

**BASIC ASSESSMENT REPORT IN TERMS OF NEMA**

**PROPOSED VEGETATION CLEARANCE AND  
TRANSFORMATION FOR FURTHER DEVELOPMENT  
OF PORTION 385 OF THE FARM WATERKLOOF  
305JQ, RUSTENBURG LOCAL MUNICIPALITY,  
BOJANALA PLATINUM DISTRICT MUNICIPALITY,  
NORTH WEST PROVINCE.**

**JULY 2022**

**(DRAFT)**



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### Appendix A: EAP

- Company profile: HydroScience
- Curriculum vitae (Environmental Assessment Practitioner): Ms Paulette Jacobs
- Qualification: Ms Paulette Jacobs
- Professional affiliations: Ms Paulette Jacobs (SACNASP, EAPASA WISA, IAIAsa)
- NEMA project list

### Appendix B: Applicant and property

- Title deed T73755/2011 owner Esimio Investments (Pty) Ltd (200901977507)
- Identity Document (ID) - Ben van der Walt (880402 5116 08 5)
- Power of attorney (POA)

### Appendix C: Photographs & layout

- Photographs from site visit (17 May 2022)
- Site Development Plan (SDP) – NE Town Planning & Development Consultants

### Appendix D: Specialist studies

- Cultural Heritage: Archaetnos Culture & Cultural Resource Consultants, 2022. A Report on a Cultural Heritage Impact Assessment for the Proposed Further Development on Portion 385 of the Farm Waterkloof 305 JQ, Rustenburg, North West Province. 8 June 2022.
- Flora, Fauna & Aesthetic: HydroScience, 2012. Flora, Fauna & Aesthetic Report for the Proposed Township Establishment on Portion 385 of the Farm Waterkloof 305 JQ, Rustenburg, North West Province. October 2012.

### Appendix E: Public participation

- Newspaper notice (Rustenburg Herald)
- Email notification
- Hand-delivered notification
- Contact details of Interested and Affected Parties (confidential)
- Comments received from Interested and Affected Parties
- Comments received from Interested and Affected Parties on draft BAR

### Appendix F: Other

- Previous EA: NWP/EIA/06/2017

## LIST OF ACRONYMS AND ABBREVIATIONS AND DEFINITIONS

<b>AIS</b>	Alien and Invasive Species Regulations (2014)
<b>BPDM</b>	Bojanala Platinum District Municipality
<b>Biodiversity</b>	Diversity of genes, species and ecosystems on earth, and the ecological and evolutionary processes that maintain this diversity.
<b>BPG</b>	Best Practice Guidelines
<b>CAPEX</b>	Capital Expenditure
<b>CARA</b>	Conservation of Agriculture Resources Act, 1983 (Act 43 of 1983)
<b>CBA</b>	Critical Biodiversity Area (terrestrial and aquatic areas required to meet biodiversity targets for ecosystems, species or ecological processes, as identified in a systematic biodiversity plan)
<b>CBD</b>	Central Business District (centre of a town/city)
<b>CRSA</b>	Constitution of the Republic of South Africa, 1996 (Act 108 of 1996) – Section 24 relates to environment
<b>CSIR</b>	Council for Scientific and Industrial Research
<b>DFFE</b>	Department of Forestry, Fisheries and the Environment (national authority responsible for environmental protection and implementation of NEMA)
<b>DOL</b>	Department of Labour
<b>DTI</b>	Department of Trade and Industry
<b>DWS</b>	Department of Water and Sanitation (national authority responsible for water protection and implementation of NWA, custodian of South Africa's water resources)
<b>EAP</b>	Environmental Assessment Practitioner (independent consultant administering NEMA processes on behalf of applicant)
<b>EAPASA</b>	Environmental Assessment Practitioner Association of South Africa
<b>ECA</b>	Environment Conservation Act, 1989 (Act 73 of 1989) – preceded NEMA
<b>ECO</b>	Environmental Control Officer
<b>EIA</b>	Environmental Impact Assessment (process required in terms of NEMA to obtain authorisation for listed activities)
<b>EMF</b>	Environmental Management Framework
<b>EMP</b>	Environmental Management Programme/Plan
<b>EO</b>	Environmental Officer

<b>ESA</b>	Ecological Support Area (terrestrial and aquatic areas that are not essential for meeting biodiversity targets but play an important role in supporting the ecological functioning of one or more Critical Biodiversity Areas; or in delivering ecosystem services.
<b>GIS</b>	Geographic Information System
<b>GNR</b>	Government Notice Regulation (notices published in Government Gazette in terms of already promulgated laws, legislated by government)
<b>GNR 324</b>	Amendment of GNR 985 - Listing 3 deals with activities requiring environmental authorisation due to sensitive locations
<b>GNR 325</b>	Amendment of GNR 984 - Listing 2 deals with activities requiring environmental authorisation due to expected higher environmental impact – requires full EIA (scoping and EIA)
<b>GNR 326</b>	Amendment of GNR 982 - EIA regulations – procedures / requirements
<b>GNR 327</b>	Amendment of GNR 983 - Listing 1 deals with activities requiring environmental authorisation due to expected lower environmental impact – requires Basic Assessment only
<b>GPS</b>	Global Positioning System
<b>GVA</b>	Gross Value Added
<b>HC</b>	Hydrocarbons
<b>HIA</b>	Heritage Impact Assessment
<b>IAIA</b>	International Association of Impact Assessment
<b>IBA</b>	Important Bird (and Biodiversity) Area – of international significance for conservation of birds as identified by BirdLife International.
<b>I&amp;APs</b>	Interested and Affected Parties (as identified during the Public Participation Process)
<b>IDP</b>	Integrated Development Plan
<b>Listed Activities</b>	Activities identified in terms of NEMA Sections 24 and 24D, which require environmental authorisation prior to commencement due to their potential environmental impacts. See GNR 324, 325, 326, 327
<b>MAE</b>	Mean Annual Evaporation
<b>MAP</b>	Mean Annual Precipitation
<b>MBR</b>	Magaliesberg Biosphere Reserve
<b>MPE</b>	Magaliesberg Protected Environment
<b>NEMA</b>	National Environmental Management Act, 1998 (Act 107 of 1998) – overarching environmental legislation in South Africa



<b>NEM:AQA</b>	National Environmental Management: Air Quality Act, 2004 (Act 39 of 2004)
<b>NEM:BA</b>	National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004)
<b>NEM:PAA</b>	National Environmental Management: Protected Areas Act, 2003 (Act 57 of 2003)
<b>NEM:WA</b>	National Environmental Management: Waste Act, 2008 (Act 59 of 2008)
<b>NFEPA</b>	National Freshwater Ecosystems Priority Area
<b>NHRA</b>	National Heritage Resources Act, 1999 (Act 25 of 1999)
<b>NWA</b>	National Water Act, 1998 (Act 36 of 1998)
<b>NW DEDECT</b>	North West Department of Economic Development, Environment, Conservation and Tourism
<b>OHSA</b>	Occupational Health and Safety Act, 1993 (Act 85 of 1993)
<b>OPEX</b>	Operational Expenditure
<b>NWPHRA</b>	North West Provincial Heritage Resources Agency
<b>PPE</b>	Personal Protective Equipment
<b>PPP</b>	Public Participation Process
<b>PRECIS</b>	National Herbarium Pretoria (PRE) Computerised Information System
<b>QDGC</b>	Quarter Degree Grid Cell
<b>RLM</b>	Rustenburg Local Municipality
<b>SACNASP</b>	South African Council for Natural Scientific Professions (body for the registration of professional natural scientists)
<b>SAHRA</b>	South African Heritage Resources Agency (authority responsible for implementation of NHRA)
<b>SAHRIS</b>	South African Heritage Resources Information System (electronic system onto which reports are loaded for comments from SAHRA)
<b>SANBI</b>	South African National Biodiversity Institute
<b>SANRAL</b>	South African National Roads Agency
<b>SABS</b>	South African Bureau of Standards
<b>SANS</b>	South African National Standards
<b>SCC</b>	Species of Conservation Concern
<b>SDF</b>	Spatial Development Framework
<b>SDP</b>	Site Development Plan
<b>SHEQ</b>	Safety, Health, Environment & Quality

<b>SoE</b>	State of the Environment Report
<b>WCMR</b>	Waste classification and Management Regulations
<b>WISA</b>	Water Institute of Southern Africa
<b>WUL</b>	Water Use License

## 1 ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP)

### 1.1 Details

<b>Company:</b>	HydroScience CC
<b>Registration Number:</b>	2008/056910/23 14 March 2008
<b>Postal address:</b>	P.O. Box 1322 Ruimsig 1732
<b>Email address:</b>	paulette@hydroscience.co.za
<b>Telephone number:</b>	+ 27 (0) 82 850 5482
<b>Fax number:</b>	+ 27 (0) 86 692 8820
<b>Contact person:</b>	Ms Paulette Jacobs I.D. 680526 0104 08 4
<b>Professional registration (Paulette Jacobs):</b>	South African Council for Natural Scientific Professions (SACNASP): 400005/07 Environmental Assessment Practitioner Association of South Africa (EAPASA): 2020/357
<b>Membership (Paulette Jacobs):</b>	Water Institute of Southern Africa (WISA): 24906 International Association of Impact Assessment South Africa (IAIASa): 5266

### 1.2 Experience and expertise

HydroScience CC was established in 2008 after Ms Paulette Jacobs acted as an independent consultant (sole proprietor) since 2000. HydroScience is an environmental, water and waste management solutions provider. Refer to Appendix A for a company profile.

Ms Paulette Jacobs obtained her qualifications from the Rand Afrikaans University in Johannesburg in 1990 and has been in the water, waste and environmental field for the last 32 years, first in research for seven (7) years at the Council for Scientific and Industrial Research (CSIR) and since then in consulting (Pulles, Howard and De Lange Water Quality Management Consultants, SRK Consulting, sole proprietor, HydroScience). Refer to Appendix A for Curriculum Vitae of Ms Paulette Jacobs. Ms Paulette Jacobs assisted Department of Water Affairs and Forestry (now Department of Water and Sanitation, DWS) to compile the Best Practice Guidelines (BPG) for water resource protection in the mining industry and has successfully completed many Water Use Licence (WUL) Applications in terms of the National Water Act (NWA), 1998 (Act 36 of 1998) as well as Environmental Impact Assessments (EIA) in terms of the National Environmental Management Act (NEMA), 1998 (Act 107 of 1998) as amended for the industrial, retail, commercial/business and residential sectors to obtain environmental authorisations, Atmospheric Emissions Licenses (AEL) and Waste

Management Licenses (WML) over the last 20 years. Refer to Appendix A for a project list of applications for environmental authorisation.

### 1.3 Supporting information

Appendix A contains:

- Company profile: HydroScience
- Curriculum vitae (Environmental Assessment Practitioner): Ms Paulette Jacobs
- Qualification: Ms Paulette Jacobs
- Professional affiliations: Ms Paulette Jacobs (SACNASP, EAPASA, WISA, IAIAsa)
- NEMA project list

### 1.4 Assumptions, limitations, disclaimer and copyright

The findings, results, observations, conclusions and recommendations given in this report are based on the author's best scientific and professional knowledge as well as available information at the time of compilation (May - June 2022). The report is based on survey and assessment techniques which are limited by time (one day on site) and budgetary constraints relevant to the type and level of investigation undertaken (Basic Assessment Process) and HydroScience and its staff / representatives reserve the right to modify aspects of the report if and when new information may become available from changes in legislation, on-going research or further work in this field, or pertaining to this investigation.

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Project description information contained in this report is based on information supplied by the client or client appointed sources. It has been assumed that the information provided to HydroScience is correct. Environmental data contained in this report is based on information supplied by specialists in their respective fields, as well as existing available information from official sources pertaining to the area in question (maps and reports published by the relevant government department and agencies). It has been assumed that the information from these specialists or official sources is correct. HydroScience has therefore not checked or verified historical/existing information provided for correctness. HydroScience accepts no responsibility for incomplete or inaccurate data supplied by others (the client and external sources). Where gaps or obvious errors have been identified, these are noted for consideration by the applicant and/or authority.

Berg Grond (Pty) Ltd is responsible for the implementation of recommendations and HydroScience cannot and will not take responsibility for its actions or lack thereof.

## 1.5 Declaration of independence

I, **Paulette Jacobs**, declare that –

- I act as an independent environmental, water and waste consultant in this investigation;
- I have expertise in water, waste and environmental management, including knowledge of the relevant Acts, Regulations and any guidelines that have relevance to the investigation;
- I have performed the work relating to this investigation in an objective manner, even if this results in views and findings that are not favourable to any party involved;
- I have included the specialist studies provided to me in Appendices as well as summarised findings and recommendations in this report;
- I undertake to disclose all material information in my possession that reasonably has or may have the potential to influence this investigation, unless access to that information is protected by law, in which case it will be indicated that such information exists;
- I do not have any vested interest (either business, financial, personal or other) in the investigation other than fair remuneration for work performed; and
- I will provide the parties with access to all information at my disposal regarding the investigation, whether such information is favourable or not.



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Signature: Paulette Jacobs

## 2 APPLICANT / PROPONENT

### 2.1 Details

<b>Applicant:</b>	Berg Grond (Pty) Ltd
<b>Registration Number:</b>	2020/679853/07
<b>Postal &amp; Physical address:</b>	5 Gareth Roberts Avenue, Rustenburg
<b>Email address:</b>	ben@vdwgrp.co.za
<b>Telephone number:</b>	083 417 4395
<b>Representative:</b>	Ben van der Walt I.D. 880402 5116 08 5

### 2.2 Supporting information

Appendix B contains:

- Title deed - T73755/2011 (18 October 2011)
- Identity Document (ID) - Ben van der Walt (880402 5116 08 5)
- Power of attorney (POA)

### 3 PROPERTY

#### 3.1 Details

<b>Province:</b>	North West
<b>District Municipality:</b>	Bojanala Platinum District Municipality (BPDM)  <u>Contact person:</u> Director: Tshepo Lenake Cellular number: 083 961 0591 Email: gtlenake@gmail.com
<b>Local Municipality:</b>	Rustenburg Local Municipality (RLM) P.O. Box 16 Rustenburg 0300 Tel: 014 590 3185 Fax: 014 590 3070  <u>Contact person:</u> Ms Kelebogile Mekgoe Cellular number: 072 585 9460 Email: kmekgoe@rustenburg.gov.za
<b>Ward:</b>	Ward 15 Councillor: Ilse Edwards Cell: 064 755 1009 Email: imalan@live.co.za
<b>Ownership:</b>	Title deed: T73755/2011 (18 October 2011) Esimio Investments (Pty) Ltd Registration number: 2009/019775/07
<b>Land use:</b>	<u>Zoning:</u> Agriculture  <u>Current use:</u> Cynthiana hotel (not operational), chapel (vandalised), Caravan Park (no longer used, vandalised), parking areas, accommodation, houses, roads, pubs (operational), commercial (used car sales etc. operational), offices (operational).  <u>Planned:</u> Mixed use development
<b>Surrounding land uses:</b>	North: Portions 72 & 162, approved development (NWP/EIA/06/2017) Builders Warehouse Waterfall Mall East: On-site - Commercial R24 along site boundary Businesses South: Businesses West: Residential – Cashan 33

<b>Farm &amp; portions:</b>	Portion 385 of the farm Waterkloof 305JQ
<b>SG number:</b>	T0JQ00000000030500385
<b>Size:</b>	<u>Property:</u> 17.0193ha <u>Developed:</u> 4ha (NWP/EIA/72/2012) <u>New development:</u> 13ha
<b>GPS locations:</b>	25° 42' 50.20" South 27° 15' 10.42" East
<b>Surrounding towns:</b>	Rustenburg Central Business District (CBD): 5km north
<b>Roads &amp; access:</b>	Access: R24 on eastern boundary of site, traffic light intersection R24: Four lanes (two in each direction), managed by SANRAL Within close proximity to N4 Platinum Highway (linking Rustenburg with Pretoria and Zeerust)
<b>Services: Electrical</b>	RLM (within urban edge)
<b>Services: Water</b>	RLM supply (link with services along R24)
<b>Services: Sewage</b>	RLM (link with services along R24)



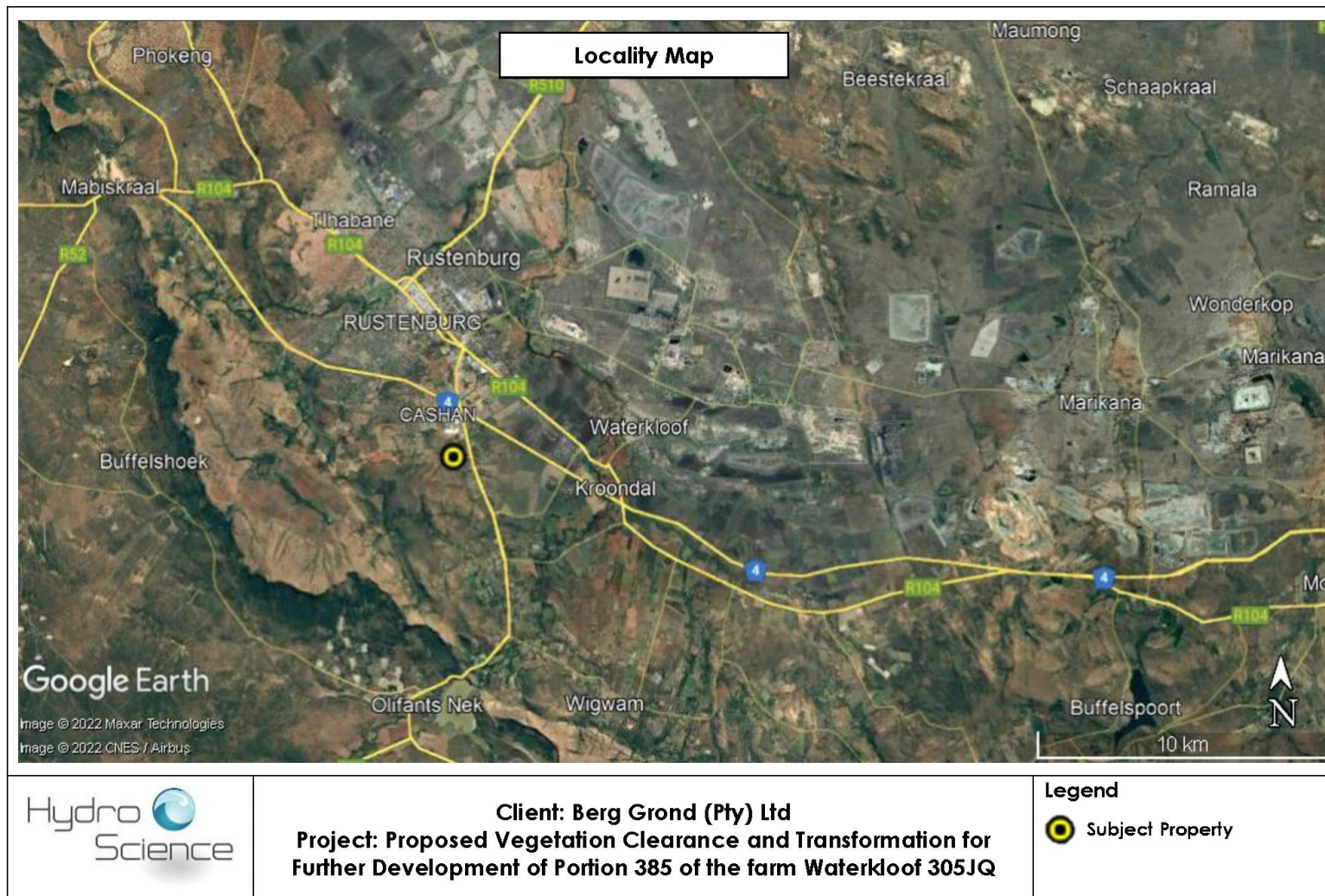


Figure 3-1: Property locality

## 4 PROJECT

### 4.1 Project Description

<b>Type:</b>	Mixed use development
<b>Title:</b>	Proposed vegetation clearance and transformation for further development of Portion 385 of the farm Waterkloof 305JQ, Rustenburg Local Municipality, Bojanala Platinum District Municipality, North West Province.
<b>Detailed description:</b>	<p>The property of 17ha in size is currently partly developed. 4ha of commercial / business development (including a filling station) was previously approved on the eastern portion of the site (NWP/EIA/72/2012).</p> <p><u>Existing buildings and operations:</u></p> <ul style="list-style-type: none"> <li>• Cynthia hotel (no longer operational),</li> <li>• Chapel (vandalised),</li> <li>• Caravan Park (no longer operational),</li> <li>• Parking areas,</li> <li>• Houses and accommodation,</li> <li>• Internal roads,</li> <li>• Old unused dilapidated buildings,</li> <li>• Pubs (operational),</li> <li>• Used Car Sales,</li> <li>• Offices,</li> <li>• Nursery (pots).</li> </ul> <p>This project applies for further development of the site (mixed) to a maximum of an additional 13ha. Listing 1, Activity 27 and Listing 3, Activity 12 for the clearance of vegetation; Listing 1, Activity 28 and Listing 3, Activity 15 for the transformation of land; Listing 3, Activity 4 for roads and Listing 3, Activity 6 for hospitality facilities will be applied for.</p> <p><u>Vegetation clearance:</u></p> <p>For the development, vegetation will have to be cleared to allow space for the establishment of structures (buildings) and infrastructure. The far western section of the property (<math>\pm</math> 7ha) towards Cashan 33 which has not been developed yet will now be developed, and a portion of this will be left as private open space (stand 81 of 0.39ha). The site is located in a Terrestrial Biodiversity Ecological Support Area (ESA) 1 and an Aquatic Critical Biodiversity Area (CBA).</p>

