GAUTENG PROVINCE
AGRICULTURE AND RURAL DEVELOPMENT
REPUBLIC OF SOUTH AFRICA

Basic Assessment Report in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended, and the Environmental Impact Assessment Regulations, 2014 (Version 1)

Kindly note that:

1. This **Basic Assessment Report** is the standard report required by GDARD in terms of the EIA Regulations, 2014.
2. This application form is current as of 8 December 2014. It is the responsibility of the EAP to ascertain whether subsequent versions of the form have been published or produced by the competent authority.
3. **A draft Basic Assessment Report must be submitted, for purposes of comments within a period of thirty (30) days, to all State Departments administering a law relating to a matter likely to be affected by the activity to be undertaken.**
4. **A draft Basic Assessment Report (1 hard copy and two CD's) must be submitted, for purposes of comments within a period of thirty (30) days, to a Competent Authority empowered in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended to consider and decide on the application.**
5. Five (5) copies (3 hard copies and 2 CDs-PDF) of the final report and attachments must be handed in at offices of the relevant competent authority, as detailed below.
6. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.
7. Selected boxes must be indicated by a cross and, when the form is completed electronically, must also be highlighted.
8. An incomplete report may lead to an application for environmental authorisation being refused.
9. **Any report that does not contain a titled and dated full colour large scale layout plan of the proposed activities including a coherent legend, overlain with the sensitivities found on site may lead to an application for environmental authorisation being refused.**

10. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the application for environmental authorisation being refused.

11. No faxed or e-mailed reports will be accepted. Only hand delivered or posted applications will be accepted.

12. Unless protected by law, and clearly indicated as such, all information filled in on this application will become public information on receipt by the competent authority. The applicant/EAP must provide any interested and affected party with the information contained in this application on request, during any stage of the application process.

13. Although pre-application meeting with the Competent Authority is optional, applicants are advised to have these meetings prior to submission of application to seek guidance from the Competent Authority.

DEPARTMENTAL DETAILS

Gauteng Department of Agriculture and Rural Development
Attention: Administrative Unit of the of the Environmental Affairs Branch
P.O. Box 8769
Johannesburg
2000

Administrative Unit of the of the Environmental Affairs Branch
Ground floor Diamond Building
11 Diagonal Street, Johannesburg

Administrative Unit telephone number: (011) 240 3377
Department central telephone number: (011) 240 2500

(For official use only)

NEAS Reference Number:						
File Reference Number:						
Application Number:						
Date Received:						

If this BAR has not been submitted within 90 days of receipt of the application by the competent authority and permission was not requested to submit within 140 days, please indicate the reasons for not submitting within time frame.

n.a.

Is a closure plan applicable for this application and has it been included in this report? **n.a.**
if not, state reasons for not including the closure plan.

n.a.

Has a draft report for this application been submitted to a competent authority and all State Departments administering a law relating to a matter likely to be affected as a result of this activity? **Yes**

Is a list of the State Departments referred to above attached to this report including their full contact details and contact person? **Yes**

If no, state reasons for not attaching the list.

Have State Departments including the competent authority commented? **No**

If no, why?

Report has been submitted to state departments. Comments will be included in the Final Report.

SECTION A: ACTIVITY INFORMATION

1. PROPOSAL OR DEVELOPMENT DESCRIPTION

Project title (must be the same name as per application form):

PROPOSED RESIDENCES to be situated on Portion 350 of the FARM THE WILLOWS 340-JR (City of Tshwane Metropolitan Municipality, Gauteng).

Select the appropriate box

The application is for an upgrade of an existing development		The application is for a new development	X	Other, specify	

Does the activity also require any authorisation other than NEMA EIA authorisation?

YES	~~NO~~

If yes, describe the legislation and the Competent Authority administering such legislation

Legislation	Competent Authority
National Heritage Resources Act 25 of 1999.	**SOUTH AFRICAN HERITAGE RESOURCE AGENCY (SAHRA)**

PLEASE NOTE: that a HERITAGE (HIA) & PALAEONTOLOGICAL (PIA) IMPACT ASSESSMENT was conducted for/on the site for the proposed development [i.e. i. ***A PHASE 1 HERITAGE IMPACT ASSESSMENT & REPORT FOR RESIDENTIAL DEVELOPMENT ON PORTION 350 OF THE FARM THE WILLOWS 350JR TSHWANE METROPOLITAN AREA, GAUTENG***. For: *Pierre Joubert Professional Landscape Architect & Environmental Planner [15 Marikana Street, WIERDAPARK, CENTURION, 0157].* REPORT: APAC021/71. by: *APAC – APELSER ARCHAEOLOGICAL CONSULTING (Accredited member of ASAPA) , September 2021* .Member: AJ Pelser BA (UNISA), BA (Hons) (Archaeology), MA (Archaeology) [WITS]. [P.O.BOX 73703 LYNNWOOD RIDGE0040 Tel: 083 459 3091 Fax: 086 695 7247 Email: apac.heritage@gmail.com Comprehensive and Professional Solutions for all Heritage Related Matters. CK 2006/014630/23 VAT NO.: 4360226270 – *and, ii.* ***Palaeontological Impact Assessment: Phase 1: Field Study of Portion 350 of the Farm The Willows 340-JR, City of Tshwane – Gauteng.*** By Dr. Fourie, H. Dr heidicindy@yahoo.com 012 322 7632/079 940 6048.

Commissioned by: A. Pelser Archaeological Consulting cc. 833B St Bernard Street, Garstfontein, 0081. 083 459 3091 Ref: Pending. 2021/08/30)] and the following should be noted [see the HIA & PIA attached in APPENDIX G] i.e:

- The HERITAGE specialist consultant recommended that the PHASE 2 ARCHAEOLOGICAL PERMIT obtained from SAHRA only after an ENVIRONMENTAL AUTHORISATION have been successfully obtained from GDARD i.e:'*...Although the sites recorded in 2004 and during 2021 falls outside the Portion 350 study and development footprint area, they are located in close proximity to it and the boundary of the development. Dense vegetation on sections of Portion 350 did limit visibility to some extent and it is also possible that more sections of walling and cultural material could be present. Furthermore, even though these features are ephemeral and not well defined and of lesser significance as a result, there is a possibility that there will be indirect impacts on it as a result of the proposed Residential development on Portion 350. The following is therefore recommended:*
  1. that the area be cleared of vegetation under guidance from an archaeologist to determine the extent of the stone-walling in the area.
  2. that once this has been done that the stone-walling be mapped and drawn and that limited archaeological excavations be carried out in order to recover cultural material and to date the sites.
  3. a Phase 2 archaeological mitigation permit from SAHRA be obtained for this investigation.
  Two Development Layout proposals have been provided…Based on the fieldwork and desktop research it is recommended that the proposed residential development on Portion 350 of The Willows 340JR be allowed to continue with the condition that the above recommendations are adhered to and included as part of the approvals to continue.'

If yes, have you applied for the authorisation(s)?	**YES** / ~~NO~~
If yes, have you received approval(s)? (attach in appropriate appendix)	~~YES~~ / **NO**

2. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES:

List all legislation, policies and/or guidelines of any sphere of government that are applicable to the application as contemplated in the EIA regulations:

Title of legislation, policy or guideline:	Administering authority:	Promulgation Date:
NATIONAL LEGISLATION:		
Conservation of Agriculture Resources Act, 1983 (Act 43 of 1983).	**National**	**1983**
Disaster Management Act, 2002. Government gazette 43096, March 2020.	**National**	**2020**
DEAT (2005) Guideline 3: General Guide to the Environmental Impact Assessment Regulations, 2005, Integrated Environmental Management Guideline Series, Department of Environmental Affairs and Tourism (DEAT), Pretoria.	**National Department of Environmental Affairs and Tourism**	**2006**
DEAT (2005) Guideline 4: Public Participation, in Support of the EIA Regulations, 2005, Integrated Environmental Management Guideline Series, Department of Environmental Affairs and Tourism (DEAT), Pretoria.	**National Department of Environmental Affairs and Tourism**	**2005**
DEAT (2006) Guideline 5: Assessment of Alternatives and Impacts in support of the Environmental Impact Assessment Regulations, 2006. Integrated Environmental Management Guideline Series, Department of Environmental Affairs and Tourism (DEAT), Pretoria.	**National Department of Environmental Affairs and Tourism**	**2005**
Environment Conservation Act. 1989 (Act no.73 of 1989).	**National**	**1989**
Hazardous Substance Act. 1973 (15 of 1973).	**National**	**1973**
National Building Regulations and Building Standards Act (Act 103 of 1977).	**National**	**1977**
National Development Plan.	**National**	**2012**
National Environmental Management Act, 1998 (Act No. 107 of 1998 as amended).	**National & Provincial**	**27 November 1998**
National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004).	**National & Provincial**	**2004**
SECTION 24G OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT (NO 107 OF 1998) – Consequences of unlawful commencement of activity.	**National & Provincial**	**27 November 1998**
National Heritage Resources Act 25 of 1999.	**SOUTH AFRICAN HERITAGE RESOURCE AGENCY (SAHRA)**	**28 April 1999**
National Water Act (NWA), Act 36 of 1998].	**National**	**1998**
National Web based Environmental Screening Tool.	**National**	**2020**
NEMA (Act 107 of 1998) Amendment of the Environmental Impact Assessment Regulations 2014, 7 April 2017: GN326, published in Government Gazette 38282 on 7 April 2017.	**National**	**7 April 2017**
Noise Control Regulations.	**National**	**1992**
Noise Regulations promulgated in terms of the Environment Conservation Act 73 of 1989.	**National**	**1989**

Occupational Health and Safety Act, 1993 (Act No 85 of 1993).	**National**	**1993**
Red List Plant Species Guideline, 2006.	**National**	**2006**
The Constitution of South Africa (Act 108 of 1996).	**National**	**1996**
Sustainable Development Guideline, April 2017.	**National**	**2017**
The Road Traffic Act of 1996.	**National**	**1996**
Spatial Planning & Land Use Management Act, 16 of 2013 (SPLUMA).	**National**	**2013**
PROVINCIAL GUIDELINES:		
Gauteng Conservation Plan 3.3 Terrestrial CBA's 2011	**Gauteng Department of Agriculture and Rural Development (GDARD)**	**October 2011**
Gauteng Environmental Management Framework, THE DEVELOPMENT OF THE PROVINCIAL ENVIRONMENTAL MANAGEMENT FRAMEWORK (GPEMF) FOR GAUTENG - Draft Environmental Management Framework Report August 2014 - Produced by the Environomics Project Team, including: Environomics MetroGis EnviroGIS David Hoare Consulting NRM Consulting.	**Gauteng Department of Agriculture and Rural Development (GDARD)**	**2014**
Gauteng Urban Edge, 2010	**Gauteng**	**2010**
Gauteng Noise Control Regulations, 1999	**Gauteng**	**1999**
GDARD Draft Ridges Policy, 2001 (updated 2006)	**Gauteng**	**2006**
GDARD's Gauteng Environmental Management Framework	**Gauteng**	**2014 & 2018**
The GAUTENG Transport Infrastructure Act, 2001.	**Gauteng**	**2001**
Local Authority Notices		
City of Tshwane Integrated Development Plan	**City of Tshwane**	**2021/2026**
City of Tshwane Noise Management Policy	**City of Tshwane**	
THE METROPOLITAN SPATIAL DEVELOPMENT FRAMEWORK (MSDF) 2012 & The Tshwane Spatial Development Framework for Region 6	**City of Tshwane**	**2012/2014-2015**
The City of Tshwane Metropolitan Municipality Clause 14(10) of the Tshwane Town-Planning Scheme, 2008 for permission for a second dwelling house (Revised 2014).	**City of Tshwane**	**2008 & 2014**
Tshwane Open Space Framework (TOSF) 2005.	**City of Tshwane**	**2005**
Bioregional Plan for the City of Tshwane.(2016).	**City of Tshwane**	**2016**

Description of compliance with the relevant legislation, policy or guideline:	
Legislation, policy of guideline	**Description of compliance**
Conservation of Agriculture Resources Act, 1983 (Act 43 of 1983).	Control and … the natural agricultural resources for the conservation of soil, water, plants and animals. Removal of the alien and weed species encountered in the application area should take place in order to comply with existing legislation (amendments to the regulations under the CARA 1983 and Section 28 of the NEMA 1998). Removal of species should take place throughout the construction and operational phases. The National Web based Environmental Screening Tool was used to screen the site for sensitivity regarding the following i.e: (i) Agriculture Screening Map. The agriculture screening map indicated that the proposed site has medium to low Agricultural sensitivity.
Disaster Management Act, 2002. Government gazette 43096, March 2020.	The restrictions enforced in terms of Government Gazette 43096 which placed the country in a national state of disaster limiting the movement of people to curb the spread of the COVID-19 virus has placed some limitations on the commencement and continuation of the public consultation as part of an EIA process.
DEAT (2005) Guideline 3: General Guide to the Environmental Impact Assessment Regulations, 2005, Integrated Environmental Management Guideline Series, Department of Environmental Affairs and Tourism (DEAT), Pretoria.	It provides a broad introduction to the Regulations by explaining the roles and responsibilities of the people involved in environmental authorisation applications the processes that are involved in applying for environmental authorisation and answering a set of key questions may arise.
DEA (2017) Guideline 4: Public Participation, in Support of the EIA Regulations, 2017, Integrated Environmental Management Guideline Series, Department of Environmental Affairs (DEA), Pretoria.	This guideline has been developed in order to assist the proponents or applicants, registered interested and affected parties (RI&AP's) and environmental assessment practitioners (EAPs) to understand what is required of them and how to comprehensively undertake a PPP.
DEAT (2006) Guideline 5: Assessment of Alternatives and Impacts in support of the Environmental Impact Assessment Regulations, 2006. Integrated	It provides a basic guide to the assessment of alternatives and impacts which are key components of an EIA process.

Environmental Management Guideline Series, Department of Environmental Affairs and Tourism (DEAT), Pretoria.	
Environment Conservation Act (ECA). 1989 (Act no.73 of 1989)	This Act specific provision for the issue of regulations with regard to noise. Such regulations, namely the National Noise Control Regulations, were promulgated in January 1992. These regulations relate to the control of noise by local authorities but only by local authorities which request the application of such. In 1996 the responsibility for administering the Noise Control Regulations was devolved to provincial level, but, as of June 2004, only Gauteng and the Western Province have promulgated their regulations. Another aspect of the ECA is that it may be used to advantage with respect to noised control by means of the prohibition of certain defined activities by the Minister of Environmental Affairs and Tourism. There are specific procedures related to the investigation of environmental impact of such activities that must be undertaken. Although the activities listed are not identified solely on the basis of noise, many have a noise impact component, and thus by implication there is a requirement to conduct a noise impact study, where relevant as a part of the total environmental impact assessment (EIA). The ECA is now largely superseded by the National Environment Management Act (Act 107 of 1998) although certain legislation such as the Noise Control Regulations will still be promulgated in terms of this Act.
Hazardous Substance Act. 1973 (15 of 1973)	Any contaminated soil is to be removed and disposed of at an appropriately permitted landfill site in accordance with the acceptable methods prescribed for the particular waste class and hazard rating, as prescribed by DWS's minimum requirements for the handling. Classification and disposal of Hazardous Waste, Second Edition (1998).
National Building Regulations and Building Standards Act (Act 103 of 1977)	Approval is required, from the Local Municipality; for the buildings being erected.
National Development Plan	The South African Government through the Presidency has published a National Development Plan. The Plan aims to eliminate poverty and reduce inequality by 2030. The Plan has the target of developing people's capabilities to improve their lives through social protection, rising income, housing and basic services, and safety. It proposed to implement the following strategies to address the above goals: 1. Creating jobs and improving livelihoods; 2. Expanding infrastructure; 3. Transition to a low-carbon economy; 4. Transforming urban and rural spaces; 5. Improving education and training; 6. Providing quality health care; 7. Fighting corruption and enhancing accountability; and – 8. Transforming society and uniting the nation.
National Environmental Management Act, 1998 (Act No. 107 of 1998 as amended).	The Environmental Authorisation for the proposed development is lawfully applied for in terms of the EIA Regulations, 2014, promulgated under NEMA. The conditions on the Environmental Authorisation, if approved, will be adhered to. A Basic Assessment Report is required for this project.
National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004).	The fauna and flora that dominate the proposed project site will be assessed in terms of the National Environmental Biodiversity Act, 2004 (Act no.10 of 2004) as amended (NEMBA) including all the relevant legislation published in terms of this act.
SECTION 24G OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT (NO 107 OF 1998) – Consequences of unlawful commencement of activity.	A limited part (800m^2) of this **previously disturbed** area on Erf 350, have been cleared for the proposed development, as can be seen on November 2020 Google Earth image. However, as stated in the BIODIVERSITY ASSESSMENT REPORT (i.e. '*An assessment of vegetation, flora, vertebrate fauna and wetlands on Erf 350 of the Farm The Willows 340 JR, City of Tshwane, Gauteng. By G.J. Bredenkamp D.Sc. Pr.Sci.Nat. J.P.C. van Wyk M.Sc. Pr.Sci.Nat. C.E. Venter M.Sc. Pr.Sci.Nat. Commissioned by Pierre Joubert Landscape Architect and Environmental Planner [EcoAgent CC PO Box 25533 Monument Park 0181. Tel 012 4602525. Cell 082 5767046. March 2021]). '…It is suggested that this clearing of vegetation **within the previously disturbed area not be regarded as a violation of a listed activity** as per Environmental Impact Assessment Regulations Listing Notice No. 3 of 2014.*'
National Heritage Resources Act 25 of 1999.	PLEASE NOTE: that a HERITAGE (HIA) & PALAEONTOLOGICAL (PIA) IMPACT ASSESSMENT was conducted for/on the site for the proposed development [i.e. i. ***A PHASE 1 HERITAGE IMPACT ASSESSMENT & REPORT FOR RESIDENTIAL DEVELOPMENT ON PORTION 350 OF THE FARM THE WILLOWS 350JR TSHWANE METROPOLITAN AREA, GAUTENG***. For: *Pierre Joubert Professional Landscape Architect & Environmental Planner [15 Marikana Street, WIERDAPARK, CENTURION, 0157].* REPORT: APAC021/71. by: *APAC – APELSER ARCHAEOLOGICAL CONSULTING (Accredited member of ASAPA) , September 2021* .Member: AJ Pelser BA (UNISA), BA (Hons) (Archaeology), MA (Archaeology) [WITS]. [P.O.BOX 73703 LYNNWOOD RIDGE0040 Tel: 083 459 3091 Fax: 086 695 7247 Email: apac.heritage@gmail.com Comprehensive and Professional Solutions for all Heritage Related Matters. CK 2006/014630/23 VAT NO.: 4360226270 – *and, ii.* ***Palaeontological Impact Assessment: Phase 1: Field Study of Portion 350 of the Farm The Willows 340-JR, City of Tshwane – Gauteng.*** By Dr. Fourie, H. Dr heidicindy@yahoo.com 012 322 7632/079 940 6048. Commissioned by: A. Pelser Archaeological Consulting cc. 833B St Bernard Street, Garstfontein, 0081. 083 459 3091 Ref: Pending. 2021/08/30)] and the following should be noted [see the HIA & PIA

	attached in APPENDIX G] i.e: • The HERITAGE specialist consultant recommended that the PHASE 2 ARCHAEOLOGICAL PERMIT obtained from SAHRA only after an ENVIRONMENTAL AUTHORISATION have been successfully obtained from GDARD i.e:'*...Although the sites recorded in 2004 and during 2021 falls outside the Portion 350 study and development footprint area, they are located in close proximity to it and the boundary of the development. Dense vegetation on sections of Portion 350 did limit visibility to some extent and it is also possible that more sections of walling and cultural material could be present. Furthermore, even though these features are ephemeral and not well defined and of lesser significance as a result, there is a possibility that there will be indirect impacts on it as a result of the proposed Residential development on Portion 350. The following is therefore recommended:* *1. that the area be cleared of vegetation under guidance from an archaeologist to determine the extent of the stone-walling in the area.* *2. that once this has been done that the stone-walling be mapped and drawn and that limited archaeological excavations be carried out in order to recover cultural material and to date the sites.* *3. a Phase 2 archaeological mitigation permit from SAHRA be obtained for this investigation.* *Two Development Layout proposals have been provided…Based on the fieldwork and desktop research it is recommended that the proposed residential development on Portion 350 of The Willows 340JR be allowed to continue with the condition that the above recommendations are adhered to and included as part of the approvals to continue.'* The DRAFT BAR was submitted for review to the South Africa Heritage Resources Authority (SAHRA) and the Provincial Heritage Resources Authority Gauteng Province (PHRAG) in terms and respect of the National Heritage Resources Act 1999 (Act no.25 of 1999) (NHRA). The NHRA provides for the protection and management of South Africa's heritage resources. The South African National Heritage Resources Agency (SAHRA) is the administering authority regarding all matters relating to heritage resources. A heritage resource refers to any historically important feature such as graves, trees, archaeology, culturally significant symbols, spaces, landscapes and fossil beds as protected heritage resources. In terms of Section 38 of the NHRA, SAHRA can call for a Heritage Impact Assessment (HIA) (also known as an Archaeological Impact Assessment or AIA) for certain categories of development. The NHRA also makes provision for the assessment of heritage impacts as part of an EIA process and indicates that if such an assessment is deemed adequate, a separate HIA is not required. Section 38 (1) of the NHRA notes that the relevant heritage authority should be notified provided with details such as location, nature and extent of the following developments: *(a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;* *(b) the construction of a bridge or similar structure exceeding 50 m in length;* *(c) any development or other activity which will change the character of a site—* *(i) exceeding 5 000 m2 in extent; or* *(ii) involving three or more existing erven or subdivisions thereof; or* *(iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or* *(iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;* *(d) the re-zoning of a site exceeding 10 000 m2 in extent; or* *(e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority.* Any artefacts uncovered during the construction phase will be reported to SAHRA as provided for in the EMPr.
The National Water Act (Act No. 36 of 1998).	However, as stated in the BIODIVERSITY ASSESSMENT REPORT (i.e. *'An assessment of vegetation, flora, vertebrate fauna and wetlands on Erf 350 of the Farm The Willows 340 JR, City of Tshwane, Gauteng. By G.J. Bredenkamp D.Sc. Pr.Sci.Nat. J.P.C. van Wyk M.Sc. Pr.Sci.Nat. C.E. Venter M.Sc. Pr.Sci.Nat. Commissioned by Pierre Joubert Landscape Architect and Environmental Planner [EcoAgent CC PO Box 25533 Monument Park 0181. Tel 012 4602525. Cell 082 5767046. March 2021]). '…The Erf 350 was investigated for the presence of a wetland or drainge channel. No signs of wetland conditions or a drainage channel were found.'*
National Web based Environmental Screening Tool.	On 5 July 2019, the Minister of Environment, Forestry and Fisheries signed a notice of requirement for all applications submitted as per Regulation 16(1)(b)(v) of the Environmental Impact Assessment Regulations, 2014, as amended. This notice requires a screening report as generated by the National Web Based Environmental Screening Tool in terms of Section 24(5)(h) of the National Environmental Management Act, 1998 (Act no.107 of 1998) to be submitted along with

	the application effective from October 2019. The screening tool can be described as an online, geographic information system, which enables the user to assess the proposed area of development for any potential sensitivities. Moreover, the tool provides additional information that might be required for assessment during an authorisation process. This includes instances of minimum requirements, potential Environmental Management Frameworks for the area and specific regional development targets or plans. The report generated by the screening tool provides an indication of specialist's studies that will be mandatory to undertake during the authorisation process, based on the development plans for the region of the environmental sensitivity of the site. The screening tool and generated report assist companies and consultancies in ensuring that accurate planning and subsequent applications can be undertaken. The EAP has incorporated the screening tool as an integral part of the screening to sensitivities from the launch date and finds most of the information very usable, accurate and relevant to the authorisation process. The screening tool is an open soured program and more importantly, user-friendly. For free access to the screening tool please use the following link i.e: *https://screening.environment.gov.za/screeningtool/#/pages/welcome*
NEMA (Act 107 of 1998) Amendment of the Environmental Impact Assessment Regulations 2014, 7 April 2017: GN326, published in Government Gazette 38282 on 7 April 2017.	Please see chapter 6 relating to public participation. Appendix 1 relating to the content of the Basic Assessment Report as well as Appendix 4 relating to the content of the EMPr.
Noise Control Regulations.	The National Noise Regulations of 1992 provided a more definitive approach to the control of noise and was applied by many local authorities. These regulations have now been developed to provincial level control.
Occupational Health and Safety Act, 1993 (Act No 85 of 1993).	Exposure to high levels of noise can be detrimental to the auditory health of persons in the workplace. Noise control can be exercised in terms of the Act, which aims at providing for the health and safety of persons at a workplace or in the course their employment or in connection with the use of machinery. Apart from extensive provisions of the Act dealing with such safety, the Minister is authorized to make regulations, which in his opinion, are necessary or desirable in the interest of the safety of persons in the above-mentioned circumstances.
RED DATA SPECIES: ***1. Red List Plant Species Guideline, 2006.*** ***2. Friedmann and Daly's S.A. Red Data Book / IUCN (World Conservation Union) (2004).*** ***3. [1]Current (2015) IUCN Red List Status for South Africa, Lesotho and Swaziland (Taylor et al. 2015). The national list and annotations of Birdlife South Africa (2011), sorted in the order of 'Roberts VII' (Hockey et al. 2005), with probability of occurrence and habitat preferences assessed and comparison with lists from SABAP 1&2 (Harrison et al., 1997; www.sabap2.org).*** ***4. Red Data species rankings as defined in: - 'Branch, The Conservation Status of South Africa's threatened Reptiles': 89 – 103..In:- G.H.Verdoorn & J. le Roux (editors), 'The State of Southern Africa's Species (2002) and Minter, et.al, Atlas and Red Data Book of the Frogs of South Africa, Lesotho and Swaziland (2004)', 'Hofmeyr & Boycott (2018)'.***	Organisms that fall into the Extinct in the Wild (EW), critically endangered (CR), Endangered (EN), Vulnerable (VU) categories of ecological status. A Red Data Listed (RDL) species assessment as well as an assessment of other Species of Conservation concern (SCC), including potential for such species to occur within the study area, was conducted. (i.e. '*An assessment of vegetation, flora, vertebrate fauna and wetlands on Erf 350 of the Farm The Willows 340 JR, City of Tshwane, Gauteng. By G.J. Bredenkamp D.Sc. Pr.Sci.Nat. J.P.C. van Wyk M.Sc. Pr.Sci.Nat. C.E. Venter M.Sc. Pr.Sci.Nat. Commissioned by Pierre Joubert Landscape Architect and Environmental Planner [EcoAgent CC PO Box 25533 Monument Park 0181. Tel 012 4602525. Cell 082 5767046. March 2021]).* <u>Floral:</u> Eight plant communities were identified and mapped on Erf 350 namely: 1. the Mountain Bushveld on South-facing Ridge Crests; 2. Mountain Bushveld on Higher Slopes; 3. Mountain Bushveld on Mid-Slopes; 4. Mountain Bushveld on Lower Slopes (i.e. these four plant communities occur on the Bronberg ridge within the Bronberg Conservation area); 5. Disturbed Tall Treeveld on Plains; 6. Dense Treeveld on Heritage Area; 7. Historically Disturbed Plains Bushveld – and, 8. Recently Cleared Areas. The Low to Medium rich plant species composition, including four protected species, are protected in this area. Four of these plant communities have High ecological sensitivity and High conservation value i.e. SANBI and DEAT (2009) and NEMBA, Government Notice 1002 (2011) indicate that the Bronberg Mountain Bushveld is Critically Endangered. The Andesite Mountain Bushveld therefore enjoys legal protection. The National Forest Act, 1998 (Act No. 84 of 1998) enforces the protection of several indigenous trees. The removal, thinning or relocation of protected trees will require a permit from the Department of Agriculture, Forestry and Fisheries (DAFF) (Notice of the List of Protected Tree Species under the National Forests Act, 1998, Notice 835, Government Gazette 39741, No 19, 29 August 2014). None of the listed Red data species of conservation concern were noted on. Provincially protected plant species that were found on the hillslope are *Aloe pretoriensis, Scadoxis puniceus* and *Haemanthus humilis* subsp *hirsutus*. <u>Fauna:</u> 1. Mammals - It is estimated that 62 species of mammals may from time to time occur on or near the study site. The occurrence of twelve species was confirmed on the site. A total of six mammal species with Red Data status could possibly occur on the site i.e. Red Data species rankings as defined in *Friedmann and Daly's S.A. Red Data Book / IUCN (World Conservation Union) (2004).*

	Of the six red data species, two definitely occur on the site i.e. Juliana's golden mole (pers.obser) and Southern African hedgehog (Dr M Carstens pers.comm). 2. Avi-Fauna (Birds) - A total of 29 threatened or near-threatened bird species (Taylor, Peacock & Wanless, 2015) were recorded in the general area. However, of these species, only five were actually recorded in the Pentad of the study site (SAPAB 2), namely the yellow-billed stork, Abdim's stork, lesser flamingo, half-collared kingfisher and lanner falcon. 3. Herpetofauna – Of all possible herpetofauna species (i.e. reptile, amphibian & snakes) only one possible (1) red data listed reptile specie (i.e. *Kinixys lobatsiana* - Lobatse Hinged-Back Tortoise) which could have occurred on the study site, none was confirmed (i.e. observed/recorded) during the site visits. Red Data species rankings as defined in: *'Branch, The Conservation Status of South Africa's threatened Reptiles': 89 – 103. In:- G.H.Verdoorn & J. le Roux (editors), 'The State of Southern Africa's Species (2002) and Minter, et.al, Atlas* and *Red Data Book of the Frogs of South Africa, Lesotho and Swaziland (2004). South African Red Data Book–Reptiles and Amphibians (Branch, 1988), the Atlas and Red List of the Reptiles of South Africa, Lesotho and Swaziland (Bates et.al. 2014)* – and, *Hofmeyr & Boycott (2018)*.

SCIENTIFIC NAME	ENGLISH NAME
Neamblysomus julianae	Juliana's golden mole
Atelerix frontalis	Southern African Hedgehog
Rhinolophus blasii	Blasius's Horseshoe Bat
Cloeotis percivali	Short-Eared Trident Bat
Leptailurus serval	Serval
Poecilogale albinucha	African striped weasel

The Constitution of South Africa (Act 108 of 1996).	According ot Section (2)(4)(f) and (o) of the Act, • The participation of all interested and affected parties (I&AP's) in environmental governance should be promoted and all people should have the opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation, and participation by vulnerable and disadvantaged persons should be ensured, and – • The environment is held in public trust for the people, the beneficial use of environmental resources should serve the public interest and the environment should be protected as the people's common heritage.
The Road Traffic Act of 1996.	The Road Traffic Act of 1996 provides, inter alia, that no person shall operate or permit to be operated on a public road and vehicle causing noise in excess of the prescribed noise level. The Act, however, does not prescribe noise levels, but empowers the Minister of Transport to issue regulations prescribing them. The consolidated Road Traffic Regulations in terms of the Act do not prescribe any such noise levels, although the noise levels specified in the South African National standard SANS 10181, have been specified as control standards.
Spatial Planning & Land Use Management Act, 16 of 2013 (SPLUMA).	The Spatial Planning and Land Use Management Act 16 of 2013 (SPLUMA) is a national law that was passed by Parliament in 2013. The law gives the Department of Rural Development and Land Reform (DRDLR) the power to pass Regulations in terms of SPLUMA to provide additional detail on how the law should be implemented.
PROVINCIAL GUIDELINES:	
Gauteng Conservation Plan 3.3 Terrestrial CBA's 2011.	The Gauteng conservation plan (version 3.3) Terrestrial CBA's represents priority areas for biodiversity conservation in the Gauteng province. The whole site falls inside of an area identified as a – i. Critical Biodiversity Area: Irreplaceable area, Red listed plants, Red listed plant habitat, Orange listed Plant habitat, Red listed Mammal habitat and Primary vegetation, in terms of the Gauteng Province Conservation Assessment Technical Report (2011).
Gauteng Urban Edge, 2010	According to Mr. Neel du Toit of the Gauteng Department of Economic Development, the urban edge is now delineated on a yearly basis, and it is the responsibility of the local authorities to request for a yearly amendment to the urban edge.
Gauteng Noise Control Regulations, 1999	The regulation controls noise pollution. According to the acceptable noise levesl in a residential area situated within an urban area is 55dBA and the maximum acceptable noise levels in a rural area is 45dBA.
GDARD Draft Ridges Policy, 2001 (updated 2006)	According to the GDARD Draft Ridges Policy, no development should take place on slopes steeper than 8.8%. Gauteng Ridges Departmental Policy (2006). In recognition of the value of the quartzite ridges of Gauteng, a GDARD compiled policy to protect these ridges from further development. Ridges are classified into classes according to current transformed status i.e: Class 1: Ridges 0-5% transformed Class 2: Ridges 5-35% transformed. Class 3: Ridges 35-65% transformed. Class 4: Ridges 65-100% transformed.

	Within the policy, Class 1 and Class 2 ridges are highly sensitive due to limited disturbance and therefore are considered 'no go' areas in terms of future development. NOTE: The specific Class 2 Ridge (*Bronberg*) area (Ra) portion of the site *(i.e. the area steeper than 8.8° where the development footprint is proposed to occur on site)* where the development footprint is proposed to occur is 0.04 hectares, which is 3.7% of the entire site, and 7.2% of the area outside of the BRONBERG CONSERVATION AREA. The rest of the development footprint is proposed to fall within the buffer zone (i.e. outside) of the ridge i.e. 500m of the ridge. However, as stated in the BIODIVERSITY ASSESSMENT REPORT (i.e. '*An assessment of vegetation, flora, vertebrate fauna and wetlands on Erf 350 of the Farm The Willows 340 JR, City of Tshwane, Gauteng. By G.J. Bredenkamp D.Sc. Pr.Sci.Nat. J.P.C. van Wyk M.Sc. Pr.Sci.Nat. C.E. Venter M.Sc. Pr.Sci.Nat. Commissioned by Pierre Joubert Landscape Architect and Environmental Planner [EcoAgent CC PO Box 25533 Monument Park 0181. Tel 012 4602525. Cell 082 5767046. March 2021]).* 'The Bronberg Ridge is classified as a Class 2 Ridge (GDARD 2019 Hills and Ridges Policy). Class 2 ridges include ridges of which more than 5%, but less than 35%, of their surface area has been converted to urban development, quarries and/or alien vegetation. The consolidation of properties on Class 2 ridges is supported. The western part of the Bronberg Ridge runs east-west up to Solomon Mahlangu Drive, but east of Solomon Mahlangu Drive, the Ridge is orientated northwest-southeast. At Solomon Mahlangu Drive there is a shallow valley or plain between the western and eastern parts of the Ridge. The large double-carriage M10 Main Road (Solomon Mahlangu Drive) transects the ridge area through this plain. The proclaimed Wapadrand Country Estates, consisting of five Erven, is located directly on Solomon Mahlangu Drive. The adjacent residential areas are well developed. Erf 350 stretches from Solomon Mahlangu Drive north-westwards over the plains area and up the south-facing slope to the top of the Bronberg Ridge. The northern half of the Erf is located within the Bronberg Conservation Area and is excluded from any development. The ecological sensitivity of four of the pant communities that were identified and mapped on the mountain slopes is High, and these areas are excluded from any development. The planned development is restricted to the Historically Disturbed Plains Bushveld below the Bronberg Conservation Area line. The specialist study of the site included the ecology of the site, including the ridge and the plains, the vegetation, flora, fauna, red data taxa for both flora and fauna (including a management plan for the Juliana's Golden Mole), critical biodiversity areas, screening tool assessment, ecological sensitivity, threatened and protected taxa for both flora and fauna, alien invasive plant species and drainage line and wetlands, risk assessment and impact assessment. To conclude, the entire ridge area is regarded as ecologically sensitive, protected and excluded from the proposed development. The plains area is, on the contrary, historically disturbed, of much lower ecological sensitivity and is regarded as suitable for the proposed development'. PLEASE SEE THE DETAILED SLOPE DELINEATION MAP UNDERNEATH FOR THE SITE i.e: *FIGURE 1: SLOPE DELINEATION MAP for PORTION 350 of the FARM THE WILLOWS 340-JR*
Gauteng Environmental Management Framework, THE DEVELOPMENT OF THE PROVINCIAL ENVIRONMENTAL MANAGEMENT FRAMEWORK (EMF) FOR GAUTENG - Draft Environmental Management Framework Report August 2014 - Produced by the Environomics Project Team, including: Environomics MetroGis EnviroGIS David Hoare Consulting NRM Consultin – and, GDARD's Gauteng Environmental Management Framework (GPEMF) Report, November 2018.	The objective of the GPEMF is to guide sustainable land use management within the Gauteng Province. The whole site falls within the GEMF as ZONE 2 High control Zone (inside Zone 1). Which are compatible with proposed activity. Intention Sensitive areas within the urban development zone must be conserved and where linear development (roads etc.) cannot avoid these areas, a proper assessment and implementation of alternatives must be undertaken. Composition o Sensitive areas within the Urban Development Zone include: o Conservation priority areas (CBAs: Irreplaceable areas); o Rivers (including 32m buffers); o Ridges; o Areas that are sensitive (as determined in the sensitivity assessment); and o Protected areas. Conservation is the primary objective in this zone and no new residential, retail, business, commercial, industrial or any other land use, with the exception of unavoidable linear service infrastructure, may be allowed in this area. The illustration of the GPEMF can be found in APPENDIX I.
The GAUTENG Transport Infrastructure Act, 2001.	The Act was created to consolidate the laws relating to roads and other types of transport infrastructure in Gauteng; and to provide for the planning, design, development, construction, financing, management, control, maintenance, protection and rehabilitation of provincial roads, railway lines and other transport infrastructure in Gauteng; and to provide for matters connected therewith.
Local Authority Notices	
City of Tshwane Integrated Development	The proposed land use rights of the proposed township are in accordance with the

Plan (2021/2026).	proposals of the Integrated Development Plan (IDP), which earmarks the area for agricultural uses – which allows for a single residence to be developed on the site. The IDP is intended to provide strategic direction and operational planning for the City for the term of office. The constitution of the Republic of South Africa, 1996 commits the government to take reasonable measures, within its available resources, to ensure that all South Africans have access to adequate housing, healthcare, education, food, water and social security. In order to realise the above, Chapter 5 of the Local Government: Municipal Systems Act, 2000 (Act 32 of 2000) states that a municipality must undertake developmentally oriented planning in the form of integrated development planning to ensure that it achieves the objectives of local government as set out in the Constitution. It must further give effect to its development duties as required by Section 153 of the constitution.
City of Tshwane Noise Management Policy	According to the acceptable noise levels the maximum acceptable noise levels in a rural area is 45dBA.
THE METROPOLITAN SPATIAL DEVELOPMENT FRAMEWORK (MSDF) 2012 & the Tshwane Spatial Development Framework (SDF) for Region 6	The purpose of the MSDF is to provide a spatial representation of the City Vision and to be a tool to integrate all aspects of spatial planning. The MSDF represents the spatial interpretation of desired growth and development directions for the City. It spatially focuses economic and infrastructure development and gives spatial expression key development plans. The Spatial Development Framework (SDF) focuses on specific spatially targeted areas in the City. It is aligned to national initiatives such as the Urban Network Strategy and requirements for the built environment performance plan (BEPP). There is a need to thus focus on the legislative framework and the alignment of plans between all three spheres of government. Urban densification is seen as an important part of the spatial restructuring of the Tshwane Metropolitan area. This concept relates to: (1) An increase in the levels of access to goods, employment opportunities and public transport systems; (2) Viability of public transport systems; and (3) Optimal usage of land as a scarce resource. The *Tshwane Spatial Development Framework* for Region 6, specifically highlights the importance of infill development and compacting establishments. ▪ Most of the other erven within the surroundings townships have already been developed for residential purposes. There is still a great need for additional housing in the area. Thus, the potential of this large vacant property was seen by the developer as an opportunity to create one more dwelling house. ▪ The proposed residential dwellings on the portion will help in the need for additional housing in the area to some extent. ▪ Considering how much the neighbourhood is transforming, application will not adversely affect the surrounding area, which is showing some significant signs of change in favour of densification and mixed land use developments. ▪ The proposed investment will certainly continue to contribute to rejuvenation and enhancement of the locality through the construction of additional dwelling houses. This development does not impose any illegal use on the area as it is in line with various municipal policies as earlier discussed. ▪ The application site currently obtains safe and direct access via a right of way servitude adjoining Koedoeberg Road, as well as from Wapadrand via Briekslinger Place. Access to the site is thus possible from two directions. ▪ The property is centrally located and easily accessible from the major routes within the area, including the provincial roads. Land within this area that can be developed for residential purposes with good accessibility may be considered a scarce resource and it is therefore important to determine the development potential of land within the area and to apply for land use rights in accordance with the development potential. ▪ The proposed application will have no impact on current traffic levels, no strain on current traffic levels is foreseen. ▪ The application site is also well served by public transport. Public transport facilities are situated within walking distance from the application site. ▪ According to the Tshwane Regional Spatial Development Frameworks the application is earmarked for residential uses and can therefore be seen as being consistent with spatial planning and land use policies. ▪ The proposed development will be designed to be in keeping with the architectural styles of the area. The proposed development will also take into account conditions imposed for the area. ▪ The proposed development will comply with all of the requirements from an Architectural and design perspective and will conform with the requirements in terms of SANS 10040. ▪ The area is characterised by mixed use areas and will be in line with this aesthetic of the existing urban environment. The design and materials used for the building will be of the highest quality and will fit with the design of the area.

	▪ The proposed development stimulates economic growth by providing taxable residential property, thereby creating additional revenue for the CTMM and adding buying power to the local economy. ▪ The proposed development will enhance the image of the area by developing vacant land which has been neglected.
The City of Tshwane Metropolitan Municipality Clause 14(10) of the Tshwane Town-Planning Scheme, 2008 for permission for a second dwelling house (Revised 2014).	The application for permission in terms of the *City of Tshwane Metropolitan Municipality Clause 14(10) of the Tshwane Town-Planning Scheme, 2008* in respect of Portions 349 of the Farm the Willows 340 JR for the erection of one additional dwelling-house respectively, was approved on the 6th of February 2019. A copy of the permission can be found in APPENDIX I.
Tshwane Open Space Framework (TOSF) 2005.	In terms of the letter (i.e. dated 12/11/2020) forwarded to the applicant of the said site from the CITY OF TSWHANE: ENVIRONMENTAL PLANNING & OPEN SPACE MANAGEMENT - the subject property is affected by the following open space typologies i.t.o. the CITY OF TSHWANE OPEN SPACE FRAMEWORK (TOSF) 2005i.e: [PLEASE NOTE: that no watercourses, wetlands and/or dams are present on site, and was verified by the following specialist's report attached in APPENDIX G i.e: *'An assessment of vegetation, flora, vertebrate fauna and wetlands on Erf 350 of the Farm The Willows 340 JR, City of Tshwane, Gauteng. By G.J. Bredenkamp D.Sc. Pr.Sci.Nat. J.P.C. van Wyk M.Sc. Pr.Sci.Nat. C.E. Venter M.Sc. Pr.Sci.Nat. Commissioned by Pierre Joubert Landscape Architect and Environmental Planner [EcoAgent CC PO Box 25533 Monument Park 0181. Tel 012 4602525. Cell 082 5767046. March 2021]).* • Green node/way, namely Bronberg Ridge: Ecological structuring elements within the Tshwane Open Space network and must be conserved. No development on the following sites without environmental impact assessment: o Class 1,2,3 and 4 ridges; o Protected areas; o Irreplaceable, Important and High Ecological Sensitivity Site. [PLEASE NOTE: that the following specialist's report discussed the relevancy of the above-mentioned in detail attached in APPENDIX G i.e: *'An assessment of vegetation, flora, vertebrate fauna and wetlands on Erf 350 of the Farm The Willows 340 JR, City of Tshwane, Gauteng. By G.J. Bredenkamp D.Sc. Pr.Sci.Nat. J.P.C. van Wyk M.Sc. Pr.Sci.Nat. C.E. Venter M.Sc. Pr.Sci.Nat. Commissioned by Pierre Joubert Landscape Architect and Environmental Planner [EcoAgent CC PO Box 25533 Monument Park 0181. Tel 012 4602525. Cell 082 5767046. March 2021]).*
Bioregional Plan for the City of Tshwane.(2016).	The purpose of a bioregional plan is to inform land use planning, environmental assessment and authorisations, and natural resource management by a range of sectors whose policies and decisions have an impact on biodiversity. The information is provided by means of a map of biodiversity priority areas, referred to as "critical biodiversity areas" and "ecological support areas", accompanied by land use planning and decision-making guidelines. In terms of the letter (i.e. dated 12/11/2020) forwarded to the applicant of the said site from the CITY OF TSWHANE: ENVIRONMENTAL PLANNING & OPEN SPACE MANAGEMENT regarding the *Bioregional Plan for the City of Tshwane,* the subject site is affected by the following ecologically sensitive spaces, places or objects: • Critical Biodiversity Area 1 – Irreplaceable area with confirmed Red listed plants, Red listed plant habitat, Orange listed Plant habitat, Red listed Mammal habitat and Primary vegetation. [PLEASE NOTE: that the following specialist's report discussed the relevancy of the above-mentioned in detail attached in APPENDIX G i.e: *'An assessment of vegetation, flora, vertebrate fauna and wetlands on Erf 350 of the Farm The Willows 340 JR, City of Tshwane, Gauteng. By G.J. Bredenkamp D.Sc. Pr.Sci.Nat. J.P.C. van Wyk M.Sc. Pr.Sci.Nat. C.E. Venter M.Sc. Pr.Sci.Nat. Commissioned by Pierre Joubert Landscape Architect and Environmental Planner [EcoAgent CC PO Box 25533 Monument Park 0181. Tel 012 4602525. Cell 082 5767046. March 2021]).*

ACTIVITIES APPLIED FOR:

NATIONAL ENVIRONMENTAL MANAGEMENT ACT, No. 107 of 1998 (NEMA):

The proposed activity requires a Basic Assessment to be undertaken in compliance with the regulatory requirements of the NEMA Environmental Impact Assessment Regulations 2014 (as Amended) - 7 April 2017: Listing notice GN. R324 – due to the following activities being triggered i.e:

Indicate the number of the relevant Government Notice:	**Activity No (s) (relevant notice): e.g. Listing notices 1, 2 or 3**	**Describe each listed activity as per the wording in the listing notices:**
GN. R324, 7	**3.(12)**	*The clearance of an area of 300 square metres or more of indigenous*

April 2017		*vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.* *c. Gauteng* *i. Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004;* *ii. Within Critical Biodiversity Areas or Ecological Support Areas identified in the Gauteng Conservation Plan or bioregional plans; or -* *iii. On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning'.*
	The developer proposes a RESIDENCE to be constructed on Portion 350 of the FARM THE WILLOWS 340-JR (City of Tshwane Metropolitan Municipality, Gauteng) which will consist of the following i.e: • Size of site = 1,0736.46ha (10736,46m²). • Size of Proposed development (i.e. activity) footprint: o Buildings + Driveways + Paving (hard surfaces) = 1134.49 m² o Local Indigenous Landscaping area = 4392.51m². ▪ TOTAL PROPOSED DEVELOPMENT FOOTPRINT = ± 5527 m². **An area of more than 300 square meters of indigenous vegetation is proposed to be cleared.**	
GN. R324, 7 April 2017.	**3.(15)**	***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.*** ***b. Gauteng*** ***i. All areas'.***
	The developer proposes two RESIDENCES to be constructed on Portion 350 of the FARM THE WILLOWS 340-JR (City of Tshwane Metropolitan Municipality, Gauteng) which will consist of the following i.e: • Size of site = 1,0736.46ha (10736,46m²). • Size of Proposed development (i.e. activity) footprint: o Buildings + Driveways + Paving (hard surfaces) = 1134.49 m² o Local Indigenous Landscaping area = 4392.51m². ▪ TOTAL PROPOSED DEVELOPMENT FOOTPRINT = ± 5527 m². **Land of more than 1000 square meters in size is proposed to be transformed too residential.**	

3. ALTERNATIVES

Describe the proposal and alternatives that are considered in this application. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity could be accomplished. The determination of whether the site or activity (including different processes etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment. The no-go option must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed. **Do not** include the no-go option into the alternative table below. **Note:** After receipt of this report the competent authority may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent. Please describe the process followed to reach (decide on) the list of alternatives below.

Provide a description of the alternatives considered

No.	**Alternative type**, either alternative: site on property, properties, activity, design, technology, energy, operational or other(provide details of "other")	**Description**
1	**PROPOSAL:**	**1.0 LOCALITY**

	Preferred Layout Plan*:* *(i.e. Preferred development proposal)*	The site is situated in the eastern part of the City of Tshwane Metropolitan Municipal area of jurisdiction. The application site is situated at an unnamed road (i.e. not as yet named by the Local Municipality since it's a private road in the current WAPADRAND COUNTRY ESTATE), which runs parallel to Solomon Mahlangu Drive, The Willows in Pretoria - and is currently described as i.e. Portion 350 of the FARM THE WILLOWS 340-JR. This property obtains access via a right of way servitude which connects with Koedoeberg Road. From there on the property is very easily accessible from main routes such Solomon Mahlangu and Lynnwood Road. The Grove Mall is approximately 4km from the application site and Atterbury Value Mart Shopping Centre is about 3km from the application site. Other sites, such as Makro, Hazeldean square, Six Fountains Lifestyle Centre and Atterbury Pick & Pay are all located in a radius of 4 km from the application site. Schools such as Tygerpoort Primary School, Tyger Valley College, Hoërskool Garsfontein, Doxa Deo College and some crèches are all located within 5 km of the property. PLEASE SEE LOCALITY PLANS attached in APPENDIX A. **2.0 PROPOSED DEVELOPOMENT:** Two residences are proposed to be constructed on Portion 350 of the FARM THE WILLOWS 340-JR (City of Tshwane Metropolitan Municipality, Gauteng) which will consist of the following i.e: • Size of site = 1,0736.46ha (10736,46m²). • Size of Proposed development (i.e. activity) footprint: o Buildings + Driveways + Paving (hard surfaces) = 1134.49 m² o Local Indigenous Landscaping area = 4392.51m². ▪ TOTAL PROPOSED DEVELOPMENT FOOTPRINT = **± 5527 m².** • The remainder of the site which will not be developed but remain 'as is' since it falls within the designated 'conservation area' i.e the *'Bronberg Conservation Area',* of the City of Tshwane Metropolitan Municipality = 5209.46 m². • Date of Ownership of site: December 2017. The two proposed residences are proposed to be constructed outside of the designated 'conservation area' i.e the *'Bronberg Conservation Area',* of the City of Tshwane Metropolitan Municipality – and are as follows i.e: • predominantly (i.e. the largest portion) the main residence on a portion of the northwestern portion of the site; – and, • the second dwelling on the central-southern portion of the site. PLEASE SEE DETAILED ARCHITECT'S PROPOSED FACILITY ILLUSTRATION in APPENDIX C. **3.0 ZONING, LAND USE & SURROUNDING LAND USES** The application site is zoned "Agricultural" in terms of the Tshwane Town-planning Scheme, 2008. The purposes for which buildings may be erected and used are for agriculture, farm stall and one dwelling house. In terms of the

		current zoning a second dwelling house may be applied for in terms of Clause 14(10) of the Tshwane Town-planning Scheme, 2008. Such an application i.e. for a second dwelling house, was submitted and approved by *'CITY OF TSHWANE: Economic Development and Spatial Planning'* [i.e. dated: 6 February 2019 / Ref#: CPD 340-JR/0668/351 (Item no. 20709)]'. A copy of the approval can be found in APPENDIX I. Land Use The application site was still vacant by the date on which this application was launched and submitted to the City of Tshwane Metropolitan Municipality. Accessibility The application site currently obtains safe and direct access via a right of way servitude adjoining Koedoeberg Road, as well as from Wapadrand via Briekslinger Place. Access to the site is thus possible from two directions. The property is centrally located and easily accessible from the major routes within the area, including the provincial roads. Land within this area that can be developed for residential purposes with good accessibility may be considered a scarce resource and it is therefore important to determine the development potential of land within the area and to apply for land use rights in accordance with the development potential. New Road Networks According to our knowledge and information available, will the subject property not be influenced or affected by any new proposed road network in the area. The property lies within an existing township, which has already been developed. Thus, it is highly unlikely that major road networks were planned over the erf, if the township has already been developed. **4.0 CIVIL INFRASTRUCTURE ANALYSIS** Engineering Services The subject property is situated adjacent to already established townships in Pretoria i.e. Faerie Glen and Wapadrand, which obtain their services, such as:- roads, stormwater, water, electricity and sewerage from the City of Tshwane Metropolitan Municipality. The property under application has been serviced with water, sewer and electrical engineering services for the development of one dwelling house. Should the services require to be upgraded the necessary design will be done by the consultant's engineers. Services to the proposed development will thus also be obtained from the City of Tshwane Metropolitan Municipality.
2	**Alternative# 1 Layout Plan:**	**1.0 LOCALITY** The site is situated in the eastern part of the City of Tshwane Metropolitan Municipal area of jurisdiction. The application site is situated at an unnamed road (i.e. not as yet named by the Local Municipality since it's a private road in the current WAPADRAND COUNTRY ESTATE), which runs parallel to Solomon Mahlangu Drive, The Willows in Pretoria - and is currently described as i.e. Portion 350 of the FARM

THE WILLOWS 340-JR. This property obtains access via a right of way servitude which connects with Koedoeberg Road. From there on the property is very easily accessible from main routes such Solomon Mahlangu and Lynnwood Road. The Grove Mall is approximately 4km from the application site and Atterbury Value Mart Shopping Centre is about 3km from the application site. Other sites, such as Makro, Hazeldean square, Six Fountains Lifestyle Centre and Atterbury Pick & Pay are all located in a radius of 4 km from the application site. Schools such as Tygerpoort Primary School, Tyger Valley College, Hoërskool Garsfontein, Doxa Deo College and some crèches are all located within 5 km of the property.

PLEASE SEE LOCALITY PLANS attached in APPENDIX A.

2.0 PROPOSED DEVELOPOMENT:

Two residences are proposed to be constructed on Portion 350 of the FARM THE WILLOWS 340-JR (City of Tshwane Metropolitan Municipality, Gauteng) which will consist of the following i.e:

- Size of site = 1,0736.46ha (10736,46m²).
- Size of Proposed development (i.e. activity) footprint:
    - Buildings + Driveways + Paving (hard surfaces) = 2333.27 m²
    - Local Indigenous Landscaping area = 3192.39m².
        - TOTAL PROPOSED DEVELOPMENT FOOTPRINT = **± 5526 m².**
- The remainder of the site which will not be developed but remain 'as is' since it falls within the designated 'conservation area' i.e the *'Bronberg Conservation Area',* of the City of Tshwane Metropolitan Municipality = 5210.46 m².
- Date of Ownership of site: December 2017.

