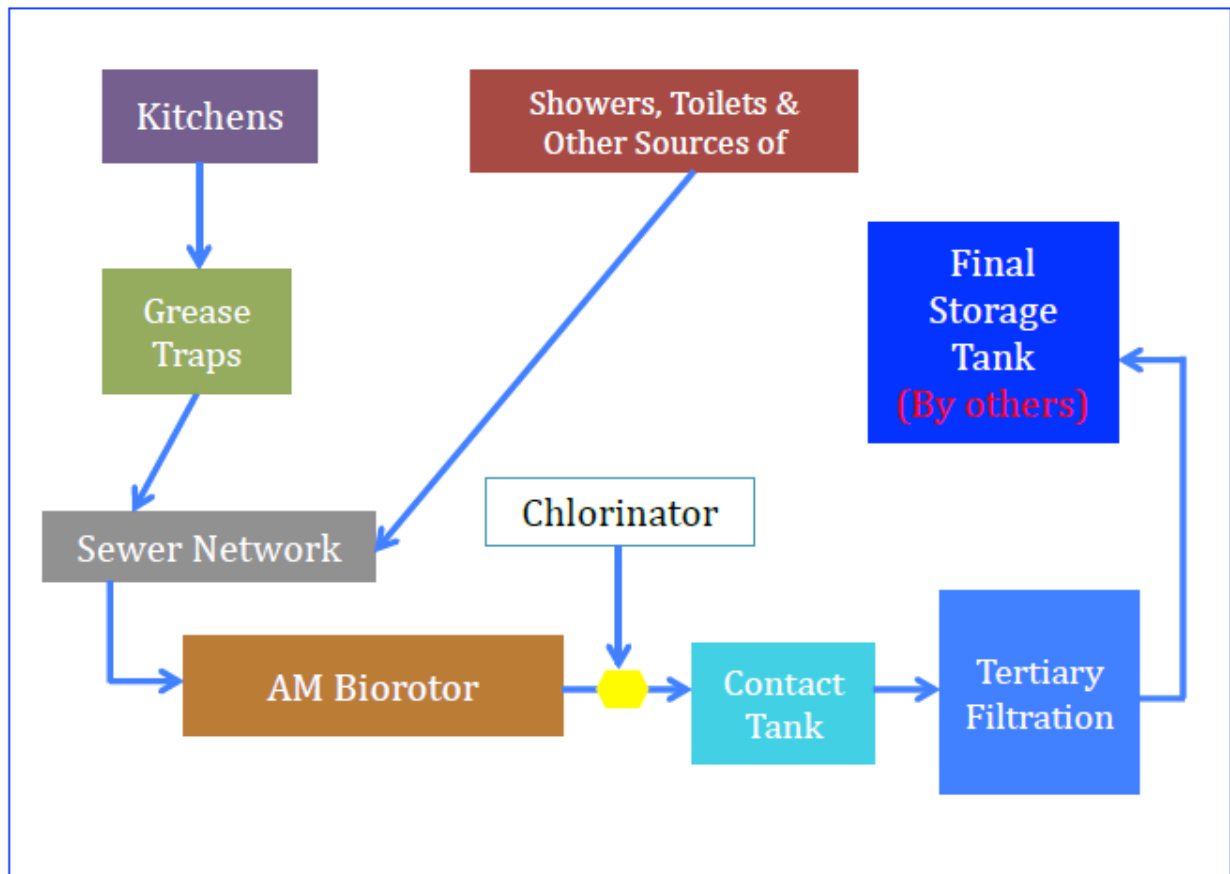


Figure 6-3: AM Biorotor BR4000 process

The AM BIOROTOR BR4000 is made up of the following units:

- Tertiary Filtration plant;
- Chlorinator;
- Chlorine contact tank (2.5 m³); and
- Grease Traps AM OG50.

6.2.3 No-go Option

As standard practice and to satisfy regulatory requirements, the option of not proceeding with the project is included in the evaluation of the alternatives.

The main implication of the No Go Option is that should the development not proceed, there will be a loss of the economic benefits of the investment of approximately R340 million in the area. There will also be a loss of the 400 construction related employment opportunities and 550 operation related employment opportunities.

