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ENVIRONMENTAL IMPACT ASSESSMENT
FINAL BASIC ASSESSMENT REPORT
(Ref 14/12/16/3/3/1/2001)

FOR

PROPOSED SUBDIVISION AND DEVELOPMENT (RESIDENTIAL 1 - BUSH LODGE RESIDENCES, AND SPECIAL FOR ACCESS AND ACCESS CONTROL PURPOSES, AND PRIVATE OPEN SPACE)

ON

ERF 30, LETAMO TOWN
LETAMO ESTATE
MOGALE CITY
GAUTENG

Listed activity: GN. R 327, 07 April 2017 Listing 1 Activity 27
The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation.

Listed activity: GN. R 327, 07 April 2017 Listing 1 Activity 28
Residential development where such land was used for agriculture or game farming on or after 01 April 1998 and where such development (ii) will occur outside an urban area, where the land to be developed is bigger than 1 hectares.

July 2019

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ENVIRONMENTAL IMPACT ASSESSMENT
FINAL BASIC ASSESSMENT REPORT
(Ref 14/12/16/3/3/1/2001)

FOR

PROPOSED REZONING, SUBDIVISION AND DEVELOPMENT (RESIDENTIAL 1 - BUSH LODGE RESIDENCES, AND SPECIAL FOR ACCESS AND ACCESS CONTROL PURPOSES, AND PRIVATE OPEN SPACE)

ON

ERF 30, LETAMO TOWN
LETAMO ESTATE
MOGALE CITY
GAUTENG

Listed activity: GN. R 327, 07 April 2017 Listing 1 Activity 27
The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation.

Listed activity: GN. R 327, 07 April 2017 Listing 1 Activity 28
Residential development where such land was used for agriculture or game farming on or after 01 April 1998 and where such development (ii) will occur outside an urban area, where the land to be developed is bigger than 1 hectares.

FOR

LETAMO ESTATE (PTY) LTD

EXECUTIVE SUMMARY

The **Final** Basic Assessment Report (EIA BAR) in support of the EIA Application for Authorisation for subdivision and development (Residential 1 – bush lodge residences, and Special for access and access control purposes, and private open space) deals with an overview of the site in both its regional and site specific context.

Aspects to be investigated include natural (geology, soil, topography, hydrology, climate & microclimate, vegetation, wildlife), physical (location, access, traffic, infrastructure, landuse, safety & security, legal, social, economic, heritage) and sensorial (visual, spirit, smell, sound) characteristics, ecological and environmental processes, environmental policies and the legislative framework, evaluation of the proposed project, as well as public participation. These aspects will form the baseline environmental reference model for the proposed activity.

The environmental impact assessment deals with the following aspects: conservation status, site opportunities and constraints, ecological sensitivity, community involvement, site development potential, development alternatives, **environmental impact management** (formulation of environmental impacts, the significance of impacts, the mitigation of impacts), **an Environmental Management Programme (EMPr)**, assumptions, uncertainties and gaps in knowledge.

No aspects that could not be mitigated or integrated, both from an environmental and development perspective, have been found and the proposed development is, thus, recommended.

Recommendations include an Environmental Impact Statement, **feedback from Authorities (DEA, GDARD, Mogale City, COHWHS),** the validity period of the EIA Authorisation, rehabilitation, financial provision, and closure.

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1 INTRODUCTION

1.1 Purpose of report

Application for Authorisation for an Environmental Impact Assessment (EIA) Basic Assessment Report (BAR) for proposed subdivision and development of Erf 30, Letamo Town within the Letamo Estate. **Erf 30 is thus located within an existing approved and proclaimed township.** Ecologic AFRIKA was appointed as Environmental Assessment Practitioner (EAP) (Appendix A) for the EIA BAR study and EIA Application for Authorisation.

Letamo Estate was authorized by the Department of Environmental Affairs and Tourism on 27 March 2000 (see Appendix B). Letamo Township, inside Letamo Estate, was authorized by Gauteng Agriculture, Conservation and Environment on 11 April 2005 (see Appendix C). The environmental Management Plan (EMP) for Letamo Estate was approved on 30 July 2008 (see Appendix D). Erf 30 is located inside Letamo Township and was zoned Undetermined at the time of EIA Authorisation.

1.2 The property (Drawing 1 – Locality and Drawing 2 – Site Plan)

The property is located along the southern boundary inside the Letamo Estate, just northeast of the intersection of road N14 and road R540 south of Krugersdorp, Mogale City, Gauteng. The property measures 15,1345ha. The property forms part of the existing Letamo estate. **Letamo Estate measures 490.12ha in total, including Erf 30. The Estate consists of just over 450ha of free-roaming wildlife areas, with just over 33ha of development areas when fully developed. The Estate thus contributes hugely to the protection and conservation of the Egoli Granite Grassland, the integrity of the COHWHS, and the tourism experience (the Forum Homini Boutique Hotel and Black Bark Guesthouse are located within the Estate) within the area.**

The current zoning is Undetermined, and will be changed to Residential 1 – bush lodge residences, and Special for access and access control purposes, and private open space for wildlife.

Site coordinates (centre of proposed subdivision and development area):

26°01'54.64"S; 27°46'41.96"E

Coordinates of boundary of property (see Drawing 4):

A - 26°01'49.59"S, 27°46'35.76"E
B - 26°01'51.16"S, 27°46'39.51"E
C - 26°01'50.65"S, 27°46'53.61"E
F - 26°01'53.16"S, 27°46'54.74"E
G - 26°02'03.02"S, 27°46'49.56"E
H - 26°01'55.75"S, 27°46'32.34"E

1.3 The project (see Drawing 3–Proposed development)

The proposed project will consist of the subdivision of Erf 30 (15,1345 hectares) into 12 residential stands (**sizes vary from 0,6094 ha to 1,3584ha**) and 2 private open space stands (**6,473ha and 9,500ha**). Individual stands will be sold off for residential development (one dwelling per Erf) by prospective buyers. Private open space stands will be left natural, exotic vegetation species will be removed, and stands will be enhanced by indigenous planting. Water will be provided by internal reticulation from a water network owned and operated by Letamo Game Farm Pty Ltd on behalf of Mogale City. Sewerage disposal by conservancy/ suction tank at each individual stand. Power supply to be off-grid by PV/solar, batteries, LPG gas and standby silent generators.

The following activities are listed:

Listed activity: GN. R 327, 07 April 2017 Listing 1 Activity 27
The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation.
Listed activity: GN. R 327, 07 April 2017 Listing 1 Activity 28
Residential development where such land was used for agriculture or game farming on or after 01 April 1998 and where such development (il) will occur outside an urban area, where the land to be developed is bigger than 1 hectares.

1.4 Terms of reference

This report is concerned with the environmental impact assessment and, as such, input from the landowner, consultants/specialists, Authorities and other Interested and Affected Parties were obtained and integrated into this report.

1.5 Methodology

Ecologic AFRIKA commenced with the project during August 2018, with a site visit and meeting, project literature search, and site evaluation. IAP involvement (advertising and notifications) started on 14 November 2018 with notifications to adjacent owners, other IAPs, in a local newspaper and on site until 14 December 2018. **The Draft BAR was submitted by courier or e-mail to registered IAPs, DEA, GDARD, Mogale City, and COHWHS on 19 February 2019. Feedback from DEA was received on 25 March 2019, from GDARD on 27 March 2019, from Mogale City on 22 March 2019, and from COHWHS on 22 May 2019. No feedback has been received from registered IAPs. The Final BAR was also distributed to all IAPs, DEA, GDARD, COHWHS, Mogale City and DWS on 05 June 2019, with 06 July as deadline for comments. No feedback has been received in the Final BAR.**

This Final EIA BAR consists of the following steps:

Site evaluation (natural, physical, sensory)
Legal procedures and legislation (national, provincial, local)
Proposed project evaluation (need & desirability, alternatives, phasing)
Interested & Affected Parties (IAPs) involvement
Environmental impact management
- Environmental impacts
- Significance of impacts
- Mitigation of impacts

Environmental Management Programme (EMPr)
Recommendations
- Environmental impact statement
- **Feedback from Authorities (DEA, GDARD, Mogale City, COHWHS)**
- The validity period of the EIA Authorisation
- Rehabilitation
- Financial provision
- Closure.

Conclusion

2. SITE EVALUATION

2.1 Regional context

The regional context represents a broader overview of the area in which the site is located, in order to understand its function and purpose relating to other facilities and activities in the area.

2.1.1 Natural ~~environment~~

The area consists primarily of open grassland, with a strip of indigenous **to exotic** savannah, **with indigenous trees** to be retained as private open space for wildlife, and **thus** as part of a movement corridor for wildlife roaming free on the estate. Vegetation in the area is classified as Egoli Granite Grassland (Musina & Rutherford), consisting of moderately undulating plains and low hills supporting tall grassland, with some woody species on rocky outcrops or on rock sheets, and with some exotic trees and shrubs associated with the savannah strip bisecting the property. Veld is dominated by graminoids (*Hyperrhenia hirta, Aristida sp, Cynodon dactylon, Digitaria monodactyla, Eragrostis sp, Melinins repens, and Themeda triandra*), some herbs and geophytic herbs, some trees (*Vangueria infausta, Rhus pyroides*), few shrubs (*Anthospermum sp, Gnidia capitat, Helichrysum kraussi, Ziziphus zeyheriana.* The regional geology is underlain by mafic and ultra-mafic greenstone rock formations of the Swaziland Super Group. Soils are leached, shallow, coarsely grained and sandy soils of the ~~Glenrosa form. The climate consists of warm summers (35°C) with frost in winter~~ (-3°C), and typically with summer afternoon thunderstorms and average rainfall of about 680mm annually.