The two proposed residences are proposed to be constructed outside of the designated 'conservation area' i.e the *'Bronberg Conservation Area',* of the City of Tshwane Metropolitan Municipality – and are as follows i.e:

- predominantly (i.e. the largest portion) the main residence on almost the entire area of the northern portion of the site;
  – and,
- the second dwelling on the southern portion of the site.

PLEASE SEE DETAILED ARCHITECT'S PROPOSED FACILITY ILLUSTRATION in APPENDIX C.

3.0 ZONING, LAND USE & SURROUNDING LAND USES

The application site is zoned "Agricultural" in terms of the Tshwane Town-planning Scheme, 2008. The purposes for which buildings may be erected and used are for agriculture, farm stall and one dwelling house. In terms of the current zoning a second dwelling house may be applied for in terms of Clause 14(10) of the Tshwane Town-planning Scheme, 2008. Such an application i.e. for a second dwelling house, was submitted and approved by *'CITY OF TSHWANE: Economic Development and Spatial Planning'* [i.e. dated: 6 February 2019 / Ref#: CPD 340-JR/0668/351 (Item no. 20709)]'. A copy of the approval can be found in APPENDIX I.

<u>Land Use</u>

The application site was still vacant by the date on which this application was

		launched and submitted to the City of Tshwane Metropolitan Municipality. Accessibility The application site currently obtains safe and direct access via a right of way servitude adjoining Koedoeberg Road, as well as from Wapadrand via Briekslinger Place. Access to the site is thus possible from two directions. The property is centrally located and easily accessible from the major routes within the area, including the provincial roads. Land within this area that can be developed for residential purposes with good accessibility may be considered a scarce resource and it is therefore important to determine the development potential of land within the area and to apply for land use rights in accordance with the development potential. New Road Networks According to our knowledge and information available, will the subject property not be influenced or affected by any new proposed road network in the area. The property lies within an existing township, which has already been developed. Thus, it is highly unlikely that major road networks were planned over the erf, if the township has already been developed. **5.0 CIVIL INFRASTRUCTURE ANALYSIS** Engineering Services The subject property is situated adjacent to already established townships in Pretoria i.e. Faerie Glen and Wapadrand, which obtain their services, such as:- roads, stormwater, water, electricity and sewerage from the City of Tshwane Metropolitan Municipality. The property under application has been serviced with water, sewer and electrical engineering services for the development of one dwelling house. Should the services require to be upgraded the necessary design will be done by the consultant's engineers. Services to the proposed development will thus also be obtained from the City of Tshwane Metropolitan Municipality.

In the event that no alternative(s) has/have been provided, a motivation must be included in the table below.

4. PHYSICAL SIZE OF THE ACTIVITY

Indicate the total physical size (footprint) of the proposal as well as alternatives. Footprints are to include all new infrastructure (roads, services etc), impermeable surfaces and landscaped areas:

	Size of the activity:
Proposed activity *(Total environmental (landscaping, parking, etc.)* ***and the building footprint)***	**0,5527 ha (5527m²)**
Alternatives:	
Alternative 1:	**0,5526 ha (5526m²)**

or, for linear activities:

	Length of the activity:
Proposed activity	n.a.
Alternatives:	
Alternative 1 (if any)	n.a.
Alternative 2 (if any)	n.a.

m/km

Indicate the size of the site(s) or servitudes (within which the above footprints will occur):

	Size of the site/servitude:
Proposed activity	**1,0736.46ha 10736,46m²)**
Alternatives:	
Alternative 1:	**1,0736.46ha 10736,46m²)**

5. SITE ACCESS

Proposal

Does ready access to the site exist, or is access directly from an existing road?	**YES**	~~NO~~
If NO, what is the distance over which a new access road will be built		m

Describe the type of access road planned:

N.a. since access is directly from an existing road.

Include the position of the access road on the site plan (if the access road is to traverse a sensitive feature the impact thereof must be included in the assessment).

Alternative 1

Does ready access to the site exist, or is access directly from an existing road?	**YES**	~~NO~~
If NO, what is the distance over which a new access road will be built		m

Describe the type of access road planned:

N.a. since access is directly from an existing road.

Include the position of the access road on the site plan. (if the access road is to traverse a sensitive feature the impact thereof must be included in the assessment).

PLEASE NOTE: Points 6 to 8 of Section A must be duplicated where relevant for alternatives.

Section A 6-8 has been duplicated ☐ Number of times

(only complete when applicable).

6. LAYOUT OR ROUTE PLAN

A detailed site or route (for linear activities) plan(s) must be prepared for each alternative site or alternative activity. It must be attached to this document. The site or route plans must indicate the following:

- the layout plan is printed in colour and is overlaid with a sensitivity map (if applicable);
- layout plan is of acceptable paper size and scale, e.g.
  - A4 size for activities with development footprint of 10sqm to 5 hectares;
  - A3 size for activities with development footprint of > 5 hectares to 20 hectares;
  - A2 size for activities with development footprint of >20 hectares to 50 hectares);
  - A1 size for activities with development footprint of >50 hectares);
- The following should serve as a guide for scale issues on the layout plan:
  - A0 = 1: 500
  - A1 = 1: 1000
  - A2 = 1: 2000
  - A3 = 1: 4000
  - A4 = 1: 8000 (±10 000)
- shapefiles of the activity must be included in the electronic submission on the CD's;
- the property boundaries and Surveyor General numbers of all the properties within 50m of the site;
- the exact position of each element of the activity as well as any other structures on the site;
- the position of services, including electricity supply cables (indicate above or underground), water supply pipelines, boreholes, sewage pipelines, septic tanks, storm water infrastructure;
- servitudes indicating the purpose of the servitude;
- sensitive environmental elements on and within 100m of the site or sites (including the relevant buffers as prescribed by the competent authority) including (but not limited thereto):
  - Rivers and wetlands;
  - the 1:100 and 1:50 year flood line;
  - ridges;
  - cultural and historical features;
  - areas with indigenous vegetation (even if it is degraded or infested with alien species);
- Where a watercourse is located on the site at least one cross section of the water course must be included (to allow the position of the relevant buffer from the bank to be clearly indicated)

FOR LOCALITY MAP (NOTE THIS IS ALSO INCLUDED IN THE APPLICATION FORM REQUIREMENTS)

- the scale of locality map must be at least 1:50 000. For linear activities of more than 25 kilometres, a smaller scale e.g. 1:250 000 can be used. The scale must be indicated on the map;
- the locality map and all other maps must be in colour;
- locality map must show property boundaries and numbers within 100m of the site, and for poultry and/or piggery, locality map must show properties within 500m and prevailing or predominant wind direction;
- for gentle slopes the 1m contour intervals must be indicated on the map and whenever the slope of the site exceeds 1:10, the 500mm contours must be indicated on the map;
- areas with indigenous vegetation (even if it is degraded or infested with alien species);
- locality map must show exact position of development site or sites;
- locality map showing and identifying (if possible) public and access roads; and
- the current land use as well as the land use zoning of each of the properties adjoining the site or sites.

7. SITE PHOTOGRAPHS

Colour photographs from the center of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached under the appropriate Appendix**.** It should be supplemented with additional photographs of relevant features on the site, where applicable.

8. FACILITY ILLUSTRATION

A detailed illustration of the activity must be provided at a scale of 1:200 for activities that include structures. The illustrations must be to scale and must represent a realistic image of the planned activity. The illustration must give a representative view of the activity to be attached in the appropriate Appendix.

SECTION B: DESCRIPTION OF RECEIVING ENVIRONMENT

Note: Complete Section B for the proposal and alternative(s) (if necessary)

Instructions for completion of Section B for linear activities

1) For linear activities (pipelines etc) it may be necessary to complete Section B for each section of the site that has a significantly different environment.

2) Indicate on a plan(s) the different environments identified
3) Complete Section B for each of the above areas identified
4) Attach to this form in a chronological order
5) Each copy of Section B must clearly indicate the corresponding sections of the route at the top of the next page.

Section B has been duplicated for sections of the route **"insert No. of duplicates"** times

Instructions for completion of Section B for location/route alternatives

1) For each location/route alternative identified the entire Section B needs to be completed
2) Each alterative location/route needs to be clearly indicated at the top of the next page
3) Attach the above documents in a chronological order

Section B has been duplicated for location/route alternatives **"insert No. of duplicates"** times (complete only when appropriate)

Instructions for completion of Section B when both location/route alternatives and linear activities are applicable for the application

Section B is to be completed and attachments order in the following way

- All significantly different environments identified for Alternative 1 is to be completed and attached in a chronological order; then
- All significantly different environments identified for Alternative 2 is to be completed and attached chronological order, etc.

Section B - Section of Route ☐ (complete only when appropriate for above)
Section B – Location/route Alternative No. ☐ (complete only when appropriate for above)

1. PROPERTY DESCRIPTION

Property description: (Including Physical Address and Farm name, portion etc.)	**Portion 350 of the FARM THE WILLOWS 340-JR - City of Tshwane Metropolitan Municipality.**

2. ACTIVITY POSITION

Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in decimal degrees. The degrees should have at least six decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

	Latitude (S):	Longitude (E):
Proposal:	**25° 46' 51.3170"**	**28° 20' 04.3926"**
Alternative 1:	**25° 46' 51.3170"**	**28° 20' 04.3926"**

In the case of linear activities:
Alternative:

- Starting point of the activity
- Middle point of the activity
- End point of the activity

Latitude (S):	Longitude (E):
°	°
°	°
°	°

For route alternatives that are longer than 500m, please provide co-ordinates taken every 250 meters along the route and attached in the appropriate Appendix
Addendum of route alternatives attached ☐

The 21 digit Surveyor General code of each cadastral land parcel

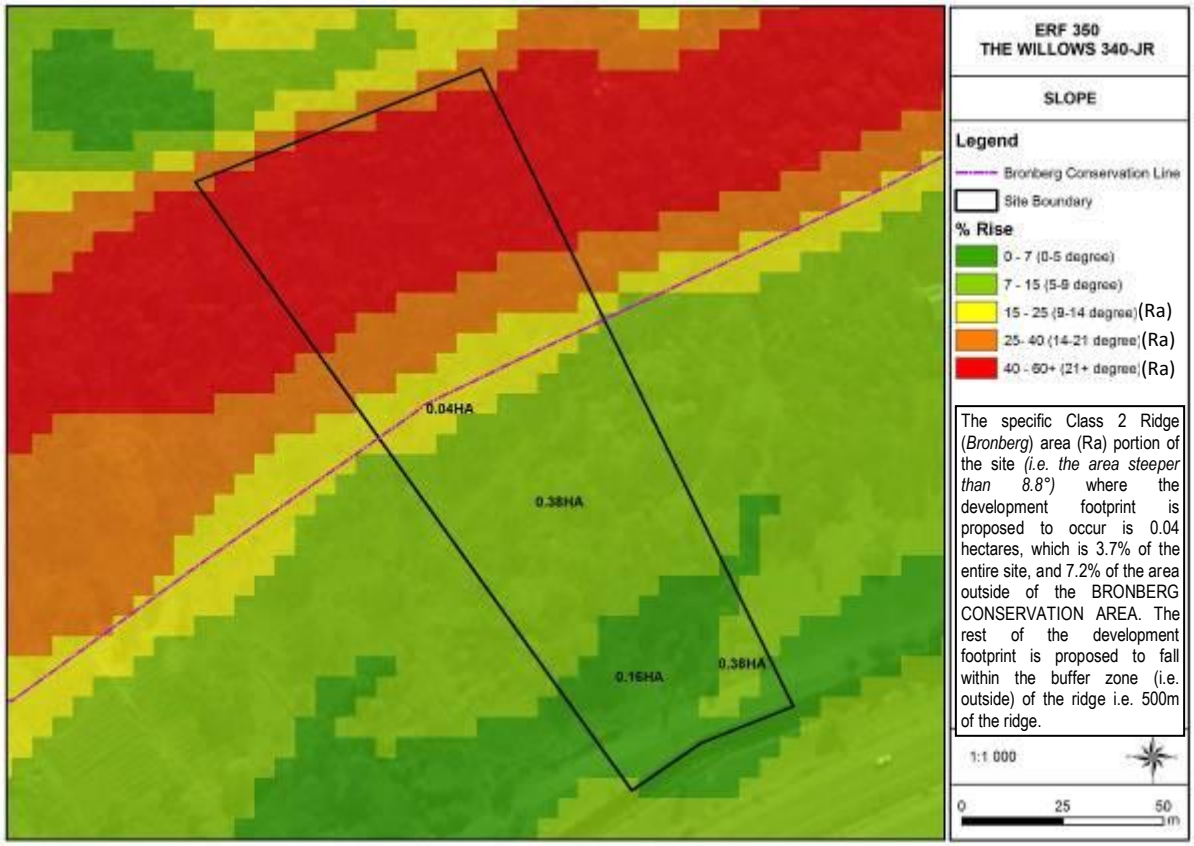
PROPOSAL	**T**	**O**	**J**	**R**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**4**	**0**	**0**	**0**	**3**	**5**	**0**
ALT. 1	**T**	**O**	**J**	**R**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**4**	**0**	**0**	**0**	**3**	**5**	**0**

3. GRADIENT OF THE SITE

Indicate the general gradient of the site.

~~Flat~~	~~1:50 – 1:20~~	~~1:20 – 1:15~~	**1:15 – 1:10**	**1:10 – 1:7,5**	~~1:7,5 – 1:5~~	~~Steeper than 1:5~~

FIGURE 1: SLOPE DELINEATION MAP for PORTION 350 of the FARM THE WILLOWS 340-JR (Preferred & Alternative#1):



4. LOCATION IN LANDSCAPE

Indicate the landform(s) that best describes the site.

~~Ridgeline~~	~~Plateau~~	**Side slope of hill/ridge**	~~Valley~~	~~Plain~~	~~Undulating plain/low hills~~	~~River front~~	

5. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

a) Is the site located on any of the following?

Shallow water table (less than 1.5m deep)	~~YES~~	**NO**
Dolomite, sinkhole or doline areas	~~YES~~	**NO**
Seasonally wet soils (often close to water bodies)	~~YES~~	**NO**
Unstable rocky slopes or steep slopes with loose soil	~~YES~~	**NO**
Dispersive soils (soils that dissolve in water)	~~YES~~	**NO**
Soils with high clay content (clay fraction more than 40%)	~~YES~~	**NO**
Any other unstable soil or geological feature	~~YES~~	**NO**
An area sensitive to erosion	~~YES~~	**NO**

(Information in respect of the above will often be available at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by Geological Survey may also be used).

b) are any caves located on the site(s) YES **NO**

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

Latitude (S):	**Longitude (E):**
°	°

c) are any caves located within a 300m radius of the site(s) YES **NO**

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

Latitude (S):	**Longitude (E):**
°	°

d) are any sinkholes located within a 300m radius of the site(s) YES **NO**

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

Latitude (S):	**Longitude (E):**
°	°

If any of the answers to the above are "YES" or "unsure", specialist input may be requested by the Department

6. AGRICULTURE

Does the site have high potential agriculture as contemplated in the Gauteng Agricultural Potential Atlas (GAPA 4)? **Please note**: The Department may request specialist input/studies in respect of the above.	YES	**NO**

7. GROUNDCOVER

To be noted that the location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s). Indicate the types of groundcover present on the site and include the estimated percentage found on site

Natural veld - good condition % =	**Natural veld with scattered aliens** **39.3 % = (i.e. 9.4% [Mbr] + 8.4% [Mbl] + 21.5%[Mbm])**	**Natural veld with heavy alien infestation** **2.8 % = [Mbh]**	**Veld dominated by alien species** **50.4% = (i.e. 34.5% [Hdp] + 3.7% [DtH] + 12.2% [DttP] %)**	Landscaped (vegetation) % =
Sport field % =	Cultivated land % =	Hard compacted bare soil & parking area / road surface % =	Building or other structure % =	**Bare soil with alien species** **% = 7.5 [Rca]**

The specialist floral assessment result divided the site into 8 areas (i.e. of the total size of the site = 10736.46m²):

- **Dense Tree veld on Heritage Area [DtH] = ±400 m² (3.7%).**
- **Disturbed Tall Tree veld on Plains [DttP] = ±1300 m² (12.2%).**
- **Historically disturbed plains bushveld [Hdp] = ±3700 m² (34.5%).**
- **Mountain bushveld on lower slopes [Mbl] = ±900 m² (8.4%).**
- **Mountain bushveld on mid slopes [Mbm] = ±2300 m² (21.5%).**
- **Mountain bushveld on the higher slopes [Mbh] = ±300 m² (2.8%).**
- **Mountain bushveld on the south-facing ridge crest [Mbr] = ±1000 m² (9.4%).**
- **Recently cleared areas [Rca] = ±800 m² (7.5%).**

Please note: The Department may request specialist input/studies depending on the nature of the groundcover and potential impact(s) of the proposed activity/ies. PLEASE SEE UNDERNEATH excerpts from the following specialist input/studies (i.e. as fully contained in APPENDIX G) in order to accurately report on the GROUNDCOVER, RARE and/or ENDANGERED FLORA, FAUNA SPECIES, SENSITIVE HABITAT, NATURAL FEATURES on SITE – and within 200m of the site i.e. '*An assessment of vegetation, flora, vertebrate fauna and wetlands on Erf 350 of the Farm The Willows 340 JR, City of Tshwane, Gauteng. By G.J. Bredenkamp D.Sc. Pr.Sci.Nat. J.P.C. van Wyk M.Sc. Pr.Sci.Nat. C.E. Venter M.Sc. Pr.Sci.Nat. Commissioned by Pierre Joubert Landscape Architect and Environmental Planner (EcoAgent CC PO Box 25533 Monument Park 0181. Tel 012 4602525. Cell 082 5767046. March 2021).*'

Are there any rare or endangered flora or fauna species (including red list species) present on the site	**YES**	~~NO~~

If YES, specify and explain:

PLEASE see underneath for the 'specification' and 'explanation'.

Are there any rare or endangered flora or fauna species (including red list species) present within a 200m (if within urban area as defined in the Regulations) or within 600m (if outside the urban area as defined in the Regulations) radius of the site.	**YES**	~~NO~~

If YES, specify and explain:

PLEASE see underneath for the 'specification' and 'explanation'.

Are there any special or sensitive habitats or other natural features present on the site?	**YES**	NO

If YES, specify and explain:

PLEASE see underneath for the 'specification' and 'explanation'.

Was a specialist consulted to assist with completing this section	**YES**	NO

If yes complete specialist details

Name of the specialist:	GJ Bredenkamp, *J.P.C. van Wyk* – and, 2. CE Venter of ***Eco-Agent CC***		
Qualification(s) of the specialist:	DSc PrSciNat MSAIE&ES MGSSA & MSc PrSciNat		
Postal address:	PO Box 23355 Monument Park		
Postal code:	0181		
Telephone:	012 3463180	Cell:	082 5767046
E-mail:	ecoagent@mweb.co.za	Fax:	012 460 2525

Are any further specialist studies recommended by the specialist?	**YES**	NO
If YES, specify:	**Vegetation, Flora, Vertebrate Fauna & Wetlands**	
If YES, is such a report(s) attached?	**YES**	NO

If YES list the specialist reports attached below

"An assessment of vegetation, flora, vertebrate fauna and wetlands on Erf 350 of the Farm The Willows 340 JR, City of Tshwane, Gauteng. By G.J. Bredenkamp D.Sc. Pr.Sci.Nat. J.P.C. van Wyk M.Sc. Pr.Sci.Nat. C.E. Venter M.Sc. Pr.Sci.Nat. Commissioned by Pierre Joubert Landscape Architect and Environmental Planner [EcoAgent CC PO Box 25533 Monument Park 0181. Tel 012 4602525. Cell 082 5767046. March 2021])."

Signature of specialist: _____ Date: March 2021

Please note; If more than one specialist was consulted to assist with the filling in of this section then this table must be appropriately duplicated.

PLEASE SEE UNDERNEATH excerpts from the following specialist input/studies (i.e. as fully contained in APPENDIX G) in order to accurately report on the GROUNDCOVER, RARE and/or ENDANGERED FLORA, FAUNA SPECIES, SENSITIVE HABITAT, NATURAL FEATURES on SITE – and within 200m of the site i.e. *'An assessment of vegetation, flora, vertebrate fauna and wetlands on Erf 350 of the Farm The Willows 340 JR, City of Tshwane, Gauteng. By G.J. Bredenkamp D.Sc. Pr.Sci.Nat. J.P.C. van Wyk M.Sc. Pr.Sci.Nat. C.E. Venter M.Sc. Pr.Sci.Nat. Commissioned by Pierre Joubert Landscape Architect and Environmental Planner (EcoAgent CC PO Box 25533 Monument Park 0181. Tel 012 4602525. Cell 082 5767046. March 2021).'*

"5. RESULTS VEGETATION AND FLORA:

5.1 RESULTS OF THE LITERATURE STUDY AND DATABASE SURVEY

5.1.1 Vegetation Type

The site is situated within the Andesite Mountain Bushveld (SVcb11) vegetation type (Mucina & Rutherford 2012) (Figure 2 below).

Figure 2: All five Erven 348-352 of the Wapadrand Country Estates are located within the Andesite Mountain Bushveld (Mucina & Rutherford 2006).

5.1.2 Threatened Ecosystems

According to Mucina & Rutherford (2012) Andesite Mountain Bushveld as a whole is Least Concern, as about 9% is conserved in large nature reserves such as the Suikerbosrand Nature Reserve, while only about 15% is transformed by

agriculture or urban development. However, SANBI and DEAT (2009) and NEMBA, Government Notice 1002 (2011) indicate that the Bronberg Mountain Bushveld is Critically Endangered. The Andesite Mountain Bushveld therefore enjoys legal protection.

5.1.3 Critical Biodiversity Areas and Ecological Support Areas

In terms of the GDARD (2014) C-Plan 3.3 all Five Erven 348-352 of the Wapadrand Country Estates are located in the Irreplaceable Area. This is mainly because of the presence of or suitable habitat for the Juliana's Golden Mole. This implies that an Environmental Impact Assessment would need to be conducted [i.e. either a scoping and environmental impact reporting process or a Basic Assessment process]. in order to supply adequate information to the relevant authorities to make an informed decision about authorising the proposed development.

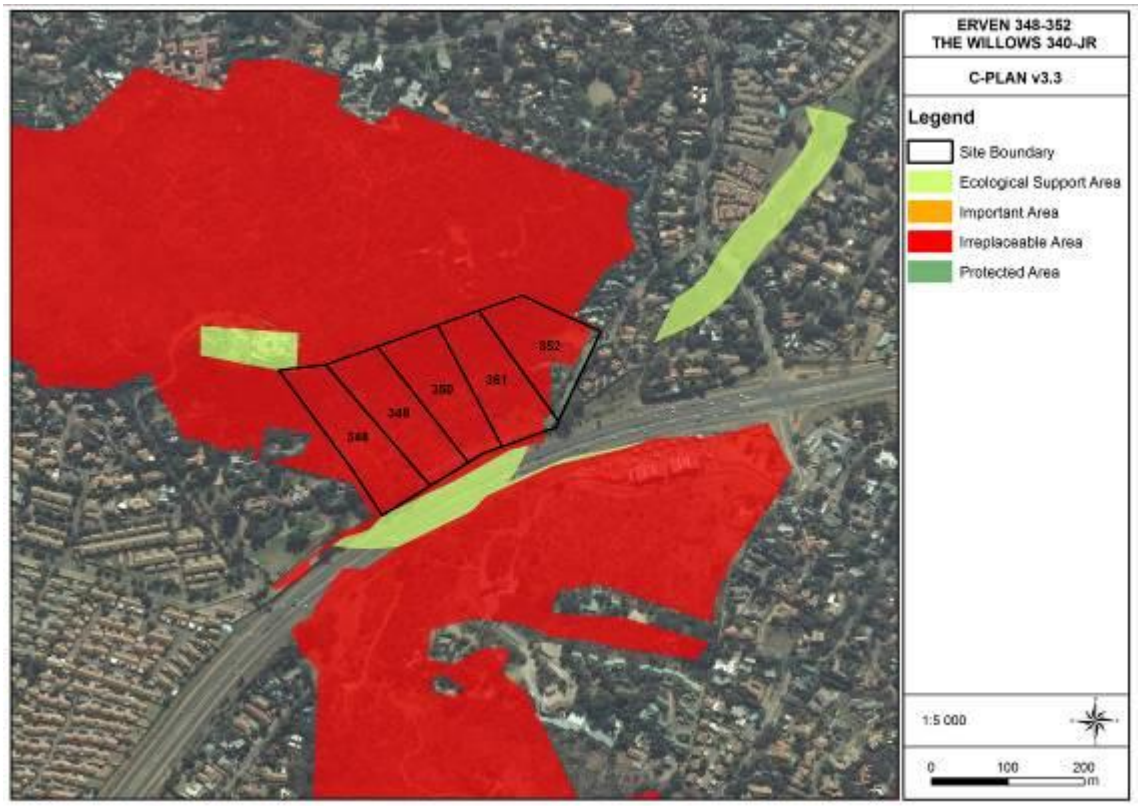


Figure 3: Erven 348-352 Wapadrand Country Estates are located on "Irreplaceable" Critical Biodiversity Areas.

5.1.4 Protected and Conservation Areas

The protected Fairy Glen Nature Reserve is located 3.5 km (as the bird lies) west of the Wapadrand Country Estates. The northern half of the Estate is located within the Bronberg Conservation Area.

5.1.5 Species of Conservation Concern (CCS), Red Listed plant species

Red Data listed plant species and Orange listed plant species (= plant species of conservation concern) are those plants that are important for South Africa's conservation decision making processes. These plants are nationally protected by the National Environmental Management: Biodiversity Act (Raimondo et al, 2009).

Threatened species (Red Data listed species) are those that are facing high risk of extinction, indicated by the categories Critically Endangered (CE), Endangered (EN) and Vulnerable (VU). Species of Conservation Concern include the Threatened Species.

Additionally, the Orange listed categories are Near Threatened (NT), Data Deficient (DD), (DDT = lack of taxonomic data), Critically Rare (CR), Rare (R) and Declining (D). This is in accordance with the new Red List for South African Plants (Raimondo et al. 2009 upgraded on SANBI website).

Lists of Red Data plant species (Raimondo et al 2009) for the Bronberg area were obtained GDARD and SANBI.

GDARD particularly mentioned that the possible presence of *Ceropegia decidua* subspecies *pretoriansis, Eulophia coddii* and *Holothrix randii* must be investigated.

Table 1: List of Red Data plant species for the Bronberg area.

Family	Species	Status	Habitat on site
Amaryllidaceae	*Boophone disticha (L.f.) Herb.*	Declining	Yes, not found
Hyacinthaceae	*Bowiea volubilis Harv. ex Hook.f. subsp. volubilis*	VU	Yes, not found
Orchidaceae	*Brachycorythis conica (Summerh.) Summerh. subsp. transvaalensis Summerh.*	EN	Doubtful
Asteraceae	*Callilepis leptophylla Harv.*	Declining	No
Apocynaceae	*Ceropegia decidua E.A.Bruce subsp. pretoriensis R.A.Dyer*	VU	Marginally, not found
Amaryllidaceae	*Crinum macowanii Baker*	Declining	No
Gunneraceae	*Gunnera perpensa L.*	Declining	No
Orchidaceae	*Habenaria barbertoni Kraenzl. & Schltr.*	NT	No
Orchidaceae	*Habenaria bicolor Conrath & Kraenzl.*	NT	No
Orchidaceae	*Habenaria kraenzliniana Schltr.*	NT	`Doubtful
Hypoxidaceae	*Hypoxis hemerocallidea Fisch., C.A.Mey. & Avé-Lall.*	Declining	Yes, not found
Aquifoliaceae	*Ilex mitis (L.) Radlk. var. mitis*	Declining	No
Anacardiaceae	*Searsia gracillima (Engl.) Moffett var. gracillima*	NT	No
Apocynaceae	*Stenostelma umbelluliferum (Schltr.) S.P.Bester & Nicholas*	NT	No

There is suitable habitat for *Boophane disticha* and *Hypoxis hemerocallidea* on the plains area of the site, however none of these generally widespread and not rare species were noted, probably due to the fairly disturbed nature of this area. There is also suitable habitat on the hillslope for *Bowiea volubilis*, though due to the very dense vegetation and dominance of the alien invasive Lantana camara, access for a more detailed search is not possible. The hillslope habitats on the site are also only marginally suitable for *Ceropegia decidua*. As no development will occur on the hillslope, all plant species that may occur here will be safe and protected. None of the listed species of conservation concern were noted on Erf 350 Wapadrand Country Estates. The current vegetation on the hillslope is primary indigenous mountain bushveld, though it is severely encroached by particularly Category 1b Alien and Invasive plant species Lantana camara while some individuals of other Alien Invasive plant species are also present. This invasion of Alien Invasive plant species resulted in loss of habitat for some Red Data plant species.

5.1.6 NEMBA / TOPS plant species

These species are evaluated against the list published in Department of Environmental Affairs and Tourism Notice No. 2007, Government Gazette 574 of 2013 and Notice 256 of 2015 and National Environmental Management: Biodiversity Act (NEMBA), 2004 (Act 10 of 2004). No NEMBA/TOPS plant species occur on the site

5.1.7 Nationally Protected Trees

The National Forest Act, 1998 (Act No. 84 of 1998) enforces the protection of several indigenous trees. The removal, thinning or relocation of protected trees will require a permit from the Department of Agriculture, Forestry and Fisheries (DAFF) (Notice of the List of Protected Tree Species under the National Forests Act, 1998, Notice 835, Government Gazette 39741, No 19, 29 August 2014).

Individuals of *Pittosporum viridiflorum* (Cheesewood) were found high up on the south-east facing hillslope close to the northern boundary fence. The trees were in good condition. As no development will occur on the hillslope, all plant species that may occur here will be safe and protected.

5.1.8 Provincially Protected Plants

Provincially protected plant species that were found on the hillslope are *Aloe pretoriensis, Scadoxis puniceus* and *Haemanthus humilis subsp hirsutus*. As no development will occur on the hillslope, all plant species that may occur here will be safe and protected.

<u>Notes on the Class 2 Ridge:</u>

The Bronberg Ridge is classified as a Class 2 Ridge (GDARD 2019 Hills and Ridges Policy). Class 2 ridges include ridges of which more than 5%, but less than 35%, of their surface area has been converted to urban development, quarries and/or alien vegetation. The consolidation of properties on Class 2 ridges is supported.

The western part of the Bronberg Ridge runs east-west up to Solomon Mahlangu Drive, but east of Solomon Mahlangu Drive, the Ridge is orientated northwest-southeast. At Solomon Mahlangu Drive there is a shallow valley or plain between

the western and eastern parts of the Ridge. The large double-carriage M10 Main Road (Solomon Mahlangu Drive) transects the ridge area through this plain. The proclaimed Wapadrand Country Estates, consisting of five Erven, is located directly on Solomon Mahlangu Drive. The adjacent residential areas are well developed.
Erf 350 stretches from Solomon Mahlangu Drive north-westwards over the plains area and up the south-facing slope to the top of the Bronberg Ridge. The northern half of the Erf is located within the Bronberg Conservation Area and is excluded from any development. The ecological sensitivity of four of the plant communities that were identified and mapped on the mountain slopes is High, and these areas are excluded from any development. The planned development is restricted to the Historically Disturbed Plains Bushveld below the Bronberg Conservation Area line.
The specialist study of the site included the ecology of the site, including the ridge and the plains, the vegetation, flora, fauna, red data taxa for both flora and fauna (including a management plan for the Juliana's Golden Mole), critical biodiversity areas, screening tool assessment, ecological sensitivity, threatened and protected taxa for both flora and fauna, alien invasive plant species and drainage line and wetlands, risk assessment and impact assessment.
To conclude, the entire ridge area is regarded as ecologically sensitive, protected and excluded from the proposed development. The plains area is, on the contrary, historically disturbed, of much lower ecological sensitivity and is regarded as suitable for the proposed development.

5.2 RESULTS OF THE VEGETATION AND FLORA SURVEY

EcoAgent CC was appointed to investigate the biodiversity of all five Erven (Erven 348-352) on the Wapadrand Country Estates property. The vegetation study was based on the vegetation science principle that any plant community has a specific plant species composition that is linked to a specific habitat (set of environmental / ecologic variables) and that this specific plant species composition is by large similar at various plots within the plant community. Of course, some smaller variations do occur but the variation and differences in species composition is much larger between different plant communities, than within a single plant community. Some of the plant communities on the entire Wapadrand Country Estates property occurs on several of the erven, but others are restricted to one or two erven. As the vegetation of all five Erven was surveyed together, it was possible to compile an overview vegetation map and ecological sensitivity map, showing the relationships, similarities and differences in vegetation in the five erven. However, separate vegetation and ecological sensitivity maps were compiled for each of the erven. Due to overlapping distribution of some of the plant communities on different erven, the descriptions, and species composition of these plant communities on different erven are similar, maybe with small variations.

The vegetation of particularly Erven 348, 349 and 350 is remarkably similar. Some plant communities are, however, restricted to one or two Erven. Where plant communities occur on more than one Erf, the community description and plant species present for those plant communities are essentially similar.

Six plant communities were identified and mapped (Table 2 below):

Table 2: List of mapping units with ecological sensitivity and size in hectares:

	Vegetation mapping unit	**Sensitivity result**	**Size (ha)**
1	Mountain Bushveld on South-facing Ridge Crest	High	0,10
2	Mountain Bushveld on Higher Slopes	High	0,03
3	Mountain Bushveld on Midslopes	High	0.23
4	Mountain Bushveld on Lower Slopes	High	0,09
5	Disturbed Tall Treeveld on Plains	Medium	0,13
6	Dense Treeveld on Heritage Area	Medium-High	0,04
7	Historically Disturbed Plains Bushveld	Medium-Low	0,37
8	Recently Cleared Areas	Low	0,08

A vegetation map showing the distribution of the mapping units is presented in Figure 4 (below) while the ecological sensitivity is given in Figure 5 (below).

Figure 4: A vegetation map of Erf 350.

Figure 5: Ecological sensitivity of Erf 350.

5.2.1. Mountain Bushveld on South-facing Ridge Crests

The Mountain Bushveld on South-facing Ridge Crests plant community is restricted to the narrow strip of ridge crest that occurs within the property and stretches up to the northern boundary fence. The ridge is part of the Critically Endangered Bronberg Mountain Bushveld and is located within the Bronberg Conservation Area. This area is excluded from any development. The vegetation is dense bush on an area with large rocks and boulders. Indigenous woody species are dominant, though the alien invasive bush *Lantana camara* is present. Conspicuous trees in the ridge crest include *Protea caffra* and *Calodendron capensis*. Grasses and forbs are sparse or even absent. This area is excluded from any development. The following species were noted in this plant community:

Trees, shrubs and woody creepers

Afrocanthium mundianum		*Gymnosporia tenuispina*	
Calodendron capensis	d	*Lantana camara*	A, 1b
Canthium gilfillanii		*Opuntia ficus-indica*	A, 1b
Combretum molle		*Protea caffra*	d
Diospyros lycioides		*Searsia zeyheri*	
Ehretia rigida		*Senegalia caffra*	
Ficus burkei		*Vangueria infausta*	
Grewia occidentalis		*Zanthoxylum capense*	M
Gymnosporia buxifolia			

The following plant species were recorded in the area:

Grasses and sedges

Aristida transvaalensis	*Eragrostis curvula*
Chrysopogon serrulatus	*Melinis nerviglume*
Cymbopogon sp cf *prolixus*	

Forbs

Asparagus transvaalensis		*Kalanchoe paniculata*	
Cheilanthes hirta		*Pellaea calomelanos*	M
Clutia pulchella		*Scadoxis puniceus*	p, M
Haemanthus humilis ssp *hirsutus*	p	*Selaginella dregei*	
Harrisia martinii	A, 1b	*Xerophyta retinervis*	M
Helichrysum kraussii			

Table 3: Number of species recorded:

	Indigenous	Aliens / Weeds	Total	Red Data	Protected	Medicinal
Trees and shrubs	15	2	17	0	0	1
Grasses	5	0	5	0	0	0
Forbs	10	1	11	0	2	3
Total	30	3	33	0	2	4

The recorded species richness is medium, but due to the very dense vegetation the survey is considered not detailed. No listed red data species was found, but four protected species were noted

Table 4: Mountain Bushveld on South-facing Ridge Crests: Summary			
Status	Primary mountain bushveld, protected in Bronberg Conservation Area. Also a Critical Biodiversity Area.		
Soil	Shallow and rocky soil	Rockiness	20-30%
Conservation value:	High	Ecological sensitivity	High
Species richness:	Medium	Need for rehabilitation	Alien Invasive species control
Dominant spp.	*Protea caffra, Calodendron capensis*		

Discussion

As this area is part of the Bronberg Conservation Area, no development will occur here. The alien invasive species, particularly *Lantana camara* and *Harrisia martinii* (and all other alien invasive plant species) should be controlled.

Figure 6: The provincially protected *Haemanthus humilis subsp hirsutus* amongst large rocks on the ridge crest.

5.2.2. Mountain Bushveld on Higher Slopes

The Mountain Bushveld on Higher Slopes plant community occurs on the ridge slopes just below the crest. On Erf 350 this plant community is restricted to a small area in the north-western corner, with larger areas on Erven 348 and 349. The entire ridge is part of the Critically Endangered Bronberg Mountain Bushveld and is located within the Bronberg Conservation Area. The vegetation is extremely dense bush on an area with large rocks and boulders. Many indigenous woody species are present, though the vegetation is severely encroached by the alien invasive bush *Lantana camara*, making access for detailed surveys almost impossible. The dense *Lantana camara* encroachment caused damage to the indigenous vegetation, several individuals of the protected *Aloe pretoriensis* were killed. Grasses and forbs are sparse or even absent. This area is excluded from any development.

The following species were noted on the Higher Slopes:

Trees, shrubs and woody creepers			
Afrocanthium mundianum		*Lantana camara*	D, A, 1b
Calodendron capensis		*Pittosporum viridiflorum*	P, M
Canthium gilfillanii	d		
Diospyros lycioides		*Searsia pyroides*	
Ehretia rigida		*Searsia zeyheri*	
		Senegalia caffra	
Grewia occidentalis		*Vangueria infausta*	
Gymnosporia buxifolia		*Zanthoxylum capense*	M
Gymnosporia tenuispina			
Grasses and sedges			
Aristida transvaalensis		*Eragrostis curvula*	
		Melinis nerviglume	
Forbs			
		Helichrysum kraussii	
		Kalanchoe paniculata	
Justicia betonica			
Cheilanthes hirta		*Pellaea calomelanos*	M
Clutia pulchella			
Haemanthus humilis ssp *hirsutus*	p	*Selaginella dregei*	
Harrisia martinii	A, 1b	*Xerophyta retinervis*	M

Table 5: Number of species recorded:

	Indigenous	Aliens / Weeds	Total	Red Data	Protected	Medicinal
Trees and shrubs	13	1	14	0	2	2
Grasses	3	0	3	0	0	0
Forbs	9	1	10	0	1	2
Total	25	2	27	0	1	4

The recorded species richness is medium. No red data listed species was found, but a single protected species were noted.

Table 6: Mountain Bushveld on Higher Slopes: Summary			
Status	Primary mountain bushveld, though severely encroached by Lantana camara, protected in Bronberg Conservation Area. Also a Critical Biodiversity Area.		
Soil	Shallow and rocky soil	Rockiness	5-30%
Conservation value:	High	Ecological sensitivity	High
Species richness:	Medium-High	Need for rehabilitation	Alien Invasive species control
Dominant spp.	*Lantana camara, Canthium gilfillanii*		

Discussion

As this area is part of the Bronberg Conservation Area, no development will occur here. The alien invasive species, particularly *Lantana camara* and *Harrisia martinii* (Figure 7), and all other alien invasive plant species, should be controlled.

Figure 7: The alien invasive Harrisia martinii.

Figure 8: The dense bush of the Mountain Bushveld on Higher Slopes in the background. The dense bush in the foreground is representative of the Mountain Bushveld on Lower Slopes.

5.2.3. Mountain Bushveld on Mid-Slopes.

The Mountain Bushveld on the Mid-Slopes plant community is located below the ridge crest in the far northern part of the site and stretches down to the Lower Slopes or the Disturbed Tall Treeveld on the Plain below. The slopes are part of the Critically Endangered Bronberg Mountain Bushveld and is located within the Bronberg Conservation Area. This area is excluded from any development. The vegetation is extremely dense bush on. Many indigenous woody species are present, though the vegetation is encroached by the alien invasive bush *Lantana camara,* making access for detailed surveys almost impossible. This is not critical, as this area is excluded from any development. The dense *Lantana camara* encroachment caused damage to the indigenous vegetation, several individuals of the protected *Aloe pretoriensis* were killed. Grasses and forbs are sparse or even absent.

The following species were noted in the Mountain Bushveld:

Trees, shrubs and woody creepers

Acacia meamsii	A, 1b	*Gymnosporia polyacanthus*	
Afrocanthium mundianum		*Lantana camara*	D, A, 1b
Aloe pretoriensis	p	*Melia azedarach*	A, 1b
Calodendron capensis		*Opuntia ficus-indica*	A, 1b
Canthium gilfillanii	d	*Pittosporum viridiflorum*	P, M
Cotoneaster frigidus	A, 1b	*Rhoicissus tridentata*	M
Diospyros lycioides		*Sarcostemma viminale*	
Ehretia rigida		*Searsia pyroides*	
Eucalyptus camaldulensis	A, 1b	*Searsia zeyheri*	
Euclea crispa		*Senegalia caffra*	
Ficus thonningii		*Solanum mauritianum*	A, 1b
Grewia occidentalis		*Vangueria infausta*	
Gymnosporia buxifolia		*Zanthoxylum capense*	M

The following plant species were recorded in the area:

Grasses and sedges

Aristida transvaalensis	*Eragrostis curvula*
Chrysopogon serrulatus	*Melinis nerviglume*
Cymbopogon sp cf *prolixus*	

Forbs

Aloe transvaalensis		*Helichrysum kraussii*	
Asparagus cooperi		*Hilliardiella poskeana*	
Bidens pilosa	W	*Justicia betonica*	
Cheilanthes hirta		*Kalanchoe paniculata*	
Clutia pulchella		*Pellaea calomelanos*	M
Harrisia martinii	A, 1b		

Table 7: Number of species recorded:

	Indigenous	Aliens / Weeds	Total	Red Data	Protected	Medicinal
Trees and shrubs	19	7	27	0	2	3
Grasses	5	0	5	0	0	0
Forbs	14	2	16	0	0	2
Total	38	9	47	0	2	5

The recorded species richness is medium. No listed red data species were found, but two protected species were noted.

Table 8: Mountain Bushveld on Mid-Slopes: Summary			
Status	Primary bushveld, though severely encroached by *Lantana camara,* protected in Bronberg Conservation Area. Also Critical Biodiversity Area.		
Soil	Shallow and rocky soil	**Rockiness**	5-30%
Conservation value:	High	**Ecological sensitivity**	High
Species richness:	Medium to High	**Need for rehabilitation**	Alien Invasive species control
Dominant spp.	*Lantana camara, Canthium gilfillanii*		

Discussion

As this area is part of the Bronberg Conservation Area, no development will occur here. The alien invasive species *Lantana camara* and *Harrisia martinii* and all other alien invasive plant species should be controlled.

5.2.4. Mountain Bushveld on Lower Slopes.

The Mountain Bushveld on Lower Slopes plant community is located lower down the slope, below the Bushveld on the Steep Upper Slopes (Figure 8 above). This part of the ridge is still part of the Critically Endangered Bronberg Mountain Bushveld and is located within the Bronberg Conservation Area). This area is also excluded from any further development. The vegetation is still dense bush. Indigenous woody species are present, though the vegetation is also encroached by the alien invasive bush Lantana camara and several other alien and invasive species (see species list below). Grass-dominated patches occur scattered about. In general the area is regarded as somewhat disturbed.

The following plant species were recorded on the gradual lower slopes area:

Trees, shrubs and woody creepers

Acacia mearnsii	A, 1b	*Eucalyptus camaldulensis*	A, 2
Canthium gilfillanii		*Euclea crispa*	
Cotoneaster frigidus	A, 1b	*Grewia occidentalis*	
Diospyros lycioides		*Gymnosporia buxifolia*	
Ehretia rigida		*Lantana camara*	D, A, 1b
Melia azedarach	A, 3	*Senegalia caffra*	d
Pinus sp	A, 2	*Solanum mauritianum*	A, 1b
Polygala virgata	G	*Vachellia karroo*	M
Rhoicissus tridentata	M	*Zanthoxylum capense*	M
Searsia pyroides			

Grasses and sedges

Chrysopogon serrulatus		*Eragrostis curvula*	
Cymbopogon pospischilii		*Melinis repens*	

Forbs

Aloe transvaalensis		*Kalanchoe paniculata*	
Asparagus cooperi		*Pellaea calomelanos*	M
Bidens pilosa	W	*Tagetes minuta*	W
Hilliardiella poskeana			

Table 9: Number of species recorded:

	Indigenous	Aliens / Weeds	Total	Red Data	Protected	Medicinal
Trees and shrubs	12	7	19	0	0	3
Grasses	4	0	4	0	0	0
Forbs	9	2	7	0	0	1
Total	25	9	34	0	0	4

The recorded species richness is medium. No red data listed or protected plant species were recorded.

Table 10: Mountain Bushveld on Lower Slope: Summary			
Status	Somewhat disturbed mountain bushveld, encroached by Lantana camara and other invasive species, protected in Bronberg Conservation Area. Also Critical Biodiversity Area.		
Soil	Shallow and rocky soil	Rockiness	5-10%
Conservation value:	High	Ecological sensitivity	High
Species richness:	Medium	Need for rehabilitation	Alien Invasive species control
Dominant spp.	*Lantana camara*		

Discussion

As this area is part of the Bronberg Conservation Area, no development may occur here. *Lantana camara* and other alien invasive plant species should be controlled.

Figure 9: Mountain Bushveld on the Lower Slopes. Photograph from Erf 350.

5.2.5 Disturbed Tall Treeveld on Plains

The plains bushveld on Erf 350 occurs on the relatively flat areas north of the Heritage Site in the central part of the site. This is a dense woodland with tall trees, few shrub plants and a sparse herbaceous layer. Several indigenous trees are conspicuous in this plant community, particularly *Senegalia caffra, Vachellia karroo* and *Celtis africana*.

The following plant species occur on the Disturbed Tall Treeveld on Plains:

Trees and shrubs, woody climbers			
Acacia mearnsii	A, 1b	*Eucalyptus camaldulensis*	A, 2
Araujia sericifera	A, 1b	*Lantana camara*	A, 1b
Celtis africana	d	*Melia azedarach*	A, 3
Clematis brachiata		*Sarcostemma viminalis*	
Cussonia paniculata		*Searsia pyroides*	
Diospyros lycioides		*Senegalia caffra*	
Dombeya rotundifolia	M	*Solanum mauritianum*	A, 1b
Vachellia karroo	M, d	*Ziziphus mucronata*	M
Grasses and sedges			
Cynodon dactylon		*Panicum maximum*	
Melinis repens		*Urochloa mosambicensis*	
Forbs			
Aloe davyana		*Hilliardiella oligocephala*	M
Asparagus sp		*Solanum incanum*	W
Bidens pilosa	W, D	*Tagetes minuta*	W

Table 11: Number of species recorded:

	Indigenous	Aliens / Weeds	Total	Red Data	Protected	Medicinal
Trees and shrubs	11	2	13	0	0	4
Grasses	1	0	1	0	0	0
Forbs	4	3	7	0	0	0
Total	16	5	21	0	0	4

The species richness is low. No listed red data or protected plant species were found.

Table 12: Disturbed Tall Treeveld on Plains - summary			
Status	Disturbed		
Soil	Deep loam soil	**Rockiness**	0%
Conservation value:	Medium	**Ecological sensitivity**	Medium
Species richness:	Low	**Need for rehabilitation**	
Dominant spp.	*Vachellia karroo, Senegalia caffra, Celtis africana, Panicum maximum*		

Discussion

The most obvious observation is the that the area was cleared of shrubs and the herbaceous layer.

5.2.6. Dense Treeveld on Heritage Area

This is a small patch of dense treeveld on an area with scattered rocks. This area seems to be a relic of an old Heritage site. This patch of vegetation extends to Erf 351, where it is more prominent. The vegetation is dominated by dense, tall

trees, mainly the indigenous *Celtis africana* and the alien invasive *Melia azedarach.* An herbaceous layer is almost absent . The following plant species occur on the Dense Tree veld on the Heritage Area:

Trees and shrubs, woody climbers

Araujia sericifera	A, 1b	*Grewia occidentalis*	
Celtis africana	D	*Lantana camara*	A, 1b
Clematis brachiata		*Melia azedarach*	A, 3
Diospyros lycioides		*Searsia pyroides*	
Dombeya rotundifolia	M	*Vachellia karroo*	M
Ehretia rigida		*Ziziphus mucronata*	M
Euclea crispa			

Grasses and sedges

Panicum maximum

Forbs

Asparagus setaceus		*Rhynchosia caribaea*	
Isoglossa grantii		*Solanum pseudocapsicum*	A,1b

Table 13: Number of species recorded:

	Indigenous	Aliens / Weeds	Total	Red Data	Protected	Medicinal
Trees and shrubs	10	3	13	0	0	3
Grasses	1	0	1	0	0	0
Forbs	3	1	4	0	0	0
Total	14	4	18	0	0	3

The species richness is low. No listed red data or protected plant species were found.

Table 14: Dense Treeveld on Heritage Area - summary			
Status	Dense bush, disturbed, relic heritage site		
Soil	Deep loam soil with scattered rocks	**Rockiness**	3%
Conservation value:	High	**Ecological sensitivity**	Medium-High
Species richness:	Low	**Need for rehabilitation**	Alien species control
Dominant spp.	*Celtis africana, Melia azedarach*		

Discussion

The plant species richness is low, and no listed red data or protected species occur, though the conservation value may be linked to the heritage value. A heritage specialist will have to evaluate the site.

Figure 10: Dense Tree veld on the Heritage Area in the background.

5.2.7. Historically Disturbed Plains Bushveld

The vegetation on the plain located on the southern part of the site was disturbed and cleared since 2007. Since 2015 there was an increase in woody vegetation, but particularly alien species such as *Lantana camara* and *Melia azedarach* increased. Recently some areas have been cleared, particularly of alien woody species. Weeds, mostly *Bidens pilosa* is now very prominent. Little of the original grassy vegetation remained. Several indigenous trees were left and are still present in this plant community, particularly *Senegalia caffra, Vachellia karroo* and *Celtis africana*. Storage facilities were constructed on the eastern boundary of the site.

The following plant species occur on the Disturbed Plains:

Trees and shrubs, woody climbers			
Acacia mearnsii	A, 1b	*Eucalyptus camaldulensis*	A, 2
Araujia sericifera	A, 1b	*Lantana camara*	A, 1b
Celtis africana	d	*Melia azedarach*	A, 3
Clematis brachiata		*Sarcostemma viminalis*	
Cussonia paniculata		*Searsia pyroides*	
Diospyros lycioides		*Senegalia caffra*	
Dombeya rotundifolia	M	*Solanum mauritianum*	A, 1b
Vachellia karroo	M, d	*Ziziphus mucronata*	M
Grasses and sedges			
Cynodon dactylon		*Panicum maximum*	
Melinis repens		*Urochloa mosambicensis*	
Forbs			
Aloe davyana		*Hilliardiella oligocephala*	M
Asparagus sp		*Solanum incanum*	W
Bidens pilosa	W, D	*Tagetes minuta*	W

Table 15: Number of species recorded:

	Indigenous	Aliens / Weeds	Total	Red Data	Protected	Medicinal
Trees and shrubs	10	6	16	0	0	3
Grasses	4	0	4	0	0	0
Forbs	3	3	6	0	0	1
Total	17	9	26	0	0	4

The species richness is low. No red data listed or protected plant species were found.

Table 16: Historically Disturbed Plains Bushveld – summary			
Status	Degraded to Transformed		
Soil	Deep loam soil	Rockiness	0%
Conservation value:	Low	Ecological sensitivity	Medium-Low
Species richness:	Low	Need for rehabilitation	Pending proposed development
Dominant spp.	Bidens ilosa, Celtis ilosa a, Vachellia karroo		

Discussion

The herbaceous layer is dominated by the weed Bidens ilosa. A limited part of the area is earmarked for the development of residences and was recently cleared.

Figure 11: Historically Disturbed Plains Bushveld.

5.2.5. Recently Cleared Areas on Plains

Vegetation was cleared and some levelling was done on an area within the Historically Disturbed Plains Bushveld area (Figure 11 above). Weeds occur in patches on the cleared area (Figure 12 below).

This cleared area is 0,08 ha (800 m2) in size (Table 16 above). The cleared area is principally located on an area that was

historically quite disturbed, where the ecological sensitivity is Medium-Low. It is suggested that this area can be considered as suitable for development, without damage to the more sensitive mountain bushveld vegetation.

Figure 12: Recently Cleared Area on the Historically Disturbed Plains Bushveld.

5.3 ANALYSIS

5.3.1 Alien and Invasive plants species

Declared weeds and invader plant species have the tendency to dominate or replace the canopy or herbaceous layer of natural ecosystems, thereby transforming the structure, composition and function of natural ecosystems. Therefore, it is important that these plants be controlled and eradicated by means of an eradication and monitoring program. Some invader plants may also degrade ecosystems through superior competitive capabilities to exclude native plant species (Henderson, 2001). Several listed alien and invasive plant species were observed on the study site.

Alien and Invasive woody species recorded on Erf 349 Wapadrand Country Estates:

Species name	Common name	Category
Acacia mearnsii	Black wattle	2
Araujia sericifera	Moth catcher	1b
Cotoneaster frigidus	Cotoneaster	1b
Eucalyptus camaldulensis	River gum	2, 1b in Grassland biome
Harrisia martinii	Moon cactus	1b
Lantana camara	Lantana	1b
Melia azedarach	Syringa	3 in urban areas
Opuntia ficus-indica	Prickly pear	
Pinus sp	Patula pine	2
Solanum mauritianum	Bugweed	1b

5.3.2 Medicinal Plants

Only medicinal plants listed by Van Wyk, Van Oudtshoorn & Gericke (2005), and rare medicinal plants as indicated by Williams, Victor & Crouch (2013) were indicated with the letter “M” in the list of species for each plant community.