6.3 Environmental Attributes and Sensitivity Map

A preliminary assessment was undertaken using the C-Plan and rivers, wetlands and vegetation data sources and is indicated in Figure 6-4. These environmental attributes have been considered in the scoping phase to ascertain areas where further investigation is required prior to confirming a final site layout:

- Rivers and Wetlands: a watercourse and dams occurs along the northern boundary of the site.
- Ecological sensitive areas including potential sensitive fauna and flora.
- Heritage and Cultural aspects.
- Vegetation Map

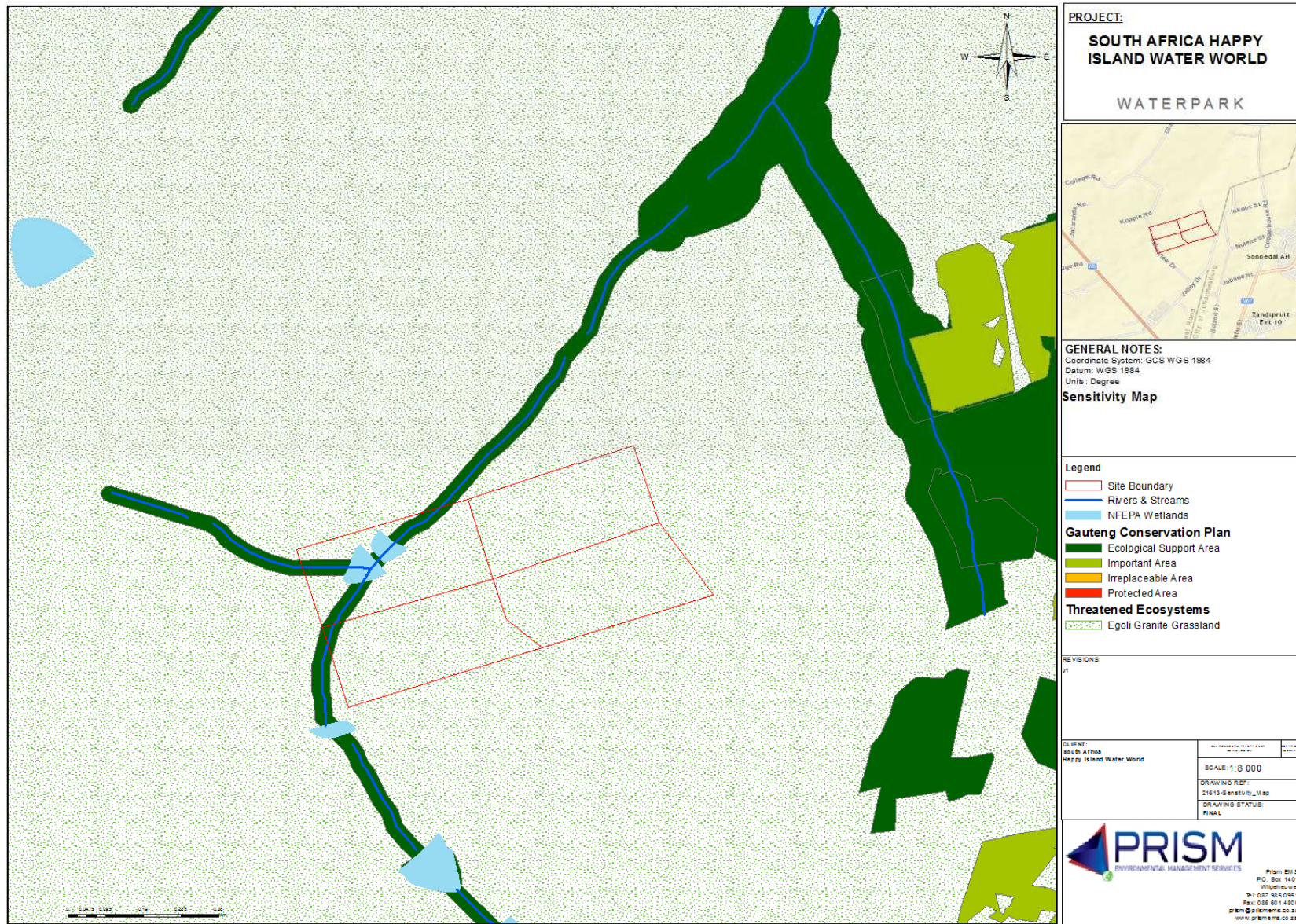


Figure 6-4: Preliminary assessment of environmental sensitivities within and surrounding the site. .