	<p><u>Development will include:</u></p> <ul style="list-style-type: none"> <li>• Residential units (76 stands across 5.11ha)</li> <li>• Church (1ha) – Stand 57</li> <li>• Roads (3.11 ha)</li> <li>• Self-storage (0.88ha) – Stand 80</li> <li>• Infrastructure for access control (0.16ha)</li> </ul>
<b>Location:</b>	<p>25° 42' 50.20" South 27° 15' 10.42" East</p>
<b>Roads &amp; access:</b>	<p><u>Current &amp; Future Access:</u> Directly from the R24 on the eastern boundary of the site via a traffic light intersection. The R24 is managed by SANRAL and has four lanes (two in each direction).</p> <p><u>Upgrades:</u> None required</p> <p><u>Internal roads:</u> 3.11ha with access control (0.16ha)</p>
<b>Services: Electrical</b>	RLM (within urban edge)
<b>Services: Water</b>	RLM supply (link with services along R24)
<b>Services: Sewage</b>	RLM (link with services along R24)
<b>Investment:</b>	R550 million
<b>Estimated completion date:</b>	2030

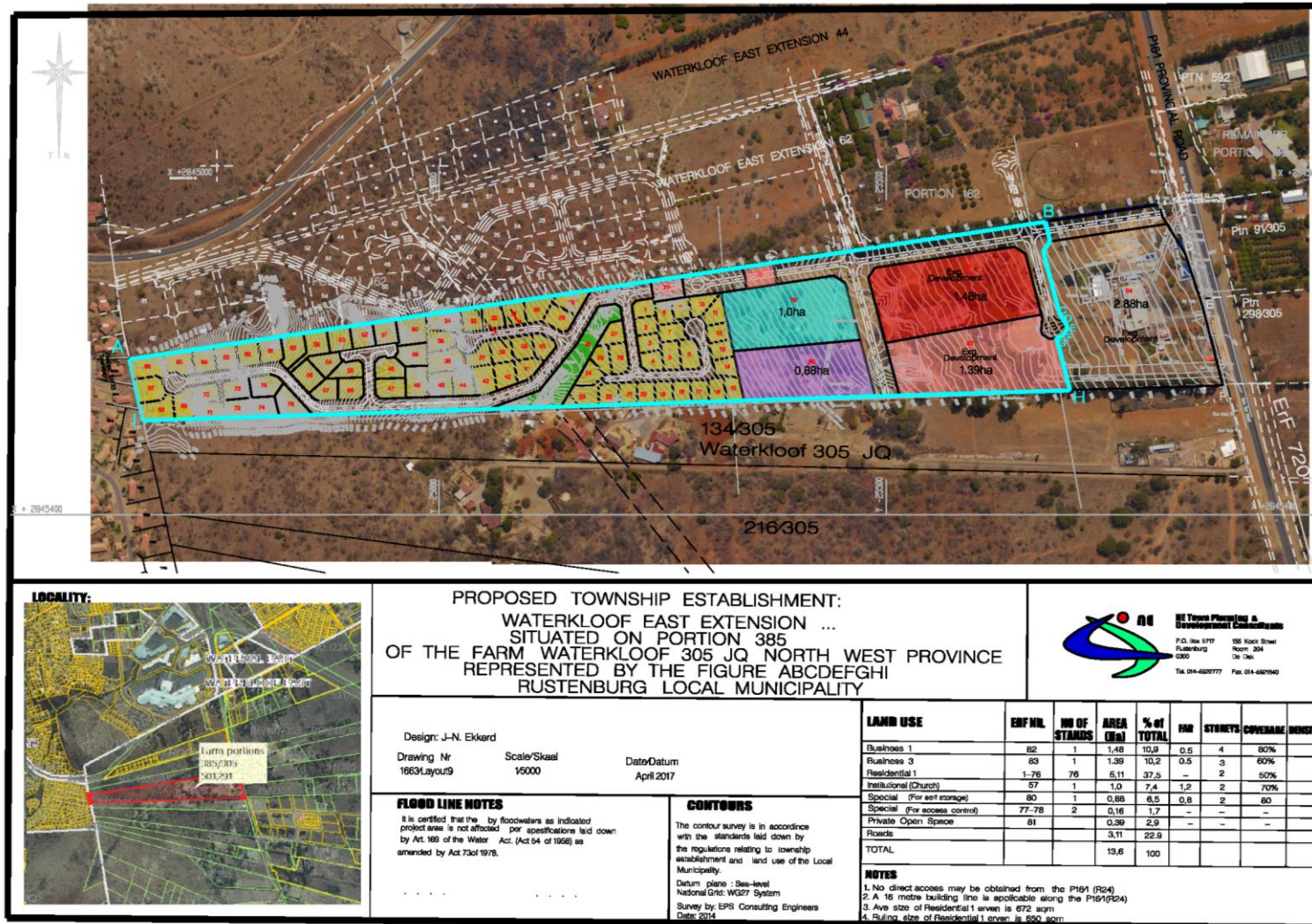


Figure 4-1: Site Development Plan (SDP) – NE Town Planning & Development Consultants

## 4.2 Screening

The Department of Forestry, Fisheries and the Environment (DFFE) screening tool was used and a screening report generated. The following came from the report:

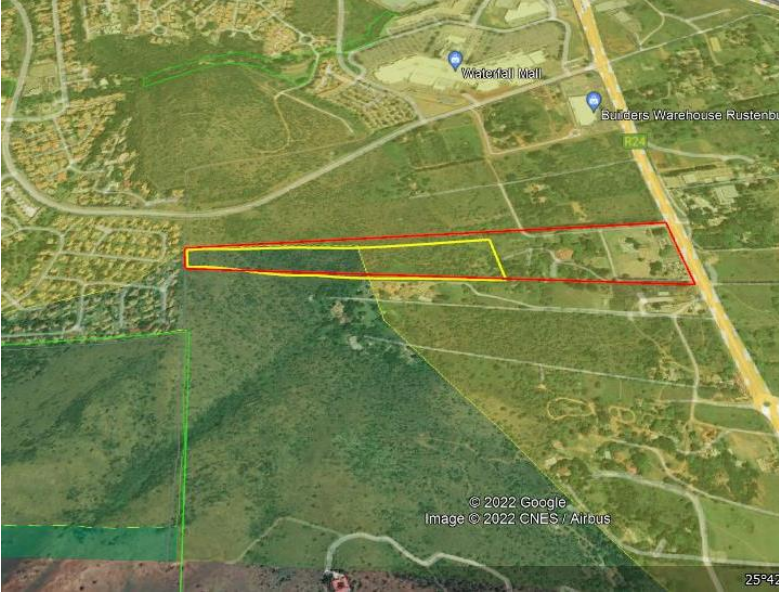
Aspect:	Sensitivity:	Requirement from other recent studies conducted on the site:
Environmental Management Framework (EMF)		No intersections found.  North-West Department of Economic Development, Environment, Conservation and Tourism EMF
Agricultural	High	<u>High:</u> Land capability 09. Moderate-High/10. Moderate-High. <u>Medium:</u> Land capability 06. Low-Moderate/07. Low-Moderate/08. Moderate <u>Low:</u> Land capability 01. Very low/02. Very low/03. Low-Very low/04. Low-Very low/05. Low  <u>Site visit:</u> No agricultural activities. Site is disturbed with buildings and existing businesses. No evidence of historical agricultural activities on Google earth™ images (2003).
Animal	Medium	Medium due to the possibility of the following species occurring: <i>Crocidura maquassiensis</i> (Maquassie Musk Shrew) <i>Dasymys robertsii</i> (African Marsh Rat)  <u>Specialist:</u> There were only signs of a mole species found during the survey and no Red Data Species identified. Refer to HydroScience, 2012 in Appendix D.
Aquatic biodiversity	Very High	Aquatic CBA Strategic water source area
Archaeological and Cultural Heritage	Low	<u>Specialist:</u> Refer to Archætnos Culture & Cultural Resource Consultants, 2022 in Appendix D.  Three (3) buildings of cultural significance were identified in the eastern portion of the property. These are most likely associated with each other. Although all three (3) buildings are perceived to be older than 60 years, they seem to have been renovated/renewed in the past but show various degrees of neglect. The buildings are not unique and therefore have a medium cultural significance. General protection A (IV A), meaning it should be mitigated before destruction.  The area is mostly disturbed by former and recent human interventions and nothing else was found.
Civil aviation	High	No concern, no impact based on planned project.

Aspect:	Sensitivity:	Requirement from other recent studies conducted on the site:
Defence	Low	No concern, no impact.
Palaeontology	Medium	Site is disturbed and partly developed.
Plant	Low	<u>Specialist:</u> Confirmed low sensitivity. Refer to HydroScience, 2012 in Appendix D.
Terrestrial biodiversity	Very High	<p>Ecological Support Area (ESA) 1</p> <p><u>Sensitivity:</u> The property will be transformed and a portion of the property is located within the Magaliesberg Biosphere Reserve (MBR) buffer zone (<math>\pm</math> 3.9 ha), the remainder is in the transitional zone (&gt; 13ha).</p> <p><u>Specialist:</u> The flora and fauna survey found that the site ecology has been transformed by anthropogenic impacts and existing developments. No Red Data, protected or endemic flora and fauna were found Refer to HydroScience, 2012 in Appendix D.</p>

### 4.3 Need and desirability

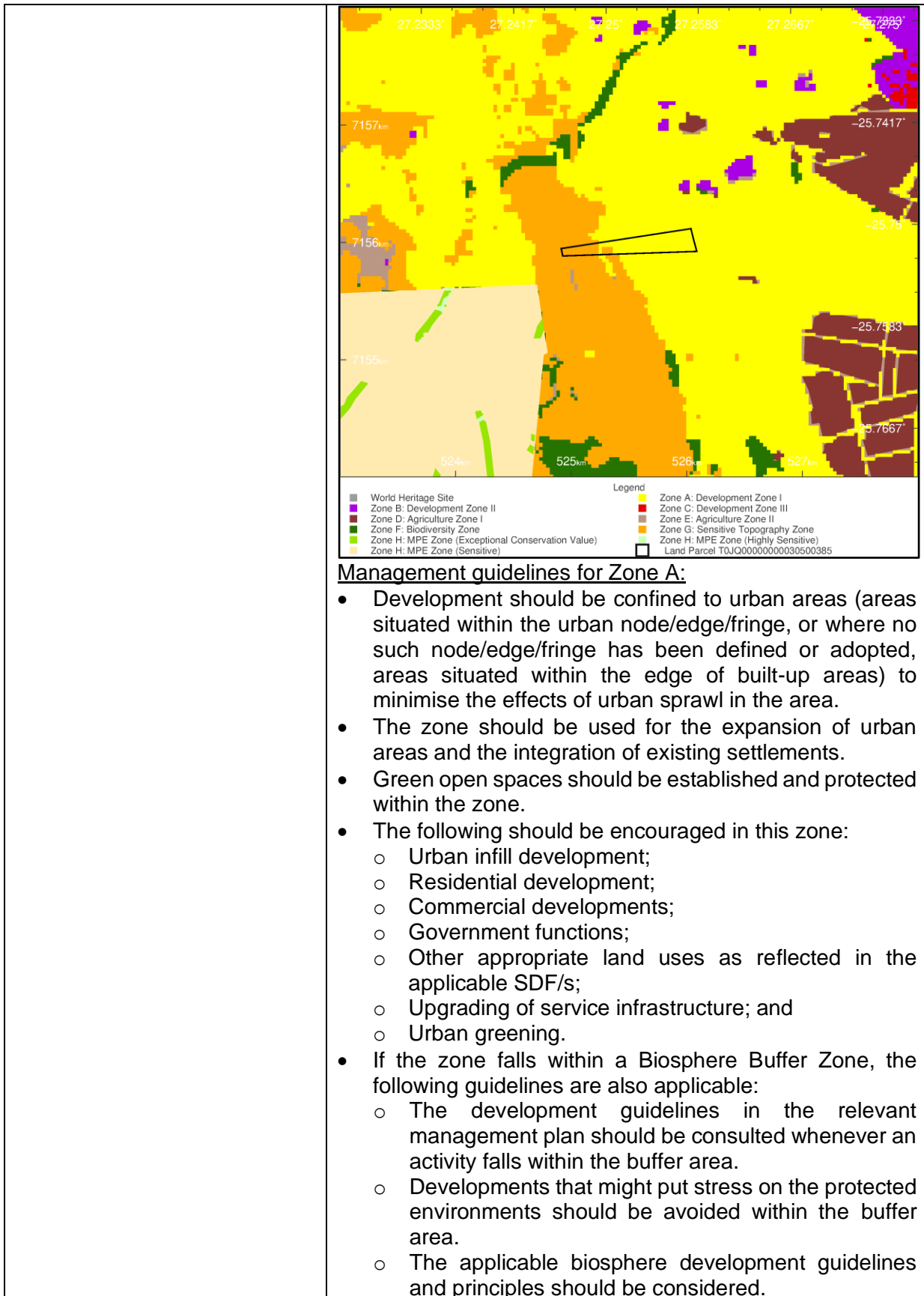
Addressing need and desirability is a way of ensuring sustainable development. Therefore, the project must be ecologically sustainable and socially and economically justifiable.

Economic investment by applicant:	R 550 million
Job opportunities:	Construction: 300 people Operation: 500 people
Need & desirability:	There is a need and motivation for the development of the residential units.
Fatal flaws:	No fatal flaws were identified and if the project is managed according to the Environmental Management Programme (EMPr), the impact on the environment will be moderate to low.
Market:	The site falls within the urban edge of RLM and is in proximity to other suburbs and developed areas (Safari Tuine, Cashan, Boschdal). It is also in close proximity to the Rustenburg CBD and public amenities such as police station, retail (Waterfall Mall), hospital, schools, churches etc.
Viability:	The recently upgraded R24 will cater for the future growth in traffic resulting from the development. No further upgrades required.

<p>Magaliesberg Protected Environment (MPE) Environmental Management Framework (EMF) and Plan:</p>	<p>Site is not located within MPE.</p>
<p>Magaliesberg Biosphere Reserve (MBR)</p>	<p>A portion of the property (east of Cashan 33) is located within the MBR buffer zone (<math>\pm</math> 3.9 ha or 23% in dark green below), the remainder is in the transitional zone (&gt; 13ha or 77%).</p>  <p>Buffer zones are predominantly natural or near natural areas and ecologically sensitive areas with clearly defined boundaries and formal administrative status.</p> <p><u>Buffer zones:</u> Areas, which usually surround or adjoin the core areas. Aimed at supporting the environmental integrity of the Core Area.</p> <p><u>Land uses and activities:</u> Conservation and maintenance of ecosystems, nature-based recreation, eco-tourism, primary dwellings, new developments and small resorts coupled to conservation areas that are compliant with the EIA regulations. Only activities compatible with the conservation objectives of the MBR.</p> <p><u>Protection level:</u> No formal legal protection.</p> <p><u>Evaluation criteria:</u></p> <ul style="list-style-type: none"> <li>• Location is appropriate in terms of accessibility (R24) and surrounding land use (Cashan 33 and other existing and new developments) and therefore blends into the landscape.</li> <li>• The section in the MBR buffer will be mostly for residential 1 (primary dwellings, 76 stands across 5.11ha) and open space (0.39ha).</li> </ul>

	<p>The MBR board evaluated the proposed project (see attached comments in Appendix F).</p>
<p>North West Biodiversity Sector Plan, 2015:</p>	<p><b>Terrestrial: ESA 1</b> Maintain in at least a semi-natural state as ecologically functional landscapes that retain basic natural attributes:</p> <ul style="list-style-type: none"> <li>• Ecosystem still in a natural, near-natural state or semi-natural state, and has not been previously developed.</li> <li>• Ecosystems moderately to significantly disturbed but still able to maintain basic functionality.</li> <li>• Individual species or other biodiversity indicators may be severely disturbed or reduced.</li> <li>• These are areas with low irreplaceability with respect to biodiversity pattern targets only.</li> </ul> <p><b>Aquatic: CBA</b> Maintain in a natural or near-natural state that maximises the retention of biodiversity pattern and ecological process:</p> <ul style="list-style-type: none"> <li>• Ecosystems and species fully or largely intact and undisturbed.</li> <li>• These are areas with high irreplaceability or low flexibility in terms of meeting biodiversity pattern targets. If the</li> <li>• biodiversity features targeted in these areas are lost then targets will not be met.</li> <li>• These are biodiversity features that are at, or beyond, their limits of acceptable change.</li> </ul>
<p>BPDM EMF, 2020</p>	<p>The following Environmental Management Zones are applicable:</p> <p>Zone A: Development Zone I (Residential, business and other). This zone is a refinement of areas identified for future urban development in local municipal Spatial Development Frameworks (SDF). These development uses include, amongst others, residential land uses, commercial land uses and land uses related to government functions, but specifically excludes industrial land uses and mining related land uses.</p> <p><b><i>The site will include residential, institutional and business / commercial use.</i></b></p> <p>Zone G: Sensitive Topography Zone. This zone represents the sensitive topographical features, such as hills and ridges, which are deemed sensitive to development.</p> <p>Due to elevated areas in the western part of the property, a visual impact was also included (see HydroScience 2012 in Appendix D).</p>





	<ul style="list-style-type: none"> <li>○ Conservation and tourism orientated developments should be promoted within the buffer area.</li> <li>○ High density developments, industrial developments, mining activities and other high-impact developments should be avoided in the buffer area.</li> </ul> <p><b><i>Development is within the urban edge and constitute an expansion of urban areas. A green open space of 0.39ha has been incorporated. The development does not constitute high density, industrial or mining. The portion within the buffer zone constitutes single primary dwelling units and open space.</i></b></p> <p><u>Management guidelines for Zone G:</u></p> <ul style="list-style-type: none"> <li>● Sensitive topographical features should be protected and any development that might negatively affect them should be discouraged.</li> <li>● A detailed specialist study might have to be conducted by an accredited scientist to determine the impacts of an envisaged activity on the corridor function provided by a topographical feature.</li> <li>● The visual impacts of proposed developments in this zone should be considered and developments/activities with high visual impact avoided.</li> <li>● If the zone falls within a Biosphere Buffer Zone, the following guidelines are also applicable:             <ul style="list-style-type: none"> <li>○ The development guidelines in the relevant management plan should be consulted whenever an activity falls within the buffer area.</li> <li>○ Developments that might put stress on the protected environments should be avoided within the buffer area.</li> <li>○ The applicable biosphere development guidelines and principles should be considered.</li> <li>○ Conservation and tourism orientated developments should be promoted within the buffer area.</li> <li>○ High density developments, industrial developments, mining activities and other high-impact developments should be avoided in the buffer area.</li> </ul> </li> </ul>
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## 5 LEGAL FRAMEWORK

### 5.1 Constitution of the Republic of South Africa (CRSA)

The Constitution of the Republic of South Africa (CRSA), 1996 (Act 108 of 1996) places a duty on the State to protect the environment. Section 24 states 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.”

***The right in the CRSA is given effect in several articles of national legislation including the National Environmental Management Act (NEMA), 1998 (Act 107 of 1998) as amended.***

### 5.2 National Environmental Management Act (NEMA)

The National Environmental Management Act (NEMA), 1998 (Act 107 of 1998) as amended is the overarching environmental legislation in South Africa.

#### 5.2.1 Sustainable development

The principle of Sustainable Development has been established in the CRSA and given effect by the NEMA. Section 1(29) of NEMA states that sustainable development means the integration of social, economic and environmental factors into the planning, implementation and decision-making process so as to ensure that development serves present and future generations. Thus, Sustainable Development requires that:

- The disturbance of ecosystems and loss of biological diversity are avoided, or, where they cannot be altogether avoided, are minimised and remedied.
- That pollution and degradation of the environment are avoided, or, where they cannot be altogether avoided, are minimised and remedied.
- 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.
- 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.
- 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.
- Negative impacts on the environment, on people’s environmental rights be anticipated; and, prevented, and where they cannot altogether be prevented, are minimised and remedied.

Duty of care is addressed in Section 28 of the NEMA.