5.3.3 Ecological Sensitivity

It has been clearly demonstrated that vegetation not only forms the basis of the trophic pyramid in an ecosystem, but also plays a crucial role in providing the physical habitat within which organisms complete their life cycles (Kent & Coker 1992).

Therefore, the vegetation of an area will largely determine the ecological sensitivity thereof.

The vegetation sensitivity assessment aims to identify whether the vegetation within the study area is of conservation concern and thus sensitive to development:

In order to determine the sensitivity of the vegetation (ecosystem) on the site, weighting scores are calculated per plant community. The following six criteria are used, and each allocated a value of 0-3.
Conservation status of a regional vegetation unit;
Listed ecosystem (e.g. wetlands, hills and ridges etc)
Legislative protection (e.g. threatened ecosystems, SANBI & DEAT 2009, Government Gazette NEMA 2011)
Plant species of conservation concern (e.g. red listed, nationally or provincially protected plant species, habitat or potential habitat to plants species of conservation concern, protected plants or protected trees);
Situated within ecologically functionally important features (e.g. wetlands or riparian areas; important habitat for rare fauna species);
Conservation importance (e.g. untransformed and un-fragmented natural vegetation, high plant species richness, important habitat for rare fauna species, Critical Biodiversity Areas).

Sensitivity is calculated as the sum the values of the criteria. The vegetation with the lowest score represents the vegetation that has the least / limited sensitivity). A maximum score of 18 can be obtained, a score of 15-18 indicated high sensitivity. The sensitivity scores are as follows (Table 13):

Table 17: Sensitivity Weighting scores for vegetation.

Scoring	15-18	12-14	9-11	6-8	0-5
Sensitivity	High	Medium-High	Medium	Medium-Low	Low

Development on vegetation that has High sensitivity will normally not be supported, except that specific circumstances may still lead to support of the proposed development. Portions of vegetation with Medium-High or Medium sensitivity should be conserved. Development may be supported on vegetation considered to have Medium-Low or Low sensitivity. The result of the sensitivity assessment (Table 14 below) indicates that the vegetation on the Bronberg Mountain has High ecological sensitivity, scoring 3 in all six criteria. Due to its degraded to transformed condition, the Drainage line scores 14, which is Medium-High, though in accordance with legislation it has High ecological sensitivity. (See Wetland Report in Paragraph 7 below). The Historically Disturbed Plains Bushveld has Medium-Low ecological sensitivity and the Recently Cleared Areas Low ecological sensitivity, due to its transformed status.

Table 18: Scoring of vegetation that occurs within the study area.

Vegetation	Conservation Status of regional Vegetation unit	Listed Ecosystem	Legislated Protection	Species of conservation concern	Ecological Function	Conservation Importance	Total Score out of max of 18
5.2.1. Mountain Bushveld on South-facing Ridge Crest	3	3	3	3	3	3	18 High
5.2.2. Mountain Bushveld on Higher Slopes	3	3	3	2	3	3	17 High
5.2.3 Mountain Bushveld on Mid-Slopes							
5.2.4. Mountain Bushveld on Lower Slopes	3	3	3	2	3	3	17 High
5.2.5. Disturbed Tall Treeveld on the Plains							Medium
5.2.6. Dense Treeveld on Heritage Area	3	1	3	0	3	3	13

							Medium-High
5.2.7. Historically Disturbed Plains Bushveld	**3**	**1**	**3**	**0**	**1**	**1**	**9 Medium-Low**
5.2.8. Recently Cleared Areas on Plains	**3**	**0**	**2**	**0**	**0**	**0**	**5 Low**

5.3.4 Conservation Value

The following conservation value categories were used for assessing the study site:

High: Ecologically sensitive and valuable land with high species richness and/or sensitive ecosystems or red data species that should be conserved and no developed allowed.

Medium-high: Land where sections are disturbed but which is in general ecologically sensitive to development/disturbances.

Medium: Land on which low impact development with limited impact on the vegetation / ecosystem could be considered for development. It is recommended that certain portions of the natural vegetation be maintained as open space.

Medium-low: Land of which small sections could be considered to conserve but where the area in general has little conservation value.

Low: Land that has little conservation value and that could be considered for developed with little to no impact on the vegetation.

The conservation value of the vegetation on Erf 350 Wapadrand Country Estates is High on the ridge and Low to Medium-Low on the plains.

5.3.5 Assessment of Screening Tool Results

5.3.5.1 Plant Species Sensitivity

The Result of the DEA Screening Tool analysis for Plant Species Sensitivity for Erf 350 Wapadrand Country Estates is given in Figure 13 (below). This Sensitivity is regarded as Medium.

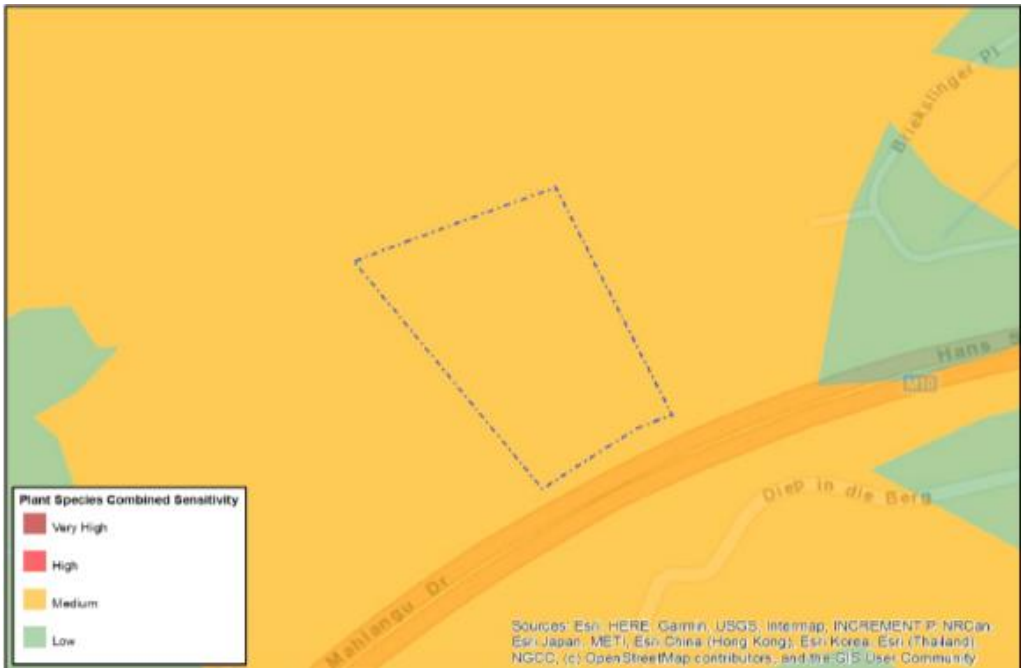


Figure 13: The Result of the DEA Screening Tool analysis for Plant Species Sensitivity on Erven 349 and 350.

The vegetation survey results indicate Low to Medium plant species richness in the various plant communities on Erf 350. Four protected and no red data species were found on the ridge, which is protected in the Bronberg Conservation area in the north of the site. No individuals of the red data listed *Ceropegia decidua subsp pretoriensis* could be found. This is because the habitat is only marginally suitable. On the contrary the species richness on the plains is Low, with no protected or red data listed plant species present. In general, the DEA Screening Tool result of Medium Plant Species Sensitivity is confirmed.

5.3.5.3 Terrestrial Biodiversity Sensitivity

The Result of the DEA Screening Tool analysis for Terrestrial Biodiversity Sensitivity for Erf 350 Wapadrand Country Estates is given in Figure 15 (below). This Sensitivity is regarded as Very High.

Figure 14: The Result of the DEA Screening Tool analysis for Terrestrial Biodiversity Sensitivity on Erven 349 and 350.

The Terrestrial Biodiversity Sensitivity is regarded to be Very High. This is caused by the presence of some protected plant species and marginal suitable habitat for red data plant species (on the ridge). The key factor causing the Very High Biodiversity Sensitivity is, however, the confirmed presence of Juliana's Golden Mole, both on the ridge and the plains. It should, nevertheless, be noted that the plant diversity on the plains area is regarded as Low.

Fauna

Neamblysomus julianae, the Juliana's golden mole, is a Critically Endangered mammal species and the Wapadrand Country Estate (study site) forms part of the restricted distribution range of the Juliana's golden mole. GDARD is unlikely to sanction the development unless a reasonable conservation strategy is adopted, together with an Ecological Management Plant (EMP) and the appointment of an ECO.

Juliana's golden mole subsurface activities were recorded in a few localities on site. These subsurface activities were found around a diversity of habitat types on the study site and buffer areas. The golden mole occurs on the site in both natural veld and disturbed settings. Part of the study site includes the Bronberg Conservation Area where no development may occur and where activity signs of the Juliana's golden mole have been recorded. These golden mole individuals in the Bronberg Conservation Area would not be affected by the development since they occur outside the intended footprint of development.

The area on which the intended development will take place has been severely altered by invasive plant species and except for a small area, no subsurface activities of Juliana's golden mole were recorded. Near the white stinkwood trees at Erf 350, which is also a potential cultural site, golden mole activities were observed at 25°46'51"S; 28°20'05"E. This area must be excluded from development.

Golden moles are very well adapted to co-exist with human beings in rural settings on condition that the substrate consists of soft sand with no clay content and the soils kept permanently moist by regular irrigation. The planned development for Erf 349 and Erf 350 should be, accompanied by the development of an indigenous garden that will enhance suitable habitat for Juliana's Golden Mole. The remaining plains should remain in a natural state, with measures to control all alien and invasive plant species.

Implementing the suggested Ecological Management Plan (included in this report) will stabilise the population at higher numbers and ensure year-round optimised ecological conditions in a structured manner. Connectivity with adjoining properties is good.

8. LAND USE CHARACTER OF SURROUNDING AREA

Using the associated number of the relevant current land use or prominent feature from the table below, fill in the position of these land-uses in the vacant blocks below which represent a 500m radius around the site

1. Vacant land	**2. River, stream, wetland**	**3. Nature conservation area**	4. Public open space	**5. Koppie or ridge**
6. Dam or reservoir	7. Agriculture	**8. Low density residential**	**9. Medium to high density residential**	10. Informal residential
11. Old age home	12. Retail & Informal retail	**13. Offices**	14. Commercial & warehousing	15. Light industrial
16. Heavy industrial[AN]	17. Hospitality facility	18. Church	19. Education facilities	20. Sport facilities
21. Golf course/polo fields	22. Airport[N]	23. Train station or shunting yard[N]	24. Railway line[N]	**25. Major road (4 lanes or more)[N]**
26. Sewage treatment plant[A]	27. Landfill or waste treatment site[A]	28. Historical building	29. Graveyard	30. Archeological site
31. Open cast mine	32. Underground mine	33.Spoil heap or slimes dam[A]	34. Small Holdings	35. Fuel station.
Other land uses (describe):				

NOTE: Each block represents an area of 250m X 250m, if your proposed development is larger than this please use the appropriate number and orientation of hashed blocks

NORTH

WEST						EAST
	3, 5, 8	**3, 5, 8**	**3, 5**	**3, 5**	**8**	
	9	**3, 5**	**3, 5**	**3, 5**	**8**	
	9	**8**		**8**	**8**	
	9	**9,25**	**25**	**13,25**	**8,13,25**	
	8, 25	**8, 25**	**3,5,8**	**3,5,8**	**3,5,8**	

SOUTH

= Site

Note: More than one (1) Land-use may be indicated in a block

Please note: The Department may request specialist input/studies depending on the nature of the land use character of the area and potential impact(s) of the proposed activity/ies. Specialist reports that look at health & air quality and noise impacts may be required for any feature above and in particular those features marked with an "[A]" and with an "[N]" respectively.

Have specialist reports been attached	**YES**	~~NO~~

If yes indicate the type of reports below

'An assessment of vegetation, flora, vertebrate fauna and wetlands on Erf 350 of the Farm The Willows 340 JR, City of Tshwane, Gauteng. By G.J. Bredenkamp D.Sc. Pr.Sci.Nat. J.P.C. van Wyk M.Sc. Pr.Sci.Nat. C.E. Venter M.Sc. Pr.Sci.Nat. Commissioned by Pierre Joubert Landscape Architect and Environmental Planner [EcoAgent CC PO Box 25533 Monument Park 0181. Tel 012 4602525. Cell 082 5767046. March 2021]).'

9. SOCIO-ECONOMIC CONTEXT

Describe the existing social and economic characteristics of the area and the community condition as baseline information to assess the potential social, economic and community impacts.

LOCALITY:

Region 6 is located in the southeast of the City and is bordered by the Magaliesberg Mountain range to the north and the N1 freeway to the west and Ekhuruleni Local Municipality to the South.

The Region includes large parts of the former Kungwini and Nokeng Tae Tsamane regions.

- The N4 freeway which links the City of Tshwane with Mpumalanga Province and runs east-west through the region.
- The N1 freeway which runs on the western side of the region and links the City of Tshwane with the Limpopo Province in the north and Johannesburg, Bloemfontein and Cape Town towards the south
- The R21 freeway along the western boundary of the region which links the City with the Ekurhuleni Municipality and the OR Tambo International Airport.The region clearly enjoys a high level of accessibility.

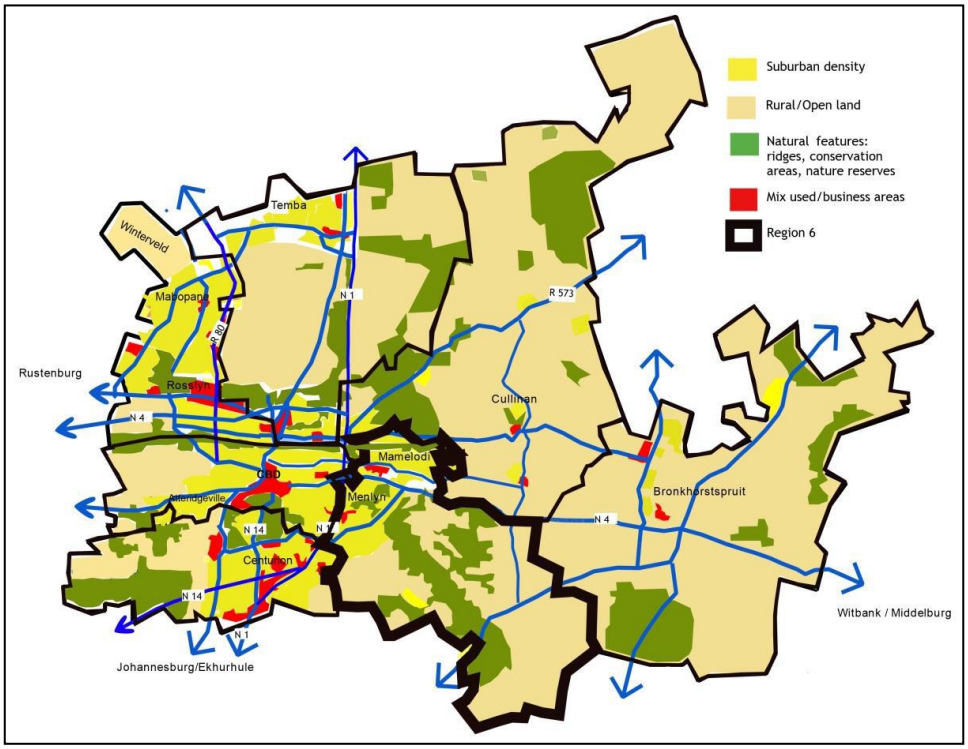
AREA:

The region is 885 km² in extent.

The south-eastern section of this region has the highest income per capita and could be considered the fuel injection of the city. However, there is also a huge concentration of people in the northeast quadrant, representing low and no- income groups. It is also one of the regions with the greatest development pressure. There is a high dependency on private motor vehicles, from the southern section of the region, placing a high demand on the road infrastructure.

The map below shows the location of Region 6 in the City of Tshwane.

Figure 15: Locality Map



SOCIO-ECONOMY:

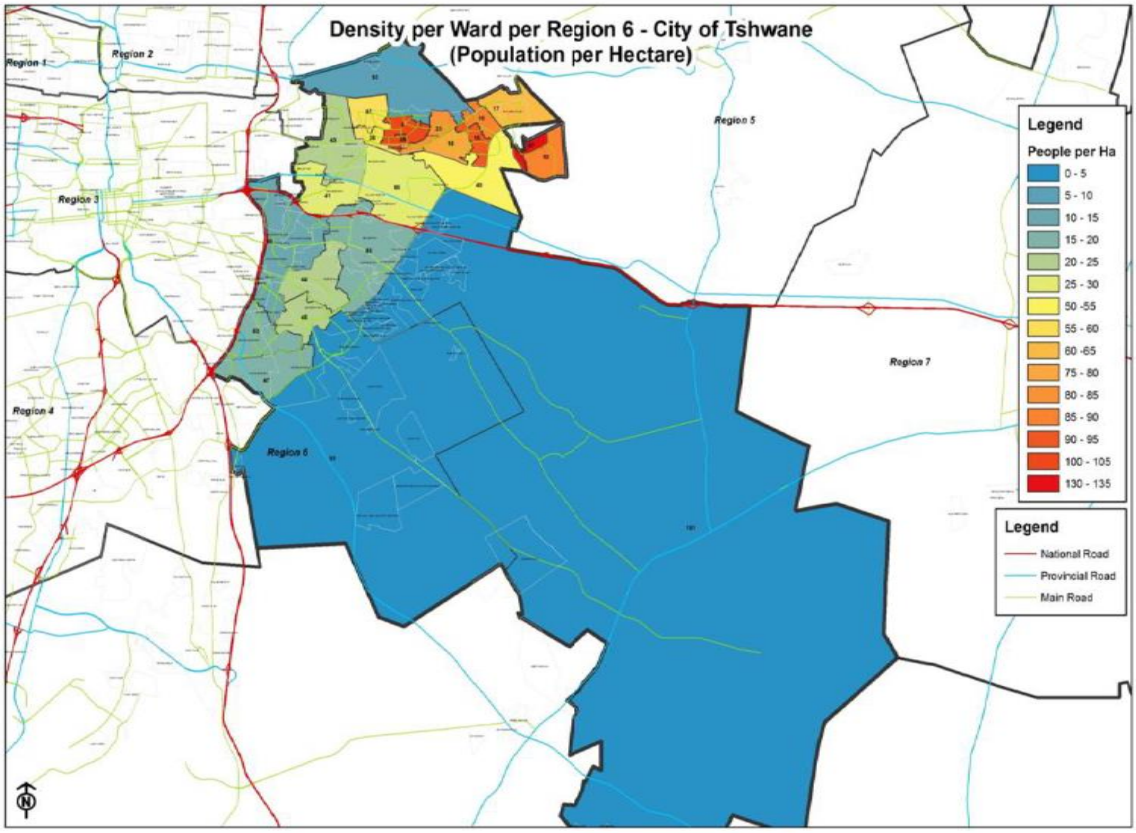
Population Size and Composition

Region 6 had a total population of 765,000 people in 2019. The table below shows the population per ward:

Table 19 TOTAL POPULATION - SUB-METRO REGIONS OF CITY OF TSHWANE METROPOLITAN MUNICIPALITY, 2009, 2014 AND 2019 [NUMBERS PERCENTAGE]

	2009	2014	2019	Average Annual growth
Region 1	776,000	872,000	970,000	***2.26%***
Region 2	328,000	365,000	403,000	***2.08%***
Region 3	518,000	592,000	657,000	***2.41%***
Region 4	334,000	434,000	513,000	***4.39%***
Region 5	81,600	98,300	112,000	***3.26%***
Region 6	574,000	677,000	765,000	***2.91%***
Region 7	102,000	119,000	135,000	***2.83%***
City of Tshwane	2,713,526	3,156,482	3,555,645	***2.74%***

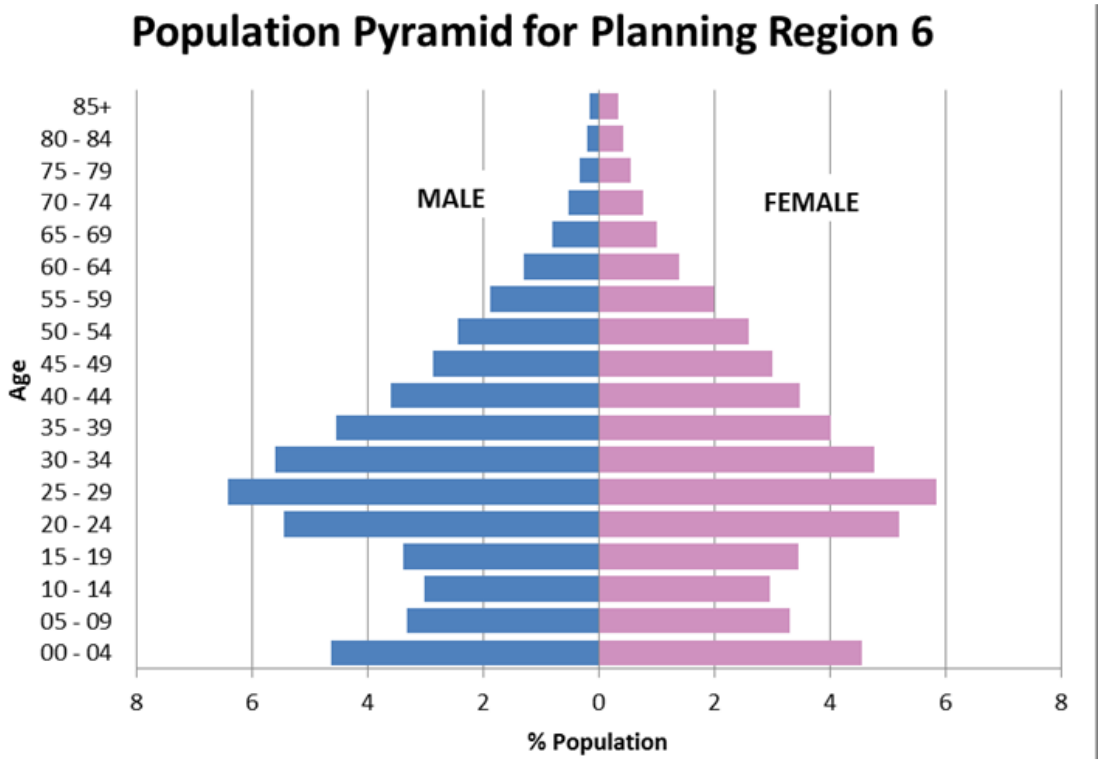
Figure 16: Population Density per Ward



(Sources: StatsSA Census 2011).

The urban areas in the northwest of the region have the highest densities. The remainder of the region is predominantly low density and rural in nature.
A detailed breakdown of population per age group and gender is shown in the population pyramid:

Figure 17: Population Pyramid



(Source: StatsSA Census 2011).

The age groups from 20 to 39 years are the largest, with a substantial portion of the population being under 4 years of age. The majority of people in this region are within the economically active age group. This means a relatively low dependency ratio, as most people in this area should be able to access employment. The latter however depends on the number of job opportunities and access to areas of economic activity. The level of employment will also depend on the levels of education in the region.

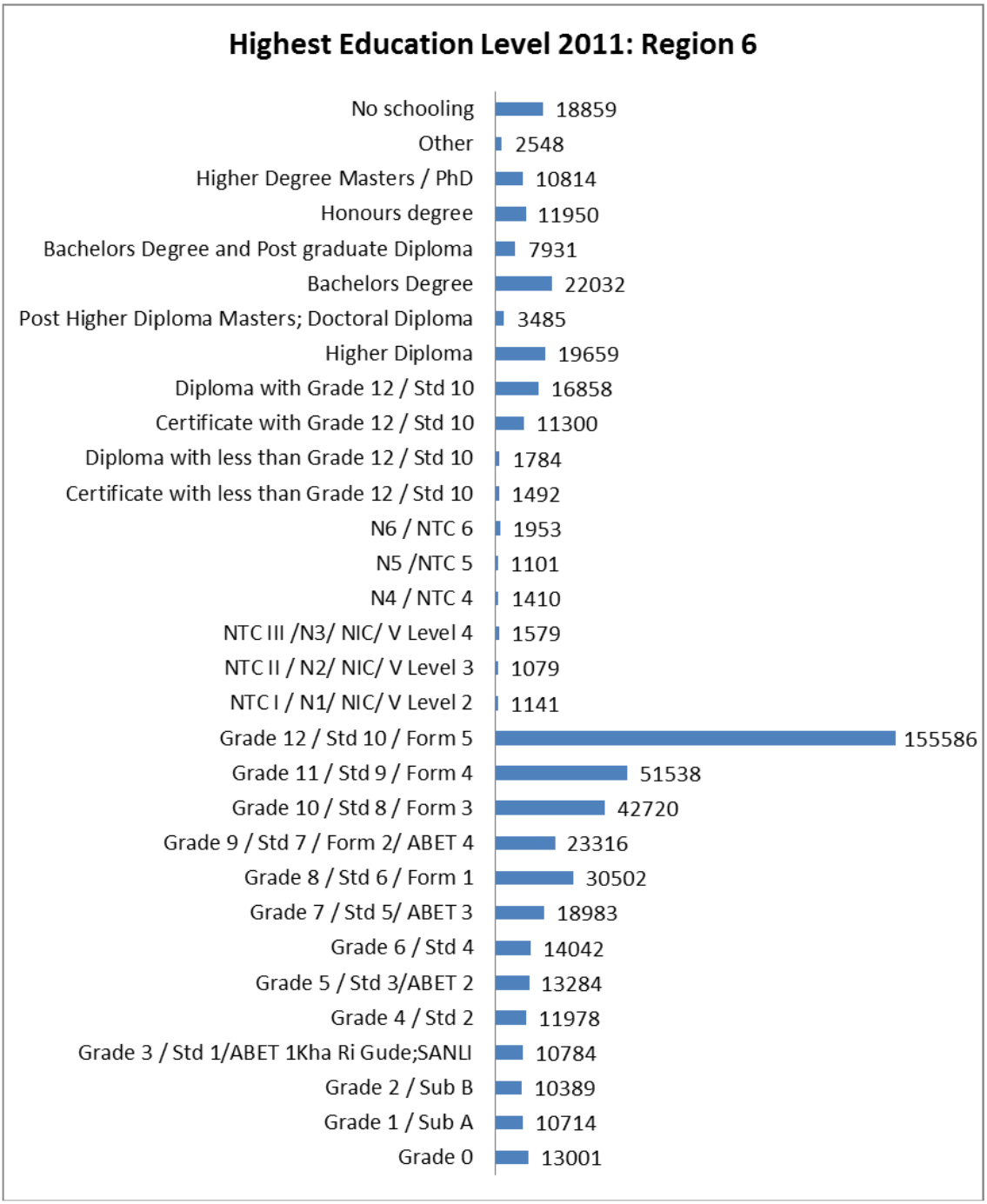
LEVELS OF EDUCATION:

In summary, in Region 6:

- 3% of adults have no schooling.
- 26% of adults are schooled up to grade 12.

A more detailed breakdown of the education levels are shown in the figure below:

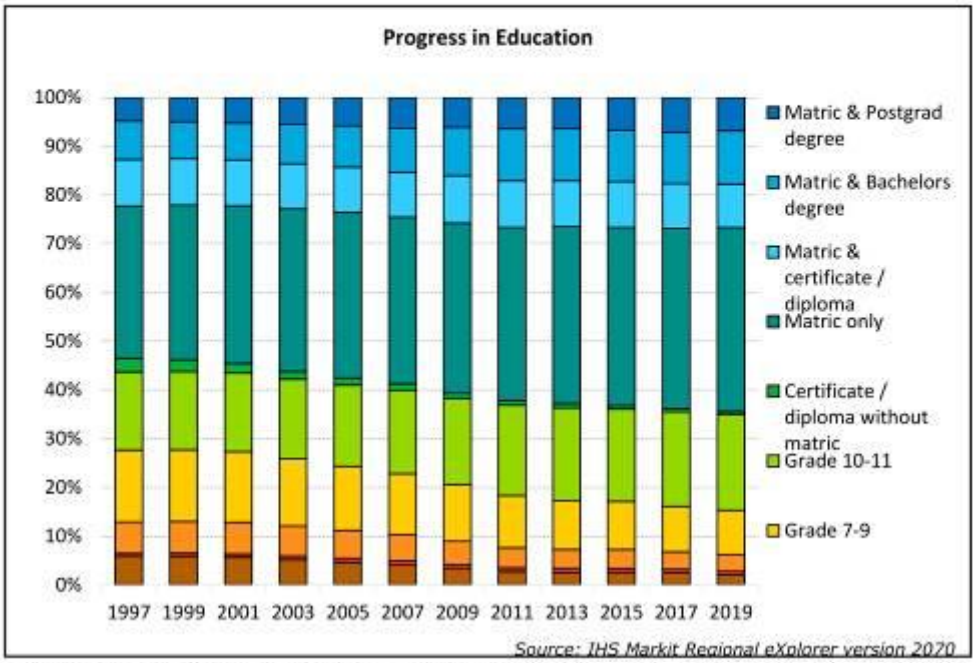
Figure 18: Education Levels



(Sources: StatsSA Census 2011).

Region 6:

Figure 19 **HIGHEST LEVELS OF SCHOOLING FOR THE POPULATION AGED 20 YEARS AND OLDER IN REGION 6, 2019**

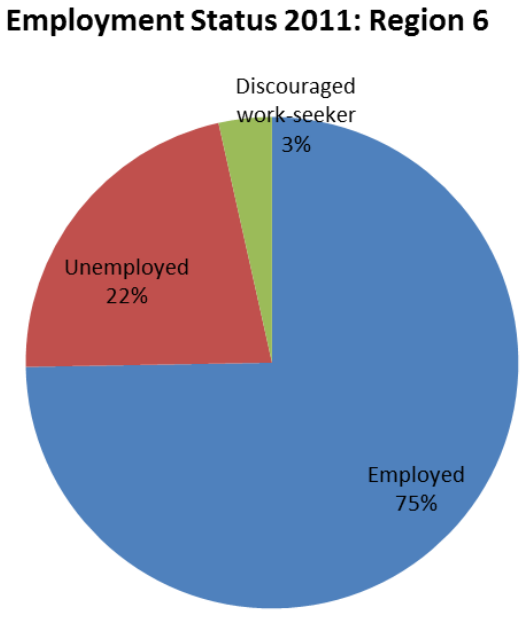


The above chat indicates how the educational profile of the population that is 20 years or older in Region 6 has changed over the 1997 – 2019 period. As indicated in the figure, the percentage share of the people (20 years +) in Region 6 with no schooling has decreased from 5.91 percent in 1997 to 2.09 percent, whilst the percentage of people with at least matric has increased from 31.28 percent in 1997 to 37.76 percent in 2019. The percentage of people (20 years +) in Region 6 with certificates or a diploma without matric has declined from 2.81 percent in 2013 to 0.55 percent in 2019.

EMPLOYMENT:

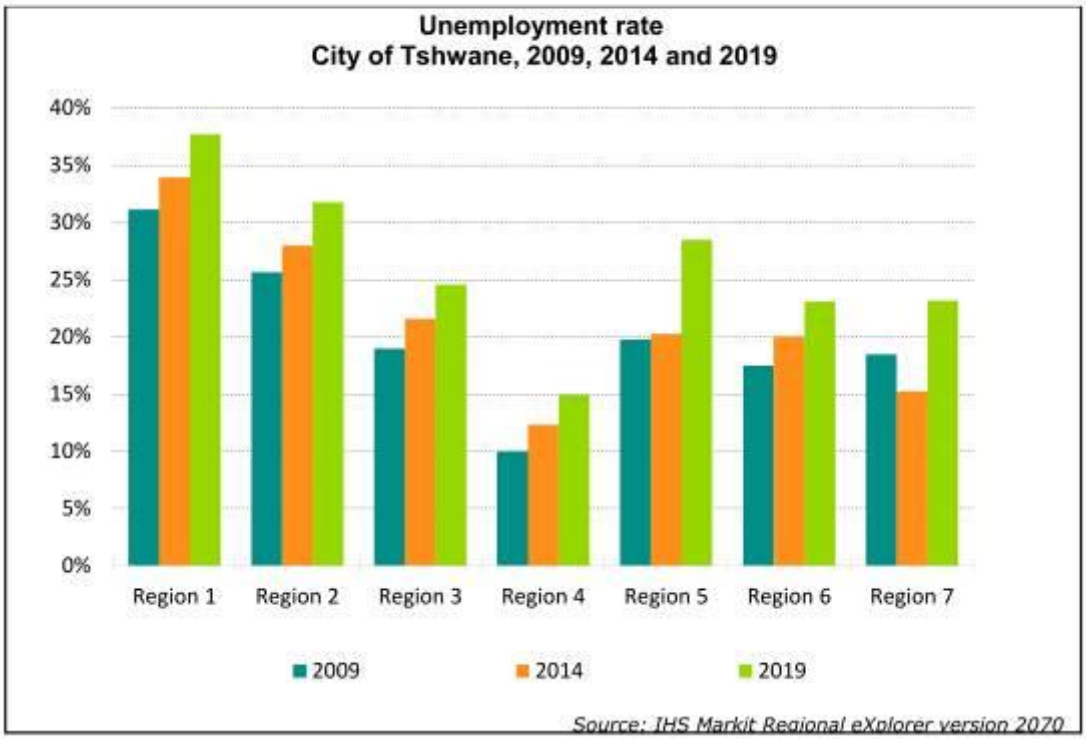
Around 22% of the economically active population in the region is unemployed, as shown in the figure below:

Figure 20: Employment



(Source: StasSA Census 2011).

Figure 21 UNEMPLOYMENT RATE - SUB-METRO REGIONS AND THE REST OF CITY OF TSHWANE METROPOLITAN MUNICIPALITY, 2009, 2014 AND 2019 [PERCENTAGE]



GROSS DOMESTIC PRODUCT (INCOME PER HOUSEHOLD):

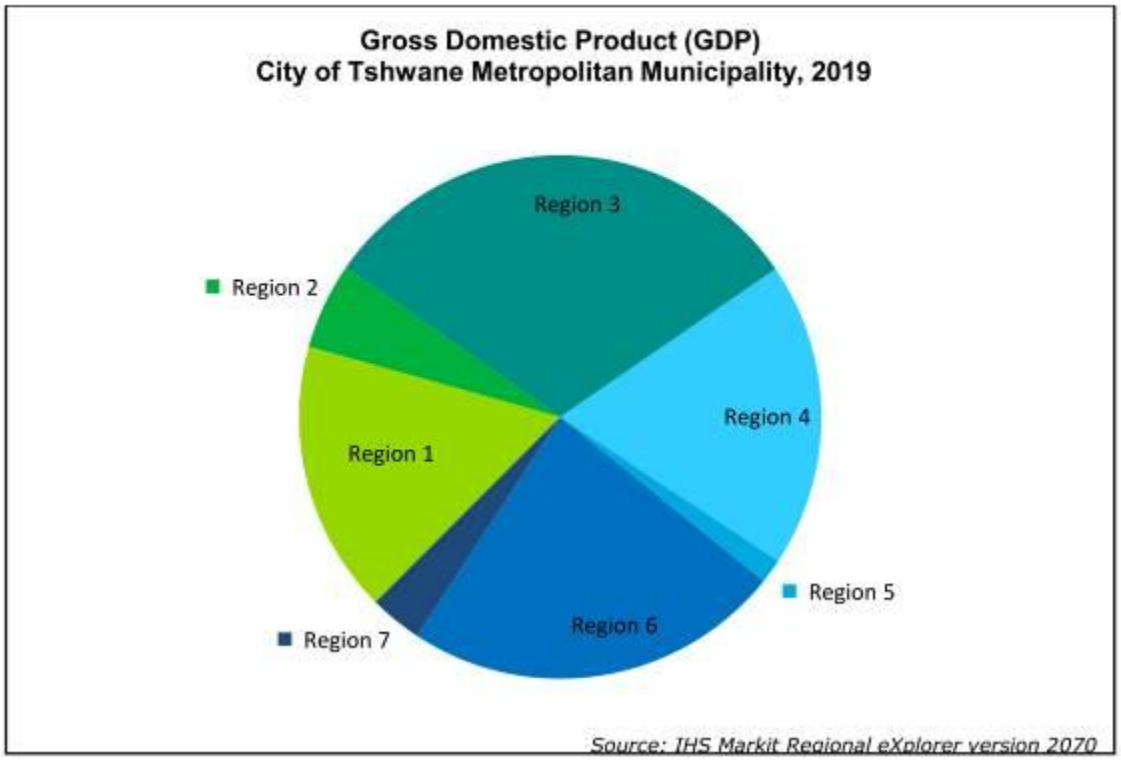
Table 20 GDP - SUB-METRO REGIONS OF CITY OF TSHWANE METROPOLITAN MUNICIPALITY, 2009 TO 2019, SHARE AND GROWTH

	2019 (Current prices)	Share of metropolitan municipality	2009 (Constant prices)	2019 (Constant prices)	Average Annual growth
Region 1	83.7	*16.84%*	37.9	51.9	***3.19%***
Region 2	26.6	*5.36%*	13.2	16.6	***2.33%***
Region 3	152.8	*30.73%*	82.2	98.3	***1.80%***
Region 4	93.7	*18.85%*	48.6	60.4	***2.21%***
Region 5	7.6	*1.52%*	3.9	4.8	***2.13%***
Region 6	116.6	*23.45%*	56.6	74.8	***2.83%***
Region 7	16.1	*3.24%*	7.7	10.3	***2.95%***
City of Tshwane	497.2		250.1	317.2	

Source: IHS Markit Regional eXplorer version 2070

The second largest contributor to the City of Tshwane Metropolitan Municipality is region 6, with a share of 23.45% or R 116.6 Billion.

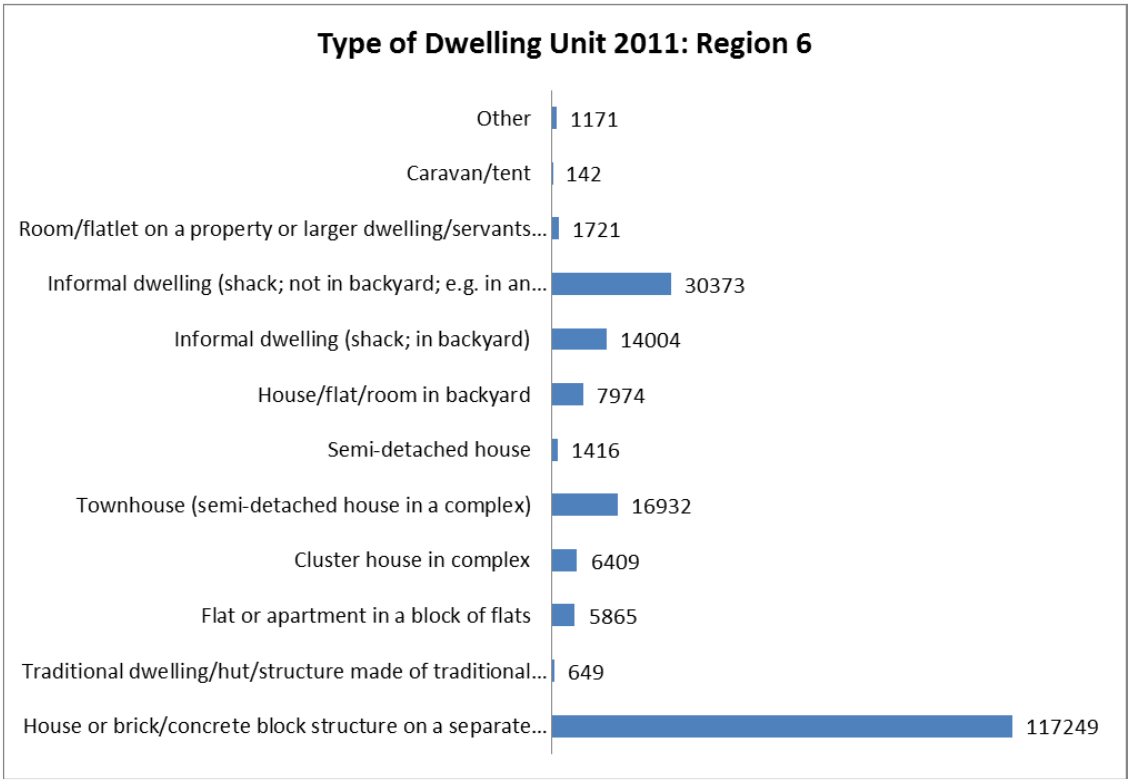
Figure 22 GDP CONTRIBUTION - SUB-METRO REGIONS OF CITY OF TSHWANE METROPOLITAN MUNICIPALITY, 2019 [CONSTANT PRICES]



Accommodation

A total of 44377 dwelling units, around 22% of dwelling in the region, are informal. The figure below shows a more detailed breakdown of dwelling units:

Figure 23: Dwelling Units



(Source: StatsSA Census 2011).

Table 21 16: HOUSEHOLDS BY DWELLING UNIT TYPE - REGION 1, REGION 2, REGION 3, REGION 4, REGION 5, REGION 6 AND REGION 7 SUB-METRO REGIONS, 2018 [NUMBER]

	Very Formal	Formal	Informal	Traditional	Other dwelling type	Total
Region 1	149,955	86,502	30,592	7,843	3,713	278,605
Region 2	21,955	71,101	9,024	8,649	921	111,651
Region 3	148,170	29,619	20,335	17,129	2,268	217,520
Region 4	124,518	15,348	24,934	8,770	4,870	178,440
Region 5	14,556	7,444	7,901	2,967	403	33,272
Region 6	186,385	20,192	33,724	13,032	2,796	256,129
Region 7	21,877	10,464	5,364	2,172	876	40,753
Total City of Tshwane	**667,416**	**240,671**	**131,875**	**60,562**	**15,846**	**1,116,370**

Source: IHS Markit Regional eXplorer version 2070

The region within the City of Tshwane Metropolitan Municipality with the highest number of very formal dwelling units is the Region 6 Sub-metro Region with 186 000 or a share of 27.93% of the total very formal dwelling units within City of Tshwane

SERVICE DELIVERY:

ELECTRICITY:

Table 22: HOUSEHOLDS BY TYPE OF ELECTRICAL CONNECTION - REGION 1, REGION 2, REGION 3, REGION 4, REGION 5, REGION 6 AND REGION 7 SUB-METRO REGIONS, 2018 [NUMBER]

	Electricity for lighting only	Electricity for lighting and other purposes	Not using electricity	Total
Region 1	2,913	260,695	14,997	278,605
Region 2	1,710	106,120	3,821	111,651
Region 3	2,920	197,434	17,166	217,520
Region 4	3,679	162,379	12,382	178,440
Region 5	932	26,455	5,885	33,272
Region 6	4,201	226,460	25,467	256,129
Region 7	1,273	36,735	2,745	40,753
Total City of Tshwane	**17,628**	**1,016,277**	**82,465**	**1,116,370**

Source: IHS Markit Regional eXplorer version 2070

SANITATION:

Table 23: HOUSEHOLDS BY TYPE OF SANITATION - REGION 1, REGION 2, REGION 3, REGION 4, REGION 5, REGION 6 AND REGION 7 SUB-METRO REGIONS, 2018 [NUMBER]

Region	Flush toilet	Ventilation Improved Pit (VIP)	Pit toilet	Other systems	No toilet	Total
Region 1	242,891	5,115	27,579	1,417	1,604	278,605
Region 2	73,304	4,024	33,070	803	449	111,651
Region 3	181,201	1,768	30,621	3,103	828	217,520
Region 4	163,658	329	12,087	1,470	896	178,440
Region 5	21,394	836	9,190	1,592	260	33,272
Region 6	220,410	2,252	30,120	2,439	908	256,129
Region 7	30,404	1,975	7,117	918	339	40,753
Total City of Tshwane	**933,263**	**16,298**	**149,784**	**11,741**	**5,285**	**1,116,370**

Source: IHS Markit Regional eXplorer version 2070

REFUSE DISPOSAL:

Table 24: HOUSEHOLDS BY REFUSE DISPOSAL - REGION 1, REGION 2, REGION 3, REGION 4, REGION 5, REGION 6 AND REGION 7 SUB-METRO REGIONS, 2018 [NUMBER]

	Removed weekly by authority	Removed less often than weekly by authority	Removed by community members	Personal removal (own dump)	No refuse removal	Total
Region 1	225,931	2,346	11,883	30,372	8,073	278,605
Region 2	65,804	2,808	7,114	29,829	6,096	111,651
Region 3	200,049	4,478	6,986	4,593	1,415	217,520
Region 4	165,064	1,763	2,784	7,712	1,117	178,440
Region 5	24,522	919	2,562	3,511	1,759	33,272
Region 6	225,943	2,847	11,073	12,306	3,960	256,129
Region 7	31,477	707	2,322	5,099	1,148	40,753
Total City of Tshwane	**938,790**	**15,867**	**44,724**	**93,422**	**23,568**	**1,116,370**

Source: IHS Markit Regional eXplorer version 2070

The region within City of Tshwane with the highest number of households where the refuse is removed weekly by the authority is Region 6 Sub-metro Region with 226 000 or a share of 24.07% of the households where the refuse is removed weekly by the authority within City of Tshwane. The region with the lowest number of households where the refuse is removed weekly by the authority is Region 5 Sub-metro Region with a total of 24 500 or a share of 2.61% of the total households where the refuse is removed weekly by the authority within the metropolitan municipality.

WATER ACCESS:

Table 25 HOUSEHOLDS BY TYPE OF WATER ACCESS - CITY OF TSHWANE METROPOLITAN MUNICIPALITY, 2018 [NUMBER]

	Piped water inside dwelling	Piped water in yard	Communal piped water: less than 200m from dwelling (At RDP-level)	Communal piped water: more than 200m from dwelling (Below RDP)	No formal piped water	Total
Region 1	196,540	71,655	8,360	682	1,368	278,605
Region 2	59,371	47,016	2,760	1,504	1,000	111,651
Region 3	175,541	32,647	6,105	1,170	2,058	217,520
Region 4	148,207	24,979	3,130	552	1,572	178,440
Region 5	14,271	15,760	2,279	601	361	33,272
Region 6	178,327	62,336	12,217	2,581	668	256,129
Region 7	18,867	20,580	823	287	195	40,753
Total City of Tshwane	**791,125**	**274,972**	**35,674**	**7,377**	**7,222**	**1,116,370**

Source: IHS Markit Regional eXplorer version 2070

In conclusion, Region 6 is a mix of low-density rural areas and high-density urban areas. Education and employment levels are close to the average for most of the other regions in the CoT. There is however an internal duality, with some of the highest income areas in the CoT being combined with low income and extensive rural areas.

SPATIAL CHARACTERISTICS:

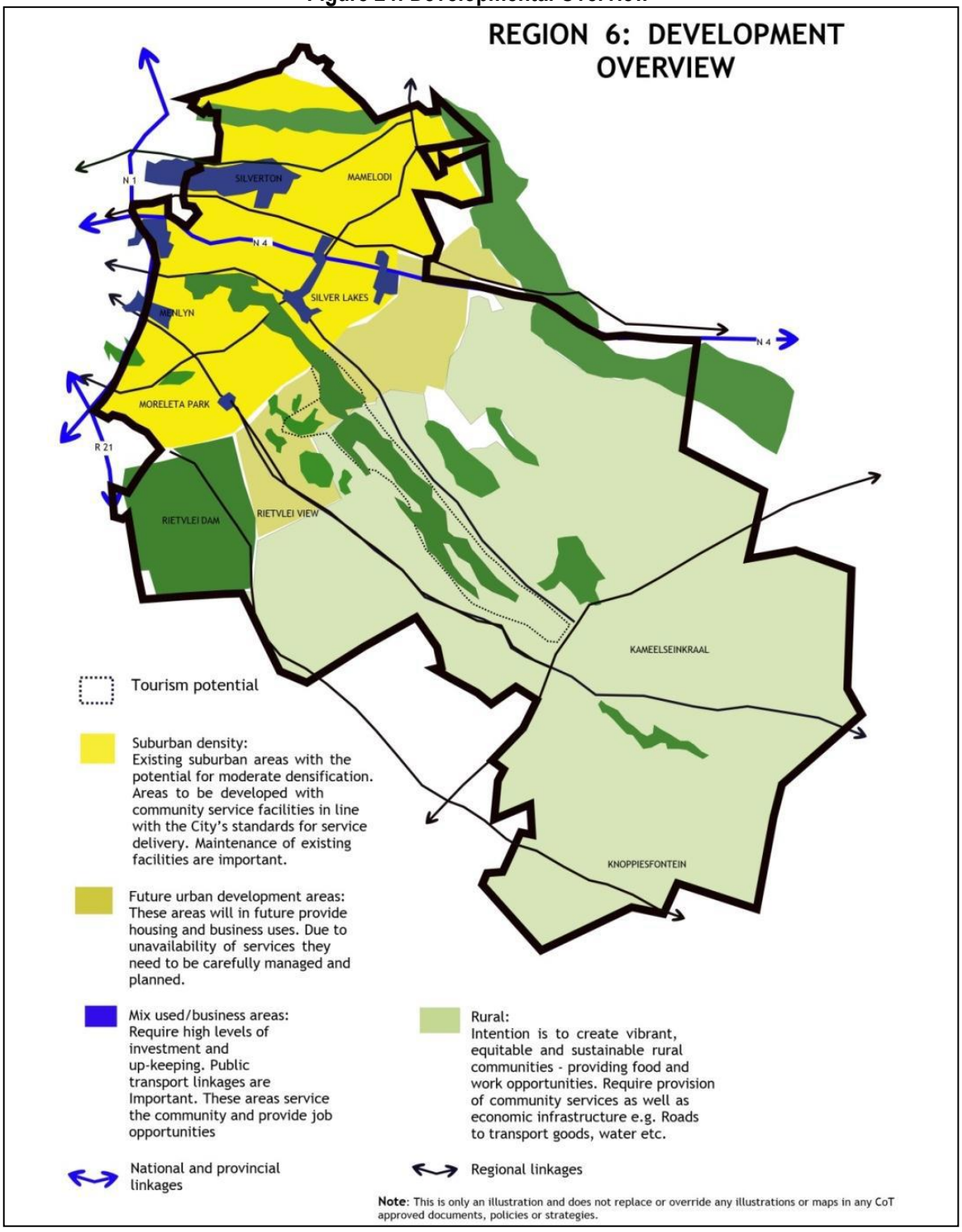
Main Components

Region 6 is located in the southeast of the City. It includes developed urban areas in the northwest and rural areas in the remainder of the region. The figure below indicates the key developmental features of the region, including main structuring elements such as nodes and main roads, future investment areas and natural features such as ridges.

The main characteristics of Region 6 are:

- The south-eastern section of this region has the highest income per capita and could be considered the fuel injection of the city.
- However, there is also a huge concentration of people in the northeast quadrant, representing low and no- income groups.
- It is the region with the greatest development pressure.
- Decentralised nodes accommodate a wide range of urban facilities.
- The region is popular in terms of retail as well as office functions as many of the higher category retail and office functions of the City have relocated to this region over the past few years. Further to this is also the second most important industrialised area in Tshwane situated in Silverton/ Silvertondale/ Waltloo/ Bellevue- area.
- Suburban areas are mostly low density in nature and the region accommodates a number of Golf and Lifestyle Estates such as Woodhill, The Hills and Silver lakes. However, there is also a high-density area to the north of the region with large areas planned for RDP type development and informal settlements invaded the land before construction of services took place.
- The east-west transportation linkages between nodes are saturated during peak hours.
- The historical radial linkages to the CBD are prominent.
- There is a high dependency on private motor vehicles, from the southern section of the region, placing an impossible demand on the road infrastructure. Further to this is a high rail related dependency of the northeastern quadrant to the City Centre. No south connection is possible.

Figure 24: Developmental Overview



 There is also an unusually high dependency on bus travel through the area from the far outlying rural areas e.g. Moutse and Moloto.
 The Bronberg and the Magaliesberg Mountain range is a major environmental feature running east to west in the northern part of the region. It provides limited thoroughfare, with only two major crossing points.
 The Moreleta Spruit and its tributaries cover virtually the entire area to the south of the Bronberg, contributing to the well-defined regional open space system of the southern part of the region.
 Further to the south of the region is the Rietvlei Dam and Nature reserve which is one of the larger open space assets of the City.

 The region contains a number of strategic land uses including the CSIR, South African National Intelligence Service and the Menlyn Park Retail Node which has a metropolitan function in terms of facilities.
 The Hatherley landfill site has a metropolitan function in terms of its Strategic nature and size. No other sites are known for future development in the Metro as yet.
 The region contains three large private hospitals as well as the Pretoria East Cemetery.
 Almost all the developable land within the southern section of the Region has been developed and the uncontrolled development in the old Kungwini area places a burden on the existing saturated road infrastructure.
 The north-eastern section of the region accommodates mostly low-income communities and industrial land uses.
 The middle and south-western section of the region accommodates medium to high-income areas with large institutional uses.
 The northern section of the region includes a number of strategically located undeveloped areas in terms of accessibility and infrastructure which offer significant development potential

SWOT ANALYSIS:

In summary, the strengths, weaknesses, opportunities, and threats facing the Region are the following:

Table 26: SWOT Analysis

STRENGTHS	OPPORTUNITIES
The region enjoys good regional accessibility via the N4, N1 and R21 routes. The region offers good quality residential opportunities. The region accommodates a number of well - developed nodes. The region has access to private sector investment. Good rail infrastructure in the northern part of the region. The region has a strong industrial sector with job opportunities at Waltloo, Silverton, East Lynn and Koedoespoort.	The introduction of a rail or Bus Rapid Transit route in support of the promotion of public transport in the region opens many opportunities for focused development. The utilisation of the development energy and momentum associated with the Menlyn node together with the CSIR node provides opportunities for development. The Koedoespoort Transnet land is an equally strategic location and could possibly accommodate a significant number of residential units in a mixed use environment. New development opportunities along the N4 corridor. No suitable land to accommodate expansion of Mamelodi will require re-development and urban re-generation projects.
WEAKNESSES	**THREATS**
Poor internal linkages and traffic congestion. Limited access to first order road system. Poorly developed public transport facilities, with no rail services in the south. Too few interchanges especially on the N4 on the first order road network to effectively benefit the region. Poor linkages to the north and south. Poverty, in the northern section with more than a third of the population having no income at all. Uncontrolled development in the eastern section (Old Kungwini area). Large estate and retail developments that are currently not economically viable and that have only developed partially due to the economic recession.	No suitable land to accommodate expansion of Mamelodi. Lack of private sector investment in low-income areas. Traffic congestion could lead to the “choking” of the southern areas, which could push economic development away from the region to less congested regions. Uncontrolled and uncoordinated development in the old Kungwini area, placing pressure on the internal movement system and engineering services of the region. Illegal township developments in the old Kungwini area that are not taken up in the system.