2.1.2 Physical environment

The site is located along the southern boundary inside the Letamo Estate, just northeast of the intersection of road N14 and road R540 south of Krugersdorp, Mogale City, Gauteng. Surrounding land uses consist of intensive chicken farms north and east of Letamo Estate, vacant land southeast of Erf 30, development southwest of Erf 30, and agricultural grazing west of Letamo Estate. Access road to the estate is from tar road R540, with internal gravel public roads in the estate, also providing access to Erf 30. **The site is located within the Buffer zone of the Cradle of Humankind World Heritage site (COHWHS).**

2.1.3 Sensory environment

The character of the area is natural to agricultural of average to good visual quality around the estate, with high quality development inside the estate. Views and visibility are average due to flat topography. Pollution is minimal.

2.2 Natural characteristics - site specific (see Drawing 2 – Site Plan)

These characteristics are more site specific and deals with the site and its immediate surroundings.

2.2.1 Geology (see appendix E)

The geology is underlain by mafic and ultra-mafic greenstone rock formations of ~~the Swaziland super group~~. **According to the geotechnical report there is no Dolomite within or near the site boundaries.**

2.2.2 Soils (see Appendix E)

Soils consist mainly of leached, shallow, coarsely grained and sandy soils of the Glenrosa form.

2.2.3 Topography

The site is located on an undulating plain, sloping down northeastwards at 1:25 towards a watercourse further east from the site.

2.2.4 Hydrology

The average rainfall in the area is 680mm during November to March. Storm water drainage is primarily through infiltration and surface runoff northeastwards towards the watercourse further east from the site.

2.2.5 Climate & microclimate

The climate of the area is characterised by warm summers and cold winters, with summer rainfall, with dry winters and frost in winter. Monthly maximum temperature is 35°C in summer and -3°C in winter. Average rainfall is 680mm per annum. The microclimate of the site is not much affected by the undulating topography, due to the relatively flat slope and absence of obstructions

2.2.6 Vegetation ~~(see Appendix J – Vegetation, Flora and Avifauna report)~~

Vegetation in the area is classified Egoli Granite Grassland (Musina & Rutherford), consisting of moderately undulating plains and low hills supporting tall grassland, with some woody species on rocky outcrops or on rock sheets, and with some exotic trees and shrubs associated with the savannah strip bisecting the property. **Eight plant communities have been identified, all with low ecological sensitivity except *Trachypogon spicatus* grassland with medium ecological sensitivity. No Red Data plant species occur on site, and two Provincially protected species (*Babiana hypogea, Gladiolus***

***crassifolius*) occur on the site, which should either be protected in-situ, or transplanted under specialist supervision.**

2.2.7 Wildlife **(see Appendix J)**

The site is located within the Letamo Estate, with various game species (eland, black wildebeest, zebra, red hartebeest, steenbok, duiker and hippo). Birdlife is abundant, consisting primarily of ground-living species, due to the vegetation characteristics of the area. **Although potential grass owl habitat occur within the Letamo Estate, no suitable habitat for grass owl breeding occur on the site.**

2.3 Physical characteristics – site specific (see Drawing 2 – Site Plan)

These characteristics represent all manmade intrusions on and/or manipulations of the site and the surrounding area.

2.3.1 Location & access

The site is located along the southern boundary inside the Letamo Estate, just northeast of the intersection of road N14 and road R540 south of Krugersdorp, Mogale City, Gauteng. Access road to the estate is from tar road R540, with internal gravel public roads in the estate, also providing access to Erf 30.

2.3.2 Traffic

Traffic in the area will not increase significantly, due to the development of only 12 bush lodge residential stands.

2.3.3 Infrastructure (see Appendix F and G)

Infrastructure within the estate consists of sewerage disposal by each individual stand (conservancy/suction tank), water from an existing municipal reticulation managed and owned by Letamo Game Farm Pty Ltd within the estate, and surface drainage of storm water. Electricity will not be provided from the existing Eskom network, but will be off-grid and consisting of PV (solar), batteries and LPG gas. **An electrical power line bisects the site.**

2.3.4 Land-Use

The site is located in Letamo Town, within the Letamo Estate (along and inside the southern boundary). **Erf 30 is located within an approved and proclaimed township.** Surrounding land uses consist of the estate to the west, north and east, vacant land to the southeast, and development to the southwest. The zoning of Erf 30 is currently Undetermined, within the Letamo Town, and will be

changed to Residential 1 – bush lodge residences, and Special for access and access control purposes, and private open space for wildlife.

2.3.5 Safety & security **(see Appendix Z)**

Safety in the area is good, due to controlled access, security patrols, and the presence of wildlife. **Some security breaches have been encountered recently, thus necessitating the increase on fenced-in areas around residences to 15% of each erf area, with a minimum of 1500m² (see Item 4.4 in this report). This increase is due to the large sizes of building footprints and safety buffer required around the building, which will be landscaped with indigenous planting.**

2.3.6 Legal

Legal constraints on the site consist of **an electrical power line bisecting the site, a Right of Way along the southern boundary,** EIA Authorisation and the rezoning and subdivision of the property.

2.3.7 Social

The social profile of the surrounding area is primarily middle income rural residential, with farming activities (cultivation, grazing). The social profile within the estate is high income. The proposed use is compatible with the existing activities/development in the area.

2.3.8 Economic

Economic activity consists of residential and agricultural (wildlife, cultivation, grazing) uses of the area.

2.3.9 Heritage (see Appendix H)

No signs of historical significance have been found on the site. Letamo Town, within the **Letamo Estate, and thus also Erf 30, falls within the Buffer zone of the COHWHS, with potential for archaeological and palaeontological finds. A Heritage Impact Assessment (HIA) has been requested by COWHS, which is only included now due to late submission of feedback from COHWHS (91 days after submission). The probability of any finds are highly unlikely, according to the Palaeontological Impact Assessment conducted by Dr JF Durand (University of Johannesburg).**

2.4 Sensory characteristics – site specific

These characteristics influence the senses (sight, sound, touch, taste) and may be subjective, based upon perceptions, conditioning and personal preferences.

2.4.1 Visual
The visual quality of the site is average to positive, with natural veld (grassland and savannah strip). Visual quality of the surrounding area varies from average to good ~~natural veld with rural development. Views from the site are minimal due to the fairly flat~~ topography. Visibility to the site is also limited due to distance from roads and flat topography.

2.4.2 Spirit & site atmosphere
The character of the area is natural to rural residential – attractive, typical grassland with savannah strip.

2.4.3 Smell
Pollution is negligible, with winter veld fires and dust as occasional sources.

2.4.4 Sound
Natural sounds (birdlife, jackal) and rural residential activities as sources.

2.5 ~~Ecological & environmental processes~~
These processes represent site and surrounding area characteristics (natural, physical, sensory) combining/interacting to form substantial causes and affects relating to the site.

2.5.1 Biodiversity (see Appendix K)
Biodiversity represents the variety of plant (trees, shrubs, groundcovers, grasses, aquatics, succulents) and animal (mammals, birds, reptiles, amphibians, fish, insects) species that occurs or may occur in the area. The biodiversity is good, due to a variety of habitats, conservation efforts, and availability of surface water. GDARD indicated specialist studies for plants (*Gnaphalium nelson*), habitat for grass owl (*Tyto capensis*), primary vegetation (Egoli Granite Grassland), and SANBI NPAES verification, **which have been investigated (see Appendix J)**.

2.5.2 Sustainability
The agricultural/potential of the site is deemed good. Only the areas surrounding the proposed residences will be developed (**15% of erf area, with minimum of 1500m²**) as a residence with landscaping, with the remainder of each erf to be integrated with the existing wildlife free-roaming areas.

2.5.3 Habitats
Habitats are varied, consisting of primarily grassland, but also savannah, watercourse and wetland areas.

2.5.4 Corridors
Corridors for the movement of consist of the natural veld interlinking adjacent properties. The savannah strip bisecting the site, combined with the development exclusion areas on each stand will add to the existing corridors.

2.5.5 Pollution
~~Pollution on the site and surrounding area is low.~~

3. ENVIRONMENTAL POLICIES & LEGISLATIVE FRAMEWORK

Environmental policies guide development in specific areas, whereas the legislative framework governs environmental controls relating to development.

3.1 National Government policies & legislation

3.1.1 Constitution of South Africa

The Constitution (Act 200 of 1993) gives every person the right to an environment that is not harmful to their health and wellbeing. Everyone, thus, has the right to have the environment protected for present and future generations through reasonable legislative and other measures that prevent pollution and ecological degradation, promote conservation and secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.

3.1.2 **Spatial Planning and Land Use Management Act (SPLUMA)**

The Spatial Planning and Land Use Management Act (Act 16 of 2013) provide a framework for spatial planning and land use management, specify the relationship between spatial planning and other kinds of planning, provide for the inclusive, developmental, equitable, and efficient spatial planning, provide a framework for policies, principles, norms and standards for spatial planning and development, provide a framework for monitoring, coordination and review of spatial planning and land use management, address past spatial and regulatory imbalances, promote greater consistency and uniformity in the application procedures and decision-making by authorities, provide for the establishment, functions and operations of Municipal Planning Tribunals, and provide for the facilitation and enforcement of land use and development measures.

3.1.3 Environmental Conservation Act (ECA)

The Environmental Conservation Act (Act 73 of 1989) requires that likely environmental effects of activities be taken into consideration before decisions in this regard are taken. The objective of such an assessment is to promote sustainable development towards achieving and maintaining an environment that is not harmful to people's health or wellbeing. Sections 21, 22 and 26 of the Act strive to integrate environmental impact management with development activities with the aim to ensure more responsible and environmentally sensitive development.