***In terms of sustainable development:***

- ***The disturbance of ecosystems, loss of biological diversity and the disturbance of landscapes and sites that constitute the nation’s cultural heritage are avoided through the development of an already largely disturbed site.***
- ***Waste cannot be avoided but general domestic waste will be disposed of as part of the municipal system on the licensed municipal landfill site, hazardous waste will be taken to a registered site and any other waste will be handled of as per the Environmental Management Programme (EMPr).***
- ***Other potential negative impacts identified will also be managed through the EMPr.***

**5.2.2 NEMA regulations**

Government Notice Regulation (GNR) 982, 983, 984 and 985 of 4 December 2014 contain the latest regulations pertaining to Environmental Impact Assessment (EIA) under sections 24(5), 24M and 44 of the NEMA. These were amended / updated on 7 April 2017 under GNR 324, 325, 326 & 327.

GNR 982 as amended / updated in GNR 326 stipulate requirements in terms of processes to be followed and information to be included in documentation.

GNR 984 as amended / updated in GNR 325 was considered and no applicable activities were identified.

GNR 983 as amended / updated in GNR 327 was considered and applicable activities were identified as detailed below.

GNR 985 as amended / updated in GNR 324 was considered and applicable activities were identified as detailed below.

**5.2.3 Listed activities applicable**

The following listed activities require environmental authorisation:

<b>GNR &amp; Date</b>	<b>Activity Number and Description</b>	<b>Project Description</b>
GNR 327 7 April 2017	<u>Activity 27</u> : The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation.	The property of 17ha in size is currently partly developed. 4ha of commercial / business development was previously approved on the eastern portion of the site (NWP/EIA/72/2012). This project applies for further development of the site (mixed) for the remainder 13ha.
GNR 327 7 April 2017	<u>Activity 28</u> : Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming, equestrian purposes or afforestation on or after 01 April 1998 and where such development:	A mixed land development (residential, commercial, institutional) of a further 13ha is planned on the property of 17ha.

GNR & Date	Activity Number and Description	Project Description
	(i) will occur inside an urban area, where the total land to be developed is bigger than 5 hectares.	
GNR 324 7 April 2017	<u>Activity 4:</u> The development of a road wider than 4 metres with a reserve less than 13.5 metres. h. North West iv. Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority.	Internal roads will be wider than 4m with a reserve less than 13.5m. The property is located within a Terrestrial Biodiversity ESA 1 and an Aquatic CBA.
GNR 324 7 April 2017	<u>Activity 6:</u> The development of resorts, lodges, hotels, tourism or hospitality facilities that sleeps 15 people or more. h. North West iv. Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority.	The development will include a hospitality facility (Cynthiana Hotel). The property is located within a Terrestrial Biodiversity ESA 1 and an Aquatic CBA.
GNR 324 7 April 2017	<u>Activity 12:</u> The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. h. North West iv. Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority.	The remainder of the property will be cleared of vegetation to allow for the development. The property is located within a Terrestrial Biodiversity ESA and an Aquatic CBA.
GNR 324 7 April 2017	<u>Activity 15:</u> The transformation of land bigger than 1000 square metres in size, to residential, retail, commercial, industrial or institutional use, where, such land was zoned open space, conservation or had an equivalent zoning on or after 02 August 2010.	The property will be transformed and a portion of the property is located within the MBR buffer zone, the remainder is in the transitional zone.

## 5.3 National Environmental Management: Biodiversity Act (NEMBA)

### 5.3.1 Commitment to biodiversity conservation

Although South Africa became a signatory to the Convention of Biological Diversity in 1998, the subsequent enactment of national legislation has affirmed our country's commitment to biodiversity and conservation as required in the CRSA. The National Environmental Management: Biodiversity Act (NEMBA), 2004 (Act 10 of 2004) has been promulgated by the South African President and was published in the Government Gazette in June 2004 (Volume 467; No. 26426). One of the objectives of this Act is to provide for the management and conservation of South Africa's biodiversity within the framework of the NEMA and to ensure the sustainable use of indigenous biological resources.

The Act, in protecting biodiversity, deals with:

- the protection of threatened ecosystems and species;
- the control of alien invasive species;
- the control of genetically modified organisms; and
- regulates bioprospecting.

As with NEMA, NEMBA incorporates and gives effect to international agreements relating to biodiversity.

### 5.3.2 Protection of threatened ecosystems and species

Ecosystems that are Critically Endangered, Endangered or Vulnerable can be listed in terms of Section 52 of the Act as threatened ecosystems at both national and provincial level. For example, Critically Endangered ecosystems are defined in the Act as 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'. Importantly, any land-use change application occurring within an ecosystem listed as Critically Endangered or Endangered will automatically require environmental authorisation.

***The site is located in a Terrestrial Biodiversity ESA1 and an Aquatic Biodiversity CBA. A portion of the site (23%) is located within the MBR buffer zone (23%) and the remainder (77%) is within the transitional zone.***

Threatened or Protected Species Regulations of 2013 (GNR388 of 2013): Part 2 of NEMBA provides for listing of species that are threatened or in need of protection to ensure their survival in the wild, while regulating the activities, including trade, which may involve such listed threatened or protected species and activities which may have a potential impact on their long-term survival. In February 2007, the Minister of Environmental Affairs and Tourism published a list of Critically Rare, Endangered, Vulnerable and Protected Species, according to Section 56(1) of the Act, which was updated again in 2013.

***The flora and fauna survey found that the site ecology has been transformed by anthropogenic impacts and existing developments. No Red Data, protected or endemic flora and fauna were found, however the ridge was identified as a sensitive ecological feature (HydroScience, 2012).***

### 5.3.3 Control of alien invasive species

The list of alien and invasive species is intended to provide a legal framework to manage and control alien species that are considered invasive and that have the potential to threaten biodiversity, water resources and agricultural potential. NEMBA has identified all species that should be considered as alien or invasive species, as well as the restricted activities relating to each species. It is required by law (from 1 October 2014), for landowners to investigate the type and extent of alien invasive species growing on their property and to implement an effective control and eradication management plan.

***Refer to Alien and Invasive Species Regulations, 2020 (GNR1020). An alien invasive eradication programme must be compiled in order to control alien and invasive vegetation on site during construction and operation.***

***The following alien and invasive species were found on the property (TBC, 2022) and need to be eradicated:***

***NEMBA Category 1b:***

- ***Lantana camara (Spanish Flag)***
- ***Solanum mauritianum (Bugweed)***
- ***Eucalyptus ssp. (Gum Tree)***
- ***Pinus sp. (Pine tree)***

***NEMBA Category 3:***

- ***Melia azedarach (Syringa)***
- ***Jacaranda mimosifolia (Jacaranda)***

## 5.4 National Environmental Management: Waste Act (NEMWA)

In terms of the National Environmental Management: Waste Act (NEMWA), 2008 (Act 59 of 2008), the following is relevant to this project:

- GNR 926 of 29 November 2013. National Norms and Standards for the Storage of Waste.

***The storage of waste material on the site before off-site recycling and disposal has to comply with these Norms and Standards.***

## 5.5 National Water Act (NWA)

### 5.5.1 Water uses

The National Water Act (NWA), 1998 (Act 36 of 1998) Section 21 defines water use as:

- (a) taking water from a water resource.
- (b) storing water.
- (c) impeding or diverting the flow of water in a watercourse.
- (d) engaging in a stream flow reduction activity contemplated in section 36.
- (e) engaging in a controlled activity identified as such in section 37(1) or declared under section 38(1).
- (f) discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit.
- (g) disposing of waste in a manner which may detrimentally impact on a water resource.
- (h) disposing in any manner of water which contains waste from, or which has been heated in, any industrial or power generation process.

- (i) altering the bed, banks, course or characteristics of a watercourse.
- (j) removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people.
- (k) using water for recreational purposes.

***The development will make use of existing municipal water supply and sewage management infrastructure located along the R24.***

### 5.5.2 Legal requirements

The NWA states in Section 22 (1) that a person may only use water –

- (a) without a licence –
  - (i) if that water use is permissible under Schedule 1;
  - (ii) if that water use is permissible as a continuation of an existing lawful use; or
  - (iii) if that water use is permissible in terms of a general authorisation issued under section 39;
- (b) if the water use is authorised by a licence under this Act; or
- (c) if the responsible authority has dispensed with a licence requirement under subsection (3).

## 5.6 Conservation of Agricultural Resources Act (CARA)

### Conservation of agricultural potential:

The aim of the Conservation of Agricultural Resources Act (CARA), 1983 (Act 43 of 1983) is to provide for control over the utilization of the natural agricultural resources of the Republic in order to promote the conservation of the soil, the water sources and the vegetation and the combating of weeds and invader plants; and for matters connected therewith.

To achieve this aim, the following objectives are included:

- To provide for the conservation of the natural agricultural resources of the Republic by the maintenance of the production potential of land;
- The combating and prevention of erosion and weakening or destruction of the water sources, and
- The protection of the vegetation and the combating of weeds and invader plants.

***In terms of the amendments to the regulations under the CARA, landowners are legally responsible for the control of alien invasive vegetation species on their properties. An alien invasive eradication programme must be compiled in order to control alien and invasive vegetation on site during construction and operation.***

## 5.7 National Heritage Resources Act (NHRA)

### 5.7.1 Legislation

The National Heritage Resources Act (NHRA), 1999 (Act 25 of 1999) requires protection of the following cultural heritage resources:

- a. Archaeological artefacts, 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; and
- 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. Archaeological and paleontological importance;
- g. Graves and burial grounds;
- h. Sites of significance relating to the history of slavery; and
- i. Movable objects (e.g. archaeological, paleontological, meteorites, geological specimens, military, ethnographic, books etc.).

***Three (3) buildings of cultural significance were identified in the eastern portion of the property. These are most likely associated with each other. Although all three (3) buildings are perceived to be older than 60 years, they seem to have been renovated/renewed in the past but show various degrees of neglect. The buildings are not unique and therefore have a medium cultural significance. General protection A (IV A), meaning it should be mitigated before destruction.***

***The area is mostly disturbed by former and recent human interventions and nothing else was found. Refer to Archaetnos Culture & Cultural Resource Consultants, 2022 in Appendix D.***

## 5.8 Other documents

The following documents were also considered:

- Bojanala Platinum District Municipality (BPDM) Environmental Management Framework (EMF), 13 DEDECT 33/2016 and CEM 2017/052, dated October 2019, June 2020.
- Contour & Associates, 2011. Magaliesberg Biosphere Management Plan
- Department of Environmental Affairs (DEA), 2017. Integrated Environmental Management Guideline. Guideline on need and desirability. ISBN 978-0-9802694-4-4.
- DEA, 2017. Public participation guideline in terms of NEMA, 1998 EIA regulations. ISBN 978-0-9802694-2-0.
- Magaliesberg Biosphere (NPC 2012/047491/08), Introducing Magaliesberg Biosphere Zones – A reference to guidelines for developments in the Magaliesberg Biosphere and the Magaliesberg Protected Environment.
- MPE Environmental Management Framework (EMF) and Plan.
- North West Biodiversity Sector Plan, 2015.
- Rustenburg Spatial Development Framework (SDF), North West, 2010 to determine if the project is in line with spatial development plans and environmental management frameworks developed by the municipality. In the process of being updated.

## 6 ENVIRONMENTAL SETTING

### 6.1 Socio-economic Environment

Province:	North West (NW)
District Municipality:	Bojanala Platinum District Municipality (BPDM) Includes Local Municipalities of Rustenburg, Madibeng, Kgetlengriver, Moses-Kotane and Moretele.
Local Municipality:	<p>Rustenburg Local Municipality (RLM) The RLM is responsible for the planning and administration of infrastructure and development located within the boundaries of the Municipality. This includes the preparation (or preparation on their behalf) of all legally required documents for the planning, provision and control of infrastructure and spatial development. These include a Spatial Development Framework, 2010 (SDF), Integrated Development Plan (IDP), Integrated Transport Plan, 2008, Water Services Development Plan, 2009, Disaster Management Plan, 2007 and others (RLM, 2010).</p> <p>Area: 342 061ha Natural areas: 208 171ha (60.9%)</p> <p>Administrative bodies with jurisdiction: BPDM, RLM, and the Royal Bafokeng Administration (RLM, 2010)</p>
Roads:	<p>RLM is accessible to major South African urban centres such as Johannesburg and Tshwane (Pretoria), both of which are located approximately 120 km from Rustenburg (RLM, 2010).</p> <p>Rustenburg is linked to the above urban centres through an extensive regional road network. The most notable of these is the N4 freeway or Platinum Corridor, which links Rustenburg to Tshwane (Pretoria) to the east and Swaruggens and Zeerust to the west. The R24 links Rustenburg to the N14 and Johannesburg to the south and the Pilanesberg to the north (RLM, 2010).</p> <p>Urban development in the region is largely attributed to two provincial roads traversing the municipal area, namely: the Rustenburg / Sun City road (R565) that links Rasimone, Luka and Phokeng to Rustenburg; and the Rustenburg / Thabazimbi road (R510) that links Tlaseng, Kanana and Boitekong to Rustenburg (RLM, 2020).</p>

	<p><b><i>The property is accessed from the R24 via a traffic light intersection.</i></b></p>
<p>Population:</p>	<p>395 000 in 2001 to nearly 450 000 in 2007 to 645 000 in 2017 (RLM, 2020). This number is shown to have increased to 719 000 in 2020 (RLM Draft, 2022).</p> <p>RLM represents 37.9% of the total population in the BPDM.</p> <p>Population growth averaged 3.05% per annum between 2007 and 2017 (RLM, 2020).</p> <p><u>Households:</u> 25.6% increase was nearly double that of the population figures, translating into a household growth rate of 4.3% per annum. This may imply that many extended households who have possibly lived in single dwellings have established themselves as separate households over this period, hence the large growth in households. A further possible explanation may be that many of the single male population employed by the mining sector in the area may have been joined by their families over the analysis period (RLM, 2010).</p> <p>In 2020, the number of households increased to 239 000 households. This equates to an average annual growth rate of 3.12% in the number of households from 2010 to 2020 (RLM, 2020).</p> <p><u>Urbanisation:</u> Approximately 84% of the RLM population can be classified as urbanized, residing in either urban or rural settlements. Only 10% of the total population lives on farms (RLM, 2010).</p> <p><u>Settlement Patterns:</u> Four (4) broad types of settlements can be described in the RLM, namely Formal Urban, Tribal (Bafokeng tribal land), Rural and Informal (24 000 households mainly along the mining belt and close to mine shafts) (RLM, 2020).</p> <p><u>Relocation:</u> 80 818 people have relocated in the period between 1996 and 2001. This represents approximately 20% of the 2001 population. These migration movements, however, also include movements within the provincial boundaries. The total number of people relocating between 2001 and 2007 was 10 7862 (representing approximately 24% of the 2007 population). The majority of the population in RLM who relocated, represents internal movements within the province. Internal relocations</p>

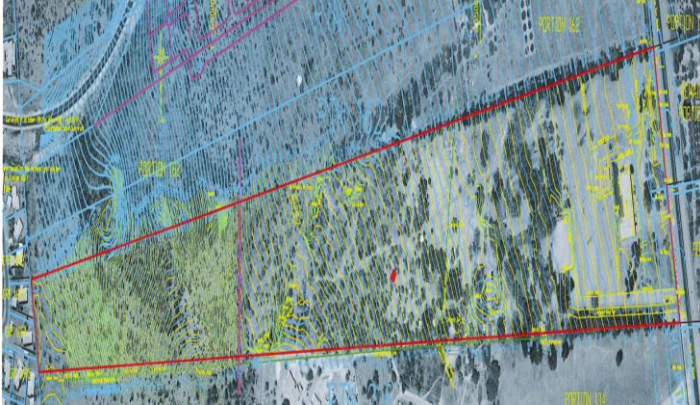
	<p>within the province accounted for 64% of all migration to Rustenburg in the period 1996 to 2001 and increased to 72% over the period 2001 to 2007. The main source of immigrants from outside the provincial boundaries over the period 1996 to 2001 was from the Eastern Cape and Gauteng, both representing 11% of immigrants to the Rustenburg area. These two (2) provinces also remained the main source of immigrants over the period 2001 to 2007 during which 8% of immigrants originated from Gauteng and 6% from the Eastern Cape (RLM, 2010).</p> <p>The area appears to be a migrant receiving area, with most people migrating into Rustenburg, either from abroad, or from the more rural areas in the country seeking better opportunities (RLM, 2020).</p>
<p>Demographics:</p>	<p><u>Age:</u> Most of the population fell within the young working age (25 - 44 years) category with a total number of 265 000 people or 41.1% of the total population. Babies and children (0 - 14 years) account for 24.3%, followed by the older working age (45 - 64 years) category with 104 000 people. Retired / old age (65 years and older) account for only 22 700 people (RLM, 2020).</p> <p>In 2020, the working age population was 524 000 people, increasing at an average annual rate of 3.05% since 2010. For the same period, the working age population for BPDM increased at 2.45% annually, while that of North-West Province increased at 1.75% annually (RLM Draft, 2022).</p> <p><u>Gender:</u> Male/female split in population was 118.4 males per 100 females in 2017. RLM has significantly more males (54.21%) relative to South Africa as a whole (48.95%), and is considered to have a stable population. This gender split can be attributed to the dominance of physical labour-intensive industries such as mining. In total there were 295 000 (45.79%) females and 350 000 (54.21%) males. (RLM, 2020).</p>
<p>Education:</p>	<p>It is generally recognized that the skills profile of a particular area has a significant influence on the economic performance and growth of that region. Significant progress has been made with the eradication of adult illiteracy (decreasing from proximately 12% to 6.7%).</p> <p>In 2020, the number of people without any schooling accounted for 30.82% of the number of people</p>

	<p>without schooling in the BPDM, 9.17% of the North-West province and 0.94% of the SA national. The number of people with matric was 178 000. People with matric and a degree constituted 42.37% of the BPDM, 17.44% of the North-West province and 0.91% of the SA national (RLM Draft, 2022).</p>
<p>Employment:</p>	<p>The number of formally employed people was 186 000 in 2020, which is about 86.02% of total employment, while the number in the informal sector amounted to 30 200 or 13.98% of the total employment. Informal employment increased from 18 400 in 2010 to an estimated 30 200 in 2020 (RLM Draft, 2022).</p> <p>The labour force participation rate (LFPR) is the economically active population expressed as a percentage of the total working age population. The 2020 LFPR for Rustenburg was 58.5% which is slightly lower when compared to 60.7% in 2010 (RLM Draft, 2022).</p> <p>The economically active population was 307 000 in 2020, which is 42.7% of its total population of 719 000. From 2010 to 2020, the average annual increase in the economically active population was 2.67% (RLM Draft, 2022).</p>
<p>Unemployment:</p>	<p>In 2020, a total number of 94 600 people were unemployed in Rustenburg, which is an increase of 43 300 from 51 300 in 2010. The total number of unemployed people within RLM represents 38.41% of the total number of unemployed people in the BPDM. The unemployment rate increased at an average of 6.31% annually, which is worse than that of the District which in comparison experienced a 5.29% annual increase (RLM Draft, 2022).</p>
<p>Economic structure:</p>	<p>The economic, social and physical characteristics of Rustenburg have been largely influenced by the presence of mining activities. In 2020, the mining sector employed the highest number of people (68 200 people) which translated to 31.6% of total employment in the RLM. The trade sector with a total of 39 000 people (18.1%) employed the second highest number of people relative to the rest of the sectors. The electricity sector with 688 (0.3%) is the sector that employed the least number of people in RLM, followed by the agriculture sector with 5 580 (2.6%) people employed (RLM Draft, 2022).</p>

	<p>The spatial concentration of economic activities is concentrated mainly along the mining belt stretching from Marikana in the east through Rustenburg up to the Boschoek area in the north western parts of the municipality. The levels of economic activity in the north eastern and southern parts of the municipality are very insignificant compared to the rest of the municipal area. This area also coincides with the highest levels of accessibility to employment (in excess of 25 000 employment opportunities within a 30-minute driving time) in the central parts of the municipality. In contrast, the estimated number of employment opportunities within 30-minutes driving time in the north eastern and southern parts of the municipality is generally below 1 000. This information implies that the economic strength of the municipality is not equally spread across the municipal area and is largely associated with the location of the mining activities in the central and northern parts of the municipal area (RLM, 2010).</p>
<p>Land use:</p>	<p>The Magaliesberg Mountain Range traverses the municipal area south of Rustenburg from east to north-west. This mountain range has influenced the existing settlement pattern due to the fact that it has limited urban expansion in a south-westerly direction. The result is that urban expansion has mainly occurred in a northern and north-eastern direction (RLM, 2010).</p> <p><b><i>The property is located south of Rustenburg CBD and the Waterfall Mall and north east of the MPE.</i></b></p> <p>The urban pattern that was shaped by the centrality function of Rustenburg, the Magaliesberg buffer, the accessibility of major roads and the impact of the mining belt, is radial with Rustenburg as the core area and three (3) urban corridors extending from it in a northerly, north easterly and westerly direction. It is evident that the major towns located within the municipal area are functionally linked to Rustenburg. This functional linkage expresses itself by the movement of people between these towns and the economic opportunities located in Rustenburg. These functional linkages extend over socio-political boundaries such as the Bafokeng Magisterial Boundary (RLM, 2010).</p> <p>Prominent topographic features in the RLM are primarily the mountain ranges and water sources and include the 4 000ha Kgaswane Nature Reserve, the</p>