10. CULTURAL/HISTORICAL FEATURES

Please be advised that if section 38 of the National Heritage Resources Act 25 of 1999 is applicable to your proposal or alternatives, then you are requested to furnish this Department with written comment from the South African Heritage Resource Agency (SAHRA) – Attach comment in appropriate annexure

38. (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as-
(a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
(b) the construction of a bridge or similar structure exceeding 50m in length;
(c) any development or other activity which will change the character of a site-
(i) exceeding 5 000 m2 in extent; or
(ii) involving three or more existing erven or subdivisions thereof; or
(iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or
(iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;
(d) the re-zoning of a site exceeding 10 000 m2 in extent; or
(e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

Are there any signs of culturally (aesthetic, social, spiritual, environmental) or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including archaeological or palaeontological sites, on or close (within 20m) to the site?	~~YES~~	**NO**

If YES, explain:

If uncertain, the Department may request that specialist input be provided to establish whether there is such a feature(s) present on or close to the site.

Briefly explain the findings of the specialist if one was already appointed:

Will any building or structure older than 60 years be affected in any way?	~~YES~~	**NO**
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?	~~YES~~	**NO**

If yes, please attached the comments from SAHRA in the appropriate Appendix

SECTION C: PUBLIC PARTICIPATION (SECTION 41)

1. The Environmental Assessment Practitioner must conduct public participation process in accordance with the requirement of the EIA Regulations, 2014.

2. LOCAL AUTHORITY PARTICIPATION

Local authorities are key interested and affected parties in each application and no decision on any application will be made before the relevant local authority is provided with the opportunity to give input. The planning and the environmental sections of the local authority must be informed of the application at least thirty (30) calendar days before the submission of the application to the competent authority.

Was the draft report submitted to the local authority for comment?	**YES**	~~NO~~
If yes, has any comments been received from the local authority?	~~YES~~	**NO**

If "YES", briefly describe the comment below (also attach any correspondence to and from the local authority to this application):

If "NO" briefly explain why no comments have been received or why the report was not submitted if that is the case.

We are currently in the process of conducting the PUBLIC PARTICIPATION PROCESS in accordance with the relevant NEMA EIA 2014 REGULATIONS (as Amended), and this DRAFT BASIC ASSESSMENT REPORT was forwarded for comments to the CITY of TSHWANE METROPOLITAN MUNICIPALITY, and we are currently awaiting comments from them and will be included in the FINAL BASIC ASSESSMENT REPORT.

3. CONSULTATION WITH OTHER STAKEHOLDERS

Any stakeholder that has a direct interest in the activity, site or property, such as servitude holders and service providers, should be informed of the application at least **thirty (30) calendar days** before the submission of the application and be provided with the opportunity to comment.

Has any comment been received from stakeholders?	~~YES~~	**NO**

If "YES", briefly describe the feedback below (also attach copies of any correspondence to and from the stakeholders to this application):

If "NO" briefly explain why no comments have been received

We are currently in the process of conducting the PUBLIC PARTICIPATION PROCESS (PPP) in accordance with the relevant NEMA EIA 2014 REGULATIONS (as Amended), and this DRAFT BASIC ASSESSMENT REPORT was made available for comments i.e. the PPP advertised in the *PRETORIA REKORD - FAR EAST* Newspaper on the 5th of October 2021, Site Notices placed on site, written notices of the PPP forwarded to adjacent property owners & relevant stakeholders (e.g. *Friends of The Bronberg Community*), and we are currently awaiting comments from any possible I&Aps and will be included in the FINAL BASIC ASSESSMENT REPORT with our response(s).

4. GENERAL PUBLIC PARTICIPATION REQUIREMENTS

The Environmental Assessment Practitioner must ensure that the public participation process is adequate and must determine whether a public meeting or any other additional measure is appropriate or not based on the particular nature of each case. Special attention should be given to the involvement of local community structures such as Ward Committees and ratepayers associations. Please note that public concerns that emerge at a later stage that should have been addressed may cause the competent authority to withdraw any authorisation it may have issued if it becomes apparent that the public participation process was flawed. The EAP must record all comments and respond to each comment of the public / interested and affected party before the application report is submitted. The comments and responses must be captured in a Comments and Responses Report as prescribed in the regulations and be attached to this application.

5. APPENDICES FOR PUBLIC PARTICIPATION

All public participation information is to be attached in the appropriate Appendix. The information in this Appendix is to be ordered as detailed below

Appendix 1 – Proof of site notice

Appendix 2 – Written notices issued as required in terms of the regulations.

Appendix 3 – Proof of newspaper advertisements

Appendix 4 –Communications to and from interested and affected parties.

Appendix 5 – Minutes of any public and/or stakeholder meetings

Appendix 6 - Comments and Responses Report

Appendix 7 –Comments from I&APs on Basic Assessment (BA) Report

Appendix 8 –Comments from I&APs on amendments to the BA Report

Appendix 9 – Copy of the register of I&Aps

SECTION D: RESOURCE USE AND PROCESS DETAILS

Note: Section D is to be completed for the proposal and alternative(s) (if necessary)

Instructions for completion of Section D for alternatives

1) For each alternative under investigation, where such alternatives will have different resource and process details (e.g. technology alternative), the entire Section D needs to be completed
4) Each alterative needs to be clearly indicated in the box below
5) Attach the above documents in a chronological order

Section D has been duplicated for alternatives **"insert No. of duplicates"** times

(complete only when appropriate)

Section D Alternative No. "insert alternative number" (complete only when appropriate for above)

THE FOLLOWING SECTION IS APPLICABLE FOR THE 'PROPOSAL' and for 'ALTERNATIVE 1':

1. WASTE, EFFLUENT, AND EMISSION MANAGEMENT

Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?	**YES**	~~NO~~
If yes, what estimated quantity will be produced per month?	5-10m^3	

How will the construction solid waste be disposed of (describe)?

The main building contractor is to remove the construction solid waste to a Registered Municipal landfill site

Where will the construction solid waste be disposed of (describe)?

The main building contractor is to remove the construction solid waste to a Registered Municipal landfill site

Will the activity produce solid waste during its operational phase?	**YES**	~~NO~~
If yes, what estimated quantity will be produced per month?	**Max. of ±0.5m^3**	

How will the solid waste be disposed of (describe)?

The standard municipal waste collection services (i.e. the normal current municipal waste stream) will collect the solid household waste.

Has the municipality or relevant service provider confirmed that sufficient air space exists for treating/disposing of the solid waste to be generated by this activity?	~~YES~~	**NO**

Where will the solid waste be disposed if it does not feed into a municipal waste stream (describe)?

Note: If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Can any part of the solid waste be classified as hazardous in terms of the relevant legislation?	~~YES~~	**NO**

If yes, inform the competent authority and request a change to an application for scoping and EIA.

Is the activity that is being applied for a solid waste handling or treatment facility?	~~YES~~	**NO**

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Describe the measures, if any, that will be taken to ensure the optimal reuse or recycling of materials:

None

Liquid effluent (other than domestic sewage)

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?	~~YES~~	**NO**
If yes, what estimated quantity will be produced per month?		m^3
If yes, has the municipality confirmed that sufficient capacity exist for treating / disposing of the liquid effluent to be generated by this activity(ies)?	YES	NO
Will the activity produce any effluent that will be treated and/or disposed of on site?	~~Yes~~	**NO**
If yes, what estimated quantity will be produced per month?		m^3

If yes describe the nature of the effluent and how it will be disposed.

N.a.

Note that if effluent is to be treated or disposed on site the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA

Will the activity produce effluent that will be treated and/or disposed of at another facility?	~~YES~~	**NO**

If yes, provide the particulars of the facility:

Facility name:			
Contact person:			
Postal address:			
Postal code:			
Telephone:		Cell:	
E-mail:		Fax:	

Describe the measures that will be taken to ensure the optimal reuse or recycling of waste water, if any:

N.a.

Liquid effluent (domestic sewage)

Will the activity produce domestic effluent that will be disposed of in a municipal sewage system?	**YES**	~~NO~~
If yes, what estimated quantity will be produced per month?		**0,5 m^3**
If yes, has the municipality confirmed that sufficient capacity exist for treating / disposing of the domestic effluent to be generated by this activity(ies)?	**YES**	~~NO~~
Will the activity produce any effluent that will be treated and/or disposed of on site?	~~YES~~	**NO**

If yes describe how it will be treated and disposed of.

Emissions into the atmosphere

Will the activity release emissions into the atmosphere?	~~YES~~	**NO**
If yes, is it controlled by any legislation of any sphere of government?	~~YES~~	NO

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If no, describe the emissions in terms of type and concentration:

2. WATER USE

Indicate the source(s) of water that will be used for the activity

municipal	~~Directly from water board~~	~~groundwater~~	~~river, stream, dam or lake~~	~~other~~	~~the activity will not use water~~

If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month: liters

If Yes, please attach proof of assurance of water supply, e.g. yield of borehole, in the appropriate Appendix

Does the activity require a water use permit from the Department of Water Affairs?	~~YES~~	**NO**

If yes, list the permits required

If yes, have you applied for the water use permit(s)?	YES	NO
If yes, have you received approval(s)? (attached in appropriate appendix)	YES	NO

3. POWER SUPPLY

Please indicate the source of power supply eg. Municipality / Eskom / Renewable energy source

MUNICIPALITY

If power supply is not available, where will power be sourced from?

4. ENERGY EFFICIENCY

Describe the design measures, if any, that have been taken to ensure that the activity is energy efficient:

1. The residences have been designed to include for sloped north-facing photovoltaics and an integrated solar energy system with batteries that will all be installed by a specialist to ensure houses operate off-grid.
2. Lighting (LED), insulation (100mm+), brick cavity walls and glazing have been specified to improve energy efficiency and both houses rationally designed by a competent person comply with SANS 10400 XA and SANS 204. Full reports available upon request.
3. The residences will be fitted with individual heat pumps.
4. Geysers specified are a thicker gauge steel for better insulation.
5. The residences will be fitted with an individual electrical sub-meter.
6. Additional underfloor insulation has been designed for key areas.

Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:

N.a.

SECTION E: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2014, and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts as well as the impacts of not implementing the activity (Section 24(4)(b)(i).

1. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

Summarise the issues raised by interested and affected parties.

The public participation process is currently being conducted and all issues raised by interested and affected parties will be included in the FINAL BASIC ASSESSMENT REPORT.

Summary of response from the practitioner to the issues raised by the interested and affected parties (including the manner in which the public comments are incorporated or why they were not included)
(A full response must be provided in the Comments and Response Report that must be attached to this report):

The public participation process is currently being conducted and the response by the practitioner to all the issues raised by interested and affected parties will be included in the FINAL BASIC ASSESSMENT REPORT.

2. IMPACTS THAT MAY RESULT FROM THE CONSTRUCTION AND OPERATIONAL PHASE

Briefly describe the methodology utilised in the rating of significance of impacts.

"Impact Significance is the value placed on the change by different affected parties (i.e. level of significance & acceptability). It is an anthropocentric concept, which makes use of value judgements & science-based criteria (i.e. biophysical, social & economic). Such judgement reflects the political reality of impact assessment in which significance is translated into public acceptability of impacts. The Process of determining impact significance includes the following tasks: impact identification, impact prediction and impact evaluation. The Impact Significance is determined predominantly by using systematic generic and judgemental criteria i.e. extent of spatial scale of the impact; intensity or severity of the impact; duration of the impact; mitigatory potential; acceptability; degree of certainty; status of the impact; and legal requirements."[1] Rating of significance of each impact will be indicated by the following symbols: L = low; L-M = low to medium; M=medium; M-H= medium to high; H= high; VH= very high. Positive Impact = (Pos) or +; Negative Impact = (Neg) or –".

Criteria for Assessment of Impacts:

These criteria are drawn from the EIA Regulations, published by the Department of Environmental Affairs and Tourism (April 1998) in terms of the Environmental Conservation Act No. 73 of 1989.The criteria include:

Nature of the impact:

This is an appraisal of the type of effect the construction, operation and maintenance of a development would have on the affected environment. This description should include what is to be affected and how.

Extent of the Impact:

The environmental consultant &/or any relevant specialists should describe whether the impact will be:

(1) Site (i.e. extending only as far as the development boundary of the site area),
(2) Local/Surrounds (i.e. the area and its immediate surroundings within 5km of the site),
(3) Municipal (i.e. Merafong Local Municipal Region),
(4) Provincial (i.e. Gauteng),

[1] DEAT (2004) Integrated Environmental Management, Information Series, Department of Environmental Affairs and Tourism (DEAT), Pretoria.

(5) National (i.e. South Africa), or
(6) International (i.e. Africa, Europe, USA etc).

Duration of the Impact:

The environmental consultant &/or any relevant specialists should indicate whether the lifespan of the impact would be:
(1) Immediate (>1year),
(2) Short term (1-5 years),
(3) Medium term (6-15 years),
(4) Long term (16-30 years and/or the impact will cease after the operational life span of the project), or
(5) Permanent (no mitigation measure of natural process will reduce the impact after construction).

Magnitude/Intensity:

The environmental consultant &/or any relevant specialists should establish whether the impact is destructive or benign and should be qualified i.e. the severity of the impacts is indicated as either:
(0) None (where the aspect will have no impact on the environment,
(2) Minor (where the impact affects the environment in such a way that natural, cultural and social functions and processes are not affected),
(4) Low (where the impact affects the environment in such a way that natural, cultural and social functions and processes are slightly affected),
(6) Moderate/Medium (where the affected environment is altered but natural, cultural and social functions and processes continue albeit in a modified way),
(8) High (where natural, cultural or social functions or processes are altered to the extent that it will temporarily cease), or
(10) Very High / don't know (where natural, cultural or social functions or processes are altered to the extent that it will permanently cease.

Probability of occurrence:

The environmental consultant &/or any relevant specialists should describe the probability (i.e. likelihood) of the impact actually occurring and should be described as either:
(0) None (the impact will not occur),
(1) Improbable (low likelihood – the possibility of the impact materializing is very low as a result of design, historic experience, or implementation of adequate corrective actions),
(2) Low Probability (there is a possibility that the impact will occur),
(3) Medium Probability (distinct possibility – the impact may occur),
(4) High Probability (it is most likely that the impact will occur), or
(5) Definite / I don't know (the impact will occur regardless of the implementation of any prevention measures and/or corrective actions, or you don't know what the probability will be based on too little published information).

Status of the Impact:

The environmental consultant &/or any relevant specialists should determine whether the impacts are:
Negative Effect (i.e. at a "cost" of the environment),
Positive Effect, (i.e. a "benefit" to the environment), or
Neutral effect on the environment.
The impacts are to be assessed in terms of their effect on the project and the environment. For example, an impact that is positive for the proposed development may be negative for the environment. It is important that this distinction is made in the analysis.

Degree of confidence in predictions:

The environmental consultant &/or any relevant specialists should state what degree of confidence (low, medium or high) is there in the predictions based on the available information and level of knowledge and expertise.

Significance of the Impact:
Based on the information contained in the points above, the potential impacts are assigned as significance weighting (S). This weighting is formulated by adding the sum of the numbers assigned to extent (E), duration (D) and Magnitude (M) and multiplying this sum by the probability (P) of the Impact.

$S=(E+D+M)P$

(0) No significance: (The impacts do not influence the proposed development and/or environment in any way),
(<30) Low: (The impacts will have a minor influence on the proposed development and/or environment i.e. where this impact would not have a direct influence on the decision to develop in the area. These impacts could possibly require some attention to modification of the project design where possible, or alternative mitigation.
(30-60)Moderate/Medium: (The impacts will have a moderate influence on the proposed development and/or environment. The impact can be ameliorated by a modification in the project design or implementation of effective mitigation measures i.e. where the impact could influence the decision to develop in the area unless it is effectively mitigated).

(>60) High: (i.e where the impact must have an influence on the decision process to develop in the area. The impacts will be likely to have the "no-go" implication on the development or portions of the development regardless of any mitigation measures that could be implemented. This level of significance must be well motivated.

PLEASE NOTE:
It is a function of the Basic Assessment Process to consider all the Issues and Concerns Identified during the Process and provide a brief assessment of the significance of these Issues and Impacts as well as any alternatives. The Table below provides an environmental impact statement in that it summarizes the impacts of the preferred proposal (no alternatives have been considered) may have on the environment in that it provides an assessment of the issues raised in the public participation process and the potential impacts of the development. It must be noted that in the Table underneath only Issues considered relevant and/or important for decision-making have been listed and also relates to Impacts that have been or can be addressed through design and mitigation. Recommendations regarding these Issues/Impacts have also been incorporated into an environmental management program (i.e. attached in ***Appendix H***) that are formulated for construction and operations and/or in the detailed design; and, there are no other known Impacts that cannot be readily addressed and/or require more detailed consideration to determine their significance and/or to inform recommendations regarding mitigation measures and/or detailed design.

Briefly describe and compare the potential impacts (as appropriate), significance rating of impacts, proposed mitigation and significance rating of impacts after mitigation that are likely to occur as a result of the construction phase for the various alternatives of the proposed development. This must include an assessment of the significance of all impacts.

PROPOSAL PREFERRED LAYOUT PLAN:

PROPOSED RESIDENCES to be situated on Portion 350 of the FARM THE WILLOWS 340-JR (City of Tshwane Metropolitan Municipality, Gauteng) - with associated Civil Services infrastructure

POTENTIAL IMPACTS on the TERRESTRIAL VEGETATION & FLORA BIODIVERSITY:

[Taken from i.e. quoted directly, from the specialist reports contained in APPENDIX G – '1. (i.e. '*An assessment of vegetation, flora, vertebrate fauna and wetlands on Erf 350 of the Farm The Willows 340 JR, City of Tshwane, Gauteng. By G.J. Bredenkamp D.Sc. Pr.Sci.Nat. J.P.C. van Wyk M.Sc. Pr.Sci.Nat. C.E. Venter M.Sc. Pr.Sci.Nat. Commissioned by Pierre Joubert Landscape Architect and Environmental Planner [EcoAgent CC PO Box 25533 Monument Park 0181. Tel 012 4602525. Cell 082 5767046. March 2021]).*'

1. Potential Direct & Indirect Impacts on natural terrestrial vegetation.

Nature: Impact of the Preferred Lay-Out development on plant communities with Medium-Low or Low ecological sensitivity - loss of indigenous vegetation due to clearing for construction of two residences.
The relevant area is 0,45 ha in size. Only the footprint area for the development of two residences will be cleared of vegetation. The rest of the area will remain as natural as possible, with the development of an indigenous garden with special measures to enhance habitat for Juliana's Golden Mole. Due to the small area to be cleared, minimal loss of indigenous plant species is expected, while low disturbance of plant populations and the limited fragmentation of the already disturbed plant community will occur. The removal of vegetation will expose soil, with minimal risk of erosion during construction period.
NOTE: The Impact Assessment is restricted to the plant communities with Medium-Low or Low ecological sensitivity. The ecological sensitivity of the Historically Disturbed Plains Bushveld and the Recently Cleared Areas is **Medium-Low** or **Low**. This is mainly due to the transformed, degraded and disturbed nature of these plant communities, they have medium species richness and do not contain any protected plant species. The proposed development is restricted to these two plant communities with Medium-Low or Low ecological sensitivity.
As the natural vegetation had already long ago been transformed the **significance of the impact** of the proposed development on this vegetation, with mitigation, is therefore considered to be **Minor** during construction and **Low** during operational phases. Removal and control of alien invasive plant species is very important. There is adequate space left for conservation of plains bushveld, albeit historically disturbed, and the development of an indigenous garden and implementation of the management plan for Juliana's Golden Mole are important measures to maintain biodiversity on the site. From vegetation and flora point of view, the proposed development on this area can be supported.

	Without mitigation		With mitigation	
PLANNING & DESIGN PHASE				
Probability	n.a.	0	n.a.	0
Duration	n.a.	0	n.a.	0

Extent	n.a.	0	n.a.	0
Magnitude	n.a.	0	n.a.	0
Significance	n.a.	**0**	n.a.	**0**
Status (positive or negative)	n.a.		n.a.	
CONSTRUCTION PHASE				
Probability	Definite	5	Definite	5
Duration	Short-term	1	Short term	1
Extent	Limited to construction site	1	Limited to construction site	1
Magnitude	Minor	2	Small	1
Significance	**Minor**	**20**	**Minor**	**15**
Status (positive or negative)	Negative		Negative	
OPERATIONAL PHASE				
Probability	Definite	5	Definite	5
Duration	Permanent	5	Permanent	5
Extent	Local	1	Local	1
Magnitude	Major	5	Minor	2
Significance	**Moderate**	**55**	**Moderate**	**40**
Status (positive or negative)	Negative		Negative	
DECOMMISSIONING & CLOSURE PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	n.a.		n.a.	
Reversibility	Low		Moderate	
Irreplaceable loss of resources?	Low		Low	
Can impacts be mitigated?	Yes			

Mitigation:

- The clearing of vegetation must be kept to a minimum and remain within the footprint development – leave the rest of the area with natural vegetation intact.
- Leave all trees but remove alien invasive species wherever possible.
- Construction must be completed as quickly as possible.
- Disturbed open areas must be rehabilitated immediately after construction has been completed in that area by developing an indigenous garden by planting appropriate indigenous tree, grass and forb species.
- During the construction phase workers must be limited to areas under construction and access to the planned open areas must be strictly controlled.
- Rehabilitated areas must be monitored to ensure the establishment of re-vegetated areas.
- Plant only indigenous trees – no alien species.
- Adhere to the proposed management plan for Juliana's Golden Mole.

Cumulative impacts: Not Expected to reduce the functional ecosystems in the area.

Residual Risks: Little anticipated as it is expected that the mitigation measures will be implemented correctly.

2. Potential Direct & Indirect Impacts on natural terrestrial vegetation.

Nature: Impact of the Preferred Lay-Out development on plant communities with Medium-Low or Low ecological sensitivity - Increase of alien invasive plant species on cleared sites.

Alien invasive plant species and weeds may encroach into any disturbed areas particularly areas cleared for the proposed development. Large parts of the proposed site already have various woody alien and invasive plant species present. These must be removed and an indigenous garden developed.

NOTE: The Impact Assessment is restricted to the plant communities with Medium-Low or Low ecological sensitivity. The ecological sensitivity of the Historically Disturbed Plains Bushveld and the Recently Cleared Areas is **Medium-Low** or **Low**. This is mainly due to the transformed, degraded and disturbed nature of these plant communities, they have medium species richness and do not contain any protected plant species. The proposed development will touch a negligible small part of the Disturbed Tall Treeveld on the Plains (Medium ecological sensitivity).

As the natural vegetation had already long ago been transformed the **significance of the impact** of the proposed development on this vegetation, with mitigation, is therefore considered to be **Minor** during construction and **Low** during operational phases. Removal and control of alien invasive plant species is very important. There is adequate space left for conservation of plains bushveld, albeit historically disturbed, and the development of an indigenous garden and implementation of the management plan for Juliana's Golden Mole are important measures to maintain biodiversity on the site. From vegetation and flora point of view, the proposed development on this area can be supported.

	Without mitigation		With mitigation	
PLANNING & DESIGN PHASE				
Probability	n.a.	0	n.a.	0
Duration	n.a.	0	n.a.	0
Extent	n.a.	0	n.a.	0
Magnitude	n.a.	0	n.a.	0
Significance	n.a.	**0**	n.a.	**0**
Status (positive or negative)	n.a.		n.a.	
CONSTRUCTION PHASE				
Probability	Improbable	2	Very improbable	1
Duration	Short-term	1	Short term	1
Extent	Limited to construction site	1	Limited to construction site	1
Magnitude	Moderate	5	Minor	2
Significance	**Minor**	**14**	**Minor**	**4**
Status (positive or negative)	Negative		Positive	
OPERATIONAL PHASE				
Probability	Improbable	2	Very improbable	1
Duration	Permanent	5	Permanent	5
Extent	Limited to site	1	Limited to site	1
Magnitude	Low	2	Low	1
Significance	**Minor**	**16**	**Minor**	**7**
Status (positive or negative)	Negative		Positive	
DECOMMISSIONING & CLOSURE PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	n.a.		n.a.	
Reversibility	Moderate		High	
Irreplaceable loss of resources?	Low		Low	
Can impacts be mitigated?	Yes			

Mitigation:

- An alien invasive management programme must be incorporated into the Environmental Management Programme.
- Ongoing alien plant control must be undertaken.
- Areas which have been disturbed will be quickly colonised by invasive alien species. An ongoing management plan must be implemented for the clearing/eradication of alien species.
- Monitor all sites disturbed by construction activities for colonisation by exotics or invasive plants and control these as they emerge.

- Avoid planting of exotic plant species, use indigenous species.
- Develop an indigenous garden.
- Adhere to the proposed management plan for Juliana's Golden Mole.

Cumulative impacts: Minor, should mitigation measure not be implemented. Alien invader plant species pose an ecological threat as they alter habitat structure; lower biodiversity, change ecosystem services and processes e.g. change nutrient cycling and productivity, and modify food webs.

Residual Risks: None anticipated provided that the mitigation measures are implemented correctly, and rehabilitation of the site is undertaken.

POTENTIAL IMPACTS on the MAMMALS & MAMMALS HABITAT:

[Taken from i.e. quoted directly, from the specialist reports contained in APPENDIX G – '1. (i.e. '*An assessment of vegetation, flora, vertebrate fauna and wetlands on Erf 350 of the Farm The Willows 340 JR, City of Tshwane, Gauteng. By G.J. Bredenkamp D.Sc. Pr.Sci.Nat. J.P.C. van Wyk M.Sc. Pr.Sci.Nat. C.E. Venter M.Sc. Pr.Sci.Nat. Commissioned by Pierre Joubert Landscape Architect and Environmental Planner [EcoAgent CC PO Box 25533 Monument Park 0181. Tel 012 4602525. Cell 082 5767046. March 2021]).*'

1. Potential Direct & Indirect Impacts on MAMMALS & MAMMALS HABITAT.

Nature: Direct Impacts of the Preferred Lay-Out development on mammal communities and loss of mammal habitat.
Only the footprint area for the development of two residences will be cleared of vegetation. The rest of the area will remain as natural as possible, with the development of an indigenous garden with special measures to enhance habitat for Juliana's Golden Mole. Due to the small area to be cleared, minimal loss of indigenous plant species is expected, while low disturbance of plant populations and the limited fragmentation of the already disturbed plant community will occur. The footprint for the proposed residential development will result in clearing most of the vegetation area. After clearing the vegetation, construction will commence. Construction activities may result in disturbance of mammal individuals or populations.

NOTE: The development according to the **Preferred Lay-Out** plan will be located on the Recently Disturbed Area with Low ecological sensitivity and the Historically Disturbed Plains Bushveld area with Medium-Low ecological sensitivity. The proposed development will touch a negligible small part of the Disturbed Tall Treeveld on the Plains (Medium ecological sensitivity). Areas within the Historically Disturbed) Plains Bushveld vegetation and the entire area of the Dense Treeveld of the Heritage site and Disturbed Tall Treeveld of the Plains will remain as natural veld. An indigenous garden is planned for the immediate surroundings of the residences. The Preferred Lay-Out development plan implies that a much larger area of natural vegetation will remain intact and a much larger area can be developed into a indigenous garden to the benefit of Juliana's Golden Mole. It is therefore envisaged that the impact of the Preferred Lay-Out development will be far less significant on the mammals, particularly the Juliana's Golden Mole, than the Alternative Lay-Out development, particularly should the conservation management plan be implemented.

'Juliana's golden mole subsurface activities were recorded at a few localities on site. The golden mole subsurface activities were found around a diversity of habitat types on the study site and buffer areas. The golden mole occurs on the site is in both natural and in unnatural urban settings. Part of the study site includes the Bronberg Conservation Area where no development may occur, and signs of the Juliana's golden mole activity have been recorded. These golden mole individuals in the Bronberg Conservation Area would not be affected by the development since they occur outside the intended footprint of the development. The area where the intended development will take place has been altered by invasive plant species and except for a small area, no Juliana's golden mole subsurface activities were recorded. Near the white stinkwood trees at Erf 350, which is also a cultural heritage site, golden mole activities were observed at 25°46'51"S; 28°20'05"E. This area must be excluded from development. Golden moles are adapted to co-exist with human beings in rural settings on condition that the substrate consists of soft sand with no or little clay content and the soils kept permanently moist by regular irrigation. Implemented the suggested Ecological Management Plan (included in this report) will stabilize the population at higher numbers and ensure year-round optimized ecological conditions in a structured manner. Connectivity with adjoining properties is good. From a vertebrate perspective, there is no objection against the development as long as the development strictly adheres to the mitigation measures for the Juliana's Golden mole'.

	Without mitigation		With mitigation	
PLANNING & DESIGN PHASE				
Probability	n.a.	0	n.a.	0
Duration	n.a.	0	n.a.	0

Extent	n.a.	0	n.a.	0
Magnitude	n.a.	0	n.a.	0
Significance	n.a.	**0**	n.a.	**0**
Status (positive or negative)	n.a.		n.a.	
CONSTRUCTION PHASE				
Probability	Definite	5	Definite	5
Duration	Short term 1 year	1	Short term 1 year	1
Extent	Limited to construction site	1	Limited to construction site	1
Magnitude	Low	4	Minor	1
Significance	**Low**	**30**	**Minor**	**15**
Status (positive or negative)	Negative		Negative	
OPERATIONAL PHASE				
Probability	Definite	5	Definite	5
Duration	Permanent	5	Permanent	5
Extent	Limited to site	1	Limited to site	1
Magnitude	Moderate	5	Low	3
Significance	**Moderate**	**55**	**Moderate**	**45**
Status (positive or negative)	Negative		Negative/Positive	
DECOMMISSIONING & CLOSURE PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	n.a.		n.a.	
Reversibility	No		No	
Irreplaceable loss of resources?	No too small areas and natural mammal habitats are already disturbed for biodiversity or conservation.		No too small areas and natural mammal habitats are already disturbed for biodiversity or conservation.	
Can impacts be mitigated?	Yes, planting indigenous species in the gardens will enhance habitats for mammals and implementation of the management plan for Juliana's Golden Mole will improve mammal habitats in general			

Mitigation:

- Should any South African Hedgehog or other mammal species be encountered or exposed during the construction phase, they should be removed and relocated to natural areas in the vicinity. The contractor must ensure that no indigenous mammal species are disturbed, trapped, hunted or killed during the construction phase. Conservation-orientated clauses should be built into contracts for construction personnel, complete with penalty clauses for non-compliance.
- During the construction phase there may be increased surface runoff and a decreased water quality (with increased silt load and pollution). Completing construction during the winter months would mitigate this environmental impact.
- The appropriate agency should implement an ongoing monitoring and eradication program for all invasive plant species growing on the site.
- Any post-development re-vegetation or landscaping exercise should use species indigenous to South Africa. Plant species locally indigenous to the area are preferred.
- Planting indigenous species in the gardens and development of an indigenous garden will enhance habitats for mammals.
- Implementation of the management plan for Juliana's Golden Mole will improve mammal habitats in general and contribute to the conservation of these species.
- Near the white stinkwood trees at Erf 350, which is also a cultural heritage site, golden mole activities were observed at 25°46'51"S; 28°20'05"E. This area must be excluded from development

Cumulative impacts: Limited, the adjacent areas are already used as residential areas.

Residual Risks: None anticipated.

POTENTIAL IMPACTS on the AVIFAUNA & AVIFAUNA HABITAT:

[Taken from i.e. quoted directly, from the specialist reports contained in APPENDIX G – '1. (i.e. '*An assessment of vegetation, flora, vertebrate fauna and wetlands on Erf 350 of the Farm The Willows 340 JR, City of Tshwane, Gauteng. By G.J. Bredenkamp D.Sc. Pr.Sci.Nat. J.P.C. van Wyk M.Sc. Pr.Sci.Nat. C.E. Venter M.Sc. Pr.Sci.Nat. Commissioned by Pierre Joubert Landscape Architect and Environmental Planner [EcoAgent CC PO Box 25533 Monument Park 0181. Tel 012 4602525. Cell 082 5767046. March 2021]).'*

1. Potential Direct & Indirect Impacts on AVIFAUNA HABITAT.

Nature: Construction of two residential houses and other buildings is likely to take place and may potentially incur the loss of habitat, but also potential creation of new habitats for certain species.

NOTE: From a general avifaunal point of view, most of the terrestrial habitat types containing unspecialised and generalist bird species with widespread distribution ranges. The proposed development of the Preferred Lay-Out development plan can be supported.

	Without mitigation		With mitigation	
PLANNING & DESIGN PHASE				
Probability	n.a.	0	n.a.	0
Duration	n.a.	0	n.a.	0
Extent	n.a.	0	n.a.	0
Magnitude	n.a.	0	n.a.	0
Significance	n.a.	**0**	n.a.	**0**
Status (positive or negative)	n.a.		n.a.	
CONSTRUCTION PHASE				
Probability	Definite	5	Probable	5
Duration	Short term 1 year	1	Short term 1 year	1
Extent	Limited to construction site	2	Limited to construction site	2
Magnitude	Minor	2	Small	1
Significance	**Low**	**25**	**Minor**	**20**
Status (positive or negative)	Negative		Negative	
OPERATIONAL PHASE				
Probability	n.a.	0	n.a.	0
Duration	n.a.	0	n.a.	0
Extent	n.a.	0	n.a.	0
Magnitude	n.a.	0	n.a.	0
Significance	**N.a**	**0**	**n.a.**	**0**
Status (positive or negative)	n.a.		n.a.	
DECOMMISSIONING & CLOSURE PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	n.a.		n.a.	
Reversibility	Low		Low	
Irreplaceable loss of resources?	No, area too small		No, area too small	
Can impacts be mitigated?	Yes, to some extent			

Mitigation:

- The spatial extent of construction activities must be minimized,
- The boundaries of the development footprint areas are to be clearly demarcated and it must be ensured that all activities remain within the demarcated footprint area.
- Disturbance by residents of birds breeding and foraging in the area should be minimized and controlled.
- Provide adequate briefing for site personnel and residents prior to construction.

- Any bird nests that are found during the construction period must be reported to the Environmental Control Officer (ECO).

Cumulative impacts: Expected to be minimal on habitat with low avifaunal sensitivity. The habitat of low avifaunal sensitivity is already transformed and fragmented due to historic activities and the site is not a unique habitat within the landscape.

Residual Risks: Low, if mitigation measures are implemented correctly and rehabilitation of the site is undertaken.

2. Potential Direct & Indirect Impacts on AVIFAUNA.

Nature: Impact on birds due to disturbance associated with construction activities and with increased human presence in the area.

The presence of vehicles and construction workers will cause disturbance to avifauna, with the movement and activities of personnel on site and the associated noise, pollution and litter all having a negative effect on birds. In addition, the presence of construction workers will increase the probability of activities such as illegal hunting of birds. The permanent presence of a much larger number of people than presently occur at the site will result in greater disturbance of birds that use the area for foraging and breeding.

NOTE: From a general avifaunal point of view, most of the terrestrial habitat types containing unspecialised and generalist bird species with widespread distribution ranges. The proposed development of the Preferred Lay-Out development plan can be supported.

	Without mitigation		With mitigation	
PLANNING & DESIGN PHASE				
Probability	n.a.	0	n.a.	0
Duration	n.a.	0	n.a.	0
Extent	n.a.	0	n.a.	0
Magnitude	n.a.	0	n.a.	0
Significance	n.a.	**0**	n.a.	**0**
Status (positive or negative)	n.a.		n.a.	
CONSTRUCTION PHASE				
Probability	Definite	5	Definite	5
Duration	Short term 1 year	1	Short term 1 year	1
Extent	Limited to construction site	2	Limited to construction site	2
Magnitude	Low	4	Minor	2
Significance	**Low**	**35**	**Low**	**25**
Status (positive or negative)	Negative		Negative	
OPERATIONAL PHASE				
Probability	Definite	5	Definite	5
Duration	Permanent	5	Permanent	5
Extent	Limited to local area	2	Limited to local area	2
Magnitude	Low	4	Minor	2
Significance	**Moderate**	**55**	**Moderate**	**45**
Status (positive or negative)	Negative		Negative	
DECOMMISSIONING & CLOSURE PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	n.a.		n.a.	
Reversibility	Low		Low	
Irreplaceable loss of resources?	No, area too small		No, area too small	

Can impacts be mitigated?	Yes.

Mitigation:

- Movement of construction vehicles and workers beyond the boundary of the site must be minimized. In addition, workers must be instructed to minimize disturbance of birds at all times, and steps must be taken to ensure that no illegal hunting occurs.
- The boundaries of the development footprint areas are to be clearly demarcated and it must be ensured that all activities remain within the demarcated footprint area.
- Disturbance by residents of birds breeding and foraging in the area should be minimized and controlled.
- Provide adequate briefing for site personnel and residents prior to construction.
- Any bird nests that are found during the construction period must be reported to the Environmental Control Officer (ECO).

Cumulative impacts: Expected to be minimal. The habitat is however already largely transformed and fragmented due to residential activities in the vicinity of the site. The site is not a unique habitat within the landscape. It is not envisaged that any Red Data species will be displaced by the habitat transformation that will take place as a result of the construction and operation of the proposed development. Birds are very mobile and may migrate to adjacent suitable habitat. It should be noticed that the newly created houses and indigenous garden forms habitat for specific bird species.

Residual Risks: None anticipated provided that the mitigation measures are implemented correctly, and rehabilitation of the site is undertaken.

3. Potential Direct & Indirect Impacts on AVIFAUNA.

Nature: Impact on birds due to Pollution associated with construction or residential activities. Pollution associated with construction activities and residents (e.g., fuel spills, use of cleaning chemicals) could have negative impacts on avifauna.
NOTE: From a general avifaunal point of view, most of the terrestrial habitat types containing unspecialised and generalist bird species with widespread distribution ranges. The proposed development of the Preferred Lay-Out development plan can be supported.

	Without mitigation		With mitigation	
PLANNING & DESIGN PHASE				
Probability	n.a.	0	n.a.	0
Duration	n.a.	0	n.a.	0
Extent	n.a.	0	n.a.	0
Magnitude	n.a.	0	n.a.	0
Significance	n.a.	**0**	n.a.	**0**
Status (positive or negative)	n.a.		n.a.	
CONSTRUCTION PHASE				
Probability	Improbable	2	Very improbable	1
Duration	Short term 1 year	1	Short term 1 year	1
Extent	Limited to construction site	2	Limited to construction site	2
Magnitude	Low	4	Minor	2
Significance	**Low**	**12**	**Minor**	**4**
Status (positive or negative)	Negative		Negative	
OPERATIONAL PHASE				
Probability	Improbable	2	Very improbable	1
Duration	Permanent	5	Permanent	5
Extent	Limited to site	2	Limited to site	2
Magnitude	Low	4	Minor	2
Significance	**Low**	**22**	**Minor**	**9**
Status (positive or negative)	Negative		Negative	
DECOMMISSIONING & CLOSURE PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	

Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	n.a.		n.a.	
Reversibility	High		High	
Irreplaceable loss of resources?	Low		Low	
Can impacts be mitigated?	Yes.			

Mitigation:

- Great care must be taken that no pollutants or other waste pollute the area or enter local water systems during the construction or operational phases. Measures to rapidly deal with spills of fuel, cleaning chemicals or any other potential pollutants must be put in place before construction commences.
- Construction workers must be suitably trained to deal with any such spills.
- Facilities to handle pollution and waste must be provided to residents.

Cumulative impacts: Expected to be minimal. The habitat is already transformed and fragmented due to the residential activities and the site is not a unique habitat within the landscape. It is not envisaged that any Red Data species will be displaced. Birds are very mobile and may migrate to adjacent suitable habitat. It should be noticed that the newly created town forms habitat for specific bird species.

Residual Risks: None anticipated provided that the mitigation measures are implemented correctly, and rehabilitation of the site is undertaken.

4. Potential Direct & Indirect Impacts on AVIFAUNA.

Nature: Impact on birds due to Electrocution and collision hazards.
Electrical infrastructure such as distribution lines, as well as electric fences, pose a potential collision risk to flying birds, and a potential electrocution risk to perching birds. The magnitudes of these risks are much lower than the corresponding risks associated with large overhead transmission lines. Assuming that the electrical infrastructure comprising part of the proposed development is typical of housing developments, no specific mitigation measures are required.
NOTE: From a general avifaunal point of view, most of the terrestrial habitat types containing unspecialised and generalist bird species with widespread distribution ranges. The proposed development of the Preferred Lay-Out development plan can be supported.

	Without mitigation		With mitigation	
PLANNING & DESIGN PHASE				
Probability	n.a.	0	n.a.	0
Duration	n.a.	0	n.a.	0
Extent	n.a.	0	n.a.	0
Magnitude	n.a.	0	n.a.	0
Significance	n.a.	**0**	n.a.	**0**
Status (positive or negative)	n.a.		n.a.	
CONSTRUCTION PHASE				
Probability	Very Improbable	1	Very improbable	1
Duration	Short term 1 year	1	Short term 1 year	1
Extent	Limited to construction site	1	Limited to construction site	1
Magnitude	Low	4	Minor	2
Significance	**Minor**	**6**	**Minor**	**4**
Status (positive or negative)	Negative		Negative	
OPERATIONAL PHASE				
Probability	Improbable	2	Very improbable	1
Duration	Permanent	5	Permanent	5
Extent	Limited to site	1	Limited to site	1
Magnitude	Low	4	Minor	2
Significance	**Minor**	**20**	**Minor**	**8**
Status (positive or negative)	Negative		Negative	

DECOMMISSIONING & CLOSURE PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	n.a.		n.a.	
Reversibility	High		High	
Irreplaceable loss of resources?	Low		Low	
Can impacts be mitigated?	Yes.			
Mitigation: • Normal safety measures for electrical installations as used by Eskom.				
Cumulative impacts: Expected to be minimal. The habitat is already transformed and fragmented due to the residential activities and the site is not a unique habitat within the landscape. It is not envisaged that any Red Data species will be displaced. Birds are very mobile and may migrate to adjacent suitable habitat. It should be noticed that the newly created town forms habitat for specific bird species.				
Residual Risks: None anticipated.				

POTENTIAL IMPACTS on the HERPETOFAUNA & HERPETOFAUNA HABITAT:

[Taken from i.e. quoted directly, from the specialist reports contained in APPENDIX G – '1. (i.e. '*An assessment of vegetation, flora, vertebrate fauna and wetlands on Erf 350 of the Farm The Willows 340 JR, City of Tshwane, Gauteng. By G.J. Bredenkamp D.Sc. Pr.Sci.Nat. J.P.C. van Wyk M.Sc. Pr.Sci.Nat. C.E. Venter M.Sc. Pr.Sci.Nat. Commissioned by Pierre Joubert Landscape Architect and Environmental Planner [EcoAgent CC PO Box 25533 Monument Park 0181. Tel 012 4602525. Cell 082 5767046. March 2021]).*'

1. Potential Direct & Indirect Impacts on HERPETOFAUNA & HERPETOFAUNA HABITAT.

Nature: The current habitat is mostly disturbed terrestrial habitat The footprint for the proposed residential development will result in clearing most of the vegetation area. This will result in some loss of herpetofaunal habitat. After clearing the vegetation, construction will commence.

NOTE: From a herpetofaunal point of view, the proposed development of the Preferred Lay-Out development plan can be supported.

	Without mitigation		With mitigation	
PLANNING & DESIGN PHASE				
Probability	n.a.	0	n.a.	0
Duration	n.a.	0	n.a.	0
Extent	n.a.	0	n.a.	0
Magnitude	n.a.	0	n.a.	0
Significance	n.a.	**0**	n.a.	**0**
Status (positive or negative)	n.a.		n.a.	
CONSTRUCTION PHASE				
Probability	Definite	5	Probable	5
Duration	Short term 1 year	1	Short term 1 year	1
Extent	Limited to construction site	1	Limited to construction site	1
Magnitude	Minor	2	Small	1
Significance	**Low**	**20**	**Minor**	**15**
Status (positive or negative)	Negative		Negative	
OPERATIONAL PHASE				
Probability	Definite	5	Definitive	5
Duration	Permanent	5	Permanent	5
Extent	Site	1	Site	1
Magnitude	Moderate	5	Moderate	3
Significance	**Moderate**	**55**	**Moderate**	**45**

Status (positive or negative)	Negative		Negative/Postive	
DECOMMISSIONING & CLOSURE PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	n.a.		n.a.	
Reversibility	No		No	
Irreplaceable loss of resources?	No too small areas and natural herpetofauna habitats are already disturbed for biodiversity or conservation.		No too small areas and natural herpetofauna habitats are already disturbed for biodiversity or conservation.	
Can impacts be mitigated?	Yes, planting indigenous species in the gardens will enhance habitats for herpetofauna and implementation of the management plan for Juliana's Golden Mole will improve herpetofauna habitats in general			

Mitigation:

Should any reptile or amphibia species be encountered or exposed during the construction phase, they should be removed and relocated to natural areas in the vicinity. The contractor must ensure that no indigenous herpetofauna species are disturbed, trapped, hunted or killed during the construction phase. Conservation-orientated clauses should be built into contracts for construction personnel, complete with penalty clauses for non-compliance.

- During the construction phase there may be increased surface runoff and a decreased water quality (with increased silt load and pollution). Completing construction during the winter months would mitigate the environmental impact.
- The appropriate agency should implement an ongoing monitoring and eradication program for all invasive plant species growing on the site.
- Any post-development re-vegetation or landscaping exercise should use species indigenous to South Africa. Plant species locally indigenous to the area are preferred.

Cumulative impacts: Limited, the adjacent areas are already used as residential areas.

Residual Risks: None anticipated.

POTENTIAL IMPACTS on the HERITAGE ENVIRONMENT:

[Taken from i.e. quoted directly, from the specialist reports contained in APPENDIX G – '***A PHASE 1 HERITAGE IMPACT ASSESSMENT & REPORT FOR RESIDENTIAL DEVELOPMENT ON PORTION 350 OF THE FARM THE WILLOWS 350JR TSHWANE METROPOLITAN AREA, GAUTENG***. For: *Pierre Joubert Professional Landscape Architect & Environmental Planner [15 Marikana Street, WIERDAPARK, CENTURION, 0157].* REPORT: APAC021/71. by: *APAC – APELSER ARCHAEOLOGICAL CONSULTING (Accredited member of ASAPA) , September 2021* .Member: AJ Pelser BA (UNISA), BA (Hons) (Archaeology), MA (Archaeology) [WITS]. [P.O.BOX 73703 LYNNWOOD RIDGE0040 Tel: 083 459 3091 Fax: 086 695 7247 Email: apac.heritage@gmail.com Comprehensive and Professional Solutions for all Heritage Related Matters. CK 2006/014630/23 VAT NO.: 4360226270.

1. Potential Direct & Indirect Heritage Impacts

In this section the impact of the proposed development on the sites will be assessed. From the overlay of the identified heritage sites over the proposed development footprints depicted, it is clear that the Late Iron Age sites may be impacted on by the proposed development. An archival and historical desktop study was therefore undertaken to provide a historic framework for the project area and surrounding landscape. This was augmented by a study of available maps and an assessment of previous archaeological and heritage studies completed for the area. The study area itself was assessed in the field by way of a walkthrough undertaken by one archaeologist (Anton Pelser). The fieldwork resulted in the identification of some Later Iron Age stone-walled sites (some which have been identified during earlier assessments) and associated cultural material including undecorated pottery and an upper grinder.

Table 1: Summarized List of Heritage Sites Identified during the Fieldwork

Site	Description	Significance	S	E	Mitigation
Site 1	LIA Stone Walling	Low to Medium	**S25 46 50.00**	**E28 20 05.90**	Mapping and Limited archaeological excavations should the sites be impacted by the proposed development actions
Site 2	LIA Stone Walling	Low to Medium	**S25 46 50.90**	**E28 20 06.40**	
Site 3	Upper Grinder	Low to Medium	**S25 46 51.40**	**E28 20 05.80**	

The impact of the proposed development on the located heritage sites was assessed, and it was established that the proposed development might impact on the Late Iron Age stone-walled sites located on the land parcel adjacent to the development site. Should these and other unknown related sites be impacted then the Impact will be Low to Medium. As a result, some mitigation measures will be required for these sites. This will include site clearance, mapping and drawing of the sites and features and archaeological excavations. A permit from SAHRA will be required for this.

Based on the fieldwork and desktop research it is however recommended that the proposed residential development on Portion 350 of The Willows 340JR be allowed to continue with the condition that the recommendations (i.e. mitigation measures underneath) are adhered to and included as part of the approvals to continue i.e. on the condition that the recommendations made in this report are adhered to, no heritage reasons can be given for the development not to continue.

Nature:

CONSTRUCTION PHASE:

- The construction phase may potentially result in the loss of cultural heritage resources and artifacts buried beneath the surface.
- In this section the impact of the proposed development on the sites will be assessed. From the overlay of the identified heritage sites over the proposed development footprint it is clear that the sites fall outside of the proposed development footprint, but that there is a possibility that these and related sites could potentially be impacted.

	Without mitigation		With mitigation	
PLANNING & DESIGN PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	None		None	
CONSTRUCTION PHASE				
Probability	Low	2	Low	2
Duration	Immediate	1	Immediate	1
Extent	Limited to Site	1	Limited to Site	1
Magnitude	Moderate/Medium	6	Moderate/Medium	6
Significance	**Low**	**16**	**Low**	**16**
Status (positive or negative)	Negative		Negative	
OPERATIONAL PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	n.a.		n.a.	

DECOMMISSIONING & CLOSURE PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	n.a.		n.a.	
Reversibility	?		?	
Irreplaceable loss of resources?	Low		Low	
Can impacts be mitigated?	Yes			

Mitigation:

The following mitigation measures are required to be implemented as part of the ENVIRONMENTAL MANAGEMENT PROGRAM (EMPr) i.e:

1.that the area be cleared of vegetation under guidance from an archaeologist to determine to extent of the stonewalling in the area.

2.that once this has been done that the stonewalling be mapped and drawn and that limited archaeological excavations be carried out in order to recover cultural material and to date the sites.

3. A Phase 2 archaeological mitigation permit from SAHRA be obtained for this investigation.

4. An archaeological watching brief must be implemented during the construction phase. This watching brief is aimed at monitoring the construction and excavation work for any subterranean archaeological deposits and features which may be exposed during these development activities. The subterranean nature of cultural heritage resources (including low stone-packed or unmarked graves) should also be taken into consideration. Should any previously unknown or invisible sites, features or material be uncovered during any development actions then an expert should be contacted to investigate and provide recommendations on the way forward.

5. Finally it should be noted that although all efforts are made to cover a total area during any assessment and therefore to identify all possible sites or features of cultural (archaeological and/or historical) heritage origin and significance, that there is always the possibility of something being missed. This will include low stone-packed or unmarked graves. This aspect should be kept in mind when development work commences and if any sites (including graves) are identified then an expert should be called in to investigate and recommend on the best way forward.

Cumulative impacts: None.

Residual Risks: None.

POTENTIAL IMPACTS on the PALAEONTOLOGICAL ENVIRONMENT:

[A Paleontological Impact Assessment was conducted on the said site and the following was taken from the specialist report contained in APPENDIX Performed by Dr. H. Fourie *i.e: '**Paleontological Impact Assessment: Phase 1: Field Study of Portion 350 of the Farm The Willows 340-JR, City of Tshwane – Gauteng.*** By Dr. Fourie, H. Dr heidicindy@yahoo.com 012 322 7632/079 940 6048. Commissioned by: A. Pelser Archaeological Consulting cc. 833B St Bernard Street, Garstfontein, 0081. 083 459 3091 Ref: Pending. 2021/08/30)]

1. Potential Direct & Indirect Heritage Impacts

A field assessment study was undertaken to provide a heritage framework for the project area and surrounding landscape. This was augmented by a study of available historical topographical sheets and an assessment of previous heritage studies completed for the area. The field study revealed that the study area is present on the Silverton Formation. The study area was assessed in the field by way of intensive walkthroughs undertaken by one paleontologist (Heidi Fourie). The fieldwork resulted in the identification of several outcrops.

The impact of the proposed development on the located heritage sites was assessed, and it was established that the proposed development will have a Medium Impact Risk. As a result, mitigation measures may be required for the site.

The following general mitigation measures are required:

- *Mitigation may be needed (Appendix 2) if fossils are found.*
- *No consultation with parties was necessary. The Environmental Control Officer must familiarise him- or herself with the formation present and its fossils and follow protocol.*
- *The development may go ahead, but the ECO must survey for fossils before and or after clearing, blasting, drilling or excavating.*
- *The EMPr already covers the conservation of heritage and paleontological material that may be exposed during construction activities. For a chance fossil find, the protocol is to immediately cease all construction activities, construct a 30 m no-go barrier, and contact SAHRA for further investigation.*

On the condition that the recommendations made in this report are adhered to, no heritage reasons can be given for the development not to continue."

Nature:
CONSTRUCTION PHASE:

- *The construction phase may potentially result in the loss of heritage resources buried beneath the surface.*
- *In this section the impact of the proposed development will be assessed.*

	Without mitigation	With mitigation		
PLANNING & DESIGN PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	None	None		
CONSTRUCTION PHASE				
Probability	High	4	Low	2
Duration	Permanent	5	Short-term	2
Extent	Site	1	Site	1
Magnitude	Moderate	6	Low	4
Significance	**Medium**	**48**	**Low**	**14**
Status (positive or negative)	Negative	Negative		
OPERATIONAL PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	n.a.	n.a.		
DECOMMISSIONING & CLOSURE PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	n.a.	n.a.		
Reversibility	High	Very High		
Irreplaceable loss of resources?	Moderate	Low		
Can impacts be mitigated?	Yes			
Mitigation:				

- If by chance fossil is uncovered during construction, SAHRA (South Africa Heritage Resource Agency) must be notified immediately.
- An Environmental Control Officer (ECO) must be appointed to oversee the implementation of the Environmental Management Programme (EMPr) for the duration of the construction phase.

Cumulative impacts: None.

Residual Risks: None.

POTENTIAL IMPACTS on the SOCIO-ECONOMIC ASPECTS of the ENVIRONMENT:

[No specialists were appointed for the SOCIO-ECONOMIC ENVIRONMENTAL aspects].

1. Potential Direct & Indirect Impacts on the SOCIO-ECONOMIC ENVIRONMENT

Nature:

CONSTRUCTION PHASE IMPACTS:

- Job Creation -
  - The construction of the proposed development may create approximately 15-20 employment opportunities during the construction phase.

OPERATIONAL PHASE IMPACTS:

- Job Creation
  - Negligent increase in jobs as a result of the proposed development by creating and sustaining residential-oriented new job opportunities i.e. approximately 2 permanent local jobs stand to be created, and then sustained annually.

