DRAFT REPORT

BASIC ASSESSMENT REPORT

In terms of ***Section 24 and 24(D) of NEMA (Act No. 107 of 1998)***

for:

THE PROPOSED CLEARANCE OF 12.4863 HA OF INDIGENOUS VEGETATION OF WHICH 11.5499 HA IS LOCATED WITHIN A CRITICAL BIODIVERSITY AREA AND 63 METERS FROM THE EDGE OF THE MOLOPO RIVER, IN ORDER TO ESTABLISH A MIXED LAND USE RESIDENTIAL DEVELOPMENT LOCATED ON A PORTION OF THE REMAINDER OF ERF 428, MAFIKENG, MAHIKENG LOCAL MUNICIPALITY, NORTH WEST PROVINCE.

NWP/EIA/56/2021

Designated Officer: Ms N. Mokotedi

Report Date: **September 2021**

Compiled by:

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Compiled for:

Mahikeng Local Municipality

MAHIKENG

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EXECUTIVE SUMMARY

Mahikeng Local Municipality has appointed ***AB Enviro Consult CC***, an independent environmental consultancy, to undertake an Environmental Impact Assessment for the proposed clearance of 12.4863 ha of indigenous vegetation of which 11.5499 ha is located within a critical biodiversity area and 63 meters from the edge of the Molopo River, in order to Establish a Mixed Land Use Residential Development located on a portion of the Remainder of Erf 428, Mafikeng, Mahikeng Local Municipality, North West Province.

The activity is listed in terms of the Regulations (in force since 4 December 2014) in terms of Section 24(M) and 44 made under section 24(5) of the National Environmental Management Act (NEMA) 1998 (Act 107 of 1998) as amended and published in Government Notice No. R 326 of 2017. The proposed development triggers the following regulations and listed activities:

Indicate the number and date of the relevant notice:	**Activity No (s) and Activity Description (in terms of the relevant notice)**	**Describe each listed activity as per project description**	**Time for construction to be completed applied for**
GN.R. 327, 7 April 2017	27	The proposed clearance of 12.4863 ha of indigenous vegetation in order to Establish a Mixed Land Use Residential Development located on a portion of the Remainder of Erf 428, Mafikeng, Mahikeng Local Municipality, North West Province.	10 years
GN.R. 324, 7 April 2017	12 (h)(iv)(vi)	The proposed clearance of 11.5499 ha of indigenous vegetation located within a critical biodiversity area and 63 meters from the edge of the Molopo River in order to Establish a Mixed Land Use Residential Development located on a portion of the Remainder of Erf 428, Mafikeng, Mahikeng Local Municipality, North West Province.	10 years

The purpose of the study is therefore to determine the impacts that the environment may have on the proposed activity, as well as the possible impacts that the activity may have on the environment.

The study is being conducted according to normal scientific practices. A theoretical background review was compiled for the different variables by using available information from the literature. Field verification was undertaken and visits paid to the site to gather further information and/or to verify information. It also includes the identification of *key interest groups*, both

governmental and non-governmental, and to establish good lines of communication. Specialist studies were undertaken to determine the impacts on sensitive areas and to determine whether the proposed project can be sustainably implemented. The specialists will also advise on mitigation measures where applicable.

Table of Contents

1. INTRODUCTION

Mahikeng Local Municipality has appointed ***AB Enviro Consult CC***, an independent environmental consultancy, to undertake an Environmental Impact Assessment for the proposed clearance of 12.4863 ha of indigenous vegetation of which 11.5499 ha is located within a critical biodiversity area and 63 meters from the edge of the Molopo River, in order to Establish a Mixed Land Use Residential Development located on a portion of the Remainder of Erf 428, Mafikeng, Mahikeng Local Municipality, North West Province.

The site is situated to the south of the R49 Road (Mmabatho - Zeerust Road}, also referred to as Shippard Street, between the Molopo River and the R49 Road, within an area referred to as Aslaagte small holdings in close proximity to the main entrance to Mafikeng. The site is currently zoned "Residential 1A", “Business 2”, “Institutional” and “Roads” and is currently vacant. An overhead power line is situated to the east of the site.

1.1 THE BASIC ASSESSMENT PROCESS

The purpose of this document is to adhere to the requirements for compilation of Basic Assessment Reports as amended and published in Government Notice R. 326 of 7 April 2017, Appendix 1, and the National Environmental Management Act (Act 107 of 1998) (NEMA).

1.2 DESCRIPTION OF THE PROCESS FOLLOWED

In order to assess a proposed development it is important to take into consideration the principles of NEMA. These principles are outlined in Chapter 1 and read as follows:

1) *“The principles set out in this section apply throughout the Republic to the actions of all organs of state that may significantly affect the environment and—*

   a. *shall apply alongside all other appropriate and relevant considerations, including the State’s responsibility to respect, protect, promote and fulfil the social and economic rights in Chapter 2 of the Constitution and in particular the basic needs of categories of persons disadvantaged by unfair discrimination;*

   b. *serve as the general framework within which environmental management and implementation plans must be formulated:*

   c. *serve as guidelines by reference to which any organ of state must exercise any function when taking any decision in terms of this Act or any statutory provision concerning the protection of the environment;*

   d. *serve as principles by reference to which a conciliator appointed under this Act must make recommendations; and*

   e. *guide the interpretation administration and implementation of this Act, and any other law concerned with the protection or management of the environment.*

2) *Environmental management must place people and their needs at the forefront of its concern, and serve their physical, psychological, developmental, cultural and social interests equitably.*

3) *Development must be socially, environmentally and economically sustainable.*

4) *(a) Sustainable development requires the consideration of all relevant factors including the following:*

(i) *That the disturbance of ecosystems and loss of biological diversity are avoided, or, where they cannot be altogether avoided, are minimised and remedied:*

(ii) *that pollution and degradation of the environment are avoided, or, where they cannot be altogether avoided, are minimised and remedied;*

(iii) *that the disturbance of landscapes and sites that constitute the nation's cultural heritage is avoided, or where it cannot be altogether avoided, is minimised and remedied;*

(iv) *that waste is avoided. or where it cannot be altogether avoided, minimised and re-used or recycled where possible and otherwise disposed of in a responsible manner;*

(v) *that the use and exploitation of non-renewable natural resources is responsible and equitable, and takes into account the consequences of the depletion of the resource;*

(vi) *that the development use and exploitation of renewable resources and the ecosystems of which they are part do not exceed the level beyond which their integrity is jeopardised;*

(vii) *that a risk-averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions; and*

(viii) *that negative impacts on the environment and on people's environmental rights be anticipated and prevented, and where they cannot be altogether prevented, are minimised and remedied.*

(b) *Environmental management must be integrated, acknowledging that all elements of the environment are linked and interrelated, and it must take into account the effects of decisions on all aspects of the environment and all people in the environment by pursuing the selection of the best practicable environmental option.*

(c) *Environmental justice must be pursued so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons.*

(d) *Equitable access to environmental resources, benefits and services to meet basic human needs and ensure human well-being must be pursued and special measures may be taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination.*

(e) *Responsibility for the environmental health and safety consequences of a policy, programme, project, product, process, service or activity exists throughout its life cycle.*

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

(g) *Decisions must take into account the interests, needs and values of all interested and affected parties, and this includes recognizing all forms of knowledge, including traditional and ordinary knowledge.*

(h) *Community wellbeing and empowerment must be promoted through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means.*

(i) The social, economic and environmental impacts of activities, including disadvantages and benefits must be considered, assessed and evaluated and decisions must be appropriate in the light of such consideration and assessment.

(j) The right of workers to refuse work that is harmful to human health or the environment and to be informed of dangers must be respected and protected.

(k) Decisions must be taken in an open and transparent manner, and access to information must be provided in accordance with the law.

(l) There must be intergovernmental co-ordination and harmonisation of policies, legislation and actions relating to the environment.

(m) Actual or potential conflicts of interest between organs of state should be resolved through conflict resolution procedures.

(n) Global and international responsibilities relating to the environment must be discharged in the national interest.

(o) The environment is held in public trust for the people, the beneficial use of environmental resources must serve the public interest and the environment must be protected as the people's common heritage.

(p) The costs of remedying pollution, environmental degradation consequent adverse health effects and of preventing, controlling or minimizing further pollution, environmental damage or adverse health effects must be paid for by those responsible for harming the environment.

(q) The vital role of women and youth in environmental management and development must be recognised and their full participation therein must be promoted.

(r) Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure."

The above mentioned principals and the applicable legislation, Policies and Guidelines as described in Paragraph 5 of this Report were taken into account in the assessment of the Environmental Impacts for the proposed development. The process followed can be described as follows:

1) The EAP was contracted by Mahikeng Local Municipality as their Independent Environmental Assessment Practitioner.
2) A Geotechnical Engineer was appointed to determine whether the Geology and Soils of the site is suitable for the proposed development.
3) An engineering company was appointed to calculate the 1:100 year flood levels in the Molopo River.
4) A Town and Regional Planner designed the proposed development in such a way that the layout of the proposed development, takes into account the 1:100 year flood levels of the Molopo River and that the layout satisfies the needs of future occupiers of the site
5) A SAHRA Specialist has been appointed to determine the possible impact of the development on Archaeological and Cultural features.

6) A Botanical specialist has been appointed to determine the impact of the proposed development on the Fauna and Flora of the area.

7) A wetland specialist has been appointed to assess the impact of the proposed development on the Molopo River.

8) An Environmental Screening Process was conducted by the EAP to ensure that all the relevant Environmental Legislation is taken into consideration.

9) Desk top studies were conducted and alternatives assessed.

10) Site inspections were carried out to verify the outcomes of the desktop studies, and the preferred alternative defined.

11) A full Public Participation Process is being followed to obtain inputs from interested and affected parties.

12) All the information obtained from the above mentioned processes is being used to assess the Environmental Impact that the proposed development may have on the Environment and vice versa.

13) The inputs from Specialists, interested and affected parties, together with the knowledge of the EAP is being used to determine measures to avoid, mitigate and manage potential impacts. These measures are described in the Environmental Management Programme.

1.3 ASSESSMENT PHASE

The assessment phase included the necessary investigations to assess the suitability of the identified site and its surrounding environment, for the development proposal. The assessment phase described the "status quo" of the bio-physical, social, economic and cultural environment, and identifies the anticipated environmental aspects associated with the proposed development. The assessment phase included the identification of *key interest groups*, (both government and non-government), and strived to establish efficient and effective communication. Identifying and informing Interested and affected parties of the proposed development may have an impact on the focus of the EIA. (*S. Cliff, 2015*).

This phase also determines the *significance of the impact* of the proposed activity on the surrounding Environment. During this phase, a Basic assessment Report (BAR) is compiled, and, following public review, is submitted to the approving authority – the DEDECT.

The purpose of the Basic Assessment Report is to document the outcome of the Assessment Phase of the project. The report fulfilled the requirements of the EIA Regulations (2014) for the documentation of the Basic Assessment Process. The Report was compiled in accordance with Section 21(3) of NEMA's 2014 EIA Regulation (GN R. 982) as amended and published in Government Notice R. 326 of 7 April 2017.

The Draft Basic Assessment Report will be submitted to DEDECT on the 9th September 2021.

1.3.1 Objective of the basic assessment process

The objective of the basic assessment process is to, through a consultative process-

(a) determine the policy and legislative context within which the proposed activity is located and how the activity complies with and responds to the policy and legislative context;

(b) identify the alternatives considered, including the activity, location, and technology alternatives;

(c) describe the need and desirability of the proposed alternatives;

(d) through the undertaking of an impact and risk assessment process, inclusive of cumulative impacts which focused on determining the geographical, physical, biological, social, economic, heritage, and cultural sensitivity of the sites and locations within sites and the risk of impact of the proposed activity and technology alternatives on these aspects to determine−

(i) the nature, significance, consequence, extent, duration, and probability of the impacts occurring to; and

(ii) the degree to which these impacts−

(aa) can be reversed;

(bb) may cause irreplaceable loss of resources; and (cc) can be avoided, managed or mitigated;

(cc) can be avoided, managed or mitigated; and

(e) through a ranking of the site sensitivities and possible impacts the activity and technology alternatives will impose on the sites and location identified through the life of the activity to−

(i) identify and motivate a preferred site, activity and technology alternative;

(ii) identify suitable measures to avoid, manage or mitigate identified impacts; and

(iii) identify residual risks that need to be managed and monitored.

1.3.2 Scope of assessment and content of basic assessment reports

The BAR assesses those identified potential environmental impacts and benefits (direct, indirect and cumulative impacts) associated with the project design, construction, and operation phases, and recommends appropriate mitigation measures for potentially significant environmental impacts. The Environmental impacts are assessed both before and after mitigation to determine:

- The significance of the impact despite mitigation; and
- The effectiveness of the proposed mitigation measures.

The BAR addresses potential environmental impacts and benefits associated with all phases of the project, including design, construction and operation, and aims to provide the environmental authorities with sufficient information to make an informed decision regarding the proposed project.

Table 1 below provides a summary of the legislative requirements in terms of a Basic Assessment Report as stipulated in Section 23 of the 2014 EIA Regulation (GN R. 982) as amended and published in Government Notice R. 326 of 7 April 2017. Cross-references are provided in terms of the relevant section within this BA Report where the NEMA and BA Report requirements have been addressed.

Table 1: Basic Assessment Report content as per Section 23 of NEMA's 2014 EIA Regulation (GN R. 982) as amended and published in Government Notice R. 326 of 7 April 2017 Appendix 1.

3. (1) A basic assessment report must contain the information that is necessary for the competent authority to consider and come to a decision on the application, and must include:

Section of the EIA Regulations, 2014	Description of EIA Regulations Requirements for Basic Assessment Reports	Location in this report

Section of the EIA Regulations, 2014	Description of EIA Regulations Requirements for Basic Assessment Reports	Location in this report
Appendix 1, section 3 (a)	Details of the EAP who prepared the report; and the expertise of the EAP;	Paragraph 2
Appendix 1, section 3 (b)	The location of the development footprint of the activity on the approved site as contemplated in the accepted scoping report, including – (i) The 21 digit Surveyor General code of each cadastral land parcel; (ii) Where available, the physical address and farm name; (iii) Where the required information in items (i) and (ii) is not available, coordinates of the boundary of the property or properties	Paragraph 4 Paragraph 4 Paragraph 4
Appendix 1, section 3 (c)	A plan which locates the proposed activity or activities applied for, at an appropriate scale, or, if it is – (i) A linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or (ii) On land where the property has not been defined, the coordinates within which the activity is to be undertaken;	Appendix A1 and Appendix A2 Paragraph 4
Appendix 1, section 3 (d)	A description of the scope of the proposed activity, including – (i) all listed and specified activities triggered and being applied for; and (ii) a description of the activities to be undertaken including associated structures and infrastructure;	Paragraph 3 Paragraph 3
Appendix 1, section 3 (e)	A description of the policy and legislative context within which the development is proposed including (i) an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks, and instruments that are applicable to this activity and have been considered in the preparation of the report; and (ii) how the proposed activity complies with and responds to the legislation and policy context, plans, guidelines, tools frameworks, and instruments explanation of how the proposed development complies with and responds to the legislation and policy context	Paragraph 5.1 Paragraph 5.2 Paragraph 5.2
Appendix 1, section 3 (f)	A motivation for the need and desirability for the proposed development including the need and desirability of the activity in the context of the preferred location.	Paragraph 6
Appendix 1, section 3 (g)	a motivation for the preferred site, activity and technology alternative	Paragraph 4
Appendix 1, section 3 (h)	A full description of the process followed to reach the proposed preferred alternative within the site, including- (i) Details of all alternatives considered; (ii) Details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs; (iii) A summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them; (iv) The environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects; (v) The impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration, and probability of the impacts, including the degree to which the impacts- (aa) can be reversed; (bb) may cause irreplaceable loss of resources; and	Paragraph 8 Paragraph 10 Paragraph 10 Paragraph 8 Paragraph 9 Paragraph 9 Paragraph 9

Section of the EIA Regulations, 2014	Description of EIA Regulations Requirements for Basic Assessment Reports	Location in this report
	(cc) can be avoided, managed, or mitigated.	Paragraph 9
	(vi) The methodology used in deterring and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives;	Paragraph 9
	(vii) Positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographic, physical, biological, social, economic, heritage and cultural aspects;	Paragraph 9
	(viii) The possible mitigation measures that could be applied and level of residual risk;	Paragraph 9
	(ix) the outcome of the site selection matrix	Not Applicable
	(x) If no alternatives, including alternative footprints for the activity were investigated, the motivation for not considering such and;	
	(xi) a concluding statement indicating the preferred alternatives, including preferred location of the activity.	Paragraph 12
Appendix 1, section 3 (i)	A full description of the process undertaken to identify, assess and rank the impacts the activity will impose on the preferred location through the life of the activity, including-	Paragraph 9
	(i) a description of all environmental issues and risks that were identified during the environmental impact assessment process; and	Paragraph 8
	(ii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures;	Paragraph 9
Appendix 1, section 3 (j)	An assessment of each identified potentially significant impact and risk, including- (i) cumulative impacts;	Paragraph 9
	(ii) the nature, significance and consequences of the impact and risk;	Paragraph 9
	(iii) the extent and duration of the impact and risk;	Paragraph 9
	(iv) the probability of the impact and risk occurring;	Paragraph 9
	(v) the degree to which the impact and risk can be reversed;	Paragraph 9
	(vi) the degree to which the impact and risk may cause irreplaceable loss of resources; and	Paragraph 9
	(vii) the degree to which the impact and risk can be mitigated;	Paragraph 9
Appendix 1, section 3 (k)	Where applicable, a summary of the findings and recommendations of any specialist report complying with Appendix 6 to these Regulations and an indication as to how these findings and recommendations have been included in the final assessment report;	Paragraph 11
Appendix 1, section 3 (l)	An environmental impact statement which contains- (i) a summary of the key findings of the environmental impact assessment:	Paragraph 12.2 and 12.2
	(ii) a map at an appropriate scale which superimposes the proposed activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers; and	Figure 2
	(iii) a summary of the positive and negative impacts and risks of the proposed activity and identified alternatives;	Paragraph 12

Section of the EIA Regulations, 2014	Description of EIA Regulations Requirements for Basic Assessment Reports	Location in this report
Appendix 1, section 3 (m)	Based on the assessment, and where applicable, recommendations from specialist reports, the recording of proposed impact management outcomes for the development for inclusion in the EMPr	Paragraph 11 and 12
Appendix 1, section 3 (n)	Any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of authorisation	Paragraph 3.1.2.1
Appendix 1, section 3 (o)	A description of any assumptions, uncertainties and gaps in knowledge which relate to the assessment and mitigation measures proposed	Paragraph 1.4.3
Appendix 1, section 3 (p)	A reasoned opinion as to whether the proposed activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation	Paragraph 12.4
Appendix 1, section 3 (q)	Where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required and the date on which the activity will be concluded and the post construction monitoring requirements finalised	Not Applicable
Appendix 1, section 3 (r)	An undertaking under oath or affirmation by the EAP in relation to- (i) The correctness of the information provided in the report; (ii) The inclusion of the comments and inputs from stakeholders and interested and affected parties; and (iii) the inclusion of inputs and recommendations from the specialist reports where relevant; and (iv) Any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties.	 Paragraph 13 Paragraph 13 Paragraph 13 Paragraph 13
Appendix 1, section 3 (s)	Where applicable, details of any financial provision for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts.	Not Applicable
Appendix 1, section 3 (t)	Any specific information that may be required by the competent authority.	Not Applicable
Appendix 1, section 3 (u)	Any other matters required in terms of section 24(4)(a) and (b) of the Act	Not Applicable

1.3.3 Assumptions, uncertainties, limitations and gaps in knowledge:

This report is based on current available information and, as a result, the following limitations and assumptions are implicit –

The report is based on the *project description* provided by the Applicant as a result of reports that was compiled by the following Specialists:

- A Geotechnical Engineer has been appointed to assess the geology and soils.
- An engineering company was appointed to calculate the 1:100 year flood levels in the Molopo River
- A Town planner has been appointed to determine the availability of services and the layout of the development
- A SAHRA Specialist has been appointed to determine the possible impact of the development on Archaeological and Cultural features.
- An Ecologist specialist has been appointed to determine the impact of the proposed development on the Fauna and Flora of the area.
- A Wetland specialist has been appointed to determine the impact of the proposed development on the Molopo River.
- An Environmental Screening Process was conducted by the EAP to ensure that all the relevant Environmental Legislation is taken into consideration.

- Desktop studies were conducted and alternatives assessed.

Descriptions of the biophysical and social environments are based on specialist fieldwork, investigations, and the Public Participation Process.

2. DETAILS AND EXPERTISE OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER

AB Enviro Consult (CC) is a registered consultancy, owned and operated as an independent unit by the registered owner and consultant**: Prof. A.B. de Villiers**

- **Mr J.P. De Villiers** joined the consultancy during 2004
- **Mrs J.E. du Plooy** is a consultant since 2001

PERSONAL PARTICULARS AND CAREER HISTORY OF PROF DE VILLIERS

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Lecturer & Professor – Potchefstroom University 1969- 2004

ACADEMIC AND PROFESSIONAL QUALIFICATIONS
Post–Matric Qualifications

YEAR	Qualification	Institution	Field of Study
1968	B.Sc.	PU FOR CHE	Geography, Geology
1970	HONNS. B.Sc.	PU FOR CHE	Soil Science
1974	M.Sc.	PU FOR CHE	Geography
1981	Ph.D.	UOFS	Geography

PROFESSIONAL QUALIFICATIONS AND REGISTRATIONS

YEAR	Qualification/ Registration	Institution	Field of Study
1986	Professional Natural Scientist	S.A. Council for Natural Scientists	Environmental Science
1994	Quality Auditor	ESKOM	Auditing
1998	Personnel & Verifying Auditor	SAATCA	Environmental Auditing
2006	Environmental Assessment Practitioner	Interim Certification Board EAPSA	Environmental Science

MEMBERSHIP AND PARTICIPATION IN SOCIETIES, COUNCILS, ETC.