	<p>Vaalkop Dam Nature Reserve and the Magaliesberg Biosphere.</p> <p>The property is located within the MBR buffer (23% of property) and transitional zones (77% of property)</p> <p>The majority of agricultural activities are mainly concentrated in the extreme south of the municipality and consist of commercial dry-land farming. There are also notable areas of commercial agriculture in the central parts and the eastern boundary of the municipality, as well as in the north-western parts along the foothills of the Magaliesberg mountain range in the vicinity of Boschhoek (RLM, 2020).</p>
<b>Socio-economic aspects of the project</b>	
Surrounding land use:	<p>North: Portions 72 &amp; 162, approved development (NWP/EIA/06/2017) Builders Warehouse Waterfall Mall</p> <p>East: On-site - Commercial R24 along site boundary Businesses</p> <p>South: Businesses</p> <p>West: Residential – Cashan 33</p>
Zoning of property:	<p><u>Zoning:</u> Agriculture</p> <p><u>Current use:</u> Cynthiana hotel (not operational), chapel (vandalised), Caravan Park (no longer used, vandalised), parking areas, accommodation, houses, roads, pubs (operational), commercial (used car sales etc. operational), offices (operational).</p> <p><u>Planned:</u> Mixed use development through a Spatial Planning and Land Use Management Act (SPLUMA), 2013 (Act 16 of 2013) application for township establishment.</p>
Accessibility:	<p><u>Current &amp; Future Access:</u> Directly from the R24 on the eastern boundary of the site via a traffic light intersection. The R24 is managed by SANRAL and has four lanes (two in each direction).</p> <p><u>Upgrades:</u> None required</p> <p><u>Internal roads:</u> 3.11ha with access control (0.16ha)</p>
Financial investment:	R550 million
Job creation:	<p><u>Construction:</u> 300</p> <p><u>Operation:</u> 500</p>

## 6.2 Biophysical Environment

<p>Topography:</p>	<p>The property slopes from the west to the east starting at 1 315 metres above mean sea level (mamsl) to 1 204 mamsl when reaching the R24 over a distance of 1.2km. The western portion of the site is steeper than the eastern portion as can be seen from the contours below.</p> 
<p>Climate:</p>	<p>Local steppe climate. Little rainfall throughout the year. The Köppen-Geiger climate classification is BSh.</p> <p><u>Temperature:</u> The average annual temperature is 18.9°C. January is the hottest month of the year, averaging 23°C. July has the lowest average temperature at 12°C.</p> <p><u>Rainfall:</u> Precipitation is the lowest in July, with an average of 3mm. Highest rainfall in December with an average of 117mm.</p>
<p>Water Environment:</p>	<p>Water Management Area (WMA): 1 – Limpopo Quaternary catchment: A22H</p>
<p>Water supply:</p>	<p>Municipal</p>
<p>Geology:</p>	<p>Colluvial soils covering the underlying bedrock. Western portions underlain by quartzite belonging to the Magaliesburg Quartzite Formation of the Pretoria Group, Transvaal Sequence. Lower lying eastern portions underlain by Kolobeng norite formation of the Rustenburg Layered Suite, Bushveld Igneous Complex.</p>
<p>Ecosystem (HydroScience, 2012):</p>	<p>Gold Reef Mountain Bushveld (Least Threatened) Protection status: Adequately protected</p> <p>Moot Plains Bushveld (Vulnerable) Protection status: Not adequately protected</p>



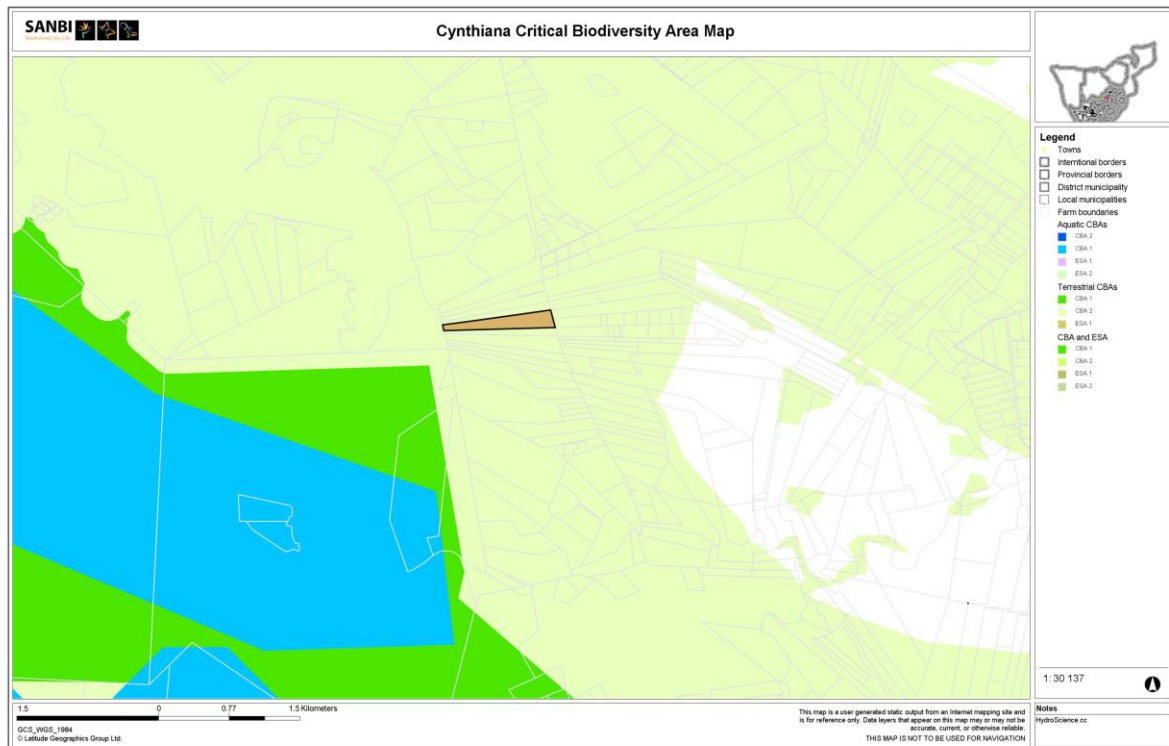
Biome (HydroScience, 2012):	Savannah
Vegetation type (HydroScience, 2012):	Gold Reef Mountain Bushveld (Least Threatened) National target for conservation: 24%  Moot Plains Bushveld (Vulnerable) National target for conservation: 19%
Field assessment (HydroScience, 2012): Alien invasive species	NEMBA Category 1b: <ul style="list-style-type: none"> <li>• <i>Lantana camara</i> (Spanish Flag)</li> <li>• <i>Solanum mauritianum</i> (Bugweed)</li> <li>• <i>Eucalyptus ssp.</i> (Gum Tree)</li> <li>• <i>Pinus sp.</i> (Pine tree)</li> </ul> NEMBA Category 3: <ul style="list-style-type: none"> <li>• <i>Melia azedarach</i> (Syringa)</li> <li>• <i>Jacaranda mimosifolia</i> (Jacaranda)</li> </ul>
Field assessment (HydroScience, 2012): <b>Flora</b>	The majority of the project area (> 70%) has been severely altered from its natural state due to anthropogenic impacts. Based on this, only two vegetation communities were identified, namely:  <u>Park Vegetation</u> Dominant species include: Trees: <i>Jacaranda mimosifolia</i> ; <i>Eucalyptus ssp.</i> ; <i>Pinus sp.</i> ; <i>Vachellia caffra</i> and <i>Ficus ingens</i> . Grasses: <i>Pennisetum clandestinum</i>  <u>Transformed Bushveld:</u> Dominant species include: Shrubs and Trees: <i>Vachellia karroo</i> ; <i>Vachellia caffra</i> , <i>Ziziphus mucronata</i> ; <i>Searsia lancea</i> ; <i>Dombeya rotundifolia</i> ; <i>Burkea Africana</i> ; <i>Dichrostachys cinerea</i> and <i>Combretum zeyheri</i> . Grasses: <i>Eragrostis cilianensis</i> ; <i>Eragrostis rigidior</i> and <i>Hyparrhenia hirta</i>
Field assessment (HydroScience, 2012): <b>Habitat</b>	The property is mainly disturbed by existing developments and on-going anthropogenic impacts, which limits the occurrence of natural flora and fauna species. However, species that are characteristic of the bushveld in this region were still found.
Field assessment (HydroScience, 2012): <b>Fauna</b>	<u>Birds:</u> Eight (8) bird species were identified. No Red Data, protected species or species of conservation concern (SCC) were identified.  <u>Herpetofauna:</u> Species identified during the field survey include <i>Hemachatus haemachatus</i> (Rinkhals) and <i>Mabuya varia</i> (Variable Skink). No other species

	<p>were observed including no Red Data or protected species.</p> <p><u>Mammals:</u> No active capture of small mammals was conducted, however, ecological indicators, indicating small mammal activity, were actively searched for. Fresh diggings were found indicating a mole species that occur on site. No Red Data or protected mammals were found during the field survey.</p>
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### 6.2.1 Biodiversity overview

Sensitivity: The property is located within a Terrestrial Biodiversity ESA 1 and an Aquatic CBA. A portion of the property (23%) is located within the MBR buffer zone, and the remainder (77%) is in the transitional zone based on the screening tool and latest information.

The flora and fauna survey found that the site ecology has been transformed by anthropogenic impacts and existing developments. No Red Data, protected or endemic flora and fauna were found. Refer to Appendix D for the Flora, Fauna and Aesthetic Report (HydroScience, 2012).



**Figure 6-1: The Terrestrial and Aquatic CBA map for the project area (HydroScience, 2012)**

### 6.2.2 Heritage Overview

A heritage impact assessment was compiled (Archaetnos, 2022) confirming the low sensitivity and disturbance of the site. Further details can be viewed in the report in Appendix D.

Three (3) buildings of cultural significance were identified in the eastern portion of the property. These are most likely associated with each other. Although all three (3) buildings are perceived to be older than 60 years, they seem to have been renovated/renewed in the past but show various degrees of neglect. The buildings are not unique and therefore have a medium cultural significance. General protection A (IV A), meaning it should be mitigated before destruction. These buildings have already been mitigated (see Van Vollenhoven). This was done by documenting them in accordance with recommendations of the first report (Van Vollenhoven 2016b).

The area is mostly disturbed by former and recent human interventions and nothing else was found.

### 6.3 Supporting information

Appendix D contains copies of the specialist studies of 2012 and 2022.

## 7 ALTERNATIVES CONSIDERED

### 7.1 Land use alternative

#### 7.1.1 Agricultural activities

Though the property is zoned agriculture,

- There are currently no agricultural activities taking place;
- There are no agricultural activities planned;
- Historical Google earth™ images going back to 2006 (oldest available) show no signs of agricultural activities;
- The property (>75%) is partly developed with buildings (old dilapidated unused buildings, Cynthiana Hotel, Offices etc) some of which businesses are operating from;
- Agricultural practices are not a viable option for the property, due to its gradient in the western portion.

#### 7.1.2 Existing

Existing activities on the property include businesses, commercial, offices, pubs, parking, roads, Cynthiana Hotel (not operational), accommodation and houses and other old unused dilapidated or vandalised buildings. Most of the property is in a general state of neglect.

No land use alternatives were therefore assessed.

### 7.2 Layout alternative

The layout was determined by:

- Access from the R24;
- Existing approvals (NWP/EIA/72/2012);
- Existing operational businesses;
- Gradient of the western portion of the site;
- Location of part of the site in the MBR buffer;
- Surrounding land uses.

No alternative layout was therefore assessed.

### 7.3 Alternative property

The property was previously identified by RLM as a “Zone of Opportunity” (Ref GO15/8/2/2/40/431 dated 30 January 2002) which supports the view of an area of potential developable land. RLM described the property as having the potential to be used for township establishment (Land Development Objectives) as it is situated close to an existing proclaimed township.

According to the BPDM EMF, the property falls within Zone A: Development Zone I (Residential, business and other). This zone is a refinement of areas identified for future urban development in local municipal SDF. These development uses include, amongst others, residential land uses, commercial land uses and land uses related to government functions.

The property is already disturbed, partly developed and highly impacted, containing existing infrastructure and structures.

It is suitably located adjacent to the R24 (P16-1 linking Rustenburg to Johannesburg) which has been upgraded and widened providing easy and convenient access to site.

No alternative property was therefore assessed.

#### **7.4 No-go alternative**

The no-go alternative would be to refuse the project. This will result in:

- Loss of job opportunities associated with both the construction and operational phases.
- Loss of income for the Rustenburg economy.
- Support industries that provide goods, materials and services will not benefit from the development.
- Further degradation of the property due to uncontrolled activities taking place on the property such as illegal dumping and burning of waste as well as vandalism.
- Without development, the property will remain in its current state of neglect, which could reduce the local market value of properties and attract crime (safety and security risk) as well as lead to further degradation of the property.
- The property will be under-utilized, with only a portion of the property being developed.

## 8 PUBLIC PARTICIPATION PROCESS

### 8.1 Summary

**Table 8-1: Summary of the public notices and notification process**

Newspaper notice:	Newspaper: Rustenburg Herald Date: 2022-05-20 Page: 2 Refer to Appendix E for tear sheet.
Site notices:	Date placed: 17 May 2022 Size of notices: 800 X 600 mm Number of notices placed: 3 Wording and Location: Refer to Figures 8-1 - 8-3
Interested and Affected Parties (I&APs):	Number of I&APs notified by hand-delivery: 6 Number of I&APs notified by email: 32 Number of I&APs notified by registered mail: 0  39 I&APs registered including: <ul style="list-style-type: none"> <li>• 8 neighbours</li> <li>• 6 businesses currently on site</li> <li>• Church</li> <li>• Rustenburg-Olifantsnek Corridor Landowners Association (ROCLA)</li> <li>• Cashan 33 Gated Community</li> <li>• Kgaswane Mountain Reserve</li> <li>• MBR NPO</li> <li>• RLM (3 people)</li> <li>• Ward councillor (Ward 15)</li> <li>• BPDM (3 people)</li> <li>• NW DEDECT (4 people)</li> <li>• DALRRD (1 person)</li> <li>• SAHRA (SAHRIS)</li> </ul> Refer to Table 8-1.
Comments received:	Yes
Comments relate to:	At this stage, the comments received are related to the availability and reviewing of the Draft BAR. Comments received on the Draft BAR will be included when submitting the final report to the Authorities.

## 8.2 Introduction

The Public Participation Process (PPP) aims to provide all Interested and Affected Parties (I&APs) with clear, accurate and comprehensible information about the project for the Proposed vegetation clearance and transformation for further development of Portion 385 of the farm Waterkloof 305JQ, Rustenburg Local Municipality, Bojanala Platinum District Municipality, North West Province. In addition, the process seeks to provide I&APs with the opportunity to indicate their viewpoints on issues and concerns about the proposed project.

This process, therefore, enhances transparency and accountability in decision-making, as it allows all I&APs to suggest ways of avoiding, reducing or mitigating potential negative impacts, as well as enhance positive impacts of the proposed project. All inputs from the I&APs are considered in the planning process. Consequently, clear recording of all issues and concerns raised have been maintained in a comments and response register. This register has been updated when new issues or concerns were raised.

This section provides a methodical description of the PPP followed. It also contains a complete record of public notices, details of all registered I&APs and all communications to and from I&APs pertaining to the application.

## 8.3 Approach

The aim of the PPP is not only to adhere to the required legislation, but also to give as many stakeholders and I&APs as possible, an opportunity to be actively involved in this process.

The PPP has been carried out in accordance with Chapter 6 of the NEMA and in support of the EIA Regulations of 2014 as amended. Based on these Regulations, published in terms of Sections 39 to 44 of GNR 982 amended in GNR 326 of NEMA, the following steps were undertaken:

- Potential I&APs were identified through identification of neighbouring properties and property owners, Windeed searches, conducting a site visit to the area on 17 May 2022, conducting interviews (telephonically and in person), through notices placed on the site (Figures 8-1 – 8-3) as well as through placing a notice in a local newspaper, the Rustenburg Herald;
- A stakeholder register was compiled in terms of Regulation 42 that includes national, provincial and local authorities, government departments, organisations, as well as landowners that may have an interest;
- I&APs were given more than 30 days to register and raise concerns (17 May – 31 July 2022) which included the 30 days legislative requirement to review the draft BAR (2 – 31 July 2022). A copy of the draft BAR was made available through an electronic channel (wetransfer) upon request. A hard copy was made available in the Rustenburg Public Library in Heystek Street. Any concerns that have been raised by I&APs were acknowledged, noted and addressed (Table 8-2) by EAP where possible;
- A recorded summary of concerns raised by I&APs, as well as the responses from the EAP, were kept throughout the entire process.

## 8.4 Public awareness

### 8.4.1 Site Notices

Site notices, measuring 800 mm x 600 mm (white correx boards with black text) were placed at the site on 17 May 2022 at the following positions:

- At the entrance to Hunters Pub & Grill: 25° 42' 51.4" South, 27° 15' 19.6" East
- Along the R24 at the south eastern corner of the site: 25° 42' 52.6" South, 27° 15' 28.5" East
- At the robot along R24 at the entrance to the site from the R24: 25° 42' 46.8" South, 27° 15' 25.9" East

Each notice contained details regarding the applicant (Berg Grong (Pty) Ltd), the nature of the activity (Proposed vegetation clearance and transformation for further development of Portion 385 of the farm Waterkloof 305JQ, Rustenburg Local Municipality, Bojanala Platinum District Municipality, North West Province), and the contact details of the EAP (see Figure 8-1). The placement of the site notices was recorded by taking photographs of the placed notices on site, as well as by recording the GPS coordinates of these positions. See Figures 8-2 – 8-3. These notices remained on the site for the duration of the process (May – August 2022).

### 8.4.2 Newspaper Notice

A detailed newspaper notice was placed in the Rustenburg Herald, published on 20 May 2022 (see Appendix E). Distribution areas of the newspaper are as follows:

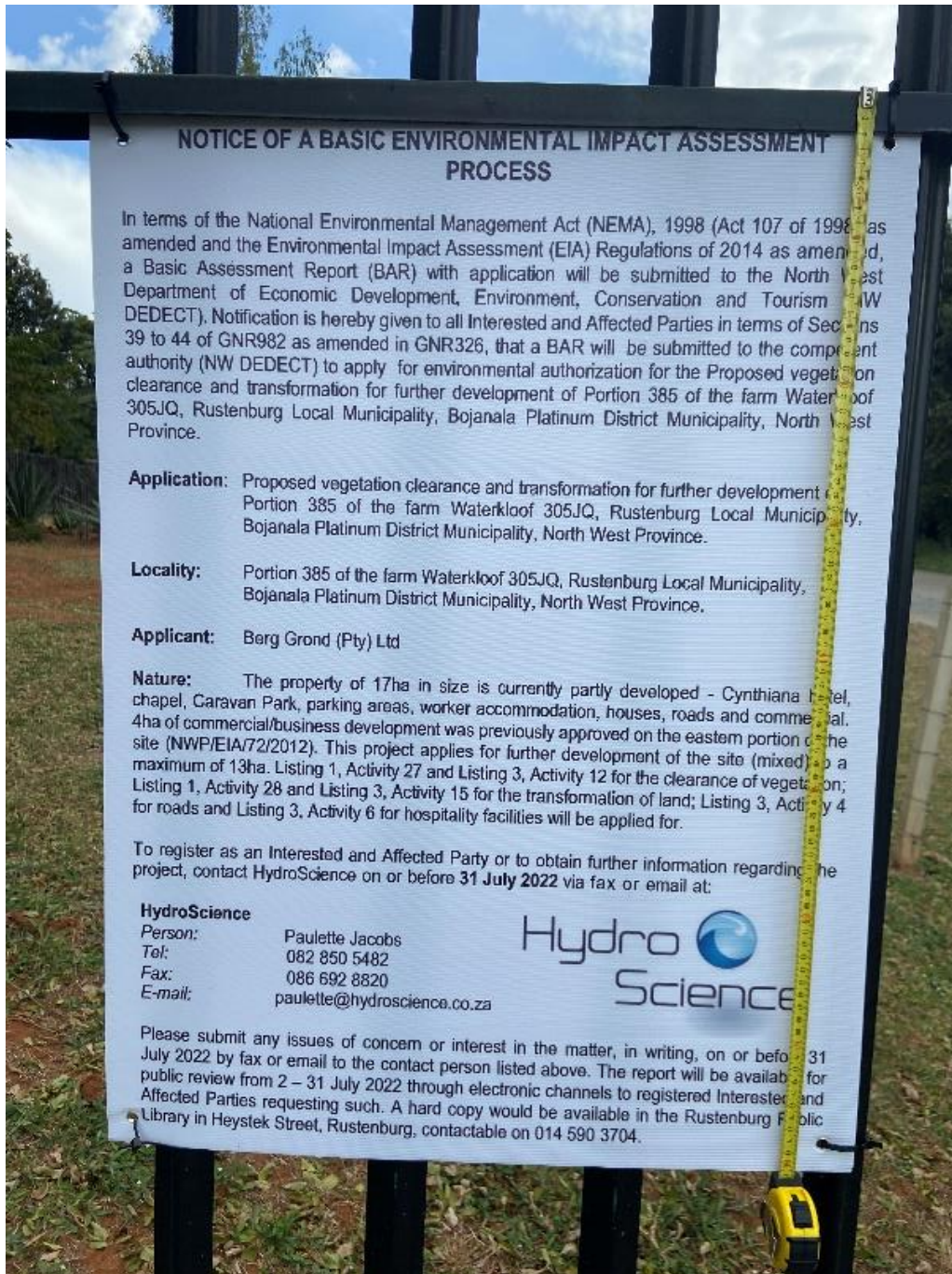
- Rustenburg
- Boons
- Bleskop
- Brits
- Buffelspoort
- Derby
- Elandskraal
- Groot-Marico
- Hartbeespoort
- Karlienpark
- Koster
- Kroondal
- Lichtenburg
- Marikana
- Moedwil
- Mooinooi
- Northam
- Rex
- RPM
- Sun City
- Swartklip
- Swartruggens
- Thabazimbi
- Tlhabane
- Waterfall Mall



- Zinniaville
- Zeerust.

