



APPENDIX G – ENVIRONMENTAL MANAGEMENT PLAN

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Prepared for:

Nooitgedacht Lifestyle Trust

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Today's Impact | Tomorrow's Legacy



	Issue 1	Revision 1	Revision 2
Issue/Revision Name	EMP- Nooitgedacht Retirement Estate		
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Signature:			

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List of Acronyms and Abbreviations

AIA	Archaeological Impact Assessment
DEA	Department of Environmental Affairs
DWA	Department of Water Affairs
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EIR	Environmental Impact Report
EMPr	Environmental Management Program
GIS	Geographic Information System
HIA	Heritage Impact Assessment
I&APs	Interested and Affected Parties
IDP	Integrated Development Plan
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEMBA	National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)
NHRA	National Heritage Resources Act, 1999 (Act No. 25 of 1999)
NSBA	National Spatial Biodiversity Assessment
NWA	National Water Act, 1998 (Act No. 36 of 1998)
PHRA	Provincial Heritage Resources Agency
PSSA	Paleontological Society of South Africa
PPP	Public Participation Process
SAHRA	South African Heritage Resources Agency
SANBI	South African National Biodiversity Institute
SDF	Spatial Development Framework

GLOSSARY OF TERMS

Alien species: A plant or animal species introduced from elsewhere: neither endemic nor indigenous.

Applicant: Any person who applies for an authorisation to undertake an activity or undertake an Environmental Process in terms of the Environmental Impact Assessment Regulations – National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) as contemplated in the scheduled activities listed in Government Notice (GN) No R. 983, 984 and 985 of 2014.

Arable potential: Land with soil, slope and climate components where the production of cultivated crops is economical and practical.

Archaeological resources: This includes:

- material remains resulting from human activity which are in a state of disuse and are in or on land and which are older than 100 years including artefacts, human and hominid remains and artificial features and structures;
- rock art, being any form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and which is older than 100 years, including any area within 10m of such representation;
- wrecks, being any vessel or aircraft, or any part thereof which was wrecked in South Africa, whether on land, in the internal waters, the territorial waters or in the maritime culture zone of the republic as defined in the Maritimes Zones Act, and any cargo, debris or artefacts found or associated therewith, which is older than 60 years or which SAHRA considers to be worthy of conservation; features, structures and artefacts associated with military history which are older than 75 years and the site on which they are found.

Alluvial: Resulting from the action of rivers, whereby sedimentary deposits are laid down in river channels, floodplains, lakes, depressions etc

Biodiversity: The variety of life in an area, including the number of different species, the genetic wealth within each species, and the natural areas where they are found.

Cultural significance: This means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance

Cumulative Impact: In relation to an activity, cumulative impact means the impact of an activity that in itself may not be significant, but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.

Ecology: The study of the interrelationships between organisms and their environments.

Environment: All physical, chemical and biological factors and conditions that influence an object.

Environmental Impact Assessment: In relation to an application, to which Scoping must be applied, means the process of collecting, organising, analysing, interpreting and communicating information that is relevant to the consideration of the application.

Environmental Impact Report: In-depth assessment of impacts associated with a proposed development. This forms the second phase of an Environmental Impact Assessment and follows on from the Scoping Report.

Environmental Management Programme: A legally binding working document, which stipulates environmental and socio-economic mitigation measures that must be implemented by several responsible parties throughout the duration of the proposed project.

Heritage resources: This means any place or object of cultural significance. See also archaeological resources above

Hydromorphic / hydric soil: Soil that in its undrained condition is saturated or flooded long enough during the growing season to develop anaerobic conditions favouring growth and regeneration of hydrophytic vegetation. These soils are found in and associated with wetlands.

Local relief: The difference between the highest and lowest points in a landscape. For this study, it is based on 1:50 000 scale.

Precipitation: Any form of water, such as rain, snow, sleet, or hail that falls to the earth's surface.

Red Data species: All those species included in the categories of endangered, vulnerable or rare, as defined by the International Union for the Conservation of Nature and Natural Resources.

Riparian: The area of land adjacent to a stream or river that is influenced by stream induced or related processes.

Soil compaction: Soil becoming dense by blows, vehicle passage or other type of loading. Wet soils compact easier than moist or dry soils.

1 Introduction

This Environmental Management Programme Report (EMPr), amongst others, describes the mitigation measures and identifies the specific people that will be responsible for implementation of the mitigation measures, in order to ensure that impacts on the environment are minimised during the construction, operational and decommissioning and closure phases of the proposed Zevenfontein Filling Station.

This EMPr must form part of the contractual agreement between the relevant contractor(s) and the developer.

1.1 NEMA Regulation 19(4) Report Compliance

Regulation 19(4) of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) Environmental Impact Assessment (EIA) Regulations of 2014 provides the content requirements for Environmental Management Programmes. The table below lists the relevant requirements, indicates whether the relevant information is included in this report or not, and provides cross-references as to where the relevant information can be found in this report.

Table 1: Environmental Management Programme requirements in terms of the EIA Regulations of 2014

Reg.	EMPr Content	Included (Yes, No or N/A)	Report Section Reference
(a)	(1) An EMPr must comply with section 24N of the Act and include-	Yes	Chapter 2
	(a) details of -		
	(i) the EAP who prepared the EMPr; and	Yes	Chapter 2
	(ii) the expertise of that EAP to prepare an EMPr, including a curriculum vitae	Yes	Chapter 2
(b)	a detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description;	Yes	Chapter 9
(c)	a map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that any areas that should be avoided, including buffers;	Yes	Refer to BA
(d)	a description of the impact management objectives, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all phases of the development including-	Yes	Refer to BA
	(i) planning and design;	No	Chapter 8
	(ii) pre-construction and construction activities;	No	Chapter 8
	(iii) construction activities;	No	Chapter 8

Reg.	EMPr Content	Included (Yes, No or N/A)	Report Section Reference
	(iv) rehabilitation of the environment after construction and where applicable post closure; and	No	Chapter 8
	(v) where relevant, operation activities;	Yes	Chapter 8
(e)	Item 1(1)(e) deleted by Government Notice 326 in Government Gazette 40772 dated 7 April 2017		
(f)	a description of proposed impact management actions, identifying the manner in which the impact management outcomes contemplated in paragraphs (d) will be achieved, and must, where applicable, include actions to	Yes	Chapter 8
	(i) avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation;	Yes	Chapter 8
	(ii) comply with any prescribed environmental management standards or practices;	Yes	Chapter 8
	(iii) comply with any applicable provisions of the Act regarding closure, where applicable; and	Yes	Chapter 8
	(iv) comply with any provisions of the Act regarding financial provisions for rehabilitation, where applicable;	Yes	N/A
(g)	the method of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Yes	Chapter 6 and 8
(h)	the frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Yes	Chapter 8
(i)	an indication of the persons who will be responsible for the implementation of the impact management actions;	Yes	Chapter 8
(j)	the time periods within which the impact management actions contemplated in paragraph (f) must be implemented;	Yes	Chapter 8
(k)	the mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);	Yes	Chapter 8
(l)	a program for reporting on compliance, taking into account the requirements as prescribed by the Regulations;	Yes	Chapter 8
(m)	an environmental awareness plan describing the manner in which-		
	(i) the applicant intends to inform his or her employees of any environmental risk which may result from their work; and	Yes	Chapter 7
	(ii) risks must be dealt with in order to avoid pollution or the degradation of the environment; and	Yes	Chapter 7
(n)	any specific information that may be required by the competent authority.		

1.2 Report Layout

The table below summarises the content layout of this report.

Table 2: Summary of report content layout

Chapter	Chapter Heading	Content Summary
1	Introduction	Provides a brief background to the proposed project, and explains the compliance of this report with regards to Regulation 33 of the NEMA.
2	Environmental Assessment Practitioner	Provides details of the EAP who prepared this EMPr, and provides information on the expertise of the EAP.
3	Project Description and Listed Activities Covered by this EMPr	Provides a brief project description, and describes the relevant project phases and the NEMA Listed Activities triggered.
4	Existing Environmental and Impact Assessment Summary	Summarises the biophysical, social, economic and cultural aspects of the existing environment, and provides a summary of the impact assessment outcome.
5	Persons Responsible for Implementing this EMPr	Provides information on the persons who will be responsible for implementing this EMPr, and explains requirements with regards to on-site communication, site instruction entries, method statements, and record keeping.
6	Monitoring, Performance Assessment and Reporting on EMPr Compliance	Provides information on monitoring, performance assessment and reporting on EMPr Compliance, ECO site inspection reports, and photographs.
7	Environmental Awareness Plan	Provides information on environmental awareness and risk training, and basic rules of conduct. Also provides an environmental risk plan.
8	Impacts and Mitigation Measures	Provides EMPrs for the relevant project phases.
9	Emergency Response Plan	Provides information on the emergency response plan.
10	Incident Register	Stipulates the content requirements for incident registers.
11	Rehabilitation Measures and Closure Plan	Provides rehabilitation measures and closure plan objectives.
12	Prevent Triggering of Further Listed Activities	Warns the proponent not to contravene the NEMA by engaging in unauthorised NEMA Listed Activities.
13	References	Lists all references referred to in this EMPr.

2 Environmental Assessment Practitioner

This EMPr was prepared by Mr. Anton Ackermann from Enviroworks, the Environmental Assessment Practitioner (EAP) who is undertaking this Basic Assessment process. The sections below provide the detail of the EAP and explain the EAP's expertise to prepare this EMPr.

2.1 Details of the EAP

Business name of EAP:	Enviroworks
Physical address:	5 Walter Sisulu Drive, Bloemfontein, 9301
Postal address:	Suite 116, Private Bag X01, Brandhof, 9324
Telephone:	078 1010 851
E-mail:	anton@enviroworks.co.za
Fax:	086 601 7507
EAP Qualifications:	BSc Environmental Geography (2013); BSc Honours in Geography (2014); and Masters in Environmental Management (2017)
EAP Registrations/Associations	IAIA SA 4043 SAGIC 1032

2.2 Expertise of the EAP

Name of EAP	Education Qualifications	Professional affiliations	Experience
Anton Ackermann	BSc Environmental Geography; BSc Honours in Geography; and Masters in Environmental Management	International Assassination of Impact Assessment; and SAGIC: Alien and Invasive Species Registration	3 years

Basic Assessment Experience

- Basic Assessment for the proposed construction of a truck stop facility on the N8, lesotho border, Free State province
- Conducting Basic assessment process for the proposed construction and upgrade of the Ventersburg Bulk Water Supply.

Auditing Experience

- Environmental Performance Audit for Lafarge Olive Hill Quarry, Bloemfontein, Free State Province
- Environmental GAP audit for Meadow Meats Kokstad, KwaZulu Natal

Experience in Permits and Licencing

- Water Use License Application for 6 Boreholes on the farm Rooikraal 454, Free State Province.
- Water Use License Application- for one borehole Palmiet 585 Portion 4, Free State Province.
- Water Use License Application for Olive Hill Quarry, Bloemfontein, Free State Province.
- Section 38 Heritage Notification for the Neotel optic fibre cable route, Kathu, Northern Cape.
- Water Use License Application for the proposed Sandmine on Farm Khiba 71, Free State Province.
- Water Use License for the road pavement in Botshabelo and Thaba Nchu, Free State Province

Environmental Management Programme/Plan

- EMPr for the proposed construction of a truck stop facility on the N8, Lesotho border, Free State province.
- EMPr for Rooikraal Truckstop and other facilities on the farm Rooikraal 454.
- EMP for Meadow Meats Abattoirs in Kokstad, Wesselsbron and Vryheid.
- EMP for the construction and upgrade of the Ventersburg Bulk Water Supply.

Environmental Control Officer (ECO)

- The construction of the Cecilia Park power line, Bloemfontein, Free State Province.
- The construction of a sub-station, Bloemfontein, Free State Province.
- The construction of a road between Moratelle and Khaukwe, North West Province.
- The construction of the Olifantshoek pipeline and reservoir
- The widening of the bridge N 12, Hopetown, Northern Cape Province
- The upgrade and widening of the R61, Umtata, Northern Cape Province

Risk Assessment/ Pre-feasibility Studies

- Conducting a Risk Assessment for the proposed Neotel optic fibre cable route, Kathu, Northern Cape
- Conducting a Pre-feasibility study for the use of burrows pits for the N8 realignment.

Other Experience

- GIS mapping and technical support for various projects, including the drawing of locality, route and sensitivity maps.
- Public participation processes and assistance to several projects.

3 Project Description

Nooitgedacht Lifestyle Trust, the applicant, proposes the development of a Retirement Estate on approximately 12 ha (maximum) of Portions 11 & 12 of the Farm Nooitgedacht 62 JU (White River Extension 69), Mbombela Local Municipality, Mpumalanga Province. The proposed development will entail a retirement village and hospice development which will provide quality medical services as well as a variety of residential options.

The proposed site falls within the planned municipal expansion and infrastructure framework as defined by the Spatial Development Framework and hence no alternative viable site locations were identified and evaluated for the project. No alternative sites were thus considered for this development.