Name of professional societies	YEAR	Capacity
S.A. Geographical Society.	1967-1996	Board Member
Society for Geography	1968-2004	Member
SAGS Western Transvaal	1985-1989 1987-1989 1996	Chairman
Africa Geographical Association	1993-1995	Vice-President.
Society for the Vaal River Catchment	1980-1999	Member
S.A. Society for Photogrammetry, Remote Sensing and Cartography	1984-1996	Member
Dendrological Society	1986-2005	Member
Birdlife South Africa	2003-present	Member
British Geomorphological Research Group	1985-1997	Member
Int Com on Water Resource Systems	1985-1997	Member
Int Com on Continental Erosion	1986-1990	Member
Int Com on Remote Sensing and Data Transmission	1986-1991	Member
Society for S.A. Geographers	1995-2005	Member
SA Photogrammetrical and Geo. Info.	1995-2003	Member
S.A. Association of Geomorphologists	1994-1999	Board Member and member
SADC Mine Dump Study Group	1996-2005	Member

ACADEMIC AND PROFESSIONAL QUALIFICATIONS MR J.P. DE VILLIERS

YEAR	Qualification	Institution	Field of Study
1993	BA	PU FOR CHE	Geography, Economics
1994	HED	PU FOR CHE	Geography Economics
2006	B.Sc.(Honns) Cum Laude	North-West University	Environmental Management
2007	M.Sc.	North-West University	Geography

PROFESSIONAL QUALIFICATIONS AND REGISTRATIONS

YEAR	Qualification/ Registration	Institution	Field of Study
2008	Basic Principles of Ecological Rehabilitation and Mine Closure	Centre for Environmental Management (North West University)	Ecological Rehabilitation
2019	Registered as Environmental assessment Practitioner	EAPASA Registration number: 2019/808	

ACADEMIC AND PROFESSIONAL QUALIFICATIONS MRS J.E. DU PLOOY

YEAR	Qualification	Institution	Field of Study
1999	BA	PU FOR CHE	Geography, Tourism
2000	BA (Honns) Cum Laude	PU FOR CHE	Geography
2003	Master's degree in Environmental Management	PU FOR CHE	Environmental Management
2001	Aquabase Intro	AQUABASE	Hydrology
2001	Geomedia Professional	INTERTECH	GIS
2001	Map Info	SPATIAL TECHNOLOGY	GIS
2020	Registered as Environmental Assessment Practitioner	EAPASA : 2019/1573	

EXPERIENCE OF THE CONSULTANCY

Over a period of 25 years (1996-2021) this consultancy has successfully applied for, and obtained positive ROD's and EA's for more than 380 projects. Environmental Control Officer's duties are also performed on various projects.

The company was involved (from 1992-1994) in evaluation of 114 applications for the subdivision of land, 23 applications for resort developments, and 54 applications for business rights for the Department of Agriculture, Conservation and the Environment - North West Province.

The consultancy is qualified to undertake professional studies in waste management and is still involved in the development of waste disposal- (solid and liquid effluent), and emission studies. These studies are conducted both academically and practically. This work relates to mine waste, domestic waste and effluent as well as to the monitoring of waste disposal. Environmental audits in this respect are undertaken on a regular basis.

3. DESCRIPTION OF THE ACTIVITY

The proposed clearance of 12.4863 ha of indigenous vegetation of which 11.5499 ha is located within a critical biodiversity area and 63 meters from the edge of the Molopo River, in order to Establish a Mixed Land Use Residential Development located on a portion of the Remainder of Erf 428, Mafikeng, Mahikeng Local Municipality, North West Province.

The township is proposed to comprise:

LAND USE	NUMBER OF ERVEN	AREA IN SQUARE METERS
RESIDENTIAL 1	119	69 466
BUSINESS 1	1	10 234
CHURCH	1	1 302
CRÈCHE	1	929
STREET		42 932
TOTAL AREA		124 863

Please see figure 1 for a layout plan.

FIGURE 1: PROPOSED TOWNSHIP

BULK SERVICES

In a letter dated 22 August 2021 the Mahikeng Local Municipality has confirmed the availability of services. According to this letter, availability is as follows:

Bulk Water

The Mahikeng Water Treatment Works (WTW) and the Mmabatho Water Treatment Works both serve the Greater Mafikeng area. The Mahikeng WTW is located just 5km east of the town and has a peak capacity of 30Ml/d. Furthermore, the Mmabatho WTW is located just 8km west of the town and has a capacity of 20Ml/d , which is currently being upgraded to 30Ml/d capacity to accommodate anticipated growth of the town. The treatment works has been designed to be upgraded in modules, and can have a capacity of up to 60Ml/d.

Bulk Sewer

There is an existing Mmabatho Wastewater Treatment Works (MWwTW) which has a design capacity of 24ml/d operating at 70% that serves areas including Leopard Park and Golfview. There are plans in place to upgrade the MWwTW to a capacity of 36ml/day. There are also plans in the pipeline to try and merge the Mahikeng and the Mmabatho Wastewater Treatment Works to try and relieve the Mahikeng Wastewater Treatment Works. This is as per recommendations from Bigen Africa Services (PTY) Ltd.

Access

Access to the site is currently obtained from an existing tarred road, off the R49 Road. Access to the proposed development will also be obtained from the existing tarred road, off the R49 Road.

Waste disposal

Refuse removal services to the proposed development will be provided by the local municipality.

The letter below is confirmation from the Mahikeng Local Municipality that services as described above is available.

MAHIKENG LOCAL MUNICIPALITY

MAHIKENG
LOCAL MUNICIPALITY
Diversity. Culture. Heritage

Municipal Manager and other Departments:
P/Bag X63
Mmabatho
2735
Tel: (018) 389-0111
Fax:(018) 389-4830

Cnr University Drive &
Hector Petersen Road
Mmabatho, 2735

Enq: Mrs M. Moloi-tsae

22 August 2021

Maxim Planning Solutions
P. O Box 6848
Flamwood
2572

RE: AVAILABILITY OF ENGINEERING SERVICES ON A PORTION OF THE REMAINING EXTENT OF ERF 428 MAFIKENG

This correspondence serves to confirm the availability of infrastructure services on the Remaining Extent of Erf 428 Mafikeng.

Bulk Water

The Mahikeng Water Treatment Works (WTW) and the Mmabatho Water Treatment Works both serve the Greater Mafikeng area. The Mahikeng WTW is located just 5km east of the town and has a peak capacity of 30Ml/d. Furthermore, the Mmabatho WTW is located just 8km west of the town and has a capacity of 20Ml/d, which is currently being upgraded to 30Ml/d capacity to accommodate anticipated growth of the town. The treatment works has been designed to be upgraded in modules, and can have a capacity of up to 60Ml/d.

Bulk Sewer

There is an existing Mmabatho Wastewater Treatment Works (MWwTW) which has a design capacity of 24ml/d operating at 70% that serves areas including Leopard Park and Golfview. There are plans in place to upgrade the MWwTW to a capacity of 36ml/day. There are also plans in the pipeline to try and merge the Mahikeng and the Mmabatho Wastewater Treatment Works to try and relieve the Mahikeng Wastewater Treatment Works. This is as per recommendations from Bigen Africa Services (PTY) Ltd.

Eskom

There is an existing green 11kV MV line to the west with a building line restriction of seven (7) metres.

For any further enquiries on the above, please contact Mrs Mmatlhapi Moloi-tsae, the Director: Infrastructure on 018 389 0111; email: mmatlhapi.moloi@mafikeng.gov.za.

MR. N. M. MOKGWAMME
MUNICIPAL MANAGER

BATHO PELE

PLEASE ADDRESS ALL CORRESPONDENCE TO THE MUNICIPAL MANAGER

Confirmation of services as received from the Mahikeng Local Municipality.

4. DESCRIPTION OF THE PROPERTY

The site is situated to the south of the R49 Road (Mmabatho - Zeerust Road) (See Photograph 1), also referred to as Shippard Street, between the Molopo River (See Photograph 2) and the R49 Road, within an area referred to as Aslaagte small holdings in close proximity to the main entrance to Mafikeng. The site is currently zoned "Residential 1A", “Business 2”, “Institutional” and “Roads” and is currently vacant. An overhead power line is situated to the east of the site. (See Photograph 3). See Figure 2 for a locality map and Figure 3 for a sensitivity map.

Although the site is located within a CBA, the area has been highly disturbed in the past. Disturbances include excavations, tracks, dirt roads (See Photograph 4) and clearings. Informal dumping is conspicuous at many areas in particular close to roads and tracks. See Photograph 5.

Vegetation at much of the site appears to be degraded or modified. Alien invasive weeds are widespread at disturbed areas at the site. A number of indigenous plant species remains at the site. Threatened animal and plant species, or any other animal or plant species of particular conservation concern appear to be absent at the site. Site is isolated mostly by urban surroundings and the scope for the site to be a corridor of particular conservation importance is small. The scope for the vegetation at the site to be restored and conserved is small. Ecological sensitivity (As compiled by the Fauna and Flora Habitat Specialist) at the site is medium and low (See Figure 4).

The site is riparian to the **Molopo River** and the 1:100 year flood lines must therefore be shown on the layout plans. ***CWT Consulting*** was appointed to calculate the 1:100 year flood levels. Figure 5 is a copy of the map indicating the 1:100 year flood line. This was incorporated into the final layout plan and development will not occur below the 1:100 year flood line. The Ecological Fauna and Flora Habitat Specialist (Who is also a wetland Specialist) has also determined the “route of the active channel”, the “riparian zone” and the “outer edge of the 30 meter buffer zone”. See Figure 6. This information was used to develop the final layout plan.

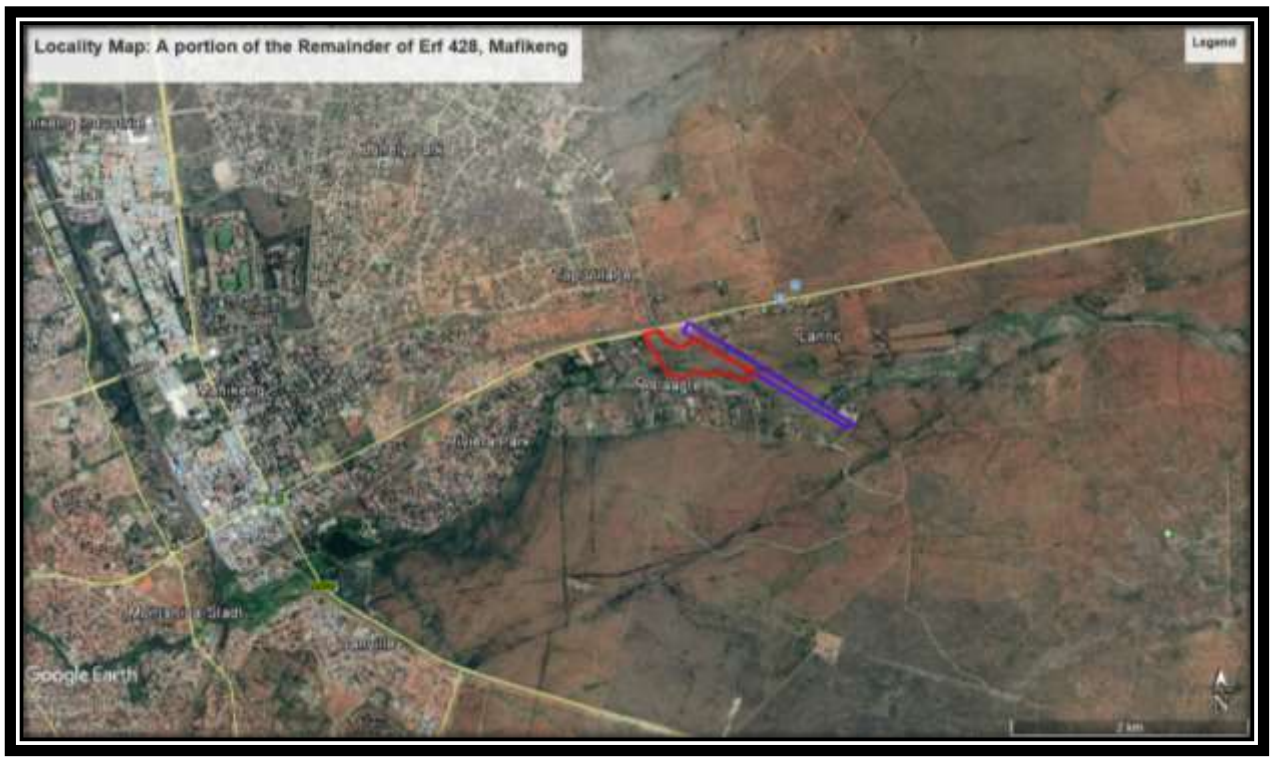


Figure 2: Locality Map

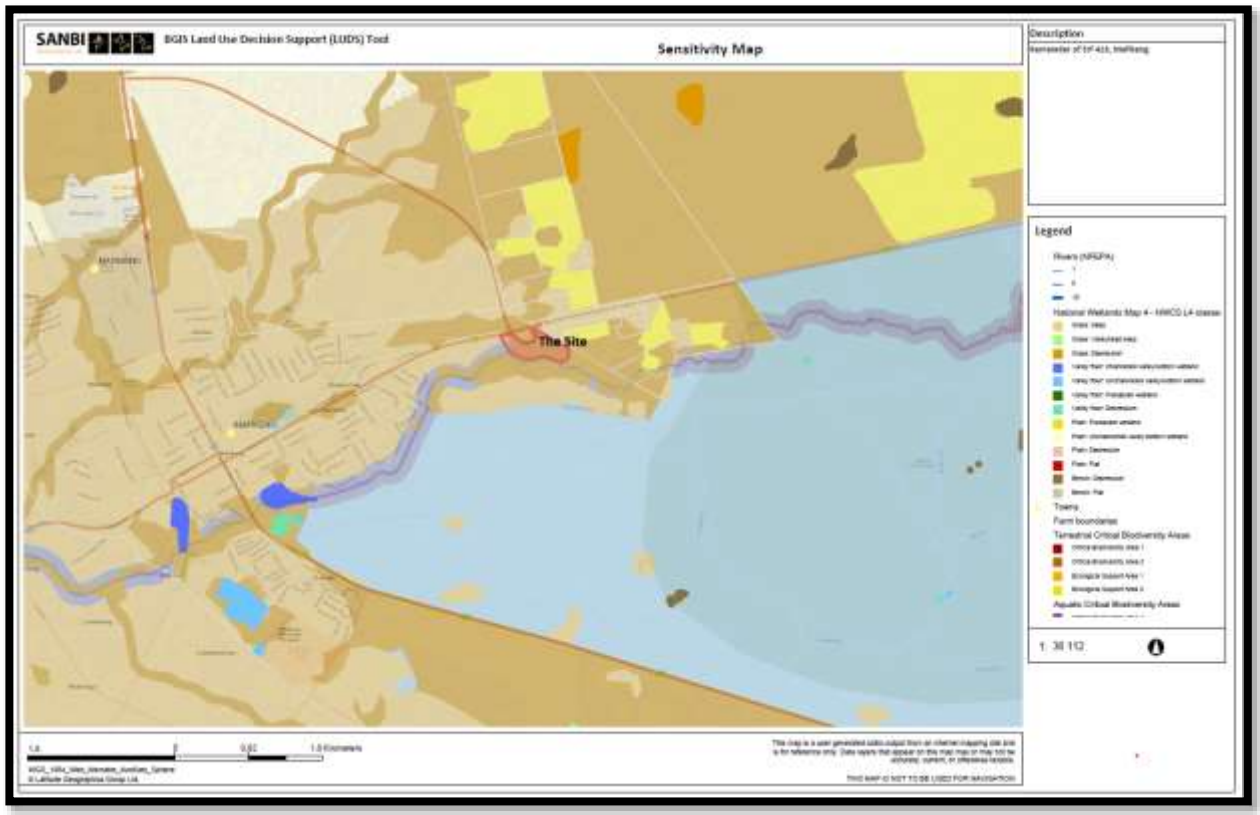


Figure 3: Sensitivity Map (BGIS)

Figure 4: Sensitivity Map of development footprint as generated by the Fauna and Flora Habitat Specialist.

Red outline	Boundaries of the site
Green outline and shading	Medium-high sensitivity
Orange-brown outline and shading	Medium-low sensitivity

Figure 5: 1:100 year flood line as determined by the Engineer.

Figure 6: Indication of non-perennial river (active channel, riparian zone, buffer zone) south of the site.

Light blue outline	Route of active channel at the site
Green outline	Riparian zone
Orange outline	Outer edge of the 30 meter buffer zone
Red outline	Boundaries of the site

Photograph 1: The R49 Road (Mmabatho - Zeerust Road}, also referred to as Shippard Street borders the site to the north.

Photograph 2: The Molopo River forms the southern boundary of the site.

Photograph 3: An overhead power line is situated to the east of the site

Photograph 4: Roads and dirt tracks are found on site.

Photograph 5: Informal dumping is conspicuous at many areas in particular close to roads and tracks

The Surveyor-general 21-digit site reference number is:

T	**O**	**J**	**O**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**4**	**2**	**8**	**0**	**0**	**0**	**0**

Landowner:	Mahikeng Local Municipality		
Contact person:	Mr N. Mokgwamme		
Postal address:	Private bag X63, Mmabatho		
Postal code:	2735	Cell:	
Telephone:	018 389 0111	Fax:	018 384 4830
E-mail:			

Site Co-ordinates

	Latitude (S):			**Longitude (E):**		
Alternative S1 (preferred or only site alternative)	25°	51'	12.50"	25°	40'	54.88"

5. LEGAL AND OTHER REQUIREMENTS

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
National Environmental Management Act No. 107 of 1998 as amended.	NEMA is the guiding legislation that has been considered during the Environmental Impact Assessment process and the compilation of this Scoping Report.	NW:DEDECT	27 November 1998
The Bill of Rights, Constitution of South Africa, Section 27 (1)(b)	The Constitution of the Republic of South Africa is the legal source of all law, including environmental law, in South Africa. The Bill of Rights is fundamental to the Constitution of South Africa and in, section 24 of the Act, it is stated that: Everyone has the right (a) to an environment that is not harmful to their health or well-being; and (b) to 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. Given that environmental management is founded partly on the principles of public participation, Section 195 of the Constitution is of primary relevance: (1) Public administration must be governed by the democratic values and principles enshrined in the constitution, including the following principles: (a) (b) (c) (d) (e) Peoples needs must be responded to, and the public must be encouraged to participate in policymaking. (f) Public administration must be accountable. (g) Transparency must be fostered by providing the public with timely, accessible and accurate information (Government Gazette, 1996).	National Government	1994
New Regulations 2014 in terms of NEMA	Legislation consulted during the environmental impact assessment process to determine whether any listed activities would be triggered. The Regulations were also consulted to determine inter alia the requirements regarding the contents of Scoping reports and the public participation process that should be followed.	NW: DEDECT	7 April 2017
National Water Act (36 OF 1998)	National Water Act (NWA), 1998 (Act 36 of 1998) is the primary statute providing	Department of water and sanitation	1998

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
	the legal basis for water management in South Africa and has to ensure ecological integrity, economic growth and social equity when managing and using water. The major objectives of the National Water Act are to: •Aid in providing basic human needs; •Meet the growing demand of water in a sustainable manner; •Ensure equal access to water and use of water resources; •Protect the quality of water of natural resources; •Ensure integrated management of water resources; •Foster social and economic development; and •Conserve aquatic and related ecosystems. Section 19 of the National Water Act states that the person responsible for land upon which any activity is or was performed which causes, has caused or is likely to cause, pollution of a water resource, must take all reasonable measures to prevent any such pollution from occurring, continuing or recurring.		
National Environmental Management: Biodiversity Act (NEMBA) (ACT NO. 10 OF 2004)	The National Environmental Management Biodiversity Act, 2004 (Act No. 10 of 2004), provides for the management and conservation of South Africa's biodiversity within the framework of the National Environmental Management Act, 1998; the protection of species and ecosystems that warrant national protection; the sustainable use of indigenous biological resources; the fair and equitable sharing of benefits arising from bio-prospecting involving indigenous biological resources; the establishment and functions of a South African National Biodiversity Institute; and for matters connected therewith. In terms of Chapter 4 of the Above Act: 52. (1) (a) The Minister may, by notice in the Gazette, publish a national list of ecosystems that are threatened and in need of protection. (b) An MEC for environmental affairs in a province may, by notice in the Gazette, publish a provincial list of ecosystems in the province that are threatened and in need of protection.	NW: DEDECT	2004

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
	(2) The following categories of ecosystems may be listed in terms of subsection: (a) critically endangered ecosystems, being ecosystems that have undergone severe degradation of ecological structure, function or composition as a result of human intervention and are subject to an extremely high risk of irreversible transformation; (b) endangered ecosystems, being ecosystems that have undergone degradation of ecological structure, function or composition as a result of human intervention, although they are not critically endangered ecosystems; (c) vulnerable ecosystems, being ecosystems that have a high risk of undergoing significant degradation of ecological structure, function or composition as a result of human intervention, although they are not critically endangered ecosystems or endangered ecosystems; and (d) protected ecosystems, being ecosystems that are of high conservation value or of high national or provincial importance, although they are not listed in terms of paragraphs (a), (b) or (c). (3) A list referred to in subsection (1) must describe in sufficient detail the location of each ecosystem on the list. 53 (1) The Minister may, by notice in the Gazette, identify any process or activity in a listed ecosystem as a threatening process. (2) A threatening process, identified in terms of subsection (1) must be regarded as a specified activity contemplated in section 24(2)(b) of the National Environmental Management Act (1998) and a listed ecosystem must be regarded as an area identified for the purpose of that section.		
National Environmental Management: Protected Areas Act (ACT NO. 57 OF 2003)	This Act aims to provide for a national system of protected areas in South Africa as part of a strategy to manage and conserve its biodiversity. The Protected Areas Act tries to ensure the protection of the entire range of biodiversity, referring to natural landscapes and seascapes. The Act makes express reference to the need to move towards Community Based natural Resource Management (CBNRM)	National Department of Environmental Affairs	2003

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
	as its objectives include promoting the participation of local communities in the management of protected areas. The purpose of the Act is: •To protect ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes and their ecological integrity. •To conserve biodiversity in those areas; •To protect South Africa's rare species; •To protect vulnerable or ecologically sensitive areas; •To assist in ensuring the sustained supply of environmental goods and services; •To provide for the sustainable use of natural and biological resources; •To create or augment destinations for nature-based tourism; •To manage the interrelationship between natural environmental biodiversity, human settlement and economic development; •To contribute to human, social, cultural, spiritual and economic development; •To rehabilitate and restore degraded ecosystems and promote the recovery of endangered and vulnerable species. This Act further stipulates various criteria which must be met before an area can be declared as a special nature reserve, national park, nature reserve and protected environment. It also prescribes a range of procedures, including consultation and public participation procedures which must be followed before any of the kinds of protected areas are declared.		
National Heritage Resources Act, Act No. 25 of 1999	Legislation consulted during the impact assessment process, to determine the legal requirements relating to the management of heritage resources that are present in and around the site.	SAHRA	1999
National Environmental Management: Waste Act, Act No. 59 of 2008, DEDECT together with the List of Waste Activities that Have, or are Likely to Have, a Detrimental Effect on the Environment, GN No. 921 of 29 November 2013	Legislation consulted to determine whether a waste licence will have to be obtained for the development.	NW:DEDECT Waste Section	2008
National Environmental Management: Air Quality Act (Act 39 of 2004)	To protect the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable	Department of Environmental Affairs: Directorate Air quality management	2004

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
	development while promoting justifiable economic and social Development. Construction activities may cause some air pollution.		
The Conservation of Agricultural Resources Act (Act 43 of 1983)	This Act regulates the flow pattern of runoff water, control of weeds and invader plants.	NW: Department of Agriculture	1983
National Veldt and Forest Fire Act (Act 101 of 1998)	Chapter 4 places a duty on owners to prepare and maintain firebreaks.	Department of Agriculture, Forestry and Fisheries	1998
National Forests Act, Act 84 of 1998 (NFA) DEDECT with GN1602 of December 2016.	During the construction phase of the development certain protected trees may be affected. Licences will have to be obtained from the Minister before the affected trees may be cut, disturbed, damaged or destroyed. GN1602 of December 2016 contains the list of protected trees.	Department of Agriculture, Forestry and Fisheries	1998
Occupational Health and Safety Act (Act 85 of 1993)	To provide for the health and safety of persons at work and for the health and safety of persons in connection with the use of plant and machinery and the protection of persons other than persons at work against hazards to health.	Department of Employment and labour	1993

5.2 (i) an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks, and instruments that are applicable to this activity and have been considered in the preparation of the report; and

(ii) how the proposed activity complies with and responds to the legislation and policy context, plans, guidelines, tools frameworks, and instruments explanation of how the proposed development complies with and responds to the legislation and policy context

1. Is the activity permitted in terms of the property's existing land use rights?	YES	NO	Please explain
The site is currently zoned "Residential 1A", "Business 2", "Institutional" and "Roads"			

2. Will the activity be in line with the following?			
(a) Provincial Spatial Development Framework (PSDF)	**YES**	**NO**	**Please explain**
The following spatial development framework vision was formulated for the Mahikeng Local Municipality: "Address key national, provincial and local priorities and principals in order to enhance sustainable urban and rural development and to improve the livelihood of people and by focussing the provision of social-economic infrastructure in . areas with the highest growth potential but still attending to the basic needs of people." The portion of the Remaining Extent of Erf 428, Mafikeng is located within the urban build-up area, within the urban fringe of the Mahikeng Local Municipality, as contained in the Spatial Development Framework. According to the Spatial Development Framework, the following strategic interventions should be applicable within the urban edge: •• Urban built-up areas: o Densification and integration o Urban infill o Upgrading and proper maintenance infrastructure o Urban renewal o Protection and rehabilitation of environmentally significant local open spaces o Protection of cultural heritage resources A portion of the Remaining Extent of Erf 428, Mafikeng is earmarked for future residential development, in terms of the spatial proposals contained in the Spatial Development Framework. In view of the area to be developed situated above the 1:100 year flood line, the portion of the Remaining Extent of Erf 428, Mafikeng, to be utilized for the proposed development, is situated outside the area identified as Municipal Open Space System, in terms of the proposals contained in the Spatial Development Framework. The portion of the Remaining Extent of Erf 428, Mafikeng is situated in close proximity to the R49 Road (Mafikeng I Zeerust Road), identified as a primary main road and western corridor, in terms of the proposals contained in the Spatial Development Framework. In view of the fore-mentioned, the opinion is being held that the proposed development will be in line with the spatial planning proposals contained in the Mahikeng Local Municipality Spatial Development Framework Final Draft Report - December 2018.			
(b) Urban edge / Edge of Built environment for the area	**YES**	**NO**	**Please explain**
The portion of the Remaining Extent of Erf 428, Mafikeng is located within the urban build-up area, within the urban fringe of the Mahikeng Local Municipality, as contained in the Spatial Development Framework.			