7 PUBLIC PARTICIPATION PROCESS

7.1 Objectives and Purpose of Public Participation

The purpose of the public participation process is to provide information regarding the proposed project to any potentially interested and/or affected person for use and consideration throughout the environmental assessment process. The information usually involves a combination of the technical project scope, environmental attributes and sensitives, cultural and heritage aspects as well as socio-economic factors that may be potentially beneficial or problematic to various role players.

The dissemination of such information is intended to assist the public with understanding how the proposed project and/or development may impact them and the environment in either a positive and/or negative manner, and especially where impacts are determined or perceived as significantly high, how such impacts may be influenced by project changes (layout or design aspects) or management measures may be implemented to reduce or minimise the significance of any identified impacts.

As a registered I&AP, members of the public of any affiliation are awarded the opportunity to remain informed of the steps, actions and decisions made within the environmental impact assessment process and are able to actively participate by reviewing all information provided by the EAP to the I&AP's in a reasonable period in order to provide comments, objections, suggestions or any other information that will assist the project to develop in a favourable for all manner or contribute to the competent authority's knowledge in order to make an informed decision on the application for environmental authorisation.

7.2 Notification Phase of Public Participation

The public participation process commenced with identifying and notifying all potential Interested and Affected Parties (I&AP's). Background information documents and comment forms were provided as a basic source of information or notices were viewed and potential interested and/or affected members of the public were invited to register as I&AP's for the remainder of the Scoping and Environmental Impact Reporting phases of the process (refer to Section 7.3 and Section 7.4). All public participation was conducted in English as it is the first language of 50% of the surrounding communities according to Stats South Africa.

7.2.1 Identified I&AP's

The following potential I&AP's were identified:

- Department of Water and Sanitation;
- MCLM: Environmental Planning and Coordination;
- MCLM: Department of Infrastructure;
- MCLM: Department of Planning;
- MCLM: Department of Roads and Transport;
- Ward Councillor 23 and 33;
- GDARD;

- Surrounding Landowners / Occupiers:
- Surrounding businesses.

Refer to Section 10.2 for a detailed list of the interested and/or affected members of the public that were notified and/or subsequently registered as an I&AP.

7.2.2 Newspaper Notice

A notice was published in the following newspaper on the specified dates:

- **Local:** The Cosmo City Chronicle, published on the 12th April 2016.



Figure 7-1: Cosmo City Chronicle Distribution range

Refer to Section 10.3 for proof of the newspaper notices.

7.2.3 Site Notice

Three site notices were placed around the proposed development site at the following locations:

- Outside of Portion 169 of Farm Rietfontein 189 IQ;
- Outside of Portion 173 of Farm Rietfontein 189 IQ; and
- Outside of Portion 174 of Farm Rietfontein 189 IQ.

Refer to Section 10.4 for proof of the notices placed on site.

7.2.4 Written Notifications

The surrounding landowners and/or occupiers and organs of state (listed in Section 10.2) were notified in writing via email or hand delivery and were issued with a copy of the Background Information Document (BID) to provide further information on the project.

Refer to Section 10.5 and 10.6 for proof of the Written Notifications and hand delivery of BIDs.

7.2.5 Comments Raised by I&AP's

To date the comments received are summarised in the Comments and Response table attached in Section 10.7.

7.3 Scoping Phase Comment Period

The Scoping Report (this report) will be available for comment to all registered interested and affected parties and relevant organs of state for a period of 30 days:

- **27 September 2016 to 27 October 2016**

All registered I&AP's where notified via email and where provided with a downloadable link to the DSR. Proof of notification of registered I&APs will be include in the Final Scoping Report. In addition, two hard copies of the draft Scoping Report will be available at the project site.

All comments received during this period will be considered and incorporated into the Final Scoping Report and documented in the Comments and Response Report.

7.4 Impact Assessment Phase Comment Period

Upon acceptance of the scoping report by the GDARD, the applicant/EAP will proceed and continue with the tasks contained in the plan of study (Section 8 of this report).

Subsequently an impact assessment report will be compiled and made available to all registered interested and affected parties and relevant organs of state for a period of 30 days.

Registered I&APs will be notified of the Department's decision and notified of the review the Draft EIA Report at the same time.

7.5 Final EIA Report and GDARD Decision

All comments received during the comment period discussed above will be considered and incorporated into the Final EIA Report and documented in the Comments and Response Report.