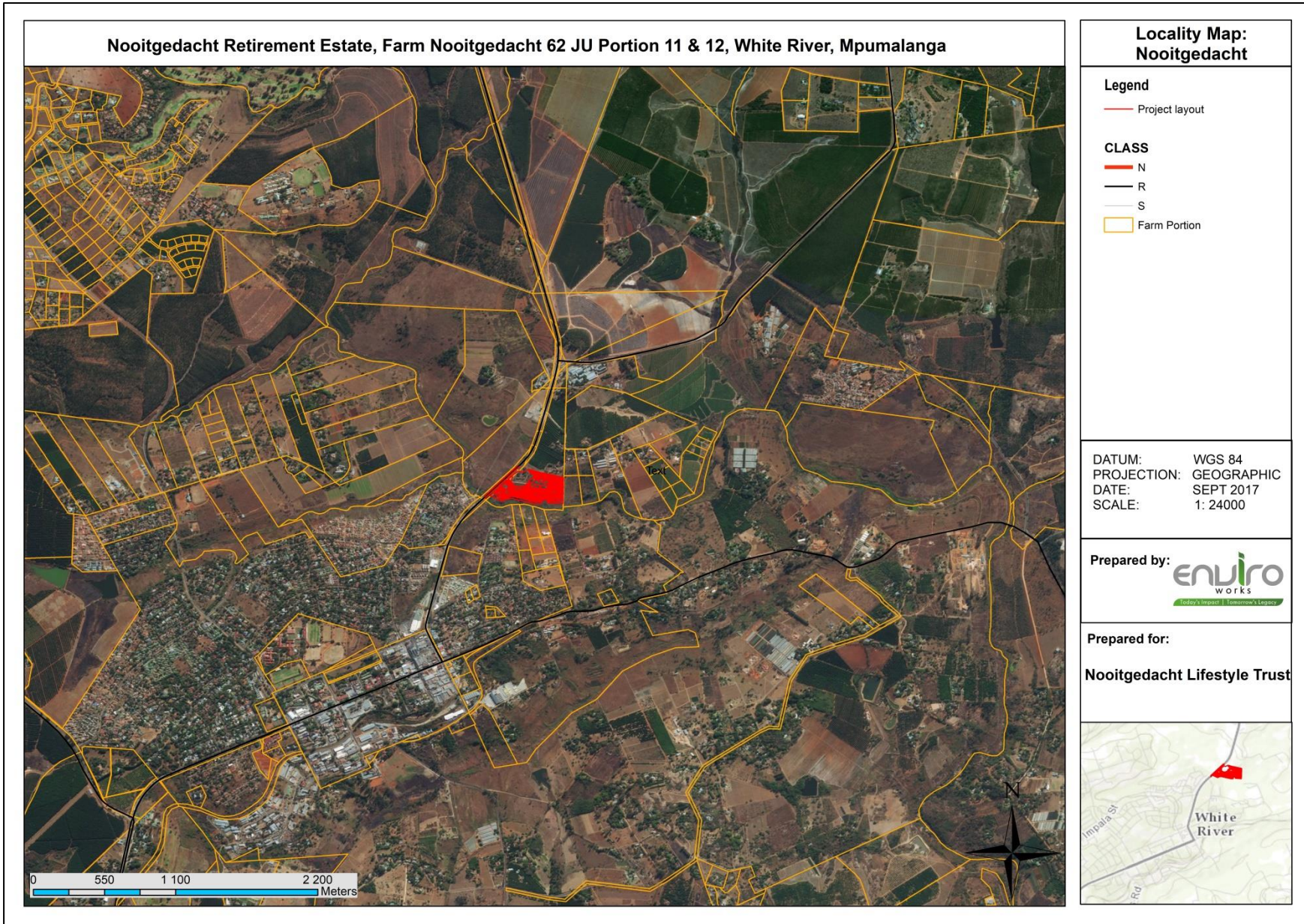


Figure 1: Layout Map

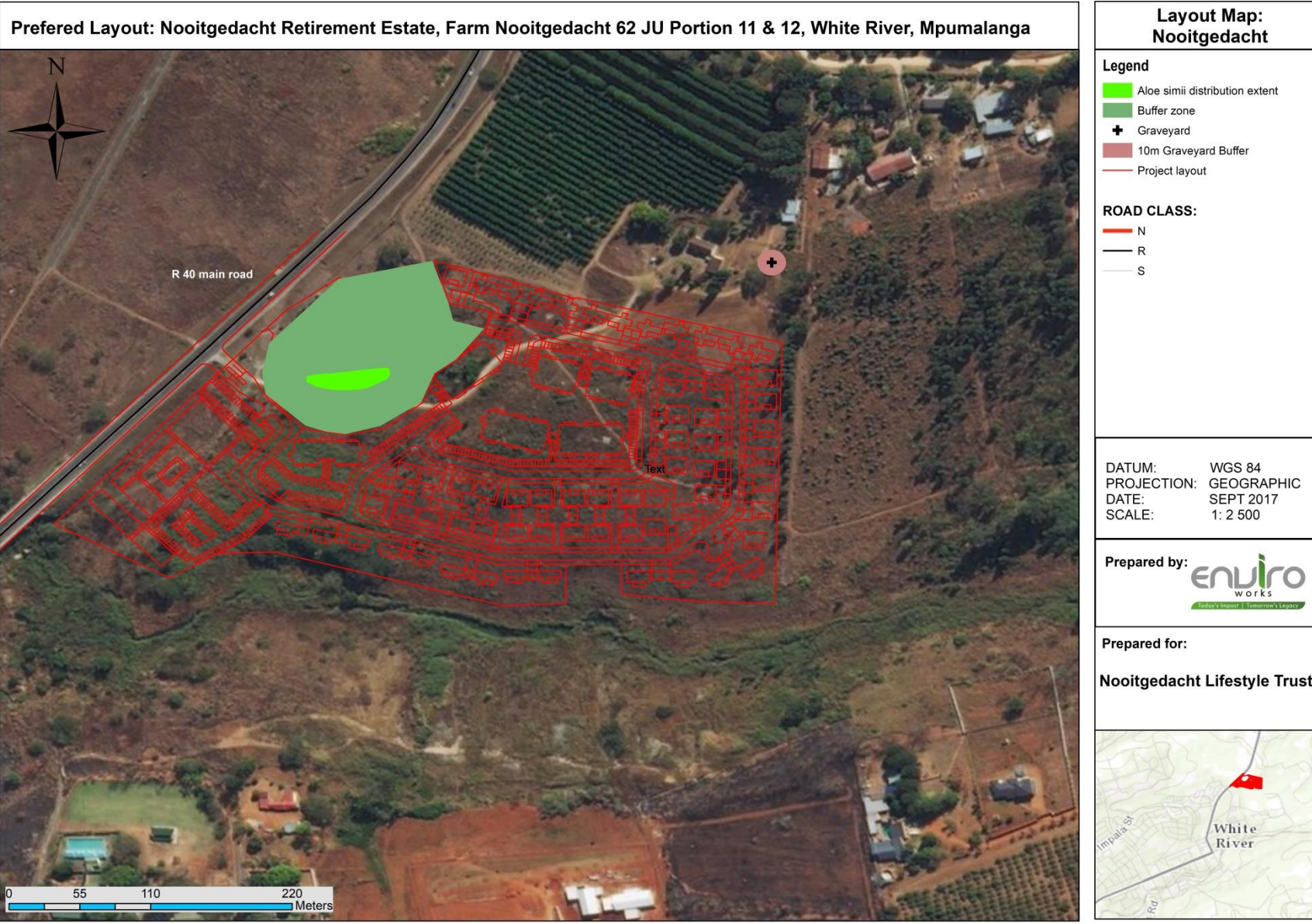


Figure 2: Preferred Layout Map



Figure 3: Sensitivity Map



Figure 4: *Aloe Simii* Distribution and Buffer Map

3.1 Project Phases

This document will include the EMP for the construction, operational and decommissioning phase of the proposed retirement village and hospice development which will provide quality medical services as well as a variety of residential options.

3.1.1 Construction Phase

- The construction period of the project will involve the construction of the proposed retirement village and hospice development and associated infrastructure.

3.1.2 Operational Phase

- The operational period of the project will involve the management and maintenance of the proposed retirement village and hospice development and associated infrastructure.

3.1.3 Decommissioning Phase

- The proposed project developers do not foresee any decommission in the near future. However if decommissioning should occur it will be applied for accordingly.

3.2 NEMA Listed Activities Triggered

The proposed activities is a listed activity in terms of the Environmental Impact Assessment Regulations of 2014, Regulation 983 of the National Environmental Management Act, 1998 (Act No.107 of 1998) (NEMA), as amended.

Table 3: Listed Activities applicable to this application.

Regulation	Activity	Description of trigger activity in proposed project
GN R 983 Listing Notice 1 (as amended)	Activity 12 The development of – (ii) infrastructure or structures with a physical footprint of 100 square metres or more where such development occurs – (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse	The proposed development’s southern boundary will occur in some instances within 32m from the edge a watercourse

Regulation	Activity	Description of trigger activity in proposed project
<p>GN. R. 983 Listing Notice 1 (as amended)</p>	<p>Activity 27 The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation</p>	<p>The maximum area size of the footprint of the proposed development will be 9 ha. Natural, indigenous vegetation will have to be cleared on the proposed development footprint due to construction requirements.</p>
<p>GN. R. 983 Listing Notice 1 (as amended)</p>	<p>Activity 30 Any process or activity identified in terms of section 53(1) of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004).</p>	<p>The footprint of the proposed area falls within a national threatened ecosystem listed as vulnerable.</p>
<p>GN. R. 985 Listing Notice 1 (as amended)</p>	<p>Activity 6 The development of resorts, lodges, hotels, tourism or hospitality facilities that sleeps 15 people or more. (hh) Areas within a watercourse or wetland, or within 100 metres of a watercourse or wetland</p>	<p>The proposed development fall within 100 metres of a watercourse.</p>
<p>GN. R. 985 Listing Notice 1 (as amended)</p>	<p>Activity 12: The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.</p>	<p>The footprint of the proposed area falls within a national threatened ecosystem listed as vulnerable. The proposed development will also result in the clearance of an area of 300 square metres or more of indigenous vegetation.</p>

4 Existing Environmental and Impact Assessment Summary

The sections below summarise the existing environment, and the outcome of the impact assessment that was undertaken for this proposed project.

4.1 Impact Assessment Summary

Construction Phase:

Identified Environmental Impacts	Transformation of terrestrial grassland vegetation of the proposed project footprint area associated with the Legogote Sour Bushveld vegetation type (SVI 9)	
Proposed project layout alternative	1	2
Cumulative impact prior to mitigation:	Medium	Medium
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium (72)	Medium (72)
Proposed mitigation:	<p>The project construction footprint must be kept as small as practicably possible to reduce the actual surface impact on vegetation and no unnecessary/unauthorised footprint expansion into the surrounding areas may take place.</p> <p>No site camp to be established outside the proposed development footprint.</p> <p>Adequately fence off the construction area and ensure that no construction activities,</p>	<p>The project construction footprint must be kept as small as practicably possible to reduce the actual surface impact on vegetation and no unnecessary/unauthorised footprint expansion into the surrounding areas may take place.</p> <p>No site camp to be established outside the proposed development footprint.</p> <p>Adequately fence off the construction area and ensure that no construction activities,</p>

	<p>machines or equipment operate or impact outside the fenced off area.</p> <p>Existing roads and farm tracks in close proximity to the proposed project area must be used during construction. No new roads or tracks to be constructed or implemented through any of the surrounding areas.</p>	<p>machines or equipment operate or impact outside the fenced off area.</p> <p>Existing roads and farm tracks in close proximity to the proposed project area must be used during construction. No new roads or tracks to be constructed or implemented through any of the surrounding areas.</p>
Cumulative impact post mitigation:	Medium	Medium
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium (51)	Medium (51)

Identified Environmental Impacts	Destruction of the population of the critically endangered species <i>Aloe simii</i>	
Proposed project layout alternative	1	2
Cumulative impact prior to mitigation:	Very High	Very High
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Very High (130)	Very High (130)
Proposed mitigation:	Implement a minimum 30 m buffer zone around the western, southern and eastern boundaries of the population's distribution extent and an extended 70 m – 80 m buffer zone around the northern boundary of the	Layout Alternative 1 (preferred) is recommended

	<p>population's distribution extent. The proposed buffer area will be approximately 1.3 ha in surface size.</p> <p>The buffer zone must be physically fenced off or another adequate form of barricading must be implemented around it. Access to within the buffered zone where the population is located should be entirely restricted.</p>	
Cumulative impact post mitigation:	Positive	Very High
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Positive (+24)	Very High (130)

Identified Environmental Impacts	Destruction/damage to the micro-habitat of the <i>Aloe simii</i> population	
	1	2
Proposed project layout alternative		
Cumulative impact prior to mitigation:	Very High	Very High
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Very High (130)	Very High (130)
Proposed mitigation:	Implement a minimum 30 m buffer zone around the western, southern and eastern boundaries of population's distribution	Layout Alternative 1 (preferred) is recommended

	<p>extent and an extended 70 m – 80 m buffer zone around the northern boundary of the population’s distribution extent. The proposed buffer area will be approximately 1.3 ha in surface size.</p> <p>The buffer zone must be physically fenced off or another adequate form of barricading must be implemented around it. Access to within the buffered zone where the population is located should be entirely restricted.</p> <p>Implement active rehabilitation and habitat restoration measures in order to improve the condition and functionality of the buffered micro-habitat.</p> <p>An Alien and Invasive Species Management Plan must be developed and implemented in order to enable adequate management and prevention of significant weed establishment on the site during construction.</p>	
Cumulative impact post mitigation:	Positive	Very High
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Positive (+24)	Very High (130)

Identified Environmental Impacts	Alien invasive species establishment	
	1	2
Proposed project layout alternative		
Cumulative impact prior to mitigation:	Low	Low
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low (39)	Low (39)
Proposed mitigation:	<p>Alien invasive vegetation material cleared during construction activities must be adequately disposed of at a suitable, certified 'green waste' disposal site in order to prevent further spreading.</p> <p>Implement suitable alien invasive species establishment prevention measures during the construction phase.</p> <p>Areas around the proposed project footprint must be adequately rehabilitated in accordance with the <i>Aloe simii</i> Ecological Impact Assessment Report recommendations to prevent significant alien invasive species establishment.</p>	<p>Alien invasive vegetation material cleared during construction activities must be adequately disposed of at a suitable, certified 'green waste' disposal site in order to prevent further spreading.</p> <p>Implement suitable alien invasive species establishment prevention measures during the construction phase.</p> <p>Areas around the proposed project footprint must be adequately rehabilitated in accordance with the <i>Aloe simii</i> Ecological Impact Assessment Report recommendations to prevent significant alien invasive species establishment.</p>
Cumulative impact post mitigation:	Low	Low

Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low (26)	Low (26)
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Identified Environmental Impacts	Surface material erosion	
Proposed project layout alternative	1	2
Cumulative impact prior to mitigation:	Low	Low
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium (42)	Medium (42)
Proposed mitigation:	<p>Implement suitable erosion prevention measures during the construction phase.</p> <p>Areas around the proposed project footprint must be adequately rehabilitated in accordance with the <i>Aloe simii</i> Ecological Impact Assessment Report recommendations to prevent significant erosion.</p> <p>Adequate storm water management measures must be implemented on site in order to sufficiently manage storm water runoff and clean/dirty separation during the construction and operational phases. This must be done to ensure that no significant</p>	<p>Implement suitable erosion prevention measures during the construction phase.</p> <p>Areas around the proposed project footprint must be adequately rehabilitated in accordance with the <i>Aloe simii</i> Ecological Impact Assessment Report recommendations to prevent significant erosion.</p> <p>Adequate storm water management measures must be implemented on site in order to sufficiently manage storm water runoff and clean/dirty separation during the construction and operational phases. This must be done to ensure that no significant</p>

	contamination of the drainage line occurs. Adequate management of stormwater runoff quality, quantities and flow speed will be required.	contamination of the drainage line occurs. Adequate management of stormwater runoff quality, quantities and flow speed will be required.
Cumulative impact post mitigation:	Low	Low
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low (14)	Low (14)

Identified Environmental Impacts	Dust generation and emissions	
Proposed project layout alternative	1	2
Cumulative impact prior to mitigation:	Low	Low
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low (27)	Low (27)
Proposed mitigation:	<p>Implement suitable dust management and prevention measures during the construction phase.</p> <p>Areas around the proposed project footprint must be adequately rehabilitated in accordance with the <i>Aloe simii</i> Ecological Impact Assessment Report recommendations to prevent significant dust emissions.</p>	<p>Implement suitable dust management and prevention measures during the construction phase.</p> <p>Areas around the proposed project footprint must be adequately rehabilitated in accordance with the <i>Aloe simii</i> Ecological Impact Assessment Report recommendations to prevent significant dust emissions.</p>

Cumulative impact post mitigation:	Low	Low
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low (18)	Low (18)