	Without mitigation		With mitigation	
PLANNING & DESIGN PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	n.a.		n.a.	
CONSTRUCTION PHASE				
Probability	Definite	5	Definite	5
Duration	Very Short-term	1	Very Short-term	1
Extent	Local	2	Local	2
Magnitude	Very Low	1	Very Low	1
Significance	**Very Low**	**20**	**Very Low**	**20**
Status (positive or negative)	Positive		Positive	
OPERATIONAL PHASE				
Probability	High	4	High	4
Duration	Long term	4	Long term	4
Extent	Site	1	Site	1
Magnitude	Very low	1	Very low	1
Significance	**Low**	**24**	**Low**	**24**
Status (positive or negative)	Positive		Positive	
DECOMMISSIONING & CLOSURE PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	n.a.		n.a.	
Reversibility	N.a.		N.a.	
Irreplaceable loss of	No		No	

resources?		
Can impacts be mitigated?	N.a.	

Mitigation:

- No mitigation measures are proposed, since there are no negative impacts foreseen, except if the proposed development would not proceed which will be minor in nature.
- Prerequisites that need to be considered i.e. in order for surrounding areas to capitalise optimally on the development there are certain aspects which will have certain minor positive implications on the surrounding areas**:**
    - Local labour should be employed as far as possible during both construction and operations of the proposed development.

Cumulative impacts: An appropriate development, which is also compatible with its environment (i.e. residential) and which is also in line with legislation, policies, guidelines etc – is always on asset to the local economy in various ways and also creates the positive image of progress, wealth, safety, security and prosperity which in turn could possibly be a 'drawing card' for further development in the same area…albeit in a minor way.

Residual Risks: None anticipated.

2. Potential Direct & Indirect Impacts on the SOCIO-ECONOMIC ENVIRONMENT

Nature:

OPERATIONAL PHASE IMPACTS:

- Rates & Tax Base Expansion
    - The development would facilitate real estate investment, job creation and economic growth, which, in turn will contribute to the creation of productive, rateable assets (i.e. residences) in a minor way.

	Without mitigation		With mitigation	
PLANNING & DESIGN PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	n.a.		n.a.	
CONSTRUCTION PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	**n.a.**		**n.a.**	
Status (positive or negative)	n.a.		n.a.	
OPERATIONAL PHASE				
Probability	High	4	High	4
Duration	Long term	4	Long term	4
Extent	Site	1	Site	1
Magnitude	Minor	1	Minor	1
Significance	**Low**	**24**	**Low**	**24**
Status (positive or negative)	Positive		Positive	
DECOMMISSIONING & CLOSURE PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	n.a.		n.a.	

Reversibility	High	High
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	N.a.	

Mitigation and/or Recommendations:

- No mitigation measures are proposed, since there are no negative impacts foreseen, except if the proposed development would not proceed which will be minor in nature.
- Prerequisites that need to be considered i.e. in order for surrounding areas to capitalise optimally on the development there are certain aspects which will have certain minor positive implications on the surrounding areas**:**
    - Local labour should be employed as far as possible during both construction and operations of the proposed development.

Cumulative impacts: An appropriate development, which is also compatible with its environment (i.e. residential) and which is also in line with legislation, policies, guidelines etc – is always on asset to the local economy in various ways and also creates the positive image of progress, wealth, safety, security and prosperity which in turn could possibly be a 'drawing card' for further development in the same area…albeit in a minor way.

Residual Risks: None anticipated.

POTENTIAL IMPACTS on the VISUAL & AESTHETIC ENVIRONMENT:

1. Potential Direct & Indirect Impacts on the VISUAL & AESTHETIC ENVIRONMENT

The site without the proposed development:

'Genius Loci': The spirit, or sense, of place is that quality imparted by the aspects of scale, colour, texture, landform, enclosure, and in particular, the land use. According to K. Lynch (1992) *"it is the extent to which a person can recognise or recall a place as being distinct from other places as having* ***a vivid, or unique, or at least a particular, character of its own."***

The spirit of place of this site is defined especially by the following aspects i.e: 'Portion 350 of the FARM THE WILLOWS lies within the 'Wapadrand Country Estates' and is one of five Erven i.e. 348-352 The Willows 340 JR. The Erven, which are located on the northern side of Solomon Mahlangu Drive (M10) about 900 m west of the Lynwood Road intersection in Pretoria.

The site includes steep south to south-east facing slopes of the Bronberg ridge and a plain that slopes gently towards the south-east. In a broader landuse context the site is situated within upmarket residential areas which replaced the former farms and agricultural holdings. These developments placed pressure on the endangered ecosystems of the Bronberg mountain range with its unique red data flora and fauna species, though the Bronberg Conservation Area and Fairy Glen Nature Reserve offer some protection of the ridge and its biodiversity.

The historical Google Earth images provide an indication of what the vegetation cover was and how it changed over the last 17 years i.e:

- By 2004 the central to southern areas of Erven 348 – 350 were already **quite disturbed**, also, but less so, on Erf 351, while the south-eastern part of Erf 352 was already developed.
- In September 2007 and 2009 and even more so in 2011, **considerable disturbance** was evident over the southern halves of **all five** Erven (348-352). The bush along the drainage line in the south-western corner of Erf 348 and also on the rocky outcrop in the southern part of Erf 351 were clearly present. The central part of Erf 348 was cleared and terraces made and irrigated for agricultural purposes.
- From the images of May 2015 to August 2016 a (slight) recovery of woody vegetation on the plains can be seen, probably dominated by **pioneer species** such as *Vachellia karroo* and **alien invasive** species such as *Melia azedarach* and *Lantana camara*, currently still prominent in the area. This invasion of alien species is of particular interest for Erven 350 and 351, as this also involves a heritage site.
- More recently from September 2019 to November 2020 the southern disturbed areas have been covered densely by lush weedy species, particularly *Bidens pilosa*, as observed during the current survey.
- Limited parts of these **disturbed** areas, particularly Erven 349 and 350, have been cleared as can be seen on November 2020 Google Earth image.

The above historical changes in vegetation is considered to explain its current appearance and condition. The site is situated within the Andesite Mountain Bushveld (SVcb11) vegetation type (Mucina & Rutherford 2012). The protected Fairy Glen Nature Reserve is located 3.5 km (as the bird lies) west of the Wapadrand Country Estates. The northern half of the Estate is located within the Bronberg Conservation Area. The current vegetation on the hillslope is primary indigenous mountain bushveld, though it is severely encroached by particularly Category 1b Alien and Invasive plant species *Lantana camara* while some individuals of other Alien

Invasive plant species are also present. Individuals of *Pittosporum viridiflorum* (Cheesewood) were found high up on the south-east facing hillslope close to the northern boundary fence. The trees were in good condition. Provincially protected plant species that were found on the hillslope are *Aloe pretoriensis, Scadoxis puniceus* and *Haemanthus humilis* subsp *hirsutus.* As no development will occur on the hillslope, all plant species that may occur here will be safe and protected. The western part of the Bronberg Ridge runs east-west up to Solomon Mahlangu Drive, but east of Solomon Mahlangu Drive, the Ridge is orientated northwest-southeast. At Solomon Mahlangu Drive there is a shallow valley or plain between the western and eastern parts of the Ridge. The large double-carriage Solomon Mahlangu Drive transects the ridge area through this plain. The proclaimed Wapadrand Country Estates, consisting of five Erven, is located directly on Solomon Mahlangu Drive.. The adjacent residential areas are well developed. Erf 350 stretches from Solomon Mahlangu Drive north-westwards over the plains area and up the south-facing slope to the top of the Bronberg Ridge. The northern half of the Erf is located within the Bronberg Conservation Area and is excluded from any development. The ecological sensitivity of the four pant communities that were identified and mapped on the mountain slopes is High, and these areas are excluded from any development. The planned development is restricted to the Historically Disturbed Plains Bushveld below the Bronberg Conservation Area line.

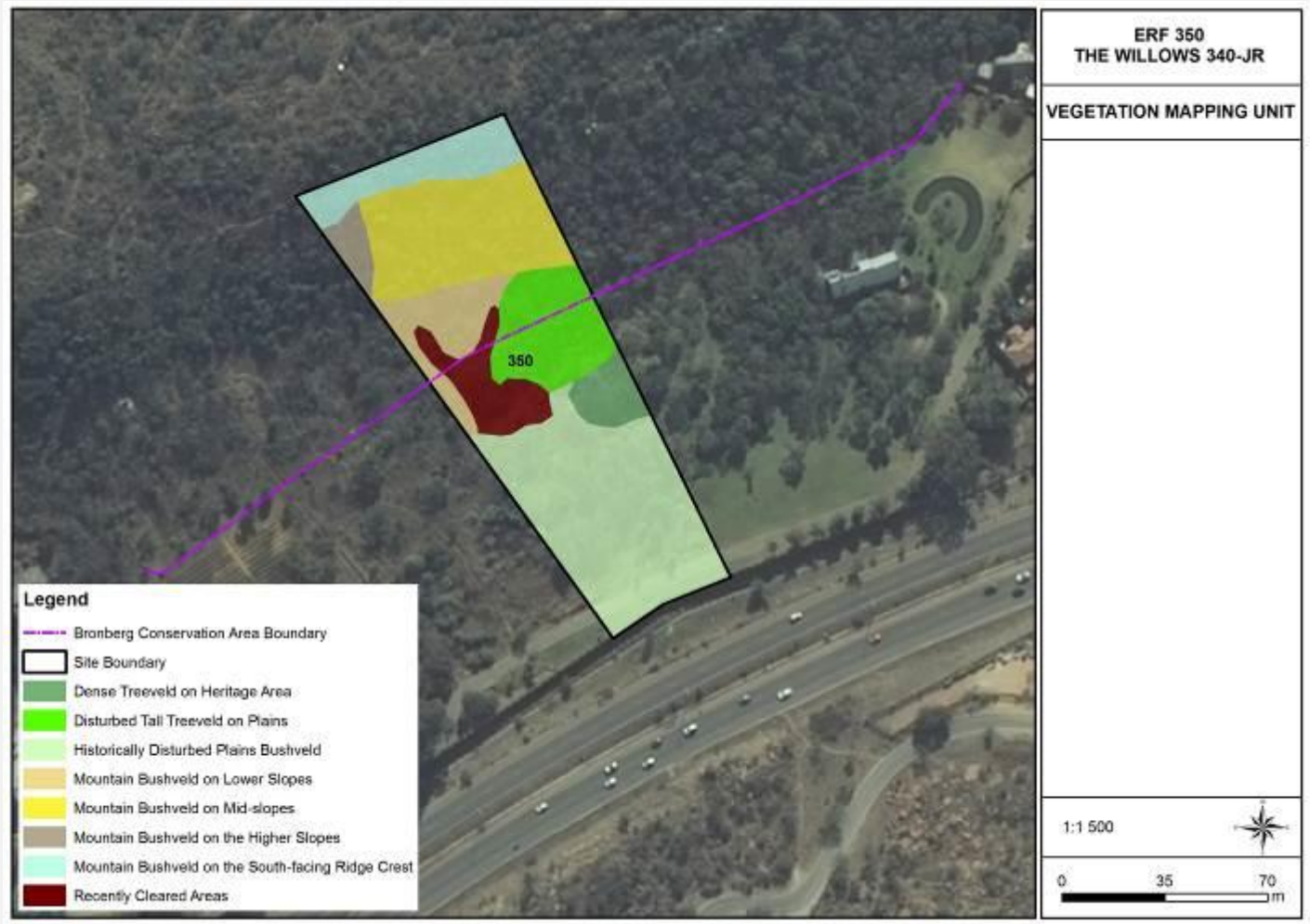


Figure 25: A vegetation map of Erf 350 indicating the eight plant communities.

Eight plant communities were identified and mapped which predominantly determines the visual character & senses of place, which are**:**

1) Mountain Bushveld on South-facing Ridge Crests: The Mountain Bushveld on South-facing Ridge Crests plant community is restricted to the narrow strip of ridge crest that occurs within the property and stretches up to the northern boundary fence. The ridge is part of the Critically Endangered Bronberg Mountain Bushveld and is located within the Bronberg Conservation Area. This area is excluded from any development. The vegetation is dense bush on an area with large rocks and boulders. Indigenous woody species are dominant, though the alien invasive bush *Lantana camara* is present. Conspicuous trees in the ridge crest include *Protea caffra & Calodendron capensis.* Grasses and forbs are sparse or even absent. This area is excluded from any development.

2) Mountain Bushveld on Higher Slopes: The Mountain Bushveld on Higher Slopes plant community occurs on the ridge slopes just below the crest. The entire ridge is part of the Critically Endangered Bronberg Mountain Bushveld & is located within the Bronberg Conservation Area. The vegetation is extremely dense bush on an area with large rocks/boulders. Many indigenous woody species are present, though the vegetation is severely encroached by alien invasive bush *Lantana camara,* making access for

detailed surveys almost impossible. The dense *Lantana camara* encroachment caused damage to the indigenous vegetation, several individuals of the protected *Aloe pretoriensis* were killed. Grasses and forbs are sparse or even absent. This area is excluded from any development since it's part of the Bronberg Conservation Area.

3) Mountain Bushveld on Mid-Slopes.

The Mountain Bushveld on the Mid-Slopes plant community is located below the ridge crest in the far northern part of the site and stretches down to the Lower Slopes or the Disturbed Tall Treeveld on the Plain below. The slopes are part of the Critically Endangered Bronberg Mountain Bushveld and is located within the Bronberg Conservation Area. This area is excluded from any development. The vegetation is extremely dense bush on. Many indigenous woody species are present, though the vegetation is encroached by the alien invasive bush *Lantana camara,* making access for detailed surveys almost impossible. This is not critical, as this area is excluded from any development. The dense *Lantana camara* encroachment caused damage to the indigenous vegetation, several individuals of the protected *Aloe pretoriensis* were killed. Grasses and forbs are sparse or even absent

4) Mountain Bushveld on Lower Slopes: The Mountain Bushveld on Lower Slopes plant community is located lower down the slope, below the Bushveld on the Steep Upper Slopes. This part of the ridge is still part of the Critically Endangered Bronberg Mountain Bushveld and is located within the Bronberg Conservation Area. This area is also excluded from any further development. The vegetation is still dense bush. Indigenous woody species are present, though the vegetation is also encroached by the alien invasive bush *Lantana camara* and several other alien and invasive species. Grass-dominated patches occur scattered about. In general, the area is regarded as somewhat disturbed. As this area is part of the Bronberg Conservation Area, no development may occur here.

5) **Disturbed Tall Treeveld on Plains**

The plains bushveld on Erf 350 occurs on the relatively flat areas north of the Heritage Site in the central part of the site. This is a dense woodland with tall trees, few shrub plants and a sparse herbaceous layer. Several indigenous trees are conspicuous in this plant community, particularly *Senegalia caffra, Vachellia karroo* and *Celtis africana*.

6) Dense Treeveld on Heritage Area

This is a small patch of dense treeveld on an area with scattered rocks. This area seems to be a relic of an old Heritage site. This patch of vegetation extends to Erf 351, where it is more prominent. The vegetation is dominated by dense, tall trees, mainly the indigenous *Celtis africana* and the alien invasive *Melia azedarach.* An herbaceous layer is almost absent

7) Historically Disturbed Plains Bushveld: The vegetation on the plain located on the southern part of the site was disturbed and cleared since 2007. Since 2015 there was an increase in woody vegetation, but particularly alien species such as *Lantana camara* and *Melia azedarach* increased. Recently some areas have been cleared, particularly of alien woody species. Weeds, mostly *Bidens pilosa* is now very prominent. Little of the original grassy vegetation remained. Several indigenous trees were left and are still present in this plant community, particularly *Senegalia caffra, Vachellia karroo* and *Celtis africana*. Storage facilities were constructed on the eastern boundary of the site. The herbaceous layer is dominated by the weed *Bidens pilosa.* A limited part of the area is earmarked for the development of residences and was recently cleared.

8) Recently Cleared Areas on Plains: Vegetation was cleared, and some levelling was done on an area within the Historically Disturbed Plains Bushveld area. Weeds occur in patches on the cleared area. This cleared area is 0.08 ha (800 m^2) in size. The cleared area is principally located on an area that was historically quite disturbed, where the ecological sensitivity is Medium-Low. It is suggested that this area can be considered as suitable for development, without damage to the more sensitive mountain bushveld vegetation.

These qualities impart a somewhat unique bushveld scenic 'Genius Loci' and thereby also presents a very pleasing setting within which especially the proposed residences to the BRONBERG CONSERVATION AREA come to it's fullest potential, should the Architect, Landscape Architect and Building construction professionals implement the proposed development in sympathy with nature i.e. in an ecological sensitive way which places the biodiversity's influence and preservation as it's foremost inspiration an priority.
The internal views of the BRONBERG BUSHVELD RIDGE CONVSERVATION AREA from everywhere on site also enhance the aesthetic appeal due to the affinity people have with ridges and natural veldt.

Nature:

PLANNING & DESIGN PHASE:

The visual and aesthetical environment impact caused by the potential lack of adequate (i.e. sensitive, appropriate, in-context with the local surroundings and visual qualities of the site and other related visual aspects) sub-urban planning/design, architectural design and landscape architectural design of facilities and site – and, the full implementation of the proposed mitigation measures especially that of the BIODIVERSITY specialists. The applicant has appointed such specialists (i.e. architect & landscape architect & biodiversity) as indicated above and therefore employed sufficient measures (mitigation) i.e. as far as possible, to make the proposed development an attractive and visually uplifting improvement on the site and aesthetically appealing towards the directly adjacent township and natural (i.e. *BRONBERG CONSERVATION AREA)* environment.

CONSTRUCTION PHASE:

Visual and aesthetical environment impact caused by construction related activities such as, stockpile material, trucks, construction

offices, hoarding and excavation machinery, clearance of vegetation, excavation and storage of construction materials and equipment. This impact will be temporary in nature, limited to the construction phase.

OPERATIONAL PHASE:

The presence of the proposed residential facilities, in the midst of a well-established residential area (i.e. Wapadrand in PRETORIA) with (i.e. in general):- i. a visually uplifting natural 'green' backdrop of the *BRONBERG CONSERVATION AREA* (i.e. perceived from certain selected viewpoints in the area) – and, ii. a predominantly extensive medium to high-end upmarket residential area with also a variety of mixed uses, facilities, activities and elements which creates in general (i.e. perceived from various viewpoints in the area) a diversified visual landscape (i.e. relatively high visual variance). This variance ranges from a relative visually and aesthetically pleasing 'coherence' and 'sense of place' to a relative 'confusion' of disconnectedness (i.e. not integrated in a sensitive cohesive way visually and aesthetically with a lack of a 'sense of place') with no predominant visual 'theme' or specific architectural and/or landscape architectural style or character which unifies the visual 'landscape' as a whole. The proposed development will have a minor positive visual impact on (i.e. towards) it's surrounding area, particularly for the directly adjacent land occupiers and users due to it's relatively secluded locality in the 'visual landscape'. The minor positive visual enhancement would be applicable only if the applicant will develop the proposed facilities in a visual sensitive way which responds positively to its natural (i.e. *BRONBERG CONSERVATION AREA)* and surrounding built-up environment and landscapes the site with locally indigenous vegetation and maintains it (i.e. facilities and landscape) in a good condition. The applicant has appointed such specialists as indicated above (i.e. architect & landscape architect) and therefore employed sufficient measures i.e. as far as possible, to make the proposed development an attractive and visually uplifting improvement on the site and aesthetically appealing towards the directly adjacent township environment.

DECOMMISSIONING & CLOSURE PHASE:

- Trucks used for decommissioning activities, rubble and stockpiles may cause a visual impact.

	Without mitigation		With mitigation	
PLANNING & DESIGN PHASE				
Probability	Low	2	High	4
Duration	Long-term	4	Long-term	4
Extent	Local	2	Local	2
Magnitude	Minor	1	Minor	2
Significance	**Low**	**14**	**Medium**	**32**
Status (positive or negative)	Negative		Positive	
CONSTRUCTION PHASE				
Probability	Definite	5	Low	2
Duration	Immediate	1	Immediate	1
Extent	Local	2	Site	1
Magnitude	Low	2	Low	1
Significance	**Low**	**25**	**Low**	**6**
Status (positive or negative)	Negative		Negative	
OPERATIONAL PHASE				
Probability	Low	2	High	4
Duration	Long-term	4	Long-term	4
Extent	Local	2	Local	2
Magnitude	Minor	1	Minor	2
Significance	**Low**	**14**	**Medium**	**32**
Status (positive or negative)	Negative		Positive	
DECOMMISSIONING & CLOSURE PHASE				
Probability	Improbable	1	Improbable	1
Duration	Immediate	1	Immediate	1
Extent	Local	2	Local	2
Magnitude	High	8	Medium	6
Significance	**Low**	**11**	**Low**	**9**
Status (positive or negative)	Negative		Negative	
Reversibility	Medium		Medium	
Irreplaceable loss of	No.		No.	

resources?		
Can impacts be mitigated?	Yes	

Mitigation:

PLANNING & DESIGN PHASE:

- Planners, Architects & Landscape Architects and any other related professional, project managers and/or building contractor to plan, design and implement in the development proposal in such a sensitive manner which would be aesthetically pleasing and visually uplifting in it's current township setting e.g. sympathetic materials and colours with the surrounding environment; all yards and storage areas to be enclosed by masonry walls or screens which is screened by indigenous local biodiversity vegetation; external lighting should be confined to essential areas; lights should be low-level, where possible, and fitted with reflectors to avoid light spillage; lights and signage should be fixed to buildings or walls, where possible, to avoid unnecessary masts and visual clutter; other corporate or advertising signage and flags should be avoided or restricted etc. The visual and aesthetical environment impact caused by the potential lack of adequate (i.e. sensitive, appropriate, in-context with the local surroundings and visual qualities of the site and other related visual aspects) – urban planning/design, architectural, landscape architectural design of facilities and site – and, the full implementation of the proposed mitigation measures especially that of the BIODIVERSITY specialists. The applicant has appointed such specialists as indicated above and therefore employed sufficient measures (mitigation) i.e. as far as possible, to make the proposed development an attractive and visually uplifting improvement on the site and aesthetically appealing towards the directly adjacent township environment and natural (i.e. *BRONBERG CONSERVATION AREA)* environment.
- The relevant professionals i.e. Architect, Landscape Architect etc, should be appointed by the developer to implement the final construction and planting plans & drawings which at least complies with the above-mentioned mitigation measures.

CONSTRUCTION PHASE:

- Limit dust and screen construction from viewers along adjacent road with strips of shade cloth; the construction site, material stores, stockpiles and lay-down area should be kept tidy; measures to control wastes and litter should be included in the contract specification documents; wind-blown dust from stockpiles and construction activities, should be controlled; an environmental; management program (EMPr) should be prepared and an environmental control officer (ECO) employed for the duration of the construction.

OPERATIONAL PHASE:

- Install landscaping and rehabilitation as soon as possible; Litter and waste should be effectively managed to avoid visual problems in the area; buildings and landscaping and rehabilitation should receive on-going maintenance to avoid visual decay; lights should be low-level, where possible, and fitted with reflectors to avoid light spillage; lights and signage should be fixed to buildings or walls, where possible, to avoid unnecessary masts and visual clutter.

DECOMMISSIONING & CLOSURE PHASE:

- The decommissioning area must be fenced, and shade cloth attached, where necessary. At the end of the life of the project, structures no longer required must be demolished and removed from the site. Roads, parking and other paved areas no longer required must be broken up and the site re-instated or redeveloped.

Cumulative impacts: An appropriate development aesthetically uplifting and visually pleasing to its current' environment and which is also in line with legislation, policies, guidelines etc – is always an asset to the local community in various ways and also creates the positive image of progress, wealth, safety, security and prosperity which in turn could possibly be a 'drawing card' for further development in the same area.

Residual Risks: None anticipated.

POTENTIAL IMPACTS of ACCESS ROADS on the ENVIRONMENT:

1. Potential Direct & Indirect Impacts of ACCESS ROADS on the ENVIRONMENT

Nature:

PLANNING & DESIGN PHASE:

- ACCESS ROADS:
  - New access roads and haulage routes could impact on areas of sensitivity (fauna and flora, wetlands etc.).

CONSTRUCTION PHASE:

- ACCESS ROADS:
  - New access roads and haulage routes could impact on areas of sensitivity (fauna and flora, wetlands and spruit etc.).

	Without mitigation	With mitigation
PLANNING & DESIGN PHASE		

Probability	n.a.	n.a.	n.a.	n.a.
Duration	n.a.	n.a.	n.a.	n.a.
Extent	n.a.	n.a.	n.a.	n.a.
Magnitude	n.a.	n.a.	n.a.	n.a.
Significance	**n.a.**	**n.a.**	**n.a.**	**n.a.**
Status (positive or negative)	n.a.		n.a.	
CONSTRUCTION PHASE				
Probability	Medium	3	Improbable	1
Duration	Short term	2	Short term	2
Extent	Site	1	Site	1
Magnitude	Moderate	8	Low	2
Significance	Medium	**33**	Very low	**5**
Status (positive or negative)	Negative		Negative	
OPERATIONAL PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	n.a.		n.a.	
DECOMMISSIONING & CLOSURE PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	n.a.		n.a.	
Reversibility	Low		High	
Irreplaceable loss of resources?	Yes		No	
Can impacts be mitigated?	Yes			

Mitigation:

PLANNING & DESIGN PHASE:

- Temporary access and haulage routes must be designed prior to construction commencing to ensure that the most preferable access and haulage routes has been identified. Provision made for the erection of appropriate warning signs.
- Road safety must be taken into account when planning access to the site.
- Use should be made of existing roads as far as possible.

Cumulative impacts: None

Residual Risks: None anticipated.

POTENTIAL IMPACTS of EROSION & SOIL DISTURBANCE on the ENVIRONMENT:

1. Potential Direct & Indirect Impacts of EROSION & SOIL DISTURBANCE on the ENVIRONMENT

Nature:

CONSTRUCTION PHASE:

- Erosion & Soil Disturbance:
  - Sources of water and soil pollution on construction sites include: diesel and oil; paint, solvents, cleaners and other harmful chemicals; and construction debris and dirt.
  - Spillages of oil, lubricants and fuel from construction vehicles, plant and machinery has the potential to contaminate the soil.

- When portions of the site are cleared, combined with the failure to implement erosion control measures effectively, silt-bearing run-off and sedimentation pollution will result.
- Ground disturbing activities such as blasting, and foundation construction can lead to increased erosion.
- Stormwater runoff has the potential to erode the topsoil.
- Soil compaction due to construction activities will reduce aeration, permeability, and water holding capacity of the soils and cause an increase in surface runoff, potentially causing increased sheet or gully erosion.

	Without mitigation		With mitigation	
PLANNING & DESIGN PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	n.a.		n.a.	
CONSTRUCTION PHASE				
Probability	High	4	Low	2
Duration	Short-term	2	Immediate	1
Extent	Site	1	Site	1
Magnitude	High	8	Low	4
Significance	**Medium**	**44**	**Low**	**12**
Status (positive or negative)	Negative		Negative	
OPERATIONAL PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	n.a.		n.a.	
DECOMMISSIONING & CLOSURE PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	n.a.		n.a.	
Reversibility	Low		High	
Irreplaceable loss of resources?	Yes		No	
Can impacts be mitigated?	Yes			

Mitigation:

CONSTRUCTION PHASE:

- Apply erosion controls (e.g., berms, sandbags and hessian sheets) to prevent/minimise soil erosion during construction activities.
- The topsoil layer of not less than 200mm (or as per geotechnical soil profiling result) must be removed and stockpiled in mounds no more than 2m in height in a designated area for use during progressive rehabilitation.
- Care must be taken to prevent the compaction of topsoil in any way, especially by trucks and other construction machinery.
- Apply a protective covering on disturbed soils with suitable vegetation after completion of construction activities.
- Save topsoil removed during construction and use it to reclaim disturbed areas upon completion of construction activities.
- Avoid creating excessive slopes during excavation.
- Implement a stormwater management plan to ensure compliance with regulations and prevent off-site migration of contaminated stormwater or increased soil erosion during the construction phase.
- Excavation (temporary) to comply with SANS 10400-G:2011 guidelines.

Cumulative impacts: None

Residual Risks: None anticipated.

POTENTIAL IMPACTS on AIR QUALITY of the ENVIRONMENT:

1. Potential Direct & Indirect Impacts on AIR QUALITY of the ENVIRONMENT

Nature:

CONSTRUCTION PHASE:

- Air quality impacts may arise during the construction phase as a result of dust generated by the exposure and disturbance of soil.
- Fugitive dust may become a nuisance for surrounding land users and occupiers.
- Further air quality impacts will arise as a result of the exhaust emissions from construction vehicles and plant.

DECOMMISSIONING & CLOSURE PHASE:

- There is potential for the air quality to be impacted through the decommissioning activities that may generate dust through excavation activities and disturbing the ground.
- Exhaust emissions produced by construction equipment will be dispersed and it is not anticipated that they will cause a nuisance to surrounding landowners.

	Without mitigation		With mitigation	
PLANNING & DESIGN PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	n.a.		n.a.	
CONSTRUCTION PHASE				
Probability	Low	3	Very Low	1
Duration	Short-term	2	Immediate	1
Extent	Site	1	Site	1
Magnitude	Low	2	Minor	1
Significance	**Low**	**15**	**Minor**	**1**
Status (positive or negative)	Negative		Negative	
OPERATIONAL PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	**n.a.**		**n.a.**	
Status (positive or negative)	None		none	
DECOMMISSIONING & CLOSURE PHASE				
Probability	Low	3	Very low	1
Duration	Immediate	1	Immediate	1
Extent	Site	1	Site	1
Magnitude	Low	2	Minor	1
Significance	**Low**	**12**	**Minor**	**1**
Status (positive or negative)	Negative		Negative	
Reversibility	Medium		High	
Irreplaceable loss of resources?	No		No	

Can impacts be mitigated?	Yes	

Mitigation:

CONSTRUCTION PHASE:

- Dust minimisation and control measures should be implemented on the construction site at regular intervals. This could include irrigation by water tankers.
- The frequency of implementation of dust suppression measures should be increased when it is expected that high wind conditions will develop.
- Vegetation clearing should only take place immediately prior to the commencement of construction activities in an area, in order to minimise the amount of exposed soil on the site.
- Stockpiles and spoil heaps must be covered with tarpaulins or straw to prevent fugitive dust.
- All construction vehicles must be appropriately maintained to minimise exhaust emissions.

DECOMMISSIONING & CLOSURE PHASE:

- Dust suppression methods, such as wetting or laying straw, should be applied where there are large tracks of exposed surfaces.
- Stockpiles and soil heaps must be covered with tarpaulins or straw to prevent fugitive dust.
- All construction vehicles must be appropriately maintained to minimise exhaust emissions.

Cumulative impacts: None

Residual Risks: None anticipated.

POTENTIAL IMPACTS of TRAFFIC on the ENVIRONMENT:

1. Potential Direct & Indirect Impacts of TRAFFIC on the ENVIRONMENT

Nature:

CONSTRUCTION PHASE:

- Increased traffic volumes will be generated, including heavy vehicles delivering materials to the site. This could cause slight delays in existing traffic operations. The heavy vehicles may also cause damage to the public road.

DECOMMISSIONING & CLOSURE PHASE:

- Vehicle traffic around the site may increase during the decommissioning phase and impact the natural traffic flow around the site.

	Without mitigation		With mitigation	
PLANNING & DESIGN PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	n.a.		n.a.	
CONSTRUCTION PHASE				
Probability	Medium	3	Low	2
Duration	Short-term	2	Short-term	2
Extent	Local	2	Local	2
Magnitude	Moderate	6	Low	4
Significance	**Medium**	**30**	**Low**	**16**
Status (positive or negative)	Negative		Negative	
OPERATIONAL PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	**n.a.**		**n.a.**	
Status (positive or negative)	Non		None	

DECOMMISSIONING & CLOSURE PHASE				
Probability	Low	3	Low	2
Duration	Immediate	1	Immediate	1
Extent	Local	2	Local	2
Magnitude	Moderate	6	Low	4
Significance	**Low**	**27**	**Low**	**14**
Status (positive or negative)	Negative		Negative	
Reversibility	Medium		High	
Irreplaceable loss of resources?	No		No	
Can impacts be mitigated?	Yes			

Mitigation:

CONSTRUCTION & DECOMMISSIONING & CLOSURE PHASE:

PHASE:

- The Contractor should ensure that traffic on the local roads is disrupted as little as possible which should include measures for the optimization of the amount of travel on the local roads, thereby reducing impacts.
- The delivery of construction equipment and material should be limited to hours outside peak traffic times (including weekends).
- Where obvious damage to the road infrastructure has occurred as a result of the project, repairs should be undertaken in accordance with the relevant authority's specifications and requirements.
- Co-ordination of movement of vehicles on and off site to reduce risks and prevent congestion on roads in the vicinity of the site.
- No vehicles or machinery should be serviced or refuelled onsite.
- Peak traffic hours should be avoided.
- Large vehicle turning must take place onsite and not in the adjacent roads.
- In cases where activities may obstruct traffic, local traffic officials must be contacted.

Cumulative impacts: None

Residual Risks: None anticipated.

POTENTIAL IMPACTS of WASTE GENERATION on the ENVIRONMENT:

1. Potential Direct & Indirect Impacts of WASTE GENERATION on the ENVIRONMENT

Nature:

CONSTRUCTION & DECOMMISSIONING & CLOSURE PHASES:

- Waste generation during the construction & decommissioning/closure phases will have a negative impact on the environment, if not controlled adequately. Waste on site includes domestic waste, mixed concrete, paint cans and brushes, insulation material, building rubble and other construction waste.

	Without mitigation		With mitigation	
PLANNING & DESIGN PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	n.a.		n.a.	
CONSTRUCTION PHASE				
Probability	Moderate	4	Low	2
Duration	Short term	2	Short-term	2
Extent	Site	1	Site	1
Magnitude	Moderate	6	Low	4
Significance	**Medium**	**36**	**Low**	**14**

Status (positive or negative)	Negative		Negative	
OPERATIONAL PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	**n.a.**		**n.a.**	
Status (positive or negative)	None		none	
DECOMMISSIONING & CLOSURE PHASE				
Probability	Low	3	Low	2
Duration	Immediate	1	Immediate	1
Extent	Local	2	Local	2
Magnitude	Moderate	6	Low	4
Significance	**Low**	**27**	**Low**	**14**
Status (positive or negative)	Negative		Negative	
Reversibility	Medium		High	
Irreplaceable loss of resources?	No		No	
Can impacts be mitigated?	Yes			

Mitigation:

CONSTRUCTION PHASE:

- General waste disposal bins will be made available for employees to use throughout the construction phase.
- Where possible construction waste on site should be recycled or reused.
- Waste will be temporarily stored on site (less than 90 days) before being disposed of appropriately.
- General waste should be placed in a watertight container and disposed of on a regular basis.
- Records of all waste being taken off site must be recorded and kept as evidence.
- Evidence of correct disposal must be kept.
- Construction rubble will be disposed of at an appropriate site.
- Burning of waste material will not be permitted.
- Hazardous materials will be generated if there are spillages during construction and maintenance periods. This waste should be cleaned up using absorbent material provided in spill kits on site and must be disposed of accordingly at a hazardous waste landfill.
- Absorbent materials used to clean up spillages should be disposed of in a separate hazardous waste bin.
- The storage area for hazardous material must be concreted, bunded, covered, labelled and well ventilated.
- Provide employees with appropriate PPE for handling hazardous materials.
- All hazardous waste will be disposed of in a registered hazardous waste disposal facility.

Cumulative impacts: None

Residual Risks: None anticipated.

POTENTIAL IMPACTS of NOISE on the ENVIRONMENT:

1. Potential Direct & Indirect Impacts of NOISE on the ENVIRONMENT

Nature:

CONSTRUCTION PHASE:

- Noise impacts will arise as a result of the use of construction vehicles and machinery. These noise impacts may be a nuisance to surrounding land users and occupiers.
- It is anticipated that the construction activities will contribute to ambient noise levels during working hours.

DECOMMISSIONING & CLOSURE PHASE:

- Vehicles and other machinery required for decommissioning will increase the noise levels during working hours.
- Decommissioning activities which are likely to cause vibrations.

• Entry and use of construction vehicles as well as cranes on site.				
	Without mitigation		With mitigation	
PLANNING & DESIGN PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	n.a.		n.a.	
CONSTRUCTION PHASE				
Probability	High	4	Low	2
Duration	Immediate	1	Immediate	1
Extent	Local	2	Local	2
Magnitude	Moderate	6	Low	3
Significance	**Medium**	**36**	**Low**	**12**
Status (positive or negative)	Negative		Negative	
OPERATIONAL PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	**n.a.**		**n.a.**	
Status (positive or negative)	n.a.		n.a.	
DECOMMISSIONING & CLOSURE PHASE				
Probability	High	4	Low	2
Duration	Immediate	1	Immediate	1
Extent	Local	2	Site	1
Magnitude	Moderate	6	Low	3
Significance	**Moderate**	**36**	**Low**	**10**
Status (positive or negative)	Negative		Negative	
Reversibility	Medium		High	
Irreplaceable loss of resources?	No		No	
Can impacts be mitigated?	Yes			

Mitigation:

CONSTRUCTION PHASE:

- Construction activities should be limited to normal working hours (08:00 – 17:00) and limited to weekdays.
- No work should occur on weekends or on public holidays.
- The contractor will adhere to local authority by-laws relating to noise control.
- Mechanical equipment with lower sound power levels must be selected to ensure that the permissible occupation noise-rating limit of 85 dBA is not exceeded.
- Equipment must be fitted with silencers as far as possible to reduce noise.
- All equipment to be adequately maintained and kept in good working order to reduce noise.
- Neighbouring landowners should be informed prior to the initiation of noisy activities e.g. high intensity drilling. A grievance procedure will be established whereby noise complaints can be received, recorded and responded to appropriately.
- All construction workers and personnel must wear hearing protection during working hours.
- Noise levels must comply with the SANS 100103 – 0994 (recommended noise levels).

DECOMMISSIONING & CLOSURE PHASE:

- The contractor will adhere to local authority by-laws relating to noise control.
- Decommissioning activities will be restricted to regular working hours, i.e. Monday to Friday (08:00 – 17:00).
- Mechanical equipment with lower sound power levels will be selected to ensure that the permissible occupation noise-rating limit

of 85 dBA is not exceeded.
- Equipment will be fitted with silencers as far as possible to reduce noise.

Cumulative impacts: None

Residual Risks: None anticipated.

POTENTIAL IMPACTS of HEALTH & SAFETY on the ENVIRONMENT:

1. Potential Direct & Indirect Impacts of HEALTH & SAFETY on the ENVIRONMENT

Nature:

CONSTRUCTION PHASE:

- Potential human health and safety impacts during the operations and maintenance phase would include:
  - Exposures to hazardous materials such as petroleum, oils, lubricants, and herbicides can cause serious health problems.
  - The risk of serious injuries or accidents associated with maintenance of infrastructure.
- Adverse impacts could also occur from the risk of fires caused by development activities.

DECOMMISSIONING & CLOSURE PHASE:

- During the decommissioning phase, open excavations, vehicle movement and other construction activities may pose a health and safety hazard to workers.
- Storage, handling and transport of fuel are potentially dangerous to humans and properties due to the risk of fire and explosions.

	Without mitigation		With mitigation	
PLANNING & DESIGN PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	n.a.		n.a.	
CONSTRUCTION PHASE				
Probability	Moderate	3	Low	2
Duration	Immediate	1	Immediate	1
Extent	Site	1	Site	1
Magnitude	Moderate	6	Low	3
Significance	**Low**	**24**	**Low**	**10**
Status (positive or negative)	Negative		Negative	
OPERATIONAL PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	**n.a.**		**n.a.**	
Status (positive or negative)	n.a.		n.a.	
DECOMMISSIONING & CLOSURE PHASE				
Probability	Medium	3	Low	2
Duration	Immediate	1	Immediate	1
Extent	Site	1	Site	1
Magnitude	Moderate	6	Low	3
Significance	**Low**	**24**	**Low**	**10**
Status (positive or negative)	Negative		Negative	
Reversibility	Medium		High	
Irreplaceable loss of	No			

resources?		No
Can impacts be mitigated?	Yes	

Mitigation:

CONSTRUCTION PHASE:

- The construction site must be fenced off to prohibit unauthorised access and site access must be strictly controlled.
- All employees, contractors and sub- contractors to wear appropriate PPE.
- Open excavations must be clearly marked.
- Appropriate health and safety signage must be displayed on site.
- Safety Audits must be conducted on a monthly basis and submitted to the relevant departments.

DECOMMISSIONING & CLOSURE PHASE:

- The construction site must be fenced off to prohibit unauthorised access and site access must be strictly controlled.
- All employees, contractors and sub- contractors to wear appropriate PPE.
- Open excavations must be clearly marked.
- All employees, contractors and sub- contractors must comply with the relevant Health and Safety Policy.
- Fire safety should be considered, and all vehicles should have fire extinguisher.
- Employees should be trained on fire safety.
- Local emergency fire brigade number should be known to everybody.
- Appropriate health and safety signage must be displayed on site.

Cumulative impacts: None

Residual Risks: None anticipated.

NO GO ALTERNATIVE

PLANNING & DESIGN PHASE

DIRECT, INDIRECT & CUMULATIVE IMPACTS:

- Not be able to fulfil the need as identified by the applicant and exercise her legally approved zoning rights (i.e. agriculture & consent use for second dwelling as approved by the City of Tshwane Metropolitan Municipality) by developing the property to it's fullest potential.
- No employment opportunities would be created for further detailed design and assessment-related services, neither such as architects, engineers, town planners and environmental consultants, nor for the regional and national authorities responsible for reviewing the applications made in terms of the relevant legislation.
- The following benefits (i.e. which is in the public interest) that the proposed development will have for society in general will be forfeited i.e:
    - maximization and increase of mixed land uses creates more vibrant, walkable and connected communities.
    - There will be greater interest from the general public in such development in light of renewed interest in urban revitalization and therefore more sustainable development.
    - A development like this, for integration of land uses, that promotes a walkable built environment can help revitalize an area, increase private investment, lead to higher property values and support the development of a good business climate.
    - Reducing sprawl and building communities where residents live and walk to work reduces car usage, positively impacting on the environment. With the incorporation of mixed-use development and smart growth practices, sprawling development patterns could be reduced, and quality of life may be enhanced. Undeveloped land, open space, and historic and natural resources are preserved.
    - In addition to providing public health benefits, walkable communities that are attractive and may also contribute to a sense of place that reaps economic rewards for residents and businesses.
    - In addition to the above the following will also contribute to the constitutional and transformation imperatives:
    - Access and opportunity to make use of services.
    - Best interest of Public (contributing to infrastructure upgrade).
    - Best interest of Public (contributing to positive property value).
    - Compliance with legal procedures that acquire land use rights.
- The following LAND USE PERSPECITVES & PLANNING initiatives & LEGISLATIVE requirements of the LOCAL, PROVINCIAL & NATIONAL AUTHORITIES would not be met in a minor way as outlined in the following

documentation i.e:

- *THE METROPOLITAN SPATIAL DEVELOPMENT FRAMEWORK (MSDF) 2012 & The Tshwane Spatial Development Framework for Region 6:-*
  - A densified area requires that the surrounding area be provided with a mix of mutually retail, service, office and residential developments. A development that strives for an increased density needs to embrace connectivity between various uses within the existing neighbourhoods. This results in an active urban environment, which enhances liveability, environmental quality and economic vitality.
  - The proposed development will provide for a more compact urban form, which is highly integrated. The desirability of the proposed development is not only based on the need for mixed, but also on the need for urban, architectural, social and economic upliftment. The proposed development will provide additional housing opportunities and will help reduce housing backlogs through accommodation that is accessible to economic, social and institutional services and nodes within the City of Tshwane.
  - There is a need for additional housing in the City of Tshwane Metropolitan Municipality's area of jurisdiction. The Tshwane Spatial Development Framework for Region 6, specifically highlights the importance of infill development and compacting establishments.
  - Most of the other erven within the surroundings townships have already been developed for residential purposes. There is still a great need for additional housing in the area. Thus, the potential of this large vacant property was seen by the developer as an opportunity to create two more dwelling houses.
  - The proposed residential dwellings on the portion will help in the need for additional housing in the area to some extent.
  - Considering how much the neighbourhood is transforming, application will not adversely affect the surrounding area, which is showing some significant signs of change in favour of densification and mixed land use developments.
  - The proposed investment will certainly continue to contribute to rejuvenation and enhancement of the locality through the construction of additional dwelling houses. This development does not impose any illegal use on the area as it is in line with various municipal policies as earlier discussed.
  - The application site currently obtains safe and direct access via a right of way servitude adjoining Koedoeberg Road, as well as from Wapadrand via Briekslinger Place. Access to the site is thus possible from two directions.
  - The property is centrally located and easily accessible from the major routes within the area, including the provincial roads. Land within this area that can be developed for residential purposes with good accessibility may be considered a scarce resource and it is therefore important to determine the development potential of land within the area and to apply for land use rights in accordance with the development potential.
  - The proposed application will have no impact on current traffic levels, no strain on current traffic levels is foreseen.
  - The application site is also well served by public transport. Public transport facilities are situated within walking distance from the application site.
  - According to the Tshwane Regional Spatial Development Frameworks the application is earmarked for residential uses and can therefore be seen as being consistent with spatial planning and land use policies.
  - The proposed development will be designed to be in keeping with the architectural styles of the area. The proposed development will also take into account conditions imposed for the area.
  - The proposed development will comply with all of the requirements from an Architectural and design perspective and will conform with the requirements in terms of SANS 10040.
  - The area is characterised by mixed use areas and will be in line with this aesthetic of the existing urban environment. The design and materials used for the building will be of the highest quality and will fit with the design of the area.
  - Given the fact that the application area is located within an existing urban fabric of the Willows, the proposed development will not have any significant impact on the existing services infrastructure.
- *The City of Tshwane Metropolitan Municipality Clause 14(10) of the Tshwane Town-Planning Scheme, 2008 for permission for a second dwelling house (Revised 2014);*
- *City of Tshwane Integrated Development Plan (2021/2026);*
- *THE SPATIAL PLANNING AND LAND USE MANAGEMENT ACT, 2013 (ACT 16 OF 2013) – SPLUMA;*
- *Gauteng Spatial Development Framework 2011;*
- *National Spatial Development Perspective (NSDP);*
- *Gauteng Spatial Development Perspective (GSDP);*
- *National Development Plan vision for 2030.*

NO GO ALTERNATIVE

CONSTRUCTION PHASE

DIRECT, INDIRECT & CUMULATIVE IMPACTS

- The proposed development would not be able to create a safe (i.e. protected) and amicable environment in which the protected fauna (i.e Critically Endangered mammal species *'Neamblysomus julianae'*, the Juliana's golden mole) as well as endemic (i.e. locally indigenous) vegetation could flourish as stated in the ECOLOGICAL BIODIVERSITY ASSESSMENT (i.e. ***'An assessment of vegetation, flora, vertebrate fauna and wetlands on Erf 350 of the Farm The Willows 340 JR, City of Tshwane, Gauteng****. By G.J. Bredenkamp D.Sc. Pr.Sci.Nat. J.P.C. van Wyk M.Sc. Pr.Sci.Nat. C.E. Venter M.Sc. Pr.Sci.Nat. Commissioned by Pierre Joubert Landscape Architect and Environmental Planner [EcoAgent CC PO Box 25533 Monument Park 0181. Tel 012 4602525. Cell 082 5767046. March 2021])* which was performed for/on the site and the following was noted by the specialists i.e:
  - *'Juliana's golden mole subsurface activities were recorded at a few localities on site. The golden mole subsurface activities were found around a diversity of habitat types on the study site and buffer areas. The golden mole occurs on the site is in both natural and in unnatural urban settings. Part of the study site includes the Bronberg Conservation Area where no development may occur, and signs of the Juliana's golden mole activity have been recorded. These golden mole individuals in the Bronberg Conservation Area would not be affected by the development since they occur outside the intended footprint of the development. The area where the intended development will take place has been altered by invasive plant species and except for a small area, no Juliana's golden mole subsurface activities were recorded. Near the white stinkwood trees at Erf 350, which is also a cultural heritage site, golden mole activities were observed at 25°46'51"S; 28°20'05"E. This area must be excluded from development. Golden moles are adapted to co-exist with human beings in rural settings on condition that the substrate consists of soft sand with no or little clay content and the soils kept permanently moist by regular irrigation. Implemented the suggested Ecological Management Plan (included in this report) will stabilize the population at higher numbers and ensure year-round optimized ecological conditions in a structured manner. Connectivity with adjoining properties is good. From a vertebrate perspective, there is no objection against the development as long as the development strictly adheres to the mitigation measures for the Juliana's Golden mole'.*
- The proposed development would not be able to curb further spread and increase of alien invasive plant species on the site which will also spread to the adjacent BRONBERG CONSERVATION AREA as a result of the lack of local indigenous landscaping rehabilitation initiatives as also stated in the above-mentioned BIODIVERSITY ASSESSMENT.
- No minor disturbance of the soil on the site with no potential for contamination or an increase in erosion of the site.
- No minor additional traffic volumes or associated impacts.
- No minor increase in negative air quality impacts and no dust nuisance to local land users and occupiers or road users.
- No minor increase in noise impacts.
- No medium positive alteration to the visual environment.
- No minor occupational health and safety risks.
- No job creation opportunity.
- No job security for employees of the appointed contractor.
- No minor positive potential for economic growth in the area.
- Potential increase in criminal activity in the areas surrounding the construction site, associated with the presence of transient job seekers on the site.

OPERATIONAL PHASE

DIRECT, INDIRECT & CUMULATIVE IMPACTS (i.e. OTHER/FURTHER POSSIBLE)

- The proposed development would not be able to uphold the **socio-economic** aspects of sustainability, in that a high-quality residence (i.e. and other related facilities/activities) in that specific area will –
  - Be well used in that it will be developed within it's current zoning category i.e. Agriculture, although no farming activities will be practiced, thereby conserving the environment.
  - Provide safe and good quality housing to families i.e. the fiber of human society.
  - Increase the housing market's property i.e. perceived marketable, values and attract similar quality developments to that area i.e. stimulus of the local economy.
  - Be well maintained and visually (i.e. aesthetically) pleasing which will fit well into it's existing residential surroundings of the same character, quality and sense of place (i.e. 'genius loci').

- Disallow vagrants or unwanted occupiers to occupy and –
    - destroy the site and it's sensitive ecology,
    - threaten the surrounding residential property owner's safety.

- The proposed development would not be able to create and maintain a safe (i.e. protected) and amicable environment in which the protected fauna (i.e Critically Endangered mammal species *'Neamblysomus julianae'*, the Juliana's golden mole) as well as endemic (i.e. locally indigenous) vegetation could flourish as stated in the **ECOLOGICAL BIODIVERSITY ASSESSMENT** (i.e. **'*An assessment of vegetation, flora, vertebrate fauna and wetlands on Erf 350 of the Farm The Willows 340 JR, City of Tshwane, Gauteng*.** *By G.J. Bredenkamp D.Sc. Pr.Sci.Nat. J.P.C. van Wyk M.Sc. Pr.Sci.Nat. C.E. Venter M.Sc. Pr.Sci.Nat. Commissioned by Pierre Joubert Landscape Architect and Environmental Planner [EcoAgent CC PO Box 25533 Monument Park 0181. Tel 012 4602525. Cell 082 5767046. March 2021]*) which was performed for/on the site and the following was noted by the specialists i.e:
    - *'Juliana's golden mole subsurface activities were recorded at a few localities on site. The golden mole subsurface activities were found around a diversity of habitat types on the study site and buffer areas. The golden mole occurs on the site is in both natural and in unnatural urban settings. Part of the study site includes the Bronberg Conservation Area where no development may occur, and signs of the Juliana's golden mole activity have been recorded. These golden mole individuals in the Bronberg Conservation Area would not be affected by the development since they occur outside the intended footprint of the development. The area where the intended development will take place has been altered by invasive plant species and except for a small area, no Juliana's golden mole subsurface activities were recorded. Near the white stinkwood trees at Erf 350, which is also a cultural heritage site, golden mole activities were observed at 25°46'51"S; 28°20'05"E. This area must be excluded from development. Golden moles are adapted to co-exist with human beings in rural settings on condition that the substrate consists of soft sand with no or little clay content and the soils kept permanently moist by regular irrigation. Implemented the suggested Ecological Management Plan (included in this report) will stabilize the population at higher numbers and ensure year-round optimized ecological conditions in a structured manner. Connectivity with adjoining properties is good. From a vertebrate perspective, there is no objection against the development as long as the development strictly adheres to the mitigation measures for the Juliana's Golden mole'.*
- The proposed development would not be able to maintain the curbing of the further spread and increase of alien invasive plant species on the site which will also spread to the adjacent BRONBERG CONSERVATION AREA as a result of the lack of maintenance of it's local indigenous landscaping rehabilitation initiative.

Proposal *SEE ABOVE:*

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented

ALTERNATIVE#1 LAYOUT PLAN (i.e. not preferred):

PROPOSED RESIDENCES to be situated on Portion 350 of the FARM THE WILLOWS 340-JR (City of Tshwane Metropolitan Municipality, Gauteng) - with associated Civil Services infrastructure

POTENTIAL IMPACTS on the TERRESTRIAL VEGETATION & FLORA BIODIVERSITY:

[Taken from i.e. quoted directly, from the specialist reports contained in APPENDIX G – '1. (i.e. '*An assessment of vegetation, flora, vertebrate fauna and wetlands on Erf 350 of the Farm The Willows 340 JR, City of Tshwane, Gauteng. By G.J. Bredenkamp D.Sc. Pr.Sci.Nat. J.P.C. van Wyk M.Sc. Pr.Sci.Nat. C.E. Venter M.Sc. Pr.Sci.Nat. Commissioned by Pierre Joubert Landscape Architect and Environmental Planner [EcoAgent CC PO Box 25533 Monument Park 0181. Tel 012 4602525. Cell 082 5767046. March 2021]).'*

1. Potential Direct & Indirect Impacts on natural terrestrial vegetation.

Nature: Impact of the Alternative#1 Lay-Out development on plant communities with High, Medium-High Medium, Medium-Low or Low ecological sensitivity - loss of indigenous vegetation due to clearing for construction of two residences.

The relevant area is 0,45 ha in size. The footprint area for the development of two residences is widely spread over the plains area (but restricted to the area below the conservation line). Particularly the northern residence will impact on plant communities with High (only the access road to the garage), Medium-High (the heritage site) , Medium (Disturbed Tall

Treeveld) , Medium-Low (Historically Disturbed Plains Bushveld) and Low (Recently Cleared Areas) sensitivity. These areas will be cleared of vegetation. Little area will remain natural, with little area left for the development of an indigenous garden with special measures to enhance habitat for Juliana's Golden Mole. Due to the relatively large area to be cleared, loss of indigenous plant species is expected, while disturbance of plant populations and the fragmentation of the already disturbed plant community will occur. The removal of vegetation will expose soil, with minimal risk of erosion during construction period.