The Final EIA Report will then be submitted to GDARD for decision.

7.6 Outcome of the Decision

Registered I&AP's will be notified in writing of the outcome of the Department's decision within 12 days of the decision. The notification will include details of the process and timeframes in which to appeal the outcome of the decision made by the competent authority, GDARD.

8 PLAN OF STUDY

The requirements that form part of the plan of study for undertaking the EIA process includes the following:

- A description of the alternatives to be considered and assessed within the preferred site (Section 6.2), including the option of not proceeding with the activity (Section 6.2.3);
- A description of the aspects to be assessed as part of the environmental impact assessment process (Table 8-1);
- Aspects to be assessed by specialists (Table 8-1 and Section 8.2).
- A description of the proposed method of assessing the environmental aspects, including a description of the proposed method of assessing the environmental aspects including aspects to be assessed by specialists (Section 8.3);
- A description of the proposed method of assessing duration and significance (Section 8.3); an indication of the stages at which the competent authority will be consulted (Section 8.3);
- Particulars of the public participation process that will be conducted during the environmental impact assessment process (Table 8-10;; Section 7.3 and Section 7.4);
- A description of the tasks that will be undertaken as part of the environmental impact assessment process (Section 8.5); and
- Identify suitable measures to avoid, reverse, mitigate or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored (Section 8.4).

The sections that follow aim to determine potential environmental issues that will be further considered during the EIA Phase. The issues raised by I&APs during Scoping Phase will also guide the identification of significant issues.

8.1 Predicting Significant Environmental Issues

In line with the requirements of the Scoping Process in terms of the 2014 EIA Regulations, this section aims to identify potentially significant environmental issues for further consideration and prioritisation during the EIA stage. This focusses the EIA Phase and ensures that potential impacts related to the proposed development are determined through specialist studies where necessary.

Potential impacts associated with the proposed development were determined by assessing the following:

- Project-related components and infrastructure (see Section 4.3);
- Activities associated with the project life-cycle (i.e. pre-construction, construction, operation and decommissioning) (see Section 4.4);
- Proposed alternatives (see Section 6.2);
- Nature and profile of the receiving environment and potential sensitive environmental features and attributes (see Section 3), which included a desktop evaluation (via literature review, GIS, topographical maps and aerial photography) and site investigations;
- Issues raised by I&APs; and

- Legal and policy context (see Section 2).

8.1.1 Summary of Environmental Issues

Pertinent environmental issues linked to the assessment of the receiving environment are discussed in Table 8-1 below. Information on how the impact will be assessed during the EIA phase and/or mitigated is also provided.

Table 8-1: Potential issues to be assessed during the EIA Phase

Environmental Aspect	Potential Issues / Impacts - Construction	Potential Issues / Impacts - Operation	Studies Required
Local Climate	<ul style="list-style-type: none"> • No impacts are envisioned. 	<ul style="list-style-type: none"> • No impacts are envisioned. 	<ul style="list-style-type: none"> • N/A
Topography	<ul style="list-style-type: none"> • Minor changes to topography • Possible erosion 	<ul style="list-style-type: none"> • No impacts are envisioned. 	<ul style="list-style-type: none"> • Stormwater management plan
Geology and Soils	<ul style="list-style-type: none"> • Erosion of exposed soil • Erosion of stockpiled material (stone, sand and gravel) • Contamination to soil during the mixing of cement • Poor stormwater management during construction. 	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • Geotechnical Study
Land Use	<ul style="list-style-type: none"> • Change in land use will required. 	<ul style="list-style-type: none"> • Change in land use will required. 	<ul style="list-style-type: none"> • Town planning process
Agricultural Potential	<ul style="list-style-type: none"> • No impacts are envisioned. 	<ul style="list-style-type: none"> • No impacts are envisioned. 	<ul style="list-style-type: none"> • N/A
Existing Services	<ul style="list-style-type: none"> • Potential disturbance to existing infrastructure during construction 	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • Outline Scheme Report • Wayleaves
Availability of Services	<ul style="list-style-type: none"> • N/A 	<ul style="list-style-type: none"> • Services required for the proposed development 	<ul style="list-style-type: none"> • Outline Scheme Report • Wayleaves