Buffer zones, although not officially gazetted, for industries, sewage treatment works, landfill sites and mine dumps have been formulated to control development adjacent to the said activities. Criteria against which development

applications in close proximity to these listed land uses will be evaluated is formulated in the policy document *Information layers and buffer zones for industries, sewage treatment plants, landfill sites and mine dumps* (DACEL 2002).

3.1.4 National Water Act (NWA)

The National Water Act (Act 36 of 1998) requires that any water resource, along with the associated natural environment be protected from development that could potentially significantly alter their natural structure and function. Objectives of the Act include the sustainable use of water for the benefit of all users, the protection of the quality of water resources, and the need for integrated management of all aspects of water resources.

3.1.5 National Environmental Management Act (NEMA)

The National Environmental Management Act (Act 107 of 1998) seeks to provide for cooperative environmental governance by establishing principles for decision-making on matters affecting the environment. The Act, furthermore, includes that environmental management must place people and their needs at the forefront of its concern, and to serve their physical, psychological, developmental, cultural and social interests equitably.

3.1.6 National Heritage Resources Act

The National Heritage Resources Act (Act 25 of 1999) aims to promote good management of the national estate, and to enable and encourage communities to nurture and conserve their legacy for future generations. The national estate may include places, buildings, structures and equipment of cultural significance; landscapes and natural features of cultural significance; archaeological and paleontological sites; graves and burial grounds.

3.1.7 National Environmental Management: Biodiversity Act

The National Environmental Management: Biodiversity Act (Act 10 of 2004) seeks the protection of species and ecosystems that warrant national protection; the sustainable use of indigenous biological resources; and the fair and equitable sharing of benefits arising from bioprospecting.

3.1.8 National Environmental Management: Waste Act

The National Environmental Management: Waste Act (Act 59 of 2008) aims to protect health and the environment by providing measures for prevention of pollution and ecological degradation, to ensure ecologically sustainable development, to provide for licensing, management, compliance, enforcement and control of waste, and the remediation of contaminated land.

3.1.9 Occupational Health & Safety Act

The Occupational Health and Safety Act (Act 85 of 1993) aims to provide for health and safety of persons at work; the health and safety of persons in connection with the use of plant and machinery, and the protection of the general public against hazards arising from activities of persons at work.

3.1.10 Conservation of Agricultural Resources Act

The Conservation of Agricultural Resources Act (Act 43 of 19983) aims to provide for control over the utilization of the natural agricultural resources, to provide for the conservation of soil, water and vegetation, and the combating of weeds and invader plants.

3.1.11 World Heritage Convention Act (Act 49 of 1999)

The World Heritage Convention Act provides for the incorporation of the UNESCO World Heritage Convention to be included in SA law.

3.1.12 Municipal Systems Act (Act 32 of 2000)

All municipalities must prepare Spatial Development Framework (SDF) as core component of an Integrated Development Plan (IDP).

3.2 Provincial Government policies & legislation

3.2.1 Urban Edge

The site falls outside the Urban Edge, which has to do with containing urban spread and the densification of development within the urban edge. Rezoning of the site from Undetermined to Residential 1 - bush lodge residences, and Special for access and access control purposes, and private open wildlife space.

3.2.2 Buffer Zones

Buffer zones are defined as protection strips between different types of development (i.e. airports, sewage plants, power plants, and mining). No buffer zones are applicable to the site.

3.2.3 Red Data species (see Appendix J)

No Red Data species have been observed.

3.2.4 Agricultural Potential

The agricultural/potential of the area is deemed good, and will remain a wildlife estate, with limited development/landscaping (**15% of erf area, with a minimum of 1500m²**) within the perimeter of each residence on individual erfs. The remaining area will remain wildlife roaming within the estate.

3.3 Local Authority policies & legislation

3.3.1 IDP Mogale City 2016-2021

The Mogale City IDP acknowledges the existence of the Letamo Estate as an integral part of Conservation and Tourism in the area.

3.3.2 WRDM EMF 2013

The West Rand District Municipality (WRDM) zones the area as Tourism and Conservation.

3.3.3 Mogale City Local Municipality (MCLM) Waste Management By-laws 2007

Municipality are rendering waste collection and removal in the area.

3.3.4 MCLM Climate Change Action Plan 2015

Water-wise gardens with endemic and indigenous plants, water harvesting, storm surge control, and renewable energy.

3.3.5 MCLM Integrated Water Resource Management Strategy

Use of vacuum/conservancy tanks for sewage disposal, and no new boreholes may be drilled (see Appendix D EMPr).

4. PROPOSED PROJECT EVALUATION

4.1 Need & desirability

The need for the proposed subdivision and rezoning of Erf 30 is based upon enquiries for living within **a wildlife estate**, for security, for access control, and for rural residential development in close proximity to urban areas. The remainder of both Letamo Estate and Letamo Township will remain as is, with ~~extensive natural veld on and around developed stands~~, **~~free-roaming wildlife~~, and the protection of large tracts of Egoli Granite Grassland.**

The desirability of the proposed subdivision and rezoning is based upon **Erf 30 being** previously excluded from development, for potential future development if and when the opportunity arises. The opportunity for such development has now ~~realized, which will fit in with the existing development within the Letamo Estate~~ and Letamo Township, with controlled development within free-roaming **wildlife** areas. It will improve the management company's (Letamo Game Farm Pty Ltd) service delivery to the estate. The development of Erf 30 is the last portion for development in the greater Letamo Estate.

4.2 Alternatives

Only one **site** alternative has been considered, based upon the requirements set by the Applicant. These requirements are based on ownership of the property, current development opportunity/demand, and economic viability. **Alternatives ~~in technology include initial conventional services provision that have~~ been changed to Green Building principles (solar power, gas, rainwater harvesting, shading and orientation, improved insulation), and landscaping that has been changed to indigenous and water-wise gardening. Due to safety and security concerns the fenced-in areas on each property will be ~~increased to 15% of the erf area, with a minimum of 1500m², in order to~~ allow additional buffering around residences.**

The existing road network can accommodate the proposed development. **Road upgrading will consist of 500m of gravel road, extending from existing gravel roads, to provide access to individual erfs.**

4.3 Alternative uses

No alternative uses have been evaluated (**during** the original application for a wildlife estate in 1998 other agricultural activities – grazing, cultivation, intensive chicken/beef were considered, but a wildlife estate close to urban areas was considered the most viable and attractive option). The application is based upon the specific and immediate needs of the Applicant, upon careful consideration of current economic viability, **demand and interest,** opportunity cost, and compatibility with the surrounding estate.

The no-go option represents the continued use of the site for wildlife ranching within the existing estate development. The subdivision and rezoning of the site will, however, only affect a small proportion of the site for development (partial development on each ~~subdivided stand – residence with landscaping on only~~ **15% of erf area, ~~with~~ a minimum of 1500m²**). The remainder will remain wildlife area.

4.4 Development proposal (see Drawing 4)

The site layout has been evaluated against the environmental sensitivity map ~~(primarily determined by the vegetation analysis) and, although the~~ *Trachypogon spicatus* grassland exihibits medium ecological sensitivity within the Egoli Granite Grassland, the layout remains the same, due to extensive grassland areas remaining around Erf 30 and over the entire estate. The proposed project will consist of the subdivision of Erf 30 (15,1345 hectares) into 12 residential stands (**sizes vary from 0,6094 ha to 1,3684ha**), 2 private open space stands (**6,473ha and 9,500ha**) and a **road (0,~~5945~~ha)**. ~~Individual stands will be sold off for residential development by~~ prospective buyers. Private open space will be transferred to Letamo Game Farm Pty Ltd and will be left natural, exotic vegetation species will be removed, and stands will be enhanced by indigenous planting. Prospective owners shall only develop a single residence with surrounding landscaping (**on 15% of the erf area, with a minimum of 1500m²**) on each property, with the remainder of the property to be integrated with the ~~free~~-roaming **wildlife** area ~~throughout the estate~~. **~~Building and landscaping plans~~ shall be submitted and approved by both approved Architect for Letamo Game Farm (Pty) Ltd and Mogale City prior to construction.**

The development proposal thus consists of (also see Drawing 4):

PORTION	ERF AREA (ha)	FENCED-IN AREA (ha)	WILDLIFE AREA (ha)	LANDUSE
A	0.8863	0.1500	0.7363	RESIDENTIAL
B	1.0293	0.1544	0.8749	RESIDENTIAL
C	0.9142	0.1500	0.7642	RESIDENTIAL
D	1.3493	0.2024	1.1469	RESIDENTIAL
E	1.1194	0.1679	0.9515	RESIDENTIAL
F	1.3684	0.2053	1.1631	RESIDENTIAL
G	1.2267	0.1840	1.0427	RESIDENTIAL
H	1.2377	0.1857	1.0520	RESIDENTIAL
I	1.0608	0.1591	0.9017	RESIDENTIAL
J	1.0880	0.1632	0.9248	RESIDENTIAL
K	1.0532	0.1580	0.8952	RESIDENTIAL
L	0.6094	0.1500	0.4594	RESIDENTIAL
M	0.6473	0.1500	0.4973	PRIVATE OPEN SPACE
N	0.9500	0.1500	0.8000	PRIVATE OPEN SPACE
O	0.5945	0.1500	0.4445	ROADS
TOTAL	15.1345	2.4799	12.6546	

4.5 Phasing

Development of the area will start upon EIA Authorisation, and approval of subdivision and rezoning.

5. PUBLIC PARTICIPATION

5.1 Interested & affected parties

Interested & Affected Parties (IAPs) were notified/invited as per guidelines prescribed in the National Environmental Management Act (NEMA), Act 107 of 1998. Adjacent landowners' information was obtained from the Deeds Office, personal enquiries, and the Applicant.