The aim of placing a notice in the local newspaper was to create a greater awareness of the project and to invite a broader spectrum of I&APs to register and be part of the process.

33 000 copies of the newspaper are distributed weekly, free of charge.



**Figure 8-1: Wording and size of notices placed**



Notice at entrance to Hunters Pub & Grill  
25° 42' 51.4" South, 27° 15' 19.6" East

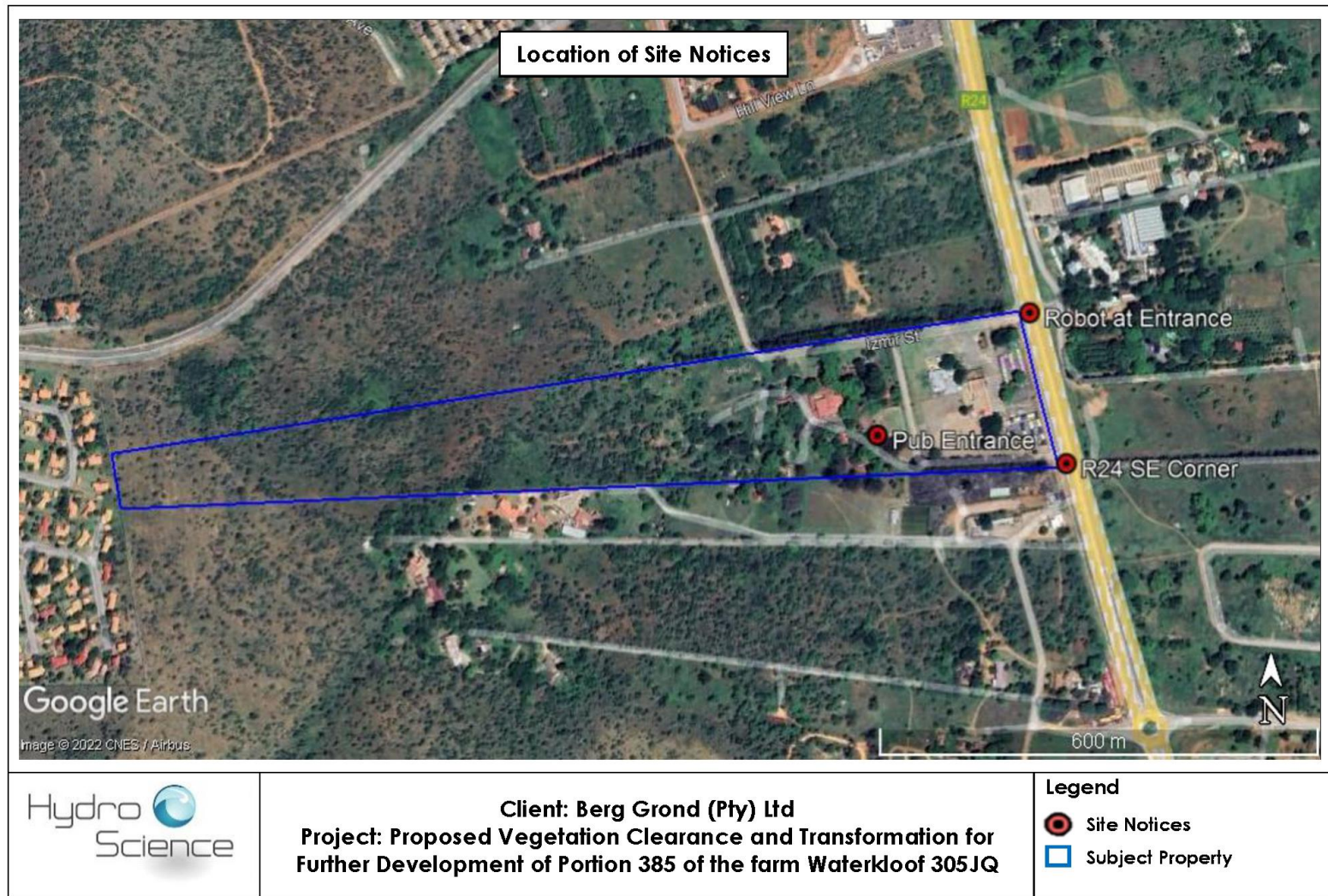


Notice along R24 in south eastern corner of site  
25° 42' 52.6" South, 27° 15' 28.5" East

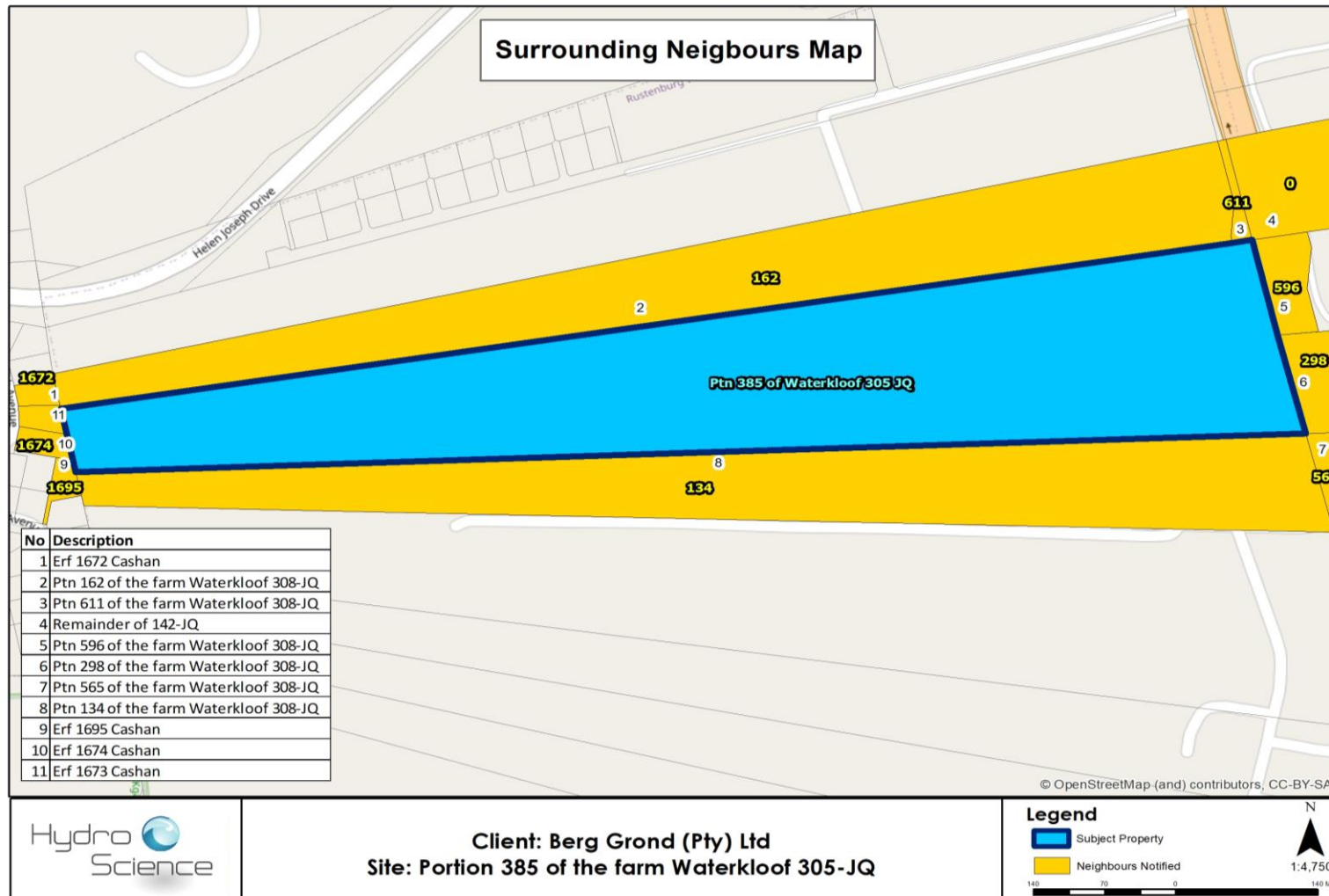


Notice along R24 at robot at entrance to site from R24  
25° 42' 46.8" South, 27° 15' 25.9" East

**Figure 8-2: Locality of notices placed**



**Figure 8-3: Aerial view of location of site notices**



**Figure 8-4: Neighbouring properties**

## 8.5 Comments and Response Register

Any concerns that were raised by I&APs during the process were recorded and addressed by the EAP where possible (see Table 8-3). All proof of communication can be seen in Appendix E.

Furthermore, all registered I&APs were given an opportunity to comment in writing (2 – 31 July 2022), on the draft BAR before its submission to the competent authority, NWDEDECT, in August 2022.

## 8.6 BAR Submission

The draft BAR was made available through an electronic channel (wetransfer) upon request from 2 – 31 July 2022. A hard copy was made available in the Rustenburg Public Library in Heystek Street. All I&APs have therefore been given an opportunity to comment on this document. Once the period for comments lapsed, all comments made were included in the comments and response register.

After submission of the draft BAR to the authorities, during the public review period, the authorities listed below, were also afforded an opportunity to submit their comments to be addressed in the final BAR.

The final BAR (including all supporting documentation) will be submitted to NW DEDECT for consideration. A decision will be provided by NW DEDECT in terms of their considerations and findings and if authorised, conditions of the authorisation will be provided.

**Table 8-2: Register of I&APs**

<b>Neighbouring landowners, residents and businesses</b>		
<b>Portion of farm Waterkloof 305JQ / Business:</b>	<b>Owner/Contact Person:</b>	<b>Interaction:</b>
E&A Belt Sales (South)	Elodie	Emailed: 2022-05-24
Cast Stone (South)	Annamarie Munroe	Emailed: 2022-05-24
Revival Lifestyle Church (South)	Pastor Andre Labuschagne	Emailed: 2022-05-24
Portion 216 (South)	Anthony J. Prodehl	Emailed: 2022-05-24
Portion 134 (South)	Ms. Y. Bakharia	Emailed: 2022-05-31
Portion 93 (South East)	Ms. D. Haese	Emailed: 2022-05-24
Portion 91 (East)	Clarence Wissekerke Trust	Emailed: 2022-05-24
Portion 298 (East)	Soterion Property Group (Pty) Ltd	No details available, went to site
Portion 72 & 162 (North)	Magic Plant Hire Pty Ltd	Emailed: 2022-05-24
Portion 142 (North-east)	Ms. J. Mitchell	Emailed: 2022-05-24
Kgaswane Mountain Reserve (West)	Ms Idah Mathe	Emailed: 2022-05-31
MBR	Belinda Cooper	Draft BAR: 2022-07-01
Cashan 33 gated community (West)	Sibanye Stillwater Mine	Hand-delivered: 2022-05-17 Emailed: 2022-06-10
Rustenburg- Olifantsnek Corridor Landowners Association (ROCLA)	Brink Jordaan Jamile Bolt	Emailed: 2022-05-24
Waterkloof 365 approved filling station (East)	W.J. de Beer	Emailed: 2022-05-24
<b>On property:</b>		
Hunters Pub & Grill	Lezaan van der Merwe	Hand-delivered: 2022-05-17 Emailed: 2022-05-18
Vat 'n biki	Jackie Roos	Hand-delivered: 2022-05-17 Emailed: 2022-05-18
Talking Pots	Michelle	Emailed: 2022-05-18 2022-05-24
Jansev Motors	Gerrie / Jansev / Werner	Hand-delivered: 2022-05-17 Emailed: 2022-05-18

Vitaya Accounting Tax Services	Vitaya Accounting Tax Services	Emailed: 2022-05-18
Rustenburg Astro Soccer	Yusuf	Emailed: 2022-05-24

<b>Authorities and other stakeholders:</b>		
<b>Authority / organisation / entity:</b>	<b>Section / Department:</b>	<b>Interaction:</b>
Local authority: RLM	Town Planning	Emailed: 2022-05-24
	Directorate: Community Development (Environmental)	Emailed: 2022-05-18 Draft report: 2022-07-01
District authority: BPDM	Environmental	Emailed: 2022-05-24
NW DEDECT	Aministration Mahikeng office Rustenburg office	Emailed: 2022-05-24 Draft report: 2022-07-01
National authority: DALRRD	Land Use & Soil Management Directorate	Emailed: 2022-05-24



**Table 8-3: Comments and responses**

<b>Comments &amp; Responses Report</b>		
<b>I&amp;AP:</b>	<b>I&amp;AP Comment</b>	<b>EAP Response</b>
Brink Jordaan (2022-05-22)	Requested to be added as an I&AP and obtain further information. Interest in hospitality facilities.	Registered. Draft report: 2022-07-01
<b>Comments on draft BAR</b>		

## 9 IMPACT ASSESSMENT

### 9.1 Methodology

The significance of the adverse environmental impacts identified were assessed in terms of their:

- Duration;
- Extent;
- Probability; and
- Severity.

The above was used to determine the significance of an impact without any mitigation, as well as with mitigation.

**Nature of an impact:** An impact's nature can be positive (+) or negative (-).

**Consequence:** Considers duration, extent and severity

Consequence = duration + extent + severity

**Table 9-1: Environmental risk and impact assessment criteria**

<b>DURATION (D)</b>		
Immediate	Less than 1 month	1
Short-term	2 - 24 months	2
Life of project	Operational phase	3
Post-closure	Time of rehabilitation and for re-establishment of natural systems	4
Residual	A permanent impact (100 years or more)	5
<b>EXTENT (E)</b>		
Site specific	Site of the proposed work	1
Local	Site and immediate surroundings (property)	2
Regional	Municipal area	3
Provincial	Provincial area	4
National	Republic of South Africa	5
<b>PROBABILITY (P)</b>		
Rare	<5% probability of occurrence – may occur in exceptional circumstances	1
Unlikely	15% - 6% probability of occurrence – could potentially occur at some time	2
Possible	45% - 16% chance of occurrence – might occur at some time	3
Likely	65% - 46% probability of occurrence – will probably occur in most circumstances	4
Almost Certain	90% - 66% probability of occurrence – is expected to occur	5
Definite	100%- will occur	6
<b>SEVERITY (S)</b>		
Catastrophic (critical)	Total change in area of direct impact, relocation not an option, death, toxic release off-site with detrimental effects, irreversible loss, huge financial loss	6

Significant (High)	> 70% change in area of direct impact due to loss of significant aspect, extensive injuries, long term loss in capabilities, off-site release to high extent, major financial implications	5
Serious	50 – 70% long-term loss, extensive rehabilitation / restoration / treatment required, high financial impact, still restricted in extent	4
Moderate (medium)	20 – 49% change, medium term loss in capabilities, rehabilitation / restoration / treatment required, on-site release with outside assistance, medium financial impact	3
Minor	10 – 19% change, short term impact that can be absorbed, on-site release, immediate containment, low financial implications	2
Insignificant (low)	< 10 % change in the area of impact, no financial implications, localised impact, a small percentage of population	1

[Duration (D) + Extent (E) + Severity (S)] x Probability (P) = Impact Significance (IS)

IMPACT SIGNIFICANCE (IS)		
Impact Significance	IS score range	Description
Low (L)	<15	The impact is minor or insubstantial; it is of little importance to any stakeholder and can easily be rectified.
Moderate Low (ML)	16 - 45	The impact is limited in extent, even if the intensity is major; the probability will only be likely, the impact will not have a significant impact considered in relation to the bigger picture; no major material effect on decisions and will require only small-scale management intervention bearing moderate costs.
Moderate High (MH)	46 - 70	The impact is significant to one or more stakeholders, and its intensity will be medium or high; therefore, the impact may materially affect the decision, and management intervention will be required.
High (H)	71 <	The impact could render options controversial or the entire project unacceptable if it cannot be reduced to acceptable levels; and/or the cost of management intervention will be a significant factor in project decision-making.

## 9.2 Impact Assessment Ratings

The impacts and associated significance ratings for the project for the various alternatives were assessed (Tables 9.2 and 9.3). The no-go option (Table 9.4) would not meet the project objective.

The planning phase activities are considered to be of a negligible impact significance as these typically involve desktop assessments and site inspections. A very low temporary impact may be experienced due to the increased presence of humans and vehicles / machinery.