Environmental Aspect	Potential Issues / Impacts - Construction	Potential Issues / Impacts - Operation	Studies Required
			<ul style="list-style-type: none"> • Rainwater harvesting and reuse of water to decrease water requirements • Use of borehole water to augment municipal supply only
Roads	<ul style="list-style-type: none"> • Increased construction related traffic • Decreased visibility along roads due to poor dust management 	<ul style="list-style-type: none"> • Increase in traffic due to visitors to the Waterpark 	<ul style="list-style-type: none"> • Traffic Impact Assessment • Road, Infrastructure, Signal and Intersection upgrades.
Noise	<ul style="list-style-type: none"> • Increased noise pollution due to construction activities, 	<ul style="list-style-type: none"> • Increased noise due to visitors to the park 	<ul style="list-style-type: none"> • Detailed EMPr • Noise Impact Assessment
Socio-Economic Environment	<ul style="list-style-type: none"> • Increased employment opportunities (positive) • Indirect injection of cash in the community due to investment (positive) • Increased economic opportunities in the area (positive) • Potential issues regarding security in the area due to construction workers in the area 	<ul style="list-style-type: none"> • Increased tourism opportunities in MCLM (positive) • Increased employment opportunities (positive) • Increased economic opportunities in the area (positive) 	<ul style="list-style-type: none"> • N/A

Environmental Aspect	Potential Issues / Impacts - Construction	Potential Issues / Impacts - Operation	Studies Required
Tourism	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> Increased tourism opportunities in MCLM (positive) 	<ul style="list-style-type: none"> N/A
Biodiversity	<ul style="list-style-type: none"> Impacts to sensitive features which provide habitat for a number of species Disturbance of natural ecosystems, making them vulnerable to invasion of alien species Negative impact due to dust 	<ul style="list-style-type: none"> Disturbance of birds and fauna in the area 	<ul style="list-style-type: none"> Ecological Impact Assessment
Surface Water	<ul style="list-style-type: none"> Destruction of wetland habitat during construction Disturbance of natural ecosystems, making them vulnerable to invasion of alien species Increased stormwater resulting in erosion of bed and banks of wetland habitat Decreased water quality resulting in contamination by construction vehicles Increased siltation of wetlands as a result of poor soil management 	<ul style="list-style-type: none"> Increased stormwater Improper treatment of grey water and effluent resulting in poor water quality 	<ul style="list-style-type: none"> Wetland Delineation Assessment Aquatic Impact Assessment WULA required Stormwater management plan

Environmental Aspect	Potential Issues / Impacts - Construction	Potential Issues / Impacts - Operation	Studies Required
Archaeology and Cultural Heritage	<ul style="list-style-type: none"> Potential impacts to heritage resources 	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> Heritage Impact Assessment

8.1.2 Summary of Impacts Identified by IAPs

I&APs have raised some concerns regarding the proposed development. These have been taken into account in the Scoping Report and help shape the subsequent EIA Phase. These include:

- Impacts to sense of place;
- Availability of water supply;
- Availability of sewerage treatment;
- Noise pollution;
- Traffic and access;
- Concerns regarding security and safety; and
- Electrical Supply.

8.2 Specialist Studies

According to Münster (2005), a ‘trigger’ is “a particular characteristic of either the receiving environment or the proposed project which indicates that there is likely to be an issue and/or potentially significant impact associated with that proposed development that may require specialist input”.

Further, the 2014 EIA Regulations define a specialist as: “A person that is generally recognised within the scientific community as having the capability of undertaking, in conformance with generally recognised scientific principles, specialist studies or preparing specialist reports, including due diligence studies and socio-economic studies.”

The specialist studies ‘triggered’ by the findings of the Scoping process include the following:

- Ecological Impact Assessment;
- Wetland Delineation Assessment;
- Aquatic Impact Assessment;
- Phase 1 Heritage Impact Assessment; and
- Noise Impact Assessment.

The *Guideline for determining the scope of specialist involvement in EIA processes* (Münster, 2005) was used in compiling the general Terms of Reference for the specialist studies together with the *Guideline for involving biodiversity specialists in EIA processes* (Brownlie, 2005) and the *GDARD Requirements for Biodiversity Specialists*. In line with these guidelines, specialists will be required to do the following:

- Address all triggers for the specialist studies identified by the Scoping Report.
- Address issues raised by IAPs, as contained in the Comments and Response Report;

- Meet the requirements of the relevant environmental authorities.
- Identify and assess all potentially significant impacts (direct, indirect and cumulative) and suggest suitable mitigation measures.
- Assess alternatives (including the No-Go option) and identify the Best Practicable Environmental Option (BPEO) for the proposed development.
- All specialist reports must adhere to Appendix 6 of the 2014 EIA Regulations.