NOTE: The Alternative Lay-Out development is widely spread over the entire Historically Disturbed Plains Bushveld, leaving limited area to conserve part of this bushveld. There is not adequate space left for conservation of plains bushveld, albeit historically disturbed, and also not adequate space the development of an indigenous garden and implementation of the management plan for Juliana's Golden Mole are important measures to maintain biodiversity on the site. Due to the extent of the development as proposed by the Alternative Lay-Out development the **significance of the impact** of the proposed development on this vegetation, with mitigation, is therefore considered to be **High** during construction and **Very High** during operational phases. Removal and control of alien invasive plant species is still very important. From vegetation and flora point of view, the proposed Alternative Lay-Out development is not supported.

	Without mitigation		With mitigation	
PLANNING & DESIGN PHASE				
Probability	n.a.	0	n.a.	0
Duration	n.a.	0	n.a.	0
Extent	n.a.	0	n.a.	0
Magnitude	n.a.	0	n.a.	0
Significance	n.a.	**0**	n.a.	**0**
Status (positive or negative)	n.a.		n.a.	
CONSTRUCTION PHASE				
Probability	Definite	5	Definite	5
Duration	Short-term	1	Short term	1
Extent	Over entire site	3	Over entire site	3
Magnitude	High	8	Moderate	6
Significance	**High**	**60**	**Moderate**	**50**
Status (positive or negative)	Negative		Negative	
OPERATIONAL PHASE				
Probability	Definite	5	Definite	5
Duration	Permanent	5	Permanent	5
Extent	Over entire site	3	Over entire site	3
Magnitude	High	8	Moderate	6
Significance	**Very High**	**80**	**High**	**70**
Status (positive or negative)	Negative		Negative	
DECOMMISSIONING & CLOSURE PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	n.a.		n.a.	
Reversibility	Low		Moderate	
Irreplaceable loss of resources?	Low		Low	
Can impacts be mitigated?	Yes, to a limited extent.			

Mitigation:

- The clearing of vegetation must be kept to a minimum and remain within the footprint development – leave the rest of the area with natural vegetation intact.
- Leave all trees but remove alien invasive species wherever possible.

- Construction must be completed as quickly as possible.
- Disturbed open areas must be rehabilitated immediately after construction has been completed in that area by developing an indigenous garden by planting appropriate indigenous tree, grass and forb species.
- During the construction phase workers must be limited to areas under construction and access to the planned open areas must be strictly controlled.
- Rehabilitated areas must be monitored to ensure the establishment of re-vegetated areas.
- Plant only indigenous trees – no alien species.
- Adhere to the proposed management plan for Juliana's Golden Mole.

Cumulative impacts: Not Expected to reduce the functional ecosystems in the area.

Residual Risks: Little anticipated as it is expected that the mitigation measures will be implemented correctly.

2. Potential Direct & Indirect Impacts on natural terrestrial vegetation.

Nature: Impact of the Alternative#1 Lay-Out development on plant communities with High, Medium-High, Medium, Medium-Low or Low ecological sensitivity - Increase of alien invasive plant species on cleared sites.
Alien invasive plant species and weeds may encroach into any disturbed areas particularly areas cleared for the proposed development. Large parts of the proposed site already have various woody alien and invasive plant species present. These must be removed and an indigenous garden developed.
NOTE: The Alternative Lay-Out development is widely spread over the entire Historically Disturbed Plains Bushveld, leaving limited area to conserve part of this bushveld. There is not adequate space left for conservation of plains bushveld, albeit historically disturbed, and also not adequate space the development of an indigenous garden and implementation of the management plan for Juliana's Golden Mole are important measures to maintain biodiversity on the site. Due to the extent of the development as proposed by the Alternative Lay-Out development the **significance of the impact** of the proposed development on this vegetation, with mitigation, is therefore considered to be **High** during construction and **Very High** during operational phases. Removal and control of alien invasive plant species is still very important. From vegetation and flora point of view, the proposed Alternative Lay-Out development is not supported.

	Without mitigation		With mitigation	
PLANNING & DESIGN PHASE				
Probability	n.a.	0	n.a.	0
Duration	n.a.	0	n.a.	0
Extent	n.a.	0	n.a.	0
Magnitude	n.a.	0	n.a.	0
Significance	n.a.	**0**	n.a.	**0**
Status (positive or negative)	n.a.		n.a.	
CONSTRUCTION PHASE				
Probability	Improbable	2	Very improbable	1
Duration	Short-term	1	Short term	1
Extent	Limited to construction site	1	Limited to construction site	1
Magnitude	Moderate	5	Minor	2
Significance	**Minor**	**14**	**Minor**	**4**
Status (positive or negative)	Negative		Positive	
OPERATIONAL PHASE				
Probability	Improbable	2	Very improbable	1
Duration	Permanent	5	Permanent	5
Extent	Limited to site	1	Limited to site	1
Magnitude	Low	2	Low	1
Significance	**Minor**	**16**	**Minor**	**7**
Status (positive or negative)	Negative		Positive	
DECOMMISSIONING & CLOSURE PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	

Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	n.a.		n.a.	
Reversibility	Moderate		High	
Irreplaceable loss of resources?	Low		Low	
Can impacts be mitigated?	Yes			

Mitigation:

- An alien invasive management programme must be incorporated into the Environmental Management Programme.
- Ongoing alien plant control must be undertaken.
- Areas which have been disturbed will be quickly colonised by invasive alien species. An ongoing management plan must be implemented for the clearing/eradication of alien species.
- Monitor all sites disturbed by construction activities for colonisation by exotics or invasive plants and control these as they emerge.
- Avoid planting of exotic plant species, use indigenous species.
- Develop an indigenous garden.
- Adhere to the proposed management plan for Juliana's Golden Mole.

Cumulative impacts: Minor, should mitigation measure not be implemented. Alien invader plant species pose an ecological threat as they alter habitat structure; lower biodiversity, change ecosystem services and processes e.g. change nutrient cycling and productivity, and modify food webs.

Residual Risks: None anticipated provided that the mitigation measures are implemented correctly, and rehabilitation of the site is undertaken.

POTENTIAL IMPACTS on the MAMMALS & MAMMALS HABITAT:

[Taken from i.e. quoted directly, from the specialist reports contained in APPENDIX G – '1. (i.e. '*An assessment of vegetation, flora, vertebrate fauna and wetlands on Erf 350 of the Farm The Willows 340 JR, City of Tshwane, Gauteng. By G.J. Bredenkamp D.Sc. Pr.Sci.Nat. J.P.C. van Wyk M.Sc. Pr.Sci.Nat. C.E. Venter M.Sc. Pr.Sci.Nat. Commissioned by Pierre Joubert Landscape Architect and Environmental Planner [EcoAgent CC PO Box 25533 Monument Park 0181. Tel 012 4602525. Cell 082 5767046. March 2021]).'*

1. Potential Direct & Indirect Impacts on MAMMALS & MAMMALS HABITAT.

Nature: Direct Impacts of the Alternative#1 Lay-Out development on mammal communities and loss of mammal habitat.
Although only the footprint area for the development of two residences will be cleared of vegetation, this area is widely spread over the Historically Disturbed Plains Bushveld, Recently Disturbed Area and on part of the Bushveld on the Lower Slopes. The area which will remain as natural as possible is therefore limited. Due to the larger area to be cleared, loss of mammal habitat is more. After clearing the vegetation, construction will commence. Construction activities may result in disturbance of mammal individuals or populations.

NOTE: According to the **Alternative Lay-Out** plan, the development will occur widely spread over the Historically Disturbed Plains Bushveld area and the Recently Disturbed Area but will include parts of the Dense Treeveld of the Heritage site and Disturbed Tall Treeveld of the Plains, which respectively have a Medium-High and Medium ecological sensitivity. No development should occur on these areas.

The Preferred Lay-Out development plan implies that a much larger area of natural vegetation will remain intact, and a much larger area can be developed into a indigenous garden to the benefit of Juliana's Golden Mole. It is therefore envisaged that the impact of the Preferred Lay-Out development will be far less significant on the mammals, particularly the Juliana's Golden Mole, than the Alternative#1 Lay-Out development, particularly should the conservation management plan be implemented.

	Without mitigation		With mitigation	
PLANNING & DESIGN PHASE				
Probability	n.a.	0	n.a.	0
Duration	n.a.	0	n.a.	0
Extent	n.a.	0	n.a.	0
Magnitude	n.a.	0	n.a.	0

Significance	n.a.	**0**	n.a.	**0**
Status (positive or negative)	n.a.		n.a.	
CONSTRUCTION PHASE				
Probability	Definite	5	Definite	5
Duration	Short term 1 year	1	Short term 1 year	1
Extent	Limited to construction site	1	Limited to construction site	1
Magnitude	High	8	Minor	1
Significance	**Moderate**	**50**	**Minor**	**15**
Status (positive or negative)	Negative		Negative	
OPERATIONAL PHASE				
Probability	Definite	5	Definite	5
Duration	Permanent	5	Permanent	5
Extent	Limited to site	1	Limited to site	1
Magnitude	Moderate	5	Moderate	3
Significance	**Moderate**	**55**	**Moderate**	**45**
Status (positive or negative)	Negative		Negative/Positive	
DECOMMISSIONING & CLOSURE PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	n.a.		n.a.	
Reversibility	No		No	
Irreplaceable loss of resources?	No too small areas and natural mammal habitats are already disturbed for biodiversity or conservation.		No too small areas and natural mammal habitats are already disturbed for biodiversity or conservation.	
Can impacts be mitigated?	Yes			

Mitigation:

- Should any South African Hedgehog or other mammal species be encountered or exposed during the construction phase, they should be removed and relocated to natural areas in the vicinity. The contractor must ensure that no indigenous mammal species are disturbed, trapped, hunted or killed during the construction phase. Conservation-orientated clauses should be built into contracts for construction personnel, complete with penalty clauses for non-compliance.
- During the construction phase there may be increased surface runoff and a decreased water quality (with increased silt load and pollution). Completing construction during the winter months would mitigate this environmental impact.
- The appropriate agency should implement an ongoing monitoring and eradication program for all invasive plant species growing on the site.
- Any post-development re-vegetation or landscaping exercise should use species indigenous to South Africa. Plant species locally indigenous to the area are preferred.
- Planting indigenous species in the gardens and development of an indigenous garden will enhance habitats for mammals.
- Implementation of the management plan for Juliana's Golden Mole will improve mammal habitats in general and contribute to the conservation of these species.

Cumulative impacts: Limited, the adjacent areas are already used as residential areas.

Residual Risks: None anticipated.

POTENTIAL IMPACTS on the AVIFAUNA & AVIFAUNA HABITAT:

[Taken from i.e. quoted directly, from the specialist reports contained in APPENDIX G – '1. (i.e. '*An assessment of vegetation, flora, vertebrate fauna and wetlands on Erf 350 of the Farm The Willows 340 JR, City of Tshwane, Gauteng. By G.J. Bredenkamp D.Sc. Pr.Sci.Nat. J.P.C. van Wyk M.Sc. Pr.Sci.Nat. C.E. Venter M.Sc. Pr.Sci.Nat. Commissioned by Pierre Joubert Landscape Architect and Environmental Planner [EcoAgent CC PO Box 25533 Monument Park 0181. Tel 012 4602525. Cell 082 5767046. March 2021]).*'

1. Potential Direct & Indirect Impacts on AVIFAUNA HABITAT.

Nature: Construction of two residential houses and other buildings is likely to take place and may potentially incur the loss of habitat, but also potential creation of new habitats for certain species.

NOTE: The impacts of the Preferred and Alternative Lay-Out development plans will be very similar.

From a general avifaunal point of view, most of the terrestrial habitat types containing unspecialised and generalist bird species with widespread distribution ranges. The proposed development of the Preferred Lay-Out development plan can be supported.

	Without mitigation		With mitigation	
PLANNING & DESIGN PHASE				
Probability	n.a.	0	n.a.	0
Duration	n.a.	0	n.a.	0
Extent	n.a.	0	n.a.	0
Magnitude	n.a.	0	n.a.	0
Significance	n.a.	**0**	n.a.	**0**
Status (positive or negative)	n.a.		n.a.	
CONSTRUCTION PHASE				
Probability	Definite	5	Probable	5
Duration	Short term 1 year	1	Short term 1 year	1
Extent	Limited to construction site	2	Limited to construction site	2
Magnitude	Minor	2	Small	1
Significance	**Low**	**25**	**Minor**	**20**
Status (positive or negative)	Negative		Negative	
OPERATIONAL PHASE				
Probability	n.a.	0	n.a.	0
Duration	n.a.	0	n.a.	0
Extent	n.a.	0	n.a.	0
Magnitude	n.a.	0	n.a.	0
Significance	**N.a**	**0**	**n.a.**	**0**
Status (positive or negative)	n.a.		n.a.	
DECOMMISSIONING & CLOSURE PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	n.a.		n.a.	
Reversibility	Low		Low	
Irreplaceable loss of resources?	No, area too small		No, area too small	
Can impacts be mitigated?	Yes, to some extent			

Mitigation:

- The spatial extent of construction activities must be minimized,
- The boundaries of the development footprint areas are to be clearly demarcated and it must be ensured that all activities remain within the demarcated footprint area.
- Disturbance by residents of birds breeding and foraging in the area should be minimized and controlled.
- Provide adequate briefing for site personnel and residents prior to construction.
- Any bird nests that are found during the construction period must be reported to the Environmental Control Officer (ECO).

Cumulative impacts: Expected to be minimal on habitat with low avifaunal sensitivity. The habitat of low avifaunal sensitivity is already transformed and fragmented due to historic activities and the site is not a unique habitat within the landscape.

Residual Risks: Low, if mitigation measures are implemented correctly and rehabilitation of the site is undertaken.

2. Potential Direct & Indirect Impacts on AVIFAUNA.

Nature: Impact on birds due to disturbance associated with construction activities and with increased human presence in the area.

The presence of vehicles and construction workers will cause disturbance to avifauna, with the movement and activities of personnel on site and the associated noise, pollution and litter all having a negative effect on birds. In addition, the presence of construction workers will increase the probability of activities such as illegal hunting of birds. The permanent presence of a much larger number of people than presently occur at the site will result in greater disturbance of birds that use the area for foraging and breeding.

NOTE: The impacts of the Preferred and Alternative Lay-Out development plans will be very similar.

From a general avifaunal point of view, most of the terrestrial habitat types containing unspecialised and generalist bird species with widespread distribution ranges. The proposed development of the Preferred Lay-Out development plan can be supported.

	Without mitigation		With mitigation	
PLANNING & DESIGN PHASE				
Probability	n.a.	0	n.a.	0
Duration	n.a.	0	n.a.	0
Extent	n.a.	0	n.a.	0
Magnitude	n.a.	0	n.a.	0
Significance	n.a.	**0**	n.a.	**0**
Status (positive or negative)	n.a.		n.a.	
CONSTRUCTION PHASE				
Probability	Definite	5	Definite	5
Duration	Short term 1 year	1	Short term 1 year	1
Extent	Limited to construction site	2	Limited to construction site	2
Magnitude	Low	4	Minor	2
Significance	**Low**	**35**	**Low**	**25**
Status (positive or negative)	Negative		Negative	
OPERATIONAL PHASE				
Probability	Definite	5	Definite	5
Duration	Permanent	5	Permanent	5
Extent	Limited to local area	2	Limited to local area	2
Magnitude	Low	4	Minor	2
Significance	**Moderate**	**55**	**Moderate**	**45**
Status (positive or negative)	Negative		Negative	
DECOMMISSIONING & CLOSURE PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	n.a.		n.a.	
Reversibility	Low		Low	
Irreplaceable loss of resources?	No, area too small		No, area too small	
Can impacts be mitigated?	Yes.			

Mitigation:

- Movement of construction vehicles and workers beyond the boundary of the site must be minimized. In addition,

workers must be instructed to minimize disturbance of birds at all times, and steps must be taken to ensure that no illegal hunting occurs.

- The boundaries of the development footprint areas are to be clearly demarcated and it must be ensured that all activities remain within the demarcated footprint area.
- Disturbance by residents of birds breeding and foraging in the area should be minimized and controlled.
- Provide adequate briefing for site personnel and residents prior to construction.
- Any bird nests that are found during the construction period must be reported to the Environmental Control Officer (ECO).

Cumulative impacts: Expected to be minimal. The habitat is however already largely transformed and fragmented due to residential activities in the vicinity of the site. The site is not a unique habitat within the landscape. It is not envisaged that any Red Data species will be displaced by the habitat transformation that will take place as a result of the construction and operation of the proposed development. Birds are very mobile and may migrate to adjacent suitable habitat. It should be noticed that the newly created houses and indigenous garden forms habitat for specific bird species.

Residual Risks: None anticipated provided that the mitigation measures are implemented correctly, and rehabilitation of the site is undertaken.

3. Potential Direct & Indirect Impacts on AVIFAUNA.

Nature: Impact on birds due to Pollution associated with construction or residential activities. Pollution associated with construction activities and residents (e.g., fuel spills, use of cleaning chemicals) could have negative impacts on avifauna.
NOTE: The impacts of the Preferred and Alternative Lay-Out development plans will be very similar.
From a general avifaunal point of view, most of the terrestrial habitat types containing unspecialised and generalist bird species with widespread distribution ranges. The proposed development of the Preferred Lay-Out development plan can be supported.

	Without mitigation		With mitigation	
PLANNING & DESIGN PHASE				
Probability	n.a.	0	n.a.	0
Duration	n.a.	0	n.a.	0
Extent	n.a.	0	n.a.	0
Magnitude	n.a.	0	n.a.	0
Significance	n.a.	**0**	n.a.	**0**
Status (positive or negative)	n.a.		n.a.	
CONSTRUCTION PHASE				
Probability	Improbable	2	Very improbable	1
Duration	Short term 1 year	1	Short term 1 year	1
Extent	Limited to construction site	2	Limited to construction site	2
Magnitude	Low	4	Minor	2
Significance	**Low**	**12**	**Minor**	**4**
Status (positive or negative)	Negative		Negative	
OPERATIONAL PHASE				
Probability	Improbable	2	Very improbable	1
Duration	Permanent	5	Permanent	5
Extent	Limited to site	2	Limited to site	2
Magnitude	Low	4	Minor	2
Significance	**Low**	**22**	**Minor**	**9**
Status (positive or negative)	Negative		Negative	
DECOMMISSIONING & CLOSURE PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	

Status (positive or negative)	n.a.	n.a.
Reversibility	High	High
Irreplaceable loss of resources?	Low	Low
Can impacts be mitigated?	Yes.	

Mitigation:

- Great care must be taken that no pollutants or other waste pollute the area or enter local water systems during the construction or operational phases. Measures to rapidly deal with spills of fuel, cleaning chemicals or any other potential pollutants must be put in place before construction commences.
- Construction workers must be suitably trained to deal with any such spills.
- Facilities to handle pollution and waste must be provided to residents.

Cumulative impacts: Expected to be minimal. The habitat is already transformed and fragmented due to the residential activities and the site is not a unique habitat within the landscape. It is not envisaged that any Red Data species will be displaced. Birds are very mobile and may migrate to adjacent suitable habitat. It should be noticed that the newly created town forms habitat for specific bird species.

Residual Risks: None anticipated provided that the mitigation measures are implemented correctly, and rehabilitation of the site is undertaken.

4. Potential Direct & Indirect Impacts on AVIFAUNA.

Nature: Impact on birds due to Electrocution and collision hazards.

Electrical infrastructure such as distribution lines, as well as electric fences, pose a potential collision risk to flying birds, and a potential electrocution risk to perching birds. The magnitudes of these risks are much lower than the corresponding risks associated with large overhead transmission lines. Assuming that the electrical infrastructure comprising part of the proposed development is typical of housing developments, no specific mitigation measures are required.

NOTE: The impacts of the Preferred and Alternative Lay-Out development plans will be very similar.

From a general avifaunal point of view, most of the terrestrial habitat types containing unspecialised and generalist bird species with widespread distribution ranges. The proposed development of the Preferred Lay-Out development plan can be supported.

	Without mitigation		With mitigation	
PLANNING & DESIGN PHASE				
Probability	n.a.	0	n.a.	0
Duration	n.a.	0	n.a.	0
Extent	n.a.	0	n.a.	0
Magnitude	n.a.	0	n.a.	0
Significance	n.a.	**0**	n.a.	**0**
Status (positive or negative)	n.a.		n.a.	
CONSTRUCTION PHASE				
Probability	Very Improbable	1	Very improbable	1
Duration	Short term 1 year	1	Short term 1 year	1
Extent	Limited to construction site	1	Limited to construction site	1
Magnitude	Low	4	Minor	2
Significance	**Minor**	**6**	**Minor**	**4**
Status (positive or negative)	Negative		Negative	
OPERATIONAL PHASE				
Probability	Improbable	2	Very improbable	1
Duration	Permanent	5	Permanent	5
Extent	Limited to site	1	Limited to site	1
Magnitude	Low	4	Minor	2
Significance	**Minor**	**20**	**Minor**	**8**
Status (positive or negative)	Negative		Negative	
DECOMMISSIONING & CLOSURE PHASE				

Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	n.a.		n.a.	
Reversibility	High		High	
Irreplaceable loss of resources?	Low		Low	
Can impacts be mitigated?	Yes.			
Mitigation: • Normal safety measures for electrical installations as used by Eskom.				
Cumulative impacts: Expected to be minimal. The habitat is already transformed and fragmented due to the residential activities and the site is not a unique habitat within the landscape. It is not envisaged that any Red Data species will be displaced. Birds are very mobile and may migrate to adjacent suitable habitat. It should be noticed that the newly created town forms habitat for specific bird species.				
Residual Risks: None anticipated.				

POTENTIAL IMPACTS on the HERPETOFAUNA & HERPETOFAUNA HABITAT:

[Taken from i.e. quoted directly, from the specialist reports contained in APPENDIX G – '1. (i.e. '*An assessment of vegetation, flora, vertebrate fauna and wetlands on Erf 350 of the Farm The Willows 340 JR, City of Tshwane, Gauteng. By G.J. Bredenkamp D.Sc. Pr.Sci.Nat. J.P.C. van Wyk M.Sc. Pr.Sci.Nat. C.E. Venter M.Sc. Pr.Sci.Nat. Commissioned by Pierre Joubert Landscape Architect and Environmental Planner [EcoAgent CC PO Box 25533 Monument Park 0181. Tel 012 4602525. Cell 082 5767046. March 2021]).*'

1. Potential Direct & Indirect Impacts on HERPETOFAUNA & HERPETOFAUNA HABITAT.

Nature: The current habitat is mostly disturbed terrestrial habitat The footprint for the proposed residential development will result in clearing most of the vegetation area. This will result in some loss of herpetofaunal habitat. After clearing the vegetation, construction will commence.

NOTE: The impacts of the Preferred and Alternative Lay-Out development plans will be very similar. The development according to the Preferred Lay-Out plan can be supported.

	Without mitigation		With mitigation	
PLANNING & DESIGN PHASE				
Probability	n.a.	0	n.a.	0
Duration	n.a.	0	n.a.	0
Extent	n.a.	0	n.a.	0
Magnitude	n.a.	0	n.a.	0
Significance	n.a.	**0**	n.a.	**0**
Status (positive or negative)	n.a.		n.a.	
CONSTRUCTION PHASE				
Probability	Definite	5	Probable	5
Duration	Short term 1 year	1	Short term 1 year	1
Extent	Limited to construction site	1	Limited to construction site	1
Magnitude	Minor	2	Small	1
Significance	**Low**	**20**	**Minor**	**15**
Status (positive or negative)	Negative		Negative	
OPERATIONAL PHASE				
Probability	Definite	5	Definitive	5
Duration	Permanent	5	Permanent	5
Extent	Site	1	Site	1
Magnitude	Moderate	5	Moderate	3
Significance	**Moderate**	**55**	**Moderate**	**45**
Status (positive or negative)	Negative		Negative/Postive	

DECOMMISSIONING & CLOSURE PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	n.a.		n.a.	
Reversibility	No		No	
Irreplaceable loss of resources?	No too small areas and natural herpetofauna habitats are already disturbed for biodiversity or conservation.		No too small areas and natural herpetofauna habitats are already disturbed for biodiversity or conservation.	
Can impacts be mitigated?	Yes, planting indigenous species in the gardens will enhance habitats for herpetofauna and implementation of the management plan for Juliana's Golden Mole will improve herpetofauna habitats in general			

Mitigation:

Should any reptile or amphibia species be encountered or exposed during the construction phase, they should be removed and relocated to natural areas in the vicinity. The contractor must ensure that no indigenous herpetofauna species are disturbed, trapped, hunted or killed during the construction phase. Conservation-orientated clauses should be built into contracts for construction personnel, complete with penalty clauses for non-compliance.

- During the construction phase there may be increased surface runoff and a decreased water quality (with increased silt load and pollution). Completing construction during the winter months would mitigate the environmental impact.
- The appropriate agency should implement an ongoing monitoring and eradication program for all invasive plant species growing on the site.
- Any post-development re-vegetation or landscaping exercise should use species indigenous to South Africa. Plant species locally indigenous to the area are preferred.

Cumulative impacts: Limited, the adjacent areas are already used as residential areas.

Residual Risks: None anticipated.

POTENTIAL IMPACTS on the HERITAGE ENVIRONMENT:

[Taken from i.e. quoted directly, from the specialist reports contained in APPENDIX G – '***A PHASE 1 HERITAGE IMPACT ASSESSMENT & REPORT FOR RESIDENTIAL DEVELOPMENT ON PORTION 350 OF THE FARM THE WILLOWS 350JR TSHWANE METROPOLITAN AREA, GAUTENG***. For: *Pierre Joubert Professional Landscape Architect & Environmental Planner [15 Marikana Street, WIERDAPARK, CENTURION, 0157].* REPORT: APAC021/71. by: *APAC – APELSER ARCHAEOLOGICAL CONSULTING (Accredited member of ASAPA) , September 2021* .Member: AJ Pelser BA (UNISA), BA (Hons) (Archaeology), MA (Archaeology) [WITS]. [P.O.BOX 73703 LYNNWOOD RIDGE0040 Tel: 083 459 3091 Fax: 086 695 7247 Email: apac.heritage@gmail.com Comprehensive and Professional Solutions for all Heritage Related Matters. CK 2006/014630/23 VAT NO.: 4360226270.

1. Potential Direct & Indirect Heritage Impacts

In this section the impact of the proposed development on the sites will be assessed. From the overlay of the identified heritage sites over the proposed development footprints depicted, it is clear that the Late Iron Age sites may be impacted on by the proposed development. An archival and historical desktop study was therefore undertaken to provide a historic framework for the project area and surrounding landscape. This was augmented by a study of available maps and an assessment of previous archaeological and heritage studies completed for the area. The study area itself was assessed in the field by way of a walkthrough undertaken by one archaeologist (Anton Pelser). The fieldwork resulted in the identification of some Later Iron Age stone-walled sites (some which have been identified during earlier assessments) and associated cultural material including undecorated pottery and an upper grinder.

Table 2: Summarized List of Heritage Sites Identified during the Fieldwork

Site	Description	Significance	S	E	Mitigation
Site 1	LIA Stone Walling	Low to Medium	**S25 46 50.00**	**E28 20 05.90**	Mapping and Limited archaeological excavations should the sites be impacted by the proposed development actions
Site 2	LIA Stone Walling	Low to Medium	**S25 46 50.90**	**E28 20 06.40**	
Site 3	Upper Grinder	Low to Medium	**S25 46 51.40**	**E28 20 05.80**	

The impact of the proposed development on the located heritage sites was assessed, and it was established that the proposed development might impact on the Late Iron Age stone-walled sites located on the land parcel adjacent to the development site. Should these and other unknown related sites be impacted then the Impact will be Low to Medium. As a result, some mitigation measures will be required for these sites. This will include site clearance, mapping and drawing of the sites and features and archaeological excavations. A permit from SAHRA will be required for this.

Based on the fieldwork and desktop research it is however recommended that this specific 'ALTERNATIVE#1 LAYOUT PLAN' proposed residential development on Portion 350 of The Willows 340JR not be allowed to continue due to the reasons as stated in SECTION 6: DISCUSSION) i.e: 'Two Development Layout proposals have been provided (a Preferred and Alternative Layout). Although the impacts on the heritage for both these alternatives will be fairly similar, the 'Preferred Proposal Layout Plan' in the Heritage Specialists opinion would be better as the number of buildings and paved surfaces would be less than that of the 'Alternative 1 Layout Plan'. The Preferred Proposal Layout Plan and its associated structures and features will also be further away from the identified LIA sites on the adjacent property'.

Nature:

CONSTRUCTION PHASE:

- The construction phase may potentially result in the loss of cultural heritage resources and artifacts buried beneath the surface.
- In this section the impact of the proposed development on the sites will be assessed. From the overlay of the identified heritage sites over the proposed development footprint it is clear that the sites fall outside of the proposed development footprint, but that there is a possibility that these and related sites could potentially be impacted.

	Without mitigation		With mitigation	
PLANNING & DESIGN PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	None		None	
CONSTRUCTION PHASE				
Probability	Low	2	Low	2
Duration	Immediate	1	Immediate	1
Extent	Limited to Site	1	Limited to Site	1
Magnitude	Moderate/Medium	6	Moderate/Medium	6
Significance	**Low**	**16**	**Low**	**16**
Status (positive or negative)	Negative		Negative	
OPERATIONAL PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	n.a.		n.a.	

DECOMMISSIONING & CLOSURE PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	n.a.		n.a.	
Reversibility	?		?	
Irreplaceable loss of resources?	Low		Low	
Can impacts be mitigated?	Yes			

Mitigation:

The following mitigation measures are required to be implemented as part of the ENVIRONMENTAL MANAGEMENT PROGRAM (EMPr) i.e:

1.that the area be cleared of vegetation under guidance from an archaeologist to determine to extent of the stonewalling in the area.

2.that once this has been done that the stonewalling be mapped and drawn and that limited archaeological excavations be carried out in order to recover cultural material and to date the sites.

3. A Phase 2 archaeological mitigation permit from SAHRA be obtained for this investigation.

4. An archaeological watching brief must be implemented during the construction phase. This watching brief is aimed at monitoring the construction and excavation work for any subterranean archaeological deposits and features which may be exposed during these development activities. The subterranean nature of cultural heritage resources (including low stone-packed or unmarked graves) should also be taken into consideration. Should any previously unknown or invisible sites, features or material be uncovered during any development actions then an expert should be contacted to investigate and provide recommendations on the way forward.

5. Finally it should be noted that although all efforts are made to cover a total area during any assessment and therefore to identify all possible sites or features of cultural (archaeological and/or historical) heritage origin and significance, that there is always the possibility of something being missed. This will include low stone-packed or unmarked graves. This aspect should be kept in mind when development work commences and if any sites (including graves) are identified then an expert should be called in to investigate and recommend on the best way forward.

Cumulative impacts: None.

Residual Risks: None.

POTENTIAL IMPACTS on the PALAEONTOLOGICAL ENVIRONMENT:

[A Paleontological Impact Assessment was conducted on the said site and the following was taken from the specialist report contained in APPENDIX Performed by Dr. H. Fourie *i.e: '**Paleontological Impact Assessment: Phase 1: Field Study of Portion 350 of the Farm The Willows 340-JR, City of Tshwane – Gauteng.*** By Dr. Fourie, H. Dr heidicindy@yahoo.com 012 322 7632/079 940 6048. Commissioned by: A. Pelser Archaeological Consulting cc. 833B St Bernard Street, Garstfontein, 0081. 083 459 3091 Ref: Pending. 2021/08/30)]

1. Potential Direct & Indirect Heritage Impacts

A field assessment study was undertaken to provide a heritage framework for the project area and surrounding landscape. This was augmented by a study of available historical topographical sheets and an assessment of previous heritage studies completed for the area. The field study revealed that the study area is present on the Silverton Formation. The study area was assessed in the field by way of intensive walkthroughs undertaken by one paleontologist (Heidi Fourie). The fieldwork resulted in the identification of several outcrops.

The impact of the proposed development on the located heritage sites was assessed, and it was established that the proposed development will have a Medium Impact Risk. As a result, mitigation measures may be required for the site.

The following general mitigation measures are required:

- Mitigation may be needed (Appendix 2) if fossils are found.
- No consultation with parties was necessary. The Environmental Control Officer must familiarise him- or herself with the formation present and its fossils and follow protocol.
- The development may go ahead, but the ECO must survey for fossils before and or after clearing, blasting, drilling or excavating.
- The EMPr already covers the conservation of heritage and paleontological material that may be exposed during construction activities. For a chance fossil find, the protocol is to immediately cease all construction activities, construct a 30 m no-go barrier, and contact SAHRA for further investigation.

On the condition that the recommendations made in this report are adhered to, no heritage reasons can be given for the development not to continue."

Nature:
CONSTRUCTION PHASE:

- The construction phase may potentially result in the loss of heritage resources buried beneath the surface.
- In this section the impact of the proposed development will be assessed.

	Without mitigation	With mitigation		
PLANNING & DESIGN PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	None	None		
CONSTRUCTION PHASE				
Probability	High	4	Low	2
Duration	Permanent	5	Short-term	2
Extent	Site	1	Site	1
Magnitude	Moderate	6	Low	4
Significance	**Medium**	**48**	**Low**	**14**
Status (positive or negative)	Negative	Negative		
OPERATIONAL PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	n.a.	n.a.		
DECOMMISSIONING & CLOSURE PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	n.a.	n.a.		
Reversibility	High	Very High		
Irreplaceable loss of resources?	Moderate	Low		
Can impacts be mitigated?	Yes			
Mitigation:				

- If by chance fossil is uncovered during construction, SAHRA (South Africa Heritage Resource Agency) must be notified immediately.
- An Environmental Control Officer (ECO) must be appointed to oversee the implementation of the Environmental Management Programme (EMPr) for the duration of the construction phase.

Cumulative impacts: None.

Residual Risks: None.

POTENTIAL IMPACTS on the SOCIO-ECONOMIC ASPECTS of the ENVIRONMENT:

[No specialists were appointed for the SOCIO-ECONOMIC ENVIRONMENTAL aspects].

1. Potential Direct & Indirect Impacts on the SOCIO-ECONOMIC ENVIRONMENT

Nature:

CONSTRUCTION PHASE IMPACTS:

- Job Creation -
  - The construction of the proposed development may create approximately 15-20 employment opportunities during the construction phase.

OPERATIONAL PHASE IMPACTS:

- Job Creation
  - Negligent increase in jobs as a result of the proposed development by creating and sustaining residential-oriented new job opportunities i.e. approximately 2 permanent local jobs stand to be created, and then sustained annually.

NOTE: The impacts of the Preferred and Alternative Lay-Out development plans will be very similar.

	Without mitigation		With mitigation	
PLANNING & DESIGN PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	n.a.		n.a.	
CONSTRUCTION PHASE				
Probability	Definite	5	Definite	5
Duration	Very Short-term	1	Very Short-term	1
Extent	Local	2	Local	2
Magnitude	Very Low	1	Very Low	1
Significance	**Very Low**	**20**	**Very Low**	**20**
Status (positive or negative)	Positive		Positive	
OPERATIONAL PHASE				
Probability	High	4	High	4
Duration	Long term	4	Long term	4
Extent	Site	1	Site	1
Magnitude	Very low	1	Very low	1
Significance	**Low**	**24**	**Low**	**24**
Status (positive or negative)	Positive		Positive	
DECOMMISSIONING & CLOSURE PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	n.a.		n.a.	
Reversibility	N.a.		N.a.	

Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	N.a.	

Mitigation:

- No mitigation measures are proposed, since there are no negative impacts foreseen, except if the proposed development would not proceed which will be minor in nature.
- Prerequisites that need to be considered i.e. in order for surrounding areas to capitalise optimally on the development there are certain aspects which will have certain minor positive implications on the surrounding areas**:**
    - Local labour should be employed as far as possible during both construction and operations of the proposed development.

Cumulative impacts: An appropriate development, which is also compatible with its environment (i.e. residential) and which is also in line with legislation, policies, guidelines etc – is always on asset to the local economy in various ways and also creates the positive image of progress, wealth, safety, security and prosperity which in turn could possibly be a 'drawing card' for further development in the same area…albeit in a minor way.

Residual Risks: None anticipated.

2. Potential Direct & Indirect Impacts on the SOCIO-ECONOMIC ENVIRONMENT

Nature:

OPERATIONAL PHASE IMPACTS:

- Rates & Tax Base Expansion
    - The development would facilitate real estate investment, job creation and economic growth, which, in turn will contribute to the creation of productive, rateable assets (i.e. residences) in a minor way.

NOTE: The impacts of the Preferred and Alternative Lay-Out development plans will be very similar.

	Without mitigation		With mitigation	
PLANNING & DESIGN PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	n.a.		n.a.	
CONSTRUCTION PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	**n.a.**		**n.a.**	
Status (positive or negative)	n.a.		n.a.	
OPERATIONAL PHASE				
Probability	High	4	High	4
Duration	Long term	4	Long term	4
Extent	Site	1	Site	1
Magnitude	Minor	1	Minor	1
Significance	**Low**	**24**	**Low**	**24**
Status (positive or negative)	Positive		Positive	
DECOMMISSIONING & CLOSURE PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	n.a.		n.a.	

Reversibility	High	High
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	N.a.	

Mitigation and/or Recommendations:

- No mitigation measures are proposed, since there are no negative impacts foreseen, except if the proposed development would not proceed which will be minor in nature.
- Prerequisites that need to be considered i.e. in order for surrounding areas to capitalise optimally on the development there are certain aspects which will have certain minor positive implications on the surrounding areas**:**
    - Local labour should be employed as far as possible during both construction and operations of the proposed development.

Cumulative impacts: An appropriate development, which is also compatible with its environment (i.e. residential) and which is also in line with legislation, policies, guidelines etc – is always on asset to the local economy in various ways and also creates the positive image of progress, wealth, safety, security and prosperity which in turn could possibly be a 'drawing card' for further development in the same area…albeit in a minor way.

Residual Risks: None anticipated.

POTENTIAL IMPACTS on the VISUAL & AESTHETIC ENVIRONMENT:

1. Potential Direct & Indirect Impacts on the VISUAL & AESTHETIC ENVIRONMENT

The site without the proposed development:

'Genius Loci': The spirit, or sense, of place is that quality imparted by the aspects of scale, colour, texture, landform, enclosure, and in particular, the land use. According to K. Lynch (1992) *"it is the extent to which a person can recognise or recall a place as being distinct from other places as having* ***a vivid, or unique, or at least a particular, character of its own."***

The spirit of place of this site is defined especially by the following aspects i.e: 'Portion 350 of the FARM THE WILLOWS lies within the 'Wapadrand Country Estates' and is one of five Erven i.e. 348-352 The Willows 340 JR. The Erven, which are located on the northern side of Solomon Mahlangu Drive (M10) about 900 m west of the Lynwood Road intersection in Pretoria.

The site includes steep south to south-east facing slopes of the Bronberg ridge and a plain that slopes gently towards the south-east. In a broader landuse context the site is situated within upmarket residential areas which replaced the former farms and agricultural holdings. These developments placed pressure on the endangered ecosystems of the Bronberg mountain range with its unique red data flora and fauna species, though the Bronberg Conservation Area and Fairy Glen Nature Reserve offer some protection of the ridge and its biodiversity.

The historical Google Earth images provide an indication of what the vegetation cover was and how it changed over the last 17 years i.e:

- By 2004 the central to southern areas of Erven 348 – 350 were already **quite disturbed**, also, but less so, on Erf 351, while the south-eastern part of Erf 352 was already developed.
- In September 2007 and 2009 and even more so in 2011, **considerable disturbance** was evident over the southern halves of **all five** Erven (348-352). The bush along the drainage line in the south-western corner of Erf 348 and also on the rocky outcrop in the southern part of Erf 351 were clearly present. The central part of Erf 348 was cleared and terraces made and irrigated for agricultural purposes.
- From the images of May 2015 to August 2016 a (slight) recovery of woody vegetation on the plains can be seen, probably dominated by **pioneer species** such as *Vachellia karroo* and **alien invasive** species such as *Melia azedarach* and *Lantana camara*, currently still prominent in the area. This invasion of alien species is of particular interest for Erven 350 and 351, as this also involves a heritage site.
- More recently from September 2019 to November 2020 the southern disturbed areas have been covered densely by lush weedy species, particularly *Bidens pilosa*, as observed during the current survey.
- Limited parts of these **disturbed** areas, particularly Erven 349 and 350, have been cleared as can be seen on November 2020 Google Earth image.

The above historical changes in vegetation is considered to explain its current appearance and condition. The site is situated within the Andesite Mountain Bushveld (SVcb11) vegetation type (Mucina & Rutherford 2012). The protected Fairy Glen Nature Reserve is located 3.5 km (as the bird lies) west of the Wapadrand Country Estates. The northern half of the Estate is located within the Bronberg Conservation Area. The current vegetation on the hillslope is primary indigenous mountain bushveld, though it is severely encroached by particularly Category 1b Alien and Invasive plant species *Lantana camara* while some individuals of other Alien

Invasive plant species are also present. Individuals of *Pittosporum viridiflorum* (Cheesewood) were found high up on the south-east facing hillslope close to the northern boundary fence. The trees were in good condition. Provincially protected plant species that were found on the hillslope are *Aloe pretoriensis, Scadoxis puniceus* and *Haemanthus humilis* subsp *hirsutus.* As no development will occur on the hillslope, all plant species that may occur here will be safe and protected. The western part of the Bronberg Ridge runs east-west up to Solomon Mahlangu Drive, but east of Solomon Mahlangu Drive, the Ridge is orientated northwest-southeast. At Solomon Mahlangu Drive there is a shallow valley or plain between the western and eastern parts of the Ridge. The large double-carriage Solomon Mahlangu Drive transects the ridge area through this plain. The proclaimed Wapadrand Country Estates, consisting of five Erven, is located directly on Solomon Mahlangu Drive.. The adjacent residential areas are well developed. Erf 350 stretches from Solomon Mahlangu Drive north-westwards over the plains area and up the south-facing slope to the top of the Bronberg Ridge. The northern half of the Erf is located within the Bronberg Conservation Area and is excluded from any development.. The ecological sensitivity of the three pant communities that were identified and mapped on the mountain slopes is High, and these areas are excluded from any development. The planned development is restricted to the Historically Disturbed Plains Bushveld below the Bronberg Conservation Area line.

Figure 26: A vegetation map of Erf 350 indicating the eight plant communities.

Eight plant communities were identified and mapped which predominantly determines the visual character & senses of place, which are**:**

1) Mountain Bushveld on South-facing Ridge Crests: The Mountain Bushveld on South-facing Ridge Crests plant community is restricted to the narrow strip of ridge crest that occurs within the property and stretches up to the northern boundary fence. The ridge is part of the Critically Endangered Bronberg Mountain Bushveld and is located within the Bronberg Conservation Area. This area is excluded from any development. The vegetation is dense bush on an area with large rocks and boulders. Indigenous woody species are dominant, though the alien invasive bush *Lantana camara* is present. Conspicuous trees in the ridge crest include *Protea caffra & Calodendron capensis.* Grasses and forbs are sparse or even absent. This area is excluded from any development.

2) Mountain Bushveld on Higher Slopes: The Mountain Bushveld on Higher Slopes plant community occurs on the ridge slopes just below the crest. The entire ridge is part of the Critically Endangered Bronberg Mountain Bushveld & is located within the Bronberg Conservation Area. The vegetation is extremely dense bush on an area with large rocks/boulders. Many indigenous woody species are present, though the vegetation is severely encroached by alien invasive bush *Lantana camara,* making access

for detailed surveys almost impossible. The dense *Lantana camara* encroachment caused damage to the indigenous vegetation, several individuals of the protected *Aloe pretoriensis* were killed. Grasses and forbs are sparse or even absent. This area is excluded from any development since it's part of the Bronberg Conservation Area.

3) Mountain Bushveld on Mid-Slopes.

The Mountain Bushveld on the Mid-Slopes plant community is located below the ridge crest in the far northern part of the site and stretches down to the Lower Slopes or the Disturbed Tall Treeveld on the Plain below. The slopes are part of the Critically Endangered Bronberg Mountain Bushveld and is located within the Bronberg Conservation Area. This area is excluded from any development. The vegetation is extremely dense bush on. Many indigenous woody species are present, though the vegetation is encroached by the alien invasive bush *Lantana camara,* making access for detailed surveys almost impossible. This is not critical, as this area is excluded from any development. The dense *Lantana camara* encroachment caused damage to the indigenous vegetation, several individuals of the protected *Aloe pretoriensis* were killed. Grasses and forbs are sparse or even absent

4) Mountain Bushveld on Lower Slopes: The Mountain Bushveld on Lower Slopes plant community is located lower down the slope, below the Bushveld on the Steep Upper Slopes. This part of the ridge is still part of the Critically Endangered Bronberg Mountain Bushveld and is located within the Bronberg Conservation Area. This area is also excluded from any further development. The vegetation is still dense bush. Indigenous woody species are present, though the vegetation is also encroached by the alien invasive bush *Lantana camara* and several other alien and invasive species. Grass-dominated patches occur scattered about. In general, the area is regarded as somewhat disturbed. As this area is part of the Bronberg Conservation Area, no development may occur here.

5) **Disturbed Tall Treeveld on Plains**

The plains bushveld on Erf 350 occurs on the relatively flat areas north of the Heritage Site in the central part of the site. This is a dense woodland with tall trees, few shrub plants and a sparse herbaceous layer. Several indigenous trees are conspicuous in this plant community, particularly *Senegalia caffra, Vachellia karroo* and *Celtis africana*.

6) Dense Treeveld on Heritage Area

This is a small patch of dense treeveld on an area with scattered rocks. This area seems to be a relic of an old Heritage site. This patch of vegetation extends to Erf 351, where it is more prominent. The vegetation is dominated by dense, tall trees, mainly the indigenous *Celtis africana* and the alien invasive *Melia azedarach.* An herbaceous layer is almost absent

7) Historically Disturbed Plains Bushveld: The vegetation on the plain located on the southern part of the site was disturbed and cleared since 2007. Since 2015 there was an increase in woody vegetation, but particularly alien species such as *Lantana camara* and *Melia azedarach* increased. Recently some areas have been cleared, particularly of alien woody species. Weeds, mostly *Bidens pilosa* is now very prominent. Little of the original grassy vegetation remained. Several indigenous trees were left and are still present in this plant community, particularly *Senegalia caffra, Vachellia karroo* and *Celtis africana*. Storage facilities were constructed on the eastern boundary of the site. The herbaceous layer is dominated by the weed *Bidens pilosa.* A limited part of the area is earmarked for the development of residences and was recently cleared.

8) Recently Cleared Areas on Plains: Vegetation was cleared, and some levelling was done on an area within the Historically Disturbed Plains Bushveld area. Weeds occur in patches on the cleared area. This cleared area is 0.08 ha (800 m^2) in size. The cleared area is principally located on an area that was historically quite disturbed, where the ecological sensitivity is Medium-Low. It is suggested that this area can be considered as suitable for development, without damage to the more sensitive mountain bushveld vegetation.

These qualities impart a somewhat unique bushveld scenic 'Genius Loci' and thereby also presents a very pleasing setting within which especially the proposed residences to the BRONBERG CONSERVATION AREA come to it's fullest potential, should the Architect, Landscape Architect and Building construction professionals implement the proposed development in sympathy with nature i.e. in an ecological sensitive way which places the biodiversity's influence and preservation as it's foremost inspiration an priority.

The internal views of the BRONBERG BUSHVELD RIDGE CONVSERVATION AREA from everywhere on site also enhance the aesthetic appeal due to the affinity people have with ridges and natural veldt.

Nature:

PLANNING & DESIGN PHASE:

- The visual and aesthetical environment impact caused by the potential lack of adequate (i.e. sensitive, appropriate, in-context with the local surroundings and visual qualities of the site and other related visual aspects) sub-urban planning/design, architectural design and landscape architectural design of facilities and site – and, the full implementation of the proposed mitigation measures especially that of the BIODIVERSITY specialists. The applicant has appointed such specialists (i.e. architect & landscape architect & biodiversity) as indicated above and therefore employed sufficient measures (mitigation) i.e. as far as possible, to make the proposed development an attractive and visually uplifting improvement on the site and aesthetically appealing towards the directly adjacent township and natural (i.e. *BRONBERG CONSERVATION AREA)* environment.

CONSTRUCTION PHASE:

- Visual and aesthetical environment impact caused by construction related activities such as, stockpile material, trucks, construction offices, hoarding and excavation machinery, clearance of vegetation, excavation and storage of construction materials and equipment. This impact will be temporary in nature, limited to the construction phase.

OPERATIONAL PHASE:

The presence of the proposed residential facilities, in the midst of a well-established residential area (i.e. Wapadrand in PRETORIA) with (i.e. in general):- i. a visually uplifting natural 'green' backdrop of the *BRONBERG CONSERVATION AREA* (i.e. perceived from certain selected viewpoints in the area) – and, ii. a predominantly extensive medium to high-end upmarket residential area with also a variety of mixed uses, facilities, activities and elements which creates in general (i.e. perceived from various viewpoints in the area) a diversified visual landscape (i.e. relatively high visual variance). This variance ranges from a relative visually and aesthetically pleasing 'coherence' and 'sense of place' to a relative 'confusion' of disconnectedness (i.e. not integrated in a sensitive cohesive way visually and aesthetically with a lack of a 'sense of place') with no predominant visual 'theme' or specific architectural and/or landscape architectural style or character which unifies the visual 'landscape' as a whole. The proposed development will have a minor positive visual impact on (i.e. towards) it's surrounding area, particularly for the directly adjacent land occupiers and users due to it's relatively secluded locality in the 'visual landscape'. The minor positive visual enhancement would be applicable only if the applicant will develop the proposed facilities in a visual sensitive way which responds positively to its natural (i.e. *BRONBERG CONSERVATION AREA)* and surrounding built-up environment and landscapes the site with locally indigenous vegetation and maintains it (i.e. facilities and landscape) in a good condition. The applicant has appointed such specialists as indicated above (i.e. architect & landscape architect) and therefore employed sufficient measures i.e. as far as possible, to make the proposed development an attractive and visually uplifting improvement on the site and aesthetically appealing towards the directly adjacent township environment.

DECOMMISSIONING & CLOSURE PHASE:

- Trucks used for decommissioning activities, rubble and stockpiles may cause a visual impact.

NOTE: The impacts of the Preferred and Alternative Lay-Out development plans will be very similar.

	Without mitigation		With mitigation	
PLANNING & DESIGN PHASE				
Probability	Low	2	High	4
Duration	Long-term	4	Long-term	4
Extent	Local	2	Local	2
Magnitude	Minor	1	Minor	2
Significance	**Low**	**14**	**Medium**	**32**
Status (positive or negative)	Negative		Positive	
CONSTRUCTION PHASE				
Probability	Definite	5	Low	2
Duration	Immediate	1	Immediate	1
Extent	Local	2	Site	1
Magnitude	Low	2	Low	1
Significance	**Low**	**25**	**Low**	**6**
Status (positive or negative)	Negative		Negative	
OPERATIONAL PHASE				
Probability	Low	2	High	4
Duration	Long-term	4	Long-term	4
Extent	Local	2	Local	2
Magnitude	Minor	1	Minor	2
Significance	**Low**	**14**	**Medium**	**32**
Status (positive or negative)	Negative		Positive	
DECOMMISSIONING & CLOSURE PHASE				
Probability	Improbable	1	Improbable	1
Duration	Immediate	1	Immediate	1
Extent	Local	2	Local	2
Magnitude	High	8	Medium	6
Significance	**Low**	**11**	**Low**	**9**
Status (positive or negative)	Negative		Negative	

Reversibility	Medium	Medium
Irreplaceable loss of resources?	No.	No.
Can impacts be mitigated?	Yes	

Mitigation:

PLANNING & DESIGN PHASE:

- Planners, Architects & Landscape Architects and any other related professional, project managers and/or building contractor to plan, design and implement in the development proposal in such a sensitive manner which would be aesthetically pleasing and visually uplifting in it's current township setting e.g. sympathetic materials and colours with the surrounding environment; all yards and storage areas to be enclosed by masonry walls or screens which is screened by indigenous local biodiversity vegetation; external lighting should be confined to essential areas; lights should be low-level, where possible, and fitted with reflectors to avoid light spillage; lights and signage should be fixed to buildings or walls, where possible, to avoid unnecessary masts and visual clutter; other corporate or advertising signage and flags should be avoided or restricted etc. The visual and aesthetical environment impact caused by the potential lack of adequate (i.e. sensitive, appropriate, in-context with the local surroundings and visual qualities of the site and other related visual aspects) – urban planning/design, architectural, landscape architectural design of facilities and site – and, the full implementation of the proposed mitigation measures especially that of the BIODIVERSITY specialists. The applicant has appointed such specialists as indicated above and therefore employed sufficient measures (mitigation) i.e. as far as possible, to make the proposed development an attractive and visually uplifting improvement on the site and aesthetically appealing towards the directly adjacent township environment and natural (i.e. *BRONBERG CONSERVATION AREA)* environment.
- The relevant professionals i.e. Architect, Landscape Architect etc, should be appointed by the developer to implement the final construction and planting plans & drawings which at least complies with the above-mentioned mitigation measures.

CONSTRUCTION PHASE:

- Limit dust and screen construction from viewers along adjacent road with strips of shade cloth; the construction site, material stores, stockpiles and lay-down area should be kept tidy; measures to control wastes and litter should be included in the contract specification documents; wind-blown dust from stockpiles and construction activities, should be controlled; an environmental; management program (EMPr) should be prepared and an environmental control officer (ECO) employed for the duration of the construction.

OPERATIONAL PHASE:

- Install landscaping and rehabilitation as soon as possible; Litter and waste should be effectively managed to avoid visual problems in the area; buildings and landscaping and rehabilitation should receive on-going maintenance to avoid visual decay; lights should be low-level, where possible, and fitted with reflectors to avoid light spillage; lights and signage should be fixed to buildings or walls, where possible, to avoid unnecessary masts and visual clutter.

DECOMMISSIONING & CLOSURE PHASE:

- The decommissioning area must be fenced, and shade cloth attached, where necessary. At the end of the life of the project, structures no longer required must be demolished and removed from the site. Roads, parking and other paved areas no longer required must be broken up and the site re-instated or redeveloped.

Cumulative impacts: An appropriate development aesthetically uplifting and visually pleasing to its current' environment and which is also in line with legislation, policies, guidelines etc – is always an asset to the local community in various ways and also creates the positive image of progress, wealth, safety, security and prosperity which in turn could possibly be a 'drawing card' for further development in the same area.