(c) Integrated Development Plan (IDP) and Spatial Development Framework (SDF) of the Local Municipality (e.g. would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?).	**YES**	**NO**	**Please explain**
A portion of the Remaining Extent of Erf 428, Mafikeng is earmarked for future residential development, in terms of the spatial proposals contained in the Spatial Development Framework. The portion of the Remaining Extent of Erf 428, Mafikeng is situated in close proximity to the R49 Road (Mafikeng I Zeerust Road), identified as a primary main road and western corridor, in terms of the proposals contained in the Spatial Development Framework. In view of the fore-mentioned, the opinion is being held that the proposed development will be in line with the spatial planning proposals contained in the Mahikeng Local Municipality Spatial Development Framework Final Draft Report - December 2018.			
(d) Approved Structure Plan of the Municipality	**YES**	**NO**	**Please explain**
No Approved structure Plan in place.			
(e) An Environmental Management Framework (EMF) adopted by the Department (e.g. Would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?)	**YES**	**NO**	**Please explain**
This area does not form part of an approved EMF adopted by the Department.			
(f) Any other Plans (e.g. Guide Plan)	**YES**	**NO**	**Please explain**
The Spatial Planning and Land Use Management Act, Act 16 of 2013, (SPLUMA) came into operation on the 1st of July 2015 and has changed the Planning profession to such an extent that Planning can no longer be used as a tool to separate people and communities. The objectives are: • *provide for a uniform, effective and comprehensive system of spatial planning and land use management for the Republic;* • *ensure that the system of spatial planning and land use management promotes social and economic inclusion;* • *provide for development principles and norms and standards;* • *provide for the sustainable and efficient use of land;* • *provide for cooperative government and intergovernmental relations amongst the national, provincial and local spheres of government; and* • *Redress the imbalances of the past and to ensure that there is equity in the application of spatial development planning and land use management systems.*			

SPLUMA's desired outcomes:

- Coherent regulatory framework;
- Constitutional synergy (clear delineation, distribution & allocation of powers among spheres);
- Predictable and transparent regulatory system; and
- Clear, rational and efficient inter-linkages of sectoral and intersphere planning tools and policies.

The following guidelines are given for Land Use Management:

- Land resources are used for a variety of purposes which interact and may compete with one another; therefore, it is desirable to plan and manage all uses in an integrated manner.
- Land use management examines all uses of land in an integrated manner, it makes it possible to minimize conflicts, to make the most efficient trade-offs and to link social and economic development with environmental protection and enhancement, thus helping to achieve the objectives of sustainable development.
- The essence of the integrated approach finds expression in the coordination of the sectoral planning and management activities concerned with the various aspects of land use and land resources.
- Integration should consider all environmental, social and economic factors.
- Integrated consideration facilitates appropriate choices and trade-offs, thus maximizing sustainable productivity and use.

The broad objective is to facilitate allocation of land to the uses that provide the greatest sustainable benefits and to promote the transition to a sustainable and integrated management of land resources.

3. Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved 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 credible IDP)?	**YES**	**NO**	**Please explain**
The site is currently zoned "Residential 1A", "Business 2", "Institutional" and "Roads" The portion of the Remaining Extent of Erf 428, Mafikeng is located within the urban build-up area, within the urban fringe of the Mahikeng Local Municipality, as contained in the Spatial Development Framework.			
4. 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**	**NO**	**Please explain**
All three spheres of government to give priority to the needs of the poor in respect of housing development. In addition, all three spheres of government must ensure that housing development: - Provides as wide a choice of housing and tenure options as is reasonably possible; - Is economically, fiscally, socially and financially affordable and sustainable; - Is based on integrated development planning; and - Is administered in a transparent, accountable and equitable manner, and upholds the practice of good governance.			

According to the Spatial Development Framework, the following strategic interventions should be applicable within the urban edge: •• Urban built-up areas: o Densification and integration o Urban infill o Upgrading and proper maintenance infrastructure o Urban renewal o Protection and rehabilitation of environmentally significant local open spaces o Protection of cultural heritage resources A portion of the Remaining Extent of Erf 428, Mafikeng is earmarked for future residential development, in terms of the spatial proposals contained in the Spatial Development Framework.			
5. Is this project part of a national programme to address an issue of national concern or importance?	**YES**	**NO**	**Please explain**
All three spheres of government to give priority to the needs of the poor in respect of housing development. In addition, all three spheres of government must ensure that housing development: • Provides as wide a choice of housing and tenure options as is reasonably possible; • Is economically, fiscally, socially and financially affordable and sustainable; • Is based on integrated development planning; and • Is administered in a transparent, accountable and equitable manner, and upholds the practice of good governance.			
6. 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.)	**YES**	**NO**	**Please explain**
The site is currently zoned "Residential 1A", “Business 2”, “Institutional” and “Roads” and Mafikeng is located within the urban build-up area, within the urban fringe of the Mahikeng Local Municipality, as contained in the Spatial Development Framework.			
7. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?	**YES**	**NO**	**Please explain**
Not listed.			

8. What will the benefits be to society in general and to the local communities?	**Please explain**

The proposed development will:

- During the construction phase of the proposed development, employment opportunities will be created and thus decrease the unemployment rate of the area. Part of the adjudication process for the successful contractor to undertake the civil works will be the use of casual and unskilled labour to stimulate local job creation using labour intensive construction methods where possible. Specific tasks have been identified as being suited to labour intensive construction (e.g. excavation of sewer trenches, laying and back filling of pipes, steel fixing, construction of storm water trenches, re-instate vegetation programs etc.). Approved training will be provided to the contractor's staff where needed.
- The site is currently zoned "Residential 1A", "Business 2", "Institutional" and "Roads"
- The portion of the Remaining Extent of Erf 428, Mafikeng is located within the urban build-up area, within the urban fringe of the Mahikeng Local Municipality, as contained in the Spatial Development Framework.
- During the operational phase of the proposed development, additional employment opportunities will be created.
- The tax base of the Mahikeng Local Municipality will be broadened.

9. Any other need and desirability considerations related to the proposed activity?	**Please explain**

Nothing that has not already been addressed.

10. How does the project fit into the National Development Plan for 2030?	**Please explain**

The National Development Plan was compiled by the National Planning Commission in2011. The vision of the plan is that South Africa will write a new story where the nation's energies are focused both on attacking poverty and expanding a robust, entrepreneurial and innovative economy. Over the next two decades and beyond, communities will need the resources and capabilities to become their own engines of development and government must support this. Government has to ensure that poor people have the environment, services and skills to improve their lives. At the same time, government must create the conditions and environment for higher levels of public and private investment to create jobs and ensure rising incomes.

The national development plan proposes to invigorate and expand the economic opportunity through investment in infrastructure, more innovation, private investment and entrepreneurialism. The economy will absorb more labour – especially of new work seekers – and wage moderation at all levels will contribute to rising employment. Broadening these opportunities requires faster, more inclusive economic growth and higher levels of investment.

The opinion is being held that the proposed development will not be in conflict with the principles contained within the fore-mentioned National Development Plan, 2030 and will assist in moving closer to a …. "*South Africa that is more inclusive, more dynamic and in which the fruits of growth are shared equitably. In 2030, the economy should be close to full employment, equip people with the skills they need, ensure that ownership of production is more diverse and able to grow rapidly, and provide the resources to pay for investment in human and physical capital*."

11. Please describe how the general objectives of Integrated Environmental Management as set out in Section 23 of NEMA as amended have been taken into account.
The IEM guidelines encourage a pro-active approach to sourcing, collating and presenting information in a manner that can be interpreted at all levels. The basic principles underpinning IEM are that there be: informed decision-making; • accountability for information on which decisions are taken; • accountability for decisions taken; • a broad meaning given to the term environment (i.e. one that includes physical, biological, social, economic, cultural, historical and political components); • an open, participatory approach in the planning of proposals; • consultation with interested and affected parties; • due consideration of alternative options; • an attempt to mitigate negative impacts and enhance positive aspects of proposals; • an attempt to ensure that the 'social costs' of development proposals (those borne by society, rather than the developers) be outweighed by the 'social benefits' (benefits to society as a results of the actions of the developers); • democratic regard for individual rights and obligations; • compliance with these principles during all stages of the planning, implementation and decommissioning of the proposals (i.e. from 'cradle to grave'); and • the opportunity for public and specialist input in the decision-making process. The general objectives of Integrated Environmental Management have been taken into account in this Basic Assessment report by means of identifying, predicting and evaluating the actual and potential impacts on the environment, socio-economic conditions and cultural considerations and cultural heritage component. The risks, consequences, alternatives as well as options for mitigation of activities have also been considered with a view to minimise negative impacts, enhance benefits and promote compliance within the principles of environmental management. Additionally the Basic Assessment process will be undertaken to ensure I&APs have been afforded the opportunity to comment on the proposed activity and that their comments/inputs/concerns will be taken into consideration during the assessment process.
12. Please describe how the principles of environmental management as set out in Section 2 of NEMA as amended have been taken into account.
The principles of NEMA have been considered in this assessment through compliance with the requirements of the relevant legislation in undertaking the assessment of potential impacts, as well as through the implementation of the principle of sustainable development. In addition, the successful implementation and appropriate management of this project will ensure socio-economic upliftment. This process will be undertaken in a transparent manner and all efforts will be made to involve interested and affected parties, stakeholders and relevant Organs of State such that an informed decision can be made by the Regulating Authority.

The study is conducted in such a way as to comply with the instructions regarding such studies and reports (as contained within the above-mentioned documents).

The following aspects have been dealt with:

SCHEDULE

Actions	Timeframe
1 Communication with authorities and source and analyse relevant baseline information and undertake site inspections	3 days
2 Compile Environmental Application Form for the project	2 days
3 Compile an *information requirements list* to be distributed to the project team. The Information required would assist with completion of the BAR.	2 days
4 Identify key interested and affected parties (I&APs)	1 day
5 Compilation of terms of reference for specialist studies	2 days
6 Commission specialist studies	1 day
7 Compile draft BAR and make available to the public for a 30 day commenting period and submit the application form to the competent authority. **NB: According to the new Regulations a BAR must be submitted 90 days after the application has been submitted. The implication is that all information must be available within 80 days after submitting the Application.**	3 days for compilation and 30 days for commenting period (The competent authority has 90 days to request additional information or to refuse the application, from the date of submission)
8 Prepare an Information Sheet (summary of the draft BAR) and distribute to I&APs	1 day
9 Compile and publish media notices (for the BAR) in relevant newspapers	7 – 10 days depending on the day the newspaper is published
10 Compile and place poster/s along the boundary of the site	1 day
11 Hold a public meeting / Open House / focus meeting with I&APs	1 day
12 Receive and address first round of comments from public	3 days
13 Should the draft BAR require substantial changes, these changes will be incorporated into the draft BAR and distributed	Included above (allow an additional 50 days to include #14 below)
14 Allow the identified public to provide comment within a 30 day period on above report.	3 days for compilation and 30 days for commenting period (Competent authority has an additional 50 days)
15 Address comments received on the draft BAR, Finalise BAR and update comments and response table; finalise Basic Assessment Report and submit to authorities	5 days

16 Submit final BAR to authorities for a final decision	1 day, The department has 107 days from the date of receipt to review and come to a final decision.
17 Once the decision is issued, all I&Ps must be formally informed of the decision	20 days
TOTAL AMOUNT OF DAYS:	**197 days**

6. NEED AND DESIRIBILITY

The local municipality intends to promote a more compact city in order to prevent the expansive provision of social and engineering services, as well as to prevent the economic decline of the traditional city centre. The Spatial Development Framework (SDF) addresses the scale or urban growth through planned extensions, infill and redevelopment strategies. The local municipality is aware of the need to integrate urban settlements, with a view to reduce travel distances to the areas of employment opportunities. It also addresses measures to promote compact and connected growth opportunities, such as the identification of revitalisation zones, densification and mixed land use zones. For any development to be sustainable and viable, land development and planning should ensure that communities are located close to job opportunities, social facilities and basic services.

The SDF and the Land Use Management system of the Local Municipality have identified certain areas that must address previously disadvantaged areas and historically disadvantaged residents. There is a definite need for the residents to have reasonable access to opportunities and facilities that supports living in the urban Settlement. It is the responsibility of the local municipality to ensure that the residents have reasonable access to community services and amenities, as well as employment opportunities and that the form of land development need to provide for basic needs in an affordable way. The proposed development will be in line with this principle by ensuring that people living the area do in fact have reasonable access to opportunities and facilities.

The planning practices of the past have resulted in sprawling urban areas that are un-economical. Today, planning policies are transformed to mainly encourage infill development on vacant land within the urban environment, in order to combat urban sprawl. The proposed development falls in line with these principals, as it is located within the urban area and is surrounded by urban development.

The proposed development addresses the need identified by the Mahikeng Local Municipality, for the provision of additional business properties, to be alienated by means of full title and will provide for a mixed land use and social mix, such as the availability of housing in different price ranges.

During the construction phase, temporary employment will be created. The increased employment in the area during the construction phase will also result in increased expenditure, which, in addition, will mean that more than just the proposed jobs required for the construction on the site will be created due to economic spin-offs that will resultThe site is currently zoned "Residential 1A", “Business 2”, “Institutional” and “Roads” and Mafikeng is located within the urban build-up area, within the urban fringe of the Mahikeng Local Municipality, as contained in the Spatial Development Framework.

The opinion is being held that the proposed development will strengthen the residential sector within the Mahikeng Local Municipality, due to the provision of additional residential erven within the urban area. By strengthening the residential sector within the Mahikeng Local Municipality, the proposed development will contribute to the broadening of the income base of the Mahikeng Local Municipality.

In view of the objectives contained within the Mahikeng Local Municipality Spatial Development Framework Final Draft Report - December 2018, the Mahikeng Local Municipality envisages to serve the social needs and requirements of the population more properly and to become economically competitive, when compared to other town and cities.

The proposed development will give rise to the creation of additional job opportunities, with specific reference to the construction sector, when installing engineering services and erecting additional dwelling units, resulting in the lowering of the poverty level within the area of jurisdiction of the Mahikeng Local Municipality

The development will alleviate the housing shortage in the area as well as provide job opportunities during all phases and thus the unemployment rate of the area will be reduced.

7. ALTERNATIVES

One of the objectives of the Basic Assessment process is to investigate alternatives to the proposed project. The IEM procedure stipulates that the environmental investigation needs to consider feasible alternatives for any proposed development. Therefore, a number of possible proposals or alternatives for accomplishing the same objectives should be identified and investigated. In order to ensure that the proposed development enables sustainable development, feasible alternatives must be explored (S. Cliff, 2015).

The identification, description, evaluation and comparison of alternatives are important for ensuring a sound environmental scoping process. Alternatives should be considered as a norm within the Environmental Process (S. Cliff, 2015).

The alternatives considered for the proposed development includes land use alternatives (including the No-go option). The various alternatives that will be assessed is in terms of environmental, social and technical feasibility.

7.1 Land Use Alternatives

7.1.1 Mixed land use township (Alternative 1)

Alternative Site layouts have been developed for the proposed development.

The appointed Town and Regional planner have produced the proposed layout plan.

The township is proposed to comprise:

LAND USE	NUMBER OF ERVEN	AREA IN SQUARE METERS
RESIDENTIAL 1	119	69 466
BUSINESS 1	1	10 234

CHURCH	1	1 302
CRÈCHE	1	929
STREET		42 932
TOTAL AREA		124 863

People want easy access to job opportunities, shops, schools, banking facilities, clinics, etc. and want their living environment to be placed at strategic positions with good access routes in close proximity to these amenities.

A mixed land use development is *socially responsible* based on the following:

- It covers the mixed and lower income bracket by providing a higher density housing option;
- The development will inevitably support the use of public transport;
- The development will include supporting social infrastructure as well as retail and commercial activities;
- The layout of the development must respond to the future road planning for the area, to facilitate and maximise pedestrianisation and public transport.
- Commercial erven can accommodate a shopping centre, to service the existing formalised settlements in the area. The commercial node will:
    - Promote entrepreneurial services and products;
    - Be within walking distance to places of refreshment and trade for residents;
    - Provide Job opportunities; and
    - Improve neighbourhood quality.

7.1.2 Single land use: Housing only (Alternative 2)

By providing only one land use type (i.e., housing), mixed income development and social integration across race and income levels, cannot be achieved.

A Commercial node on site is commonly utilised as a "Multi-Purpose Community Centre/Rural Service Centre" which is defined as "a focal point at which a range of essential services can be obtained by people living in its vicinity". In turn, a commercial node acts as a pool of human and physical resources from which the inputs necessary for development can be distributed efficiently, and from which a community can draw to promote their development".

By restricting a township to one land use only, the above benefits to the local community, and subsequent council area, cannot be realised, and hence, is not a preferred land use option.

7.1.3 No-go Alternative

The only other alternative that exists for the proposed development is the "no-go" option which will imply that the status quo will prevail. This is unacceptable, as other land parcels will have to be sourced to provide for this need within the community. This will imply that infill development will not take place and will result in urban sprawl.

8. DESCRIPTION OF THE ENVIRONMENT THAT MAY BE AFFECTED BY THE PROJECT

8.1 BIO-PHYSICAL ASPECTS

8.1.1 GEOLOGY & SOILS

The site is underlain by basaltic amygdaloidal lava, agglomerate & tuff of the Allanridge Formation, and amygdaloidal lava& tuff of the Rietgat Formation, Platberg Group, of the Ventersdorp Supergroup.

Some severe problems are foreseen regarding the excavatability to 1,5m depth on site. Building rubble and waste covers a large portion of the site.

Zoning of the site revealed a zone with constraints regarding the marginally low to medium heave potential of the soil.

The engineering geological site classification indicating special development was as follows:

Modified Normal to Special Development:
Site Class H1R/2C3F:
Slightly to marginally medium expansive soil with less than 0,75m in thickness with an estimated total heave up to 15mm measured at surface, underlain by a pebble marker or lava characterize this zone, requiring modified normal foundation techniques to enable proper development, with modified normal construction including lightly reinforced strip footings and articulation joints, or soil replacement with an engineered soil raft with a COLTO classification of at least G5 or better, with drainage provision. Site drainage, a concrete apron of 1,0m around all structures without gardening around structures and plumbing and service precautions are advised. It was classified as H1R in terms of the NHBRC guidelines (1995) or the SAICE Code of practice (1995) and 2C3F according to the classification for urban development (Partridge, Wood & Brink).

Site Class PQ/HPQ:
Old borrow pits and quarries (PQ) or areas where spoil or building rubble (HPQ) were dumped need to be rehabilitated by removing the waste or by backfilling the quarries with an engineered fill with a COLTO classification of at least G5 or better compacted in layers. Any quarry or borrow pit must be backfilled with a controlled fill to engineers specification before any development can take place.

Undevelopable:
Site Class PD/3L: Perennial drainage features where the 1:100 year flood line will determine or specify the allowable distance of development from rivers, usually 32m from the canter of the river.

Special construction techniques must be used to enable proper development. This includes the use of compaction techniques with steel reinforcement or soil rafts as described.

8.1.2 TOPOGRAPHY
The site is located on a shallow slope towards the south-west. Old borrow pits, quarries and areas where spoil or building rubble were dumped are present on site.

A detailed site survey has been carried out to establish levels. The Layout plan will address issues regarding storm water. As the proposed development will be in close proximity to residential areas, safety of children and people need to be taken into consideration.

8.1.3 CLIMATE

The climate of the area is typical of the South African interior. In the discussion of this variable, certain aspects of rainfall, temperature and wind that can influence the project will be highlighted.

It must be noted that the climatic data are recorded in the Department of Environmental Affairs (1988) climatic data records. Data for Mafikeng weather station (0508/261 0) is available. The station has continuous records since 1920.

8.1.3.1 Rainfall

The average annual rainfall for the area is 553mm per annum. The highest annual rainfall recorded during the period for which the record is available is 868 mm (1918), while a yearly low of 265mm was recorded in 1930. Of note is the maximum-recorded daily rainfall of 101mm that was recorded on 16/12/1942.

The highest recorded monthly rainfall was recorded during January 1976 namely 360mm. Of importance is the fact that monthly minima of zero rainfall have been recorded for 6 months of the year.

The variability of rainfall as well as the high intensity events will definitely influence the project. On average however, the impact of rainfall can be considered as positive, as sufficient water is generally available for sustaining vegetation. Extreme dry conditions during dry spells will negatively affect the project due to the secondary effects on vegetation as well as the possibility of fire hazards. Extreme maximum events can also have a negative effect on the project during all its phases.

The overall impact can therefore be considered to be “variable” during the construction and operational phases (local in extent and long term in duration). The likelihood that these impacts may occur is probable, medium in intensity and significance. Steps to mitigate negative effects will be described in various sections of the Management Plan.

Due to the scale of the operation, the rainfall of the area cannot be affected by the project and is therefore “Not Applicable”.

8.1.3.2 Temperature

The average daily maximum temperature for the winter months for the area is approximately 20º C. The average daily minimum for that time of the year is in the order of 4,5º C.