In addition to the above mentioned environmental specialist studies, the following technical studies will also be undertaken and will inform the EIA:

- Outline Scheme Report;
- Traffic Impact Assessment; and
- Geotechnical Assessment.

Table 8-2 provides an overview of the environmental aspects that will be assessed by specialists.

Table 8-2: Summary of environmental aspects to be assessed in the EIA.

Environmental Aspects	To be assessed by Specialist	Specialist Study
Geology and Soils	Yes	Geotechnical Study
Existing Services	Yes	Outline Scheme Report
Availability of Services	Yes	Outline Scheme Report
Roads	Yes	Traffic Impact Assessment
Noise	Yes	Noise Impact Assessment
Biodiversity	Yes	Ecological Impact Assessment
Surface Water	No	Wetland Delineation Aquatic Impact Assessment
Groundwater	Yes	Input from Technical Team
Heritage and Culture	Yes	Heritage Impact Assessment

8.3 Impact Assessment Methodology

The standard methodology used in the environmental impact assessment to determine the significance rating of the potential impacts are outlined in this section.

8.3.1 Significance

The **significance** of an impact is defined as the combination of the **consequence** of the impact occurring and the **probability** that the impact will occur. The nature and type of impact may be direct or indirect and may also be positive or negative, refer to Table 8-3: below for the specific definitions.

Table 8-3: Nature and type of impact.

Nature and Type of Impact:			
IMPACT	Direct	Impacts that are caused directly by the activity and generally occur at the same time and place as the activity	✓/✗
	Indirect	Indirect or induced changes that may occur as a result of the activity. These include all impacts that do not manifest immediately when the activity is undertaken or which occur at a different place as a result of the activity	✓/✗
	Cumulative	Those impacts associated with the activity which add to, or interact synergistically with existing impacts of past or existing activities, and include direct or indirect impacts which accumulate over time and space	✓/✗
	Positive	Impacts affect the environment in such a way that natural, cultural and / or social functions and processes will benefit significantly, and includes neutral impacts (those that are not considered to be negative)	✓
	Negative	Impacts affect the environment in such a way that natural, cultural and/or social functions and processes will be comprised	✗

Table 8-4: presents the defined criteria used to determine the **consequence** of the impact occurring which incorporates the extent, duration and intensity (severity) of the impact.

Table 8-4: Consequence of the Impact occurring.

Extent of Impact:			
CONSEQUENCE	Site	Impact is limited to the site and immediate surroundings, within the study site boundary or property (immobile impacts)	1
	Neighbouring	Impact extends across the site boundary to adjacent properties (mobile impacts)	2
	Local	Impact occurs within a 5km radius of the site	5
	Regional	Impact occurs within a provincial boundary	8
	National	Impact occurs across one or more provincial boundaries	10
	Duration of Impact:		
	Incidental	The impact will cease almost immediately (within weeks) if the activity is stopped, or may occur during isolated or sporadic incidences	1
	Short-term	The impact is limited to the construction phase, or the impact will cease within 1 - 2 years if the activity is stopped	2
	Medium-term	The impact will cease within 5 years if the activity is stopped	5
	Long-term	The impact will cease after the operational life of the activity, either by natural processes or by human intervention	8
Permanent	Where mitigation either by natural process or by human intervention will not occur in such a way or in such a time span that the impact can be considered transient	10	

Intensity or Severity of Impact:		
Low	Impacts affect the environment in such a way that natural, cultural and/or social functions and processes are not affected	1
Low-Medium	Impacts affect the environment in such a way that natural, cultural and/or social functions and processes are modified insignificantly	2
Medium	Impacts affect the environment in such a way that natural, cultural and/or social functions and processes are altered	5
Medium-High	Impacts affect the environment in such a way that natural, cultural and / or social functions and processes are severely altered	8
High	Impacts affect the environment in such a way that natural, cultural and / or social functions and processes will permanently cease	10

The probability of the impact occurring is the likelihood of the impacts actually occurring, and is determined based on the classification provided in **Table 8-5**.