**Table 9-2: Impact significance for the construction phase**

Aspect and Description		Impact Rating (before mitigation)							Impact Rating (after mitigation)						
Aspect	Description	Nature of Impact (Positive/Negative)	Spatial Scope/ Extent (6)	Duration (6)	Severity (6)	Consequence	Probability (6)	Significance (108)	Nature of Impact (Positive/Negative)	Spatial Scope/ Extent (6)	Duration (6)	Severity (6)	Consequence	Probability (6)	Significance (108)
<b>FLORA - Damage or loss of habitat due to construction activities</b>	Weeds and alien species will be introduced and seeds will spread due to disturbance.	N	2	4	4	10	6	60	N	2	4	4	10	3	30
	Vegetation will be removed in order to establish the site	N	2	5	3	10	6	60	N	2	5	3	10	2	20
	Destruction, loss and fragmentation of vegetation.	N	3	4	4	11	5	55	N	3	4	4	11	2	22
	Staff members/ Contractors might create new pathways across the natural vegetation.	N	2	5	3	10	5	50	N	2	5	3	10	3	30
	Dumping of waste outside the designated area.	N	2	4	3	9	5	45	N	2	4	3	9	1	9
	Burning of vegetation on site.	N	2	4	3	9	5	45	N	2	4	3	9	1	9

	Storing of construction material and soil stockpiles outside the designated areas	N	2	4	3	9	3	27	N	2	4	3	9	1	9
<b>FAUNA - Loss of species due to construction activities</b>	Removal of plant species providing potential habitat	N	2	4	4	10	5	50	N	2	4	4	10	3	30
	Injury / death to fauna due to poaching	N	3	4	4	11	3	33	N	3	4	4	11	1	11
	Dumping of waste and construction material outside the designated area	N	2	4	4	10	3	30	N	2	4	4	10	2	20
	Fires	N	2	4	4	10	5	50	N	2	4	4	10	1	10
	Reduced dispersal/migration of avifauna	N	3	4	4	11	3	33	N	3	4	4	11	2	22
	Disruption/alteration of ecological life cycles (breeding, migration, feeding) due to noise	N	3	4	3	10	5	50	N	3	4	3	10	2	20
	Disruption/alteration of ecological life cycles (breeding, migration, feeding) due to dust	N	3	4	3	10	5	50	N	3	4	3	10	2	20
	Disruption due to movement of construction vehicles in order to access the site but also while working on site	N	2	4	4	10	3	30	N	2	4	4	10	2	20
	Spillage/leaks of hydrocarbon or other hazardous material	N	2	4	4	10	4	40	N	2	4	4	10	2	20
<b>SURFACE WATER - Pollution or loss of surface water</b>	Spillage of fuel / oil from construction vehicles or containers	N	2	2	3	7	6	42	N	2	2	3	7	2	14
	Spillage of chemicals	N	2	2	3	7	6	42	N	2	2	3	7	1	7
	Spillage of cement	N	2	2	3	7	6	42	N	2	2	3	7	2	14
	Mixing of cement on soil surface	N	1	2	3	6	6	36	N	1	2	3	6	2	12

	Maintenance or fixing of vehicles / machinery on site	N	2	2	3	7	6	42	N	2	2	3	7	2	14
	Washing of vehicles / machinery on site	N	2	2	3	7	6	42	N	2	2	3	7	1	7
	Compaction of the soil due to construction activities and movement of vehicles / machinery will increase the runoff	N	2	2	3	7	6	42	N	2	2	3	7	2	14
	Siltation and Erosion	N	1	2	3	6	6	36	N	1	2	3	6	2	12
	Washing up (bathing, hand washing a washing of dishes / containers or clothes)	N	2	2	3	7	6	42	N	2	2	3	7	1	7
<b>GROUNDWATER - Pollution of the ground water system</b>	Spillage of fuel / oil from construction vehicles or containers	N	2	2	3	7	6	42	N	2	2	3	7	2	14
	Spillage of chemicals	N	2	2	3	7	6	42	N	2	2	3	7	1	7
	Spillage of cement	N	2	2	3	7	6	42	N	2	2	3	7	2	14
	Mixing of cement on soil surface	N	1	2	3	6	6	36	N	1	2	3	6	2	12
	Maintenance or fixing of vehicles / machinery on site	N	2	2	3	7	6	42	N	2	2	3	7	2	14
	Washing of vehicles / machinery on site	N	2	2	3	7	6	42	N	2	2	3	7	1	7
	Compaction of the soil due to construction activities and movement of vehicles / machinery	N	2	2	3	7	6	42	N	2	2	3	7	2	14
	Ablution facilities risk leakage	N	1	2	3	6	6	36	N	1	2	3	6	2	12
	Washing up (bathing, hand washing a washing of dishes / containers)	N	2	2	3	7	6	42	N	2	2	3	7	1	7
	Removal of vegetation	N	2	2	3	7	6	42	N	2	2	3	7	3	21

<b>SOIL - Pollution and Compaction</b>	Spillage of fuel / oil from construction vehicles or containers	N	2	2	3	7	6	42	N	2	2	3	7	2	14
	Spillage of chemicals	N	2	2	3	7	6	42	N	2	2	3	7	1	7
	Spillage of cement	N	2	2	3	7	6	42	N	2	2	3	7	2	14
	Mixing of cement on soil surface	N	1	2	3	6	6	36	N	1	2	3	6	2	12
	Maintenance or fixing of vehicles / machinery on site	N	1	2	3	6	5	30	N	1	2	3	6	1	6
	Washing of vehicles / machinery on site	N	2	2	3	7	5	35	N	2	2	3	7	1	7
	Erosion of soil	N	2	2	3	7	6	42	N	2	2	3	7	2	14
	Unnecessary loss of soils due to site preparation	N	1	2	3	6	6	36	N	1	2	3	6	1	6
	Compaction of the soil due to construction activities and movement of vehicles / machinery	N	2	2	3	7	6	42	N	2	2	3	7	3	21
	Washing away of soil from stockpiles	N	1	2	3	6	6	36	N	1	2	3	6	2	12
<b>AIR QUALITY - Polluting or decreasing the quality of the air</b>	Fires on site	N	2	2	4	8	5	40	N	2	2	4	8	1	8
	Emissions from construction vehicles	N	2	2	3	7	5	35	N	2	2	3	7	2	14
	Waste being airborne	N	2	2	3	7	6	42	N	2	2	3	7	2	14
	Cement bags / particles blown around	N	2	2	3	7	6	42	N	2	2	3	7	1	7
	Particulate matter and dust flying off moving vehicles	N	2	2	3	7	6	42	N	2	2	3	7	2	14
	Particulate matter may be lifted from the site and pose a health threat	N	2	2	3	7	5	35	N	2	2	3	7	2	14
Site clearance / removal of vegetation	N	2	3	4	9	6	54	N	2	3	2	7	4	28	

<b>VISUAL IMPACT - Change in the sense of place or decreasing the aesthetic value</b>	Dust created during the construction activities	N	2	2	3	7	6	42	N	2	2	2	6	2	12
	Waste accumulation on site	N	2	2	3	7	6	42	N	2	2	2	6	2	12
	Laydown areas	N	2	2	3	7	6	42	N	2	2	2	6	2	12
<b>HEALTH - Spreading of diseases/ degradation in health</b>	Using the veld for ablutions instead of toilets	N	1	2	2	5	6	30	N	1	2	2	5	3	15
	Dust created during construction	N	2	2	2	6	6	36	N	2	2	2	6	3	18
	Dumping of waste on site	N	1	2	2	5	6	30	N	1	2	2	5	2	10
	Workers not using / wearing PPE	N	1	2	5	8	5	40	N	1	2	5	8	1	8
	Burning of material / hazardous waste on site	N	2	2	5	9	5	45	N	2	2	5	9	1	9
	Spreading of diseases	N	3	2	5	10	5	50	N	3	2	5	10	2	20
	Dehydration due to a lack of drinking water	N	1	2	5	8	5	40	N	1	2	5	8	1	8
<b>NOISE</b>	Noise from construction related activities	N	2	2	4	8	6	48	N	2	2	4	8	4	32
<b>TRAFFIC - disturbance to the flow of traffic</b>	Increase in construction vehicles	N	2	2	3	7	6	42	N	2	2	2	6	3	18
	Traffic congestion due to the construction activities	N	2	2	3	7	6	42	N	2	2	2	6	3	18
<b>SAFETY &amp; SECURITY</b>	Theft of construction material and equipment	N	1	2	4	7	5	35	N	1	2	4	7	2	14
	The site is unsafe for locals, especially kids playing on construction site or residents passing through the site	N	2	2	4	8	5	40	N	2	2	4	8	2	16
	Home owner security at risk due to influx of workers into area	N	2	2	4	8	5	40	N	2	2	4	8	2	16
	Construction vehicles at risk of theft or vandalism	N	1	2	4	7	5	35	N	1	2	4	7	2	14



	Unfair treatment of staff member can lead to dispute or strikes	N	1	2	3	6	5	30	N	1	2	3	6	2	12
	Safety risk when crossing busy roads to get to work / construction site	N	1	2	4	7	5	35	N	1	2	4	7	2	14
	Using inappropriate working methods or equipment	N	1	2	4	7	5	35	N	1	2	4	7	1	7
	Workers not wearing the correct PPE	N	1	2	4	7	5	35	N	1	2	4	7	1	7
<b>SOCIO-ECONOMIC</b>	Employment opportunities for construction workers	Positive							Positive						
	Disruption arising during the construction	N	1	1	2	4	2	8	N	1	1	1	3	1	3
	Maintenance and housekeeping	N	2	5	2	9	3	27	N	2	5	1	8	2	16

**Table 9-3: Impact significance for the operational phase**

Aspect and Description		Impact Rating (before mitigation)							Impact Rating (after mitigation)						
Aspect	Description	Nature of Impact (Positive/Negative)	Spatial Scape/ Extent (6)	Duration (6)	Severity (6)	Consequence	Probability (6)	Significance (108)	Nature of Impact (Positive/Negative)	Spatial Scape/ Extent (6)	Duration (6)	Severity (6)	Consequence	Probability (6)	Significance (108)
Fauna & Flora	Removal of alien invasive species	Positive							Positive						
	Removal of vegetation resulting in habitat loss	N	2	2	4	8	6	48	N	2	2	2	6	2	12
Visual/Aesthetic	Removal of vegetation resulting in visual impact, particularly for ridge area	N	2	2	4	8	6	48	N	2	2	2	6	2	12
Waste Generation	Poor solid waste practices	N	2	4	3	9	3	27	N	1	4	2	7	2	14
Storm water Management	Increase in storm water runoff	N	2	4	3	9	3	27	N	1	4	2	7	2	14
Health & Safety	Safety Measures	N	2	4	3	9	3	27	N	1	4	3	8	2	16
Noise	Noise Generation	N	2	4	2	8	2	16	N	1	4	2	7	2	14
Socio-economic	Socio-economic upliftment	Positive							Positive						

Aspect and Description		Impact Rating (before mitigation)							Impact Rating (after mitigation)						
Aspect	Description	Nature of Impact (Positive/Negative)	Spatial Scape/ Extent (6)	Duration (6)	Severity (6)	Consequence	Probability (6)	Significance (108)	Nature of Impact (Positive/Negative)	Spatial Scape/ Extent (6)	Duration (6)	Severity (6)	Consequence	Probability (6)	Significance (108)
	Pressure on Service Delivery	N	3	4	2	9	5	45	N	3	4	1	8	5	40
Traffic	Increase in traffic	N	3	4	3	10	3	30	N	2	4	2	8	3	24

**Table 9-4: No-go Impacts and Significance**

Aspect and Description		Impact Rating (before mitigation)							Impact Rating (after mitigation)						
Aspect	Description	Nature of Impact (Positive/ Negative)	Spatial Scape/ Extent (6)	Duration (6)	Severity (6)	Consequence	Probability (6)	Significance (108)	Nature of Impact (Positive/Negative)	Spatial Scape/ Extent (6)	Duration (6)	Severity (6)	Consequence	Probability (6)	Significance (108)
<b>FLORA - Damage or loss of existing vegetation</b>	Maintenance of the property or no maintenance at all could result in the spread of weeds and alien species.	N	2	4	3	9	5	45	N	2	2	2	6	3	18
	Using the vacant sections of the property for illegal dumping.	N	2	4	3	9	5	45	N	2	2	2	6	1	6
	Using the vacant sections of the property for illegal settlements (shacks).	N	2	4	4	10	5	50	N	2	2	2	6	1	6
<b>FAUNA - Loss in species due to neglect</b>	Dumping of waste, illegal settlers and no maintenance at the property can result in the invasion of pests	N	2	4	3	9	5	45	N	2	4	3	9	2	18

Aspect and Description		Impact Rating (before mitigation)						Impact Rating (after mitigation)							
Aspect	Description	Nature of Impact (Positive/Negative)	Spatial Scope/ Extent (6)	Duration (6)	Severity (6)	Consequence	Probability (6)	Significance (108)	Nature of Impact (Positive/Negative)	Spatial Scope/ Extent (6)	Duration (6)	Severity (6)	Consequence	Probability (6)	Significance (108)
<b>SURFACE WATER - Pollution/ Contamination of surface water (storm water/ runoff)</b>	Ablution facilities risk leakage if not properly maintained and secured	N	2	2	4	8	6	48	N	2	2	4	8	1	8
<b>SOIL - Pollution/ Contamination of Soil</b>	Leaking of hazardous material due to illegal dumping.	N	1	2	4	7	6	42	N	2	2	4	8	1	8
	Compaction of soil due to illegal settlers occupying the property.	N	1	2	4	7	6	42	N	2	2	4	8	1	8
	Soil erosion due to the removal of vegetation associated with informal settlements.	N	1	2	4	7	6	42	N	2	2	4	8	1	8
	Ablution facilities risk leakage if not properly maintained and secured.	N	1	2	4	7	6	42	N	2	2	4	8	1	8
<b>VISUAL IMPACT - Change in the sense of place</b>	Property and buildings being neglected or vandalised.	N	2	4	2	8	6	48	N	2	4	2	8	1	8
	Illegal settlers occupying the property	N	2	4	2	8	6	48	N	2	4	2	8	1	8

Aspect and Description		Impact Rating (before mitigation)							Impact Rating (after mitigation)						
		Nature of Impact (Positive/Negative)	Spatial Scape/ Extent (6)	Duration (6)	Severity (6)	Consequence	Probability (6)	Significance (108)	Nature of Impact (Positive/Negative)	Spatial Scape/ Extent (6)	Duration (6)	Severity (6)	Consequence	Probability (6)	Significance (108)
Aspect	Description														
or decreasing the aesthetic value	Waste/illegal dumping on site	N	2	4	2	8	6	48	N	2	4	2	8	1	8
HEALTH - Spreading of deceases/ degradation in health	Dumping of waste on site or vandalising the buildings could result in pests, such as rats, being introduced.	N	2	2	3	7	6	42	N	2	2	3	7	2	14
	Increase in pests	N	2	2	3	7	5	35	N	2	2	3	7	2	14
SAFETY & SECURITY	Theft of material or vandalism of the buildings on site	N	1	2	4	7	5	35	N	1	2	4	7	2	14
	Property neglected and vandalised could become a hotspot for criminal activities such as drugs.	N	3	4	4	11	5	55	N	3	4	4	11	2	22
SOCIO-ECONOMIC	Drop in market value for the property but also surrounding properties if the site is vandalised, illegal dumping occurs or illegal settlers start occupying the property	N	2	4	3	9	3	27	N	2	4	1	7	1	7

Aspect and Description		Impact Rating (before mitigation)							Impact Rating (after mitigation)						
Aspect	Description	Nature of Impact (Positive/Negative)	Spatial Scape/ Extent (6)	Duration (6)	Severity (6)	Consequence	Probability (6)	Significance (108)	Nature of Impact (Positive/Negative)	Spatial Scape/ Extent (6)	Duration (6)	Severity (6)	Consequence	Probability (6)	Significance (108)
	Lack of access to needed services as well as the associated loss of income from these businesses.	N	2	4	5	11	5	55	N	2	4	1	7	1	7
	Loss of job opportunities associated both with the construction and operational phase	N	2	3	5	10	5	50	N	2	3	1	6	1	6

## 10 ENVIRONMENTAL MANAGEMENT PROGRAMME

### Alterations to the EMPr

As EMPrs should remain dynamic and flexible, certain conditions may require the EMPr to be revised. These conditions may include the following:

- Changes in legislation;
- Published/gazetted norms and standards;
- Occurrence of unanticipated impacts or impacts of greater significance, intensity and extent than anticipated;
- Conditions in environmental authorisation or water use authorisation which do not form part of the EMPr;
- Inadequate mitigation measures, i.e. where the level of an environmental parameter is not conforming to the required level despite the implementation of the mitigation measure; and
- Secondary impacts which occur as a result of the mitigation measures.

### 10.2 Responsibility

The Applicant will be responsible for the implementation of all mitigation and management measures as well as the compliance with this EMPr and any license and authorisation conditions.

The applicant will delegate its responsibilities to an Environmental Control Officer (ECO) during the construction phase.

Each contractor involved in the project will comply with the EMPr.

The ECO will be suitably qualified to perform the necessary tasks and will be appointed at a level such that he/she can interact effectively with site contractors, labourers and the public.

The ECO will be required to perform the following tasks:

- Monitoring and execution of the EMPr by being on site regularly (weekly);
- Inspect the site as required to ensure adherence to the management actions of the EMPr and authorisations/licences (compliance assessments/audits);
- Complete Site Inspection Forms on a weekly basis;
- Provide inputs to or compile the environmental compliance assessment report;
- Liaise with contractors on issues relating to implementation of, and compliance with, the EMPr and authorisations/licences;
- Maintain a record of environmental incidents (spills, impacts, legal transgressions etc.) as well as corrective and preventive actions taken; and
- Maintain a public-complaints register in which all complaints are recorded.

The conditions of the authorisation/licences and EMPr will be brought to the attention of all persons (employees, workers, consultants, contractors etc.) associated with the undertaking of these activities and the applicant will take such measures that are necessary to bind such persons to the conditions thereof (contracts with penalties for non-compliances).

The applicant can further enforce this by running workshops in order to raise environmental awareness. These workshops should cover aspects such as fire prevention, strict use of ablution facilities and



general duty of care. A pamphlet can be handed out on socially acceptable and environmentally responsible conduct such as water conservation, waste management etc.

Entity:	Responsible Person:	Contact details:
Applicant	Ben van der Walt	083 417 4395
Environmental Control Officer	To be appointed by the Applicant	

### 10.3 Activities causing potential impacts

The following activities could cause potential impacts if not managed properly or if no mitigation measure is implemented:

- Removal of vegetation;
- Establishment of the construction camp site / office;
- Access roads and movement of machinery/heavy vehicles/equipment on site;
- Creating conditions for alien invasive species to spread;
- Hydrocarbon spills / leakages;
- Poor waste management and littering;
- Dumping of material/waste;
- Stockpiling of soil and material;
- Poor management of water (storm water & potable water);
- Poor management of ablution facilities;
- Random events such as fire;
- Poaching or removal of fauna/avifauna species.

### 10.4 Potential Impacts

#### 10.4.1 Negative Impacts

- The western portion of the site was previously left undisturbed and will now be developed. Due to the ridge and topography of this section, the development may impact on the aesthetic value of the property.
- Displacement of faunal community due to habitat loss, direct mortalities and disturbance (noise, dust and vibration);
- Infringement by humans into, with associated impacts such as poaching, litter as well as introduction of pests, diseases and feral species;
- Erosion due to clearance of vegetation, compaction of soil or poor management of stockpiling areas;
- Pollution/contamination of soil, surface water and groundwater due to leakages or spillages of fuel, oil and hazardous substances;
- Pollution/contamination caused by littering or dumping of building waste (rubble);
- Dust and noise.

#### 10.4.2 Positive impacts

- The property will be fully utilized and will therefore not form a potential site for illegal settlements;

- The further development of the property will greatly improve the status quo and contribute towards the development and growth of the RLM;
- Employment opportunities associated both with the construction and operational phases;
- Improved and increased public services (commercial shops, businesses, tourism);
- The development of the residential units will help to alleviate the housing shortage in the area and establish formal housing services.

#### **10.4.3 No-go Option impacts**

- Risk of illegal settlers using the open spaces on the property;
- Risk of illegal dumping;
- Risk that the property will be invaded by alien and invasive species.

### **10.5 Management measures**

Dedicated measures have been identified to manage the impacts identified above (Table 10.1). The purpose of the EMPr is to ensure that undue or reasonably avoidable adverse impacts of the project are prevented; that impacts which cannot be prevented are managed to reduce their significance; and that the positive benefits of the project are enhanced. The applicant is responsible for the implementation of recommendations and mitigation/management measures and HydroScience cannot and will not take responsibility for the actions of the applicant or lack thereof.

**Table 10-1: Identified potential impacts and proposed management measures**

**1. Environmental Awareness Training**

<b>Management Outcome:</b> All on-site staff are aware of and understands the individual responsibilities in terms of this EMPr.						
<b>Impact Management Actions</b>	<b>Implementation</b>			<b>Monitoring</b>		
	<b>Responsible person</b>	<b>Method of Implementation</b>	<b>Timeframe for Implementation</b>	<b>Responsible person</b>	<b>Frequency</b>	<b>Evidence of Compliance</b>
<ul style="list-style-type: none"> <li>• All staff must receive environmental awareness training;</li> <li>• All new staff coming onto site must receive environmental awareness training;</li> <li>• All staff are aware of the conditions and controls linked to the Environmental Authorisation and within the EMPr;</li> <li>• The responsible operator of vehicle / equipment / machinery must have the required training to make use of the spill kit in emergency situations;</li> <li>• All staff are made aware of their individual roles and responsibilities in achieving compliance with the environmental authorisation and EMPr;</li> <li>• The Contractor must erect and maintain information posters at key locations on site;</li> <li>• Environmental awareness training should include the following:               <ul style="list-style-type: none"> <li>i. Description of significant environmental impacts, actual or potential, related to their work activities;</li> <li>ii. Mitigation measures to be implemented when carrying out specific activities;</li> <li>iii. Emergency preparedness and response procedures;</li> <li>iv. Procedures to be followed when working near or within potentially sensitive areas;</li> <li>v. Water usage and conservation;</li> </ul> </li> </ul>	Contractor	Presentations should be as visual as possible - it can include posters, power point presentations, videos or any other material that will assist in the training.	<p>Environmental awareness training must be done before construction starts and as soon as new staff members start on site and continue throughout the operational phase.</p> <p>Environmental posters must be on site at all times and must be visible / legible.</p>	ECO	During the weekly or bi-weekly inspection.	Photos Attendance Register Training material

<ul style="list-style-type: none"> <li>vi. Solid waste management procedures;</li> <li>vii. Sanitation procedures;</li> <li>viii. Dangers of open and/or unattended fires.</li> <li>• A record of all environmental awareness training courses undertaken as part of the EMPr must be available;</li> <li>• An attendance register of all staff that received environmental awareness training must be kept;</li> <li>• Course material must be available and presented in all appropriate languages;</li> <li>• Environmental training and topics can form part of the daily Toolbox Talks.</li> </ul>						
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## 2. Site Establishment

**Management Outcome:** Impacts on the environment are minimised when establishing new infrastructure and the development footprints are kept to a minimum and within demarcated site establishment area.