Interested and Affected Parties (IAPs) include Department of Environmental Affairs (DEA), Gauteng Province Agriculture and Rural Development (GDARD), Cradle of Humankind World Heritage Site (COHWHS), Department of Water and Sanitation (DWS), Mogale City Local Municipality, Ward 39 Ward Councillor Wehinger-Maguire, and adjacent properties owners.

5.2 Legal procedures

IAPs were notified/invited by e-mail and by hand on 14 November 2018, with a 30 day period to register as IAPs and register as IAPs (see Appendix L). The same advertisement was erected on site (Annexure M) and published in the Star newspaper (Annexure N) on 14 November 2018, also allowing a period of 30 days to register as IAPs. This registration period expired on 14 December 2018. Four (4) parties registered as IAPs, requesting information on the progress of the application.

5.3 Information transfer

The Draft BAR was submitted by courier or e-mail to registered IAPs, DEA, GDARD, Mogale City, and COHWHS on 19 February 2019 (see Appendix P).

Feedback from DEA was received on 25 March 2019, from GDARD on 27 March 2019, from Mogale City on 22 March 2019, and from COHWHS on 22 May 2019.

No feedback have been received from registered IAPs.

Responses to feedback from Authorities are included as Appendices R, S, T and U at the back of this report.

The Final BAR has been couriered or e-mailed to the above entities for comments simultaneously with the submission to DEA, on 05 June 2019, allowing 30 days (until 06 July 2019) for feedback (see Appendix P). No feedback has been received on the Final EIA BAR.

5.4 Significance of key issues

The significance of key issues are determined by the following methodology:

- Environmental standards
- Literature search of available relevant information
- Site evaluation and sensitivity analysis
- Specialist input
- Level of public concern
- Mitigation potential to reduce severity of impacts
- Professional experience and training
- Internal discussions (brainstorming, nominal group technique, workshops)

6. ENVIRONMENTAL IMPACT ASSESSMENT

6.1 Conservation status

The conservation status of the site is deemed high, due to the current status of the estate, as well as the presence of Egoli Granite Grassland. The development area will only take up a small portion of the subdivided erfs (**15% of each residential erf, with a minimum of 1500m²**), whilst the remainder will form part ~~of the~~ **free-roaming wildlife area on the** ~~existing estate~~. ~~The~~ **somewhat disturbed** savannah strip bisecting the site will remain private open space, and will complement the subdivided **erfs'** natural component. Storm water drainage will be through infiltration and surface sheet flow towards the watercourse further east.

6.2 Site opportunities

Site opportunities are those site characteristics presenting a positive contribution/ impact towards the development of the site, from both a development and conservation perspective.

- Existing Letamo Estate within which the erf is located.
- Good agricultural/**game farming** potential.
- Geological suitability for development.
- Soil suitability for development.
- Suitable access by gravel roads.
- Compatibility with adjacent land uses.
- Environmental sensitivity to be integrated.
- Environmental features (wildlife, grassland) to be protected.
- Economic viability of proposed subdivision.
- **Additional income through rates and taxes and levies.**
- **Additional job creation:**
    - **Building (±60 jobs per residential unit – fixed term contract)**
    - **Domestic workers/gardeners (±24 jobs – permanent)**

6.3 Site constraints

Site constraints are those site characteristics presenting a neutral to negative impact, thus presenting a challenge towards its meaningful integration into the development of the site. These constraints may be mitigated to some extent, may be converted into an asset/positive impact, or may have to be accommodated as a restrictive or negative impact on the development.

- EIA Authorisation.
- Rezoning and subdivision of the property.
- **Potential archaeological finds, although slim.**
- **Electrical and Right of Way servitudes over site**

6.4 Ecological sensitivity

The ecological sensitivity of the site is deemed **medium**, primarily due to existing **Egoli Granite Grassland over the entire estate, with *Trachypogon spicatus* grassland exhibiting medium ecological sensitivity on part of Erf 30**. The bulk of the site will remain wildlife estate, with limited residential development with surrounding landscaping (**15% of each erf, with a minimum of 1500m², to be developed**). **The development of residential erfs, with a relative small footprint, within the existing free-roaming wildlife estate will generate additional funds for the conservation and protection of the ecological sensitive areas over the remainder of Erf 30 and the entire estate.**

6.5 Community involvement **(see Appendix M, N, O, P)**

Community involvement has been extensive, as has been presented under Item 5 in this report. All legal advertising and notifications have been met and exceeded. Four parties registered as IAPs. **Draft BAR has been submitted to registered IAPs and Authorities. No feedback have been received from IAPs, whilst feedback from Authorities are attached (see Appendix R, S, T, U). The Final BAR has also been submitted to registered IAPs and Authorities simultaneous with the submission to DEA on 05 June 2019 (see Appendix P). No feedback has been received on the Final BAR.**

6.6 Development potential

The site development potential represents the capacity of the site to accommodate the proposed development in an environmentally sensitive and responsible way.

The development potential of the site is considered as good, based upon the above opportunities and constraints, existing development in the area, good agricultural/**wildlife** potential, suitable soils, average access, availability of the land and financial ability of and incentive from the Applicant. **Slight potential of archaeological finds may restrict development, if found/discovered.**

The existing uses of the properties will remain, consisting of **wildlife** ranching, albeit with some residential development on **15% of residential erfs, with a minimum of 1500m² per erf**.

6.7 Development alternatives

Only one alternative **site** layout has been evaluated, based upon the preference and knowledge of the Applicant (the Founder of Letamo and previous subdivision of Letamo Township).

Alternatives in technology include initial conventional services provision that have been changed to Green Building principles (solar power, gas, rainwater harvesting, shading and orientation, improved insulation), and landscaping that has been changed to indigenous and water-wise gardening. Due to safety and security concerns the fenced-in areas on each property will be increased to 15% of the erf area, with a minimum of 1500m², in order to allow additional buffering around residences.

6.8 Environmental impact management

6.8.1 Environmental impacts

Environmental impacts can be summarised as follows:

- Environmental impacts on natural resources include good agricultural/wildlife potential, compatibility with existing wildlife ranching, suitable geology and soils, and conservation of wildlife and grassland.
- Environmental impacts on physical resources include EIA Authorisation, involvement of Interested and Affected Parties, infrastructure provision, compatibility with existing developments and surrounding landuses.
- Environmental impacts on sensorial resources include visibility, and occasional smoke and dust.
- **Cumulative impacts include increase traffic (although limited for the proposed development, may increase in future due to other developments in the area), the alignment of future road PWV 8.04 which has not been finalized and may impact on Letamo Estate, and future discoveries relating to the COHWHS.**

Environmental impacts are more comprehensively listed under Item 6.8.3 below.

6.8.2 Significance of impacts

The significance of impacts was determined by the following methodology:

- Environmental standards
- Literature search of available relevant information
- Site evaluation and sensitivity analysis
- Level of public concern
- Mitigation potential to reduce severity of impacts

- Professional experience and training
- Internal discussions (brainstorming, nominal group technique, workshops)

The identification and significance of impacts are presented as part of the mitigation measures tabled under Item **6.8.3** below. The identification, significance, and mitigation of impacts are presented together in table form for ease of reference, since they are all interrelated and culminating in either the integration/incorporation, omission, or reducing/mitigation of the anticipated environmental impacts, thus ensuring an environmentally integrated, ecologically sensitive, and optimally utilised development proposal.

6.8.3 Mitigation of impacts

Mitigation measures are formulated to reduce the significance of negative impacts and to increase the significance of positive impacts on the site/environment or the proposed development, towards the optimal utilization of site resources in an environmentally sensitive manner. These measures will be presented as the nature, probability, duration, extent, and intensity of impacts.

These aspects will also be addressed in the Environmental Management Programme (EMPr) – see Item 6.12 and Appendix D in this report.

The following definitions of terms used will apply:

- Nature of impact – whether the impact is positive, neutral, or negative.
- Probability – The likelihood of the impact occurring
    - Improbable – the possibility of the impact to materialize is very low.
    - Probable - a distinct possibility that the impact will occur.
    - Definite - the impact will occur regardless.
- Duration - The lifetime of the impact
    - Short – 0-5years.
    - Medium – 5-15years.
    - Long – the impact will cease after the operational life of the activity.
    - Permanent – impact will remain.
- Extent - The scale of the impact
    - Local.
    - Regional.
    - National.
- Intensity – The severity of the impact
    - Low – the impact affects the environment in such a way that natural and social functions and processes are not affected.
    - Medium – the affected environment is altered by natural and social functions and processes and will continue albeit in a modified way.
    - High – where natural and social functions or processes are altered to such an extent that it will temporarily or permanently cease.
- Recommendations – Ways in which the impact will be integrated or mitigated.