Identified Environmental Impacts	Impeding of the White River flow regime	
Proposed project layout alternative	1	2
Cumulative impact prior to mitigation:	Low	Low
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium-High (76)	Medium-High (76)
Proposed mitigation:	<p>The project construction footprint must be kept as small as practicably possible to reduce the actual surface impact on vegetation and no unnecessary/unauthorised footprint expansion in the surrounding areas may take place.</p> <p>An adequate buffer zone of approximately 2 m outside the 1:100 year floodline must be demarcated and implemented around the drainage line and no future development should occur within this zone.</p>	<p>The project construction footprint must be kept as small as practicably possible to reduce the actual surface impact on vegetation and no unnecessary/unauthorised footprint expansion in the surrounding areas may take place.</p> <p>An adequate buffer zone of approximately 2 m outside the 1:100 year floodline must be demarcated and implemented around the drainage line and no future development should occur within this zone.</p>

	<p>Adequate storm water management measures must be implemented on site in order to sufficiently manage storm water runoff and clean/dirty separation during the construction and operational phases. This must be done to ensure that no significant contamination of the drainage line occurs.</p> <p>Adequate management of stormwater runoff quality, quantities and flow speed will be required.</p> <p>A Water Use License Application (WULA) must be submitted to the Department of Water and Sanitation in accordance with the National Water Act (Act 36 of 1998).</p>	<p>Adequate storm water management measures must be implemented on site in order to sufficiently manage storm water runoff and clean/dirty separation during the construction and operational phases. This must be done to ensure that no significant contamination of the drainage line occurs.</p> <p>Adequate management of stormwater runoff quality, quantities and flow speed will be required.</p> <p>A Water Use License Application (WULA) must be submitted to the Department of Water and Sanitation in accordance with the National Water Act (Act 36 of 1998).</p>
Cumulative impact post mitigation:	Low	Low
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low (38)	Low (38)

Identified Environmental Impacts	Contamination of the White River and reduction of surface water quality	
Proposed project layout alternative	1	2
Cumulative impact prior to mitigation:	Low	Low

Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium-High (76)	Medium-High (76)
<p>Proposed mitigation:</p>	<p>An adequate buffer zone of approximately 2 m outside the 1:100 year floodline must be demarcated and implemented around the drainage line and no future development should occur within this zone.</p> <p>Implement suitable erosion prevention measures during the construction phase.</p> <p>Areas around the proposed project footprint must be adequately rehabilitated in accordance with the Aloe simii Ecological Impact Assessment Report recommendations to prevent significant erosion.</p> <p>Adequate storm water management measures must be implemented on site in order to sufficiently manage storm water runoff and clean/dirty separation during the construction and operational phases. This must be done to ensure that no significant contamination of the drainage line occurs.</p> <p>Adequate management of stormwater runoff quality, quantities and flow speed will be</p>	<p>An adequate buffer zone of approximately 2 m outside the 1:100 year floodline must be demarcated and implemented around the drainage line and no future development should occur within this zone.</p> <p>Implement suitable erosion prevention measures during the construction phase.</p> <p>Areas around the proposed project footprint must be adequately rehabilitated in accordance with the Aloe simii Ecological Impact Assessment Report recommendations to prevent significant erosion.</p> <p>Adequate storm water management measures must be implemented on site in order to sufficiently manage storm water runoff and clean/dirty separation during the construction and operational phases. This must be done to ensure that no significant contamination of the drainage line occurs.</p> <p>Adequate management of stormwater runoff quality, quantities and flow speed will be required.</p>

	<p>required.</p> <p>Water samples of the drainage line must be collected directly downstream of the proposed project area prior to commencement of the construction phase. The quality of these samples must be chemically and biologically analysed by an accredited laboratory in order to serve as baseline values for the drainage line water quality.</p> <p>Subsequent water sample analyses of the drainage line must be continually conducted on a 6 month basis and compared with the baseline data.</p> <p>If any contamination or reduction in water quality is determined, the competent authority must immediately be notified and the necessary steps must be followed by the project owner to locate and remediate the source of contamination as soon as practicably possible.</p> <p>A Water Use License Application (WULA) must be submitted to the Department of Water and Sanitation in accordance with the</p>	<p>Water samples of the drainage line must be collected directly downstream of the proposed project area prior to commencement of the construction phase. The quality of these samples must be chemically and biologically analysed by an accredited laboratory in order to serve as baseline values for the drainage line water quality.</p> <p>Subsequent water sample analyses of the drainage line must be continually conducted on a 6 month basis and compared with the baseline data.</p> <p>If any contamination or reduction in water quality is determined, the competent authority must immediately be notified and the necessary steps must be followed by the project owner to locate and remediate the source of contamination as soon as practicably possible.</p> <p>A Water Use License Application (WULA) must be submitted to the Department of Water and Sanitation in accordance with the National Water Act (Act 36 of 1998).</p>
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	National Water Act (Act 36 of 1998).	
Cumulative impact post mitigation:	Low	Low
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low (38)	Low (38)

Identified Environmental Impacts	Damage or destruction of the graveyard identified on site	
Proposed project layout alternative	1	2
Cumulative impact prior to mitigation:	Low	Low
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low (36)	Low (36)
Proposed mitigation:	<p>The project construction footprint must be kept as small as practicably possible to reduce the actual surface impact on vegetation and no unnecessary/unauthorised footprint expansion into the surrounding areas may take place.</p> <p>The small graveyard is of high significance and should be fenced off. Access must be allowed to family members, and a buffer zone of at least 10 m should be left around the graveyard.</p>	<p>The project construction footprint must be kept as small as practicably possible to reduce the actual surface impact on vegetation and no unnecessary/unauthorised footprint expansion into the surrounding areas may take place.</p> <p>The small graveyard is of high significance and should be fenced off. Access must be allowed to family members, and a buffer zone of at least 10 m should be left around the graveyard.</p>

	<p>If any evidence of archaeological sites or remains (e.g. remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils or other categories of heritage resources are found during the proposed development, SAHRA APM Unit (Natasha Higgitt/John Gribble 021 462 5402) must be alerted. If unmarked human burials are uncovered, the SAHRA Burial Grounds and Graves (BGG) Unit (Itumeleng Masiteng/Mimi Seetelo 012 320 8490), must be alerted immediately. A professional archaeologist or palaeontologist, depending on the nature of the finds, must be contracted as soon as possible to inspect the findings. If the newly discovered heritage resources prove to be of archaeological or palaeontological significance, a Phase 2 rescue operation may be required.</p>	<p>If any evidence of archaeological sites or remains (e.g. remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils or other categories of heritage resources are found during the proposed development, SAHRA APM Unit (Natasha Higgitt/John Gribble 021 462 5402) must be alerted. If unmarked human burials are uncovered, the SAHRA Burial Grounds and Graves (BGG) Unit (Itumeleng Masiteng/Mimi Seetelo 012 320 8490), must be alerted immediately. A professional archaeologist or palaeontologist, depending on the nature of the finds, must be contracted as soon as possible to inspect the findings. If the newly discovered heritage resources prove to be of archaeological or palaeontological significance, a Phase 2 rescue operation may be required.</p>
Cumulative impact post mitigation:	Low	Low
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low (18)	Low (18)

Identified Environmental Impacts	Job creation and capacity building (skills, experience and resources development)	
	1	2
Proposed project layout alternative		
Cumulative impact prior to mitigation:	Positive	Positive
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Positive (+ 56)	Positive (+ 56)
Proposed mitigation:	Ensure that the principle of local employment is applied as far as possible during the project.	Ensure that the principle of local employment is applied as far as possible during the project.
Cumulative impact post mitigation:	Positive	Positive
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Positive (+ 56)	Positive (+ 56)

Operational Phase:

Identified Environmental Impacts	Destruction of the population of the critically endangered species <i>Aloe simii</i>	
Proposed project layout alternative	1	2
Cumulative impact prior to mitigation:	Very High	Very High
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Very High (130)	Very High (130)
Proposed mitigation:	Adequately manage and maintain the buffer zone in accordance with the <i>Aloe simii</i> Ecological Impact Assessment recommendations.	Layout Alternative 1 (preferred) is recommended
Cumulative impact post mitigation:	Positive	Very High
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Positive (+24)	Very High (130)

Identified Environmental Impacts	Prevention/deterrence of pollinators to visit the <i>Aloe simii</i> population for pollination	
Proposed project layout alternative	1	2
Cumulative impact prior to mitigation:	Medium High	Medium High

Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium High (76)	Medium High (76)
<p>Proposed mitigation:</p>	<p>Adequately manage and maintain the buffer zone in accordance with the <i>Aloe simii</i> Ecological Impact Assessment recommendations. This should provide a sufficient undisturbed area for pollinators to visit.</p> <p>The proposed buffer zone is located on the western boundary of the proposed development footprint and will therefore not be enclosed and isolated by the development but rather be open to the west in the direction of the R 40 main road. Only the entrance gate will be situated on the western boundary of the development which will provide access to the estate from the R 40 main road. Entrance gate infrastructure size and extent will be minimal and will not pose a significant obstacle in the anticipated flightpath corridor for sunbirds (pollinators) between the population and the existing other <i>Aloe simii</i> population situated across the R 40 main road. The design will therefore create a free flowing flight path/corridor for pollinators from the west.</p> <p>Implement active rehabilitation and habitat restoration measures in order to improve the condition and functionality of the buffered micro-habitat. Planting of local indigenous plant species</p>	<p>Layout Alternative 1 (preferred) is recommended</p>

	<p>associated with sunbird pollination should encourage the pollinators to visit the area.</p> <p>Install temporary sugar feeders in close proximity to the population in order to further encourage pollinators to visit the area during flowering season. It is important to note that NO artificial sweeteners such as xylitol should be used as these sweeteners are toxic to sunbirds.</p>	
Cumulative impact post mitigation:	Low	Medium High
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low (34)	Medium High (76)

Identified Environmental Impacts	Impeding of the natural surface water catchment and drainage area	
	1	2
Proposed project layout alternative		
Cumulative impact prior to mitigation:	Medium High	Medium High
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium High (88)	Medium High (88)
Proposed mitigation:	The buffer zone will be extended to between 70 m – 80 m on the north-western boundary of the population. This will result in the majority of the current exiting surface runoff and drainage area	Layout Alternative 1 (preferred) is recommended

	being included in the buffer zone and kept intact.	
	The rehabilitation and restoration of the micro-habitat will also aid in improved, more controlled and less volatile surface water runoff occurring which could potentially damage the population.	
Cumulative impact post mitigation:	Positive	Medium High
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Positive (+24)	Medium High (88)

Identified Environmental Impacts	Destruction/damage to the micro-habitat of the <i>Aloe simii</i> population	
	1	2
Proposed project layout alternative		
Cumulative impact prior to mitigation:	Very High	Very High
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Very High (130)	Very High (130)
Proposed mitigation:	Adequately manage and maintain the buffer zone in accordance with the <i>Aloe simii</i> Ecological Impact Assessment recommendations.	Layout Alternative 1 (preferred) is recommended
Cumulative impact post mitigation:	Positive	Very High
Significance rating of impact after mitigation	Positive (+24)	Very High (130)

(Low, Medium, Medium-High, High, or Very-High)		
Identified Environmental Impacts	Alien invasive species establishment	
Proposed project layout alternative	1	2
Cumulative impact prior to mitigation:	Low	Low
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low (39)	Low (39)
Proposed mitigation:	<p>Adequately manage and maintain the buffer zone in accordance with the <i>Aloe simii</i> Ecological Impact Assessment recommendations.</p> <p>Implement suitable alien invasive species establishment prevention measures during the construction phase.</p>	<p>Adequately manage and maintain the buffer zone in accordance with the <i>Aloe simii</i> Ecological Impact Assessment recommendations.</p> <p>Implement suitable alien invasive species establishment prevention measures during the construction phase.</p>
Cumulative impact post mitigation:	Low	Low
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low (26)	Low (26)

Identified Environmental Impacts	Surface material erosion	
Proposed project layout alternative	1	2
Cumulative impact prior to mitigation:	Low	Low
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium (42)	Medium (42)
Proposed mitigation:	<p>Adequately manage and maintain the buffer zone in accordance with the <i>Aloe simii</i> Ecological Impact Assessment recommendations.</p> <p>Implement suitable erosion prevention measures during the construction phase.</p> <p>Adequate storm water management measures must be implemented on site in order to sufficiently manage storm water runoff and clean/dirty separation during the operational phase. This must be done to ensure that no significant contamination of the drainage line occurs.</p> <p>Adequate management of stormwater runoff quality, quantities and flow speed will be required.</p>	<p>Adequately manage and maintain the buffer zone in accordance with the <i>Aloe simii</i> Ecological Impact Assessment recommendations.</p> <p>Implement suitable erosion prevention measures during the construction phase.</p> <p>Adequate storm water management measures must be implemented on site in order to sufficiently manage storm water runoff and clean/dirty separation during the operational phase. This must be done to ensure that no significant contamination of the drainage line occurs.</p> <p>Adequate management of stormwater runoff quality, quantities and flow speed will be required.</p>

Cumulative impact post mitigation:	Low	Low
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low (14)	Low (14)

Identified Environmental Impacts	Contamination of the White River and reduction of surface water quality	
Proposed project layout alternative	1	2
Cumulative impact prior to mitigation:	Low	Low
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Medium-High (76)	Medium-High (76)
Proposed mitigation:	<p>Adequately manage and maintain the 1:100 year floodline buffer zone in accordance with the <i>Aloe simii</i> Ecological Impact Assessment recommendations.</p> <p>Implement suitable erosion prevention measures during the operational phase.</p> <p>Adequate storm water management measures must be implemented on site in order to sufficiently manage storm water runoff and clean/dirty separation during the operational phases. This must be done to ensure that no</p>	<p>Adequately manage and maintain the 1:100 year floodline buffer zone in accordance with the <i>Aloe simii</i> Ecological Impact Assessment recommendations.</p> <p>Implement suitable erosion prevention measures during the operational phase.</p> <p>Adequate storm water management measures must be implemented on site in order to sufficiently manage</p>

	<p>significant contamination of the drainage line occurs.</p> <p>Adequate management of stormwater runoff quality, quantities and flow speed will be required.</p> <p>Water sample analyses of the drainage line must be continually conducted on a 6 month basis and compared with the baseline data.</p> <p>If any contamination or reduction in water quality is determined, the competent authority must immediately be notified and the necessary steps must be followed by the project owner to locate and remediate the source of contamination as soon as practicably possible.</p>	<p>storm water runoff and clean/dirty separation during the operational phases. This must be done to ensure that no significant contamination of the drainage line occurs.</p> <p>Adequate management of stormwater runoff quality, quantities and flow speed will be required.</p> <p>Water sample analyses of the drainage line must be continually conducted on a 6 month basis and compared with the baseline data.</p> <p>If any contamination or reduction in water quality is determined, the competent authority must immediately be notified and the necessary steps must be followed by the project owner to locate and remediate the source of contamination as soon as practicably possible.</p>
Cumulative impact post mitigation:	Low	Low
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low (38)	Low (38)

Identified Environmental Impacts	Damage or destruction of the graveyard identified on site	
	1	2
Proposed project layout alternative		
Cumulative impact prior to mitigation:	Low	Low
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low (36)	Low (36)
Proposed mitigation:	Adequately manage and maintain the buffer zone implemented around the graveyard.	Adequately manage and maintain the buffer zone implemented around the graveyard.
Cumulative impact post mitigation:	Low	Low
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low (18)	Low (18)

Identified Environmental Impacts	Continued job creation and capacity building (skills, experience and resources development)	
	1	2
Proposed project layout alternative		
Cumulative impact prior to mitigation:	Positive	Positive
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Positive (+ 56)	Positive (+ 56)

Proposed mitigation:	Ensure that the principle of local employment is applied as far as possible during the project.	Ensure that the principle of local employment is applied as far as possible during the project.
Cumulative impact post mitigation:	Positive	Positive
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Positive (+ 56)	Positive (+ 56)

5 Persons Responsible for Implementing this EMPr

The “Responsibility” columns in the impact and mitigation tables provided below indicate which team member(s) are responsible for implementation of the identified mitigation measures, these team members include the following:

- Construction contractor(s);
- Construction manager;
- Applicant / Developer; and the
- Designated Environmental Officer

The sections below list further supplementary measures, which should also be implemented by the relevant team members.