During the summer months, the average daily maximum is in the order of 29º C and the daily average minimum approximately 16ºC. The highest daily maximum recorded was 40,2ºC while the lowest recorded temperature was -2,5ºC.

In combination with a dry spell, such hot temperatures may be favourable for the spreading of veldt fires.

The general impact of this variable on the project can be considered as positive during the construction and operational phases. The impacts can however be considered as having low intensity impacts of low significance. The extent is local and short term in duration.

Due to the scale of the project, it is clear that it will have no impact on the environment".

8.1.3.3 Wind

The average wind direction for the area during the summer months is from the north-to-north easterly quadrant, while during the early spring the direction is more north westerly. Southerly winds generally occur during the winter, but are not frequent. Normally very little wind is experienced during the winter due to the presence of the high-pressure cell situated over the country during that time of the year.

The wind speeds are normally fairly low, but high wind speeds may occur during early spring and during of thundershowers.

Wind can be considered as having a low intensity, and a low significance negative impact on the construction and operational phases of the project. The probability is probable and the impacts are local but short in duration. The project can have no influence on the wind and is therefore "not applicable.

8.1.3.4 Climate Change

According to: WIREs Climate Change 2014, 5605-620. Doi:10.1002/wcc.295: "Climate change is a key concern within South Africa. Mean annual temperatures have increased by at least 1.5 times the observed global average of 0.65∘C over the past five decades and extreme rainfall events have increased in frequency. These changes are likely to continue. Climate change poses a significant threat to South Africa's water resources, food security, health, infrastructure, as well as its ecosystem services and biodiversity. Considering South Africa's high levels of poverty and inequality, these impacts pose critical challenges for national development. In relation to water, impact studies for the water resources sector have begun to look beyond changes in streamflow to changes in the timing of flows and the partitioning of streamflow into base flows and stormflows, reservoir yields, and extreme hydrological events. Spatially the eastern seaboard and central interior of the country are likely to experience increases in water runoff. Higher frequencies of flooding and drought events are projected for the future. Complexities of the hydrological cycle, influences of land use and management and the linkages to society, health, and the economy indicate far higher levels of complexity in the water resources sector than in other sectors. What has emerged is that land uses that currently have significant impacts on catchment water resources will place proportionally greater demands on the catchment's water resources if the climate were to become drier. The influence of climate change on water quality is an emerging research field in South Africa, with assessments limited to water temperature and non-point source nitrogen and phosphorus movement. A critical interaction that has not been explored is between changes in water quality and quantity and the combined impacts, such changes might have impact on various types of water use, e.g., irrigation, domestic consumption, or aquatic ecosystems support".

Water availability and demand has been calculated by the consulting Civil Engineers, to enable a sustainable waterborne sewage system as well as potable water supply for both the existing and future developments in the area

8.1.4 SURFACE DRAINAGE, WETLANDS AND RIPARIAN ZONES

The site is riparian to the **Molopo River** and the 1:100 year flood lines must therefore be shown on the layout plans. ***CWT Consulting*** was appointed to calculate the 1:100 year flood levels. Figure 5 is a copy of the map indicating the 1:100 year flood line. This was incorporated into the final layout plan and development will not occur below the 1:100 year flood line. The Ecological Fauna and Flora Habitat Specialist (Who is also a wetland Specialist) has also determined the "route of the active channel", the "riparian zone" and the "outer edge of the buffer zone". See Figure 6. This information was used to develop the final layout plan.

Absence of wetlands
Wetlands such as floodplain wetlands, channelled valley-bottom wetlands, unchannelled valley-bottom wetlands, depressions, seeps and wetland flats appear to be absent at the site. No wetlands are found at the site.

Erosion by sheet flow may occur in disturbed areas. Storm water drainage will have to be considered during the planning phase of the development and will have to be incorporated into the final layout plan. Special care must be taken to ensure adequate surface drainage to prevent the accumulation of water next to structures. Storm water diversion measures such as ponding pools are recommended to control peak flows during thunderstorms. All embankments must be adequately compacted and planted with grass to stop any excessive erosion and scouring of the landscape.

8.1.5 GROUND WATER

Plate flow is the dominant drainage pattern on site, and no drainage channel intersects the site. Drainage occurs in a south-westerly direction towards the Molopo River. The permanent or perched water table on site is deeper than 1,5m below ground surface.

Possible infiltration into the groundwater must be taken into account. During the construction phase, no spills of lubricants or construction worker sewage should be allowed to pollute the ground water. These aspects are addressed in the EMP.

8.1.6 FLORA AND FAUNA

The site is situated at the Grassland Biome which is represented by the Klerksdorp Thornveld vegetation type (Mucina & Rutherford, 2006). A brief overview of the vegetation type, which serves as an outline of the ecological context of the site, follows.

Klerksdorp Thornveld (Gh 13)

Distribution: In South Africa the Klerksdorp Thornveld is present in the North West Province in two sets of patches, one in the Wolmaransstad, Ottosdal and Hartbeesfontein region, and the other from the Botsalano Game Park north of Mafikeng in the vicinity of Madibogo in the south. Altitude for the entire vegetation type is 1260 – 1580 m (Mucina & Rutherford 2006).

Vegetation and landscape features: Plains or slightly irregular undulating plains with open to dense Acacia karroo bush clumps in dry grasslands (Mucina & Rutherford 2006). Geology and soils: Shale, slate and quartzite of the Pretoria Group with interlaid diabase sills and Hekpoort lava supporting relatively shallow and rocky soils (Glenrosa and Mispah forms). Equally represented are eutrophic red plinthic soils (Hutton form) derived mainly from a thick succession of volcanics and sediments of the Ventersdorp Supergroup (Mucina & Rutherford 2006).

Climate: Warm-temperate, summer-rainfall region, with overall mean annual precipitation of 533 mm. Summer temperatures are high. Frequent frosts occur in winter (Mucina & Rutherford 2006).

Important taxa of the Klerksdorp Thornveld listed by Mucina & Rutherford (2006): Small Trees: Acacia karroo, Acacia caffra, Celtis africana, Searsia lancea, Ziziphus mucronata. Tall Shrubs: Acacia hebeclada, Diospyros lycioides subsp. lycioides, Ehretia rigida, Grewia flava, Gymnosporia buxifolia, Searsia pyroides, Tarchonanthus camphoratus. Woody Climber: Asparagus africanus. Low Shrubs: Asparagus laricinus, Asparagus suaveolen*s, Felicia muricata,*

Anthospermum hispidulum, Anthospermum rigidum subsp. *pumilum, Aptosimum elongatum, Gnidia capitata, Gomphocarpus fruticosus* subsp. *fruticosus, Helichrysum dregeanum, Leucas capensis, Pavonia burchellii, Pentzia globosa, Solanum supinum* var. *supinum, Triumfetta sonderi, Ziziphus zeyheriana*. Graminoids: *Aristida congesta, Cynodon dactylon, Eragrostis lehmanniana, Eragrostis trichophora, Microcloa caffra, Panicum coloratum, Sporobolus fimbriatus, Themeda triandra, Andropogon shirensis, Anthephora pubescens, Aristida junciformis* subsp. *galpinii, Aristida stipitata* subsp. *graciliflora, Brachiaria nigropedata, Brachiaria serrata, Bulbostylis burchellii, Cymbopogon pospischilii, Digitaria eriantha, Diheteropogon amplectens, Elionurus muticus, Eragrostis curvula, Eragrostis obtusa, Eragrostis racemosa, Eragrostis superba, Eustachys paspaloides, Heteropogon contortus, Setaria sphacelata, Sporobolus africanus, Tragus berteronianus, Trichoneura grandiglumis, Triraphis andropogonoides.* Herbs: *Acalypha angustata, Acanthospermum australe, Berkheya onopordifolia* var. *onopordifolia, Berkheya setifera, Blepharis integrifolia* var. *clarkei, Chamaesyce inaequilatera, Chascanum adenostachyum, Dicoma macrocephala, Helichrysum nudifolium* var. *nudifolium, Hermannia lancifolia, Hibiscus pusillus, Jucticia anagalloides, Lippia scaberima, Nidorella microcephala, Nolletia ciliaris, Pollichia campestris, Rhyncosia adenodes, Salvia radula, Selago densiflora, Teucrium trifidum, Tolpis capensis.* Geophytic Herbs: *Bulbine narcissifolia, Ledebouria marginata, Ornithogalum tenuifolium* subsp. *tenuifolium, Raphionacme hirsuta.* Herbaceous Climber: *Rhynchosia venulosa.*

Note: Not all of the above listed plant species for the vegetation types occur at the *site in the study area.*

Vegetation at most of the site appears to be degraded or modified. A grassland with some indigenous tree species such as Vachellia tortilis, Searsia lancea, Searsia pyroides, Ziziphus mucronata and Grewia flava are found at the site. Alien invasive tree species such as Melia azedarach also occurs at the site as well as the alien invasive succulent Cylindropuntia imbricata. Clumps of the widespread indigenous shrub Asparagus laricinus are present at the site. Indigenous grass species include Urochloa mocambicensis, Heteropogon contortus, Aristida congesta, Cynodon dactylon, Eragrostis lehmanianna, Chloris virgata, Eragrostis superba, Tragus berteronianus and Melinis repens. Indigenous forbs and dwarf shrubs include Berkheya onopordifolia var. onopordifolia, Chascanum pinnatifidum, Helichrysum nudifolium, Lippia scaberima, Rhyncosia adenodes, Selago densiflora, Gazania krebsiana, Bulbine narcissifolia, Euphorbia inaquilatera, Felicia muricata, Pollichia campestris, Nidorella microcephala, Teucrium trifidum and Osteospermum muricatum.

Alien invasive weed species are visible at previously cleared and previously cultivated areas. These alien invasive weeds include Verbena aristigera, Flaveria bidentis, Datura ferox, Argemone ochroleuca, Gomphrena celosioides, Schkuhria pinnata, Tagetes minuta, Verbesina encelioides and Conyza bonariensis.

Wetlands and rocky ridges appear to be absent at the site.

A non-perennial river, the Molopo river, occurs south of the site within 500 m from the edge of the site.

Grassland at the site is represented by the Klerksdorp Thornveld (Gh 13) which is not listed as a Threatened Ecosystem according to the National List of Threatened Ecosystems (2011).

No Threatened or Near Threatened plant or animal species appear to be resident at the site. No other plant or animal species of particular conservation concern appear to be present at the site. The scope for the site to be part of a corridor of particular conservation importance is small. Ecological sensitivity at the site is medium and low. See Sensitivity Map below.

Sensitivity Map of development footprint as generated by the Fauna and Flora Habitat Specialist.

Red outline	Boundaries of the site
Green outline and shading	Medium-high sensitivity
Orange-brown outline and shading	Medium-low sensitivity

Photograph 6 "Knot" formed by entangled inflorescences of the widespread indigenous grass species, Heteropogon contortus (Spear Grass), at the site.

Photograph 7 Sunflower, Helianthus annuus, at disturbed area at the site.

Photograph 8: The alien invasive weed, Physalis viscosa (Sticky Gooseberry) at the site.

Photograph 9 Flowers and foliage of the alien invasive weed Flaveria bidentis (Smelter's Bush) at the site.

Photograph 10: Dense cover of the alien invasive weed, Datura ferox (Large Thorn-apple) at the site.

Habitat and vegetation characteristics

Plants

Extinct, threatened, near threatened and other plant species of high conservation priority in North West Province are listed in Tables 4.2 – 4.8. (Of the Fauna and Flora Habitat Report. Appendix C of this Report.) Protected tree species are listed in Table 4.9. (Of the Fauna and Flora Habitat Report. Appendix C of this Report.). The presence or not of all the species listed in the tables were investigated during the survey. None of the Threatened and Near Threatened plant species are likely to occur on the site. No other plant species of particular conservation concern is likely to occur at the site.

Vertebrates

Mammals

Since the site falls outside reserves, threatened species such as the black rhinoceros (*Diceros bicornis*) and the African wild dog (*Lycaon pictus*) are obviously not present. No smaller mammals of particular high conservation significance are likely to be found on the site as well.

Birds

With bird species which often have a large distributional range, their presence does not imply that they are particularly dependent on a site as breeding location. Literature sources that were mainly consulted are Barnes (2000), Hockey, Dean & Ryan, P.G. (2005) and Chittenden (2007). No threat to any threatened bird species or any bird species of particular conservation importance are foreseen.

Reptiles

The Southern African Reptile Conservation Assessment (SARCA) was launched in May 2005 (Branch, Tolley, Cunningham, Bauer, Alexander, Harrison, Turner & Bates, 2006). Its primary aim is to produce a conservation assessment for reptiles of South Africa, Lesotho and Swaziland within a four year period, ending 2009 (Branch *et al*., 2006). Therefore a full up-dated conservation assessment of reptiles, taking into account the recent IUCN (2001) criteria, will only be available in the near future. While the conservation statuses of reptile species are under revision Alexander & Marais (2007) as well as Tolley & Burger 2007) give useful indications of possible red listings in the near future. There appears to be no threat to any reptile species of particular high conservation importance if the site is developed.

Amphibians
No frog species that occur in the North West are listed as Threatened species (Vulnerable, Endangered or Critically Endangered) or Near Threatened species according to IUCN Amphibian Specialist Group (2013). Table 4.17 lists *Pyxicephalus adspersus* (Giant Bullfrog) as Least Concern globally. Suitable habitat for Giant Bullfrog at site appears to be absent.

Invertebrates

Butterflies
Studies about the vegetation and habitat of threatened butterfly species in South Africa showed that ecosystems with a unique combination of features are selected by these often localised threatened butterfly species (Deutschländer and Bredenkamp 1999; Edge 2002, 2005; Terblanche, Morgenthal & Cilliers 2003; Lubke, Hoare, Victor & Ketelaar 2003; Edge, Cilliers & Terblanche, 2008). Threatened butterfly species in South Africa can then be regarded as bio-indicators of rare ecosystems.

Four species of butterfly in Gauteng Province and North West Province combined are listed as threatened in the recent butterfly conservation assessment of South Africa (Mecenero *et al*., 2013). The expected presence or not of these threatened butterfly species as well as species of high conservation priority that are not threatened, at the site.

Assessment of threatened butterfly species

***Aloeides dentatis dentatis (*Roodepoort Copper)**
The proposed global red list status for *Aloeides dentatis dentatis* according to the most recent IUCN criteria and categories is Endangered (Mecenero *et al.,* 2013). *Aloeides dentatis dentatis* colonies are found where one of its host plants *Hermannia depressa* or *Lotononis eriantha* is present. Larval ant association is with *Lepisiota capensis* (S.F. Henning 1983; S.F. Henning & G.A. Henning 1989). The habitat requirements of *Aloeides dentatis dentatis* are complex and not fully understood yet. See Deutschländer and Bredenkamp (1999) for the description of the vegetation and habitat characteristics of one locality of *Aloeides dentatis* subsp. *dentatis* at Ruimsig, Roodepoort, Gauteng Province. There is not an ideal habitat of *Aloeides dentatis* subsp. *dentatis* on the site and it is unlikely that the butterfly is present at the site.

Chrysoritis aureus (Golden Opal/ Heidelberg Copper)
The proposed global red list status for *Chrysoritis aureus* according to the most recent IUCN criteria and categories is Endangered (Mecenero *et al.,* 2013) *Chrysoritis aureus* (Golden Opal/ Heidelberg Copper) is a resident where the larval host plant, *Clutia pulchella* is present. However, the distribution of the butterfly is much more restricted than that of the larval host plant (S.F. Henning 1983; Terblanche, Morgenthal & Cilliers 2003). One of the reasons for the localised distribution of *Chrysoritis aureus* is that a specific host ant *Crematogaster liengmei* must also be present at the habitat. Fire appears to be an essential factor for the maintenance of suitable habitat (Terblanche, Morgenthal & Cilliers 2003). Research revealed that *Chrysorits aureus* (Golden Opal/ Heidelberg Copper) has very specific habitat requirements, which include rocky ridges with a steep slope and a southern aspect (Terblanche, Morgenthal & Cilliers 2003). Owing to a lack of habitat requirements and ideal habitat the presence of the taxon is highly unlikely.

***Lepidochrysops praeterita* (Highveld Blue)**
The proposed global red list status for *Lepidochrysops praeterita* according to the most recent IUCN criteria and categories is Endangered (G.A. Henning, Terblanche & Ball, 2009; Mecenero *et al.,* 2013). *Lepidochrysops praeterita* is a butterfly that occurs where the larval host plant *Ocimum obovatum* (= *Becium obovatum*) is present (Pringle, G.A. Henning & Ball, 1994), but the distribution of the butterfly is much more restricted than the distribution of the host plant. *Lepidochrysops praeterita* is found on selected rocky ridges and rocky hillsides in parts of Gauteng, the extreme northern Free State and

the south-eastern Gauteng Province. No ideal habitat appears to be present for the butterfly on the site. It is unlikely that *Lepidochrysops praeterita* would be present on the site and at the footprint proposed for the development.

***Orachrysops mijburghi* (Mijburgh's Blue)**
The proposed global red status for *Orachrysops mijburghi* according to the most recent IUCN criteria and categories is Endangered (Mecenero *et al.,* 2013). *Orachrysops mijburghi* favours grassland depressions where specific *Indigofera* plant species occur (Terblanche & Edge 2007). The Heilbron population of *Orachrysops mijburghi* in the Free State uses *Indigofera evansiana* as a larval host plant (Edge, 2005) while the Suikerbosrand population in Gauteng uses *Indigofera dimidiata* as a larval host plant (Terblanche & Edge 2007). There is no suitable habitat for *Orachrysops mijburghi* on the site and it is unlikely that *Orachrysops mijburghi* would be present on the site.

Conclusion on threatened butterfly species
There appears to be no threat to any threatened butterfly species if the site is developed.

Assessment of butterfly species that are not threatened but also of high conservation priority

Colotis celimene amina (Lilac tip)
Colotis celimene amina is listed as Rare (Low density) by Mecenero *et al.* (2013). In South Africa *Colotis celimene amina* is present from Pietermaritzburg in the south and northwards into parts of Kwa-Zulu Natal, Gauteng, Limpopo, Mpumalanga and the North West Provinces (Mecenero *et al.* In press.). Reasons for its rarity are poorly understood. It is highly unlikely that *Colotis celimene amina* would be resident at the site.

Lepidochrysops procera (Savanna Blue)
Lepidochrysops procera is listed as Rare (Habitat specialist) by Mecenero *et al.* (2013). *Lepidochrysops procera* is endemic to South Africa and found in Gauteng, KwaZulu-Natal, Mpumalanga and North West (Mecenero *et al.,* 2013). Owing to a lack of habitat requirements and ideal habitat the presence of the taxon at the site is highly unlikely.

Metisella meninx (Marsh Sylph)
Henning and Henning (1989) in the first South African Red Data Book of Butterflies, listed *Metisella meninx* as threatened under the former IUCN category Indeterminate. Even earlier in the 20th century Swanepoel (1953) raised concern about vanishing wetlands leading to habitat loss and loss of populations of *Metisella meninx*. According to the second South African Red Data Book of butterflies (Henning, Terblanche & Ball, 2009) the proposed global red list status of *Metisella meninx* has been Vulnerable. During a recent large scale atlassing project the *Conservation Assessment of Butterflies of South Africa, Lesotho and Swaziland: Red List and Atlas* (Mecenero *et al.,* 2013) it was found that more *Metisella meninx* populations are present than thought before. Based on this valid new information, the conservation status of *Metisella meninx* is now regarded as Rare (Habitat specialist) (Mecenero *et al.,* 2013). Though *Metisella meninx* is more widespread and less threatened than perceived before, it should be regarded as a localised rare habitat specialist of conservation priority, which is dependent on wetlands with suitable patches of grass at wetlands (Terblanche In prep.). Another important factor to keep in mind for the conservation of *Metisella meninx* is that based on very recent discoveries of new taxa in the group the present *Metisella meninx* is species complex consisting of at least three taxa (Terblanche In prep., Terblanche & Henning In prep.). The ideal habitat of *Metisella meninx* is treeless marshy areas where *Leersia hexandra* (rice grass) is abundant (Terblanche In prep.). The larval host plant of *Metisella meninx* is wild rice grass, *Leersia hexandra* (G.A. Henning & Roos, 2001). Owing to a lack of habitat requirements and ideal habitat the presence of the taxon at the site is highly unlikely.

Platylesches dolomitica (Hilltop Hopper)
Platylesches dolomitica is listed as Rare (Low density) by Mecenero *et al.* (2013). Historically the conservation status of *Platylesches dolomitica* was proposed to be Vulnerable (Henning, Terblanche & Ball 2009). However this butterfly which is easily overlooked and has a wider distribution than percieved before. *Platylesches dolomitica* has a patchy distribution and is found on rocky ledges where *Parinari capensis* occurs, between 1300 m and 1800m (Mecenero *et al*. 2013, Dobson Pers comm.). Owing to a lack of habitat requirements and ideal habitat the presence of the taxon at the site is highly unlikely.

Fruit chafer beetles

No *Ichnestoma stobbiai* or *Trichocephala brincki* were found during the surveys. There appears to be no suitable habitat for *Ichnestoma stobbiai* or *Trichocephala brincki* at the site. There appears to be no threat to any of the fruit chafer beetles of particular high conservation priority if the site were developed.

Scorpions

None of these rock scorpions have been found at the site and the habitat does not appear to be optimal.

8.2 SOCIO ECONOMIC FACTORS

8.2.1 SOCIAL AMENITIES

The local municipality intends to promote a more compact city in order to prevent the expansive provision of social and engineering services, as well as to prevent the economic decline of the traditional city centre. The Spatial Development Framework (SDF) addresses the scale or urban growth through planned extensions, infill and redevelopment strategies. The local municipality is aware of the need to integrate urban settlements, with a view to reduce travel distances to the areas of employment opportunities. It also addresses measures to promote compact and connected growth opportunities, such as the identification of revitalisation zones, densification and mixed land use zones. For any development to be sustainable and viable, land development and planning should ensure that communities are located close to job opportunities, social facilities and basic services.

The SDF and the Land Use Management system of the Local Municipality has identified certain areas that must address previously disadvantaged areas and historically disadvantaged residents. There is a definite need for the residents to have reasonable access to opportunities and facilities that supports living in the urban Settlement. It is the responsibility of the local municipality to ensure that the residents have reasonable access to community services and amenities, as well as employment opportunities and that the form of land development need to provide for basic needs in an affordable way. The proposed development will be in line with this principle by ensuring that people living the area do in fact have reasonable access to opportunities and facilities.

The planning practices of the past has resulted in sprawling urban areas that are un-economical. Today, planning policies are transformed to mainly encourage infill development on vacant land within the urban environment, in order to combat urban sprawl. The proposed development falls in line with these principals, as it is located within the urban area and is surrounded by urban development. .

The proposed development addresses the need identified by the Mahikeng Local Municipality, for the provision of additional business properties, to be alienated by means of full title and will provide for a mixed land use and social mix, such as the availability of housing in different price ranges.

During the construction phase, temporary employment will be created. The increased employment in the area during the construction phase will also result in increased expenditure, which, in addition, will mean that more than just the proposed jobs required for the construction on the site will be created due to economic spin-offs that will result.