The following mitigation measures are recommended:

MITIGATION MEASURES FOR ERF 30, LETAMO ESTATE

DESCRIPTION	NATURE	PROBABILITY	DURATION	EXTENT	INTENSITY	
Environmental Management Programme (EMPr)	positive	definite	long	local	high	EMPr to regulate construc phases
Changes to the EMPr	positive	probable	long	local	medium	EMPr to any shor encount EMPr to approva
Compliance with the Record of Decision (ROD) or EIA Authorisation	positive	definite	long	local	high	Environr be famili ensure c
Environmental auditing	positive	definite	long	local	high	External Officer (compliar
Environmental awareness	positive	probable	long	local	low	Awarene environr sustaina
Records	positive	definite	long	local	medium	Records incidents EM to ac
Safety and security	positive	probable	long	local	high	Training and gar emerger maintair
Safety and security	negative	definite	medium	local	medium	Contract registere site to b no tresp properti

DESCRIPTION	NATURE	PROBABILITY	DURATION	EXTENT	INTENSITY	RECOMMENDATIONS
Safety and security	negative	probable	long	local	high	Emergency contingency plans for fire, accident and criminal activities to be finalised with SAPD, Local Authority and engineers. Contact details to be displayed at prominent places.
Planning and design	positive	definite	long	regional	medium	In accordance with national, provincial & local legislation & regulations.
Geology & geotechnical aspects	negative	probable	short	local	low	Geotechnical precautions to be strictly adhered to.
Blasting	negative	slight	short	local	medium	If blasting is required the community within a 2km radius from the site shall be notified in advance. Blasting shall be done in accordance with the Explosives Act of 1956, at appropriate times. All buildings and structures in the area shall be inspected for damage prior to and after blasting operations, and all damage shall be repaired by the Contractor.
Hydrology - surface water drainage	negative	probable	short	local	low	Stormwater natural sheetflow to continue after construction. Cutoff drains to be provided at excavations during construction activities..
High agricultural/game farming potential	positive	definite	long	local	medium	Topsoil to be removed and stockpiled for later use.
Vegetation - indigenous	positive	definite	long	local	medium	Retain existing trees as far as possible.
Vegetation - exotic invaders	negative	definite	short	local	medium	All exotic invaders to be removed, monitored and controlled..
Vegetation - rehabilitation	negative	definite	short	local	medium	All disturbed areas should be revegetated with indigenous planting upon completion of construction.
Wildlife - Risk of loss and damage/destruction of habitat.	negative	probable	short	local	low	No wildlife to be harvested for food. No wildlife to be caught or injured. No nesting or roosting sites to be disturbed.

DESCRIPTION	NATURE	PROBABILITY	DURATION	EXTENT	INTENSITY	RECOMMENDATIONS
Red Data species	negative	slight	medium	local	low	No rare or endangered species found on site. If specimens of unique character is encountered it should be reported.
Specialist reports	positive	definite	long	local	medium	Adhere to recommendations in biodiversity, palaeontological, geotechnical, and engineering services reports.
Access	positive	definite	long	local	low	Proposed access road to be provided to engineering plans and specifications.
Pollution	negative	probable	medium	local	medium	**Veld fires/smoke** to be minimized through controlled burning. Open fires to be minimized.
Pollution	negative	probable	medium	local	medium	**Gaseous emissions** by construction vehicles to be minimized by ensuring that vehicles and equipment/ plant are in good working order.
Pollution	negative	probable	medium	local	medium	**Noise** during construction to be limited to normal working hours and proper mechanical fittings.
Pollution	negative	probable	medium	local	medium	**Dust** during construction to be controlled by damping off/spraying of haul roads and stockpiles.
Pollution	negative	probable	medium	local	medium	**Surface water** to be contained by earth berms during construction. All water pollution to be reported to the Regional Office of Water Affairs.
Pollution	negative	probable	medium	local	medium	**Spillage** of any kind shall be contained where possible, reported immediately to EM, and cleaned up.
Health & safety	negative	definite	short	local	medium	Compliance with Occupational Health & Safety Act to be enforced. Health & Safety plan to be formulated and implemented on site during construction.

DESCRIPTION	NATURE	PROBABILITY	DURATION	EXTENT	INTENSITY	RECOMMENDATIONS
Construction camp	negative	definite	short	local	high	**Location of construction camp** to be clearly demarcated and to be at least 100m from any watercourse or wetland.
Construction camp	negative	definite	short	local	high	**Site facilities** to include kitchen and ablution facilities. Chemical toilets shall be provided. Toilets to be serviced once per week, toilet paper to be provided at all times, and daily inspections to be done to ensure proper use and hygiene.
Construction camp	negative	definite	short	local	high	**Refuse** generated shall be collected on a daily basis, placed in a suitable closed container on site, and shall be removed weekly from the site to a licensed commercial disposal facility.
Construction camp	negative	definite	short	local	high	**Potable water** shall be sufficient for drinking, cooking, and ablutions and shall be available at all times.
Construction camp	negative	definite	short	local	high	**Fuelling and servicing of vehicles**. shall be done off site. If fuelling on site, then dedicated bunded area for fuel tanks (to contain any spillage - size to be the capacity of the fuel tanks + 10%), and plastic lining under soil around fuelling area (where vehicles park to fuel up). In the event of a breakdown immediate steps shall be taken to prevent any spillage. If spillage occur, it shall be reported immediately to the ELO, ECO and shall be contained and cleaned up immediately.
Construction camp	negative	definite	short	local	high	**Fuelling and servicing of vehicles**.- In the event of a breakdown immediate steps shall be taken to prevent any spillage. If spillage occur, it shall be reported immediately to the ELO, ECO and shall be contained and cleaned up immediately.

DESCRIPTION	NATURE	PROBABILITY	DURATION	EXTENT	INTENSITY	RECOMMENDATIONS
Construction camp	negative	definite	short	local	high	**Cement mixing** shall only be done at areas allocated by the EM. Cleaning of cement mixing and handling equipment shall only be done using proper cleaning trays. All empty containers shall be removed from the site. Any spillage must be reported to the Environmental Officer for cleanup measures. No dumping of concrete on or around the site.
Construction camp	negative	definite	short	local	high	**Pollution** (dust, noise, smoke, spillage) shall be minimised according to Recommendations under POLLUTION in this document. Any pollution of ground or surface water shall be reported to both the EM and DWS.).
Construction camp	negative	definite	short	local	high	**Dangerous and toxic materials** such as fuel, oil, paint, and herbicides shall be stored in bunded areas under lock and key in well-ventilated areas. Sufficient precautions shall be taken during handling to prevent any pollution. Any spillage shall be reported immediately to the EM for cleanup measures.
Construction camp	negative	definite	short	local	high	**Rehabilitation of campsite** upon completion of construction shall be by removal and cleanup of all plant, equipment, material, and waste. Thereafter the site shall be scarified, seeded with indigenous veld grass seed, and maintained until coverage of the area to the satisfaction of the EM.

DESCRIPTION	NATURE	PROBABILITY	DURATION	EXTENT	INTENSITY	RECOMMENDATIONS
Environmental Management Programme	positive	definite	long	local	medium	Compliance with the Environmental Management Programme must be strictly monitored by the Environmental Manager on a day to day basis. An independent Environmental Compliance Officer must be appointed to do an annual environmental compliance audit.
Influx of labour during construction	negative	probable	short	local	medium	No labour to be hired at the entrance to the site. No loitering to be allowed outside the entrance to the construction site.
Influx of labour during construction	negative	probable	short	local	medium	No labour to be hired at the entrance to the site. No loitering to be allowed outside the entrance to the construction site.
Employment opportunities	positive	probable	long	regional	medium	Employment during construction (contractors, sub-contractors, labourers) and during operational phases.
Waste disposal	negative	probable	long	local	medium	Waste disposal during construction as per recommendations under CONSTRUCTION CAMP. Recycling of oil and fluids.
Waste disposal	negative	probable	long	local	medium	Waste disposal during operational phase to be handled on a weekly basis, Letamo collect inside estate, to control point on estate, where recycling (plastic, glass, metal) takes place, then waste collected by Local Authority and recyclables by recycler.
Stormwater management	positive	definite	long	local	low	A stormwater management plan to be formulated to facilitate effective surface stormwater control.
Compliance with legislation	positive	definite	long	local	medium	All construction to comply with NHBRC, NBR and SABS standards and regulations.

DESCRIPTION	NATURE	PROBABILITY	DURATION	EXTENT	INTENSITY	RECOMMENDATIONS
Heritage	negative	slight	short	local	medium	Recommendations in the Palaeontological Impact Assessment report must be adhered to.
Heritage	negative	slight	short	local	medium	The site is located within the COHWHS. Any site work must be very sensitive for any paleaontological, archaeologial, historic or cultural finds. Such finds must be reported to the EM immediately, and all work in the area should stop until further investigations have been completed.
Heritage	negative	slight	short	local	medium	In the event that graves or other artefacts or bones are found during excavations, all work shall stop and the EM shall be informed.
Rehabilitation after construction	positive	definite	short	local	low	All disturbed areas to be landscaped upon completion of construction.
Solid waste disposal	negative	definite	long	local	low	Waste to be removed weekly to a registered dump site, either by the Local Authority or a contractor to a registered dump site.

6.9 Environmental Management Programme (see Appendix D)

The Environmental Management Programme (EMPr) is submitted in support of this Basic Assessment Report (EIA BAR) and consists of aspects relating to environmental compliance during pre-construction, construction, and post-construction/operational phases of the proposed development. **Although an Environmental Management Plan (EMP) was previously approved as part of the original EIA Authorisation, DEA indicated that a new/revised EMPr be submitted.**

6.10 Assumptions, uncertainties and gaps in knowledge

Assumptions are based upon the proven development record of the estate, which has been operational since 2000 – with great success.

Uncertainties are limited, based primarily upon the political climate, economic activity and tendencies, uncertainty pertaining to land expropriation without compensation, **as well as the alignment of future PWV 8.04**.

Gaps in knowledge consist of the status and construction programmes for future road networks in the area, **as well as future developments within the area surrounding Letamo Estate.**

7. RECOMMENDATIONS

Recommendations include **granting of environmental authorisation,** an Environmental Impact Statement, **feedback from Authorities (DEA, GDARD, Mogale City, COHWHS),** the validity period of the EIA Authorisation, rehabilitation, financial provision, and closure.

7.1 Environmental impact statement

This Final EIA BAR evaluated all the available and relevant information, combined with the site evaluation (opportunities and constraints), environmental policies and legislative framework, interested & affected parties involvement, and assessment of the proposed development on the site.