During the **construction phase** the construction contractor, will be responsible to prevent negative environmental impacts, and as such will be responsible to:

- Be responsible to have the EMPr available on site at all times;
- Provide the applicant with a “Method Statement” which will indicate the procedures that will be applied in order to meet the requirements of any aspect of the EMPr; and
- Ensure that all problems identified during environmental inspections, are addressed and rectified as soon as reasonably possible.

During the **construction phase** the contract manager, will be responsible to prevent negative environmental impacts, and as such will be responsible to:

- Have the authority to stop work and issue fines;
- Receive reports from the ECO and report to the client;
- Enforce contractor obligations to the EMP-r; and,
- Support the ECO in his/her roles and responsibilities.

During the **construction phase** the environmental control officer, will be responsible to prevent negative environmental impacts, and as such will be responsible to:

- Meet with the contractor and project manager to hand over the site and go through the content of the EMP-r, including the “do’s and don’ts” of the project, to ensure that the parties understand their responsibilities to the EMP-r;

- Be accountable for monitoring and auditing activities to ensure compliance with the EMP-r and the Environmental Authorisation;
- Work correctively with other role-players, but not be influenced in opinion and must report to the applicant only;
- May, in the event of there being a serious threat to or impact on the environment, correspond with the contract project manager to stop work;
- Complete an ECO checklist after each site inspection and distribute this to the project team within 5 days; and,
- Conduct a final environmental audit of the project on completion of construction and rehabilitation, for submission to the DESTEA to review.

During the **operational phase** the applicant/developer, will be responsible to prevent negative environmental impacts, and as such will be responsible to:

- Set aside a budget for maintenance;
- Maintain all facilities and infrastructure in good working order to effectively fulfil its intended purpose and to prevent negative environmental impacts;
- Not construct any additional buildings, infrastructure, etc. contrary to the Environmental Authorisation, without performing an environmental impact assessment where listed activities of the 2014 NEMA EIA Regulations are triggered; and
- To immediately remedy any aspects that contribute to negative environmental impacts.

5.1 On-site Communication

The following sections describe the site communication measures that will need to be implemented.

5.1.1 Site Instruction Entries

The Site Instruction book should be used for the recording of general site instructions as they relate to the works on site. It should also be used for the issuing of **stop work orders** for the purposes of immediately halting any particular activities of the contractor in lieu of the environmental risk that they may pose.

5.1.2 Method Statements

Method statements from the Contractor will be required for specific sensitive actions on request by the authorities or the ECO.

A method statement forms the baseline information on which work in sensitive environments takes place and is a “live document” allowing for modifications to be negotiated between the Contractor and ECO / Engineer, as circumstances unfold.

A method statement describes the scope of the intended work, step-by-step, in order for the ECO and Engineer to understand the Contractor’s intentions. This will enable them to assist in devising any mitigation measures, which would minimise environmental impact during these tasks. For each instance wherein it is requested that the Contractor submit a method statement to the satisfaction of the ECO, the format should clearly indicate the following:

- **What** – a brief description of the work to be undertaken;
- **How** – a detailed description of the process of work, methods and materials;
- **Where** – a description/sketch map of the locality of work (if applicable); and
- **When** – the sequencing of actions with due commencement dates and completion date estimates.

All method statements will form part of the EMPr documentation and are subject to all terms and conditions contained within the EMPr main document.

The Contractor must submit the method statement to the ECO before any particular construction activity is due to start. Work may not commence until the method statement has been approved by the ECO.

5.1.3 Record Keeping

All records related to the implementation of this EMPr (e.g. site instruction book, method statements) must be kept together in an office where it is safe and can be retrieved easily. These records should be kept for two years and should at any time be available for scrutiny by any relevant authorities.

6 Monitoring, Performance Assessment and Reporting on EMPr Compliance

6.1 Monitoring

Several monitoring actions are proposed which would be undertaken by various project role players.

For detail on these actions, “Responsible Person/Party”, and “Monitoring Frequency” associated with the identified mitigation measures, refer to the “Monitoring” column in the impact assessment tables below (Chapter 8).

6.2 Performance Assessment and Reporting on EMPr Compliance

A suitably-qualified Environmental Control Officer (ECO) should be appointed by the Applicant / Developer to oversee the implementation of the construction and operational phase mitigation measures described in this EMPr, as well as the conditions of authorisation as described in the Environmental Authorisation.

The ECO should have at least 5 years’ experience as an ECO, or be supported by a qualified ECO. He/she may not be someone appointed by the contractor, engineer or other party involved with this project, other than the Applicant / Developer.

The following applies, amongst others, to the ECO’s role:

- The ECO should undertake **monthly site visits** during the **construction phase of the project**,
- The ECO must **report to** the Applicant / Developer only.
- The ECO should present an **environmental site induction / awareness training session** to all personnel before work on site commences, as are also described below; and
- After completion of the construction activities, an environmental audit should be undertaken by the ECO, before commencement of the operational phase, in order to determine compliance with the EMPr and the Environmental Authorisation. The audit report should be submitted to the competent authority.

The ECO can recommend the stopping of works if in his/her opinion there is a serious threat to, or impact on the environment, caused directly from the construction and / or operational phase. This authority is to be limited to emergency situations where consultation with the engineer or applicant is not immediately available and proof of that made available. In all such work stoppage situations the ECO is to inform the engineer and applicant of the reasons for the stoppage as soon as possible.

Upon failure by the contractor or his employee(s) to show adequate consideration to the environmental aspects of this contract, the ECO may recommend to the engineer to have the contractor's representative

or any employee(s) removed from the site or work suspended until the matter is remedied. No extension of time will be considered in the case of such suspensions and all costs will be borne by the contractor.

6.2.1 ECO Site Inspection Reports

The ECO site inspection reports (also called “ECO checklists”) will report on the compliance of the construction and operational phase mitigation measures contained in the EMPr, as well as the conditions of approval described in the Environmental Authorisation. The report should be submitted to the applicant, within five (5) days of the ECO site inspection. Copies of the inspection reports should be kept on site.

The contractor’s meeting minutes must reflect environmental queries, agreed actions and dates of eventual compliance. These minutes form part of the official environmental record.

6.2.2 Photographs

Photographs of all environmental transgression during the construction and operational phase must be included in ECO reports. These photographs should be stored with other records related to this EMPr. If captured in digital format, hard copies, in colour, must be kept with all other records relevant to the implementation of this EMPr.

6.2.3 Annual Aloe Simii Assessment

A suitably qualified and experienced horticulturalist who is familiar with the specific area and specific species *Aloe simii* must continue to conduct an annual assessment of the population to determine the condition and health of the individuals.

- If any individuals are found to be suffering from potential pests or diseases they should be suitably treated whether by chemical or physical interventions. The horticulturalist must advise on the most appropriate intervention measures.
- Care must be taken that the planting of indigenous ornamental vegetation within the proposed estate does not pose any potential health risk to the identified *Aloe simii* individuals such as scale lice infection.

The horticulturalist must also continually determine on an annual basis whether defoliation, alien and invasive removal or any other management measures are required for the buffer zone. The recommended measures must then be implemented.

7 Environmental Awareness Plan

7.1 Environmental Awareness and Risk Training

All staff members involved in work on site are to be briefed on their obligations towards environmental controls and methodologies in terms of this EMPr, prior to work commencing. The briefing will usually take the form of an on-site talk and demonstration by the ECO. The education / awareness programme should be aimed at all levels of management within the contractor team. See “basic rules of conduct” below.

7.1.1 Basic Rules of Conduct

The following list represents the basic *Do's* and *Don'ts* towards environmental awareness, which all participants in this project must consider whilst carrying out their tasks. These are not exhaustive and serve as a quick reference aid. **NOTE: ALL new site personnel must** attend an environmental awareness/induction presentation. Please inform your foreman or manager if you have not attended such a presentation or contact the ECO.

DO:

- Clear your work areas of litter and building rubble at the end of each day – use the waste bins provided and prevent litter from being blown away by wind.
- Report all fuel or oil spills immediately and stop the spill from continuing.
- Dispose of cigarettes and matches carefully, so to prevent veld fires (arson and littering is an offence).
- Confine work and storage of equipment to within the immediate work area.
- Use all safety equipment and comply with all safety procedures.
- Ensure a working fire extinguisher is immediately at hand.
- Prevent excessive noise.

DO NOT:

- Do not litter - report dirty or full facilities, i.e. full dustbins and dirty or blocked toilets.
- Do not make any fires.
- Do not enter any fenced off or demarcated areas.

- Do not allow waste, litter, oils or foreign materials into any storm water channels or drains or watercourses.
- Do not litter or leave food lying around.

8 Impacts and Mitigation Measures

A number of potential environmental impacts that may arise during the project have been identified. These are outlined in the following table below, and guidelines and mitigation measures are provided.

The Contractor must familiarise himself with the requirements of the EMPr, keeping in mind that other site-specific requirements as outlined in the Environmental Authorisation must also be complied with.

8.1 Construction Phase Environmental Management Programme

CONSTRUCTION PHASE: NOOITGEDACHT RETIREMENT ESTATE, WHITE RIVER, MPUMALANGA PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
1. ACTIVITY: PERMITS AND AUTHORISATIONS				
1.1	<p>Aspects: Legislative compliance.</p> <p>Impact: Non-compliance with South African environmental legislation.</p> <p>Objective: Ensure compliance with all triggered environmental legislation.</p> <p>Target: Commence site establishment with all permission and approvals received and on hand.</p> <p>Mitigation/Management Measures:</p> <p>a. The Developer is to have the following permits on commencement:</p> <ul style="list-style-type: none"> • Environmental Authorisation; • Water Use License; and • Environmental Management Program; 	Developer	<p>Monitoring Action:</p> <p>Obtain copies of all permits; Record Keeping</p> <p>Responsible Person/Party:</p> <p>Construction Manager</p> <p>Monitoring Frequency:</p> <p>Once off</p>	
2. ACTIVITY: SITE LAYOUT PLANNING				
2.1	<p>Aspects: Site Layout Plan.</p> <p>Impact: Negative impact on the environment of unmanaged and unplanned placement of Infrastructure.</p> <p>Objective: To ensure acceptable impact and management of environmental issues at the main site and storage site during construction by proper planning of layout of infrastructure placement.</p> <p>Target: All areas not demarcated for construction should remain vegetated in impact should be minimised.</p>	Developer	<p>Monitoring Action:</p> <p>Record Keeping</p> <p>Responsible Person/Party:</p> <p>Project Manager /</p>	

CONSTRUCTION PHASE: NOOITGEDACHT RETIREMENT ESTATE, WHITE RIVER, MPUMALANGA PROVINCE	RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	<u>MONITORING:</u> ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
<p><u>Mitigation/Management Measures:</u></p> <ol style="list-style-type: none"> a. Draw up and submit for approval a Site Layout Master Plan. This plan must show the final positions and extent of all permanent and temporary site structures and infrastructure, b. The planning for layout must be done in consultation with the ECO. c. The contractor may not deface, paint, damage or mark any natural features situated in or around the site for survey or other purposes; d. No servicing of vehicles must be permitted on site, unless for emergency purposes; e. Stockpiles should not be situated such that they obstruct pathways; and, f. Place infrastructure as far as possible on sites that have already been transformed; g. Existing roads and farm tracks in close proximity to the proposed project area must be used during construction. No new roads or tracks to be constructed or implemented through any of the surrounding areas.; h. Adequately fence off the construction area and ensure that no construction activities, machines or equipment operate or impact outside the fenced off area; i. No site camp to be established outside the proposed development footprint. j. The project construction footprint must be kept as small as practicably possible to reduce the actual surface impact on vegetation and no unnecessary/unauthorised footprint expansion into the surrounding areas may take place. k. Protected plant species buffer must be adhered to; <ul style="list-style-type: none"> • Implement a minimum 30 m buffer zone around the western, southern and eastern boundaries of the population's distribution extent and an extended 70 m – 80 m buffer zone around the northern boundary of 		<p>Engineer</p> <p><u>Monitoring Frequency:</u></p> <p>Once off</p>	

CONSTRUCTION PHASE: NOOITGEDACHT RETIREMENT ESTATE, WHITE RIVER, MPUMALANGA PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	<p>the population's distribution extent. The proposed buffer area will be approximately 1.3 ha in surface size.</p> <ul style="list-style-type: none"> The buffer zone must be physically fenced off or another adequate form of barricading must be implemented around it. Access to within the buffered zone where the population is located should be entirely restricted. 			
3. ACTIVITY: CONSTRUCTION PROGRAMME / SCHEDULE				
3.1	<p>Aspects: Project Management.</p> <p>Impact: Order and timing of construction activities and associated impacts.</p> <p>Objective: To Provide a clear indication of the order by which key construction activities will transpire.</p> <p>Target: Anticipate timing of impacts to coordinate the availability of any specialists and/or authorities who may be required to conduct site inspections.</p> <p>Mitigation/Management Measures:</p> <ol style="list-style-type: none"> Draw up and sign off a project schedule with all contributing parties and service providers to commit to a timeline during which time construction milestones will be completed; Communicate any deviation from this schedule with all parties, so as to provide parties with sufficient opportunity for alternative arrangements to be made; Establish a risk register to identify and monitor potential factors which may result in setbacks for the project; Hold management meetings with representatives of the project manager, contractor, engineer and other contributing parties to monitor and anticipate changes; and, Should circumstances/ incidents arise which may pose a risk to the project schedule, the construction contractor, and engineer and ECO are to keep records of this and the latter communicate this in the ECO Bi-Weekly Audit Checklist. 	Contract Project Manager / Contractor	<p>Monitoring Action:</p> <p>Meetings; Risk Register; ECO Audit Checklist; Photographs</p> <p>Responsible Person/Party:</p> <p>Project Manager / Contractor / ECO</p> <p>Monitoring Frequency:</p> <p>Once off</p>	