Table 8-5: Probability and confidence of impact prediction.

Probability of Potential Impact Occurrence:			
PROBABILITY	Improbable	The possibility of the impact materialising is very low either because of design or historic experience	5
	Possible	The possibility of the impact materialising is low either because of design or historic experience	10
	Likely	There is a possibility that the impact will occur	15
	Highly Likely	There is a distinct possibility that the impact will occur	25
	Definite	The impact will occur regardless of any prevention measures	30

The **significance** of the impact is determined by considering the consequence and probability without taking into account any mitigation or management measures and is then ranked according to the ratings listed in Table 8-6:. The level of confidence associated with the impact prediction is also considered as low, medium or high (Table 8-7:).

Table 8-6: Significance rating of the impact.

Significance Ratings:		
SIGNIFICANCE	Low	Neither environmental nor social and cultural receptors will be adversely affected by the impact. Management measures are usually not provided for low impacts
	Low-Medium	Management measures are usually encouraged to ensure that the impacts remain of Low-Medium significance. Management measures may be proposed to ensure that the significance ranking remains low-medium
	Medium	Natural, cultural and/or social functions and processes are altered by the activities, and management measures must be provided to reduce the significance rating
	Medium-High	Natural, cultural and/or social functions and processes are altered significantly by the activities, although management measures may still be feasible
	High	Natural, cultural, and/or social functions and processes are adversely affected by the activities. The precautionary approach will be adopted for all high significant impacts and all possible measures must be taken to reduce the impact

Table 8-7: Level of confidence of the impact prediction.

Level of Confidence in the Impact Prediction:			
CONFIDENCE	Low	Less than 40% sure of impact prediction due to gaps in specialist knowledge and/or availability of information	10
	Medium	Between 40 and 70% sure of impact prediction due to limited specialist knowledge and/or availability of information	50
	High	Greater than 70% sure of impact prediction due to outcome of specialist knowledge and/or availability of information	100

Once significance rating has been determined for each impact, management and mitigation measures must be determined for all impacts that have a significance ranking of Medium and higher in order to attempt to reduce the level of significance that the impact may reflect.

The EIA Regulations, 2014 specifically require a description is provided of the degree to which these impacts:

- can be reversed;
- may cause irreplaceable loss of resources; and
- can be avoided, managed or mitigated.

Based on the proposed mitigation measures the EAP will determined a mitigation efficiency (Table 8-8:) whereby the initial significance is re-evaluated and ranked again to effect a significance that incorporates the mitigation based on its effectiveness. The overall significance is then re-ranked and a final significance rating is determined.

Table 8-8: Mitigation efficiency.

Mitigation Efficiency			
MITIGATION EFFICIENCY	None	Not applicable	0%
	Very Low	Where the significance rating stays the same, but where mitigation will reduce the intensity of the impact. Positive impacts will remain the same	20%
	Low	Where the significance rating reduces by one level, after mitigation	40%
	Medium	Where the significance rating reduces by two levels, after mitigation	60%
	High	Where the significance rating reduces by three levels, after mitigation	80%
	Very High	Where the significance rating reduces by more than three levels, after mitigation	100%

The reversibility is directly proportional the “Loss of Resource” where no loss of resource is experienced, the impact is completely reversible; where a substantial “Loss of resource” is experienced there is a medium degree of reversibility; and an irreversible impact relates to a complete loss of resources, i.e. irreplaceable (Table 8-9:).

Table 8-9: Degree of reversibility and loss of resources.

DEGREE REVERSABILITY & LOSS OF RESOURCES	Loss of Resources:		
	No Loss	No loss of social, cultural and/or ecological resource(s) are experienced. Positive impacts will not experience resource loss	0
	Partial	The activity results in an insignificant or partial loss of social, cultural and/or ecological resource(s)	30
	Substantial	The activity results in a significant loss of social, cultural and/or ecological resource(s)	60
	Irreplaceable	The activity results in the complete and irreplaceable social, cultural and/or ecological loss of resource(s)	80
	Reversibility:		
	Irreversible	Impacts on natural, cultural and/or social functions and processes are irreversible to the pre-impacted state in such a way that the application of resources will not cause any degree of reversibility	20
	Medium Degree	Impacts on natural, cultural and/or social functions and processes are partially reversible to the pre-impacted state if less than 50% resources are applied	40
	High Degree	Impacts on natural, cultural and/or social functions and processes are partially reversible to the pre-impacted state if more than 50% resources are applied	70
	Reversible	Impacts on natural, cultural and/or social functions and processes are fully reversible to the pre-impacted state if adequate resources are applied	100