8.2.2. AIR QUALITY

"The extent and toxicity of emissions is not necessarily a concise indicator of contributions to ground-level air pollution concentrations or of risks to health and the environment. Such contributions are also a function of the height of emission, temporal variations in the release of pollutants, and the proximity of the source to the people or the environment affected by exposure to the pollutant (such as, for instance, children, or the elderly, or people who are ill, or others who may be particularly sensitive receptors to a specific pollutant above a certain concentration). If an industry is operating close to a school or hospital or centre for the elderly, the potential exposure (in combination with the other contributing factors) is high.

Three factors govern the significance of household fuel-burning emissions:

(i) the low level of emissions (that is, their height above the ground is generally about 3 m, within people's breathing zone);
(ii) the simultaneous occurrence of peak emissions (during the coldest months of winter and in the early mornings and throughout the evenings) and poor atmospheric dispersion (stable atmosphere with low wind speeds, with the possible development of temperature inversions); and
(iii) the release of such emissions within high human exposure areas, given that such emissions generally occur in dense, low-income settlements where population density is high (in addition, the pollution is not only outdoors, but frequently indoors as well, due to poor ventilation, so it affects the whole family).

The significance of vehicle emissions as contributors to air-pollutant concentrations and health risks is similarly increased by the low level (close to the ground) of the emissions, and their proximity to highly populated areas – on highways, for example, with emissions being particularly high when traffic is congested. Vehicle emissions tend to peak early in the morning and in the evenings, when the potential for atmospheric dispersion is reduced (for example, wind speeds are generally low in the early mornings and evenings, reducing their potential for dispersing pollution).

Given the high volumes of pollutants emitted from fuel-burning within the industrial and power-generation sectors, their contribution to ambient concentrations and public health risks is often lower than might be expected. This is because these sources are generally characterized by constant releases, relatively high above ground level, and further away from residential settlements than are household fuel-burning and vehicle emissions.

Ranking the significance of different sources of pollution on the basis of the total emissions for which each source is responsible would, for example, place industrial emissions above household fuel-burning. If the aim is to reduce impacts on human health, however, then household fuel-burning would need to be targeted as a top priority (Scorgie et al., 2004d).

Historically, air pollution control in South Africa has primarily emphasized the implementation of 'command and control' measures in the industrial sector. The shift from source-based control, to the management of the air that people breathe, emphasizes the importance of targeting a wider range of sources and using more flexible and varied approaches. It means paying greater attention to ambient air quality, as it is more important (and more cost-effective, in many cases) to make sure that the ambient air complies with air quality standards. This approach ensures that human and environmental health is protected and that the cumulative impact of pollution from a number of sources is addressed.

Approaches adopted or considered for future implementation have included: regulation (for example, the use of Atmospheric Emission Licences for Listed Activities); market instruments (such as atmospheric user-charges and pollution taxes); the

potential for voluntary agreements, education and awareness raising; and emissions trading. International experience shows that adopting a mix of instruments and interventions is more effective than using a single instrument to improve air quality across various types of source. Although direct regulation remains important in controlling industrial sources, there is evidence that specifying emission limits is more effective than specifying the use of particular technologies, so as to give companies flexibility in selecting the method of achieving success that suits them best. This approach is advocated as being more cost-effective and more likely to stimulate technological advances in pollution control methods and production processes.

For large point sources (that is, sources of pollution that are concentrated on one site, but that have large, constant volumes of many types of pollution) that are few in number, instruments such as emissions trading have been advocated as an effective way to manage pollutant emissions and reduce the costs of compliance.

Implementing an efficient social protection system to alleviate poverty is central to maintaining conditions that facilitate not only economic growth but also environmental sustainability. Many South African households – including those with access to electricity – use coal, wood, and paraffin, due to the relative cost-effectiveness of such fuels for heating (that is, space heating) and cooking purposes.

Many low-cost housing developments and informal settlements are located close to industrial and mining operations, as such land is both available and inexpensive. Poorer communities are more likely to suffer from poor service delivery, including inadequate waste removal that sometimes results in refuse being set alight illegally. These examples show that poverty alleviation could help to improve air quality by enabling people to choose practices that are friendlier to the environment."
https://www.environment.gov.za/sites/default/files/docs/stateofair_airqualityand_sustainable_development.pdf Date visited: 17/03/2020.

The proposed development is planned and will eventually be developed with the above mentioned in mind. The alleviation of poverty (Jobs that will be created) and the provision of proper accommodation facilities (Which has been designed to be as energy efficient as possible) will contribute towards lessening air pollution in the area.

In addition to the above, it should be noted that the project will however create a certain amount of dust during the construction phase. If proper dust suppression measures are implemented this variable will have very little impact (low in intensity and significance during the construction phase).

8.2.3 NOISE

It is a fact that a certain amount of noise will be generated during the construction phase of the project. Noise levels should however rarely exceed the allowable limits. It is unlikely that the project will create any more noise during the operational phase than that already experienced on site.

8.2.4 ARCHAEOLOGY AND CULTURAL SITES

Background research indicates that there are some cultural heritage sites and features in the larger geographical area within which the study area falls. The assessment of the study area did not identify any sites, features or material of cultural heritage (archaeological and/or historical) origin or significance.

Large-scale informal dumping of both building rubble and household refuse occurs throughout the area. A number of dirt tracks (vehicular and single-track footpaths) traverse the area. This has also impacted on the area's original natural landscape.

It should be noted that although all efforts are made to locate, identify and record all possible cultural heritage sites and features (including archaeological remains) there is always a possibility that some might have been missed as a result of grass cover and other factors. The subterranean nature of these resources (including low stone-packed or unmarked graves) should also be taken into consideration. Should any previously unknown or invisible sites, features or material be uncovered during any development actions then an expert should be contacted to investigate and provide recommendations on the way forward.

8.2.5 AESTHETICS

The topography of the study area is relatively flat and open, with little or no rocky ridges or outcrops present. Although there are tree and grass cover, dumping of building rubble and household refuse also occurs throughout the study area. The study area is surrounded by existing urban residential developments including housing, roads and other urban infrastructure.

Visual Intrusion is defined as the level of compatibility or congruence of the project with the particular qualities of the area, or its 'sense of place'. This is related to the idea of context and maintaining the integrity of the landscape or townscape.

High visual intrusion – results in a noticeable change or is discordant with the surroundings;

Moderate visual intrusion – partially fits into the surroundings, but clearly noticeable;

Low visual intrusion – minimal change or blends in well with the surroundings.

The proposed development will change the scenic resources of the local area from an undeveloped site to a residential area. The visual intrusion is considered to be moderate as the proposed development partially fits into the surroundings but will be clearly noticeable.

The proposed development will require additional lighting on and in buildings and possibly along roads. This will change the night landscape from unlit to lit.

8.2.6 AGRICULTURAL POTENTIAL

There is no irrigated land or water licences issued for abstraction from a registered source and will therefore not automatically qualify as high potential in terms of the *National policy on the protection of high potential and unique agricultural land.*

The main objective of Act 70 is to manage the sub-division of agricultural land to prevent injudicious fragmentation of agricultural land and the creation of uneconomical units. In terms of the Draft Bill, *high potential cropping land* means land best suited to, and capable of, consistently producing acceptable levels of goods and services for a wide range of agricultural enterprises.

Land in capability classes i to iii, unique agricultural land and land under irrigation will qualify from a resource perspective.

The farm should also be an economic unit. It must, therefore be accepted that the income derived from farming should be sufficient for the farmer to cover a living wage, to fund and maintain production infrastructure and equipment and for farming overhead costs. **The property is not considered a viable farming unit.**

9. ENVIRONMENTAL IMPACT ASSESSMENT

1. 9.1 ASSESSMENT CRITERIA

Impacts were rated using the following methodology:

Nature of the potential impact		Description of the effect, and the affected aspect of the environment
Duration (time scale)	Short term	Up to 5 years
	Medium term	6 – 15 years
	Long term	More than 15 years
Extent (area)	Local	Confined to study area and its immediate surroundings
	Regional	Region (cadastral, catchment, topographic)
	National	Nationally (The country)
	International	Neighboring countries and the rest of the world.
Magnitude (Intensity)	Low	Site-specific and wider natural and/or social functions and processes are negligibly altered. ((A low intensity impact will not affect the natural, cultural, or social functions of the environment).
	Medium	Site-specific and wider natural and/or social functions and processes continue albeit in a modified way. (Medium scale impact will alter the different functions slightly).
	High	Site-specific and wider natural and/or social functions and processes are severely altered. (A High intensity impact will influence these functions to such an extent that it will temporarily or permanently cease to exist).
Probability	Improbable	Possibility of occurrence is very low. (Such an impact will have a very slight possibility to materialise, because of design or experience).
	Possible	There is a possibility that the impact will occur
	Probable	It is most likely that the impact will occur
	Definite	The impact will definitely occur
Significance	Insignificant	Impact is negligible and will not have an influence on the decision regarding the proposed activity (No mitigation is necessary)
	Very Low	Impact is very small and should not have any meaningful influence on the decision regarding the proposed activity (No mitigation is necessary)
	Low	The impact may not have a meaningful influence on the decision regarding the proposed activity (No mitigation is necessary)
	Medium	The impact should influence the decision regarding the proposed activity (The project can only be carried through if certain mitigatory steps are taken)
	High	The impact will influence the decision regarding the proposed activity

Nature of the potential impact		Description of the effect, and the affected aspect of the environment
	Very High	The proposed activity should only be approved under special circumstances
Reversibility	Low	There is little chance of correcting the adverse impact
	Medium	There is a moderate chance of correcting the adverse impact
	High	There is a high chance in correcting the adverse impact
Risk	Low	Assessing a risk involves an analysis of the consequences and likelihood of a hazard being realized. In decision-making, low-consequence / low-probability risks (green) are typically perceived as acceptable and therefore only require monitoring.
	Medium	Other risks (amber) may require structured risk assessment to better understand the features that contribute most to the risk. These features may be candidates for management
	High	High-consequence / high-probability risks (red) are perceived as unacceptable and a strategy is required to manage the risk.

Attributes associated with the alternatives were assessed and is outlined below:

Geographical attributes

The Geographical attributes of an area relates to the characteristics of a particular region, area or place. It influences the determination of site alternatives as it relates to the location of a site in relation to relevant features in the area.

Physical attributes

Physical attributes of an area relates to the processes and patterns in the natural environment. For the purpose of this assessment, the following processes and patterns have been investigated. Geology, soil, topography and landforms, climate and meteorology, surface water and ground water.

Biological attributes

Biological attributes for the purpose of this study includes the distribution of species and ecosystems in geographic space and through geological time. Organisms and biological communities often vary in a regular fashion along geographic gradients of latitude, elevation, isolation and habitat area. The two main branches assessed will be:

Phytogeography is the branch of biogeography that studies the distribution of plants.

Zoogeography is the branch that studies distribution of animals.

Social attributes

Social attributes is closely related to social theory in general and sociology in particular, dealing with the relation of social phenomena and its spatial components.

Economic attributes

Economic attributes includes the location, distribution and spatial organization of economic activities and also takes into account social, cultural, and institutional factors in the spatial economy of the development.

Heritage attributes

The broad generic term Cultural Heritage Resources refers to any physical and spiritual property associated with past and present human use or occupation of the environment, cultural activities and history. The term includes sites, structures, places, natural features and material of paleontological, archaeological, historical, aesthetic, scientific, architectural, religious, symbolic or traditional importance to specific individuals or groups, traditional systems of cultural practice, belief or social interaction.

Cultural attributes

Cultural attributes relates to the specific characteristics such as language, religion, ethnic and racial identity, and cultural history & traditions of people. These attributes influences family life, education, economic and political structures, and, of course, business practices.

It should be noted that the above mentioned attributes do not occur in isolation and it is not uncommon for an identified impact to overlap with two or more of these attributes. Also note, not all risks require comprehensive and detailed assessment. Solid problem formulation should allow decision-makers to evaluate the extent of subsequent analysis required. The level of effort put into assessing each risk should be proportionate to its significance and priority in relation to other risks, as well as its complexity, by reference to the likely impacts. Consideration should be given to stakeholders' perceptions of the nature of the risk.

ENVIRONMENTAL IMPACT ASSESSMENT (Planning and design phase)					
ALTERNATIVE 1: Mixed use development (Preferred Alternative)					
Environmental Attribute	**Potential impacts and risks**	**Assessment criteria**	**Assessment rating (With mitigation)**	**Proposed mitigation**	**Assessment rating (Without mitigation)**
DIRECT IMPACTS:					
Geographical Physical Social Economic	12.4863 hectares, of which 11.5499 ha is located within a critical biodiversity area, of indigenous vegetation will be eradicated in order to establish the development.	Duration	Long term	Obtain the necessary environmental authorization for the development. Implement the mitigation measures as described in the Environmental Management Plan.	Long term
		Extent	Local		Local
		Magnitude (Intensity)	High		High
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	Low		Low
		Risk	Medium		Medium
	The site is riparian to the Molopo River	Duration	Long term	Determine the 1:100 year flood lines and ensure that no development takes place within this area. The non-perennial river, including its riparian zone and buffer zone, should be viewed as an important conservation corridor in the larger area. Given the likely absence of sensitive species as well as the location, setting and current ecological status of the site a 30 m buffer zone from the edge of the riparian zone is strongly recommended as a practical buffer zone for the conservation of the non-perennial river and riparian zone at the site. No development will occur within this area.	Long term
		Extent	Local		Local
		Magnitude (Intensity)	Medium		High
		Probability	Definite		Definite
		Significance	Medium		High
		Reversibility	Low		Low
		Risk	Medium		High
	Plan for the provision of services for the development.	Duration	Long term	Determine the availability of services to ensure a sustainable development.	Long term
		Extent	Local		Local
		Magnitude (Intensity)	High		High
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	Low		Low
		Risk	Medium		Medium
	Plan to rehabilitate disturbed surfaces which can lead to	Duration	Short term	Start the rehabilitation of disturbed surfaces as soon as possible.	Medium term
		Extent	Local		Local

ENVIRONMENTAL IMPACT ASSESSMENT (Planning and design phase)					
ALTERNATIVE 1: Mixed use development (Preferred Alternative)					
Environmental Attribute	**Potential impacts and risks**	**Assessment criteria**	**Assessment rating (With mitigation)**	**Proposed mitigation**	**Assessment rating (Without mitigation)**
	erosion and dust pollution. Prepare method statements to this effect.	Magnitude (Intensity)	Low	Spray bare surfaces with water to prevent dust pollution.	Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Plan for the eradication of foreign and invader plant species which are likely to invade disturbed areas.	Duration	Short term	Start the extermination of any invasive species as soon as possible and maintain the eradication programme.	Medium term
		Extent	Local		Local
		Magnitude (Intensity)	Low		Low
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Plan for the provision and maintenance of ablution facilities for construction workers to prevent pollution of surface and underground water.	Duration	Short term	Provide portable ablution facilities that will not cause pollution during the construction phase.	Short term
		Extent	Local		Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Plan to manage possible impacts that the project can have on the soil and geology.	Duration	Long term	Properly plan the construction phase in such a manner that impacts on the soil and geology of the area can be minimised. The findings of a Geotechnical Engineer must be incorporated into the design of the project. Plan to prevent spills of lubricants/oils that can take place on bare soil. This will include the use of drip trays for vehicles that are standing for more than 24 hours.	Long term
		Extent	Local		Local
		Magnitude (Intensity)	Low		Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Plan for the removal of vegetation (which will lead to the destruction of faunal and floral habitats) during the construction phase.	Duration	Short term	Start with the rehabilitation of vegetation to minimize the negative effects of the removal of plants. The rule must be to minimize the disturbance of animal life by keeping the footprint as small as possible. No snares may be set.	Short term
		Extent	Local		Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Plan to safeguard open trenches in order to alleviate the danger of collapse on people or on equipment and people- especially small children who may fall into it.	Duration	Short term	Ensure that the trenches stay open for as short a time as possible. Ensure that open trenches are demarcated as required by the Occupational Health and Safety Act.	Short term
		Extent	Local		Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	High		High

ENVIRONMENTAL IMPACT ASSESSMENT (Planning and design phase)					
ALTERNATIVE 1: Mixed use development (Preferred Alternative)					
Environmental Attribute	**Potential impacts and risks**	**Assessment criteria**	**Assessment rating (With mitigation)**	**Proposed mitigation**	**Assessment rating (Without mitigation)**
		Risk	Low		Medium
Indirect impacts:					
Geographical Physical Social Economic	Plan to control dust generation from the proposed project which could impact on the surrounding area.	Duration	Short term	Spray water on open surfaces to ensure that dust does not cause air pollution during construction. Start the rehabilitation of disturbed surfaces as soon as possible	Short term
		Extent	Local		Local
		Magnitude (Intensity)	Low		Low
		Probability	Probable		Probable
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Plan and compile method statements to implement measures for the prevention and or handling of spills of lubricants / oils that can take place on bare soil.	Extent	Local	Prevent spills of lubricants/oils that can take place on bare soil. This will include the use of drip trays for vehicles that are standing for more than 24 hours. Ensure that all construction vehicles are in good working order and not leaking oil and or fuel. No vehicles may be serviced on site.	Local
		Magnitude (Intensity)	Low		Low
		Probability	Probable		Probable
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Plan to provide method statements on the handling of waste materials such as glass, plastic, metal or paper which may present a possible pollution hazard	Extent	Local	Implement the management plan to ensure that: All construction rubble is disposed of in a safe and environmentally acceptable manner. NO concrete, gravel or other rubbish will be allowed to remain on site after the construction phase. All cement is housed as to prevent spills (due to rain and or handling errors). NO glass, plastic, metal, or paper shall be allowed to pollute the area.	Local
		Magnitude (Intensity)	Low		Low
		Probability	Probable		Probable
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Plan to ensure all involved is aware of the possible social and environmental problems that may be experienced as a result of non- compliance to the relevant legislation.	Extent	Local	Ensure that contractors (construction phase) abide by all the requirements of the Occupational Health and Safety Act. Ensure that all contractors are aware of the consequences of non-compliance to the relevant legislation regarding the above-mentioned act as well as with regard to the environment (acts, regulations, and special guidelines).	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Probable		Probable
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Plan to create new employment opportunities. Plan to use local labour to ensure local skills development will take place.	Extent	Local	No mitigation measures needed apart from the fact that contractors will have to ensure that they abide to the requirements of the Occupational Health and Safety Act and the Employment Equity Act.	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	Medium		Medium
		Risk	Low		Medium
Cumulative impacts:					

ENVIRONMENTAL IMPACT ASSESSMENT (Planning and design phase)					
ALTERNATIVE 1: Mixed use development (Preferred Alternative)					
Environmental Attribute	**Potential impacts and risks**	**Assessment criteria**	**Assessment rating (With mitigation)**	**Proposed mitigation**	**Assessment rating (Without mitigation)**
Geographical Physical Social Economic	Plan the development to ensure the social well-being of the community for which the development is intended	Extent	Local	Ensure that the development is constructed as planned. The demand for housing will be partially addressed in the area.	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	Medium		Medium
		Risk	Low		Medium
	Plan to ensure that the services (Solid waste, bulk water supply water, sewage, electricity and storm water) are designed and constructed in such a manner that it will not cause Environmental degradation.	Extent	Local	Appoint a Civil Engineer to assess the availability and design of services to ensure a sustainable development. Ensure that the development is constructed as planned.	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	High		High
		Reversibility	High		High
		Risk	Low		Medium
	Plan for the increase in traffic volumes that will result from the proposed development	Extent	Local	The Town and Regional Planner will have to design the layout of the development in such a way that accessibility will not become a problem.	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	Medium		High
		Reversibility	Low		Low
		Risk	Medium		Medium

ENVIRONMENTAL IMPACT ASSESSMENT (Planning and design phase)					
ALTERNATIVE 2: Single land use: Housing only					
Environmental Attribute	**Potential impacts and risks**	**Assessment criteria**	**Assessment rating (With mitigation)**	**Proposed mitigation**	**Assessment rating (Without mitigation)**
DIRECT IMPACTS:					
Geographical Physical Social Economic	12.4863 hectares, of which 11.5499 ha is located within a critical biodiversity area, of indigenous vegetation will be eradicated in order to establish the development.	Duration	Long term	Obtain the necessary environmental authorization for the development. Implement the mitigation measures as described in the Environmental Management Plan.	Long term
		Extent	Local		Local
		Magnitude (Intensity)	High		High
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	Low		Low
		Risk	Medium		Medium
	The site is riparian to the Molopo River	Duration	Long term	Determine the 1:100 year flood lines and ensure that no development takes place within this area. The non-perennial river, including its riparian zone and buffer zone, should be viewed as an important conservation corridor in the larger area. Given the likely absence of sensitive species as well as the location, setting and current ecological status of the site a 30 m buffer zone from the edge of the	Long term
		Extent	Local		Local
		Magnitude (Intensity)	Medium		High
		Probability	Definite		Definite
		Significance	Medium		High
		Reversibility	Low		Low
		Risk	Medium		High

ENVIRONMENTAL IMPACT ASSESSMENT (Planning and design phase)					
ALTERNATIVE 2: Single land use: Housing only					
Environmental Attribute	**Potential impacts and risks**	**Assessment criteria**	**Assessment rating (With mitigation)**	**Proposed mitigation**	**Assessment rating (Without mitigation)**
				riparian zone is strongly recommended as a practical buffer zone for the conservation of the non-perennial river and riparian zone at the site. No development will occur within this area.	
	Plan for the provision of services for the development.	Duration	Long term	Determine the availability of services to ensure a sustainable development.	Long term
		Extent	Local		Local
		Magnitude (Intensity)	High		High
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	Low		Low
		Risk	Medium		Medium
	Plan to rehabilitate disturbed surfaces which can lead to erosion and dust pollution. Prepare method statements to this effect.	Duration	Short term	Start the rehabilitation of disturbed surfaces as soon as possible. Spray bare surfaces with water to prevent dust pollution.	Medium term
		Extent	Local		Local
		Magnitude (Intensity)	Low		Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Plan for the eradication of foreign and invader plant species which are likely to invade disturbed areas.	Duration	Short term	Start the extermination of any invasive species as soon as possible and maintain the eradication programme.	Medium term
		Extent	Local		Local
		Magnitude (Intensity)	Low		Low
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Plan for the provision and maintenance of ablution facilities for construction workers to prevent pollution of surface and underground water.	Duration	Short term	Provide portable ablution facilities that will not cause pollution during the construction phase.	Short term
		Extent	Local		Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Plan to manage possible impacts that the project can have on the soil and geology.	Duration	Long term	Properly plan the construction phase in such a manner that impacts on the soil and geology of the area can be minimised. The findings of a Geotechnical Engineer must be incorporated into the design of the project. Plan to prevent spills of lubricants/oils that can take place on bare soil. This will include the use of drip trays for	Long term
		Extent	Local		Local
		Magnitude (Intensity)	Low		Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium

ENVIRONMENTAL IMPACT ASSESSMENT (Planning and design phase)					
ALTERNATIVE 2: Single land use: Housing only					
Environmental Attribute	**Potential impacts and risks**	**Assessment criteria**	**Assessment rating (With mitigation)**	**Proposed mitigation**	**Assessment rating (Without mitigation)**
				vehicles that are standing for more than 24 hours.	
	Plan for the removal of vegetation (which will lead to the destruction of faunal and floral habitats) during the construction phase.	Duration	Short term	Start with the rehabilitation of vegetation to minimize the negative effects of the removal of plants. The rule must be to minimize the disturbance of animal life by keeping the footprint as small as possible. No snares may be set.	Short term
		Extent	Local		Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Plan to safeguard open trenches in order to alleviate the danger of collapse on people or on equipment and people- especially small children who may fall into it.	Duration	Short term	Ensure that the trenches stay open for as short a time as possible. Ensure that open trenches are demarcated as required by the Occupational Health and Safety Act.	Short term
		Extent	Local		Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
Indirect impacts:					
Geographical Physical Social Economic	Plan to control dust generation from the proposed project which could impact on the surrounding area.	Duration	Short term	Spray water on open surfaces to ensure that dust does not cause air pollution during construction. Start the rehabilitation of disturbed surfaces as soon as possible	Short term
		Extent	Local		Local
		Magnitude (Intensity)	Low		Low
		Probability	Probable		Probable
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Plan and compile method statements to implement measures for the prevention and or handling of spills of lubricants / oils that can take place on bare soil.	Extent	Local	Prevent spills of lubricants/oils that can take place on bare soil. This will include the use of drip trays for vehicles that are standing for more than 24 hours. Ensure that all construction vehicles are in good working order and not leaking oil and or fuel. No vehicles may be serviced on site.	Local
		Magnitude (Intensity)	Low		Low
		Probability	Probable		Probable
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Plan to provide method statements on the handling of waste materials such as glass, plastic, metal or paper which may present a possible pollution hazard	Extent	Local	Implement the management plan to ensure that: All construction rubble is disposed of in a safe and environmentally acceptable manner. NO concrete, gravel or other rubbish will be allowed to remain on site after the construction phase. All cement is housed as to prevent spills (due to rain and or handling errors). NO glass, plastic, metal, or paper shall be allowed to pollute the area.	Local
		Magnitude (Intensity)	Low		Low
		Probability	Probable		Probable
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium

ENVIRONMENTAL IMPACT ASSESSMENT (Planning and design phase)					
ALTERNATIVE 2: Single land use: Housing only					
Environmental Attribute	**Potential impacts and risks**	**Assessment criteria**	**Assessment rating (With mitigation)**	**Proposed mitigation**	**Assessment rating (Without mitigation)**
	Plan to ensure all involved is aware of the possible social and environmental problems that may be experienced as a result of non- compliance to the relevant legislation.	Extent	Local	Ensure that contractors (construction phase) abide by all the requirements of the Occupational Health and Safety Act. Ensure that all contractors are aware of the consequences of non-compliance to the relevant legislation regarding the above-mentioned act as well as with regard to the environment (acts, regulations, and special guidelines).	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Probable		Probable
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Plan to create new employment opportunities. Plan to use local labour to ensure local skills development will take place.	Extent	Local	No mitigation measures needed apart from the fact that contractors will have to ensure that they abide to the requirements of the Occupational Health and Safety Act and the Employment Equity Act.	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	Medium		Medium
		Risk	Low		Medium
Cumulative impacts:					
Geographical Physical Social Economic	Plan the development to ensure the social well-being of the community for which the development is intended	Extent	Local	Ensure that the development is constructed as planned. The demand for housing will be partially addressed in the area.	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	Medium		Medium
		Risk	Low		Medium
	Plan to ensure that the services (Solid waste, bulk water supply water, sewage, electricity and storm water) are designed and constructed in such a manner that it will not cause Environmental degradation.	Extent	Local	Appoint a Civil Engineer to assess the availability and design of services to ensure a sustainable development. Ensure that the development is constructed as planned.	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	High		High
		Reversibility	High		High
		Risk	Low		Medium
	Plan for the increase in traffic volumes that will result from the proposed development	Extent	Local	The Town and Regional Planner will have to design the layout of the development in such a way that accessibility will not become a problem.	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	Medium		High
		Reversibility	Low		Low
		Risk	Medium		Medium

ENVIRONMENTAL IMPACT ASSESSMENT (Planning and design phase)					
ALTERNATIVE 3: (No-Go Option)					
Environmental Attribute	**Potential impacts and risks**	**Assessment criteria**	**Assessment rating (With mitigation)**	**Proposed mitigation**	**Assessment rating (Without mitigation)**
DIRECT IMPACTS:					
Geographical Physical	No indigenous vegetation will be removed.	Duration	Long term	No mitigation measures required.	Long term
		Extent	Local		Local

ENVIRONMENTAL IMPACT ASSESSMENT (Planning and design phase)					
ALTERNATIVE 3: (No-Go Option)					
Environmental Attribute	**Potential impacts and risks**	**Assessment criteria**	**Assessment rating (With mitigation)**	**Proposed mitigation**	**Assessment rating (Without mitigation)**
Social Economic Cultural		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	High		High
		Reversibility	Low		Low
		Risk	Medium		Medium
Indirect impacts:					
Geographical Physical Social Economic Cultural	No new employment opportunities will be created during the planning and design phase. No skills enhancement will take place If this option is implemented, the projected boost to the local and regional economy will not take place.	Extent	Local	Ensure that the development is constructed and operated as planned.	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	Medium		Medium
		Risk	High		High
Cumulative impacts:					
Geographical Physical Social Economic Cultural	If this option is implemented, the projected boost to the local and regional economy will not take place. No new employment opportunities will be created. No improvement to local skills development will take place. No broadened Tax base for the Mahikeng Local Municipality.	Extent	Local	Ensure that the development is constructed and operated as planned.	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	High		High
		Reversibility	High		High
		Risk	Medium		Medium

ENVIRONMENTAL IMPACT ASSESSMENT (Construction phase)					
ALTERNATIVE 1: Mixed Use development (Preferred Alternative)					
Environmental Attribute	**Potential impacts and risks**	**Assessment criteria**	**Assessment rating (With mitigation)**	**Proposed mitigation**	**Assessment rating (Without mitigation)**
DIRECT IMPACTS:					
Geographical Physical Social Economic	12.4863 hectares of indigenous vegetation will be eradicated in order to establish the development.	Duration	Long term	Obtain the necessary environmental authorization for the development. Implement the mitigation measures as described in the Environmental Management Plan.	Long term
		Extent	Local		Local
		Magnitude (Intensity)	High		High
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	Low		Low
		Risk	Medium		Medium
	The site is riparian to the Molopo River.	Duration	Permanent	The non-perennial river, including its riparian zone and buffer zone, should be viewed as an important	Permanent
		Extent	Local		Local
		Magnitude (Intensity)	Medium		Medium

ENVIRONMENTAL IMPACT ASSESSMENT (Construction phase)					
ALTERNATIVE 1: Mixed Use development (Preferred Alternative)					
Environmental Attribute	**Potential impacts and risks**	**Assessment criteria**	**Assessment rating (With mitigation)**	**Proposed mitigation**	**Assessment rating (Without mitigation)**
		Probability	Definite	conservation corridor in the larger area. Given the likely absence of sensitive species as well as the location, setting and current ecological status of the site a 30 m buffer zone from the edge of the riparian zone is strongly recommended as a practical buffer zone for the conservation of the non-perennial river and riparian zone at the site. Ensure that the area is demarcated as a no-go zone No development will occur within this area.	Definite
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Un-rehabilitated, disturbed surfaces can lead to erosion and dust pollution.	Duration	Short term	Start the rehabilitation of disturbed surfaces as soon as possible. Spray bare surfaces with water to prevent dust pollution.	Medium term
		Extent	Local		Local
		Magnitude (Intensity)	Low		Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Foreign plant species are likely to invade disturbed areas.	Duration	Short term	Start the extermination of any invasive species as soon as possible and maintain the eradication programme.	Medium term
		Extent	Local		Local
		Magnitude (Intensity)	Low		Low
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Poorly planned ablution facilities for construction workers may cause pollution of surface and underground water.	Duration	Short term	Provide portable ablution facilities that will not cause pollution during the construction phase.	Short term
		Extent	Local		Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	The proposed project can impact on the soil and geology.	Duration	Long term	The findings of a Geo-Technical Engineer must be incorporated into the design of the project. Prevent spills of lubricants/oils that can take place on bare soil. This will include the use of drip trays for vehicles that are standing for more than 24 hours.	Long term
		Extent	Local		Local
		Magnitude (Intensity)	Low		Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	The vegetation of the area will be removed during the	Duration	Short term		Short term
		Extent	Local		Local

ENVIRONMENTAL IMPACT ASSESSMENT (Construction phase)					
ALTERNATIVE 1: Mixed Use development (Preferred Alternative)					
Environmental Attribute	**Potential impacts and risks**	**Assessment criteria**	**Assessment rating (With mitigation)**	**Proposed mitigation**	**Assessment rating (Without mitigation)**
	construction phase, which will destroy floral and faunal habitats.	Magnitude (Intensity)	Medium	Start with the rehabilitation of vegetation to minimize the negative effects of the removal of plants. The rule must be to minimize the disturbance of animal life by keeping the footprint as small as possible. No snares may be set.	Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Open trenches can be dangerous as they can either collapse on people or on equipment and people- especially small children, can fall into them.	Duration	Short term	Ensure that the trenches are dug according to specifications. Ensure that the trenches stay open for as short a time as possible. Ensure that open trenches are demarcated as required by the Occupational Health and Safety Act.	Short term
		Extent	Local		Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
Indirect impacts:					
Geographical Physical Social Economic	Dust generation from the proposed project could impact on the surrounding area.	Duration	Short term	Spray water on open surfaces to ensure that dust does not cause air pollution during construction. Start the rehabilitation of disturbed surfaces as soon as possible	Short term
		Extent	Local		Local
		Magnitude (Intensity)	Low		Low
		Probability	Probable		Probable
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Spills of lubricants / oils can take place on bare soil.	Extent	Local	Prevent spills of lubricants/oils that can take place on bare soil. This will include the use of drip trays for vehicles that are standing for more than 24 hours. Ensure that all construction vehicles are in good working order and not leaking oil and or fuel. No vehicles may be serviced on site.	Local
		Magnitude (Intensity)	Low		Low
		Probability	Probable		Probable
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Waste materials such as glass, plastic, metal or paper present a possible pollution hazard	Extent	Local	Implement the management plan to ensure that: All construction rubble is disposed of in a safe and environmentally acceptable manner. NO concrete, gravel or other rubbish will be allowed to remain on site after the construction phase. All cement is housed as to prevent spills (due to rain and or handling errors). NO glass, plastic, metal, or paper shall be allowed to pollute the area.	Local
		Magnitude (Intensity)	Low		Low
		Probability	Probable		Probable
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
		Extent	Local		Local

ENVIRONMENTAL IMPACT ASSESSMENT (Construction phase)					
ALTERNATIVE 1: Mixed Use development (Preferred Alternative)					
Environmental Attribute	**Potential impacts and risks**	**Assessment criteria**	**Assessment rating (With mitigation)**	**Proposed mitigation**	**Assessment rating (Without mitigation)**
	Non-compliance to the relevant legislation may cause social and environmental problems.	Magnitude (Intensity)	Medium	Ensure that contractors (construction phase) abide by all the requirements of the Occupational Health and Safety Act. Ensure that all contractors are aware of the consequences of non-compliance to the relevant legislation regarding the above-mentioned act as well as with regard to the environment (acts, regulations, and special guidelines).	Medium
		Probability	Probable		Probable
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	New employment opportunities will be created. Local skills development will take place.	Extent	Local	No mitigation measures needed apart from the fact that contractors will have to ensure that they abide to the requirements of the Occupational Health and Safety Act and the Employment Equity Act.	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	Medium		Medium
		Risk	Low		Medium
Cumulative impacts:					
Geographical Physical Social Economic	Enhancement of the social well-being of the local communities for which the development is intended	Extent	Local	Ensure that the development is constructed as planned. The demand for housing will be partially addressed in the area.	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	Medium		Medium
		Risk	Low		Medium
	Solid waste: The proposed development will add additional solid waste into the existing waste stream of the Mahikeng Local Municipality. Sewage: The proposed development will add additional sewage into the existing sewage stream of the Mahikeng Local Municipality. Water supply: The proposed development will add pressure to the water supply of Mahikeng Local Municipality's Water.	Extent	Local	Ensure that the development is constructed as planned.	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	High		High
		Reversibility	High		High
		Risk	Low		Medium
	Traffic: The proposed development will result in an increase in traffic in the immediate surroundings of the proposed development.	Extent	Local	Ensure that the development is constructed as planned by the Town and Regional Planner	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	Medium		High
		Reversibility	Low		Low
		Risk	Medium		Medium
		Extent	Local	No mitigation measures possible.	Local

ENVIRONMENTAL IMPACT ASSESSMENT (Construction phase)					
ALTERNATIVE 1: Mixed Use development (Preferred Alternative)					
Environmental Attribute	**Potential impacts and risks**	**Assessment criteria**	**Assessment rating (With mitigation)**	**Proposed mitigation**	**Assessment rating (Without mitigation)**
	Indigenous vegetation will be removed.	Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	High		High
		Reversibility	Low		Low
		Risk	Medium		Medium
		Extent	Local		Local

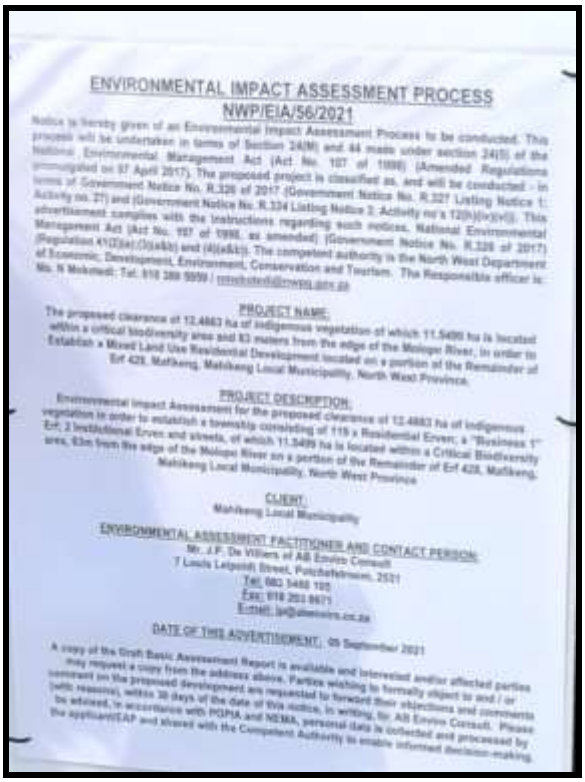
ENVIRONMENTAL IMPACT ASSESSMENT (Operational Phase)					
ALTERNATIVE 1: Mixed use development (Preferred Alternative)					
Environmental Attribute	**Potential impacts and risks**	**Assessment criteria**	**Assessment rating (With mitigation)**	**Proposed mitigation**	**Assessment rating (Without mitigation)**
DIRECT IMPACTS:					
Geographical Physical Social Economic Cultural	Poorly maintained and serviced infrastructure may cause environmental problems.	Extent	Local	It will be the responsibility of the Local Municipality to maintain the infrastructure.	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	Medium- high		High
		Reversibility	High		Medium
		Risk	High		High
Indirect impacts:					
Geographical Physical Social Economic Cultural	Lack of rehabilitation may cause problems	Extent	Local	It will be the responsibility of the Local Municipality to ensure that the rehabilitation plan is implemented	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	Medium- high		High
		Reversibility	High		Medium
		Risk	High		High
Cumulative impacts:					
Geographical Physical Social Economic Cultural	Enhancement of the social well-being of the local communities for which the development is intended	Extent	Local	No mitigation measures required.	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	High		High
		Reversibility	High		High
		Risk	Medium		Medium
Geographical Physical Social Economic Cultural	Broadened tax base: The proposed development will generate more income for the Mahikeng Local Municipality.	Extent	Local	No mitigation measures required.	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	High		High
		Reversibility	High		High
		Risk	Medium		Medium

10. PUBLIC PARTICIPATION.

10.1 ADVERTISEMENT AND NOTICE

Publication name	Mafikeng Mail	
Date published	09/09/2021	
	Latitude	Longitude
Site notice 1 position	25°51'5.63"S	25°40'39.96"E
Date placed	09/09/2021	

PROOF OF SITE NOTICE AFFIXED IN LINE WITH COVID-19 PROTOCOL: PROTECTIVE GEAR (MASK & GLOVES) AND SANITIZATION IN PLACE: (TO FOLLOW)



ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

NWP/EIA/56/2021

Notice is hereby given of an Environmental Impact Assessment Process to be conducted. This process will be undertaken in terms of Section 24(M) and 44 made under section 24(5) of the National Environmental Management Act (Act No. 107 of 1998) (Amended Regulations promulgated on 07 April 2017). The proposed project is classified as, and will be conducted - in terms of Government Notice No. R.326 of 2017 (Government Notice No. R.327 Listing Notice 1: Activity no. 27) and (Government Notice No. R.324 Listing Notice 3: Activity no's 12(h)(iv)(v)(vi)). This advertisement complies with the instructions regarding such notices. National Environmental Management Act (Act No. 107 of 1998, as amended) (Government Notice No. R.326 of 2017) (Regulation 41(2)(a);(3)(a&b) and (4)(a&b)). The competent authority is the North West Department of Economic, Development, Environment, Conservation and Tourism. The Responsible officer is: Ms. N Mokoena: Tel. 018 389 5959 / nmokoena@nwpg.gov.za

PROJECT NAME:

The proposed clearance of 12.4883 ha of indigenous vegetation of which 11.5499 ha is located within a critical biodiversity area and 83 meters from the edge of the Molopo River, in order to Establish a Mixed Land Use Residential Development located on a portion of the Remainder of Erf 428, Mafikeng, Mafikeng Local Municipality, North West Province.

PROJECT DESCRIPTION:

Environmental Impact Assessment for the proposed clearance of 12.4883 ha of indigenous vegetation in order to establish a township consisting of 115 x Residential Erven; a "Business 1" Erf; 2 Institutional Erven and streets, of which 11.5499 ha is located within a Critical Biodiversity area, 83m from the edge of the Molopo River on a portion of the Remainder of Erf 428, Mafikeng, Mafikeng Local Municipality, North West Province

CLIENT:

Mafikeng Local Municipality

ENVIRONMENTAL ASSESSMENT PACTITIONER AND CONTACT PERSON:

Mr. J.F. De Villiers of AB Enviro Consult

7 Louis Leipoldt Street, Potchefstroom, 2531

Tel: 082 5488 105

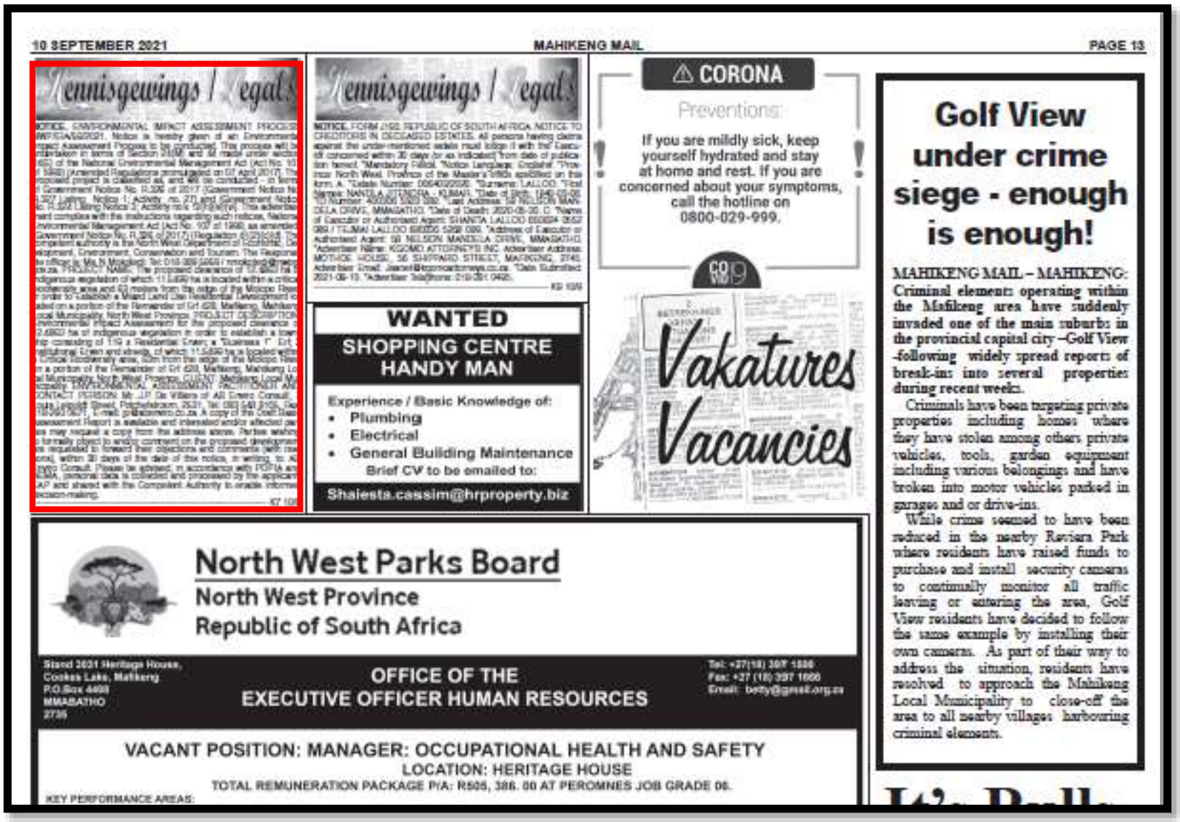
Fax: 018 293 8671

E-mail: ja@abenviro.co.za

DATE OF THIS ADVERTISEMENT: 05 September 2021

A copy of the Draft Basic Assessment Report is available and interested and/or affected parties may request a copy from the address above. Parties wishing to formally object to and / or comment on the proposed development are requested to forward their objections and comments (with reasons), within 30 days of the date of this notice, in writing, to: AB Enviro Consult. Please be advised, in accordance with POPIA and NEMA, personal data is collected and processed by the applicant/EAP and shared with the Competent Authority to enable informed decision-making.

PROOF OF NEWSPAPER ADVERTISEMENT MAFIKENG MAIL 09/09/2021



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Kennisgewings / Legals

Kennisgewings / Legals

WANTED

SHOPPING CENTRE HANDY MAN

Experience / Basic Knowledge of:

- Plumbing
- Electrical
- General Building Maintenance

Brief CV to be emailed to:

Shaiesta.cassim@hrproperty.biz

CORONA

Preventions:

If you are mildly sick, keep yourself hydrated and stay at home and rest. If you are concerned about your symptoms, call the hotline on 0800-029-999.

Vakatures Vacancies

Golf View under crime siege - enough is enough!

MAHIKENG MAIL – MAHIKENG: Criminal elements operating within the Mafikeng area have suddenly invaded one of the main suburbs in the provincial capital city –Golf View -following widely spread reports of break-ins into several properties during recent weeks.

Criminals have been targeting private properties including homes where they have stolen among others private vehicles, tools, garden equipment including various belongings and have broken into motor vehicles parked in garages and or drive-ins.

While crime seemed to have been reduced in the nearby Reviera Park where residents have raised funds to purchase and install security cameras to continually monitor all traffic leaving or entering the area, Golf View residents have decided to follow the same example by installing their own cameras. As part of their way to address the situation, residents have resolved to approach the Mahikeng Local Municipality to close-off the area to all nearby villages harbouring criminal elements.