Residual Risks: None anticipated.

POTENTIAL IMPACTS of ACCESS ROADS on the ENVIRONMENT:

1. Potential Direct & Indirect Impacts of ACCESS ROADS on the ENVIRONMENT

Nature:

PLANNING & DESIGN PHASE:

- ACCESS ROADS:
  - New access roads and haulage routes could impact on areas of sensitivity (fauna and flora, wetlands etc.).

CONSTRUCTION PHASE:

- ACCESS ROADS:
  - New access roads and haulage routes could impact on areas of sensitivity (fauna and flora, wetlands and spruit etc.).

NOTE: The impacts of the Preferred and Alternative Lay-Out development plans will be very similar.

	Without mitigation		With mitigation	
PLANNING & DESIGN PHASE				
Probability	n.a.	n.a.	n.a.	n.a.
Duration	n.a.	n.a.	n.a.	n.a.
Extent	n.a.	n.a.	n.a.	n.a.
Magnitude	n.a.	n.a.	n.a.	n.a.
Significance	**n.a.**	**n.a.**	**n.a.**	**n.a.**
Status (positive or negative)	n.a.		n.a.	
CONSTRUCTION PHASE				
Probability	Medium	3	Improbable	1
Duration	Short term	2	Short term	2
Extent	Site	1	Site	1
Magnitude	Moderate	8	Low	2
Significance	Medium	**33**	Very low	**5**
Status (positive or negative)	Negative		Negative	
OPERATIONAL PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	n.a.		n.a.	
DECOMMISSIONING & CLOSURE PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	n.a.		n.a.	
Reversibility	Low		High	
Irreplaceable loss of resources?	Yes		No	
Can impacts be mitigated?	Yes			

Mitigation:

PLANNING & DESIGN PHASE:

- Temporary access and haulage routes must be designed prior to construction commencing to ensure that the most preferable access and haulage routes has been identified. Provision made for the erection of appropriate warning signs.
- Road safety must be taken into account when planning access to the site.
- Use should be made of existing roads as far as possible.

Cumulative impacts: None

Residual Risks: None anticipated.

POTENTIAL IMPACTS of EROSION & SOIL DISTURBANCE on the ENVIRONMENT:

1. Potential Direct & Indirect Impacts of EROSION & SOIL DISTURBANCE on the ENVIRONMENT

Nature:

CONSTRUCTION PHASE:

- Erosion & Soil Disturbance:
  - Sources of water and soil pollution on construction sites include: diesel and oil; paint, solvents, cleaners and other harmful chemicals; and construction debris and dirt.

- Spillages of oil, lubricants and fuel from construction vehicles, plant and machinery has the potential to contaminate the soil.
- When portions of the site are cleared, combined with the failure to implement erosion control measures effectively, silt-bearing run-off and sedimentation pollution will result.
- Ground disturbing activities such as blasting, and foundation construction can lead to increased erosion.
- Stormwater runoff has the potential to erode the topsoil.
- Soil compaction due to construction activities will reduce aeration, permeability, and water holding capacity of the soils and cause an increase in surface runoff, potentially causing increased sheet or gully erosion.

NOTE: The impacts of the Preferred and Alternative Lay-Out development plans will be very similar.

	Without mitigation		With mitigation	
PLANNING & DESIGN PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	n.a.		n.a.	
CONSTRUCTION PHASE				
Probability	High	4	Low	2
Duration	Short-term	2	Immediate	1
Extent	Site	1	Site	1
Magnitude	High	8	Low	4
Significance	**Medium**	**44**	**Low**	**12**
Status (positive or negative)	Negative		Negative	
OPERATIONAL PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	n.a.		n.a.	
DECOMMISSIONING & CLOSURE PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	n.a.		n.a.	
Reversibility	Low		High	
Irreplaceable loss of resources?	Yes		No	
Can impacts be mitigated?	Yes			

Mitigation:

CONSTRUCTION PHASE:

- Apply erosion controls (e.g., berms, sandbags and hessian sheets) to prevent/minimise soil erosion during construction activities.
- The topsoil layer of not less than 200mm (or as per geotechnical soil profiling result) must be removed and stockpiled in mounds no more than 2m in height in a designated area for use during progressive rehabilitation.
- Care must be taken to prevent the compaction of topsoil in any way, especially by trucks and other construction machinery.
- Apply a protective covering on disturbed soils with suitable vegetation after completion of construction activities.
- Save topsoil removed during construction and use it to reclaim disturbed areas upon completion of construction activities.
- Avoid creating excessive slopes during excavation.

- Implement a stormwater management plan to ensure compliance with regulations and prevent off-site migration of contaminated stormwater or increased soil erosion during the construction phase.
- Excavation (temporary) to comply with SANS 10400-G:2011 guidelines.

Cumulative impacts: None

Residual Risks: None anticipated.

POTENTIAL IMPACTS on AIR QUALITY of the ENVIRONMENT:

1. Potential Direct & Indirect Impacts on AIR QUALITY of the ENVIRONMENT

Nature:

CONSTRUCTION PHASE:

- Air quality impacts may arise during the construction phase as a result of dust generated by the exposure and disturbance of soil.
- Fugitive dust may become a nuisance for surrounding land users and occupiers.
- Further air quality impacts will arise as a result of the exhaust emissions from construction vehicles and plant.

DECOMMISSIONING & CLOSURE PHASE:

- There is potential for the air quality to be impacted through the decommissioning activities that may generate dust through excavation activities and disturbing the ground.
- Exhaust emissions produced by construction equipment will be dispersed and it is not anticipated that they will cause a nuisance to surrounding landowners.

NOTE: The impacts of the Preferred and Alternative Lay-Out development plans will be very similar.

	Without mitigation		With mitigation	
PLANNING & DESIGN PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	n.a.		n.a.	
CONSTRUCTION PHASE				
Probability	Low	3	Very Low	1
Duration	Short-term	2	Immediate	1
Extent	Site	1	Site	1
Magnitude	Low	2	Minor	1
Significance	**Low**	**15**	**Minor**	**1**
Status (positive or negative)	Negative		Negative	
OPERATIONAL PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	**n.a.**		**n.a.**	
Status (positive or negative)	None		none	
DECOMMISSIONING & CLOSURE PHASE				
Probability	Low	3	Very low	1
Duration	Immediate	1	Immediate	1
Extent	Site	1	Site	1
Magnitude	Low	2	Minor	1
Significance	**Low**	**12**	**Minor**	**1**
Status (positive or negative)	Negative		Negative	

Reversibility	Medium	High
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	Yes	

Mitigation:

CONSTRUCTION PHASE:

- Dust minimisation and control measures should be implemented on the construction site at regular intervals. This could include irrigation by water tankers.
- The frequency of implementation of dust suppression measures should be increased when it is expected that high wind conditions will develop.
- Vegetation clearing should only take place immediately prior to the commencement of construction activities in an area, in order to minimise the amount of exposed soil on the site.
- Stockpiles and spoil heaps must be covered with tarpaulins or straw to prevent fugitive dust.
- All construction vehicles must be appropriately maintained to minimise exhaust emissions.

DECOMMISSIONING & CLOSURE PHASE:

- Dust suppression methods, such as wetting or laying straw, should be applied where there are large tracks of exposed surfaces.
- Stockpiles and soil heaps must be covered with tarpaulins or straw to prevent fugitive dust.
- All construction vehicles must be appropriately maintained to minimise exhaust emissions.

Cumulative impacts: None

Residual Risks: None anticipated.

POTENTIAL IMPACTS of TRAFFIC on the ENVIRONMENT:

1. Potential Direct & Indirect Impacts of TRAFFIC on the ENVIRONMENT

Nature:

CONSTRUCTION PHASE:

- Increased traffic volumes will be generated, including heavy vehicles delivering materials to the site. This could cause slight delays in existing traffic operations. The heavy vehicles may also cause damage to the public road.

DECOMMISSIONING & CLOSURE PHASE:

- Vehicle traffic around the site may increase during the decommissioning phase and impact the natural traffic flow around the site.

NOTE: The impacts of the Preferred and Alternative Lay-Out development plans will be very similar.

	Without mitigation		With mitigation	
PLANNING & DESIGN PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	n.a.		n.a.	
CONSTRUCTION PHASE				
Probability	Medium	3	Low	2
Duration	Short-term	2	Short-term	2
Extent	Local	2	Local	2
Magnitude	Moderate	6	Low	4
Significance	**Medium**	**30**	**Low**	**16**
Status (positive or negative)	Negative		Negative	
OPERATIONAL PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	

Magnitude	n.a.		n.a.	
Significance	**n.a.**		**n.a.**	
Status (positive or negative)	Non		None	
DECOMMISSIONING & CLOSURE PHASE				
Probability	Low	3	Low	2
Duration	Immediate	1	Immediate	1
Extent	Local	2	Local	2
Magnitude	Moderate	6	Low	4
Significance	**Low**	**27**	**Low**	**14**
Status (positive or negative)	Negative		Negative	
Reversibility	Medium		High	
Irreplaceable loss of resources?	No		No	
Can impacts be mitigated?	Yes			

Mitigation:

CONSTRUCTION & DECOMMISSIONING & CLOSURE PHASE:

PHASE:

- The Contractor should ensure that traffic on the local roads is disrupted as little as possible which should include measures for the optimization of the amount of travel on the local roads, thereby reducing impacts.
- The delivery of construction equipment and material should be limited to hours outside peak traffic times (including weekends).
- Where obvious damage to the road infrastructure has occurred as a result of the project, repairs should be undertaken in accordance with the relevant authority's specifications and requirements.
- Co-ordination of movement of vehicles on and off site to reduce risks and prevent congestion on roads in the vicinity of the site.
- No vehicles or machinery should be serviced or refuelled onsite.
- Peak traffic hours should be avoided.
- Large vehicle turning must take place onsite and not in the adjacent roads.
- In cases where activities may obstruct traffic, local traffic officials must be contacted.

Cumulative impacts: None

Residual Risks: None anticipated.

POTENTIAL IMPACTS of WASTE GENERATION on the ENVIRONMENT:

1. Potential Direct & Indirect Impacts of WASTE GENERATION on the ENVIRONMENT

Nature:

CONSTRUCTION & DECOMMISSIONING & CLOSURE PHASES:

- Waste generation during the construction & decommissioning/closure phases will have a negative impact on the environment, if not controlled adequately. Waste on site includes domestic waste, mixed concrete, paint cans and brushes, insulation material, building rubble and other construction waste.

NOTE: The impacts of the Preferred and Alternative Lay-Out development plans will be very similar.

	Without mitigation		With mitigation	
PLANNING & DESIGN PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	n.a.		n.a.	
CONSTRUCTION PHASE				
Probability	Moderate	4	Low	2

Duration	Short term	2	Short-term	2
Extent	Site	1	Site	1
Magnitude	Moderate	6	Low	4
Significance	**Medium**	**36**	**Low**	**14**
Status (positive or negative)	Negative		Negative	
OPERATIONAL PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	**n.a.**		**n.a.**	
Status (positive or negative)	None		none	
DECOMMISSIONING & CLOSURE PHASE				
Probability	Low	3	Low	2
Duration	Immediate	1	Immediate	1
Extent	Local	2	Local	2
Magnitude	Moderate	6	Low	4
Significance	**Low**	**27**	**Low**	**14**
Status (positive or negative)	Negative		Negative	
Reversibility	Medium		High	
Irreplaceable loss of resources?	No		No	
Can impacts be mitigated?	Yes			

Mitigation:

CONSTRUCTION PHASE:

- General waste disposal bins will be made available for employees to use throughout the construction phase.
- Where possible construction waste on site should be recycled or reused.
- Waste will be temporarily stored on site (less than 90 days) before being disposed of appropriately.
- General waste should be placed in a watertight container and disposed of on a regular basis.
- Records of all waste being taken off site must be recorded and kept as evidence.
- Evidence of correct disposal must be kept.
- Construction rubble will be disposed of at an appropriate site.
- Burning of waste material will not be permitted.
- Hazardous materials will be generated if there are spillages during construction and maintenance periods. This waste should be cleaned up using absorbent material provided in spill kits on site and must be disposed of accordingly at a hazardous waste landfill.
- Absorbent materials used to clean up spillages should be disposed of in a separate hazardous waste bin.
- The storage area for hazardous material must be concreted, bunded, covered, labelled and well ventilated.
- Provide employees with appropriate PPE for handling hazardous materials.
- All hazardous waste will be disposed of in a registered hazardous waste disposal facility.

Cumulative impacts: None

Residual Risks: None anticipated.

POTENTIAL IMPACTS of NOISE on the ENVIRONMENT:

1. Potential Direct & Indirect Impacts of NOISE on the ENVIRONMENT

Nature:

CONSTRUCTION PHASE:

- Noise impacts will arise as a result of the use of construction vehicles and machinery. These noise impacts may be a nuisance to surrounding land users and occupiers.

- It is anticipated that the construction activities will contribute to ambient noise levels during working hours.

DECOMMISSIONING & CLOSURE PHASE:

- Vehicles and other machinery required for decommissioning will increase the noise levels during working hours.
- Decommissioning activities which are likely to cause vibrations.
- Entry and use of construction vehicles as well as cranes on site.

NOTE: The impacts of the Preferred and Alternative Lay-Out development plans will be very similar.

	Without mitigation		With mitigation	
PLANNING & DESIGN PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	n.a.		n.a.	
CONSTRUCTION PHASE				
Probability	High	4	Low	2
Duration	Immediate	1	Immediate	1
Extent	Local	2	Local	2
Magnitude	Moderate	6	Low	3
Significance	**Medium**	**36**	**Low**	**12**
Status (positive or negative)	Negative		Negative	
OPERATIONAL PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	**n.a.**		**n.a.**	
Status (positive or negative)	n.a.		n.a.	
DECOMMISSIONING & CLOSURE PHASE				
Probability	High	4	Low	2
Duration	Immediate	1	Immediate	1
Extent	Local	2	Site	1
Magnitude	Moderate	6	Low	3
Significance	**Moderate**	**36**	**Low**	**10**
Status (positive or negative)	Negative		Negative	
Reversibility	Medium		High	
Irreplaceable loss of resources?	No		No	
Can impacts be mitigated?	Yes			

Mitigation:

CONSTRUCTION PHASE:

- Construction activities should be limited to normal working hours (08:00 – 17:00) and limited to weekdays.
- No work should occur on weekends or on public holidays.
- The contractor will adhere to local authority by-laws relating to noise control.
- Mechanical equipment with lower sound power levels must be selected to ensure that the permissible occupation noise-rating limit of 85 dBA is not exceeded.
- Equipment must be fitted with silencers as far as possible to reduce noise.
- All equipment to be adequately maintained and kept in good working order to reduce noise.
- Neighbouring landowners should be informed prior to the initiation of noisy activities e.g. high intensity drilling. A grievance procedure will be established whereby noise complaints can be received, recorded and responded to appropriately.
- All construction workers and personnel must wear hearing protection during working hours.

- Noise levels must comply with the SANS 100103 – 0994 (recommended noise levels).

DECOMMISSIONING & CLOSURE PHASE:

- The contractor will adhere to local authority by-laws relating to noise control.
- Decommissioning activities will be restricted to regular working hours, i.e. Monday to Friday (08:00 – 17:00).
- Mechanical equipment with lower sound power levels will be selected to ensure that the permissible occupation noise-rating limit of 85 dBA is not exceeded.
- Equipment will be fitted with silencers as far as possible to reduce noise.

Cumulative impacts: None

Residual Risks: None anticipated.

POTENTIAL IMPACTS of HEALTH & SAFETY on the ENVIRONMENT:

1. Potential Direct & Indirect Impacts of HEALTH & SAFETY on the ENVIRONMENT

Nature:

CONSTRUCTION PHASE:

- Potential human health and safety impacts during the operations and maintenance phase would include:
  - Exposures to hazardous materials such as petroleum, oils, lubricants, and herbicides can cause serious health problems.
  - The risk of serious injuries or accidents associated with maintenance of infrastructure.
- Adverse impacts could also occur from the risk of fires caused by development activities.

DECOMMISSIONING & CLOSURE PHASE:

- During the decommissioning phase, open excavations, vehicle movement and other construction activities may pose a health and safety hazard to workers.
- Storage, handling and transport of fuel are potentially dangerous to humans and properties due to the risk of fire and explosions.

NOTE: The impacts of the Preferred and Alternative Lay-Out development plans will be very similar.

	Without mitigation		With mitigation	
PLANNING & DESIGN PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	n.a.		n.a.	
Status (positive or negative)	n.a.		n.a.	
CONSTRUCTION PHASE				
Probability	Moderate	3	Low	2
Duration	Immediate	1	Immediate	1
Extent	Site	1	Site	1
Magnitude	Moderate	6	Low	3
Significance	**Low**	**24**	**Low**	**10**
Status (positive or negative)	Negative		Negative	
OPERATIONAL PHASE				
Probability	n.a.		n.a.	
Duration	n.a.		n.a.	
Extent	n.a.		n.a.	
Magnitude	n.a.		n.a.	
Significance	**n.a.**		**n.a.**	
Status (positive or negative)	n.a.		n.a.	
DECOMMISSIONING & CLOSURE PHASE				
Probability	Medium	3	Low	2
Duration	Immediate	1	Immediate	1

Extent	Site	1	Site	1
Magnitude	Moderate	6	Low	3
Significance	**Low**	**24**	**Low**	**10**
Status (positive or negative)	Negative		Negative	
Reversibility	Medium		High	
Irreplaceable loss of resources?	No		No	
Can impacts be mitigated?	Yes			

Mitigation:

CONSTRUCTION PHASE:

- The construction site must be fenced off to prohibit unauthorised access and site access must be strictly controlled.
- All employees, contractors and sub- contractors to wear appropriate PPE.
- Open excavations must be clearly marked.
- Appropriate health and safety signage must be displayed on site.
- Safety Audits must be conducted on a monthly basis and submitted to the relevant departments.

DECOMMISSIONING & CLOSURE PHASE:

- The construction site must be fenced off to prohibit unauthorised access and site access must be strictly controlled.
- All employees, contractors and sub- contractors to wear appropriate PPE.
- Open excavations must be clearly marked.
- All employees, contractors and sub- contractors must comply with the relevant Health and Safety Policy.
- Fire safety should be considered, and all vehicles should have fire extinguisher.
- Employees should be trained on fire safety.
- Local emergency fire brigade number should be known to everybody.
- Appropriate health and safety signage must be displayed on site.

Cumulative impacts: None

Residual Risks: None anticipated.

NO GO ALTERNATIVE

PLANNING & DESIGN PHASE

(NOTE: The impacts of the Preferred and Alternative Lay-Out development plans will be very similar.)

DIRECT, INDIRECT & CUMULATIVE IMPACTS:

- Not be able to fulfil the need as identified by the applicant and exercise her legally approved zoning rights (i.e. agriculture & consent use for second dwelling as approved by the City of Tshwane Metropolitan Municipality) by developing the property to it's fullest potential.
- No employment opportunities would be created for further detailed design and assessment-related services, neither such as architects, engineers, town planners and environmental consultants, nor for the regional and national authorities responsible for reviewing the applications made in terms of the relevant legislation.
- The following benefits (i.e. which is in the public interest) that the proposed development will have for society in general will be forfeited i.e:
    - maximization and increase of mixed land uses creates more vibrant, walkable and connected communities.
    - There will be greater interest from the general public in such development in light of renewed interest in urban revitalization and therefore more sustainable development.
    - A development like this, for integration of land uses, that promotes a walkable built environment can help revitalize an area, increase private investment, lead to higher property values and support the development of a good business climate.
    - Reducing sprawl and building communities where residents live and walk to work reduces car usage, positively impacting on the environment. With the incorporation of mixed-use development and smart growth practices, sprawling development patterns could be reduced, and quality of life may be enhanced. Undeveloped land, open space, and historic and natural resources are preserved.
    - In addition to providing public health benefits, walkable communities that are attractive and may also contribute to a

sense of place that reaps economic rewards for residents and businesses.
    - In addition to the above the following will also contribute to the constitutional and transformation imperatives:
    - Access and opportunity to make use of services.
    - Best interest of Public (contributing to infrastructure upgrade).
    - Best interest of Public (contributing to positive property value).
    - Compliance with legal procedures that acquire land use rights**.**
- The following LAND USE PERSPECITVES & PLANNING initiatives & LEGISLATIVE requirements of the LOCAL, PROVINCIAL & NATIONAL AUTHORITIES would not be met in a minor way as outlined in the following documentation i.e:
    - *THE METROPOLITAN SPATIAL DEVELOPMENT FRAMEWORK (MSDF) 2012 & The Tshwane Spatial Development Framework for Region 6:-*
        - A densified area requires that the surrounding area be provided with a mix of mutually retail, service, office and residential developments. A development that strives for an increased density needs to embrace connectivity between various uses within the existing neighbourhoods. This results in an active urban environment, which enhances liveability, environmental quality and economic vitality.
        - The proposed development will provide for a more compact urban form, which is highly integrated. The desirability of the proposed development is not only based on the need for mixed, but also on the need for urban, architectural, social and economic upliftment. The proposed development will provide additional housing opportunities and will help reduce housing backlogs through accommodation that is accessible to economic, social and institutional services and nodes within the City of Tshwane.
        - There is a need for additional housing in the City of Tshwane Metropolitan Municipality's area of jurisdiction. The Tshwane Spatial Development Framework for Region 6, specifically highlights the importance of infill development and compacting establishments.
        - Most of the other erven within the surroundings townships have already been developed for residential purposes. There is still a great need for additional housing in the area. Thus, the potential of this large vacant property was seen by the developer as an opportunity to create two more dwelling houses.
        - The proposed residential dwellings on the portion will help in the need for additional housing in the area to some extent.
        - Considering how much the neighbourhood is transforming, application will not adversely affect the surrounding area, which is showing some significant signs of change in favour of densification and mixed land use developments.
        - The proposed investment will certainly continue to contribute to rejuvenation and enhancement of the locality through the construction of additional dwelling houses. This development does not impose any illegal use on the area as it is in line with various municipal policies as earlier discussed.
        - The application site currently obtains safe and direct access via a right of way servitude adjoining Koedoeberg Road, as well as from Wapadrand via Briekslinger Place. Access to the site is thus possible from two directions.
        - The property is centrally located and easily accessible from the major routes within the area, including the provincial roads. Land within this area that can be developed for residential purposes with good accessibility may be considered a scarce resource and it is therefore important to determine the development potential of land within the area and to apply for land use rights in accordance with the development potential.
        - The proposed application will have no impact on current traffic levels, no strain on current traffic levels is foreseen.
        - The application site is also well served by public transport. Public transport facilities are situated within walking distance from the application site.
        - According to the Tshwane Regional Spatial Development Frameworks the application is earmarked for residential uses and can therefore be seen as being consistent with spatial planning and land use policies.
        - The proposed development will be designed to be in keeping with the architectural styles of the area. The proposed development will also take into account conditions imposed for the area.
        - The proposed development will comply with all of the requirements from an Architectural and design perspective and will conform with the requirements in terms of SANS 10040.
        - The area is characterised by mixed use areas and will be in line with this aesthetic of the existing urban environment. The design and materials used for the building will be of the highest quality and will fit with the design of the area.
        - Given the fact that the application area is located within an existing urban fabric of the Willows, the proposed development will not have any significant impact on the existing services infrastructure.

- *The City of Tshwane Metropolitan Municipality Clause 14(10) of the Tshwane Town-Planning Scheme, 2008 for permission for a second dwelling house (Revised 2014);*
- *City of Tshwane Integrated Development Plan (2021/2026);*
- *THE SPATIAL PLANNING AND LAND USE MANAGEMENT ACT, 2013 (ACT 16 OF 2013) – SPLUMA;*
- *Gauteng Spatial Development Framework 2011;*
- *National Spatial Development Perspective (NSDP);*
- *Gauteng Spatial Development Perspective (GSDP);*
- *National Development Plan vision for 2030.*

NO GO ALTERNATIVE

CONSTRUCTION PHASE

(NOTE: The impacts of the Preferred and Alternative Lay-Out development plans will be very similar.)

DIRECT, INDIRECT & CUMULATIVE IMPACTS

- The proposed development would not be able to create a safe (i.e. protected) and amicable environment in which the protected fauna (i.e Critically Endangered mammal species *'Neamblysomus julianae'*, the Juliana's golden mole) as well as endemic (i.e. locally indigenous) vegetation could flourish as stated in the ECOLOGICAL BIODIVERSITY ASSESSMENT (i.e. ***'An assessment of vegetation, flora, vertebrate fauna and wetlands on Erf 350 of the Farm The Willows 340 JR, City of Tshwane, Gauteng****. By G.J. Bredenkamp D.Sc. Pr.Sci.Nat. J.P.C. van Wyk M.Sc. Pr.Sci.Nat. C.E. Venter M.Sc. Pr.Sci.Nat. Commissioned by Pierre Joubert Landscape Architect and Environmental Planner [EcoAgent CC PO Box 25533 Monument Park 0181. Tel 012 4602525. Cell 082 5767046. March 2021])* which was performed for/on the site and the following was noted by the specialists i.e:
  - *'Juliana's golden mole subsurface activities were recorded at a few localities on site. The golden mole subsurface activities were found around a diversity of habitat types on the study site and buffer areas. The golden mole occurs on the site is in both natural and in unnatural urban settings. Part of the study site includes the Bronberg Conservation Area where no development may occur, and signs of the Juliana's golden mole activity have been recorded. These golden mole individuals in the Bronberg Conservation Area would not be affected by the development since they occur outside the intended footprint of the development. The area where the intended development will take place has been altered by invasive plant species and except for a small area, no Juliana's golden mole subsurface activities were recorded. Near the white stinkwood trees at Erf 350, which is also a cultural heritage site, golden mole activities were observed at 25°46'51"S; 28°20'05"E. This area must be excluded from development. Golden moles are adapted to co-exist with human beings in rural settings on condition that the substrate consists of soft sand with no or little clay content and the soils kept permanently moist by regular irrigation. Implemented the suggested Ecological Management Plan (included in this report) will stabilize the population at higher numbers and ensure year-round optimized ecological conditions in a structured manner. Connectivity with adjoining properties is good. From a vertebrate perspective, there is no objection against the development as long as the development strictly adheres to the mitigation measures for the Juliana's Golden mole'.*
- The proposed development would not be able to curb further spread and increase of alien invasive plant species on the site which will also spread to the adjacent BRONBERG CONSERVATION AREA as a result of the lack of local indigenous landscaping rehabilitation initiatives as also stated in the above-mentioned BIODIVERSITY ASSESSMENT.
- No minor disturbance of the soil on the site with no potential for contamination or an increase in erosion of the site.
- No minor additional traffic volumes or associated impacts.
- No minor increase in negative air quality impacts and no dust nuisance to local land users and occupiers or road users.
- No minor increase in noise impacts.
- No medium positive alteration to the visual environment.
- No minor occupational health and safety risks.
- No job creation opportunity.
- No job security for employees of the appointed contractor.
- No minor positive potential for economic growth in the area.
- Potential increase in criminal activity in the areas surrounding the construction site, associated with the presence of transient job seekers on the site.

OPERATIONAL PHASE

(NOTE: The impacts of the Preferred and Alternative Lay-Out development plans will be very similar.)

DIRECT, INDIRECT & CUMULATIVE IMPACTS (i.e. OTHER/FURTHER POSSIBLE)

- The proposed development would not be able to uphold the **socio-economic** aspects of sustainability, in that a high-quality residence (i.e. and other related facilities/activities) in that specific area will –
    - Be well used in that it will be developed within it's current zoning category i.e. Agriculture, although no farming activities will be practiced, thereby conserving the environment.
    - Provide safe and good quality housing to families i.e. the fiber of human society.
    - Increase the housing market's property i.e. perceived marketable, values and attract similar quality developments to that area i.e. stimulus of the local economy.
    - Be well maintained and visually (i.e. aesthetically) pleasing which will fit well into it's existing residential surroundings of the same character, quality and sense of place (i.e. 'genius loci').
    - Disallow vagrants or unwanted occupiers to occupy and –
        - destroy the site and it's sensitive ecology,
        - threaten the surrounding residential property owner's safety.
- The proposed development would not be able to create and maintain a safe (i.e. protected) and amicable environment in which the protected fauna (i.e Critically Endangered mammal species *'Neamblysomus julianae'*, the Juliana's golden mole) as well as endemic (i.e. locally indigenous) vegetation could flourish as stated in the **ECOLOGICAL BIODIVERSITY ASSESSMENT** (i.e. ***'An assessment of vegetation, flora, vertebrate fauna and wetlands on Erf 350 of the Farm The Willows 340 JR, City of Tshwane, Gauteng****. By G.J. Bredenkamp D.Sc. Pr.Sci.Nat. J.P.C. van Wyk M.Sc. Pr.Sci.Nat. C.E. Venter M.Sc. Pr.Sci.Nat. Commissioned by Pierre Joubert Landscape Architect and Environmental Planner [EcoAgent CC PO Box 25533 Monument Park 0181. Tel 012 4602525. Cell 082 5767046. March 2021]*) which was performed for/on the site and the following was noted by the specialists i.e:
    - *'Juliana's golden mole subsurface activities were recorded at a few localities on site. The golden mole subsurface activities were found around a diversity of habitat types on the study site and buffer areas. The golden mole occurs on the site is in both natural and in unnatural urban settings. Part of the study site includes the Bronberg Conservation Area where no development may occur, and signs of the Juliana's golden mole activity have been recorded. These golden mole individuals in the Bronberg Conservation Area would not be affected by the development since they occur outside the intended footprint of the development. The area where the intended development will take place has been altered by invasive plant species and except for a small area, no Juliana's golden mole subsurface activities were recorded. Near the white stinkwood trees at Erf 350, which is also a cultural heritage site, golden mole activities were observed at 25°46'51"S; 28°20'05"E. This area must be excluded from development. Golden moles are adapted to co-exist with human beings in rural settings on condition that the substrate consists of soft sand with no or little clay content and the soils kept permanently moist by regular irrigation. Implemented the suggested Ecological Management Plan (included in this report) will stabilize the population at higher numbers and ensure year-round optimized ecological conditions in a structured manner. Connectivity with adjoining properties is good. From a vertebrate perspective, there is no objection against the development as long as the development strictly adheres to the mitigation measures for the Juliana's Golden mole'.*
- The proposed development would not be able to maintain the curbing of the further spread and increase of alien invasive plant species on the site which will also spread to the adjacent BRONBERG CONSERVATION AREA as a result of the lack of maintenance of it's local indigenous landscaping rehabilitation initiative.

Alternative 1 - ***SEE ABOVE:***

Potential impacts:	**Significance rating of impacts (positive or negative):**	**Proposed mitigation:**	**Significance rating of impacts after mitigation:**	**Risk of the impact** and **mitigation not being implemented**

No Go - ***SEE ABOVE:***

Potential impacts:	**Significance rating of impacts (positive or negative):**	**Proposed mitigation:**	**Significance rating of impacts after mitigation:**	**Risk of the impact** and **mitigation not being implemented**

List any specialist reports that were used to fill in the above tables. Such reports are to be attached in the appropriate Appendix.

1. '***An assessment of vegetation, flora, vertebrate fauna and wetlands on Erf 350 of the Farm The Willows 340 JR, City of Tshwane, Gauteng.*** *By G.J. Bredenkamp D.Sc. Pr.Sci.Nat. J.P.C. van Wyk M.Sc. Pr.Sci.Nat. C.E. Venter*

M.Sc. Pr.Sci.Nat. Commissioned by Pierre Joubert Landscape Architect and Environmental Planner (EcoAgent CC PO Box 25533 Monument Park 0181. Tel 012 4602525. Cell 082 5767046. March 2021).'

2. **'*A PHASE 1 HERITAGE IMPACT ASSESSMENT & REPORT FOR RESIDENTIAL DEVELOPMENT ON PORTION 350 OF THE FARM THE WILLOWS 350JR TSHWANE METROPOLITAN AREA, GAUTENG.*** For: *Pierre Joubert Professional Landscape Architect & Environmental Planner [15 Marikana Street, WIERDAPARK, CENTURION, 0157].* REPORT: APAC021/71. by: *APAC – APELSER ARCHAEOLOGICAL CONSULTING (Accredited member of ASAPA) , September 2021* .Member: AJ Pelser BA (UNISA), BA (Hons) (Archaeology), MA (Archaeology) [WITS]. [P.O.BOX 73703 LYNNWOOD RIDGE0040 Tel: 083 459 3091 Fax: 086 695 7247 Email: apac.heritage@gmail.com Comprehensive and Professional Solutions for all Heritage Related Matters. CK 2006/014630/23 VAT NO.: 4360226270.
3. ***'Paleontological Impact Assessment: Phase 1: Field Study of Portion 350 of the Farm The Willows 340-JR, City of Tshwane – Gauteng.*** By Dr. Fourie, H. Dr heidicindy@yahoo.com 012 322 7632/079 940 6048. Commissioned by: A. Pelser Archaeological Consulting cc. 833B St Bernard Street, Garstfontein, 0081. 083 459 3091 Ref: Pending. 2021/08/30)]

Describe any gaps in knowledge or assumptions made in the assessment of the environment and the impacts associated with the proposed development.

None.

3. IMPACTS THAT MAY RESULT FROM THE DECOMISSIONING AND CLOSURE PHASE

Briefly describe and compare the potential impacts (as appropriate), significance rating of impacts, proposed mitigation and significance rating of impacts after mitigation that are likely to occur as a result of the decommissioning and closure phase for the various alternatives of the proposed development. This must include an assessment of the significance of all impacts.

Proposal - *SEE ABOVE:*

Potential impacts:	**Significance rating of impacts(positive or negative):**	**Proposed mitigation:**	**Significance rating of impacts after mitigation:**	**Risk of the impact** and **mitigation not being implemented**

Alternative 1 - *SEE ABOVE:*

Potential impacts:	**Significance rating of impacts(positive or negative):**	**Proposed mitigation:**	**Significance rating of impacts after mitigation:**	**Risk of the impact** and **mitigation not being implemented**

List any specialist reports that were used to fill in the above tables. Such reports are to be attached in the appropriate Appendix.

Where applicable indicate the detailed financial provisions for rehabilitation, closure and ongoing post decommissioning management for the negative environmental impacts.

4. CUMULATIVE IMPACTS

Describe potential impacts that, on their own may not be significant, but is significant when added to the impact of other activities or existing impacts in the environment. Substantiate response:

SEE ABOVE:

5. ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, please provide an environmental impact statement that sums up the impact that the proposal and its alternatives may have on the environment after the management and mitigation of impacts have been taken into account with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

Proposal: Preferred Layout Plan

This Draf Basic Assessment Report (dBAR) for the proposed RESIDENCES to be situated on Portion 350 of the FARM THE WILLOWS 340-JR (City of Tshwane Metropolitan Municipality, Gauteng) with associated Civil Services infrastructure, has been undertaken in accordance with the National Environmental Management Amendment Act (as amended) ("NEMA") (Act 107 of 1998) Amendment of the Environmental Impact Assessment Regulations 2014, GNR: 324-327, 7 April 2017.

The PUBLIC PARTICIPATION PROCESS is currently being conducted, and the findings will be included in the FINAL BASIC ASSESSMENT REPORT – and, the following preliminary findings is herewith presented i.e:

The EIA process has so far succeeded in identifying the significant environmental issues and addressing them adequately. The process is currently and have engaged with stakeholders and the specialist's input has assisted in identifying and assessing the potential impacts.

This draft BAR provides an assessment of both the benefits and potential negative impacts anticipated as a result of the proposed RESIDENCES to be situated on Portion 350 of the FARM THE WILLOWS 340-JR (City of Tshwane Metropolitan Municipality, Gauteng) construction.

The EIA process has been adequately rigorous in identifying various issues especially related to the biophysical environment [i.e. FAUNA, FLORA & BIODIVERSITY (i.e. vegetation, mammals, avifauna, herpetofauna & wetland)], heritage (i.e. archaeological & paleontological environment), socio-economic, health & safety, traffic, air quality, noise and visual impacts with regard to the planning and design phase, the construction phase, operational phase as well as the decommissioning phase (i.e. in some instances).

The proposed project is likely to predominantly yield both i.e:-

- Negative impacts i.e:
    - low to minor, improbable to definite, negative, short-term, negative construction & potential decommissioning/closure related impacts (i.e. noise, air quality, erosion/soil disturbance, access roads, traffic, waste, visual, health & safety)

- *and*,

- Positive impacts i.e:
    - two - minor, improbable, short term to permanent positive vegetation impacts during construction & operational phases - if the recommended mitigation measures were implemented;
    - one – moderate, definite, permanent positive mammal impact during the operational phase - if the recommended mitigation measures were implemented;
    - three - low, definite, short to long-term, positive socio-economic impacts during construction & operational phases - if the recommended mitigation measures were implemented, – and,
    - two – moderate, definite, long-term positive visual impacts during planning/design & operational phases - if the recommended mitigation measures were implemented.

However, the positive vegetation, socio-economic & visual aspects outweigh the negative impacts.

The results of the specialist studies undertaken indicate that the proposed development would result in the following impacts subject to the implementation of their prescribed mitigation measures i.e:

1. FAUNA, FLORA & BIODIVERSITY (i.e. vegetation, mammals, avifauna, herpetofauna & wetland)] :-

- five (i.e. only definitely two, since three is only potential, since it could be positive if the recommended mitigation measures were implemented) - moderate, negative, definite/potential & permanent biophysical environment impacts during the operational phase [i.e. FAUNA – vegetation, watercourse/wetland, mammals, avifauna & herpetofauna] if the recommended mitigation measures were implemented. However, the professional specialist consultants [i.e. FAUNA, FLORA & BIODIVERSITY (i.e. vegetation, mammals, avifauna, herpetofauna & wetland)] also did not oppose the proposed development's approval subject to the implementation of their prescribed mitigation measures.

- but,

- predominantly - low to minor, improbable to definite, short-term to permanent, negative impacts on the biophysical environment (i.e. vegetation, mammals, avifauna, herpetofauna & wetland) during the construction & operational phase if the recommended mitigation measures were implemented. However, the professional specialist consultants [i.e. FAUNA, FLORA & BIODIVERSITY (i.e. vegetation, mammals, avifauna, herpetofauna & wetland)] also did not oppose the proposed development's approval subject to the implementation of their prescribed mitigation measures.

2. HERITAGE:

i. Archaeological: -
low, low probability, negative, short-term, negative construction related impacts.

ii. Paleontological: -
low, low probability, negative, short-term, negative construction related impacts.

The environmental practitioner is satisfied that an adequate understanding is achieved of the nature and extent of the issues and how to mitigate the negative impacts and enhance potential benefits.

The above-mentioned must be considered by the Department in its evaluation of the environmental authorisation application.

Alternative#1 Layout Plan

This Draf Basic Assessment Report (dBAR) for the proposed RESIDENCES to be situated on Portion 349 of the FARM THE WILLOWS 340-JR (City of Tshwane Metropolitan Municipality, Gauteng) with associated Civil Services infrastructure, has been undertaken in accordance with the National Environmental Management Amendment Act (as amended) ("NEMA") (Act 107 of 1998) Amendment of the Environmental Impact Assessment Regulations 2014, GNR: 324-327, 7 April 2017.

The PUBLIC PARTICIPATION PROCESS is currently being conducted, and the findings will be included in the FINAL BASIC ASSESSMENT REPORT – and, the following preliminary findings is herewith presented i.e:

The EIA process has so far succeeded in identifying the significant environmental issues and addressing them adequately. The process is currently and have engaged with stakeholders and the specialist's input has assisted in identifying and assessing the potential impacts.

This draft BAR provides an assessment of both the benefits and potential negative impacts anticipated as a result of the proposed RESIDENCES to be situated on Portion 350 of the FARM THE WILLOWS 340-JR (City of Tshwane Metropolitan Municipality, Gauteng) construction.

The EIA process has been adequately rigorous in identifying various issues especially related to the biophysical environment [i.e. FAUNA, FLORA & BIODIVERSITY (i.e. vegetation, mammals, avifauna, herpetofauna & wetland)], heritage (i.e. archaeological & paleontological environment), socio-economic, health & safety, traffic, air quality, noise and visual impacts with regard to the planning and design phase, the construction phase, operational phase as well as the decommissioning phase (i.e. in some instances).

The proposed project is likely to predominantly yield both i.e:-

- Negative impacts i.e:
    - low to minor, improbable to definite, negative, short-term, negative construction & potential decommissioning/closure related impacts (i.e. noise, air quality, erosion/soil disturbance, access roads, traffic, waste, visual, health & safety)

- *and*,

- Positive impacts i.e:
    - two - minor, improbable, short term to permanent positive vegetation impacts during construction & operational phases - if the recommended mitigation measures were implemented;
    - three - low, definite, short to long-term, positive socio-economic impacts during construction & operational phases - if the recommended mitigation measures were implemented, – and,
    - two – moderate, definite, long-term positive visual impacts during planning/design & operational phases - if the recommended mitigation measures were implemented.

However, the positive vegetation, socio-economic & visual aspects outweigh the negative impacts.

The results of the specialist studies undertaken indicate that the proposed development would result in the following impacts subject to the implementation of their prescribed mitigation measures i.e:

1. FAUNA, FLORA & BIODIVERSITY (i.e. vegetation, mammals, avifauna, herpetofauna & wetland)] :-

- five – moderate to very high, negative, definite & short term to permanent biophysical environment impacts during the construction and operational phases [i.e. FAUNA – vegetation, mammals, avifauna & herpetofauna] if the recommended mitigation measures were implemented. However, the professional specialist consultants [i.e. FAUNA, FLORA & BIODIVERSITY (i.e. vegetation, mammals, avifauna, herpetofauna & wetland)] did not support the proposed alternative#1 layout development's approval regardless of the implementation of their prescribed mitigation measures.

- but,

- predominantly - low to minor, improbable to definite, short-term to permanent, negative impacts on the biophysical environment (i.e. vegetation, mammals, avifauna, herpetofauna & wetland) during

the construction & operational phase if the recommended mitigation measures were implemented. However, the professional specialist consultants [i.e. FAUNA, FLORA & BIODIVERSITY (i.e. vegetation, mammals, avifauna, herpetofauna & wetland)] did not support the proposed alternative#1 layout development's approval regardless of the implementation of their prescribed mitigation measures.

2. HERITAGE:

i. Archaeological: -

low, low probability, negative, short-term, negative construction related impacts.

However, the professional specialist consultants did not support the proposed alternative#1 layout development's approval regardless of the implementation of their prescribed mitigation measures.

ii. Paleontological: -

low, low probability, negative, short-term, negative construction related impacts.

However, the professional specialist consultants did not support the proposed alternative#1 layout development's approval regardless of the implementation of their prescribed mitigation measures.

The environmental practitioner is satisfied that an adequate understanding is achieved of the nature and extent of the issues and how to mitigate the negative impacts and enhance potential benefits.

The above-mentioned must be considered by the Department in its evaluation of the environmental authorisation application.

No-go alternative (compulsory)

The no-go option is not preferred as the current alien invasive vegetation & potential social & economic challenges related to the said site and its immediate surrounding areas - will continue, if the proposed RESIDENCES to be situated on Portion 350 of the FARM THE WILLOWS 340-JR (City of Tshwane Metropolitan Municipality, Gauteng) with associated Civil Services infrastructure will not be developed.

It is therefore anticipated that maintaining the status quo could have potentially direct, indirect & cumulative negative impacts on the environment - due to:

- Not be able to fulfil the need as identified by the applicant and exercise her legally approved zoning rights (i.e. agriculture & consent use for second dwelling as approved by the City of Tshwane Metropolitan Municipality) by developing the property to it's fullest potential.
- No employment opportunities would be created for further detailed design and assessment-related services, neither such as architects, engineers, town planners and environmental consultants, nor for the regional and national authorities responsible for reviewing the applications made in terms of the relevant legislation.
- The following benefits (i.e. which is in the public interest) that the proposed development will have for society in general will be forfeited i.e:
    - maximization and increase of mixed land uses creates more vibrant, walkable and connected communities.
    - There will be greater interest from the general public in such development in light of renewed interest in urban revitalization and therefore more sustainable development.
    - A development like this, for integration of land uses, that promotes a walkable built environment can help revitalize an area, increase private investment, lead to higher property values and support the development of a good business climate.
    - Reducing sprawl and building communities where residents live and walk to work reduces car usage, positively impacting on the environment. With the incorporation of mixed-use development and smart growth practices, sprawling development patterns could be reduced, and quality of life may be enhanced. Undeveloped land, open space, and historic and natural resources are preserved.
    - In addition to providing public health benefits, walkable communities that are attractive and may also contribute to a sense of place that reaps economic rewards for residents and businesses.
    - In addition to the above the following will also contribute to the constitutional and

transformation imperatives:
    - Access and opportunity to make use of services.
    - Best interest of Public (contributing to infrastructure upgrade).
    - Best interest of Public (contributing to positive property value).
    - Compliance with legal procedures that acquire land use rights**.**
- The following LAND USE PERSPECITVES & PLANNING initiatives & LEGISLATIVE requirements of the LOCAL, PROVINCIAL & NATIONAL AUTHORITIES would not be met in a minor way as outlined in the following documentation i.e:
    - *THE METROPOLITAN SPATIAL DEVELOPMENT FRAMEWORK (MSDF) 2012 & The Tshwane Spatial Development Framework for Region 6:-*
        - A densified area requires that the surrounding area be provided with a mix of mutually retail, service, office and residential developments. A development that strives for an increased density needs to embrace connectivity between various uses within the existing neighbourhoods. This results in an active urban environment, which enhances liveability, environmental quality and economic vitality.
        - The proposed development will provide for a more compact urban form, which is highly integrated. The desirability of the proposed development is not only based on the need for mixed, but also on the need for urban, architectural, social and economic upliftment. The proposed development will provide additional housing opportunities and will help reduce housing backlogs through accommodation that is accessible to economic, social and institutional services and nodes within the City of Tshwane.
        - There is a need for additional housing in the City of Tshwane Metropolitan Municipality's area of jurisdiction. The Tshwane Spatial Development Framework for Region 6, specifically highlights the importance of infill development and compacting establishments.
        - Most of the other erven within the surroundings townships have already been developed for residential purposes. There is still a great need for additional housing in the area. Thus, the potential of this large vacant property was seen by the developer as an opportunity to create two more dwelling houses.
        - The proposed residential dwellings on the portion will help in the need for additional housing in the area to some extent.
        - Considering how much the neighbourhood is transforming, application will not adversely affect the surrounding area, which is showing some significant signs of change in favour of densification and mixed land use developments.
        - The proposed investment will certainly continue to contribute to rejuvenation and enhancement of the locality through the construction of additional dwelling houses. This development does not impose any illegal use on the area as it is in line with various municipal policies as earlier discussed.
        - The application site currently obtains safe and direct access via a right of way servitude adjoining Koedoeberg Road, as well as from Wapadrand via Briekslinger Place. Access to the site is thus possible from two directions.
        - The property is centrally located and easily accessible from the major routes within the area, including the provincial roads. Land within this area that can be developed for residential purposes with good accessibility may be considered a scarce resource and it is therefore important to determine the development potential of land within the area and to apply for land use rights in accordance with the development potential.
        - The proposed application will have no impact on current traffic levels, no strain on current traffic levels is foreseen.
        - The application site is also well served by public transport. Public transport facilities are situated within walking distance from the application site.
        - According to the Tshwane Regional Spatial Development Frameworks the application is earmarked for residential uses and can therefore be seen as being consistent with spatial planning and land use policies.
        - The proposed development will be designed to be in keeping with the architectural styles of the area. The proposed development will also take into account conditions imposed for the area.
        - The proposed development will comply with all of the requirements from an

Architectural and design perspective and will conform with the requirements in terms of SANS 10040.
        - The area is characterised by mixed use areas and will be in line with this aesthetic of the existing urban environment. The design and materials used for the building will be of the highest quality and will fit with the design of the area.
        - Given the fact that the application area is located within an existing urban fabric of the Willows, the proposed development will not have any significant impact on the existing services infrastructure.
    - *The City of Tshwane Metropolitan Municipality Clause 14(10) of the Tshwane Town-Planning Scheme, 2008 for permission for a second dwelling house (Revised 2014);*
    - *City of Tshwane Integrated Development Plan (2021/2026);*
    - *THE SPATIAL PLANNING AND LAND USE MANAGEMENT ACT, 2013 (ACT 16 OF 2013) – SPLUMA;*
    - *Gauteng Spatial Development Framework 2011;*
    - *National Spatial Development Perspective (NSDP);*
    - *Gauteng Spatial Development Perspective (GSDP);*
    - *National Development Plan vision for 2030.*
- The proposed development would not be able to create a safe (i.e. protected) and amicable environment in which the protected fauna (i.e Critically Endangered mammal species *'Neamblysomus julianae'*, the Juliana's golden mole) as well as endemic (i.e. locally indigenous) vegetation could flourish as stated in the ECOLOGICAL BIODIVERSITY ASSESSMENT (i.e. ***'An assessment of vegetation, flora, vertebrate fauna and wetlands on Erf 350 of the Farm The Willows 340 JR, City of Tshwane, Gauteng****. By G.J. Bredenkamp D.Sc. Pr.Sci.Nat. J.P.C. van Wyk M.Sc. Pr.Sci.Nat. C.E. Venter M.Sc. Pr.Sci.Nat. Commissioned by Pierre Joubert Landscape Architect and Environmental Planner [EcoAgent CC PO Box 25533 Monument Park 0181. Tel 012 4602525. Cell 082 5767046. March 2021])* which was performed for/on the site and the following was noted by the specialists i.e:
    - *"Juliana's golden mole subsurface activities were recorded at a few localities on site. The golden mole subsurface activities were found around a diversity of habitat types on the study site and buffer areas. The golden mole occurs on the site is in both natural and in unnatural urban settings. Part of the study site includes the Bronberg Conservation Area where no development may occur, and signs of the Juliana's golden mole activity have been recorded. These golden mole individuals in the Bronberg Conservation Area would not be affected by the development since they occur outside the intended footprint of the development. The area where the intended development will take place has been altered by invasive plant species and except for a small area, no Juliana's golden mole subsurface activities were recorded. Near the white stinkwood trees at Erf 350, which is also a cultural heritage site, golden mole activities were observed at 25°46'51"S; 28°20'05"E. This area must be excluded from development. Golden moles are adapted to co-exist with human beings in rural settings on condition that the substrate consists of soft sand with no or little clay content and the soils kept permanently moist by regular irrigation. Implemented the suggested Ecological Management Plan (included in this report) will stabilize the population at higher numbers and ensure year-round optimized ecological conditions in a structured manner. Connectivity with adjoining properties is good. From a vertebrate perspective, there is no objection against the development as long as the development strictly adheres to the mitigation measures for the Juliana's Golden mole'.*
- The proposed development would not be able to curb further spread and increase of alien invasive plant species on the site which will also spread to the adjacent BRONBERG CONSERVATION AREA as a result of the lack of local indigenous landscaping rehabilitation initiatives as also stated in the above-mentioned BIODIVERSITY ASSESSMENT.
- No minor disturbance of the soil on the site with no potential for contamination or an increase in erosion of the site.
- No minor additional traffic volumes or associated impacts.
- No minor increase in negative air quality impacts and no dust nuisance to local land users and occupiers or road users.
- No minor increase in noise impacts.
- No medium positive alteration to the visual environment.
- No minor occupational health and safety risks.

- No job creation opportunity.
- No job security for employees of the appointed contractor.
- Potential increase in criminal activity in the areas surrounding the construction site, associated with the presence of transient job seekers on the site.
- No minor positive potential for economic growth in the area.

6 IMPACT SUMMARY OF THE PROPOSAL OR PREFERRED ALTERNATIVE

For proposal:

Please see IMPACT SUMMARY underneath of Proposal.

For alternative:

N.a.

Having assessed the significance of impacts of the proposal and alternative(s), please provide an overall summary and reasons for selecting the proposal or preferred alternative.

Please see IMPACT SUMMARY underneath of Proposal, and reasons for selecting the proposal above under item 5.