CONSTRUCTION PHASE: NOOITGEDACHT RETIREMENT ESTATE, WHITE RIVER, MPUMALANGA PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
4. ACTIVITY: COMMUNICATION WITH LAND-OWNERS				
4.1	<p>Aspects: Landowner Consent.</p> <p>Impact: Disturbance of existing land use.</p> <p>Objective: Maintain a conflict-free relationship with landowners / users.</p> <p>Target: No complaints received from landowners / users of affected property.</p> <p>Mitigation/Management Measures:</p> <ol style="list-style-type: none"> Landowners are to be aware and in agreement of site access arrangements; The landowner has to be requested to liaise with the site supervisor of the construction contractor prior to entering the construction footprint area for safety purposes; All property gates are to be kept closed when not in use (or kept in the open/closed state in which it was found); and, Any complaint or liaison with regard to environmental aspects, compensation or disorder to economic activities, must not be addressed by the contractor. A public complaint register must be kept on site and the contract project manager must inform the Developer and/or ECO to take further action. 	Contract Project Manager / Contractor	<p>Monitoring Action:</p> <p>Meetings; Risk Register.</p> <p>Responsible Person/Party:</p> <p>Contract Project Manager / Contractor / ECO</p> <p>Monitoring Frequency:</p> <p>Once off</p>	
5. ACTIVITY: SITE ESTABLISHMENT				
5.1	<p>Aspects: Demarcation of the site and vegetation removal.</p> <p>Impact: Direct impact on vegetation during construction and loss of species.</p> <p>Objective: Prevent unnecessary habitat destruction.</p> <p>Target: All areas not demarcated for construction should remain vegetated.</p>	Construction contractor	<p>Monitoring Action:</p> <p>ECO to take photographs of site before clearance; ECO</p>	

CONSTRUCTION PHASE: NOOITGEDACHT RETIREMENT ESTATE, WHITE RIVER, MPUMALANGA PROVINCE	RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	<u>MONITORING:</u> ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
<p><u>Mitigation/Management Measures:</u></p> <ol style="list-style-type: none"> a. No natural surfaces are to be marked other than using droppers, beacons or other artificial object; b. Ensure the upkeep of demarcation boundaries throughout the period of construction until rehabilitation has been completed; c. Construction areas must be fenced; d. After the final layout has been approved, conduct a thorough footprint investigation to detect and map (by GPS) any protected plant species and active animal burrows; e. Protected plant species buffer must be adhered to; <ul style="list-style-type: none"> • Implement a minimum 30 m buffer zone around the western, southern and eastern boundaries of the population's distribution extent and an extended 70 m – 80 m buffer zone around the northern boundary of the population's distribution extent. The proposed buffer area will be approximately 1.3 ha in surface size. • The buffer zone must be physically fenced off or another adequate form of barricading must be implemented around it. Access to within the buffered zone where the population is located should be entirely restricted. f. Keep areas affected to a minimum, strictly prohibit any disturbance outside the demarcated foundation footprint area; g. Clear as little indigenous vegetation as possible, aim to maintain vegetation where it will not interfere with the construction or operation of the development, rehabilitate an acceptable vegetation layer according to rehabilitation recommendations of the relevant EMP'r, if possible; h. Indigenous vegetation unique to the area must be used during landscaping activities; i. There should be a preconstruction environmental induction for all construction staff on site to ensure that basic 		<p>Audit Checklist.</p> <p><u>Responsible Person/Party:</u> ECO</p> <p><u>Monitoring Frequency:</u> Bi-Weekly</p>	

CONSTRUCTION PHASE: NOOITGEDACHT RETIREMENT ESTATE, WHITE RIVER, MPUMALANGA PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	<p>environmental biodiversity principles are adhered to;</p> <p>j. Where the ECO deems it necessary (e.g. sensitive, natural areas) the ecologist appointed to do the vegetation study will be utilized;</p> <p>k. Restoration measures will be required to reinstate functionality in the disturbed soil and vegetation;</p> <p>l. Existing roads and farm tracks in close proximity to the proposed project area must be used during construction. No new roads or tracks to be constructed or implemented through any of the surrounding areas.;</p> <p>m. Adequately fence off the construction area and ensure that no construction activities, machines or equipment operate or impact outside the fenced off area;</p> <p>n. No site camp to be established outside the proposed development footprint.</p> <p>o. The project construction footprint must be kept as small as practicably possible to reduce the actual surface impact on vegetation and no unnecessary/unauthorised footprint expansion into the surrounding areas may take place.</p> <p>p. Impacts to sensitive sites (drainage lines) should be avoided; and,</p> <p>q. No vegetation may be gathered for the purpose of creating fire;</p> <p>r. Alien invasive vegetation material cleared during construction activities must be adequately disposed of at a suitable, certified 'green waste' disposal site in order to prevent further spreading.</p> <p>s. Implement suitable alien invasive species establishment prevention measures during the construction phase.</p> <p>t. Areas around the proposed project footprint must be adequately rehabilitated in accordance with the <i>Aloe simii</i> Ecological Impact Assessment Report recommendations to prevent significant alien invasive species establishment.</p>			
5.2	<p>Aspects: Topsoil stripping and conservation.</p> <p>Impact: Destruction of topsoil.</p>	Construction contractor	Monitoring Action: ECO Audit Checklist;	

CONSTRUCTION PHASE: NOOITGEDACHT RETIREMENT ESTATE, WHITE RIVER, MPUMALANGA PROVINCE	RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
<p>Objective: Conserve and protect topsoil from erosion and destruction.</p> <p>Target: Topsoil condition maintained.</p> <p>Mitigation/Management Measures:</p> <ol style="list-style-type: none"> a. In the absence of a distinguishable topsoil layer, strip the uppermost 300 mm of soil; b. Stockpile topsoil separately from subsoil, in heaps no higher than 2m; c. Topsoil stockpiles are to be kept free of weeds; d. Limit unnecessarily prolonged exposure of stripped areas and stockpiles; e. Topsoil stockpiles to be placed on a levelled area and measures to be implemented to safeguard the piles from being washed away in the event of heavy rains/ storm water; f. Topsoil need to be stored in designated areas only. This need to be planned and indicated on the site-layout plan; g. Retain vegetation and soil in position for as long as possible, removing it immediately ahead of construction/ earthworks in that area; h. Protected plant species buffer must be adhered to; i. Strip and stockpile herbaceous vegetation, overlying grass and other fine organic matter along with the topsoil; j. Ensure that topsoil is not mixed with subsoil and/or any other excavated material; k. Temporarily stored topsoil must be re-applied within 6 months, topsoil stored for longer need to be managed according to a detailed topsoil management plan; l. Topsoil must be used in all rehabilitation activities, and may not be compacted to ensure that its plant support capacity remain of high quality; m. No topsoil may be stored within a watercourse; 		<p>Photographs;</p> <p>Responsible Person/Party: ECO</p> <p>Monitoring Frequency: Bi-Weekly</p>	

CONSTRUCTION PHASE: NOOITGEDACHT RETIREMENT ESTATE, WHITE RIVER, MPUMALANGA PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
<p>n. Do not strip topsoil when it is wet; and,</p> <p>o. Do not mix topsoil obtained from different sites, unless the ECO gives permission.</p> <p>p. Areas around the proposed project footprint must be adequately rehabilitated in accordance with the Aloe simii Ecological Impact Assessment Report recommendations to prevent significant erosion.</p> <p>q. Adequate storm water management measures must be implemented on site in order to sufficiently manage storm water runoff and clean/dirty separation during the construction and operational phases. This must be done to ensure that no significant contamination of the drainage line occurs.</p> <ul style="list-style-type: none"> Adequate management of stormwater runoff quality, quantities and flow speed will be required. 				
6. ACTIVITY: EARTH-WORKS				
6.1	<p>Aspects: Excavations; cut and fill; shaping and trimming.</p> <p>Impact: Alteration of the terrain by civil works.</p> <p>Objective: Minimise impact to the physical terrain features of the site.</p> <p>Target: Maintain Civil Works to within the construction footprint area.</p> <p>Mitigation/Management Measures:</p> <p>a. Cut and fill areas must be identified by the Engineer and protection measures provided through an appropriate method and technology;</p> <p>b. Dispose of excess material at a registered solid waste landfill site (Bloemfontein Landfill Site as per the Basic Assessment Report); and,</p> <p>c. Shaping and trimming operations are to be planned to allow for topsoil application, with provision for the specified</p>	Construction contractor	<p>Monitoring Action:</p> <p>ECO Audit Checklist</p> <p>Responsible Person/Party:</p> <p>ECO</p> <p>Monitoring Frequency:</p> <p>Bi-Weekly</p>	

CONSTRUCTION PHASE: NOOITGEDACHT RETIREMENT ESTATE, WHITE RIVER, MPUMALANGA PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	<p>depth of reapplied topsoil made.</p> <p>d. Protected plant species buffer must be adhered to;</p> <ul style="list-style-type: none"> Implement a minimum 30 m buffer zone around the western, southern and eastern boundaries of the population's distribution extent and an extended 70 m – 80 m buffer zone around the northern boundary of the population's distribution extent. The proposed buffer area will be approximately 1.3 ha in surface size. The buffer zone must be physically fenced off or another adequate form of barricading must be implemented around it. Access to within the buffered zone where the population is located should be entirely restricted 			
7. ACTIVITY: SITE INFRASTRUCTURE PLACEMENT AND OPERATION				
7.1	<p>Aspects: Structures and lay-down areas.</p> <p>Impact: Deterioration of site features and surrounding areas.</p> <p>Objective: Prevent the deterioration of site features like soil, rainwater runoff and erosion.</p> <p>Target: The preservation of site conditions evident on establishment of structures and lay-down areas.</p> <p>Mitigation/Management Measures:</p> <p>a. Locate all structures and storage areas, including offices, workshops and stores in approved locations are per the Site Layout Plan;</p> <p>b. The camp with storage and laydown areas are to be kept secure and neat with access control measures adopted during construction;</p> <p>c. Clearly define which activities are to occur within which areas of the site by erecting signage.</p> <p>d. All hazardous substances, such as fuel, oil, diesel, paint, etc., must be stored in a secondary containment system (trays or bund) which is capable of storing at least 110% of the liquid capacity. If bund areas are used, it should be sealed to</p>	Construction contractor	<p>Monitoring Action:</p> <p>Photographs; ECO Audit Checklist</p> <p>Responsible Person/Party:</p> <p>ECO</p> <p>Monitoring Frequency:</p> <p>Bi-Weekly</p>	

CONSTRUCTION PHASE: NOOITGEDACHT RETIREMENT ESTATE, WHITE RIVER, MPUMALANGA PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	<p>avoid seepages; and</p> <p>e. A vehicle service area should be in place, for vehicle repairs, in such way that no spillages will occur into the environment.</p> <p>f. Protected plant species buffer must be adhered to;</p> <p>a. Implement a minimum 30 m buffer zone around the western, southern and eastern boundaries of the population's distribution extent and an extended 70 m – 80 m buffer zone around the northern boundary of the population's distribution extent. The proposed buffer area will be approximately 1.3 ha in surface size.</p> <p>b. The buffer zone must be physically fenced off or another adequate form of barricading must be implemented around it. Access to within the buffered zone where the population is located should be entirely restricted</p>			
8. ACTIVITY: CONSTRUCTION SITE OPERATIONS				
8.1	<p>Aspects: Security and fencing.</p> <p>Impact: Prevent danger to trespassing of persons.</p> <p>Objective: Keep the site secure from trespassing or theft and keep animals out.</p> <p>Target: Site remains secure during construction with no incidences of trespassing, theft and injury or death to animals.</p>		<p>Monitoring Action:</p> <p>Photographs; ECO</p> <p>Audit Checklist</p>	

CONSTRUCTION PHASE: NOOITGEDACHT RETIREMENT ESTATE, WHITE RIVER, MPUMALANGA PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	<p>Mitigation/Management Measures:</p> <ul style="list-style-type: none"> a. Be responsive to open or closed status of gates; b. New or the upkeep of fences should align to ensure safety of animals and maintain a reliable boundary area; c. Limit clearing of vegetation for fencing to the removal of trees and shrubs within 1 m of the fence line. All undergrowth should be maintained; d. Should construction activity require the removal of fences or gates to execute tasks, this must be replaced as soon as possible following completion; and, e. In all cases, the landowners on whose property any use of fences or gates, must be consulted, to ensure that parties are informed of construction activity, schedules and vehicle movement. f. Protected plant species buffer must be adhered to; <ul style="list-style-type: none"> a. Implement a minimum 30 m buffer zone around the western, southern and eastern boundaries of the population's distribution extent and an extended 70 m – 80 m buffer zone around the northern boundary of the population's distribution extent. The proposed buffer area will be approximately 1.3 ha in surface size. b. The buffer zone must be physically fenced off or another adequate form of barricading must be implemented around it. Access to within the buffered zone where the population is located should be entirely restricted 		<p>Responsible Person/Party: ECO</p> <p>Monitoring Frequency: Bi-Weekly</p>	
8.2	<p>Aspects: Existing Services and Infrastructure.</p> <p>Impact: Damage to existing services and infrastructure.</p> <p>Objective: No damages to existing services and infrastructure.</p> <p>Target: No damages to existing services and infrastructure.</p>	Construction contractor	<p>Monitoring Action: Photographs; ECO Audit Checklist</p> <p>Responsible</p>	

CONSTRUCTION PHASE: NOOITGEDACHT RETIREMENT ESTATE, WHITE RIVER, MPUMALANGA PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	<p>Mitigation/Management Measures:</p> <p>a. Take cognisance of the position of existing services and infrastructure (e.g. roads, pipelines, power lines and telephone services) that may get damaged due to construction activities.</p> <p>b. Ensure that existing services are not damaged or disrupted unless required by the contract and with the permission of the project manager; and</p> <p>c. In the event that infrastructure is damaged or services interrupted during construction, it will be done at the expense of the Contractor and shall receive top priority over all other activities.</p> <p>d. Existing roads and farm tracks in close proximity to the proposed project area must be used during construction. No new roads or tracks to be constructed or implemented through any of the surrounding areas.</p>		<p>Person/Party:</p> <p>Contractor</p> <p>Monitoring Frequency:</p> <p>Bi-Weekly</p>	
8.3	<p>Aspects: Traffic.</p> <p>Impact: Impact on traffic.</p> <p>Objective: Minimise the disruption of road users.</p> <p>Target: Minimal disruption of road users.</p> <p>Mitigation/Management Measures:</p> <p>a. All vehicles must be road-worthy and drivers must be qualified, made aware of the potential road safety issues, and need for strict speed limits;</p> <p>b. Vehicles used for transport of materials and sand must be fitted with tarpaulins to prevent the release of such material or items onto road surfaces;</p> <p>c. Construction vehicles may not leave the designated roads and tracks and turnaround points must be limited to</p>	Construction contractor	<p>Monitoring Action:</p> <p>Incident Register; Photographs; ECO Audit Checklist</p> <p>Responsible Person/Party:</p> <p>Contractor</p> <p>Monitoring Frequency:</p> <p>Bi-Weekly</p>	