North West Parks Board

North West Province

Republic of South Africa

OFFICE OF THE EXECUTIVE OFFICER HUMAN RESOURCES

VACANT POSITION: MANAGER: OCCUPATIONAL HEALTH AND SAFETY

LOCATION: HERITAGE HOUSE

NOTICE. ENVIRONMENTAL IMPACT ASSESSMENT PROCESS NWP/EIA/56/2021. Notice is hereby given of an Environmental Impact Assessment Process to be conducted. This process will be undertaken in terms of Section 24(M) and 44 made under section 24(5) of the National Environmental Management Act (Act No. 107 of 1998) (Amended Regulations promulgated on 07 April 2017). The proposed project is classified as, and will be conducted - in terms of Government Notice No. R.326 of 2017 (Government Notice No. R.327 Listing Notice 1; Activity no. 27) and (Government Notice No. R.324 Listing Notice 3; Activity no's 12(h)(iv)(vi). This advertisement complies with the instructions regarding such notices, National Environmental Management Act (Act No. 107 of 1998, as amended) (Government Notice No. R.326 of 2017) (Regulation 41(2)(c)(d). The competent authority is the North West Department of Economic, Development, Environment, Conservation and Tourism. The Responsible officer is: Ms. N Mokotedi: Tel: 018-389 5959 / nmokotedi@nwpg.gov.za. PROJECT NAME: The proposed clearance of 12.4863 ha of indigenous vegetation of which 11.5499 ha is located within a critical biodiversity area and 63 meters from the edge of the Molopo River, in order to Establish a Mixed Land Use Residential Development located on a portion of the Remainder of Erf 428, Mafikeng, Mahikeng Local Municipality, North West Province. PROJECT DESCRIPTION. Environmental Impact Assessment for the proposed clearance of 12.4863 ha of indigenous vegetation in order to establish a township consisting of 119 x Residential Erven; a "Business 1" Erf; 2 Institutional Erven and streets, of which 11.5499 ha is located within a Critical Biodiversity area, 63m from the edge of the Molopo River on a portion of the Remainder of Erf 428, Mafikeng, Mahikeng Local Municipality, North West Province. CLIENT: Mahikeng Local Municipality. ENVIRONMENTAL ASSESSMENT PACTITIONER AND CONTACT PERSON: Mr. J.P. De Villiers of AB Enviro Consult, 7 Louis Leipoldt Street, Potchefstroom, 2531, Tel: 083 548 8105, Fax: 018-293 0671, E-mail: jp@abenviro.co.za. A copy of the Draft Basic Assessment Report is available and interested and/or affected parties may request a copy from the address above. Parties wishing to formally object to and/or comment on the proposed development are requested to forward their objections and comments (with reasons), within 30 days of the date of this notice, in writing, to: AB Enviro Consult. Please be advised, in accordance with POPIA and NEMA, personal data is collected and processed by the applicant/EAP and shared with the Competent Authority to enable informed decision-making.

---------- K7 10/9

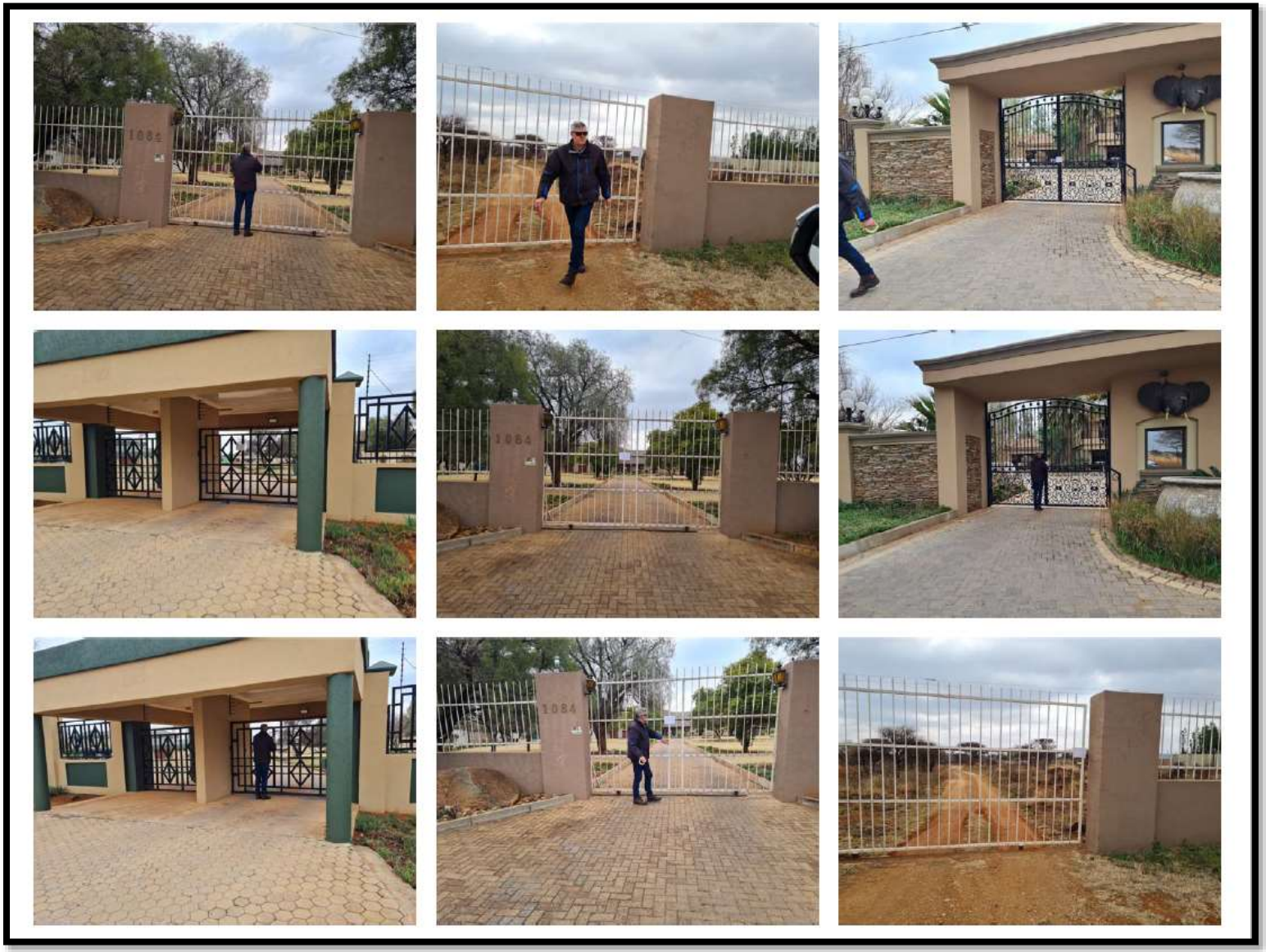
10.2. DETERMINATION OF APPROPRIATE MEASURES

Details of the measures taken to include all potential I&APs as required by Regulation 41(2)(e) and 41(6) of GN R.982.

Key stakeholders (other than organs of state) identified in terms of Regulation 40(2)(d) of GN R.982:

Title, Name and Surname	Affiliation/ key stakeholder status	Contact details (tel number or e-mail address)
N/A	Neighbours	See proof of Letter drop

PROOF OF LETTER DROP




1090
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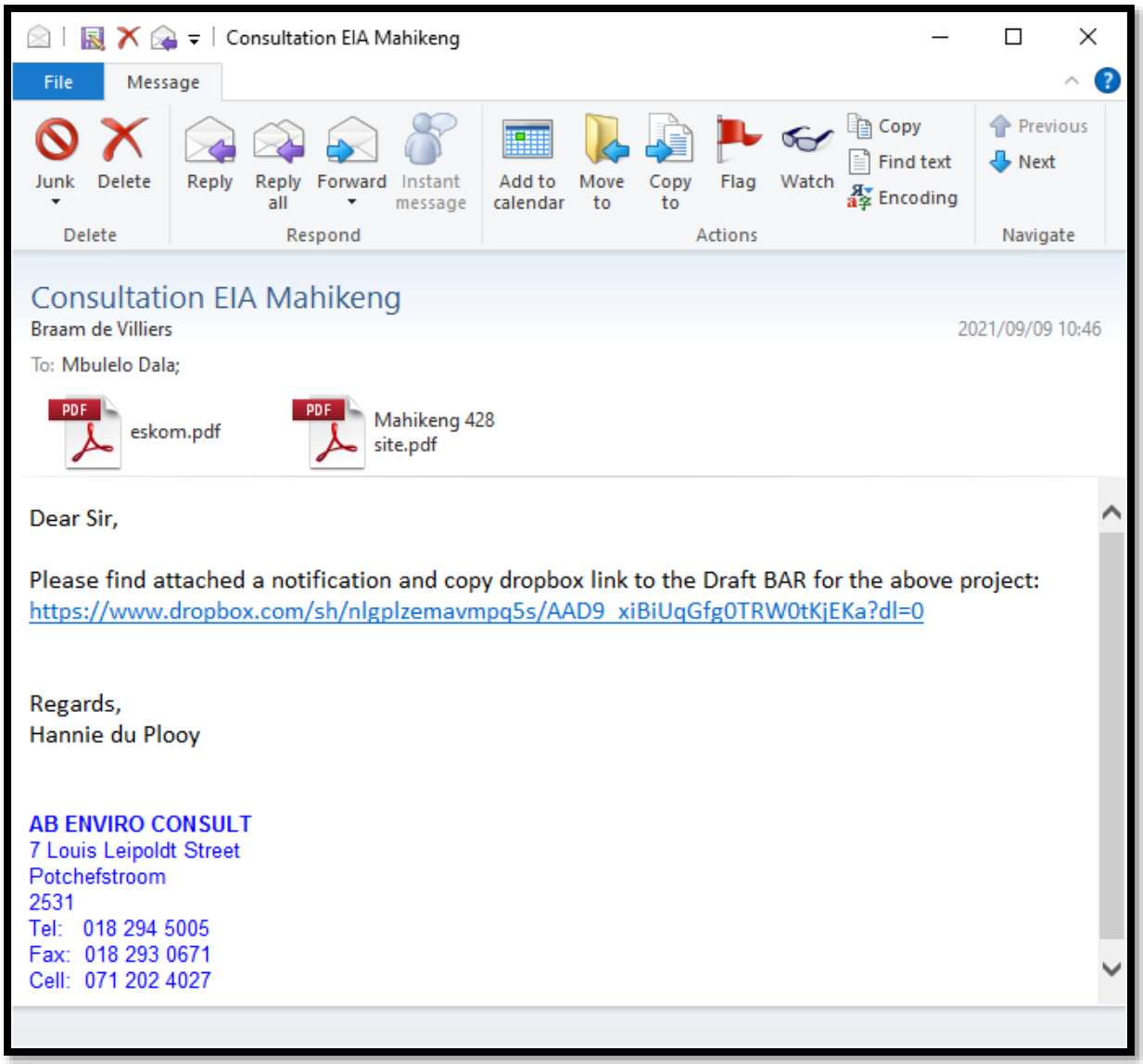
10.3 AUTHORITY PARTICIPATION

Authorities and organs of state identified as key stakeholders. Key stakeholders identified in terms of Regulation 7(1) and (2) and Regulation 40(2) (a)-(c) of GN R.982:

Authority/Organ of State	Contact person (Title, Name and Surname)	Tel No	Fax No	e-mail	Postal address
Department of Water and Sanitation					
Head of Department: North-West Department of Agriculture and Rural Development					
North West Department of Biodiversity					
Ngaka Modiri Molema District Municipality					
Mahikeng local municipality					
Councillor Ward 9 Mahikeng local municipality					
Eskom					
SAHRA					

PLEASE SEE PROOF BELOW


Consultation EIA Mahikeng
File
Message
Junk
Delete
Reply
Reply all
Forward
Instant message
Add to calendar
Move to
Copy to
Flag
Watch
Copy
Find text
Encoding
Previous
Next
Delete
Respond
Actions
Navigate
Consultation EIA Mahikeng
Braam de Villiers
2021/09/09 10:46
To: Mbulelo Dala;
PDF
eskom.pdf
PDF
Mahikeng 428 site.pdf
Dear Sir,
Please find attached a notification and copy dropbox link to the Draft BAR for the above project:
https://www.dropbox.com/sh/nlgplzemavmpq5s/AAD9_xiBiUqGfg0TRW0tKjEKa?dl=0
Regards,
Hannie du Plooy
AB ENVIRO CONSULT
7 Louis Leipoldt Street
Potchefstroom
2531
Tel: 018 294 5005
Fax: 018 293 0671
Cell: 071 202 4027

List of REGISTERED LETTERS
Lys van GEREGISTREERDE BRIEWE
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Full tracking and tracing/Volledige volg en spoor

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Name and address of sender:
Naam en adres van afsender: AB ENVIRO CONSULT
7 LOUIS LEIPOLDT STREET
POTCHEFSTROOM
2531

Enquiries/Navrae Sharecall number/nommer
0860 111 502
www.postoffice.co.za

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1						REGISTERED LETTER RC458541204ZA CUSTOMER COPY
2						REGISTERED LETTER RC458541195ZA CUSTOMER COPY
3						REGISTERED LETTER RC458541212ZA CUSTOMER COPY
4						REGISTERED LETTER RC458541216ZA CUSTOMER COPY
5						REGISTERED LETTER RC458541236ZA CUSTOMER COPY
6						
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10						
	Total / Totaal	R	R	R	R	

Number of letters posted
Getal briewe gepos .....

Signature of client
Handtekening van kliënt .....

Signature of accepting officer
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Date stamp
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2021-09-09
2

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AB ENVIRO

7 Louis Leipoldt Street,
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Tel: + 27 (83) 5488 105
Fax: + 27 (18) 293 0671
E-mail: jp@abenviro.co.za

AB ENVIRO-CONSULT CC

Reg no. 2000/016653/23

09/09/2021

HOD: Department of Water and Sanitation

Dear Sir/Madam

The proposed clearance of 12.4863 ha of indigenous vegetation of which 11.5499 ha is located within a critical biodiversity area and 63 meters from the edge of the Molopo River, in order to Establish a Mixed Land Use Residential Development located on a portion of the Remainder of Erf 428, Mafikeng, Mahikeng Local Municipality, North West Province

AB ENVIRO CONSULT was appointed by Mahikeng Local Municipality to submit an application to the Department of Economic Development, Environment and Tourism, North West Province for the above mentioned proposed development. Attached please find a notification of the proposed development and an electronic copy of the draft Basic Assessment report for your comments. You are requested to comment within 30 days from the date of this letter.

In the event of your organisation/department not wishing to comment on this matter, it would be appreciated if we could receive written confirmation thereof to enable us to continue with the finalisation of the application. If no response is however received from your Department/organisation within the said time, it will be assumed that your department/organisation does not wish to comment on this matter and the application will be processed further.

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Please do not hesitate to contact us should any further information or clarification be required.

Yours sincerely,

PROF. A.B. DE VILLIERS

PROF A B DE VILLIERS (M Sc, Ph D, SACNASP)
MR.J.P. DE VILLIERS (M Sc, EAP-EAPASA, IAIA); MRS.J.E. DU PLOOY (M.E.M; EAP-EAPASA, IAIA)

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09/09/2021

North-West Department of Agriculture and rural development

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E-mail: jp@abenviro.co.za

09/09/2021

HOD:
North West Department of Biodiversity

Dear Sir/Madam

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09/09/2021

Ngaka Modiri Molema District Municipality
The Municipal Manager:

Dear Sir/Madam

The proposed clearance of 12.4863 ha of indigenous vegetation of which 11.5499 ha is located within a critical biodiversity area and 63 meters from the edge of the Molopo River, in order to Establish a Mixed Land Use Residential Development located on a portion of the Remainder of Erf 428, Mafikeng, Mahikeng Local Municipality, North West Province

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09/09/2021

Mahikeng Local Municipality
The Municipal Manager:

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09/09/2021

Ngaka Modiri Molema District Municipality
The Councillor Ward 9

Dear Sir/Madam

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09/09/2021

Eskom

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10.4 ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

Summary of main issues raised by I&APs	Summary of response from EAP
To follow as part of Final BAR	NA

2. 10.5 COMMENTS AND RESPONSE REPORT

I&AP registered:	Comment received:	Response by the EAP:
To follow as part of Final BAR		

11. SUMMARY OF THE FINDINGS AND RECOMMENDATIONS OF SPECIALISTS

11.1 GEOTECHNICAL REPORT (See Appendix A for a copy of the Report.)

11.1.1 Terms of Reference

A phase 1 engineering geological investigation with reference to GSFH-2 specification was conducted on the proposed development site for Mafikeng Erf 428, Mafikeng, Northwest Province, with the aim to assess aspects such as geology, relief and subsoil conditions which may influence the planned development in the area..

11.1.2 Methodology

The following was consulted during the investigation:

- The geological map 2525 Mafikeng. Scale 1:250 000. The Geological Survey of South Africa.
- The topography map 2525DC Mafikeng. Scale 1:50 000.The Chief Directorate: Surveys and Land Information, Mowbray.

SITE INVESTIGATION

All available information was studied before and during the site visit.

The investigation commenced with a desk study, where all relevant information is collected and compiled on a base map. The site was divided into land forms, after which the accuracy of the information was verified by means of a field visit.

Test pits were dug and representative disturbed samples collected and tested. The position of the test pits are represented in Figure 4 (Appendix A) of the Geotechnical Report. The soil profiles were described according to the methods described by Jennings *et al* (Jennings 1973). This method describes each horizon in terms of moisture content, colour, consistency, structure, type of soil and origin of the soil.

Disturbed samples of the soil materials were taken for laboratory analysis. The grading of the soils was determined by sieve and hydrometer analysis, resulting in cumulative grading curves.

The mechanical properties of the soil material are described in terms of the liquid limit and plasticity index (determined by means of the Atterberg Limit tests) and the linear shrinkage. These values can be used to calculate the potential expansiveness of the soils, and to evaluate the materials for use as construction material. The consistency of a soil is described by means of its Atterberg limits, where the effect of a change in the moisture content on the consistency of a cohesive soil is measured. According to Cernica (1982) these tests are useful "mostly for soil identification and classification". It can also be used to determine the mechanical properties of cohesive soil material. Note that cohesionless soils (i.e. sandy material) cannot be tested for plasticity or collapse potential as this material does not contain enough fines to exhibit consistency, and the taking of undisturbed samples is not possible due to disintegration.

The linear shrinkage test to determine the percentage shrinkage that can be expected, is performed by wetting a soil to approximately its liquid limit and drying the resultant paste in a linear shrinkage mould.

The potential expansiveness of a soil depends upon its clay content, the type of clay mineral, its chemical composition and mechanical character. A material is potentially expansive if it exhibits the following properties (Kantey and Brink, 1952):

- clay content greater than 12 percent,
- plasticity index of more than 12,
- liquid limit of more than 30 percent, and
- linear shrinkage of more than 8 percent.

The potential expansiveness (low, medium, high, very high) is calculated by means of Van der Merwe's method (Van der Merwe, 1964), where the equivalent plasticity index versus the clay content of the material is plotted on a graph divided into heave categories.

If any sample in the study area classifies as potentially expansive, the amount of heave or mobilization in mm measured on the surface will be calculated

LABORATORY TESTS

Disturbed samples for foundation indicator tests (GFSH-2) were taken, but it was reduced according to the limited variability of the geotechnical character and simplicity of the entire site.

No free swell tests were done as all these areas falls within the drainage features and outside the developable areas.

No consolidometer or potential collapse tests were done as it was impossible to secure any undisturbed soil sample required for these tests.

No soil chemistry samples were tested as all new developments use synthetic pipes not reactive to soil aggressiveness.

The disturbed samples taken during the investigation were tested by the accredited laboratory of Specialized Testing Laboratory to determine their physical properties. Indicator tests include a grading analyses, the determination of Atterberg limits and linear shrinkage.

11.1.3 Recommendations and Conclusions

- A site of 30ha on a portion of the farm Mmabatho Town & Townlands 301, Mafikeng, Erf 438, Mafikeng, was investigated to determine the engineering geological properties that will influence township proclamation.
- The site is underlain by basaltic amygdaloidal lava, agglomerate & tuff of the Allanridge Formation, and amygdaloidal lava& tuff of the Rietgat Formation, Platberg Group, of the Ventersdorp Supergroup.
- Some severe problems are foreseen regarding the excavatability to 1,5m depth on site. Building rubble and waste covers a large portion of the site.
- Zoning of the site revealed a zone with constraints regarding the marginally low to medium heave potential of the soil. The engineering geological site classification indicating special development was as follows:

Modified Normal to Special Development:

Site Class H1R/2C3F:

Slightly to marginally medium expansive soil with less than 0,75m in thickness with an estimated total heave up to 15mm measured at surface, underlain by a pebble marker or lava characterize this zone, requiring modified normal foundation techniques to enable proper development, with modified normal construction including lightly reinforced strip footings and articulation joints, or soil replacement with an engineered soil raft with a COLTO classification of at least G5 or better, with drainage provision. Site drainage, a concrete apron of 1,0m around all structures without gardening around structures and plumbing and service precautions are advised. It was classified as H1R in terms of the NHBRC guidelines (1995) or the SAICE Code of practice (1995) and 2C3F according to the classification for urban development (Partridge, Wood & Brink).

Site Class PQ/HPQ:

Old borrow pits and quarries (PQ) or areas where spoil or building rubble (HPQ) were dumped need to be rehabilitated by removing the waste or by backfilling the quarries with an engineered fill with a COLTO classification of at least G5 or better compacted in layers. Any quarry or borrow pit must be backfilled with a controlled fill to engineers specification before any development can take place.

Undevelopable:

Site Class PD/3L: Perennial drainage features where the 1:100 year flood line will determine or specify the allowable distance of development from rivers, usually 32m from the center of the river.

- Special construction techniques must be used to enable proper development. This includes the use of compaction techniques with steel reinforcement or soil rafts as described.
- This investigation was done to reveal the geotechnical properties on site with the techniques as described to form our opinion. Although every possible factor during the investigation was dealt with, it is possible to encounter variable local conditions. This will require the inspection of foundations by a competent person to verify expected problems.

11.2 FLOOD LINE DETERMINATION REPORT (See Appendix A1 for a copy of this report)

11.2.1 Terms of Reference

CWT Consulting was appointed to calculate the 1:100 year flood levels in the ***Molopo River*** on a proposed new development on a part of ***Erf 438 in Mahikeng*** in the **North West Province.** According to **section 144 of the National Water Act (**ACT No. 36 of 1998) as amended, no person may establish a development unless the layout plan shows (in a form acceptable to the local authority concerned) lines indicating the maximum level likely to be reached by floodwaters on average once in every 100 years. The area is riparian to the **Molopo River** and the 1:100 year flood lines must therefore be shown on the layout plans.

11.2.2 Methodology

Analysis Methodology
The final recommended 1:100 year flood peaks were calculated after considering both **statistical methods** or **deterministic methods.** Both totally different types of flood peak calculation were therefore considered to determine the final recommended 1:100 year flood peaks at the study site.

Statistical Methods
No useable flood record for floods in the Molopo River at this point exists and Statistical Methods can therefore not be used.

Deterministic Methods
Various different deterministic methods were used to calculate the flood hydrology for the catchment as this increases the accuracy of the final flood peak calculation. All the methods used take the following into account:
• Evaporation during rain storm
• Wind during rainstorm
• Depth of rainstorm
• Infiltration
• Flow roughness of area.