Development Proposal: Preferred Layout Plan

PLANNING & DESIGN PHASE: *(Table 27)* Summary of Impacts with Mitigation Measures:								
Impact	**Mitigation**	**Impact**					**Significance**	
		Nature	**E**	**D**	**M**	**P**		
Visual & Aesthetic Impacts	Yes	Positive	2	4	2	4	32	Moderate
AVERAGE	**Yes**						**32**	**Moderate Positive**

CONSTRUCTION PHASE: *(Table 24)* Summary of Impacts with Mitigation Measures:								
Impact	**Mitigation**	**Impact**					**Significance**	
		Nature	**E**	**D**	**M**	**P**		
Terrestrial Vegetation & Flora Biodiversity Impacts								
• Loss of indigenous vegetation due to clearing for construction of two residences.	Yes	Negative	1	1	1	5	15	Very Low
• Increase/eradication of alien invasive plant species on cleared sites.	Yes	Positive	1	5	1	1	7	Minor
Watercourse/Wetland Impacts:								
• Potential loss of Habitat, Species composition – and/or damage to functions, increased sedimentation and/or erosion.	Yes	Negative	1	1	1	5	10	Minor
Mammals & Mammal Habitat Impacts:								
• Loss of mammal communities and mammal habitat due to clearing for construction of two residences.	Yes	Negative	1	1	1	5	15	Very Low
Avifauna & Avifauna Habitat:								
• Loss of avifauna habitat due to clearing for construction of two residences.	Yes	Negative	2	1	1	5	20	Low
• Impact on birds due to disturbance associated with construction activities and with increased human presence in the area.	Yes	Negative	2	1	2	5	25	Low
• Impact on birds due to Pollution associated with construction or residential activities (e.g., fuel spills, use of cleaning chemicals).	Yes	Negative	2	1	2	1	4	Minor
• Impact on birds due to Electrocution and collision hazards.	Yes	Negative	1	5	2	1	8	Minor
HERPETOFAUNA & HERPETOFAUNA HABITAT Impacts:								
• Loss of herpetofaunal communities and herpetofaunal habitat due to clearing for construction of two residences.	Yes	Negative	2	2	4	3	24	Low
HERITAGE ARCHAEOLOGICAL Impacts:								

• Loss of Late Iron Age sites.	Yes	Negative	1	1	6	2	16	Low
HERITAGE PALEONTOLOGICAL Impacts:								
• Loss of buried fossil materials.	Yes	Negative	1	2	4	2	14	Low
Socio-Economic impacts: Job Creation	Yes	Positive	2	1	1	5	20	Low
Visual & Aesthetic Impacts	Yes	Negative	1	1	1	2	6	Minor
Access roads	Yes	Negative	1	2	2	1	5	Minor
Erosion & soil disturbance	Yes	Negative	1	1	4	2	12	Very Low
Air Quality	Yes	Negative	1	1	1	1	1	Minor
Traffic impacts	Yes	Negative	2	2	4	2	16	Low
Solid & Liquid Waste generation	Yes	Negative	1	2	4	2	14	Low
Noise Impacts	Yes	Negative	2	1	3	2	12	Low
Health & Safety	Yes	Negative	1	1	3	2	10	Low
AVERAGE	**Yes**						**12.61**	**Low Negative**
AVERAGE	**Yes**						**13.5**	**Low Positive**

OPERATIONAL PHASE: *(Table 28)*

Summary of Impacts with Mitigation Measures:

Impact	Mitigation	Impact					Significance	
		Nature	E	D	M	P		
Terrestrial Vegetation Impacts:								
• Loss of indigenous vegetation due to clearing for construction of two residences.	Yes	Negative	1	5	2	5	40	Moderate
• Increase and/or eradication of alien invasive plant species on cleared sites.	Yes	Positive	1	1	2	1	4	Minor
Mammals & Mammal Habitat Impacts:								
• Loss and/or increase and/or conservation of mammal communities and mammal habitat due to developing of indigenous gardens and/or activities associated with residences.	Yes	Negative Positive	1	5	3	5	45	Moderate
Avifauna & Avifauna Habitat:								
• Impact on birds due to disturbance associated with construction activities and with increased human presence in the area.	Yes	Negative	2	5	2	5	45	Moderate
• Impact on birds due to Pollution associated with construction or residential activities (e.g., fuel spills, use of cleaning chemicals).	Yes	Negative	2	5	2	1	9	Minor

• Impact on birds due to Electrocution and collision hazards.	Yes	Negative	1	5	2	1	8	Minor
HERPETOFAUNA & HERPETOFAUNA HABITAT Impacts:								
• Loss of herpetofaunal communities and herpetofaunal habitat due to clearing for construction and activities associated of two residences.	Yes	Negative	1	5	3	5	45	Moderate
Socio-Economic impacts: Job Creation	Yes	Positive	1	4	1	4	24	Low
Socio-Economic impacts: Rates & Tax Base Expansion	Yes	Positive	1	4	1	4	24	Low
Visual & Aesthetic Impacts:	Yes	Positive	2	4	2	4	32	Moderate
AVERAGE	**Yes**						**32**	**Moderate Negative**
AVERAGE	**Yes**						**25.8**	**Low Positive**

DECOMMISSIONING & CLOSURE PHASE: *(Table 29)*

Summary of Impacts with Mitigation Measures:

Impact	Mitigation	Impact					Significance	
		Nature	E	D	M	P		
Visual & Aesthetic Impacts	Yes	Negative	2	1	6	1	9	Minor
Air Quality	Yes	Negative	1	1	1	1	1	Minor
Traffic impacts	Yes	Negative	2	1	4	2	14	Very Low
Waste generation	Yes	Negative	2	1	4	2	14	Very Low
Noise Impacts	Yes	Negative	1	1	3	2	10	Very Low
Health & Safety	Yes	Negative	1	1	3	2	10	Very Low
AVERAGE	**Yes**						**9.67**	**Minor Negative**

Reasons for selecting the proposal: Preferred Layout Plan *(Table 30)*

1. The proposed development would able to create a safe (i.e. protected) and amicable environment in which the protected fauna (i.e Critically Endangered mammal species *'Neamblysomus julianae'*, the Juliana's golden mole) as well as endemic (i.e. locally indigenous) vegetation could flourish as stated in the ECOLOGICAL BIODIVERSITY ASSESSMENT contained in APPENDIX G (i.e. ***'An assessment of vegetation, flora, vertebrate fauna and wetlands on Erf 350 of the Farm The Willows 340 JR, City of Tshwane, Gauteng****. By G.J. Bredenkamp D.Sc. Pr.Sci.Nat. J.P.C. van Wyk M.Sc. Pr.Sci.Nat. C.E. Venter M.Sc. Pr.Sci.Nat. Commissioned by Pierre Joubert Landscape Architect and Environmental Planner [EcoAgent CC PO Box 25533 Monument Park 0181. Tel 012 4602525. Cell 082 5767046. March 2021])* which was performed for/on the site and the following was noted by the specialists i.e:

a. *"Juliana's golden mole subsurface activities were recorded at a few localities on site. The golden mole subsurface activities were found around a diversity of habitat types on the study site and buffer areas. The golden mole occurs on the site is in both natural and in*

unnatural urban settings. Part of the study site includes the Bronberg Conservation Area where no development may occur, and signs of the Juliana's golden mole activity have been recorded. These golden mole individuals in the Bronberg Conservation Area would not be affected by the development since they occur outside the intended footprint of the development. The area where the intended development will take place has been altered by invasive plant species and except for a small area, no Juliana's golden mole subsurface activities were recorded. Near the white stinkwood trees at Erf 350, which is also a cultural heritage site, golden mole activities were observed at 25°46'51"S; 28°20'05"E. This area must be excluded from development. Golden moles are adapted to co-exist with human beings in rural settings on condition that the substrate consists of soft sand with no or little clay content and the soils kept permanently moist by regular irrigation. Implemented the suggested Ecological Management Plan (included in this report) will stabilize the population at higher numbers and ensure year-round optimized ecological conditions in a structured manner. Connectivity with adjoining properties is good. From a vertebrate perspective, there is no objection against the development as long as the development strictly adheres to the mitigation measures for the Juliana's Golden mole'.

4. The professional specialist consultants [i.e. the above-mentioned ECOLOGICAL BIODIVERSITY ASSESSMENT report as contained in APPENDIX G (i.e. vegetation, mammals, avifauna, herpetofauna & wetland) & HERITAGE (i.e. Archaeological & Palaeontological] also did not oppose the proposed preferred layout plan development's approval subject to the implementation of their prescribed mitigation measures.
5. The applicant would be able to fulfil her identified need and exercise her legally approved zoning rights (i.e. agriculture & consent use for second dwelling as approved by the City of Tshwane Metropolitan Municipality) by developing the property to it's fullest potential.
6. Employment opportunities would be created for further detailed design and assessment-related services, neither such as architects, engineers, town planners and environmental consultants, nor for the regional and national authorities responsible for reviewing the applications made in terms of the relevant legislation.
7. The proposed development would be able to uphold the **socio-economic** aspects of sustainability, in that a high-quality residence (i.e. and other related facilities/activities) in that specific area will –
    a. Be well used in that it will be developed within it's current zoning category i.e. Agriculture, although no farming activities will be practiced, thereby conserving the environment.
    b. Provide safe and good quality housing to families i.e. the fiber of human society.
    c. Increase the housing market's property i.e. perceived marketable, values and attract similar quality developments to that area i.e. stimulus of the local economy.
    d. Be well maintained and visually (i.e. aesthetically) pleasing which will fit well into it's existing residential surroundings of the same character, quality and sense of place (i.e. 'genius loci').
    e. Disallow vagrants or unwanted occupiers to occupy and –
        i. destroy the site and it's sensitive ecology,
        ii. threaten the surrounding residential property owner's safety.
8. The following benefits (i.e. which is in the public interest) that the proposed development will have for society in general i.e:
    a. maximization and increase of mixed land uses creates more vibrant, walkable and connected communities.
    b. There will be greater interest from the general public in such development in light of renewed interest in urban revitalization and therefore more sustainable development.

c. A development like this, for integration of land uses, that promotes a walkable built environment can help revitalize an area, increase private investment, lead to higher property values and support the development of a good business climate.
d. Reducing sprawl and building communities where residents live and walk to work reduces car usage, positively impacting on the environment. With the incorporation of mixed-use development and smart growth practices, sprawling development patterns could be reduced, and quality of life may be enhanced. Undeveloped land, open space, and historic and natural resources are preserved.
e. In addition to providing public health benefits, walkable communities that are attractive and may also contribute to a sense of place that reaps economic rewards for residents and businesses.
f. In addition to the above the following will also contribute to the constitutional and transformation imperatives:
g. Access and opportunity to make use of services.
h. Best interest of Public (contributing to infrastructure upgrade).
i. Best interest of Public (contributing to positive property value).
j. Compliance with legal procedures that acquire land use rights**.**

9. The following LAND USE PERSPECITVES & PLANNING initiatives & LEGISLATIVE requirements of the LOCAL, PROVINCIAL & NATIONAL AUTHORITIES would be met in a minor way as outlined in the following documentation i.e:
    a. *THE METROPOLITAN SPATIAL DEVELOPMENT FRAMEWORK (MSDF) 2012 & The Tshwane Spatial Development Framework for Region 6:-*
        i. A densified area requires that the surrounding area be provided with a mix of mutually retail, service, office and residential developments. A development that strives for an increased density needs to embrace connectivity between various uses within the existing neighbourhoods. This results in an active urban environment, which enhances liveability, environmental quality and economic vitality.
        ii. The proposed development will provide for a more compact urban form, which is highly integrated. The desirability of the proposed development is not only based on the need for mixed, but also on the need for urban, architectural, social and economic upliftment. The proposed development will provide additional housing opportunities and will help reduce housing backlogs through accommodation that is accessible to economic, social and institutional services and nodes within the City of Tshwane.
        iii. There is a need for additional housing in the City of Tshwane Metropolitan Municipality's area of jurisdiction. The Tshwane Spatial Development Framework for Region 6, specifically highlights the importance of infill development and compacting establishments.
        iv. Most of the other erven within the surroundings townships have already been developed for residential purposes. There is still a great need for additional housing in the area. Thus, the potential of this large vacant property was seen by the developer as an opportunity to create two more dwelling houses.
        v. The proposed residential dwellings on the portion will help in the need for additional housing in the area to some extent.
        vi. Considering how much the neighbourhood is transforming, application will not adversely affect the surrounding area, which is showing some significant signs of change in favour of densification and mixed land use developments.
        vii. The proposed investment will certainly continue to contribute to rejuvenation and enhancement of the locality through the construction of additional dwelling houses. This development does not impose any illegal use on the area as it is in line with various municipal policies as earlier discussed.

viii. The application site currently obtains safe and direct access via a right of way servitude adjoining Koedoeberg Road, as well as from Wapadrand via Briekslinger Place. Access to the site is thus possible from two directions.
ix. The property is centrally located and easily accessible from the major routes within the area, including the provincial roads. Land within this area that can be developed for residential purposes with good accessibility may be considered a scarce resource and it is therefore important to determine the development potential of land within the area and to apply for land use rights in accordance with the development potential.
x. The proposed application will have no impact on current traffic levels, no strain on current traffic levels is foreseen.
xi. The application site is also well served by public transport. Public transport facilities are situated within walking distance from the application site.
xii. According to the Tshwane Regional Spatial Development Frameworks the application is earmarked for residential uses and can therefore be seen as being consistent with spatial planning and land use policies.
xiii. The proposed development will be designed to be in keeping with the architectural styles of the area. The proposed development will also take into account conditions imposed for the area.
xiv. The proposed development will comply with all of the requirements from an Architectural and design perspective and will conform with the requirements in terms of SANS 10040.
xv. The area is characterised by mixed use areas and will be in line with this aesthetic of the existing urban environment. The design and materials used for the building will be of the highest quality and will fit with the design of the area.
xvi. Given the fact that the application area is located within an existing urban fabric of the Willows, the proposed development will not have any significant impact on the existing services infrastructure.

b. *The City of Tshwane Metropolitan Municipality Clause 14(10) of the Tshwane Town-Planning Scheme, 2008 for permission for a second dwelling house (Revised 2014);*
c. *City of Tshwane Integrated Development Plan (2021/2026);*
d. THE SPATIAL PLANNING AND LAND USE MANAGEMENT ACT, 2013 (ACT 16 OF 2013) – SPLUMA;
e. Gauteng Spatial Development Framework 2011;
f. National Spatial Development Perspective (NSDP);
g. Gauteng Spatial Development Perspective (GSDP);
h. *National Development Plan vision for 2030.*

10. The proposed development would be able to curb further spread and increase of alien invasive plant species on the site which will also have spread to the adjacent BRONBERG CONSERVATION AREA as a result of the implementing of local indigenous landscaping rehabilitation initiatives as also stated in the above-mentioned BIODIVERSITY ASSESSMENT.
11. Job creation opportunity and job security for employees of the appointed contractor.
12. No increase in criminal activity in the areas surrounding the construction site, associated with the presence of transient job seekers on the site.
13. Minor positive potential for economic growth in the area.

7. SPATIAL DEVELOPMENT TOOLS

Indicate the application of any spatial development tool protocols on the proposed development and the outcome thereof.

The discussion regarding the application of the following spatial development tool protocols on the proposed development and the outcome thereof is outlined in detail underneath under Item '*9. THE NEEDS AND DESIREBILITY OF THE PROPOSED DEVELOPMENT':*

- *THE METROPOLITAN SPATIAL DEVELOPMENT FRAMEWORK (MSDF) 2012 & The Tshwane Spatial Development Framework for Region 6;*
- *The City of Tshwane Metropolitan Municipality Clause 14(10) of the Tshwane Town-Planning Scheme, 2008 for permission for a second dwelling house (Revised 2014);*
- *City of Tshwane Integrated Development Plan (2021/2026);*
- *THE SPATIAL PLANNING AND LAND USE MANAGEMENT ACT, 2013 (ACT 16 OF 2013) – SPLUMA;*
- *NATIONAL DEVELOPMENT PLAN, 2030;*
- *GAUTENG PLANNING AND DEVELOPMENT ACT, 2003;*
- *GAUTENG SPATIAL DEVELOPMENT FRAMEWORK 2011;*
- *National Spatial Development Perspective (NSDP);*
- *Gauteng Spatial Development Perspective (GSDP).*

8. RECOMMENDATION OF THE PRACTITIONER

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the Environmental Assessment Practitioner as bound by professional ethical standards and the code of conduct of EAPASA).	**YES**	~~NO~~

If "NO", indicate the aspects that require further assessment before a decision can be made (list the aspects that require further assessment):

If "YES", please list any recommended conditions, including mitigation measures that should be considered for inclusion in any authorisation that may be granted by the competent authority in respect of the application:

ALL the MITIGATION MEASURES as recommended above under *SECTION E: IMPACT ASSESSMENT;* the BIODIVERSITY ASSESSMENT Specialist report in APPENDIX G – and, the EMPr in Appendix H should be included in any authorization that may be granted by the department in respect of the application – with the additional recommendations as set out underneath i.e: Special Consideration should be given to the following i.e:

TERRESTRIAL VEGETATION & FLORA BIODIVERSITY:

- The clearing of vegetation must be kept to a minimum and remain within the footprint development – leave the rest of the area with natural vegetation intact.
- Leave all trees but remove alien invasive species wherever possible.
- Construction must be completed as quickly as possible.
- Disturbed open areas must be rehabilitated immediately after construction has been completed in that area by developing an indigenous garden by planting appropriate indigenous tree, grass and forb species.
- During the construction phase workers must be limited to areas under construction and access to the planned open areas must be strictly controlled.
- Rehabilitated areas must be monitored to ensure the establishment of re-vegetated areas.
- Adhere to the proposed management plan for Juliana's Golden Mole.
- Plant only indigenous trees – no alien species.
- An alien invasive management programme must be incorporated into the Environmental Management Programme.
- Ongoing alien plant control must be undertaken.
- Areas which have been disturbed will be quickly colonised by invasive alien species. An ongoing management plan must be implemented for the clearing/eradication of alien species.

- Monitor all sites disturbed by construction activities for colonisation by exotics or invasive plants and control these as they emerge.
- Avoid planting of exotic plant species, use indigenous species.
- Develop an indigenous garden.

NOTE: A registered ecologist and professional landscape architect with adequate experience should be appointed to assist with, plan, design and enforce, monitor and audit the planning, design, implementation and operational phases of the conservation of the sensitive ecological areas on site.

MAMMALS & MAMMALS HABITAT:

- Should any South African Hedgehog or other mammal species be encountered or exposed during the construction phase, they should be removed and relocated to natural areas in the vicinity. The contractor must ensure that no indigenous mammal species are disturbed, trapped, hunted or killed during the construction phase. Conservation-orientated clauses should be built into contracts for construction personnel, complete with penalty clauses for non-compliance.
- During the construction phase there may be increased surface runoff and a decreased water quality (with increased silt load and pollution). Completing construction during the winter months would mitigate this environmental impact.
- The appropriate agency should implement an ongoing monitoring and eradication program for all invasive plant species growing on the site.
- Any post-development re-vegetation or landscaping exercise should use species indigenous to South Africa. Plant species locally indigenous to the area are preferred.
- Implementation of the management plan for Juliana's Golden Mole will improve mammal habitats in general and contribute to the conservation of these species i.e:
- The following steps are recommended before construction commences and also in order to maintain and increase the population numbers of Juliana's golden mole on the study site, it is suggested that:
- The footprint of the planned construction area be cleared of vegetation.
- The storage area for building material etc. be cleared of vegetation, bar large indigenous trees.
- No clearing of any vegetation outside the construction and storage area footprint.
- Building materials are to be delivered and stored on only one of the cleared hard-surface areas on the site.
- Random dumping of building waste cannot be tolerated. There must be a specified area for it and must be removed from the site as soon as possible.
- No or limited access for workers to areas outside the above-mentioned footprint.
- The areas where there will not be any development must be irrigated so that the soil remains moist, attracting more potential prey items to these areas. This will increase the probability that the Juliana's golden moles will migrate to these irrigated areas, away from the construction and storage areas.
- Stabilising the Juliana's golden mole population is dealt with on a general and a specific level. **General actions:** It is suggested that:
- the garden area be developed shortly after the construction of the residences has been completed.
- A well-manicured and maintained, mainly indigenous garden to reflect the upmarket ambience of the entire facility be developed.
- It is therefore strongly advised that the flower beds are composted on a regular and ongoing basis, to enhance the occurrence of subterranean invertebrate instars serving as food source for the golden moles. Increasing the organic content of the soil to a depth of 15cm will furthermore serve to loosen its texture and hence enhance mole occupation.
- In addition it is also suggested that flower beds are seeded with earthworms from time to time.
- Indigenous grasses be used amply in the beds.
- Planting of members of the legume family (pea family, Fabaceae) to bind atmospheric nitrogen.
- Leave large areas with natural vegetation or re-establish natural vegetation.
- LM grass is preferred to Kikuyu grass for a lawn.
- It is not anticipated that moderate use of inorganic fertilisers will have any effect on golden moles.
- Irrigation is an important facet of maintaining the soft substrate. Regular irrigation is suggested throughout the year.
- Use steppingstones rather than fully paved walkways to allow for mole tunnelling and dispersal.
- Juliana's golden mole activity was also observed on the sidewalk area southeast of the service road and this area may not be used for a storage or dumping site.
- That an Ecological Control Officer (ECO) be appointed as soon as operations commence. During the construction phase

he/she is to monthly supervise the development and maintenance of the golden mole habitat, to monitor golden mole activities and dispersal, where necessary to interact with the construction site managers, has the right to amend the EMP in consultation with the developer, to monthly provide feedback to the developers who will copy that to the authorities, and to report non-compliance to GDARD.

- **Specific actions:**
- Near the white stinkwood trees, at the heritage site, golden mole activities occur at 25°46'51"S; 28°20'05"E. This area must be excluded from development.
- This areas of golden mole activity together with a buffer zone of ten meters are to be demarcated in concurrence with the ECO, and this should be a no-entry area for all the construction workers.
- As little as feasible paving must be laid and preferably no Kikuyu grass be planted.
- The soil in the garden must be carefully loosened, composted and seeded with earthworms, and Canada Green or LM grass planted.
- Irrigation to be installed and the site watered throughout the year.
- It is possible that resident golden moles may be unearthed during preparation of the substrate. In such cases the specimens can be released anywhere where there are no plans to construct houses.
- A temporary route to bypass the golden mole areas should be established to transport building material, avoid trampling and compaction of soil.
- Upon completion of construction, this temporary route is to be loosened, composted and developed to be amenable for golden moles.
- **Construction phase**

This is a critical phase. Since golden moles are completely blind, they rely on acute hearing and detection of tremors conveyed through the substrate to detect prey. Experience at other developments suggest that they respond neutrally to typical noise of construction processes. To ensure that conservation measures are maintained and amended as necessary, it is suggested that:

- An appropriate Management Authority should be identified (e.g. the owners) that is contractually bound to implement this Environmental Management Plan during the construction phase of the development. The Management Authority will keep a record of ECO monthly audits and upon request make these available to GDARD.
- That the ECO monitors the construction site on a regular basis (at least monthly) and keeps a written Record of Decision (ROD). Particular attention should be paid to unforeseen artificial edge effects (e.g. water runoff from developed areas & application of chemicals).
- That a copy of this EMP should be provided to the neighbouring landowners.
- That the ECO interacts with the landscape architect / site manager in terms of enriching the substrate and the planting of vegetation on the site.
- The contractor and all the construction personnel receive environmental training on the importance of the Juliana golden moles.
- No dumping of construction materials, hazardous materials such as oil and diesel or domestic waste is to be allowed within the site.
- The landscape planting plan must ensure that the trees / shrubs used in the gardens are indigenous.
- The contractor is aware of the need for as little noise as possible on site.
- The footprint of paving or other concrete structures around the houses must be kept to a minimum.
- Wire fence (not concrete or brick wall) between the different erven is preferred to enable migration of golden moles between the properties.
- Swimming pools must have a barrier to prevent Juliana golden moles from accidentally falling into pools.
- **Operational phase**

During this phase the homeowners should continuously be aware of the presence of the Juliana golden mole and take care to implement management action that will promote the golden moles existence. Monitoring of the study area for the continued existence of the golden mole would be important to determine the effect on the golden mole of the construction and later the occupation of the residences. The following is suggested:

- At the onset of the operational phase, the plains area of the site should be planned and developed as an indigenous garden to augment the atmosphere of the Wapadrand Country Estates and also enhance suitable habitat for Juliana's Golden Mole.
- The ECO to cooperate with the landscape planner to select plants amenable to golden mole habitat prerequisites.
- The remaining plains area should remain in a natural state, with measures to control all alien and invasive plant species.
- Employees should be familiarised with the conservation measures implemented and their responsibility in this regard.
- The ECO must interact with the gardener to ensure optimal development and maintenance of the study site. Suitable training in this regard is necessary.
- The garden beds must be kept well-composted and moist by irrigation.

- All garden areas must be inspected regularly to ensure that the soil is not compacted. Measures implemented to carefully loosen the soil ensuring that mole individuals are not killed accidentally.
- The swimming pools must be regularly inspected to ensure rescuing of golden moles that accidentally fell into the pool.
- Planting indigenous species in the gardens and development of an indigenous garden will enhance habitats for mammals.

AVIFAUNA & AVIFAUNA HABITAT:

- The spatial extent of construction activities must be minimized,
- The boundaries of the development footprint areas are to be clearly demarcated and it must be ensured that all activities remain within the demarcated footprint area.
- Disturbance by residents of birds breeding and foraging in the area should be minimized and controlled.
- Provide adequate briefing for site personnel and residents prior to construction.
- Any bird nests that are found during the construction period must be reported to the Environmental Control Officer (ECO).
- Movement of construction vehicles and workers beyond the boundary of the site must be minimized. In addition, workers must be instructed to minimize disturbance of birds at all times, and steps must be taken to ensure that no illegal hunting occurs.
- The boundaries of the development footprint areas are to be clearly demarcated and it must be ensured that all activities remain within the demarcated footprint area.
- Great care must be taken that no pollutants or other waste pollute the area or enter local water systems during the construction or operational phases. Measures to rapidly deal with spills of fuel, cleaning chemicals or any other potential pollutants must be put in place before construction commences.
- Construction workers must be suitably trained to deal with any such spills.
- Facilities to handle pollution and waste must be provided to residents.
- Normal safety measures for electrical installations as used by Eskom.

HERPETOFAUNA & HERPETOFAUNA HABITAT:

- Should any reptile or amphibia species be encountered or exposed during the construction phase, they should be removed and relocated to natural areas in the vicinity. The contractor must ensure that no indigenous herpetofauna species are disturbed, trapped, hunted or killed during the construction phase. Conservation-orientated clauses should be built into contracts for construction personnel, complete with penalty clauses for non-compliance.
- During the construction phase there may be increased surface runoff and a decreased water quality (with increased silt load and pollution). Completing construction during the winter months would mitigate the environmental impact.
- The appropriate agency should implement an ongoing monitoring and eradication program for all invasive plant species growing on the site.
- Any post-development re-vegetation or landscaping exercise should use species indigenous to South Africa. Plant species locally indigenous to the area are preferred.

HERITAGE (Archaeological):

- That the area be cleared of vegetation under guidance from an archaeologist to determine to extent of the stonewalling in the area.
- That once this has been done that the stonewalling be mapped and drawn and that limited archaeological excavations be carried out in order to recover cultural material and to date the sites.
- A Phase 2 archaeological mitigation permit from SAHRA be obtained for this investigation.
- An archaeological watching brief must be implemented during the construction phase. This watching brief is aimed at monitoring the construction and excavation work for any subterranean archaeological deposits and features which may be exposed during these development activities. The subterranean nature of cultural heritage resources (including low stone-packed or unmarked graves) should also be taken into consideration. Should any previously unknown or invisible sites, features or material be uncovered during any development actions then an expert should be contacted to investigate and provide recommendations on the way forward.
- Finally it should be noted that although all efforts are made to cover a total area during any assessment and therefore to identify all possible sites or features of cultural (archaeological and/or historical) heritage origin and

significance, that there is always the possibility of something being missed. This will include low stone-packed or unmarked graves. This aspect should be kept in mind when development work commences and if any sites (including graves) are identified then an expert should be called in to investigate and recommend on the best way forward.

HERITAGE (Paleontological):

- If by chance fossil is uncovered during construction, the protocol is to immediately cease all construction activities, construct a 30 m no-go barrier and SAHRA (South Africa Heritage Resource Agency) must be notified immediately.
- An Environmental Control Officer (ECO) must be appointed to oversee the implementation of the Environmental Management Programme (EMPr) for the duration of the construction phase.
- The Environmental Control Officer must familiarise him- or herself with the formation present and its fossils and follow protocol. The ECO must survey for fossils before and or after clearing, blasting, drilling or excavating.
- A site visit is recommended after drilling, excavations and blasting and the keeping of a photographic record. A regular monitoring presence over the period during which excavations are made can be done during groundbreaking.
- The following mitigation may be needed (Appendix 2) if fossils are found i.e:

A Phase 2 Palaeontological Impact Assessment: Mitigation will include (SAHRA) -

1. Recommendations for the future of the site.
2. Description and purpose of work done (including number of people and their responsibilities).
3. A written assessment of the work done, fossils excavated, not removed or collected and observed.
4. Conclusion reached regarding the fossil material.
5. A detailed site plan and map.
6. Possible declaration as a heritage site or Site Management Plan.
7. Stakeholders.
8. Detailed report including the Desktop and Phase 1 study information.
9. Annual interim or progress Phase 2 permit reports as well as the final report.
10. Methodology used.

Three types of permits are available; Mitigation, Destruction and Interpretation. The specialist will apply for the permit at the beginning of the process (SAHRA 2012).

The Palaeontological Society of South Africa (PSSA) does not have guidelines on excavating or collecting, but the following is suggested:

1. The developer needs to clearly stake or peg-out (survey) the areas affected by the mining (if applicable)/ construction/ development operations and dig representative trenches and if possible supply geological borehole data.
2. When clearing topsoil, subsoil or overburden and hard rock (outcrop) is found, the contractor / developer needs to stop all work.
3. A Palaeobotanist / palaeontologist (contact SAHRIS for list) must then inspect the affected areas and trenches for fossiliferous outcrops / layers. The contractor / developer may be asked to move structures, and put the development on hold.
4. If the palaeontologist / palaeobotanist is satisfied that no fossils will be destroyed or have removed the fossils, development and removing of the topsoil can continue.
5. After this process the same palaeontologist / palaeobotanist will have to inspect and offer advice through the Phase 2 Mitigation Process. Bedrock excavations for footings may expose, damage or destroy previously buried fossil material and must be inspected.
6. When permission for the development is granted, the next layer can be removed, if this is part of a fossiliferous layer, then with the removal of each layer of sediment, the palaeontologist / palaeobotanist must do an investigation (a minimum of once a week).
7. At this stage the palaeontologist / palaeobotanist in consultation with the developer / mining company must ensure that a further working protocol and schedule is in place. Onsite training should take place, followed by an annual visit by the palaeontologist / palaeobotanist.

Fossil excavation if necessary, during Phase 2:

1. Photography of fossil / fossil layer and surrounding strata.
2. Once a fossil has been identified as such, the task of extraction begins.
3. It usually entails the taking of a GPS reading and recording lithostratigraphic, biostratigraphic, date, collector and locality information.
4. Use Paraloid (B-72) as an adhesive and protective glue, parts of the fossil can be kept together (not necessarily applicable to plant fossils).
5. Slowly chipping away of matrix surrounding the fossil using a geological pick, brushes and chisels.
6. Once the full extent of the fossil / fossils is visible, it can be covered with a plaster jacket (not necessarily applicable to plant fossils).
7. Chipping away sides to loosen underside.
8. Splitting of the rock containing palaeobotanical material should reveal any fossils sandwiched between the layers.

SAHRA Documents:

Guidelines to Palaeontological Permitting Policy.
Minimum Standards: Palaeontological Component of Heritage Impact Assessment reports.
Guidelines for Field Reports.
Palaeotechnical Reports for all the Provinces.

Appendix 2: Table of Appendix 6 requirements.

Section in Report	Point in Act	Requirement
B	1(c)	Scope and purpose of report
B	1(d)	Duration, date and season
B	1(g)	Areas to be avoided
D	1(ai)	Specialist who prepared report
D	1(aii)	Expertise of the specialist
F Figure 3	1(h)	Map
B	1(ni)(niA)	Authorisation
B	1(nii)	Avoidance, management, mitigation and closure plan
G Table 1	1(cA)	Quality and age of base data
G Table 2	1(cB)	Existing and cumulative impacts
D	1(f)	Details or activities of assessment
G	1(j)	Description of findings
H	1(e)	Description of methodology
H	1(i)	Assumptions
J	1(o)	Consultation
J	1(p)	Copies of comments during consultation
J	1(q)	Information requested by authority
Declaration	1(b)	Independent declaration
Appendix 2	1(k)	Mitigation included in EMPr
Appendix 2	1(l)	Conditions included in EMPr
Appendix 2	1(m)	Monitoring included in EMPr
D	2	Protocol or minimum standard

SOCIO-ECONOMIC:

- No mitigation measures are proposed, since there are no negative impacts foreseen, except if the proposed development would not proceed which will be minor in nature.
- Prerequisites that need to be considered i.e. in order for surrounding areas to capitalise optimally on the development there are certain aspects which will have certain minor positive implications on the surrounding areas**:**
    - Local labour should be employed as far as possible during both construction and operations of the proposed development.

VISUAL & AESTHETICAL:

PLANNING & DESIGN PHASE:

- The visual and aesthetical environment impact caused by the potential lack of adequate (i.e. sensitive, appropriate, in-

context with the local surroundings and visual qualities of the site and other related visual aspects) sub-urban planning/design, architectural design and landscape architectural design of facilities and site – and, the full implementation of the proposed mitigation measures especially that of the BIODIVERSITY specialists. The applicant has appointed such specialists (i.e. architect & landscape architect & biodiversity) as indicated above and therefore employed sufficient measures (mitigation) i.e. as far as possible, to make the proposed development an attractive and visually uplifting improvement on the site and aesthetically appealing towards the directly adjacent township and natural (i.e. *BRONBERG CONSERVATION AREA)* environment.

CONSTRUCTION PHASE:

- Visual and aesthetical environment impact caused by construction related activities such as, stockpile material, trucks, construction offices, hoarding and excavation machinery, clearance of vegetation, excavation and storage of construction materials and equipment. This impact will be temporary in nature, limited to the construction phase.

OPERATIONAL PHASE:

- The presence of the proposed residential facilities, in the midst of a well-established residential area (i.e. Wapadrand in PRETORIA) with (i.e. in general):- i. a visually uplifting natural 'green' backdrop of the *BRONBERG CONSERVATION AREA* (i.e. perceived from certain selected viewpoints in the area) – and, ii. a predominantly extensive medium to high-end upmarket residential area with also a variety of mixed uses, facilities, activities and elements which creates in general (i.e. perceived from various viewpoints in the area) a diversified visual landscape (i.e. relatively high visual variance). This variance ranges from a relative visually and aesthetically pleasing 'coherence' and 'sense of place' to a relative 'confusion' of disconnectedness (i.e. not integrated in a sensitive cohesive way visually and aesthetically with a lack of a 'sense of place') with no predominant visual 'theme' or specific architectural and/or landscape architectural style or character which unifies the visual 'landscape' as a whole. The proposed development will have a minor positive visual impact on (i.e. towards) it's surrounding area, particularly for the directly adjacent land occupiers and users due to it's relatively secluded locality in the 'visual landscape'. The minor positive visual enhancement would be applicable only if the applicant will develop the proposed facilities in a visual sensitive way which responds positively to its natural (i.e. *BRONBERG CONSERVATION AREA)* and surrounding built-up environment and landscapes the site with locally indigenous vegetation and maintains it (i.e. facilities and landscape) in a good condition. The applicant has appointed such specialists as indicated above (i.e. architect & landscape architect) and therefore employed sufficient measures i.e. as far as possible, to make the proposed development an attractive and visually uplifting improvement on the site and aesthetically appealing towards the directly adjacent township environment.

DECOMMISSIONING & CLOSURE PHASE:

- Trucks used for decommissioning activities, rubble and stockpiles may cause a visual impact.

NOTE: the longer term visual impact of the proposed development could only be mitigated effectively and could become a positive Visual asset to its environment subject to the appointment of a professional Architect and Landscape Architect - and compliance to all of their proposed final planning, design and construction recommendations and plans - who should take into consideration all aspects of design and layout in it's current and futuristic context i.e. biophysical, ecological, visual, cultural etc

ACCES ROADS:

PLANNING & DESIGN PHASE:

- Temporary access and haulage routes must be designed prior to construction commencing to ensure that the most preferable access and haulage routes has been identified. Provision made for the erection of appropriate warning signs.
- Road safety must be taken into account when planning access to the site.
- Use should be made of existing roads as far as possible.

EROSION & SOIL DISTURBANCE:

CONSTRUCTION PHASE:

- Apply erosion controls (e.g., berms, sandbags and hessian sheets) to prevent/minimise soil erosion during construction activities.
- The topsoil layer of not less than 200mm (or as per geotechnical soil profiling result) must be removed and stockpiled in mounds no more than 2m in height in a designated area for use during progressive rehabilitation.
- Care must be taken to prevent the compaction of topsoil in any way, especially by trucks and other construction machinery.
- Apply a protective covering on disturbed soils with suitable vegetation after completion of construction activities.
- Save topsoil removed during construction and use it to reclaim disturbed areas upon completion of construction activities.
- Avoid creating excessive slopes during excavation.
- Implement a stormwater management plan to ensure compliance with regulations and prevent off-site migration of contaminated stormwater or increased soil erosion during the construction phase.
- Excavation (temporary) to comply with SANS 10400-G:2011 guidelines.

AIR QUALITY:

CONSTRUCTION PHASE:

- Dust minimisation and control measures should be implemented on the construction site at regular intervals. This could include irrigation by water tankers.
- The frequency of implementation of dust suppression measures should be increased when it is expected that high wind conditions will develop.
- Vegetation clearing should only take place immediately prior to the commencement of construction activities in an area, in order to minimise the amount of exposed soil on the site.
- Stockpiles and spoil heaps must be covered with tarpaulins or straw to prevent fugitive dust.
- All construction vehicles must be appropriately maintained to minimise exhaust emissions.

DECOMMISSIONING & CLOSURE PHASE:

- Dust suppression methods, such as wetting or laying straw, should be applied where there are large tracks of exposed surfaces.
- Stockpiles and soil heaps must be covered with tarpaulins or straw to prevent fugitive dust.
- All construction vehicles must be appropriately maintained to minimise exhaust emissions.

TRAFFIC:

CONSTRUCTION & DECOMMISSIONING & CLOSURE PHASE:

- The Contractor should ensure that traffic on the local roads is disrupted as little as possible which should include measures for the optimization of the amount of travel on the local roads, thereby reducing impacts.
- The delivery of construction equipment and material should be limited to hours outside peak traffic times (including weekends).
- Where obvious damage to the road infrastructure has occurred as a result of the project, repairs should be undertaken in accordance with the relevant authority's specifications and requirements.
- Co-ordination of movement of vehicles on and off site to reduce risks and prevent congestion on roads in the vicinity of the site.
- No vehicles or machinery should be serviced or refuelled onsite.
- Peak traffic hours should be avoided.
- Large vehicle turning must take place onsite and not in the adjacent roads.
- In cases where activities may obstruct traffic, local traffic officials must be contacted.

WASTE GENERATION:

CONSTRUCTION PHASE:

- General waste disposal bins will be made available for employees to use throughout the construction phase.
- Where possible construction waste on site should be recycled or reused.
- Waste will be temporarily stored on site (less than 90 days) before being disposed of appropriately.
- General waste should be placed in a watertight container and disposed of on a regular basis.
- Records of all waste being taken off site must be recorded and kept as evidence.
- Evidence of correct disposal must be kept.
- Construction rubble will be disposed of at an appropriate site.
- Burning of waste material will not be permitted.
- Hazardous materials will be generated if there are spillages during construction and maintenance periods. This waste should be cleaned up using absorbent material provided in spill kits on site, and must be disposed of accordingly at a hazardous waste landfill.
- Absorbent materials used to clean up spillages should be disposed of in a separate hazardous waste bin.
- The storage area for hazardous material must be concreted, bunded, covered, labeled and well ventilated.
- Provide employees with appropriate PPE for handling hazardous materials.
- All hazardous waste will be disposed of in a registered hazardous waste disposal facility.

NOISE:

CONSTRUCTION PHASE:

- Construction activities should be limited to normal working hours (08:00 – 17:00) and limited to weekdays.
- No work should occur on weekends or on public holidays.
- The contractor will adhere to local authority by-laws relating to noise control.
- Mechanical equipment with lower sound power levels must be selected to ensure that the permissible occupation noise-

rating limit of 85 dBA is not exceeded.
- Equipment must be fitted with silencers as far as possible to reduce noise.
- All equipment to be adequately maintained and kept in good working order to reduce noise.
- Neighbouring landowners should be informed prior to the initiation of noisy activities e.g. high intensity drilling. A grievance procedure will be established whereby noise complaints can be received, recorded and responded to appropriately.
- All construction workers and personnel must wear hearing protection during working hours.
- Noise levels must comply with the SANS 100103 – 0994 (recommended noise levels).

DECOMMISSIONING & CLOSURE PHASE:
- The contractor will adhere to local authority by-laws relating to noise control.
- Decommissioning activities will be restricted to regular working hours, i.e. Monday to Friday (08:00 – 17:00).
- Mechanical equipment with lower sound power levels will be selected to ensure that the permissible occupation noise-rating limit of 85 dBA is not exceeded.
- Equipment will be fitted with silencers as far as possible to reduce noise.

HEALTH & SAFETY:

CONSTRUCTION PHASE:
- The construction site must be fenced off to prohibit unauthorised access and site access must be strictly controlled.
- All employees, contractors and sub- contractors to wear appropriate PPE.
- Open excavations must be clearly marked.
- Appropriate health and safety signage must be displayed on site.
- Safety Audits must be conducted on a monthly basis and submitted to the relevant departments.

DECOMMISSIONING & CLOSURE PHASE:
- The construction site must be fenced off to prohibit unauthorised access and site access must be strictly controlled.
- All employees, contractors and sub- contractors to wear appropriate PPE.
- Open excavations must be clearly marked.
- All employees, contractors and sub- contractors must comply with the relevant Health and Safety Policy.
- Fire safety should be considered and all vehicles should have fire extinguisher.
- Employees should be trained on fire safety.
- Local emergency fire brigade number should be known to everybody.
- Appropriate health and safety signage must be displayed on site.

FACILITIES LAYOUT AND DESIGN:

- The final, detailed design and construction drawings of the proposed facilities must comply fully with the relevant standards and guidelines e.g. SANS 10400 etc, and the relevant competent and experienced registered professionals e.g. Architects, Engineers, Landscape Architects etc - should be appointed to compile and oversee the implementation of the final detailed designs and plans of the facilities.

CONSTRUCTION PHASE MANAGEMENT:

- The EMPr (attached in Appendix H) must be implemented and complied with to ensure the minimisation, control and mitigation of construction, operational and decommissioning phase impacts.
- Compliance with the EMPr should be evaluated and audited by an independent, appropriately qualified and experienced ECO, on a monthly basis, as a minimum.
- Construction activities should be limited to normal working hours (08:00 – 17:00) and limited to weekdays. No work should occur on weekends or on public holidays.
- The Contractor must adhere to local authority by-laws relating to noise control.

'NO-GO' AREAS:

Special care should be taken to erect and maintain a fence with adequate signage to prevent and inform all construction workers of not entering the 'NO-GO' area as clearly indicated on the PLAN in APPENDIX 1 in the EMPr [i.e. *Figure 4: SITE LAYOUT PLAN with SENSITIVITY MAP 'NO-GO' AREA of the PROPOSED RESIDENCE on Portion 350 of the FARM THE WILLOWS 340-JR (City of Tshwane Metropolitan Municipality, Gauteng)]* and attached to this report in APPENDIX A: Figure 5.

9. THE NEEDS AND DESIRABILITY OF THE PROPOSED DEVELOPMENT

(as per notice 792 of 2012, or the updated version of this guideline)

- NEMA's (National Environmental Management Act, 1998 (Act 107 Of 1998) main purpose is to ensure and promote sustainable development by utilising the natural environment in a way, which meets human needs and ensures environmental protection. Sustainable Development as defined by the Act is the integration of social, economic and environmental factors into the planning, implementation and decision-making processes to ensure that the development serves current and future generations. The following should therefore be noted in this regard i.e:
    - Although the site falls within the following sensitive areas i.e:
        - SANBI and DEAT (2009) and NEMBA, Government Notice 1002 (2011) indicate that the Bronberg Mountain Bushveld is Critically Endangered. The Andesite Mountain Bushveld therefore enjoys legal protection. In terms of the GDARD (2014) C-Plan 3.3 Erf 349, Wapadrand Country Estates is located within a Critical Biodiversity Area, namely an "Irreplaceable" area.
        - Furthermore, the results of the National Environmental Screening Tool (NE MA Government Notices 648 (2019) and 655 (2020)) indicate Very High sensitivity for Terrestrial Biodiversity and for Animal Species sensitivity, and Medium sensitivity for Plant Species sensitivity. The sensitivity for Aquatic Biodiversity is indicated as low.
- a thorough ECOLOGICAL BIODIVERSITY ASSESSMENT (i.e. '*An assessment of vegetation, flora, vertebrate fauna and wetlands on Erf 350 of the Farm The Willows 340 JR, City of Tshwane, Gauteng. By G.J. Bredenkamp D.Sc. Pr.Sci.Nat. J.P.C. van Wyk M.Sc. Pr.Sci.Nat. C.E. Venter M.Sc. Pr.Sci.Nat. Commissioned by Pierre Joubert Landscape Architect and Environmental Planner [EcoAgent CC PO Box 25533 Monument Park 0181. Tel 012 4602525. Cell 082 5767046. March 2021])* was performed for/on the site and the following was noted by the specialists i.e:
    - *i. '"Juliana's golden mole subsurface activities were recorded at a few localities on site. The golden mole subsurface activities were found around a diversity of habitat types on the study site and buffer areas. The golden mole occurs on the site is in both natural and in unnatural urban settings. Part of the study site includes the Bronberg Conservation Area where no development may occur, and signs of the Juliana's golden mole activity have been recorded. These golden mole individuals in the Bronberg Conservation Area would not be affected by the development since they occur outside the intended footprint of the development. The area where the intended development will take place has been altered by invasive plant species and except for a small area, no Juliana's golden mole subsurface activities were recorded. Near the white stinkwood trees at Erf 350, which is also a cultural heritage site, golden mole activities were observed at 25°46'51"S; 28°20'05"E. This area must be excluded from development. Golden moles are adapted to co-exist with human beings in rural settings on condition that the substrate consists of soft sand with no or little clay content and the soils kept permanently moist by regular irrigation. Implemented the suggested Ecological Management Plan (included in this report) will stabilize the population at higher numbers and ensure year-round optimized ecological conditions in a structured manner. Connectivity with adjoining properties is good. From a vertebrate perspective, there is no objection against the development as long as the development strictly adheres to the mitigation measures for the Juliana's Golden mole'.*
    - the proposed development will therefore not negatively affect any environmental amenities within the area, but on the contrary - create a safe (i.e. protected) and amicable environment in which the protected fauna (i.e Critically Endangered mammal species *'Neamblysomus julianae'*, the Juliana's golden mole) as well as endemic (i.e. locally indigenous) vegetation can flourish.
- It will also uphold the socio-economic aspects of sustainability, in that a high-quality residence (i.e. and other related facilities/activities) in that specific area will –
    - Be well used in that it will be developed within it's current zoning category i.e. Agriculture, although no farming activities will be practiced, thereby conserving the environment.
    - Provide safe and good quality housing to families i.e. the fiber of human society.
    - Increase the housing market's property i.e. perceived marketable, values and attract similar quality developments to that area.
    - Be well maintained and visually (i.e. aesthetically) pleasing which will fit well into it's existing residential

surroundings of the same character, quality and sense of place (i.e. 'genius loci').
    - Disallow vagrants or unwanted occupiers to occupy and –
        - destroy the site and it's sensitive ecology,
        - threaten the surrounding residential property owner's safety.
- The following LAND USE PERSPECITVES & PLANNING initiatives & LEGISLATIVE requirements of the LOCAL, PROVINCIAL & NATIONAL AUTHORITIES would be met in a minor way as outlined in the following documentation i.e:
    - *THE METROPOLITAN SPATIAL DEVELOPMENT FRAMEWORK (MSDF) 2012 & The Tshwane Spatial Development Framework for Region 6:-*
        - A densified area requires that the surrounding area be provided with a mix of mutually retail, service, office and residential developments. A development that strives for an increased density needs to embrace connectivity between various uses within the existing neighbourhoods. This results in an active urban environment, which enhances liveability, environmental quality and economic vitality.
        - The proposed development will provide for a more compact urban form, which is highly integrated. The desirability of the proposed development is not only based on the need for mixed, but also on the need for urban, architectural, social and economic upliftment. The proposed development will provide additional housing opportunities and will help reduce housing backlogs through accommodation that is accessible to economic, social and institutional services and nodes within the City of Tshwane.
        - There is a need for additional housing in the City of Tshwane Metropolitan Municipality's area of jurisdiction. The Tshwane Spatial Development Framework for Region 6, specifically highlights the importance of infill development and compacting establishments.
        - Most of the other erven within the surroundings townships have already been developed for residential purposes. There is still a great need for additional housing in the area. Thus, the potential of this large vacant property was seen by the developer as an opportunity to create one more dwelling house.
        - The proposed residential dwellings on the portion will help in the need for additional housing in the area to some extent.
        - Considering how much the neighbourhood is transforming, application will not adversely affect the surrounding area, which is showing some significant signs of change in favour of densification and mixed land use developments.
        - The proposed investment will certainly continue to contribute to rejuvenation and enhancement of the locality through the construction of additional dwelling houses. This development does not impose any illegal use on the area as it is in line with various municipal policies as earlier discussed.
        - The application site currently obtains safe and direct access via a right of way servitude adjoining Koedoeberg Road, as well as from Wapadrand via Briekslinger Place. Access to the site is thus possible from two directions.
        - The property is centrally located and easily accessible from the major routes within the area, including the provincial roads. Land within this area that can be developed for residential purposes with good accessibility may be considered a scarce resource and it is therefore important to determine the development potential of land within the area and to apply for land use rights in accordance with the development potential.
        - The proposed application will have no impact on current traffic levels, no strain on current traffic levels is foreseen.
        - The application site is also well served by public transport. Public transport facilities are situated within walking distance from the application site.
        - According to the Tshwane Regional Spatial Development Frameworks the application is earmarked for residential uses and can therefore be seen as being consistent with spatial planning and land use policies.
        - The proposed development will be designed to be in keeping with the architectural styles of the area. The proposed development will also take into account conditions imposed for the area.
        - The proposed development will comply with all of the requirements from an Architectural and design perspective and will conform with the requirements in terms of SANS 10040.
        - The area is characterised by mixed use areas and will be in line with this aesthetic of the existing urban environment. The design and materials used for the building will be of the highest quality and will fit with

the design of the area.
    - Given the fact that the application area is located within an existing urban fabric of the Willows, the proposed development will not have any significant impact on the existing services infrastructure.
- *The City of Tshwane Metropolitan Municipality Clause 14(10) of the Tshwane Town-Planning Scheme, 2008 for permission for a second dwelling house (Revised 2014);*
- *City of Tshwane Integrated Development Plan (2021/2026);*
- *THE SPATIAL PLANNING AND LAND USE MANAGEMENT ACT, 2013 (ACT 16 OF 2013) – SPLUMA;*
- *Gauteng Spatial Development Framework 2011;*
- *National Spatial Development Perspective (NSDP);*
- *Gauteng Spatial Development Perspective (GSDP);*
- *National Development Plan vision for 2030.*

The proposed development is in the public interest due to the following matters:

- maximization and increase of mixed land uses creates more vibrant, walkable and connected communities.
- There will be greater interest from the general public in such development in light of renewed interest in urban revitalization and therefore more sustainable development.
- A development like this, for integration of land uses, that promotes a walkable built environment can help revitalize an area, increase private investment, lead to higher property values and support the development of a good business climate.
- Reducing sprawl and building communities where residents live and walk to work reduces car usage, positively impacting on the environment. With the incorporation of mixed-use development and smart growth practices, sprawling development patterns could be reduced, and quality of life may be enhanced. Undeveloped land, open space, and historic and natural resources are preserved.
- In addition to providing public health benefits, walkable communities that are attractive and may also contribute to a sense of place that reaps economic rewards for residents and businesses.

In addition to the above the following will also contribute to the constitutional and transformation imperatives:

- Access and opportunity to make use of services.
- Best interest of Public (contributing to infrastructure upgrade).
- Best interest of Public (contributing to positive property value).
- Compliance with legal procedures that acquire land use rights.

10. THE PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED *(CONSIDER WHEN THE ACITIVTY IS EXPECTED TO BE CONCLUDED)*

Unlimited period (i.e. unknown) since it is not expected that the activity would end i.e. be concluded.

11. ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) (must include post construction monitoring requirements and when these will be concluded.)

If the EAP answers "Yes" to Point 7 above then an EMP is to be attached to this report as an Appendix

EMPr attached	**X**

SECTION F: APPENDIXES

The following appendixes must be attached as appropriate (this list is inclusive, but not exhaustive):
It is required that if more than one item is enclosed that a table of contents is included in the appendix.

Appendix A: Site plan(s) – *(must include a scaled layout plan of the proposed activities overlain on the site sensitivities indicating areas to be avoided including buffers)*

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Route position information

Appendix E: Public participation information

Appendix F: Proof of Submission of General Authorisation Water use Application to Department of Water and Sanitation, SAHRA information, service letters from municipalities, water supply information.

Appendix G: Specialist reports.

- '*An assessment of vegetation, flora, vertebrate fauna and wetlands on Erf 350 of the Farm The Willows 340 JR, City of Tshwane, Gauteng. By G.J. Bredenkamp D.Sc. Pr.Sci.Nat. J.P.C. van Wyk M.Sc. Pr.Sci.Nat. C.E. Venter M.Sc. Pr.Sci.Nat. Commissioned by Pierre Joubert Landscape Architect and Environmental Planner (EcoAgent CC PO Box 25533 Monument Park 0181. Tel 012 4602525. Cell 082 5767046. March 2021).'*
- '***A PHASE 1 HERITAGE IMPACT ASSESSMENT & REPORT FOR RESIDENTIAL DEVELOPMENT ON PORTION 350 OF THE FARM THE WILLOWS 350JR TSHWANE METROPOLITAN AREA, GAUTENG.*** For: *Pierre Joubert Professional Landscape Architect & Environmental Planner [15 Marikana Street, WIERDAPARK, CENTURION, 0157].* REPORT: APAC021/71. by: *APAC – APELSER ARCHAEOLOGICAL CONSULTING (Accredited member of ASAPA) , September 2021* .Member: AJ Pelser BA (UNISA), BA (Hons) (Archaeology), MA (Archaeology) [WITS]. [P.O.BOX 73703 LYNNWOOD RIDGE0040 Tel: 083 459 3091 Fax: 086 695 7247 Email: apac.heritage@gmail.com Comprehensive and Professional Solutions for all Heritage Related Matters. CK 2006/014630/23 VAT NO.: 4360226270.
- ***'Paleontological Impact Assessment: Phase 1: Field Study of Portion 350 of the Farm The Willows 340-JR, City of Tshwane – Gauteng.*** By Dr. Fourie, H. Dr heidicindy@yahoo.com 012 322 7632/079 940 6048. Commissioned by: A. Pelser Archaeological Consulting cc. 833B St Bernard Street, Garstfontein, 0081. 083 459 3091 Ref: Pending. 2021/08/30)]

Appendix H: EMPr

Appendix I: Other information

- List of State Departments administering a law relating to a matter likely to be affected as a result of this activity to which this DRAFT BASIC ASSESSMENT REPORT was submitted to.
- Proof of submission to GDARD on 29 September 2021 re: REQUEST for EXTENSION of time to submit FINAL BASIC ASSESSMENT REPORT for PROPOSED RESIDENCE to be situated on Portion 350 of the FARM THE WILLOWS 340-JR (City of Tshwane Metropolitan Municipality, Gauteng) GAUT: 002/21-22/E2950.
- PERMISSION TO ERECT ONE ADDITIONAL DWELLING-HOUSE, IN TERMS OF *CLAUSE 14(10) OF THE TSHWANE TOWN-PLANNING SCHEME, 2008* IN RESPECT OF PORTIONS 349 OF THE FARM THE WILLOWS 340-JR (6 February 2019).
- *Gauteng Environmental Management Framework, THE DEVELOPMENT OF THE PROVINCIAL ENVIRONMENTAL MANAGEMENT FRAMEWORK (EMF) FOR GAUTENG - Draft Environmental Management Framework Report August 2014 - Produced by the Environomics Project Team, including: Environomics MetroGis EnviroGIS David Hoare Consulting NRM Consultin – and, GDARD's Gauteng Environmental Management Framework (GPEMF) Report, November 2018.*

CHECKLIST

To ensure that all information that the Department needs to be able to process this application, please check that:

- ☐ Where requested, supporting documentation has been attached;
- ☐ All relevant sections of the form have been completed.