CONSTRUCTION PHASE: NOOITGEDACHT RETIREMENT ESTATE, WHITE RIVER, MPUMALANGA PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	<p>specific sites;</p> <p>d. Abnormal loads should not be transported after dark;</p> <p>e. Abnormal loads should be timed to avoid times of year when traffic volumes are likely to be higher, as would be expected over national holidays, weekends and school holiday periods;</p> <p>f. Transport of materials should be limited to the least amount of trips possible; and</p> <p>g. Traffic deviations around the construction area must be planned in conjunction with the local authority to ensure safe and free flow of traffic. Safety signs must be utilised.</p> <p>h. Existing roads and farm tracks in close proximity to the proposed project area must be used during construction. No new roads or tracks to be constructed or implemented through any of the surrounding areas.</p>			
8.4	<p>Aspects: Traffic.</p> <p>Impact: Traffic impacts associated with the movement of construction vehicles on site.</p> <p>Objective: To minimise the destruction of biodiversity, compaction of valuable topsoil and mortalities of fauna on site.</p> <p>Target: Minimal destruction of biodiversity, compaction of valuable topsoil and mortalities of fauna on site.</p>		<p>Monitoring Action:</p> <p>Incident Register; ECO</p> <p>Photographs; ECO</p> <p>Audit Checklist</p>	
	<p>Mitigation/Management Measures:</p> <p>a. After the final layout has been approved, conduct a thorough footprint investigation (walk-through) to detect and map (by GPS) all protected plant species, which have to be removed and animal burrows present within the project site.</p> <p>b. Animal burrows must be monitored by the ECO prior to construction for activity/presence of animal species. If detected, such animals must be removed and relocated by a qualified professional/contractor;</p>	Construction contractor	<p>Responsible Person/Party:</p> <p>Contractor</p> <p>Monitoring Frequency:</p> <p>Bi-Weekly</p>	

<p align="center">CONSTRUCTION PHASE: NOOITGEDACHT RETIREMENT ESTATE, WHITE RIVER, MPUMALANGA PROVINCE</p>	<p align="center">RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)</p>	<p align="center">MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY</p>	<p align="center">COMPLIANT? (for use by ECO)</p>
<ul style="list-style-type: none"> c. During construction create designated turning areas and strictly prohibit any off-road driving or parking of vehicles and machinery outside designated areas; d. Ensure that runoff from compacted or sealed surfaces is slowed down and dispersed sufficiently to prevent accelerated erosion from being initiated (storm water and erosion management plan required). e. Ensure adequate drainage where roads cross drainage lines or ephemeral tributaries; f. Monitor the establishment of (alien) invasive species and remove as soon as detected, before regenerative material can be formed; g. Abnormal loads and machinery should avoid movement over gravel roads during and immediately after rainfall events, so as to limit destruction of road surfaces and sedimentation of downhill rivers/streams; h. All vehicles must be road-worthy, be maintained to prevent fuel or oil leaks and drivers are to the licensed appropriately for the driving of their assigned vehicle. Drivers responsible for the transportation of personnel must be specifically licensed to do so; i. Construction vehicles may not leave the designated roads and tracks, whilst U-Turns are prohibited on all roads; j. Signage is to be placed on vehicles at all times; k. All construction vehicles should adhere to construction sites and avoid off road to minimise impact on vegetation and soil; l. After decommissioning, if access roads or portions thereof will not be of further use to the landowner, remove all foreign material and rip area to facilitate the establishment of vegetation, followed by a suitable revegetation program; and, m. Construction-related vehicles and machinery may not operate on site without reflective safety signage, car-top lights 			

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	<p>and reflective personnel gear.</p> <p>n. Existing roads and farm tracks in close proximity to the proposed project area must be used during construction. No new roads or tracks to be constructed or implemented through any of the surrounding areas.</p> <p>o. Protected plant species buffer must be adhered to;</p> <p>a) Implement a minimum 30 m buffer zone around the western, southern and eastern boundaries of the population's distribution extent and an extended 70 m – 80 m buffer zone around the northern boundary of the population's distribution extent. The proposed buffer area will be approximately 1.3 ha in surface size.</p> <p>b) The buffer zone must be physically fenced off or another adequate form of barricading must be implemented around it. Access to within the buffered zone where the population is located should be entirely restricted</p>			
8.5	<p>Aspects: Erosion Control.</p> <p>Impact: Loss of topsoil, formation of bare soil and deterioration of habitat quality.</p> <p>Objective: Prevent soil erosion.</p> <p>Target: No signs of soil erosion are evident on site.</p> <p>Mitigation/Management Measures:</p> <p>a. Disturb as little ground area as possible, stabilize that area as quickly as possible, control drainage through the area, and trap sediment on site;</p> <p>b. Conserve topsoil with its leaf litter and organic matter, and re-apply this material to local disturbed areas to promote the growth of local native vegetation;</p> <p>c. Apply erosion control measures before the rainy season begins and after each season of construction, preferably immediately following construction; and,</p>	Construction contractor	<p>Monitoring Action:</p> <p>Incident Register; Photographs; ECO Audit Checklist</p> <p>Responsible Person/Party:</p> <p>Contractor</p> <p>Monitoring Frequency:</p> <p>Bi-Weekly</p>	

CONSTRUCTION PHASE: NOOITGEDACHT RETIREMENT ESTATE, WHITE RIVER, MPUMALANGA PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	<p>d. Maintain and reapply erosion control measures until vegetation is successfully established. Do soil chemistry tests if necessary to determine available soil nutrients.</p> <p>e. An Alien and Invasive Species Management Plan must be developed and implemented in order to enable adequate management and prevention of significant weed establishment on the site during construction.</p> <p>f. Implement a minimum 30 m buffer zone around the western, southern and eastern boundaries of population's distribution extent and an extended 70 m – 80 m buffer zone around the northern boundary of the population's distribution extent. The proposed buffer area will be approximately 1.3 ha in surface size.</p> <p>g. The buffer zone must be physically fenced off or another adequate form of barricading must be implemented around it. Access to within the buffered zone where the population is located should be entirely restricted.</p> <p>h. Implement active rehabilitation and habitat restoration measures in order to improve the condition and functionality of the buffered micro-habitat.</p>			
8.6	<p>Aspects: Handling of general – and hazardous waste materials on the construction site.</p> <p>Impact: The presence of personnel and construction operations will increase the likelihood of littering and dumping of solid waste.</p> <p>Objective: Management and disposal of general – and hazardous waste in an appropriate manner.</p> <p>Target: No record of pollution or site contamination by solid waste.</p> <p>Mitigation/Management Measures:</p> <p>a. An adequate number of scavenger proof litter bins are to be placed throughout the site. Two waste bins; at least; must be present, one (1) for hazardous waste and one (1) for general waste at each working station. Dumping of</p>		<p>Monitoring Action: ECO Audit Checklist</p> <p>Responsible Person/Party: ECO</p> <p>Monitoring Frequency: Bi-Weekly</p>	

CONSTRUCTION PHASE: NOOITGEDACHT RETIREMENT ESTATE, WHITE RIVER, MPUMALANGA PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	<p>waste on site is prohibited;</p> <p>b. Waste sorting and separation should form part of the environmental induction and awareness programme, to encourage personnel to collect waste paper, glass and metal waste separately;</p> <p>c. Keep all work sites including storage areas, offices and workshops neat and tidy;</p> <p>d. Dedicate a demarcated and signposted storage area on site for the collection of construction waste;</p> <p>e. All domestic waste is to be removed from site and disposed of at a registered solid waste landfill site; as mentioned in the Basic Assessment Report;</p> <p>f. Care should be taken to ensure that no waste fall off disposal vehicles on-route to the landfill. If needed, a tarpaulin can be utilised;</p> <p>g. The burning or burying of solid waste on site is prohibited. Do not burn PVC pipes or other plastic materials, as this is regarded as hazardous waste;</p> <p>h. Littering by construction workers shall not be permitted;</p> <p>i. Workers from the immediate area need to be encouraged to take their waste with them at the end of each day;</p> <p>j. General refuse/rubbish shall be removed from site on a weekly basis to an approved registered landfill site or as soon as the waste bins are reaching full capacity;</p> <p>k. Minimise waste by sorting waste into recyclable and non-recyclable waste;</p> <p>l. Ablution facilities must be serviced by a registered service provider, cleaned at least once a week, and safe disposal slips must be on file at the site office;</p> <p>m. A bi-weekly (twice a week) litter patrol of the entire site shall be conducted by the designated Environmental Control Officer (ECO);</p>			

CONSTRUCTION PHASE: NOOITGEDACHT RETIREMENT ESTATE, WHITE RIVER, MPUMALANGA PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	<p>n. Hazardous waste must be sorted general waste and disposed of at a hazardous treatment facility, records and proof of disposal must be kept; and,</p> <p>o. Do not dump waste of any nature, or any foreign material in the Bath River or any drainage line.</p>			
8.7	<p>Aspects: Sewage waste.</p> <p>Impact: Pollution and site contamination due to sewage.</p> <p>Objective: Provide facilities for appropriate collection and disposal of sewage.</p> <p>Target: No record of pollution or site contamination by sewage.</p> <p>Mitigation/Management Measures:</p> <p>a. Provide portable chemical ablution facilities, situated at convenient locations in proximity to work areas. This must be in relation to the quantity of users on site, with 1 ablution facility per 15 users and for each gender;</p> <p>b. Locations for the placement of ablution facilities include the workshop and areas for resting and eating.</p> <p>c. Do not locate a site ablution facility within the 1:100 year flood line, or within a distance of 100m of any drainage lines;</p> <p>d. Ablution facilities are to be maintained and cleaned regularly to ensure functionality and an adequate level of hygiene;</p> <p>e. Drinking water facilities, comprising of a water tank with a manual tap can be combined with hand washing facilities near site ablution; and,</p> <p>f. Only toilet paper is to be flushed down the chemical ablution facility. Personnel are to be informed on sanitary implementation as part of the environmental awareness.</p>	Construction contractor	<p>Monitoring Action:</p> <p>ECO to take photographs of site before clearance; ECO Audit Checklist</p> <p>Responsible Person/Party:</p> <p>ECO</p> <p>Monitoring Frequency:</p> <p>Bi-Weekly</p>	

CONSTRUCTION PHASE: NOOITGEDACHT RETIREMENT ESTATE, WHITE RIVER, MPUMALANGA PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
8.8	<p>Aspects: Dust Generation and visual Impact.</p> <p>Impact: Dust nuisance from site operations and visual impact of site operations on surrounding land owners.</p> <p>Objective: To avoid dust from excavated materials and construction activity and unnecessary visual impact caused by site operations.</p> <p>Target: Minimise the incidence of dust generation and visual impact.</p> <p>Mitigation/Management Measures:</p> <ol style="list-style-type: none"> Implement dust suppression measures by watering (or acceptable methods) areas to be cleared as well as already exposed surfaces with damaged soil particles, particularly during dry, windy periods; Ensure all vehicles remain on designated roads; Dust masks are to be supplied to workers; The transfer of soil or aggregate should be done over the shortest possible distance; Access roads are to be kept clean; Surface material that is scraped off during construction should be conserved and used for rehabilitation. Any spoil material must be disposed of in a manner that appears natural; After construction decommissioning, if access roads or portions thereof will not be of further use to the landowner, remove all foreign material and rip the area to facilitate the establishment of vegetation, followed by a suitable revegetation program; Lay-down area(s) should be screened with shade cloth in an earth tone or other appropriate neutral colour; Site offices and structures should be limited to one location and carefully situated to reduce visual intrusion. Roofs 	Construction contractor	<p>Monitoring Action: ECO to take photographs of site before clearance; ECO Audit Checklist</p> <p>Responsible Person/Party: ECO</p> <p>Monitoring Frequency: Bi-Weekly</p>	

CONSTRUCTION PHASE: NOOITGEDACHT RETIREMENT ESTATE, WHITE RIVER, MPUMALANGA PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	<p>should be grey and non-reflective;</p> <p>j. Lights within the construction camp should face directly downwards (angle of 180°);</p> <p>k. Avoid shiny materials in structures. Where possible shiny metal structures should be darkened or screened to prevent glare;</p> <p>l. Litter should be strictly controlled, as the spread thereof through wind could have a very negative visual impact; and,</p> <p>m. The minimum amount of topsoil and vegetation should be removed during construction, and should be conserved and used for final rehabilitation.</p>			
8.9	<p>Aspects: Noise Generation.</p> <p>Impact: Noise nuisance from site operations.</p> <p>Objective: To avoid excessive noise generation from site operations.</p> <p>Target: Minimise the incidence of noise generation.</p> <p>Mitigation/Management Measures:</p> <p>a. Should multiple activities result in the excessive generation of noise, it should be strived to coordinate the incidence of these at the same time;</p> <p>b. Fit machinery with silencers;</p> <p>c. All stationary noisy equipment such as compressors and pumps should be contained behind acoustic covers, screens or sheds where possible;</p> <p>d. The regular inspection and maintenance of equipment must be undertaken to ensure that all components function optimally;</p>	Construction contractor	<p>Monitoring Action:</p> <p>ECO to take photographs of site before clearance; ECO Audit Checklist</p> <p>Responsible Person/Party:</p> <p>ECO</p> <p>Monitoring Frequency:</p> <p>Bi-Weekly</p>	

CONSTRUCTION PHASE: NOOITGEDACHT RETIREMENT ESTATE, WHITE RIVER, MPUMALANGA PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	<p>e. Vehicles should avoid use of the reverse gear as far as possible so as to avoid the sounding of sirens. This should not be considered for temporary access routes as disturbance of adjacent vegetation is to be avoided;</p> <p>f. Where recurrent use of machinery is frequent, machines should be shut down during intermediate periods;</p> <p>g. Unless otherwise specified by the ESA, normal working hours will apply (i.e. from 07H00–18H00, Mondays to Fridays);</p> <p>h. No loud music is permitted on site or in the Camp;</p> <p>i. Ensure that Employees and staff conduct themselves in an acceptable manner while on site, both during working hours and after hours; and,</p> <p>j. Vehicles are to abide by speed restrictions on access roads and limit trip generation so as to minimise disturbance to surrounding land users.</p>			
8.10	<p>Aspects: Fire Prevention.</p> <p>Impact: Uncontrollable fire.</p> <p>Objective: Prevent the outbreak of fires emanating from construction activity.</p> <p>Target: No incidences of fires are recorded for the site.</p>			
	<p>Mitigation/Management Measures:</p> <p>a. The potential risk of veld fires is heightened by windy conditions in the area, specifically during the dry, windy winter months;</p> <p>b. Assume acceptable precautions to guarantee that fires are not started as a result of works on site as specified below: the Contractor will be held responsible for any damage to structures or property on or neighbouring the Site as a result of any fire caused by personnel;</p>	Construction contractor	<p>Monitoring Action:</p> <p>ECO to take photographs of site before clearance; ECO Audit Checklist.</p> <p>Responsible</p>	