**Potential Impacts:**

- Loss of vegetation and faunal habitat
- Activities may lead to displeasing aesthetics, such as the storage of materials, excavation activities and the use and storage of machines / vehicles / equipment
- Pollution of soil and groundwater due to spills on site

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of Implementation	Timeframe for Implementation	Responsible person	Frequency	Evidence of Compliance
<ul style="list-style-type: none"> <li>• A Method Statement must be provided by the contractor prior to any on-site activity that includes:               <ul style="list-style-type: none"> <li>○ overnight vehicle / machinery parking areas;</li> <li>○ stockpile and lay down areas;</li> <li>○ the batching area / plant;</li> <li>○ equipment cleaning areas;</li> <li>○ eating and ablution facilities;</li> <li>○ waste management;</li> <li>○ access route.</li> </ul> </li> <li>• Location of the site camp must be within an approved area to ensure that the site does not impact on sensitive areas identified in the environmental assessment;</li> <li>• Sites should be located where possible on previously disturbed areas;</li> <li>• If possible, the existing buildings should be used as offices;</li> <li>• No staff to be accommodated on the property;</li> <li>• Signs (safety) must be erected at the entrance to the working site;</li> <li>• All storage areas should be marked as "Laydown" areas, should be barricaded and kept neat and tidy at all times.</li> <li>• Housekeeping should be done daily.</li> </ul>	Contractor	Area can be identified during a site visit.	Before site establishment and throughout construction phase.	ECO	Before site establishment and during all site visits	Photos

### 3. Access Roads

<b>Management Outcome:</b> Minimise impact to the environment through the planned and restricted movement of vehicles to/on site.						
<b>Potential Impacts:</b>						
<ul style="list-style-type: none"> <li>Loss of habitat through the damage of vegetation</li> <li>Loss of biodiversity through the damage of vegetation or killing of fauna</li> <li>Compaction of soil</li> <li>Erosion</li> </ul>						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of Implementation	Timeframe for Implementation	Responsible person	Frequency	Evidence of Compliance
<ul style="list-style-type: none"> <li>During site planning, all access roads must be identified and assessed to ensure that the best route is chosen;</li> <li>Access to the site must fall within the assessed area;</li> <li>Maximum use of existing roads must be made.</li> </ul>	Project Manager Project Engineer Contractor	Site walk-about before site establishment.	During planning and site establishment and construction.	ECO	During all site visits	Photos

#### 4. Fencing where required / applicable

<b>Management Outcome:</b> To minimise impact to the environment and ensure safe and controlled access to the site through the erection of a fence and gates where required.						
<b>Potential Impacts:</b>						
<ul style="list-style-type: none"> <li>• Loss of habitat through the damage of vegetation</li> <li>• Loss of biodiversity through the damage of vegetation or killing of avifauna</li> <li>• Compaction of soil</li> <li>• Erosion</li> <li>• Security breaches</li> </ul>						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of Implementation	Timeframe for Implementation	Responsible person	Frequency	Evidence of Compliance
<ul style="list-style-type: none"> <li>• Use existing gates to gain access to all parts of the site;</li> <li>• All gates must be fitted with locks and be kept locked after working hours;</li> <li>• All demarcation fencing and barriers must be maintained in good working order for the duration of the site establishment period;</li> <li>• The existing wall must be maintained;</li> <li>• On completion of the project, all temporary fences are to be removed and where possible re-used by the contractor at new project sites;</li> <li>• The contractor will ensure that all fence uprights are appropriately removed, ensuring that no uprights are cut at ground level but rather removed completely.</li> <li>• Wildlife-permeable fencing with holes large enough for smaller mammals should be installed if possible, the holes must not be placed in the fence where it is next to a major road as this will increase road killings in the area.</li> </ul>	Contractor	Construction of a fence	Before site establishment	ECO	During all site visits	Photos

## 5. Water Management

<b>Management Outcome:</b> Undertake responsible water usage and prevent pollution of water.						
<b>Potential Impacts:</b> Surface material has medium capacity to absorb contaminants and create an effective barrier to contaminants. A high reduction of bacteria and viruses will result if a sanitation leak happens. <ul style="list-style-type: none"> <li>• Pollution of groundwater (potential of borehole users on neighbouring properties)</li> <li>• Pollution of surface water (through accumulation and run-off)</li> </ul>						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of Implementation	Timeframe for Implementation	Responsible person	Frequency	Evidence of Compliance
<ul style="list-style-type: none"> <li>• All reasonable measures to limit pollution or sedimentation of water, with specific focus on runoff from site.</li> <li>• Ensure water conservation and responsible use by: <ul style="list-style-type: none"> <li>- Sourcing construction water from responsible and legal sources;</li> <li>- Minimising water use during cleaning of equipment;</li> <li>- Undertaking regular audits of water systems;</li> <li>- Discuss water usage and conservation during environmental awareness training and toolbox talks.</li> </ul> </li> </ul>	Contractor		During construction and operation	ECO	During all site visits	Photos



## 6. Sensitive Environments

**Management Outcome:** Streams, rivers, wetlands and dams or any area associated with naturally occurring water are considered environmentally sensitive features and should be avoided.

The property is located within a Terrestrial Biodiversity Ecological Support Area (ESA) 1 and an Aquatic Critical Biodiversity Area (CBA). A portion of the property is located within the Magaliesberg Biosphere Reserve (MBR) buffer zone, and the remainder is in the transitional zone.

**Potential impacts:**

- Pollution of groundwater
- Pollution of surface water (through accumulation and run-off)
- Habitat fragmentation and loss

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of Implementation	Timeframe for Implementation	Responsible person	Frequency	Evidence of Compliance
<ul style="list-style-type: none"> <li>• All reasonable measures to prevent pollution to water sources should be implemented.</li> <li>• Remain within demarcated areas.</li> <li>• Discuss sensitive environments during environmental awareness training and toolbox talks.</li> </ul>	Contractor		During construction and operation	ECO	During all site visits	Photos

## 7. Storm and Waste Water Management

**Management Outcome:** An effective system of storm water run-off control is implemented, where required and impacts to the environment caused by storm water and wastewater discharges during activities are avoided.

**Potential Impacts:**

- Pollution of storm water
- Pollution of soil
- Erosion and siltation

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of Implementation	Timeframe for Implementation	Responsible person	Frequency	Evidence of Compliance
<ul style="list-style-type: none"> <li>• Construction should preferably take place in the dry season (winter) as natural runoff is minimal then;</li> <li>• Additional storm water concentration must be contained (attenuated) before discharge.</li> <li>• Appropriate pollution control necessary to prevent discharge of water containing polluting matter or visible suspended solids (hydrocarbon &amp; silt trap);</li> <li>• Runoff from the batching areas must be strictly controlled, and contaminated water must be collected, stored and either treated or disposed of off-site, at a location legally approved to accept the wastewater (keep safe disposal certificate);</li> <li>• All spillages of hydrocarbons onto surfaces must be cleaned by the use of an approved absorbent material and the used absorbent material disposed of at an appropriately licensed waste disposal facility (keep safe disposal certificate);</li> <li>• Any stockpiled soil and rock should have storm water management measures implemented around it;</li> <li>• The large roof structures to be built and sealed (concrete / tar / brick) surfaces will increase storm water volumes that need to be managed;</li> </ul>	Contractor		Measures implemented before site establishment starts and checked during construction and operational activities.	ECO	During all site visits	Photos

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<ul style="list-style-type: none"><li>A storm water plan must be available and used during all the phases of construction. This must include siltation / attenuation ponds handling storm water concentrations.</li></ul>						
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## 8. Solid Waste Management

**Management Outcome:** Wastes are appropriately stored, handled and safely disposed of at a licensed waste facility.

**Potential Impacts:**

- Loss of habitat through the damage of vegetation
- Compaction of soil
- Pollution of soil due to spillages associated with dumping of solid waste
- Establishment of Alien Invasive Plant Species

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of Implementation	Timeframe for Implementation	Responsible person	Frequency	Evidence of Compliance
<p><u>General:</u></p> <ul style="list-style-type: none"> <li>• All measures regarding waste management must be undertaken using an integrated waste management approach; and</li> <li>• A suitable position must be found and clearly demarcated for waste collection and storage;</li> </ul> <p><u>Prevention of waste:</u></p> <ul style="list-style-type: none"> <li>• Material storage areas should be safe, secure and weather-proof to prevent damage to material (resulting in waste generation) and theft. Area with impermeable base or in sealed containers.</li> <li>• Due to the additional movement of people, there will be increased litter production and higher probability of littering. Therefore, there should be on-site signs raising the awareness of the impacts of littering on the natural environment and weekly litter patrols to collect litter.</li> <li>• Train staff/contractors to operate in an environmentally responsible manner (closing of taps for water conservation, reporting spills, no littering etc.).</li> <li>• No planned maintenance or servicing of vehicles / machinery / equipment on site. If emergency maintenance is required to on-site vehicles, machinery and/or equipment, drip trays and / or</li> </ul>	Contractor		Measures must be implemented before site establishment starts and must be controlled during construction and operational activities.	ECO	During all site visits	Photos Documents

<p>absorbent mats will be placed underneath the vehicles / machinery / equipment where maintenance work is conducted to prevent grease/oil spillages impacting the environment or generating waste (contaminated soil).</p> <p><u>Reduction / minimisation of waste:</u></p> <ul style="list-style-type: none"> <li>• Reduce waste quantities and disposal costs through a reduction in the materials ordered.</li> <li>• “Take-back” schemes – setting up schemes with suppliers to take back surplus materials.</li> <li>• Engage with the supply chain to supply products and materials that use minimal packaging.</li> </ul> <p><u>Reuse / recycling of waste:</u></p> <ul style="list-style-type: none"> <li>• Separate / sort / segregate waste for collection and recycling - make arrangements with recycling contractors to provide clearly marked bins for material separation / sorting. Make sure that contractors are aware of the placement of the bins and their responsibility to separate / sort materials.</li> <li>• Though no special disposal methods are required for non-hazardous waste, non-biodegradable refuse such as glass bottles, plastic bags, etc., must be stored in suitable containers to allow for recycling and emptied on an as-required basis for recycling purposes during the working phase.</li> <li>• Segregate packaging for reuse.</li> </ul> <p><u>Waste handling on site:</u></p> <ul style="list-style-type: none"> <li>• Separate / segregate / sort waste into different containers.</li> <li>• Collect waste in suitable containers (drums / skips / bins on site).</li> <li>• Waste containers should be marked, or colour coded to indicate which types of waste can be disposed to it. Staff to be trained in this regard to segregate waste.</li> <li>• Ensure sufficient containers are available for storage of waste prior to removal off site to prevent overflow and littering on the site and surroundings.</li> <li>• Ensure no litter, refuse, waste and rubble generated on the premises will be placed, dumped or deposited on this site, adjacent or surrounding properties during the working phase.</li> </ul>						
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<ul style="list-style-type: none"> <li>• The waste collection and storage site must be maintained in a clean and orderly fashion.</li> <li>• Waste must be disposed, as soon as possible to a municipal transfer station, skip or on a licensed landfill site. Waste must not be allowed to stand on site to decay, resulting in malodours and attracting pests. Empty containers regularly and waste should not be stored on site in excess of 30 days.</li> <li>• Waste collection bins with secure covers (scavenger and weatherproof) must be provided to prevent fauna entering the container. Waste containers must not to be left standing without a cover as this may attract fauna to inspect the skip and possibly cause death or injury to the fauna.</li> <li>• Waste may not be burnt on site.</li> <li>• Hazardous waste must be stored separately from general waste on an impermeable surface within a bund wall and disposed of at a licensed hazardous waste site if not recycled.</li> </ul> <p><u>Waste removal &amp; disposal:</u></p> <ul style="list-style-type: none"> <li>• Companies that transport the waste must be registered / licenced to do so.</li> <li>• Site must be easily accessible for trucks picking up or dropping off the skips.</li> <li>• Remove waste from site for recycling or disposal to the local licensed municipal landfill / waste management facility on a regular basis (at least weekly or when container is full).</li> <li>• No burning or burying of waste.</li> <li>• Any hazardous waste will be stored and handled according to the relevant legislation and only disposed to licensed disposal facilities.</li> </ul> <p><u>Documentation:</u></p> <ul style="list-style-type: none"> <li>• Report on the quantities of different waste streams managed on each site (landfill, reuse, recycling, energy recovery).</li> <li>• Ensure copies of all waste manifests (safe disposal certificates) are kept, showing responsible handling, transport and disposal by a reputable waste handler.</li> </ul>						
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<ul style="list-style-type: none"><li>• Include measure in contract that will ensure contractors are required to clean their work area after construction.</li></ul>						
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### 9. Vegetation Clearing

<b>Management Outcome:</b> Vegetation clearing is restricted to the authorised development footprint of the proposed project and must be done in phases according to the development phases.						
<b>Potential Impacts:</b>						
<ul style="list-style-type: none"> <li>Loss of habitat through the damage of vegetation</li> <li>Loss in biodiversity</li> <li>Compaction of soil</li> <li>Establishment of Alien Invasive Plant Species</li> <li>Loss in aesthetic value of property</li> </ul>						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of Implementation	Timeframe for Implementation	Responsible person	Frequency	Evidence of Compliance
<ul style="list-style-type: none"> <li>During vegetation clearance, methods should be employed to minimize potential harm to fauna species. Clearing has to take place in a phased and slow manner, to maximize potential and time for any mobile species to move to adjacent areas;</li> <li>All vegetation removed during the site establishment period must be disposed of at a registered “green” landfill site or composting site or in an appropriate manner as agreed by the ECO unless it is indigenous vegetation which could be used during rehabilitation;</li> <li>If herbicides / pesticides are used, only a registered control operator must carry this out or it must be carried out under the supervision of a registered control operator, or someone who is appropriately trained and a daily register must be kept of any usage;</li> <li>Trees, shrubs, grass, natural features and topsoil which are not removed during vegetation clearance shall be protected from damage during construction and be incorporated into the development where possible;</li> </ul>	Contractor and ECO	Site survey or walkabout	Measures implemented before site establishment starts and checked during construction and operational activities.	ECO	During all site visits	Photos
	Applicant					



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<ul style="list-style-type: none"> <li>• When removing trees, maintain indigenous trees that will not hamper development;</li> <li>• Removal and disposal of alien invasive plant species must be done in an appropriate manner as required by law - Alien Invasive Species Regulations 2014 (NEMBA Act 10 of 2004).</li> </ul>						
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## 10. Protection of Fauna

<b>Management Outcome:</b> Minimise the disturbance to fauna/avifauna.						
<b>Potential Impacts:</b>						
<ul style="list-style-type: none"> <li>Loss of habitat through the clearing of vegetation</li> <li>Loss in biodiversity due to catching and killing</li> <li>Establishment of Alien Invasive Plant Species</li> </ul>						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of Implementation	Timeframe for Implementation	Responsible person	Frequency	Evidence of Compliance
<ul style="list-style-type: none"> <li>No poaching must be tolerated under any circumstances;</li> <li>No trapping or poisoning of animals;</li> <li>No feeding of animals on site or the adjacent properties;</li> <li>Any noisy point-sources utilised on site should be enclosed, and all equipment / machinery fitted with silencers where applicable;</li> <li>All equipment / machinery will be serviced and maintained within operating specifications to prevent excessive noise.</li> <li>Facility lighting during construction &amp; operation should be kept to a minimum and should make use of the latest technology to ensure that light disturbance is minimised. This will also reduce the attraction of insects (and in turn insectivorous birds) to the facility.</li> <li>Outside lighting should be designed and limited to minimize impacts on fauna. All outside lighting should be directed away from sensitive areas. Fluorescent and mercury vapour lighting should be avoided, and sodium vapour (green/red) lights should be used wherever possible.</li> </ul>	Contractor The Applicant	Site survey or walkabout	Before site establishment and during activities During operational phase	ECO	During all site visits	Photos Record of site survey/ walkabout

## 11. Protection of Heritage Resources

**Management Outcome:** Minimise the disturbance to heritage resources.

No heritage resources were found on site and this section addresses the process should something be found during construction.

**Potential Impacts:**

- Loss of heritage resources
- Damage to heritage resources

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of Implementation	Timeframe for Implementation	Responsible person	Frequency	Evidence of Compliance
<ul style="list-style-type: none"> <li>• A method statement should be compiled to provide the process to be followed during a chance find.</li> <li>• All work must cease immediately, if any human remains and/or other archaeological, palaeontological and historical material are uncovered. Such material, if exposed, must be reported as per the information below or to the nearest museum, archaeologist/ palaeontologist (or the South African Police Services), so that a systematic and professional investigation can be undertaken.</li> <li>• Reporting of the findings must be done as follows: <u>Archaeological sites or remains, fossils or other categories of heritage resources</u> - SAHRA APM Unit (Natasha Higgitt / Phillip Hine 021 462 5402) must be alerted as per section 35(3) of the NHRA. <u>Unmarked human burials</u> - SAHRA Burial Grounds and Graves (BGG) Unit (Thingahangwi Tshivhase / Mimi Seetelo 012 320 8490), must be alerted immediately as per section 36(6) of the NHRA</li> <li>• If heritage resources are uncovered during the course of the development, a professional archaeologist or palaeontologist, depending on the nature of the finds, must be contracted as soon as possible to inspect the heritage resource.</li> </ul>	Contractor		During construction activities	ECO	During all site visits	Photos

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<ul style="list-style-type: none"> <li>• If the newly discovered heritage resources prove to be of archaeological or palaeontological significance, a Phase 2 rescue operation may be required subject to permits issued by SAHRA.</li> <li>• Sufficient time should be allowed to remove/collect such material before work recommences.</li> </ul>						
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## 12. Safety of the Public

<b>Management Outcome:</b> All precautions are taken where possible to minimise the risk of injury, harm or complaints.						
<b>Potential Impacts:</b>						
<ul style="list-style-type: none"> <li>• Damage to property</li> <li>• Injuries</li> <li>• Vehicle accidents</li> <li>• Traffic congestions will become a nuisance</li> </ul>						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of Implementation	Timeframe for Implementation	Responsible person	Frequency	Evidence of Compliance
<ul style="list-style-type: none"> <li>• Demarcate and restrict public access to the working area;</li> <li>• Ensure that there is signage all over the site that warns the public of activities;</li> <li>• Ensure that there are sufficient road signs so that the public is aware of vehicles moving around;</li> <li>• Points men/women must be appointed to direct traffic or warn motorists of any danger on the roads;</li> <li>• All unattended open excavations must be adequately fenced or demarcated;</li> <li>• Adequate protective measures must be implemented to prevent unauthorised access to areas and climbing of structures;</li> <li>• Maintain an incidents and complaints register in which all incidents or complaints involving the public are logged.</li> </ul>	Contractor		Proper planning must be done before establishment and implemented during construction and operational activities	ECO	During all site visits	Photos

### 13. Sanitation

<b>Management Outcome:</b> Clean and well-maintained toilet facilities are available to all staff in an effort to minimise the risk of disease and impact to the environment.						
<b>Potential Impacts:</b>						
<ul style="list-style-type: none"> <li>• Risk of diseases</li> <li>• Spillages could occur</li> <li>• Odour</li> </ul>						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of Implementation	Timeframe for Implementation	Responsible person	Frequency	Evidence of Compliance
<ul style="list-style-type: none"> <li>• If possible, use the ablution facilities in the existing buildings during construction;</li> <li>• Keep all ablution facilities clean;</li> <li>• If the existing facilities can't be used, mobile dry chemical toilets must be installed on-site for construction;</li> <li>• Ablution facilities and / or mobile toilets must be used at all times and no indiscriminate use of the veld for the purposes of ablutions must be permitted under any circumstances;</li> <li>• Proper hand washing facilities, including soap, must be provided for the ablution facilities and the chemical toilets;</li> <li>• Where mobile chemical toilets are required, the following must be ensured:               <ul style="list-style-type: none"> <li>○ If possible, toilets must not be located close to any storm water runoff channels;</li> <li>○ Toilets are secured to the ground to prevent them from blowing over;</li> <li>○ No spillage occurs when the toilets are cleaned or emptied and the contents are managed in accordance with the EMPr for waste disposal;</li> <li>○ Toilets are emptied before long weekends and workers holidays, and must be locked after working hours;</li> <li>○ Toilets are serviced regularly and the ECO or SHEQ must inspect toilets to ensure compliance to health standards;</li> </ul> </li> </ul>	Contractor	Records of disposal certificates.	Portable chemical toilets must be provided before site establishment starts and removed once rehabilitation is completed. Formal water-borne flush facilities for the operational phase will discharge to a conservancy tank.	ECO	During all site visits	Photos Documents Certificates of removal and safe disposal

<ul style="list-style-type: none"> <li>○ A copy of the safe waste disposal certificates must be maintained.</li> <li>• During the operational phase, the same will apply but flushing toilets discharging to conservancy tanks will be installed and used. Conservancy tanks will be emptied by honeysucker on a regular basis. Sewage will be discharged to a licensed wastewater treatment facility with adequate capacity to handle the volumes.</li> </ul>						
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### 14. Emergency Procedures