The following deterministic methods were considered:
1. Rational method as implemented by the Department of Water Affairs.
2. Rational method using an alternative implementation.
3. Standard Design Flood (SDF) method as developed at Pretoria University.
4. The Unit Hydrograph method.
5. The Herbst Algorithm as developed at the Department of Water & Sanitation.
6. The HRU Algorithm as developed at the University of Witwatersrand.
7. The Stephenson & Ten Noordt Algorithms as developed at the University of Witwatersrand.

Due to the ***size*** of the catchments the results obtained from only the **first four methods** mentioned above as well as the **HRU Algorithm** are deemed to be applicable for this study.

DESCRIPTION OF THE FLOOD LINE CALCULATION
Hydraulic Model
The HEC-RAS model was used to perform the calculations of the water levels. HEC-RAS is an integrated package of hydraulic analysis programs in which the user interacts with the system through the use of a Graphical User Interface (GUI).

HEC-RAS is equipped to model a network of channels. a dendritic system or a single river reach. Certain simplifications must be made in order to model some complex flow situations using the HEC-RAS one-dimensional approach. It is capable of modeling subcritical, supercritical, and mixed flow regime flow along with the effects of bridges, culverts, weirs, and structures.

STREAM GEOMETRY

The final detailed contour survey was supplied by the client on **3 August 2020.** The geometry of the stream at the study site was obtained from **11 cross sections.** These sections were used to compile the geometric model. Sections were interpolated at **5 m** interval to facilitate the calculations.

Recommendations and Conclusions

The 1:100 year flood peak generated from the catchment will be experienced if **136 mm** precipitation occurs in approximately **10 hours**. This is therefore an extreme flood as can be seen from the area that will be inundated as shown in the **Figure** below. The flow velocities will be between 2 m/s and 3 m/s and scour is expected. The flow depths will be between 2,5 m to 3,5 m.

1:100 year flood line

11.3 ECOLOGICAL IMPACT ASSESSMENT (See Appendix B for a copy of this report)

11.3.1 Objectives of the habitat study

The objectives of the habitat study are to provide:

- A detailed fauna and flora habitat survey;
- A detailed habitat survey of possible threatened or localised plant species, vertebrates and invertebrates;
- Recording of possible host plants or food plants of fauna such as butterflies.
- Evaluate the conservation importance and significance of the site with special emphasis on the current status of threatened species;

- Literature investigation of possible species that may occur on site;
- Identification of potential ecological impacts on fauna and flora that could occur as a result of the development; and
- Make recommendations to reduce or minimise impacts, should the development be approved.

11.3.2 Scope of study

- Surveys to investigate key elements of habitats on the site, relevant to the conservation of fauna and flora.
- Recording of any sightings and/or evidence of existing fauna and flora.
- The selective and careful collecting of voucher specimens of invertebrates where deemed necessary.
- An evaluation of the conservation importance and significance of the site with special emphasis on the current status of threatened species.
- Recording of possible host plants or foodplants of fauna such as butterflies.
- Literature investigation of possible species that might occur on site.
- Integration of the literature investigation and field observations to identify potential ecological impacts that could occur as a result of the development.
- Integration of literature investigation and field observations to make recommendations to reduce or minimise impacts, should the development be approved.

11.3.3 Recommendations and Conclusions

- Vegetation at most of the site appears to be degraded or modified. A grassland with some indigenous tree species such as *Vachellia tortilis*, *Searsia lancea, Searsia pyroides, Ziziphus mucronata* and *Grewia flava* are found at the site. Alien invasive tree species such as *Melia azedarach* also occurs at the site as well as the alien invasive succulent *Cylindropuntia imbricata*. Clumps of the widespread indigenous shrub *Asparagus laricinus* are present at the site. Indigenous grass species include *Urochloa mocambicensis, Heteropogon contortus*, *Aristida congesta*, *Cynodon dactylon*, *Eragrostis lehmanianna*, *Chloris virgata*, *Eragrostis superba*, *Tragus berteronianus* and *Melinis repens*. Indigenous forbs and dwarf shrubs include *Berkheya onopordifolia* var. *onopordifolia*, *Chascanum pinnatifidum, Helichrysum nudifolium*, *Lippia scaberima*, *Rhyncosia adenodes*, *Selago densiflora*, *Gazania krebsiana*, *Bulbine narcissifolia*, *Euphorbia inaquilatera*, *Felicia muricata, Pollichia campestris*, *Nidorella microcephala*, *Teucrium trifidum* and *Osteospermum muricatum*.
- Alien invasive weed species are visible at previously cleared and previously cultivated areas. These alien invasive weeds include *Verbena aristigera*, *Flaveria bidentis*, *Datura ferox, Argemone ochroleuca*, *Gomphrena celosioides*, *Schkuhria pinnata*, *Tagetes minuta*, *Verbesina encelioides* and *Conyza bonariensis*.
- Wetlands and rocky ridges appear to be absent at the site.
- A non-perennial river, the Molopo river, occurs south of the site within 500 m from the edge of the site (see Wetland Assessment Report).
- Grassland at the site is represented by the Klerksdorp Thornveld (Gh 13) which is not listed as a Threatened Ecosystem according to the National List of Threatened Ecosystems (2011).
- No Threatened or Near Threatened plant or animal species appear to be resident at the site. No other plant or animal species of particular conservation concern appear to be present at the site.
- The scope for the site to be part of a corridor of particular conservation importance is small.
- Ecological sensitivity at the site is medium and low.
- Following the mitigations which will be upheld and planned footprint for development all the impact risks listed above are moderate or low.

- If the development is approved a key issue would be continued monitoring and eradication of alien invasive plant species. It is in particular alien invasive species such as *Melia azedarach* (Syringa) and invasive *Prosopis glandulosa* (Mesquite) which should not be allowed to establish.
- *]*If the development is approved an opportunity presents itself to cultivate indigenous plant species which would benefit urban nature conservation.

11.4 WETLAND IMPACT ASSESSMENT (See Appendix C for a copy of this report – to follow)

11.5 HERITAGE IMPACT ASSESSMENT (HIA) (See Appendix D for a copy of this report – to follow)

11.5.1 Terms of Reference for Heritage Impact Assessment

The Terms of Reference for the study was to:

1. Identify all objects, sites, occurrences and structures of an archaeological or historical nature (cultural heritage sites) located on the portion of land that will be impacted upon by the proposed development;

2. Assess the significance of the cultural resources in terms of their archaeological, historical, scientific, social, religious, aesthetic and tourism value;

3. Describe the possible impact of the proposed development on these cultural remains, according to a standard set of conventions;

4. Propose suitable mitigation measures to minimize possible negative impacts on the cultural resources;

5. Review applicable legislative requirements;

Legislative requirements of National Heritage Resources Act (NHRA), Act 25 of 1999

Aspects concerning the conservation of cultural resources are dealt with mainly in two acts. These are the National Heritage Resources Act (Act 25 of 1999) and the National Environmental Management Act (Act 107 of 1998).

The National Heritage Resources Act

According to the above-mentioned act the following is protected as cultural heritage resources:

a. Archaeological artifacts, structures and sites older than 100 years
b. Ethnographic art objects (e.g. prehistoric rock art) and ethnography
c. Objects of decorative and visual arts
d. Military objects, structures and sites older than 75 years
e. Historical objects, structures and sites older than 60 years
f. Proclaimed heritage sites

g. Grave yards and graves older than 60 years
h. Meteorites and fossils
i. Objects, structures and sites of scientific or technological value.

The National Estate includes the following:

a. Places, buildings, structures and equipment of cultural significance
b. Places to which oral traditions are attached or which are associated with living heritage
c. Historical settlements and townscapes
d. Landscapes and features of cultural significance
e. Geological sites of scientific or cultural importance
f. Sites of Archaeological and palaeontological importance
g. Graves and burial grounds
h. Sites of significance relating to the history of slavery
i. Movable objects (e.g. archaeological, palaeontological, meteorites, geological specimens, military, ethnographic, books etc.)

A Heritage Impact Assessment (HIA) is the process to be followed in order to determine whether any heritage resources are located within the area to be developed as well as the possible impact of the proposed development thereon. An Archaeological Impact Assessment (AIA) only looks at archaeological resources. An HIA must be done under the following circumstances:

a. The construction of a linear development (road, wall, power line, canal etc.) exceeding 300m in length
b. The construction of a bridge or similar structure exceeding 50m in length
c. Any development or other activity that will change the character of a site and exceed 5 000m^2 or involve three or more existing erven or subdivisions thereof
d. Re-zoning of a site exceeding 10 000 m^2
e. Any other category provided for in the regulations of SAHRA or a provincial heritage authority

11.5.2 Methodology

Survey of literature

A survey of available literature was undertaken in order to place the development area in an archaeological and historical context. The sources utilized in this regard are indicated in the bibliography.

Field survey

The field assessment section of the study was conducted according to generally accepted HIA practices and aimed at locating all possible objects, sites and features of heritage significance in the area of the proposed development. The location/position of all sites, features and objects is determined by means of a Global Positioning System (GPS) where possible, while detail photographs are also taken where needed.

Oral histories

People from local communities are sometimes interviewed in order to obtain information relating to the surveyed area. It needs to be stated that this is not applicable under all circumstances. When applicable, the information is included in the text and referred to in the bibliography.

Documentation

All sites, objects, features and structures identified are documented according to a general set of minimum standards. Co-ordinates of individual localities are determined by means of the Global Positioning System (GPS). The information is added to the description in order to facilitate the identification of each locality

11.5.3 Recommendations and Conclusions

Background research indicates that there are some cultural heritage sites and features in the larger geographical area within which the study area falls. The assessment of the study area did not identify any sites, features or material of cultural heritage (archaeological and/or historical) origin or significance.

Large-scale informal dumping of both building rubble and household refuse occurs throughout the area. A number of dirt tracks (vehicular and single-track footpaths) traverse the area. This has also impacted on the area's original natural landscape. Power lines have also impacted on the area. Although the clearing of vegetation that will form part of the proposed mixed use township development here will impact on the area, this will more than likely not impact on any cultural heritage (archaeological and/or historical) sites, features or material.

It should be noted that although all efforts are made to locate, identify and record all possible cultural heritage sites and features (including archaeological remains) there is always a possibility that some might have been missed as a result of grass cover and other factors. The subterranean nature of these resources (including low stone-packed or unmarked graves) should also be taken into consideration. Should any previously unknown or invisible sites, features or material be uncovered during any development actions then an expert should be contacted to investigate and provide recommendations on the way forward.

12. CONCLUSIONS AND RECOMMENDATIONS

The land owner**, Mahikeng Local Municipality** has appointed ***AB Enviro Consult CC***, an independent environmental consultancy, to undertake an Environmental Impact Assessment for the proposed clearance of 12.4863 ha of indigenous vegetation of which 11.5499 ha is located within a critical biodiversity area and 63 meters from the edge of the Molopo River, in order to Establish a Mixed Land Use Residential Development located on a portion of the Remainder of Erf 428, Mafikeng, Mahikeng Local Municipality, North West Province.

This Chapter of the BAR provides a summary of the findings of the impact assessment process, including the EAP's opinion as to whether the activity should or should not be authorised.

12.1 ENVIRONMENTAL IMPACT STATEMENT

The detailed environmental assessment for the proposed development, has not found any environmental impacts that *cannot* be mitigated to acceptable and manageable levels.

In the National Framework for Sustainable Development (NFSD) it is stated that *"the achievement of sustainable development is not a once-off occurrence and its objectives cannot be achieved by a single action* or *decision. It is an ongoing* process *that requires* a *particular set of values and attitudes in which economic, social and environmental assets that society has at its disposal, are managed in* a *manner that sustains human well-being without compromising the ability of future generations to meet their own need.* The NFSD further continues to emphasize that South Africa's current development path in certain instances reflects signs of being unsustainable in the long-term. It highlights that a large percentage of growth in economic activity (measured in terms of its contribution to the GDP) is achieved by *"consuming' natural resources and degrading our habitat at accelerating rates with the inevitable consequence that future economic growth and development objectives will be prejudiced. "*

Consistent with national priorities, environmental authorities must support *"increased economic growth and promote social inclusion",* whilst ensuring that such growth is *"ecologically sustainable".* In the National Spatial Development Perspective (NSDP) it is highlighted that, to achieve the goal of stimulating sustainable economic activities and to create long-term employment opportunities, it is required that spending on economic infrastructure is focused in priority areas with potential for economic development, with development to serve the broader societies' needs equitably.

The local municipality intends to promote a more compact city in order to prevent the expansive provision of social and engineering services, as well as to prevent the economic decline of the traditional city centre. The Spatial Development Framework (SDF) addresses the scale or urban growth through planned extensions, infill and redevelopment strategies. The local municipality is aware of the need to integrate urban settlements, with a view to reduce travel distances to the areas of employment opportunities. It also addresses measures to promote compact and connected growth opportunities, such as the identification of revitalisation zones, densification and mixed land use zones. For any development to be sustainable and viable, land development and planning should ensure that communities are located close to job opportunities, social facilities and basic services.

The SDF and the Land Use Management system of the Local Municipality has identified certain areas that must address previously disadvantaged areas and historically disadvantaged residents. There is a definite need for the residents to have reasonable access to opportunities and facilities that supports living in the urban Settlement. It is the responsibility of the local municipality to ensure that the residents have reasonable access to community services and amenities, as well as employment opportunities

and that the form of land development need to provide for basic needs in an affordable way. The proposed development will be in line with this principle by ensuring that people living the area do in fact have reasonable access to opportunities and facilities.

The planning practices of the past has resulted in sprawling urban areas that are un-economical. Today, planning policies are transformed to mainly encourage infill development on vacant land within the urban environment, in order to combat urban sprawl. The proposed development falls in line with these principals, as it is located within the urban area and is surrounded by urban development. .

The proposed development addresses the need identified by the Mahikeng Local Municipality, for the provision of additional business properties, to be alienated by means of full title and will provide for a mixed land use and social mix, such as the availability of housing in different price ranges.

The identification, description, evaluation and comparison of alternatives are important for ensuring a sound environmental scoping process.

The alternatives considered for the proposed development includes "Mixed land use township" (Alternative 1), "Single land use: Housing only" (Alternative 2) and the "No-go option.

People want easy access to job opportunities, shops, schools, banking facilities, clinics, etc. and want their living environment to be placed at strategic positions with good access routes in close proximity to these amenities.

A mixed land use development is *socially responsible* based on the following:

- It covers the mixed and lower income bracket by providing a higher density housing option;
- The development will inevitably support the use of public transport;
- The development will include supporting social infrastructure as well as some retail and commercial activities;
- The layout of the development must respond to the future road planning for the area, to facilitate and maximise pedestrianisation and public transport.
- Commercial erven can accommodate a shopping centre, to service the existing formalised and informal settlements in the area. The commercial node will:
    - Promote entrepreneurial services and products;
    - Be within walking distance to places of refreshment and trade for residents;
    - Provide Job opportunities; and
    - Improve neighbourhood quality.

By providing only one land use type (i.e., housing), mixed income development and social integration across race and income levels, *cannot be achieved*. By restricting a township to one land use only, the above benefits to the local community, and subsequent council area, cannot be realised, and hence, is not a preferred land use option.

The only other alternative that exists for the proposed development is the "no-go" option which will imply that the status quo will prevail. This is unacceptable, as other land parcels will have to be sourced to provide for this need within the community. This will imply that infill development will not take place and will result in urban sprawl.

It is therefore proposed that Alternative 1 be the preferred alternative.

Specialist studies were conducted and a full Public Participation Process is being followed. This information was used to generate a sensitivity map that was used to assess the sustainability of the design and layout plan for the proposed development.

The **Geo-Technical Engineer** has found that the site is underlain by basaltic amygdaloidal lava, agglomerate & tuff of the Allanridge Formation, and amygdaloidal lava& tuff of the Rietgat Formation, Platberg Group, of the Ventersdorp Supergroup.

Some problems are foreseen regarding the excavatability to 1,5m depth on site. Zoning of the site revealed a zone with constraints regarding the marginally low to medium heave potential of the soil. **Special construction** techniques must be used to enable proper development. This includes the use of compaction techniques with steel reinforcement or soil rafts as described.

A 1:100 year flood line was determined by a qualified Engineer.

The **Heritage Impact Assessment** revealed that the proposed development will more than likely not have any impact on any cultural heritage (archaeological and/or historical) sites, features or material.

The **Fauna and Flora Habitat** study conducted also revealed that the vegetation at the site appears to be degraded, modified or in some areas transformed. Disturbances that have caused extensive impacts to vegetation include excavations of the past, tracks, dirt roads and clearings. Informal dumping is conspicuous at many areas in particular close to roads and tracks. Alien invasive weeds are widespread at disturbed areas at the site.

Grassland at the site is represented by the Klerksdorp Thornveld (Gh 13) which is not listed as a Threatened Ecosystem according to the National List of Threatened Ecosystems (2011). No Threatened or Near Threatened plant or animal species appear to be resident at the site.

The Local Municipality has indicated that **sufficient Bulk Services** are available in the area

A full Public Participation Process is being conducted and any objections or comments that will be received in relation to the proposed development will be incorporated into the Final BAR.

12.2 ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPR)

EMPR's aim to identify and minimise the potential impacts that the proposed construction and operational phases of the project may have on the receiving environment. An EMPR has been developed which is contained in Appendix E and includes detailed mitigatory measures for the construction phase.

As a general guideline, the EMPR should be based on a comprehensive set of environmental aspects (elements of the facility that can interact with the environment), and hence, the EMPR compiled for this application includes the following key components:

- Mechanisms for the on-going identification and assessment of environmental aspects and impacts;
- Environmental management programmes; objectives and targets;
- Environmental monitoring and reporting framework;
- Environmental management procedures; and,
- Mechanisms for the recording of environmental incidents and implementing corrective and preventative actions.

12.3 EAP OPINION

The information contained in this BAR and Specialist Studies, provides a detailed and comprehensive description of the proposed project, baseline environment and potential environmental impacts associated with the proposed development. As no significant impacts that cannot be mitigated were identified, AB Enviro Consult is of the opinion that the project should proceed, provided that the necessary mitigation and management measures are implemented.

Under South African environmental legislation, the Applicant is accountable for the potential impacts of the activities that are undertaken and is responsible for managing these impacts. The Applicant therefore has overall and total environmental responsibility to ensure that the implementation of the construction phase of the EMPR complies with the relevant legislation and the conditions of the environmental authorisation. The applicant will thus be responsible for the implementation of the EMPR.

The environmental management programme (EMPR) should form part of the contract between the construction company and the applicant. This will help ensure that the EMPR is adhered to. It is suggested that a suitably qualified Environmental Control Officer (ECO) be appointed for the construction phase.

12.4 CONDITIONS RECOMMENDED TO BE INCLUDED IN ANY AUTHORISATION THAT MAY BE GRANTED BY THE COMPETENT AUTHORITY IN RESPECT OF THE APPLICATION

The following recommendations has been identified for the pre-construction and construction phases of the proposed development

1. A full copy of the signed EA from DEDECT in terms of NEMA, granting approval for the development must be available on site
2. A copy of the EMPr as well as any amendments thereof must be available on site
3. A suitably qualified ECO must be appointed.
4. Impacts on the environment must be minimised during site establishment and the development footprint must be kept to the approved development area.
5. Vegetation clearing may not commence until such time as the development footprint has been clearly defined.
6. No clearance of vegetation outside of the development footprint may occur.
7. No construction workers or machinery will be allowed within the no-go area that is defined as the non-perennial river, including its riparian and buffer zone.
8. At the end of the construction phase the site and its surrounding area (Including the non-perennial stream) must be free from any pollution that originated as a result of the construction activities.
9. No disturbance of topsoil & subsoil may commence until such time as the development footprint has been clearly defined.
10. No disturbance of topsoil & subsoil outside of the development footprint may occur.
11. At the end of the construction phase the site and its surrounding area (Including the non-perennial stream) must be free from any chemical, fuel, oil and cement spills that originated as a result of the construction activities.

12. At the end of the construction phase the site and its surrounding area (Including the non-perennial stream) must be free from any sewage that originated as a result of the construction activities.
13. At the end of the construction phase the site and its surrounding area (Including the non-perennial stream) must be free from any hazardous or general waste pollution that originated as a result of the construction activities.
14. Dust prevention measures must be applied to minimise the generation of dust.
15. Noise prevention measures must be applied to minimise the generation of unnecessary noise pollution as a result of construction activities on site.
16. Absolutely no burning of waste is permitted.
17. Fires will only be allowed in facilities especially constructed for this purpose.
18. No hunting of animals will be allowed.
19. No intentional destruction of any sites, features or material of cultural heritage (archaeological and/or historical) origin or significance may occur.
20. All Contractors and sub-contractors must abide to the rules and regulations of the Occupational Health and Safety Act, 85 of 1993.

13. AFFIRMATION BY EAP

I **Mr. Jean Pierre De Villliers** declare under oath that I:

a. act as the independent environmental practitioner in this application ;
b. do not have and will not have any financial interest in the undertaking of the activity, other than remuneration for work performed;
c. do not have and will not have a vested interest in the proposed activity proceeding;
d. have no, and will not engage in, conflicting interests in the undertaking of the activity;
e. undertake to disclose, to the competent authority, any material information that has or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required;
f. will ensure that information containing all relevant facts in respect of the application is distributed or made available to interested and affected parties and the public and that participation by interested and affected parties is facilitated in such a manner that all interested and affected parties will be provided with a reasonable opportunity to participate and to provide comments on documents that are produced to support the application;
g. will ensure that the comments of all interested and affected parties are considered and recorded in reports that are submitted to the competent authority in respect of the application, provided that comments that are made by interested and affected parties in respect of a final report that will be submitted to the competent authority may be attached to the report without further amendment to the report;
h. will keep a register of all interested and affected parties that participated in a public participation process; and
i. will provide the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not.

_____

Signature of the Environmental Assessment Practitioner:

Name of company: AB Enviro Consult CC

Date:

_____

Signature of the Commissioner of Oaths:

Date

Designation

Official stamp:

14. LIST OF REFERENCES

Department of Environmental Affairs and Tourism. 1992. Integrated Environmental Management. Pretoria, DEAT.

Department of Environmental Affairs and Tourism. 1998. *Guideline Document - EIA Regulations*. Pretoria, DEAT.

Department of Environmental Affairs. 1988. *Climate of South Africa, climate statistics up to 1984*. Weather Bureau (WB40). Pretoria, Government Printer.

Department of Transport, 19--. *Climate of South Africa Part 1 Climate statistics.* Weather Bureau (WB20). Pretoria Government Printer.

S. Cliff. 2015. Environmental Scoping report for the proposed high density residential township "Tanganani extension 7", to be located on a part of Portion 119 of the farm Diepsloot 388 JR, City of Johannesburg Municipality, Gauteng

APPENDIX A:
GEOTECHNICAL SPECIALIST REPORT

APPENDIX A1:
FLOOD LINE REPORT

APPENDIX C:
ECOLOGICAL SPECIALIST REPORT

APPENDIX D:
WETLAND SPECIALIST REPORT (TO FOLLOW)

APPENDIX E:
SAHRA SPECIALIST REPORT (TO FOLLOW)

APPENDIX F:
ENVIRONMENTAL MANAGEMENT PROGRAMME

APPENDIX F:
SPECIALIST DECLARATION OF INDEPENDENCE (TO FOLLOW)

APPENDIX G
PROOF OF BAR SENT TO DW&S