CONSTRUCTION PHASE: NOOITGEDACHT RETIREMENT ESTATE, WHITE RIVER, MPUMALANGA PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	<p>c. Contractor should ensure that construction related activities that pose a potential fire risk, such as welding etc., are properly managed and confined to areas where the risk of fires has been reduced. Measures to reduce the risk of fires include clearing working areas and avoiding working in high wind conditions when the risk of fires is greater. In this regard special care should be taken during the high risk dry, windy winter months;</p> <p>d. Contractor should provide fire-fighting training to selected construction staff and take cognisance of the Veld and Forest Fire Act, Act No. 101, 1998;</p> <p>e. As per the conditions of the Code of Conduct, in the event of a fire being caused by construction workers and or construction activities, the appointed contractors must compensate farmers for any damage caused to their farms. The contractor should also compensate the fire-fighting costs borne by farmers and local authorities;</p> <p>f. Fire breaks are to be established and maintained around the Work Sites as and when specified by the ECO;</p> <p>g. Equip vehicles and site structures with fire extinguishers. Rubber beaters should also be stored on site;</p> <p>h. No open fires are allowed anywhere on site;</p> <p>i. Storage of fuel or chemicals under trees is not permitted;</p> <p>j. Gas and liquid fuel is not to be stored in the same place;</p> <p>k. Smoking may only occur within a 3m radius from designated areas;</p> <p>l. Personnel must be adequately trained in the handling of firefighting equipment; and,</p> <p>m. Fuel, diesel, oil, or any other flammable substance should be stored 6m away from the smoking area.</p>		<p>Person/Party: ECO</p> <p>Monitoring Frequency: Bi-Weekly</p>	
8.11	<p>Aspects: Local communities.</p> <p>Impact: Impact of construction workers on local communities, construction personnel and the local community.</p> <p>Objective: Construction workers should not alter existing social dynamics of local communities.</p>	Construction contractor	<p>Monitoring Action: ECO Audit Checklist</p>	

CONSTRUCTION PHASE: NOOITGEDACHT RETIREMENT ESTATE, WHITE RIVER, MPUMALANGA PROVINCE	RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
<p>Target: No incidences of conflict between.</p> <p>Mitigation/Management Measures:</p> <ol style="list-style-type: none"> a. Where possible, the Employer should make it a requirement for contractors to implement a 'locals first' policy for construction jobs, specifically semi and low-skilled job categories. This will reduce the potential impact that this category of worker could have on local family and social networks; b. The Employer should consider the establishment of a Monitoring Forum (MF) for the construction phase. The MF should be established before the construction phase commences and should include key stakeholders, including representatives from the local community, local councillors, farmers, and the contractor. The role of the MF would be to monitor the construction phase and the implementation of the recommended mitigation measures. The MF should also be briefed on the potential risks to the local community associated with construction workers; c. The Employer and the contractors should, in consultation with representatives from the MF, develop a Code of Conduct for the construction phase. The code should identify what types of behaviour and activities by construction workers are not permitted. Construction workers that breach the code of good conduct should be dismissed. All dismissals must comply with the South African labour legislation; d. The Employer and the contractor should implement an HIV/AIDS awareness programme for all construction workers at the outset of the construction phase; e. The movement of construction workers on and off the site should be closely managed and monitored by the contractors. In this regard the contractors should be responsible for making the necessary arrangements for transporting workers to and from site on a daily basis; f. The contractor should make necessary arrangements to enable workers from outside the area to return home over 		<p>Responsible Person/Party: ECO</p> <p>Monitoring Frequency: Bi-Weekly</p>	

CONSTRUCTION PHASE: NOOITGEDACHT RETIREMENT ESTATE, WHITE RIVER, MPUMALANGA PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	<p>weekends and or on a regular basis during the 12-18 month construction phase. This would reduce the risk posed by non-local construction workers to local family structures and social networks;</p> <p>g. The contractor should make the necessary arrangements for ensuring that all non-local construction workers are transported back to their place of residence once the construction phase is completed. This would reduce the risk posed by non-local construction workers to local family structures and social networks; and,</p> <p>h. No construction workers, will be permitted to stay overnight on the site. Security personnel will be housed in the vicinity of the site.</p>			
8.12	<p>Aspects: Soil and water contamination due to construction activities such as the use of hazardous materials on site.</p> <p>Impact: Pollution of soil and water contamination by hazardous waste.</p> <p>Objective: Provide facilities for appropriate collection and disposal of hazardous waste.</p> <p>Target: No record of pollution or site contamination by hazardous waste.</p> <p>Mitigation/Management Measures:</p> <p>a. Concrete can be mixed on mixing trays only and not on exposed soil. Concrete must be mixed only in areas which have been specially demarcated for this purpose (preferable where no natural vegetation occur);</p> <p>b. Concrete mixing to be carried out away from sensitive areas and on impermeable surfaces;</p> <p>c. Material Safety Data Sheets (MSDSs) should be available on site for all chemicals and hazardous substances to be used on-site, including information on their ecological impacts and how to minimise the impacts in case of leakage;</p> <p>d. All spillage must be cleaned up immediately after they have occurred;</p> <p>e. Spillage of petrochemical products must be avoided. In the case of accidental spillage, contaminated soil must be</p>	Construction contractor	<p>Monitoring Action:</p> <p>Incident Register; Photographs; ECO Audit Checklist</p> <p>Responsible Person/Party:</p> <p>Contractor</p> <p>Monitoring Frequency:</p> <p>Bi-Weekly</p>	

CONSTRUCTION PHASE: NOOITGEDACHT RETIREMENT ESTATE, WHITE RIVER, MPUMALANGA PROVINCE	RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
<p>removed for bioremediation or disposed of at a facility for the substance concerned. Disturbed land must be rehabilitated and seeded with vegetation seed naturally occurring on site;</p> <p>f. Do not locate any ablution facilities, sanitary convenience, septic tank or French drain within the 1:100 year flood line, or within a horizontal distance of 100m (whichever is greater) of a watercourse or drainage line;</p> <p>g. Vehicles and machinery must be regularly serviced to avoid leakages;</p> <p>h. No uncontrolled discharges from the site or working area to depressions may be permitted. All discharge points will require approval from the Environmental Site Agent (ESA);</p> <p>i. No water courses may be used to clean equipment, or for bathing. All cleaning operations should take place off site at a location where waste water can be disposed of correctly;</p> <p>j. The discharge of any pollutants such as cement, concrete, lime, chemicals, etc. into the natural environment and the storm water system must strictly be prohibited;</p> <p>k. Fuel and chemical storage should be done within a designated area only, which is properly bund and able to contain 110% of the capacity of fuel or chemicals stored within;</p> <p>l. Construction vehicles must be inspected every morning before work commence to ensure that no leakages do occur;</p> <p>m. All personnel must receive induction on how to report spillages, contain them and treat them accordingly;</p> <p>n. Spill kits must be available at each working station;</p> <p>o. Drip trays must be placed beneath all construction equipment that is stationary on site or within the site camp; and,</p> <p>p. Hazardous waste must be stored in bins with a lid in a demarcated waste area, and must be disposed of at a hazardous treatment facility with records on file.</p>			

CONSTRUCTION PHASE: NOOITGEDACHT RETIREMENT ESTATE, WHITE RIVER, MPUMALANGA PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
<p>q. Protected plant species buffer must be adhered to;</p> <ul style="list-style-type: none"> Implement a minimum 30 m buffer zone around the western, southern and eastern boundaries of the population's distribution extent and an extended 70 m – 80 m buffer zone around the northern boundary of the population's distribution extent. The proposed buffer area will be approximately 1.3 ha in surface size. The buffer zone must be physically fenced off or another adequate form of barricading must be implemented around it. Access to within the buffered zone where the population is located should be entirely restricted <p>r. The project construction footprint must be kept as small as practicably possible to reduce the actual surface impact on vegetation and no unnecessary/unauthorised footprint expansion in the surrounding areas may take place.</p> <p>s. An adequate buffer zone of approximately 2 m outside the 1:100 year floodline must be demarcated and implemented around the drainage line and no future development should occur within this zone.</p> <p>t. Adequate storm water management measures must be implemented on site in order to sufficiently manage storm water runoff and clean/dirty separation during the construction and operational phases. This must be done to ensure that no significant contamination of the drainage line occurs.</p> <ul style="list-style-type: none"> Adequate management of stormwater runoff quality, quantities and flow speed will be required. <p>u. The quality of these samples must be chemically and biologically analysed by an accredited laboratory in order to serve as baseline values for the drainage line water quality.</p> <ul style="list-style-type: none"> Subsequent water sample analyses of the drainage line must be continually conducted on a 6 month basis and compared with the baseline data. If any contamination or reduction in water quality is determined, the competent authority must immediately be notified and the necessary steps must be followed by the project 				

CONSTRUCTION PHASE: NOOITGEDACHT RETIREMENT ESTATE, WHITE RIVER, MPUMALANGA PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	owner to locate and remediate the source of contamination as soon as practicably possible.			
8.13	<p>Aspects: Water Conservation.</p> <p>Impact: Wasting water as a result of negligence.</p> <p>Objective: Promote and implement water use efficiency mechanisms.</p> <p>Target: No Water Wastage.</p> <p>Mitigation/Management Measures:</p> <ul style="list-style-type: none"> a. Re-use water were possible; b. Implement rain catchment strategies; c. Prevent leakages at taps and hoses by means of maintenance; d. Use buckets of water to clean tools instead of running water; e. Capture and reuse stormwater runoff for site cleaning, truck washing and dust suppression; f. Make sure that sediment, concrete, sand and rubbish does not end up going down the stormwater drain. Cover or filter stormwater inlets and drains; and, g. Require workers to use a broom rather than a hose to clean paths and gutters. If water use is necessary, use high pressure hoses which are both water efficient and more effective cleaners. 	Construction contractor	<p>Monitoring Action:</p> <p>Incident Register; Photographs; ECO Audit Checklist</p> <p>Responsible Person/Party:</p> <p>Contractor</p> <p>Monitoring Frequency:</p> <p>Bi-Weekly</p>	
8.14	<p>Aspects: Health and Safety.</p> <p>Impact: Dangerous working conditions for workers.</p> <p>Objective: To prevent any casualties on site.</p>	Construction contractor	<p>Monitoring Action:</p> <p>Incident Register; Photographs; ECO</p>	

CONSTRUCTION PHASE: NOOITGEDACHT RETIREMENT ESTATE, WHITE RIVER, MPUMALANGA PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	<p>Target: No Personnel casualties on site.</p> <p>Mitigation/Management Measures:</p> <ul style="list-style-type: none"> a. Ensure that PPE is available to Personnel; b. Adhere to the Occupational Health and Safety Act; c. Keep the first aid kit stocked; d. Issue all workers with necessary health and safety items; e. Potentially hazardous areas must be demarcated with danger tape; f. Appropriate signage must be placed to caution Employees and contractors not to enter certain structures without authorisation; g. Regular safety inspections must be conducted to ensure that participants are equipped with necessary safety equipment; and, h. All construction personnel to wear hard hats and reflector jackets at all times. 		<p>Audit Checklist</p> <p>Responsible Person/Party: Contractor</p> <p>Monitoring Frequency: Bi-Weekly</p>	
8.15	<p>Aspects: Heritage Resources.</p> <p>Impact: Damage and destruction of vertebrate fossils during excavation activities.</p> <p>Objective: To prevent any destruction of valuable artefacts.</p> <p>Target: No destruction of any vertebrate fossils and artefacts.</p> <p>Mitigation/Management Measures:</p> <ul style="list-style-type: none"> a. Should any heritage resources (including but not limited to fossil bones, coins, indigenous and/or colonial ceramics, any articles of value or antiquity, stone artefacts or bone remains, structures and other built features, 	Construction contractor	<p>Monitoring Action: Incident Register; Photographs; ECO Audit Checklist</p> <p>Responsible Person/Party:</p>	

CONSTRUCTION PHASE: NOOITGEDACHT RETIREMENT ESTATE, WHITE RIVER, MPUMALANGA PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	<u>MONITORING:</u> ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	<p>rock art and rock engravings) be exposed during excavation for the purpose of construction, construction in the vicinity of the finding must be stopped. A trained palaeontologist or heritage specialist must be notified to assess the finds, and this must then be reported to the applicable heritage authority;</p> <p>b. Heritage remains uncovered or disturbed during earthworks must not be disturbed further until the necessary approval has been obtained from the heritage authority. A registered heritage specialist must be called to the site for inspection and removal once authority to do so, has been given;</p> <p>c. Excavations must be limited to the footprint area and be maintained in a narrow corridor;</p> <p>d. All operations of excavation equipment must be made aware of the possibility of the occurrence of sub-surface heritage features and the following procedures must be followed:</p> <ul style="list-style-type: none"> a. All construction in the immediate 50 m vicinity radius of the site must cease; b. The heritage practitioner must be informed as soon as possible; c. In the event of obvious human remains SAPS must be notified; d. Mitigation measures (such as refilling, etc.) must not be attempted; e. The area in a 50 m radius of the find must be cordoned off with hazard tape; <p>e. Public access must be limited and the area must be placed under guard;</p> <p>f. The small graveyard is of high significance and should be fenced off. Access must be allowed to family members, and a buffer zone of at least 10 m should be left around the graveyard.</p>		<p>Contractor</p> <p><u>Monitoring Frequency:</u> Bi-Weekly</p>	

8.2 Operational Phase Environmental Management Programme

OPERATIONAL PHASE: NOOITGEDACHT RETIREMENT ESTATE, WHITE RIVER, MPUMALANGA PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
1. ACTIVITY: RETIREMENT ESTATE OPERATIONS				
1.1	<p>Aspects: Soil and water contamination</p> <p>Impact: Pollution to soil and water by hazardous substances</p> <p>Objective: Provide facilities for appropriate collection and disposal of hazardous waste.</p> <p>Target: No record of pollution or site contamination by hazardous waste.</p> <p>Mitigation/Management Measures:</p> <ol style="list-style-type: none"> Install adequate pollution prevention infrastructure where necessary to control pollutants entering storm water Store all hazardous substances in a secondary containments system capable of storing at least 110% of the liquid capacity. Contaminated water must be pumped out and removed from site to an appropriate hazardous waste landfill site. Spillages of all hazardous substances must be cleaned as soon as spillage is detected. 	Applicant	<p>Monitoring Action:</p> <p>Incident Register; Photographs; ECO Audit Checklist</p> <p>Responsible Person/Party:</p> <p>Contractor</p> <p>Monitoring Frequency:</p> <p>Bi-Monthly</p>	
1.2	<p>Aspects: Waste storage</p> <p>Impact: Potential impacts on surrounding environment</p> <p>Objective: Prevent littering and pollution</p> <p>Target: No litter on and around the site</p>	Applicant	<p>Monitoring Action:</p> <p>Incident Register; Photographs; ECO Audit Checklist</p>	

OPERATIONAL PHASE: NOOITGEDACHT RETIREMENT ESTATE, WHITE RIVER, MPUMALANGA PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	<p>Mitigation/Management Measures:</p> <ul style="list-style-type: none"> a. Ensure sufficient waste bins on site and within buildings b. Ensure the sufficient removal of waste from site on a regular basis to a registered landfill site. c. Provide environmental awareness training to all personnel. d. Where applicable, waste should be reused, and recycled 		<p>Responsible Person/Party: Applicant</p> <p>Monitoring Frequency: Bi-Monthly</p>	
1.3	<p>Aspects: Noise Generation. Impact: Noise impact on surrounding areas Objective: Keep noise levels to a minimum Target: No complaints regarding noise during operational phase</p>	Applicant	<p>Monitoring Action: Applicant to adhere to business hours.</p>	
	<p>Mitigation/Management Measures:</p> <ul style="list-style-type: none"> a. Noise levels on the boundary of the property may not exceed 70 decibels during the day and not exceed 60 decibels during the evening. b. Keep records of all noise compliant and the sections taken to rectify these issues. 		<p>Responsible Person/Party: Applicant</p>	
1.4	<p>Aspects: Fire Prevention. Impact: Uncontrollable fire. Objective: Prevent the outbreak of fires emanating from operational activities. Target: No incidences of fires are recorded for the site.</p>			