<b>Management Outcome:</b> Emergency procedures are in place to enable a rapid and effective response to all types of environmental emergencies.						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of Implementation	Timeframe for Implementation	Responsible person	Frequency	Evidence of Compliance
<ul style="list-style-type: none"> <li>• Compile an Emergency Response Action Plan (ERAP) prior to the commencement of the proposed project;</li> <li>• The Emergency Plan must deal with accidents, potential spillages and fires in line with relevant legislation;</li> <li>• All staff must be made aware of emergency procedures as part of environmental awareness training;</li> <li>• The relevant local authority’s fire department must be made aware of a fire as soon as it starts;</li> <li>• In the event of emergency mitigation measures being necessary to contain the spill or leak, it must be implemented as per the section below - Hazardous Substances.</li> </ul>	Contractor	Notice boards. Toolbox talks to include it as a topic.	Must be done before site establishment starts and implemented during construction and operational activities.	ECO	During all site visits	Photos Documentation



## 15. Hazardous Substances

<b>Management Outcome:</b> Safe storage, handling, use and disposal of hazardous substances.						
<b>Potential Impacts:</b>						
<ul style="list-style-type: none"> <li>Contamination of soil, groundwater or storm water due to leaks/ spills</li> </ul>						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of Implementation	Timeframe for Implementation	Responsible person	Frequency	Evidence of Compliance
<ul style="list-style-type: none"> <li>The use and storage of hazardous substances to be minimised and substituted with non-hazardous and non-toxic alternatives where possible;</li> <li>All hazardous substances will be stored in suitable containers as defined in the legislation and Material Safety Data Sheet;</li> <li>Containers will be clearly marked to indicate contents, quantities and safety requirements;</li> <li>All storage areas will be bunded. The bunded area will be of sufficient capacity to contain a spill / leak from the stored containers (110% of container capacity);</li> <li>An Alphabetical Hazardous Chemical Substance (HCS) control sheet will be drawn up and kept up to date on a continuous basis;</li> <li>All hazardous chemicals that will be used on site will have Material Safety Data Sheets (MSDS);</li> <li>All employees working with HCS will be trained in the safe use of the substance and according to the safety data sheet;</li> <li>Employees handling hazardous substances / materials must be aware of the potential impacts and follow appropriate safety measures. Appropriate personal protective equipment (PPE) must be made available;</li> <li>The Contractor must ensure that hydrocarbons are stored in appropriate storage tanks or in bowsers;</li> <li>The tanks / bowsers must be situated on a smooth impermeable surface (concrete) with a permanent bund. The</li> </ul>	Contractor	Training and awareness. Inspections	Planning done prior to site establishment and implemented during construction and operational activities.	ECO	During all site visits	Photos

<p>impermeable lining must extend to the crest of the bund and the volume inside the bund must be 130% of the total capacity of all the storage tanks / bowsers (110% statutory requirement plus an allowance for rainfall);</p> <ul style="list-style-type: none"> <li>• The floor of the bund must be sloped, draining to a separator;</li> <li>• Provision must be made for re-fuelling at the storage area by protecting the soil with an impermeable groundcover. Where dispensing equipment is used, a drip tray must be used to ensure small spills are contained;</li> <li>• All empty dirty drums must be stored on a drip tray or within a bunded area;</li> <li>• No unauthorised access into the hazardous substances' storage areas shall be permitted;</li> <li>• No smoking must be allowed within the vicinity of the hazardous storage areas;</li> <li>• Adequate fire-fighting equipment must be made available at all hazardous storage areas;</li> <li>• An appropriately sized spill kit kept on-site relevant to the scale of the activity/s involving the use of hazardous substance must be available at all times;</li> <li>• The responsible operator must have the required training to make use of the spill kit in emergency situations;</li> <li>• In the event of a spill, contaminated soil must be collected in containers and stored in a central location and disposed of according to the National Environmental Management: Waste Act (Act 59 of 2008) and the Norms and Standards for Waste Storage (GNR 926 of 29 November 2013).</li> </ul>						
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## 16. Batching Area

<b>Management Outcome:</b> To control concrete and cement batching activities in order to minimise spillages and contamination of soil, surface water and groundwater.						
<b>Potential Impacts:</b>						
<ul style="list-style-type: none"> <li>Contamination / pollution of watercourse or soils</li> </ul>						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of Implementation	Timeframe for Implementation	Responsible person	Frequency	Evidence of Compliance
<ul style="list-style-type: none"> <li>Concrete mixing must be carried out on an impermeable surface (such as boards and/or within a bunded area with an impermeable surface or wheelbarrow, if batches are small) or make a hard surface and remove when done;</li> <li>Bagged cement must be stored in an appropriate facility and at least 10 m away from any runoff channel, gullies and drains;</li> <li>A washout facility must be provided for washing of concrete associated equipment. Water used for washing must be restricted;</li> <li>Hardened concrete from the washout facility can either be reused or disposed of at an appropriate licenced disposal facility;</li> <li>Empty cement bags must be secured with adequate binding material if these will be temporarily stored on site;</li> <li>Sand and aggregates containing cement must be kept damp to prevent the generation of dust;</li> <li>Any excess sand, stone and cement must be removed or reused from site on completion of activities period and disposed at a registered disposal facility.</li> </ul>	Contractor		During construction activities.	ECO	During all site visits	Photos

### 17. Dust & Emissions

<b>Management Outcome:</b> Dust prevention measures are applied to minimise the generation of dust.						
<b>Potential Impacts:</b>						
<ul style="list-style-type: none"> <li>Nuisance for residents or people at work</li> <li>Health risk</li> </ul>						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of Implementation	Timeframe for Implementation	Responsible person	Frequency	Evidence of Compliance
<ul style="list-style-type: none"> <li>Take all reasonable measures to minimise the generation of dust;</li> <li>Removal of vegetation must be limited to the working area/ footprint;</li> <li>During high wind conditions, the ECO will evaluate the situation and make recommendations as to whether dust-damping measures are adequate, or whether working will cease altogether until the wind speed drops to an acceptable level;</li> <li>Appropriate dust suppression measures must be used when dust generation is unavoidable, e.g. dampening with water; particularly during prolonged periods of dry weather. Such measures must also include the use of temporary stabilising measures (e.g., chemical soil binders, straw, brush packs, chipping).</li> <li>Maintenance on construction vehicles must be done to avoid the release of excessive emissions.</li> <li>All vehicles and machinery / equipment used on, or entering the site, must be maintained and serviced regularly to ensure that they do not emit smoke or fumes.</li> <li>The contractor's representative must ensure that all on-site vehicles comply with the old SABS 0181 standards (now SANS 10181:2003 in conjunction with SANS 10282:2003)</li> </ul>	Contractor		During construction activities.	ECO	During all site visits	Photos

<ul style="list-style-type: none"> <li>• Limit idling time of vehicles / equipment.</li> <li>• Avoid overloading of construction vehicles.</li> <li>• Any solvent-based finishes such as paints, varnishes, sealants, and polishes will contain minimal levels of Volatile Organic Compounds (VOC) and no Chloro-Fluoro Carbons (CFC), which may harm the atmosphere. Water-based paints are to be used where possible and plant-based stains and sealants must be considered as these are more environmentally friendly.</li> </ul>						
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### 18. Noise

<b>Management Outcome:</b> To prevent unnecessary noise to the environment and surrounding community by ensuring that noise from activities is mitigated.						
<b>Potential Impacts:</b>						
<ul style="list-style-type: none"> <li>Nuisance for residents or people at work</li> <li>Health risk</li> </ul>						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of Implementation	Timeframe for Implementation	Responsible person	Frequency	Evidence of Compliance
<ul style="list-style-type: none"> <li>Construction hours must be adhered to, weekdays from 07:00 – 17:00;</li> <li>If possible, construction activities must be limited to the week and should activities take place over a weekend, the I&amp;APs and landowners must be consulted with.</li> <li>The contractor is to abide by the by-laws of the local municipality relating to noise control.</li> <li>Ear plugs are to be worn by construction workers as and when required.</li> <li>Reducing the noise produced through silencers, lubrication and maintenance, vibration damping i.e. placing a layer of damping material (rubber, neoprene, cork or plastic) beneath the vibrating machine.</li> <li>Reduce noise from vehicles by:               <ul style="list-style-type: none"> <li>turning off engines when they are not in use;</li> <li>checking the brakes are properly adjusted and don't squeal;</li> <li>no revving the engine unnecessarily;</li> <li>only using the horn in emergencies; and                   <ul style="list-style-type: none"> <li>replacing exhaust systems as soon as they become noisy.</li> </ul> </li> </ul> </li> </ul>	Contractor		During construction activities.	ECO	During all site visits	Photos Documents Emails

### 19. Fire prevention

<b>Management Outcome:</b> Prevention of uncontrollable fires.						
<b>Potential Impacts:</b>						
<ul style="list-style-type: none"> <li>• Possible injuries</li> <li>• Air pollution due to smoke</li> <li>• The smoke can be a health risk</li> <li>• Loss of habitat</li> <li>• Damage to property</li> </ul>						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of Implementation	Timeframe for Implementation	Responsible person	Frequency	Evidence of Compliance
<ul style="list-style-type: none"> <li>• Designated smoking areas must be allocated;</li> <li>• Bins must be provided for cigarette buds at the designated smoking area;</li> <li>• Firefighting equipment must be available on all vehicles located on site;</li> <li>• The local Fire Department must be informed of activities;</li> <li>• Contact numbers for the Fire Department and emergency services must be communicated in environmental awareness training, toolbox talks and displayed at a central location on site.</li> </ul>	Contractor		During operational activities.	ECO	During all site visits	Photos

## 20. Stockpile and Stockpiling Areas

<b>Management Outcome:</b> To reduce erosion and sedimentation as a result of stockpiling.						
<b>Potential Impacts:</b>						
<ul style="list-style-type: none"> <li>Soil erosion and siltation</li> </ul>						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of Implementation	Timeframe for Implementation	Responsible person	Frequency	Evidence of Compliance
<ul style="list-style-type: none"> <li>All material that is excavated during the activities (during earthworks) must be stored appropriately on site;</li> <li>All stockpiled material must be maintained and kept clear of weeds and alien invasive species by undertaking regular weeding and control methods;</li> <li>Stockpiles must not exceed 2 m in height;</li> <li>During periods of strong winds and heavy rain, the stockpiles should be covered with appropriate material (e.g., cloth, tarpaulin etc.);</li> <li>Where possible, sandbags (or similar) should be placed at the bases of the stockpiled material in order to prevent erosion of the material.</li> </ul>	Contractor		During construction activities.	ECO	During all site visits	Photos



## 21. Landscaping and Rehabilitation/ Remediation

<b>Management Outcome:</b> No environmental degradation occurs as a result of the project.						
<b>Potential Impacts:</b>						
<ul style="list-style-type: none"> <li>• Soil erosion</li> <li>• Infestation of weeds and alien invasive species</li> </ul>						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of Implementation	Timeframe for Implementation	Responsible person	Frequency	Evidence of Compliance
<ul style="list-style-type: none"> <li>• All spoil and waste will be disposed to a licensed waste site and certificates of safe disposal provided;</li> <li>• Stockpiled topsoil must be used for rehabilitation;</li> <li>• Stockpiled topsoil will be evenly spread so as to facilitate seeding and minimise loss of soil due to erosion;</li> <li>• Before placing topsoil, all visible weeds from the placement area and from the topsoil must be removed;</li> <li>• Subsoil must be ripped before topsoil is placed;</li> <li>• Sections that will not be paved or that could rather be landscaped should be landscaped according to a landscape plan or planting plan;</li> <li>• Trees that were left on site must be maintained and included as part of the landscape plan;</li> <li>• If possible, the project must be timed so that rehabilitation/ landscaping can take place at the optimal time for vegetation establishment;</li> <li>• After site rehabilitation / landscaping the sites must be monitored in order to ensure that rehabilitation is successful. During the monitoring period all alien invasive plant species must be eradicated according to an Alien Invasive Eradication Plan.</li> </ul>	Contractor		After construction or if possible, during the last phases of construction.	ECO	During all site visits	Photos

## 22. Communication

<b>Management Outcome:</b> Proper communication with landowners, neighbours and the public						
<b>Impact Management Actions</b>	<b>Implementation</b>			<b>Monitoring</b>		
	<b>Responsible person</b>	<b>Method of Implementation</b>	<b>Timeframe for Implementation</b>	<b>Responsible person</b>	<b>Frequency</b>	<b>Evidence of Compliance</b>
<ul style="list-style-type: none"> <li>Notify landowners, neighbours and councillors at least 7 days before activities start of the intention to commence with the construction of the filling station. This should be done as the project progresses from one area/neighbourhood to the following.</li> <li>Keep a complaints register on site.</li> <li>A notice board should be visible at each site with the contact information of the Project Manager, Contractor, Emergency Contact and ECO.</li> <li>In addition to the contact information there should also be a timeframe of when work will commence and when it will be completed.</li> </ul>	Project Manager/ Contractor	Telephone calls Emails Notifications/ Posters	Before construction starts and during construction.	ECO	During all site visits	Photos Emails Signed register Complaints register

## 10.6 Monitoring programme

All records will be kept for at least five (5) years.

The following aspects need to be monitored and audited:

a) Compliance with EMPr, environmental authorisation any other licenses' conditions

- Appoint an Environmental Control Officer (ECO)

b) Noise, Nuisance and Disturbance Monitoring

- A record of complaints must be kept as well as the measures taken to address these complaints.

c) OHSA Compliance

- Register to indicate that all the employees and contractors have been informed as to their rights under the Act; and
- Accident records as per the Act - reported to the Department of Trade and Industry (DTI) and the Department of Labour (DOL).

## 10.7 Record keeping and reporting

### 10.6.1 Compliance recording and reporting

Accurate and up-to-date records will be kept by the ECO of all system malfunctions resulting in non-compliance with the EMPr, environmental authorisation and licenses.

### 10.6.2 Incident recording and reporting

The applicant will also, within 24 hours, ensure that the relevant authorities are notified of the occurrence or detection of any incident which has the potential to cause, or has caused pollution of the environment, health or safety risks or which is a contravention of any EMPr, environmental authorisation or license condition. The applicant is then to submit an action plan indicating measures, which will be taken to:

- Correct the impacts resulting from the incident;
- Prevent the incident from causing any further impact; and
- Prevent a recurrence of a similar incident.

### 10.6.3 Complaints recording and reporting

A complaints register will be kept and all complaints from the public / community will be noted therein as well as measures taken to rectify the situation as described above.

## 10.7 Environmental awareness plan

### 10.7.1 Objectives

The objectives of an environmental awareness plan are to:

- Inform employees, landowners, contractors and visitors of any environmental risk which may result from their presence, work or activities, and

- Inform employees, landowners, contractors and visitors of the manner in which the identified possible risks must be dealt with in order to avoid pollution or degradation of the environment and health and safety hazards.

In general, the purpose of implementing an environmental awareness plan is to optimise the awareness of those on the property and partaking in the activities, which have the potential to impact negatively on the environment, and in doing so, promote the goal of sustainable development.

### 10.7.2 Communication

Both objectives of the environmental awareness plan indicate that employees, landowners, contractors and visitors must be informed of environmental matters. Information sharing is only possible through effective communication channels.

The goal for proficient communication is to provide structures for effective communication, participation and consultation that relate to the occupational health and safety hazards, environmental hazards and the Safety, Health, Environment and Quality (SHEQ) management system.

The objective of the communication procedure is to ensure effective communication flow, involvement of all levels of employees in the communication chain and to comply with the requirements in terms of ISO 9001:2008 clause 5.5.3 and ISO 14001:2004 clause 4.4.3.

### 10.7.3 Communication responsibility

It will be the responsibility of the Safety, Health, Environment and Quality (SHEQ) officer to communicate the environmental awareness plan with employees, landowners, contractors and visitors. Should the SHEQ officer struggle with information or should there be a query regarding certain environmental issues it can be discussed with the appointed ECO.

The communication can be done in the following way:

- As part of toolbox talks;
- Posters or information sheets on the notice board, within the ablution facility or at specific spots such as at the drinking water point or waste bins;
- Visitors entering the site could be given an induction or a brochure of the main environmental risks;
- Environmental awareness training for the contractors and their staff members as well as the applicant's representative that will be working on site. This should be done before the construction commences.

### 10.7.4 Aspects covered

The following Environmental Risks/ Aspects should be covered as part of the Environmental Awareness Plan:

- Water saving / conservation;
- Waste management / Recycling;
- Importance of PPE;
- What are CBAs and sensitive areas;
- Erosion;
- Alien Invasive Species;

- Risk of spillages (fuel, oil, cement and hazardous material);
- Dust
- Noise
- Importance of nature and why we protect it.

## 11 CONCLUSIONS & RECOMMENDATIONS

Based on the impact assessment (Section 9), it is clear that the proposed vegetation clearance and further development can potentially have a negative impact on the environment. The significance of the impact can, however, be mitigated / managed to a low to moderate low significance.

### 11.1 EAP Opinion

It is the opinion of the EAP that the project may continue from an environmental perspective based on the following:

- **Accessibility:**
  - The property is suitably located adjacent and to the west of the R24 (P16-1 linking Rustenburg to Johannesburg).
  - The R24 has recently been upgraded and widened (4 lanes, 2 in both directions) and can accommodate traffic flow and volumes.
  - Since the R24 has already been upgraded, no road upgrades are required except the minimum functional upgrades that are needed to support the development (access control and internal roads).
  - The property is accessed via a traffic light intersection with the R24, making it a safe, easy and convenient access and exit.
  - The property is also within close proximity (1.4km north of the property) to the N4 Platinum Highway (linking Rustenburg with Pretoria and Zeerust) and the Rustenburg CBD (5km).
- **Land use:**
  - The property was previously identified by RLM as a “Zone of Opportunity” (Ref GO15/8/2/2/40/431 dated 30 January 2002).
  - RLM described the property as having the potential to be used for township establishment as it is situated close to an existing proclaimed township (Ref GO15/8/2/2/40/431 dated 30 January 2002).
  - According to the BPDM EMF, the property falls within Zone A: Development Zone I (Residential, business and other). This zone is a refinement of areas identified for future urban development in local municipal SDF. These development uses include, amongst others, residential land uses, commercial land uses and land uses related to government functions.
  - The property is already disturbed, partly developed and highly impacted, containing existing infrastructure and structures.
  - Formal municipal approval (SPLUMA) will be obtained from RLM.
- **Size of property:** The property is only partially developed and therefore under-utilized.
- **Cultural heritage:**
  - Three (3) buildings of cultural significance were identified in the eastern portion of the property and are most likely associated with each other.
  - Although all three (3) buildings are perceived to be older than 60 years, they seem to have been renovated/renewed in the past but show various degrees of neglect.
  - The buildings are not unique and therefore have a medium cultural significance. General protection A (IV A), meaning it should be mitigated before destruction.
  - These buildings have already been mitigated through documenting them in accordance with recommendations of the 2016 report.
  - The area is mostly disturbed by former and recent human interventions and nothing else was found.
- **Terrestrial biodiversity:**
  - The flora and fauna survey found that the site ecology has been transformed by anthropogenic impacts and existing developments.
  - No Red Data, protected or endemic flora and fauna were found.

- The steeper gradient area to the west was identified as a sensitive ecological feature. This was integrated with the SDP for residential 1 stands to retain aesthetic value.
- **Sensitivity:**
  - The property is indicated as Terrestrial ESA 1 and Aquatic CBA in terms of the DFFE screening tool.
  - A small portion of the property ( $\pm$  3.9 ha) is located within the MBR buffer zone and will be developed as residential 1 and open space.
  - The remainder of the property is in the transitional zone ( $>$  13ha) of the MBR.
  - The property has however been disturbed and transformed and partly developed.
- **Services:**
  - The property falls within the urban edge services by RLM.
  - Water supply and sewage management main RLM pipelines are situated along the R24 to the east of the site and the development can therefore easily linked to the existing services in the area.
  - Service agreements with RLM will be obtained for the further development of the property.
- **Socio-economic:**
  - The project will create employment opportunities during both the construction and operational phases.
  - The development of residential units will help to alleviate the housing shortage in the area and establish formal housing.
- **Fatal flaws:** No fatal flaws from an environmental perspective were identified.

## 11.2 Conditions

The project can be authorised under the following conditions:

- Compliance with EMPr.
- Proper implementation of the specialists' recommendations.

## 12 REFERENCES

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### Legislation:

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- Constitution of the Republic of South Africa (CRSA), 1996 (Act 108 of 1996)
- National Environmental Management Act (NEMA), 1998 (Act 107 of 1998)
- National Environmental Management: Biodiversity Act (NEM:BA), 2004 (Act 10 of 2004)
- National Environmental Management: Protected Areas Act (NEM:PAA), 2003 (Act 57 of 2003)
- National Environmental Management: Waste Act (NEM:WA), 2008 (Act 59 of 2008)
- National Heritage Resources Act (NHRA), 1999 (Act 25 of 1999)
- National Water Act (NWA), 1998 (Act 36 of 1998)