This statement is based upon the following considerations:

- Environmental considerations
  - Agricultural/ranching suitability
  - Existing ranching
  - Suitable geology and soils
  - Agricultural/potential
  - High ecological sensitivity of the site
  - Low levels of pollution
  - No Red Data species

- Socio-economic considerations
  - Investment opportunities
  - Employment (permanent and temporary)
  - IAP liaison

- Technical considerations
  - Applicant ability
  - Applicant knowledge and expertise

- Financial considerations
  - Investment within Mogale City Local Municipality
  - Development within Mogale City Local Municipality
  - Financial/economic feasibility

7.2 Responses to feedback from Authorities

7.2.1 Response to feedback from DEA

Feedback from DEA dated 29 March 2019 on the Draft BAR refers:

i. Noted. EAP CV and Practice Profile attached in Appendix A.
ii. Need and desirability included under Item 4.1.

iii. Included under Item 6.8.
iv. Included under Item 4.2.
v. Included in Appendix J.
vi. Included in Appendix J.
vii. Included in Appendix J.
viii. Included under Item 1.4.
ix. New Application form was couriered on 04 March 2019.
x. Relevant authorities are involved (DEA, GDARD, Mogale City, COHWHS). Feedback have been received from these Authorities with responses included under Item 7.2 in this report., **although feedback from COHWHS was only received on 24 May 2019 – 91 days after submission of Draft BAR to them for comments on 22 February 2019. Palaeontological Impact Assessment report included (see Appendix H).**
xi. Responses to Authorities feedback on the Draft BAR are included under Item 7.2. No comments have been received from registered IAPs.
xii. Included in Appendix L.
xiii. Included in appendix N.
xiv. **Feedback from COHWHS was only received on 24 May 2019 – 91 days after submission of Draft BAR to them for comments on 22 February 2019. Their requirements could thus not be met prior to distribution of the Final BAR for comments. A Palaeontological Impact Assessment report is now included in the Final BAR, although the required SAHRA feedback would not be available at this time due to late feedback from COHWHS. The report will be submitted to SAHRA.**
xv. Included under Item 4.2 and 4.3.
xvi. Comments of feedback from Authorities are included under Item 7.2. No feedback have been received from registered IAPs.
xvii. Included in appendix A.
xviii. Noted, and included.
xix. Included under Item 6.8.
xx. Included under Item 6.8.
xxi. Erfs will be sold off, and building plans will only be prepared for submission and approval by both the approved Architect of Letamo Game Farm (Pty) Ltd and Mogale City by prospective buyers. Layout plan included as Drawing 4. Table of erf sizes included under Item 4.4.
xxii. Included under Item 1.2.
xxiii. Associated infrastructure included in Appendix F and G (Engineering services reports).
xxiv. Included as Drawing 3 (environmental sensitivity) and Drawing 4 (Layout plan).
xxv. Environmental sensitivity map included as Drawing 3, and environmental sensitivity also included in Appendix J.
xxvi. Included as Drawing 4.

A new Environmental Management Programme (EMPr) has been prepared and is included in Appendix D.

i. Noted.
ii. Included.
iii. Included as Drawing 4 in the EIA BAR.
iv. Included.
v. Included as Drawing 3 in EIA BAR.
vi. Included as Drawing 4 in EIA BAR.
vii. Included in Appendix J and in EMPr.
viii. Included in Appendix J and in EMPr.
ix. Included in Appendix V.
x. Included in Appendix W.
xi. Included in EMPr.
xii. Included in EMPr.

We have requested a site meeting and suggested dates for the meeting from DEA, which have been rejected. **After further attempts a site meeting was eventually scheduled by DEA for 30 July 2019, which is after the deadline for submission of the Final BAR.**

7.2.2 Response to feedback from GDARD

Feedback from GDARD dated 27 March 2019 on the Draft BAR refers:

1. Listed activity removed from Application.
2. Specialist study for the vegetation, flora and avifauna (specifically for grass owls) is included in Appendix J.
3. Included under Item 4.2 and 4.3.
4. Included under Item 6.8.
5. Included as Drawing 3 (environmental sensitivity) and 4 (layout)
6. New EMPr included as Appendix D.
7. Comments on feedback received from Authorities (DEA, GDARD, Mogale City, COHWHS) are included under Item 7.2. No comments on the Draft BAR have been received from registered IAPs.
8. Recommendations
   a) Included under Item 4.4.
   b) The farm Honingklip refers to the orginal farm, after which Letamo Estate was first rezoned, and later Letamo Township established and proclaimed.
   c) Included under Item 4.4.
   d) Included as Appendix V.

7.2.3 Response to feedback from Mogale City

Feedback from Mogale City dated 22 March 2019 on the Draft BAR refers:

- Waste management will be integrated with the current waste management system of the Estate, with the Estate collecting waste weekly from individual

properties to a central point in the northwestern corner of the Estate, where waste is recycled, and Mogale City removing waste weekly from that point.

- Included as Appendix X.
- Included in EMPr (see Appendix D) and Letamo Rules and Regulations (see Appendix Q).
- Alignment of road PWV 8.04 has not been finalized, but the Board of Directors of Letamo Estate is in consultation with the relevant Authorities.
- Conservation, protection and enhancement of the Estate is important considerations in the Letamo Rules and Regulations (see Appendix Q) and aspects are also included in the EMPr (see Appendix D).
- Noted, and included in the EMPr (see Appendix D).
- New EMPr included under Appendix D.
- Noted, and included in the EMPr (see Appendix D).
- Included in Appendix D.
- Noted, and included in both the EMPr (see Appendix D) and Letamo Rules and Regulations (see Appendix Q).
- Noted, and included in the EMPr (see Appendix D).
- Noted, and shall be provided once available.

7.2.4 Response to feedback from COHWHS

Feedback from COHWHS dated 22 May 2019 on the Draft BAR was only received 91 days after submission of the Draft BAR on 22 February 2019. Requirements from COHWHS can thus not be met within the 140 days allowed for finalization of the Final EIA BAR.

Letamo Estate is in existence for **20 years** (not 10 years as per feedback), including a hotel. The total area of the Estate is **594ha** (not 46ha as feedback).

1. Noted. The development within the Estate is upmarket (high visual quality), aesthetically pleasing, blending in with the natural surroundings (low profile 2 storeys, mostly thatch, attractive predominantly indigenous landscaping around residences, and providing extensive areas for free-roaming wildlife within the Estate. **Letamo Estate measures 490.12ha, consisting of 456.811ha free-roaming wildlife area and 33.309ha development area.** The proposed development will thus not affect the OUV of the COHWHS negatively.
2. Erf 30 is located within an existing approved and proclaimed township. The proposed subdivision will have minimal impact on the extent of open space within the Estate (see Item 4.4) and will generate income for the management and maintenance of the Estate.
3. A Heritage Impact Assessment (HIA) will be undertaken over Erf 30, although the late feedback from COHWHS will not allow this inclusion in the Final BAR.
4. The proposed subdivision and development of Erf 30 will not have a negative impact on the OUV due to strict development guidelines (see Appendix Q) and conservation efforts by the Estate relating to wildlife management and the protection of large tracts of Egoli Granite Grassland.

5. A Palaeontological Impact Assessment was conducted over Erf 30, which will be submitted to **SAHRA and** UNESCO. **Please note again the late feedback from COHWHS has not allowed this submission in time for the Final EIA BAR.**
6. A Palaeontological Impact Assessment has been undertaken, which will be subjected to SAHRA approval, **which again will only happen after submission of the Final BAR**.
7. A Visual Impact Assessment will be looked at, although there are no external roads adjacent to Erf 30, Erfs on the Estate adjoining Erf 30 are subjected to the same strict aesthetic guidelines and controls, the property south of Erf 30 is undeveloped, and the property southwest of Erf 30 is illegally developed.
8. Emissions, increase in traffic, construction activities and development controls are all integrated into the EMPr (see Appendix D).
9. Cumulative impacts have been addressed under Item 6.8.
10. A Palaeontological Impact Assessment has been conducted (see Appendix H).

7.3 Period of validity of EIA Authorisation

The EIA Authorisation should be valid for 10 years, in order to facilitate sales and development of the individual stands.

7.4 Rehabilitation **(see Annexure Q)**

Each development site will be subjected to strict design and development guidelines by the Management Company (Letamo Game Farm Pty Ltd) to ensure uniformity, high standards of development and rehabilitation, and compatibility with the Letamo Estate and conservation ethic.

7.5 Financial provision

Financial provision for rehabilitation is governed by a R10000 contractor's deposit upon signing of the Building Contractor's Rules issued by Letamo Game Farm (Pty) Ltd.

7.6 Closure

In the event of seizure or failure to develop, then such property will be sold to another entity for development. Management Company (Letamo Game Farm Pty Ltd) keeps close scrutiny over developments and contractors in the estate.

8. CONCLUSION

The Final EIA BAR for proposed subdivision and rezoning on Erf 30, Letamo Town within the Letamo Estate, Mogale City Local Municipality, Gauteng deals with an overview of the site in both its regional and site specific context.

Aspects investigated include natural (geology, soil, topography, hydrology, climate & microclimate, vegetation, wildlife), physical (location, access, traffic, infrastructure, land use, safety & security, legal, social, economic, heritage) and sensorial (visual, spirit, smell, sound) characteristics, ecological and environmental processes, environmental policies and the legislative framework, evaluation of the proposed project, as well as public participation.

The environmental impact assessment deals with the following aspects: conservation status, site opportunities and constraints, ecological sensitivity, community involvement, site development potential, development alternatives, **environmental impact management** (formulation of environmental impacts, the significance of impacts, the mitigation of impacts), **an Environmental Management Programme (EMPr)**, assumptions, uncertainties and gaps in knowledge.