OPERATIONAL PHASE: NOOITGEDACHT RETIREMENT ESTATE, WHITE RIVER, MPUMALANGA PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	<p>Mitigation/Management Measures:</p> <ul style="list-style-type: none"> a. Ensure the buildings are equipped with adequate firefighting equipment according to SANS 10087; b. Workers must be adequately trained in the handling of firefighting equipment as well as in fire drills; c. No open fires are permitted anywhere on the premises. d. A designated smoking area must be identified where it does not pose a risk for starting a fire; and e. All health and safety signage must be in place to warn the public. 	Applicant	<p>Monitoring Action:</p> <p>Applicant to comply with firefighting regulations.</p> <p>Responsible Person/Party:</p> <p>Applicant</p>	
1.5	<p>Aspects: Soil and water contamination due to operational activities such as the use of hazardous materials on site.</p> <p>Impact: Pollution of soil and water contamination by hazardous waste.</p> <p>Objective: Provide facilities for appropriate collection and disposal of hazardous waste.</p> <p>Target: No record of pollution or site contamination by hazardous waste.</p> <p>Mitigation/Management Measures:</p> <ul style="list-style-type: none"> a. Material Safety Data Sheets (MSDSs) should be available on site for all chemicals and hazardous substances to be used at the retirement estate , including information on their ecological impacts and how to minimise the impacts in case of leakage or spillage; b. All spillage must be cleaned up immediately after they have occurred; c. Vehicles and machinery must be regularly serviced to avoid leakages; d. No uncontrolled discharges from the site or working area to depressions may be permitted. 	The Applicant	<p>Monitoring Action:</p> <p>Incident Register; Photographs;</p> <p>Responsible Person/Party:</p> <p>Applicant</p> <p>Monitoring Frequency:</p> <p>Bi-Monthly</p>	

OPERATIONAL PHASE: NOOITGEDACHT RETIREMENT ESTATE, WHITE RIVER, MPUMALANGA PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	<p>e. The discharge of any pollutants such as Medical Waste, chemicals, etc. into the natural environment and the storm water system must strictly be prohibited;</p> <p>f. Hazardous /Medical waste must be stored in bins with a lid in a demarcated waste area, and must be disposed of at a hazardous treatment facility with records on file.</p> <p>g. No chemicals or waste may be stored within the <i>Aloe Simii</i> buffer area.</p>			
1.6	<p>Aspects: Health and Safety.</p> <p>Impact: Dangerous working conditions for workers.</p> <p>Objective: To prevent any casualties on site.</p> <p>Target: No Personnel casualties on site.</p> <p>Mitigation/Management Measures:</p> <p>a. Adhere to the Occupational Health and Safety Act;</p> <p>b. Keep the first aid kit stocked;</p> <p>c. Ensure that material safety data sheets are provided for all substances used in the process.</p> <p>d. Refer to the material safety data sheet for the storage, handling and transportation of all substances used in the operating process.</p> <p>e. Standard operating procedures must be followed during the operation phase.</p> <p>f. Ensure that all personnel on site are aware of the content of this EMP</p> <p>g. Implement an Emergency preparedness and response plan.</p> <p>h. Appropriate signage must be placed to caution Employees and contractors not to enter certain structures without</p>	Applicant	<p>Monitoring Action:</p> <p>Incident Register; Photographs;</p> <p>Responsible Person/Party:</p> <p>Applicant</p> <p>Monitoring Frequency:</p> <p>Bi-Monthly</p>	

OPERATIONAL PHASE: NOOITGEDACHT RETIREMENT ESTATE, WHITE RIVER, MPUMALANGA PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	<p>authorisation;</p> <p>i. Regular safety inspections must be conducted to ensure that participants are equipped with necessary safety equipment; and,</p>			
1.7	<p>Aspects: Impact on Traffic flow</p> <p>Impact: Higher Traffic impact as a result of residents</p> <p>Objective: Ensure sufficient traffic flow</p> <p>Target: No record of stationary traffic</p>	Applicant	<p>Monitoring Action:</p> <p>Incident Register; Photographs;</p>	
	<p>Mitigation/Management Measures:</p> <p>a. Delivery Vehicles should be timed to avoid times of day when traffic volumes are likely to be higher;</p> <p>b. Abnormal loads should not be transported after dark when visibility is poor;</p> <p>c. Vehicles used for the transport of materials or goods must be licensed and must comply with national road legislation.</p> <p>d. All Estate Vehicles must be road-worthy, be maintained to prevent fuel or oil leaks and drivers are to the licensed appropriately for the driving of their assigned vehicle. Drivers responsible for the transportation of personnel must be specifically licensed to do so;</p> <p>e. Transport of materials should be limited to the least amount of trips possible;</p> <p>f. Public Transport opportunities must be implemented.</p> <p>g. Walking lanes and sidewalks must be implemented.</p>		<p>Responsible Person/Party:</p> <p>Applicant</p> <p>Monitoring Frequency:</p> <p>Bi-Monthly</p>	

OPERATIONAL PHASE: NOOITGEDACHT RETIREMENT ESTATE, WHITE RIVER, MPUMALANGA PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
1.8	<p>Aspects: Visual Impacts</p> <p>Impact: Buildings along the N8 and N1 may will change the visual quality of the area</p> <p>Objective: Minimize Visual Impact</p> <p>Target: No complaints regarding visual quality in the area</p> <p>Mitigation/Management Measures:</p> <ol style="list-style-type: none"> Building guidelines to be implemented to reduce triple story buildings and higher close to the N1 and the N8; Building regulations must try to implement a specific design for building in the area in order to get all to be build according to the same building style. Building must be painted a natural colour to try and fit to the surrounding areas. 	Applicant	<p>Monitoring Action:</p> <p>Complaints Register; Photographs;</p> <p>Responsible Person/Party:</p> <p>Applicant</p> <p>Monitoring Frequency:</p> <p>Bi-Monthly</p>	
1.9	<p>Aspects: Water Conservation</p> <p>Impact: Wasting water as a result of negligence</p> <p>Objective: Promote and implement water use efficiency mechanisms</p> <p>Target: No Water Wastage</p> <p>Mitigation/Management Measures:</p> <ol style="list-style-type: none"> Re-use water were possible; Implement rain catchment strategies; Prevent leakages at taps and hoses by means of maintenance; Use buckets of water to wet plants; 	Applicant	<p>Monitoring Action:</p> <p>Water Usage Register</p> <p>Responsible Person/Party:</p> <p>Applicant</p> <p>Monitoring Frequency:</p> <p>Monthly</p>	

OPERATIONAL PHASE: NOOITGEDACHT RETIREMENT ESTATE, WHITE RIVER, MPUMALANGA PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	<p>e. Capture and reuse stormwater runoff;</p> <p>f. Require workers to use a broom rather than a hose to clean paths and gutters. If water use is necessary, use high pressure hoses which are both water efficient and more effective cleaners.</p> <p>g. All tap or pipe leakage must be reported within 12 hours to Municipality or Corporate Body</p>			
1.10	<p>Aspects: Habitat and Buffer Zone Management</p> <p>Impact: Destruction of the population of the critically endangered species <i>Aloe simii</i></p> <p>Objective: Improve the <i>Aloe simii</i> habitat</p> <p>Target: No loss of <i>Aloe simii</i> species</p> <p>Mitigation/Management Measures:</p> <p>a) Adequately manage and maintain the buffer zone in accordance with the <i>Aloe simii</i> Ecological Impact Assessment recommendations:</p> <ul style="list-style-type: none"> Implement a minimum 30 m buffer zone around the western, southern and eastern boundaries of population's distribution extent and an extended 70 m – 80 m buffer zone around the northern boundary of the population's distribution extent. The proposed buffer area will be approximately 1.3 ha in surface size. This should provide a sufficient undisturbed area for pollinators to visit. The proposed buffer zone is located on the western boundary of the proposed development footprint and will therefore not be enclosed and isolated by the development but rather be open 	Applicant	<p>Monitoring Action:</p> <p>Annual <i>Aloe Simii</i> Ecological Assessment</p> <p>Responsible Person/Party:</p> <p>Applicant (to appoint suitably qualified person)</p> <p>Monitoring Frequency:</p> <p>Annually</p>	

OPERATIONAL PHASE: NOOITGEDACHT RETIREMENT ESTATE, WHITE RIVER, MPUMALANGA PROVINCE	RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
<p>to the west in the direction of the R 40 main road. Only the entrance gate will be situated on the western boundary of the development which will provide access to the estate from the R 40 main road. Entrance gate infrastructure size and extent will be minimal and will not pose a significant obstacle in the anticipated flightpath corridor for sunbirds (pollinators) between the population and the existing other <i>Aloe simii</i> population situated across the R 40 main road. The design will therefore create a free flowing flight path/corridor for pollinators from the west.</p> <ul style="list-style-type: none"> • Implement active rehabilitation and habitat restoration measures in order to improve the condition and functionality of the buffered micro-habitat. Planting of local indigenous plant species associated with sunbird pollination should encourage the pollinators to visit the area. • Install temporary sugar feeders in close proximity to the population in order to further encourage pollinators to visit the area during flowering season. It is important to note that NO artificial sweeteners such as xylitol should be used as these sweeteners are toxic to sunbirds. • The buffer zone will be extended to between 70 m – 80 m on the north-western boundary of the population. This will result in the majority of the current exiting surface runoff and drainage area being included in the buffer zone and kept intact. • The rehabilitation and restoration of the micro-habitat will also aid in improved, more controlled and less volatile surface water runoff occurring which could potentially damage the population. • A suitably qualified and experienced horticulturalist who is familiar with the specific area and specific 			

OPERATIONAL PHASE: NOOITGEDACHT RETIREMENT ESTATE, WHITE RIVER, MPUMALANGA PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	<u>MONITORING:</u> ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	<p>species Aloe simii must conduct an annual assessment of the population to determine the condition and health of the individuals.</p> <ul style="list-style-type: none"> ▪ If any individuals are found to be suffering from potential pests or diseases they should be suitably treated whether by chemical or physical interventions. The horticulturalist must advise on the most appropriate intervention measures. ▪ Care must be taken that the planting of indigenous ornamental vegetation within the proposed estate does not pose any potential health risk to the identified Aloe simii individuals such as scale lice infection. <ul style="list-style-type: none"> • The horticulturalist must also determine annually whether defoliation, alien and invasive removal (in accordance with the Alien and Invasive Species Management Plan) or any other management measures are required for the buffer zone. The recommended measures must then be implemented. 			

9 Emergency Response Plan

The following table is provided to assist the ECO and Site Manager contractor with remedial work options and problem solving:

Observation or Event	Action by Inspector or Observer	Action by Site Manager
Spillage of diesel or hydrocarbons on soil	Report to Site Manager and continue observations. Also check: <ul style="list-style-type: none"> ➤ That the source causing the spillage has ceased, and that the affected area is isolated to prevent spreading of the hazardous substance, where after it should be rehabilitated. 	Action will be required ASAP by following the next steps: <ul style="list-style-type: none"> ➤ Dig down into the soil to see how far down the pollution penetrated, ➤ If less than 300mm penetrated: <ul style="list-style-type: none"> a. Turn the soil over to expose it to the air. b. Apply Mono Ammonium Phosphate (MAP) at a rate of 58gr/m² to the overturned soil. c. Water enough to keep the soil moist. ➤ If penetration is greater than 300mm: <ul style="list-style-type: none"> a. Remove the affected soil and spread in a layer not more than 300mm thick. b. Apply MAP at a rate of 50gr/m². c. Water enough to keep the soil moist. ➤ Repeat the above steps every 6 weeks or until the soil is clean.
Erosion	Report to Site Manager and continue observations. Also check: <ul style="list-style-type: none"> ➤ That all vehicular movement is restricted to existing access routes to prevent crisscrossing of tracks through undisturbed areas. 	Action will be required ASAP: <ul style="list-style-type: none"> ➤ Implement erosion protection works at identified problem areas. ➤ Implement remedial works at affected areas in order to restore the area to its previous or better status.

10 Incident Register

INCIDENT REGISTER: PROPOSED NOOITGEDACHT RETIREMENT ESTATE					
NAME OF PERSON REPORTING THE INCIDENT	INCIDENT	DATE OF INCIDENT IDENTIFIED	HOW WAS INCIDENT ADDRESSED?	DATE OF RECTIFICATION	SIGNATURE

11 Rehabilitation Measures and Closure Plan

The rehabilitation phase follows completion of the operational phase and entails site clean-up and site rehabilitation. The underlying aim of rehabilitation is the process of returning land within the site boundary to some degree of its former natural state.

Key aspects within this process include the:

- Removal of structures and infrastructure;
- Handling of inert waste and rubble;
- Handling of hazardous waste and pollution control;
- Final shaping of the terrain;
- Topsoil replacement and soil amelioration;
- Ripping and scarifying of surfaces;
- Planting of indigenous occurring vegetation (if deemed necessary); and
- Maintenance.

11.1 Rehabilitation Measures

Removal of structures and infrastructure

- On completion of a section of works, the area must be rehabilitated by suitable landscaping, levelling, topsoil dressing, land preparation, alien plant eradication and where ascribed for by the ECO, vegetation establishment;
- Clear and completely remove from site all operational structures and temporary infrastructure;
- All permanent infrastructures must be returned to a useable state.

Topsoil replacement and soil amelioration

- The reinstatement of disturbed areas must follow immediately after the removal of structures and temporary infrastructure;
- Topsoil backfilling must be undertaken when the soil is dry, and not following any recent rainfall events;
- All stockpiled topsoil together with herbaceous vegetation should be replaced and redistributed over a disturbed area such as temporary access roads;
- Topsoil must be returned to the same site from where it was stripped;
- When insufficient topsoil remains, soil of a similar quality can be obtained from a nearby area within the site area which was disturbed;
- Once topsoil has been returned to the ground, stripped vegetation should be randomly spread by hand over the area.

Inert waste

- Domestic waste must be completely removed from the site and disposed of at a landfill site.

Maintenance

- All re-growth of invasive vegetative material will be monitored by the Developer for one year;
- All areas under rehabilitation are to be treated as no-go areas using danger tape and steel droppers/fencing and cordoned off, to prevent vehicular, pedestrian and livestock access.
- Any re-vegetation must be done using plant species in occurrence on site;
- Control invasive plant species and weeds using approved methods of manual or chemical intervention;
- The reestablishment of vegetation should be allowed several rainy seasons, given the arid nature of the climate and region.

12 Prevent Triggering of Further Listed Activities

It is of utmost importance to adhere to the following guidelines in order to prevent the triggering of activities that may need to be authorised:

PLEASE DO NOT	TO PREVENT TRIGGERING
ARCHAEOLOGY	
Avoid archaeological, historical sites or any exhumed artefacts discovered through excavations.	Archaeological survey / SAHRA permit

13 References

Republic of South Africa. Environmental Impact Assessment Regulations, 2014. Department of Environmental Affairs: Pretoria.