8.3.2 Cumulative Impacts

It is important to assess the natural environment using a systems approach that will consider the cumulative impact of various actions. Cumulative impact refers to the impact on the environment, which results from the incremental impact of the actions when added to other past, present and reasonably foreseeable future actions regardless of what agencies or persons undertake such actions. Cumulative impacts can result from individually minor, but collectively significant actions or activities taking place over a period of time. Cumulative effects can take place frequently and over a period of time that the effects cannot be assimilated by the environment.

8.4 Mitigation

An EMPr will be developed based on the findings of the impact assessment of the EIA. The EMPr will be compiled as a site-specific mitigation measure for all medium to high (significant) impacts. The mitigation and management measures will include a combination of the following:

- Physical environmental management structures.
- Monitoring and compliance of pollution and regulatory requirements.

8.5 Environmental Impact Assessment Phase

The next steps in the EIA phase which will be undertaken upon completion of the scoping phase (i.e. after the submission and acceptance of this Scoping Report by the GDARD). During the EIA phase, specialist studies will be conducted to inform the impact assessment. Concerns raised by I&AP's pertaining to the proposed development and their potential impacts on the physical, biological aspects of the proposed site will also be assessed at an appropriate level of detail.

The findings, recommendations and statements compiled by the specialists will be integrated with the other environmental aspects and compiled into an EIA Report, and provided to the relevant organs of state and registered I&AP's for review and comment for a minimum period of 30 days. This is planned for the December/January 2016 period, refer to Table 8-10 below for an indication of key dates. All comments received from any authority, I&AP and specialist will be considered and incorporated in the EIA Report for final submission to GDARD for an evaluation and assessment in order to provide a decision on whether to grant or refuse the environmental authorisation.

Table 8-10: Proposed timeframes for the EIA process.

Responsible Role Player	Milestone Tasks	Required Time Period	Proposed Timeframes	Status
Application Phase				
PPP	Written, Newspaper, Site Notices & BID's	30 days	12 April 2016 – 12 May 2016	✓
EAP	Submit Application for EA	N/A	21 September 2016	✓
GDARD	Accept/Acknowledge Application for EA	10 days	22 September 2016	✓
Scoping Phase				
EAP	Compile SR	N/A	September 2016	✓
PPP	I&AP Comment Period on SR	30 days	26 September 2016 – 26 October 2016	In progress
EAP	Review / Incorporate Comments	2 days	27 October 2016 - 29 October 2016	✗
GDARD	Review SR	43 days	October -November 2016	✗
Impact Assessment Phase				
Specialists	Ecology, Aquatic, Wetland, HIA, Noise	N/A	During appropriate season	In progress
EAP	Compile EIA Report	N/A	October 2016	✗
PPP	I&AP Comment on EIA Report	30 days	December 2016 – January 2017	✗
EAP	Review / Incorporate Comments	2 days	January 2016	✗
GDARD	Review EIA Report and Provide Decision	106 days	January – February 2017	✗
PPP	Notification of Decision / Appeal		February 2017	✗

9 UNDERTAKING

I, Vanessa Stippel, as the Environmental Assessment Practitioner managing this application provide the following affirmation in relation to -

- the correctness of the information provided in the report;
- the inclusion of comments and inputs from stakeholders and interested and affected parties; and
- any information provided myself to interested and affected parties and any responses to comments or inputs made by interested and affected parties.
- the level of agreement between myself and interested and affected parties on the plan of study for undertaking the environmental impact assessment.



Designation: Senior Environmental Assessment Practitioner

Prism Environmental Management Services

Company

27 September 2016

Date

10 APPENDICES

10.1 Curriculum Vitae of EAP

10.2 Notification and I&AP Register

10.3 Newspaper Notices

10.4 Site Notices

10.5 Background Information Document

10.5.1 Background Information Document

10.5.2 Proof of Notification and I&AP Map

10.6 Written Notifications

10.7 I&AP Comments and Responses

10.7.1 Comments and Response Report

10.7.2 Comments received during Notification Phase

10.8 Application Form for Environmental Authorisation

10.9 Project Schedule

10.10 Site Photos