No aspects that could not be mitigated or integrated, both from an environmental and development perspective, have been found and the proposed development is, thus, recommended.

Recommendations include an Environmental Impact Statement, **feedback from Authorities (DEA, GDARD, Mogale City, COHWHS),** the validity period of the EIA Authorisation, rehabilitation, financial provision, and closure.

The development will adhere to the Letamo Game Farm Pty Ltd Rules and Regulations (see Appendix Q) and the EMPr.

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APPENDIX A – EAP INFORMATION

ecologicAFRIKA
planning & design studio
design with NATURE

environmental studies
landscape architecture
earth & eco architecture
golf & sports architecture
environmental engineering
enviro resource economics

Profile - Christiaan J (Ian) Roos

Ian Roos obtained a Bachelor of Science degree in Landscape Architecture at Texas A&M University, USA and a Masters degree in Landscape Architecture at the University of Pretoria, SA. He also obtained the National Certificates in Architectural Draughting, Civil Engineering, Turfgrass Management, and Estate Agency at Technicons, and the Management Development Programme in Project Management at Unisa. Ian is a Professional member of the SA Council for the Landscape Architectural Profession (PrLArch), the SA Council for the Architectural Profession (PrSArchT), and member of the International Association for Impact Assessment SA branch (IAIAsa). Also GBCSA (Green Building Council of SA) New Green Building accredited professional.

Personal involvement in projects, since 1977, includes:

- Environmental planning and impact studies – Bokong Nature Reserve, ThabaNchu Waste Disposal, Ngwenya River Estate, Songimvelo Natural Resource Reserve, Mvunisi lodge, The Downs Nature Reserve, Isago@N12 mixed use, Soshanguve mixed use, Loftus Park mixed use, various EIA Scoping and Basic Assessments in Gauteng, North West, Limpopo, KZN, Free State, Mpumalanga. Also environmental auditing and compliance monitoring ... also mining applications and water use license applications...
- Site master planning - Letubi Valley Golf Eco Estate in Mpumalanga, Bondev Park Residential Estate in Centurion, Tsehlanyane National Park in Lesotho, Musina mixed use development ...
- Ecotourism and resort planning - Berg & Dal and Roodewal camps in Kruger Park, Fika Patso Dam tourism potential study, Liphofung Cave Cultural Heritage Centre in Lesotho, Fancourt Golf Resort, Brisbane hunting lodge in the Kalahari ...
- Landscape architecture – Hedgehog's Nest Country Lodge, Eldopark and Eldoglen residential estates, Fancourt golf resort & estate, Dainfern golf estate gatehouse and club complex, Midstream residential estate parks and streetscape, Rockfields commercial precinct, Midstream college, Prestige college, National University of Lesotho Library Plaza, Emdeni Library and Uncle Tom's Hall in Soweto ...
- Golf course and sports architecture - Dainfern Residential Golf Estate, QwaQwa Golf Course, Golfpark Bad Munder in Germany, Crown Colony Golf Estate in Texas, USA, Komatipoort golf course, Family Golf Centre, Alexandra and various Soweto soccer facilities, various tennis/basketball/netball/squash courts, Emndeni and Eldoglen sports halls ...
- Community involvement – Social facilitation, community participation, emerging contractor screening, training and economic empowerment at Alexandra soccer complex, various Lesotho tourism development projects, and various Soweto sports development projects ...
- Project Management – Midstream Estate landscaping, Moletsane Sports Complex in Soweto, Alexandra Square 1 Soccer Complex, Family Golf Centre, Arnoldi residence, Roos residence, Rustenburg lodge ...
- Architecture - Eldopark gatehouse, Mattanu game ranch lodge, Eldoglen sports facilities and clubhouse, Kriek residence on game ranch, De Wet residence in Clovelly, Moletsane sports tavern, Brisbane hunting/safari lodge, Rustenburg lodge on game farm, Musina hotel/wholesale/retail/filling station/truck stop, Lead Wood Inn restaurant/conference/venue/accommodation, Miracle Park indoor sports ...
- Infrastructure – Liphofung Cave power/sewer/water, Alexandra and Soweto soccer fields, Hillbrow and Soweto tennis/basketball/netball courts, Emndeni sports hall ...

Ian is married, with two daughters. Personal interests include the outdoor environment, ecological restoration, sports and recreation, arts and crafts, wildlife and conservation, and innovative evangelism ....

environmentally integrated and ecologically sustainable planning, design & development
PO Box 8079, Centurion 0046, South Africa • tel +27(0)12 661 4863 • fax +27(0)12 661 5251
Christiaan J Roos • NCArch, NCEng, BSLArch (Texas A&M), ML (Pret), MDP Proj Mgmt (Unisa)
e-mail: ecologic@mweb.co.za • Proverbs 3:5&6 • web: www.ecologicafrika.co.za
supporting ecologicAFRIKA gospel adventures

ecologicAFRIKA
planning & design studio

design with NATURE

environmental studies
landscape architecture
earth & eco architecture
golf & sports architecture
environmental engineering
enviro resource economics

PRACTICE PROFILE

ecologic AFRIKA is an environmental planning, landscape architectural, architectural, sports architectural and environmental engineering consultancy - based upon both large and small private practice training and experience - consisting of professionals with CAD, environmental, landscape/sports/architectural, ecological, horticultural, technical, and administrative support. ecologic AFRIKA is based in Centurion, South Africa.

PHILOSOPHY

ecologic AFRIKA designs with nature... using the site as primary design determinant, integrating site resources with development towards creating a balance between development and conservation ... towards sensitive and sustainable planning, design and development.

ecologic AFRIKA believes in guidance from the Upper Hand, towards adding value through our international and local training, education, exposure, and experience in environmental studies, integrated site master planning, landscape architecture, ecotourism and resort planning, project management, architecture and infrastructure, and golf course & sports architecture. This value increase is further enhanced through our background in building construction, environmental engineering, turfgrass management, project management, and property development.

ecologic AFRIKA views each project as a unique entity, and optimise our involvement through continuing training and education, research and development, environmental integration, resource economics, functionalism and aesthetics, and innovation and flair.

SCOPE OF SERVICES

Input

- Environmental studies
- Integrated site master planning
- Landscape architecture
- Green Building architecture
- Golf & sports architecture
- Environmental engineering

Output

- Planning (conceptualisation, site evaluation and development potential, environmental impact assessment and compliance monitoring, community involvement, design concepts)
- Design (sketch plans, master plans, illustrations, costings, workshops, reports)
- Documentation (construction drawings, construction specifications, schedules of quantities, tender/quote documents, instruction manuals, ecological restoration)
- Contract administration (construction, skills development, retention, EIA compliance)
- Development, maintenance, and management guidelines

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e-mail: ecologic@mweb.co.za • Proverbs 3:5&6 • web: www.ecologicafrika.co.za

APPENDIX B – LETAMO ESTATE EIA AUTHORISATION

Department of Environmental Affairs and Tourism • Departement van Omgewingsake en Toerisme
Lefapha la Tikoloho le Bohahlaudi • Umnyango Wezemvelo Nezokuvakasha • Isebe leMicimbi yokuSingqongileyo noKhenketho
Lefapha la tsa Tikoloso le Boeti • Umnyango Wetemvelo Netekuvakasha • Muhasho wa zwa Vhupo na Vhuendi
Ndzawulo ya ta Mbangu na Vuendzi • Lefapha la Tikologo le Bojanala • Umnyango Wezebhoduluko Nezokuvakatjha

FEDSURE FORUM BUILDING
315 PRETORIUS STREET
PRETORIA 0001
REFERENCE

A24/16/3/184

P/BAG X447
PRETORIA
0001
TELEPHONE

(012) 310-3597

TEL: (012) 310-3911
FAX: (012) 322 2682

ENQUIRIES

Mr P.Ngoasheng

Mr C M Cloete
Letamo Estate
PO Box 73191
FAIRLANDS
2030

Dear Mr Cloete

APPLICATION FOR THE DEVELOPMENT OF A RESIDENTIAL AREA (67 RESIDENTIAL UNITS) AND A RESORT AREA WITH 2 LODGES, COTTAGES, A CHAPEL, FUNCTION ROOM, SPORTS AND RECREATIONAL FACILITIES, HORSE STABLES AND A FIELD AND STUDY CENTRE WITHIN A 353ha GAME FARM.

By virtue of the power delegated to me in terms of Section 33(1) of the Environment Conservation Act, 1989 (Act No. 73 of 1989) I hereby authorise -

The construction of a residential area (67 units), a resort and its associated infrastructure in terms of section 22(3) of the Environment Conservation Act, 1989 (Act 73 of 1989).

Enclosed please find the record of decision and the conditions under which this application is authorised.

This authorisation is only in terms of the Environment Conservation Act and does not exempt the applicant from compliance with any other applicable legislation.

Formal appeals can be directed to the Minister of Environmental Affairs and Tourism. Such appeals must be lodged within 30 (thirty) days from the date of this authorisation.

Yours sincerely

Dr Crispian Olver
DIRECTOR GENERAL
DATE: 27.3.00

RECORD OF DECISION ISSUED IN TERMS OF SECTION 22(3) OF THE ENVIRONMENT CONSERVATION ACT, 1989 WITH REGARD TO THE UNDERTAKING OF THE ACTIVITY DESCRIBED BELOW AS REQUIRED BY GNR 1183 OF 5 SEPTEMBER 1997

REFERENCE NUMBER: A24/16/3/184

BRIEF DESCRIPTION OF THE ACTIVITY:
The applicant proposes the development of a resort and the residential area. The resort area will include 2 lodges, cottages, a chapel, function room, sports and recreational facilities, horse stables and a field and study centre within a 353ha game farm.

LOCALITY:

Province:	Gauteng
Magisterial District:	Krugersdorp
Name of Property:	Letamo Estate
Farm:	Farm Honingklip 178 IQ

This area is located within the declared Sterkfontein, Swartkrans, Kromdraai and Environs World Heritage Site.

APPLICANT:
Letamo Estate
PO Box 73191
FAIRLANDS
2030

Contact Person:	Mr C M Cloete
Tel:	(011) 447 2937
Fax:	(011) 447 2937

CONSULTANT:
Environmental Outsource
PO Box 1566
FLORIDA
1710

Contact Person:	Dr B Tibbles
Tel:	(011) 954 4327
Fax:	(011) 954 4399

DECISION:

Authorisation is granted in terms of section 22(3) of the Environment Conservation Act, 1989 (Act No. 73 of 1989) for the development of a residential area and a resort which will include 2 lodges, cottages, a chapel, function room, sports and recreational facilities, horse stables and a field and study centre within a 353ha game farm.

GENERAL CONDITIONS:

1. This authorisation refers only to the activities as specified and described above. Any other development listed under Section 21 of the Environment Conservation Act, 1989 (Act No. 73 of 1989) which is not specified above, is not covered by this authorisation, and must therefore comply with the requirements of the Act and Government Notice R 1183.

2. Authorisation is granted in terms of Section 22 of the Environment Conservation Act (Act No. 73 of 1989). This Authorisation does not exempt the holder from compliance with any other applicable legislation.

3. The applicant must in the event of non-compliance with any condition of this authorisation inform the Gauteng Department of Agriculture, Conservation and Environmental Affairs (DACE) within 48 hours.

4. A performance-based requirement must be included in all contracts entered into by the applicant. The applicant must carry out regular environmental audits to the satisfaction of the relevant authority to establish how well the contractor is complying with conditions for authorisation.

5. The applicant must notify interested and affected parties of this record of decision and associated conditions within 14 (fourteen) days of the date of this authorisation.

6. A copy of this authorisation shall be available at the construction site at all times and all staff, contractors and sub-contractors shall be familiar with or be made aware of the contents of this authorisation and the Environmental Management Plan.

7. Compliance/non-compliance records must be kept in good order and shall be available on request by the authorities.

8. The developer must also comply with the DACE's standard conditions for environmental impact assessment (EIA) authorisation.

SPECIFIC CONDITIONS:

1. A site specific Environmental Management Plan (EMP) for construction and operation must be drawn up and submitted to this Department for evaluation and approval prior to commencement of construction activities.

1.1. All interested and affected parties (I&AP) must be informed of the development of the EMP and must be allowed 30 days to comment on the draft EMP.

1.2. The EMP must give effect to the recommended mitigation measures made in the Scoping report dated 12th July 1999 (pg. 29 to 36 & 38-39), the Botanical Survey Report dated the 27th September 1999 and the Veld and Game Management Guidelines dated the 7th October 1999.

1.3. The EMP must also include, but not be restricted to, the following sections:

a. Sales agreement document;
b. Architectural design constraints for housing and fencing;
c. Management plan for the control of light pollution emanating from the residential and resort areas and connecting roads;
d. Stormwater design plans for construction and operational phase;
e. Management plan for access to the reserve by vehicles, hiking, horse riding etc;
f. Management plan for access of general public to the nature reserve area;
g. Management plan for use of pesticides herbicides by the resort and residential areas etc;
h. Program to train construction personnel to recognise archaeological and palaeontology finds;
i. Management plans for archaeological and palaeontology finds;
j. Management plans for siting of residential units taking into account, floodlines, environmental sensitive areas, red data species and building lines;
k. Construction time frames;
l. Management plans for the field and study centre.

1.4. The EMP must be made binding on all contractors working on site.

1.5. The EMP must be made binding on all persons living on the residential units and all managers of the resort and game reserve area.

2. The landscaping plan for the lodge, residential units and screening must be submitted to DACE for evaluation and approval prior to commencement of construction activities. Landscaping must make use of indigenous vegetation appropriate to the area.

3. A final site plan must be submitted to DACE for evaluation and approval prior to commencement of construction activities.

4. Cultural/ historical sites must be protected.

4.1. All areas/sites of archaeological, cultural and historical importance must be identified and mapped with co-ordinates on the proposed site as well as any additional land that is to be incorporated into the proposed Letamo Estate.

4.2. The completed map must be submitted to DACE for evaluation and approval prior to commencement of construction activities on these areas.

4.3. The identified areas must be taken into account when planning the construction of roads or rehabilitation work in these areas.

5. All residential and resort areas must be linked to a sewerage system. The design of the said sewerage system must be such that no effluent is emitted to the environment. The final design of this sewerage system must be submitted to DACE for approval prior to commencement of any construction activities.

6. A rehabilitation plan for the proposed game reserve area must be submitted to DACE for approval prior to the operation of the Letamo Estate.

7. A game management program must be submitted to DACE for approval prior to the operation of the Letamo Estate.

8. Failure by any parties operating on site to comply with the conditions of this authorisation or approved EMP shall constitute non-compliance with this authorisation. Such non-compliance will be dealt with in terms of Sections 29,30,31,31A of the Environmental Conservation Act (Act No 73 of 1989) and Sections 28 and 34 of the National Environmental Management Act (Act No. 107 of 1998) as well as any other appropriate legal mechanism.

9. If non-compliance with the conditions of this authorisation or the approved EMP is observed on a frequent basis or where such non-compliance, in the opinion of the relevant environmental authorities, constitutes a substantial or potentially substantial detrimental effect to the environment, or human health, the national Department of Environmental Affairs and Tourism (DEAT) in concurrence with the relevant provincial authority reserves the right to revoke this authorisation and demand the cessation of all activities on site until such time as when the non-compliance has been addressed to the satisfaction of the Gauteng Department of Agriculture, Conservation and Environmental Affairs.

KEY FACTOR/S FOR THE DECISION:

1. The consultant has adequately followed the EIA procedure.

2. The legal and procedural requirements have been complied with (See attached review and checklist).

3. The proposed development, if handled in an environmentally sound manner will make the Letamo Estate accessible to international tourists and the people of Gauteng. Tourism in Sterkfontein / Kromdraai World Heritage Site is the most important economic sector and it also has the potential to make the largest contribution to the surrounding towns' future economic growth.

4. The people of Western Gauteng, like anywhere else in South Africa, need jobs. The development of a resort and the residential units will stimulate the local economy, generate jobs both directly and indirectly during construction and operation of Letamo Estate.

SITE VISIT:

Persons present:	Organisation:	Date:
Ms Felicity Carliell	DACE	29 June 1999

Ms S Rosenberger	Environment Outsource	29 June 1999
Dr B Tibbles	Environment Outsource	29 June 1999
Mr P Voster	Letamo Estate	09 February 1999
Mr P Ngoasheng	DEAT	09 February 1999
Mr Cluen Eglin	Ndabushe Wildlife Reserve	29 June 1999

DATE OF EXPIRY:

This authorisation is valid for 5 (five) years from the date of this record of decision.

APPEAL:

Formal appeal can be directed to the Minister of Environmental Affairs and Tourism at the address indicated below. Such appeal must be lodged within 30 (thirty) days from the date of this Record of Decision.

The Minister of Environmental Affairs & Tourism
Private Bag X447
PRETORIA
0001
Tel: (012) 310 3611
Fax: (012) 322 0082

P @DEAT.GOV.ZA.

APPENDIX C – LETAMO TOWNSHIP EIA AUTHORISATION

AGRICULTURE, CONSERVATION AND ENVIRONMENT
Diamond Corner Building, 68 Eloff & Market Street, Johannesburg
P O Box 8769, Johannesburg, 2000

Telephone: (011) 355-1900
Fax: (011) 337-2292

Reference: Gaut005/04-05/606
Enquiries: Thabo Mokonotela
Telephone: (011) 355 1667
E-mail: Thabo.Mokonotela@gauteng.gov.za

Mogale City Local Municipality
P O. Box 94
Krugersdorp
1740

Tel: (011) 951 2203
Fax: (011) 951-2019

Dear Sir/Madam

RE: PROPOSED TOWNSHIP ESTABLISHMENT ON PORTIONS 221, 222 AND 224 OF THE FARM HONINGKLIP 178-IQ.

The above-mentioned proposal has reference.

The information provided indicated that the proposal entails rezoning from Special to Residential and will consist of 33 erven for the purpose of bush lodges. The proposed bush lodges will occupy 4, 97 hectares in extent.

Based on the review of the information submitted, the Department hereby informs you that authorisation in terms of Regulation No. 1182 (as amended), published under Section 21 of the Environment Conservation Act (Act No. 73 of 1989) in respect of the above project, is not legally required. We further have no objection to the proposal.

The Department however wishes to submit the following recommendations:

- Compliance with the management plans for the Cradle of Humankind World Heritage Site (COHWHS).
- Soil or building rubble must not be stockpiled within the designated natural open space areas or within the 1:100 year flood line.
- A Waste Disposal Management Plan (WDMP) in order to comply with the requirements of all relevant legislation pertaining to waste disposal (including domestic waste).
- Dust generated by construction activities should be minimised by dust suppression techniques such as the use of water sprinklers.
- Storm water management, which must cover the management of potential erosion and siltation of the watercourse into which the storm water is to be drained and must also cover retention of water on site to control volumes released.

Although authorisation in terms of the Environment Conservation Act, is not required for this application, all relevant legislation and requirements of other governmental departments (i.e. National, Provincial and Local) must still be complied with.

If you have any queries concerning the above please feel free to contact the relevant official at the number given above.

Yours faithfully,

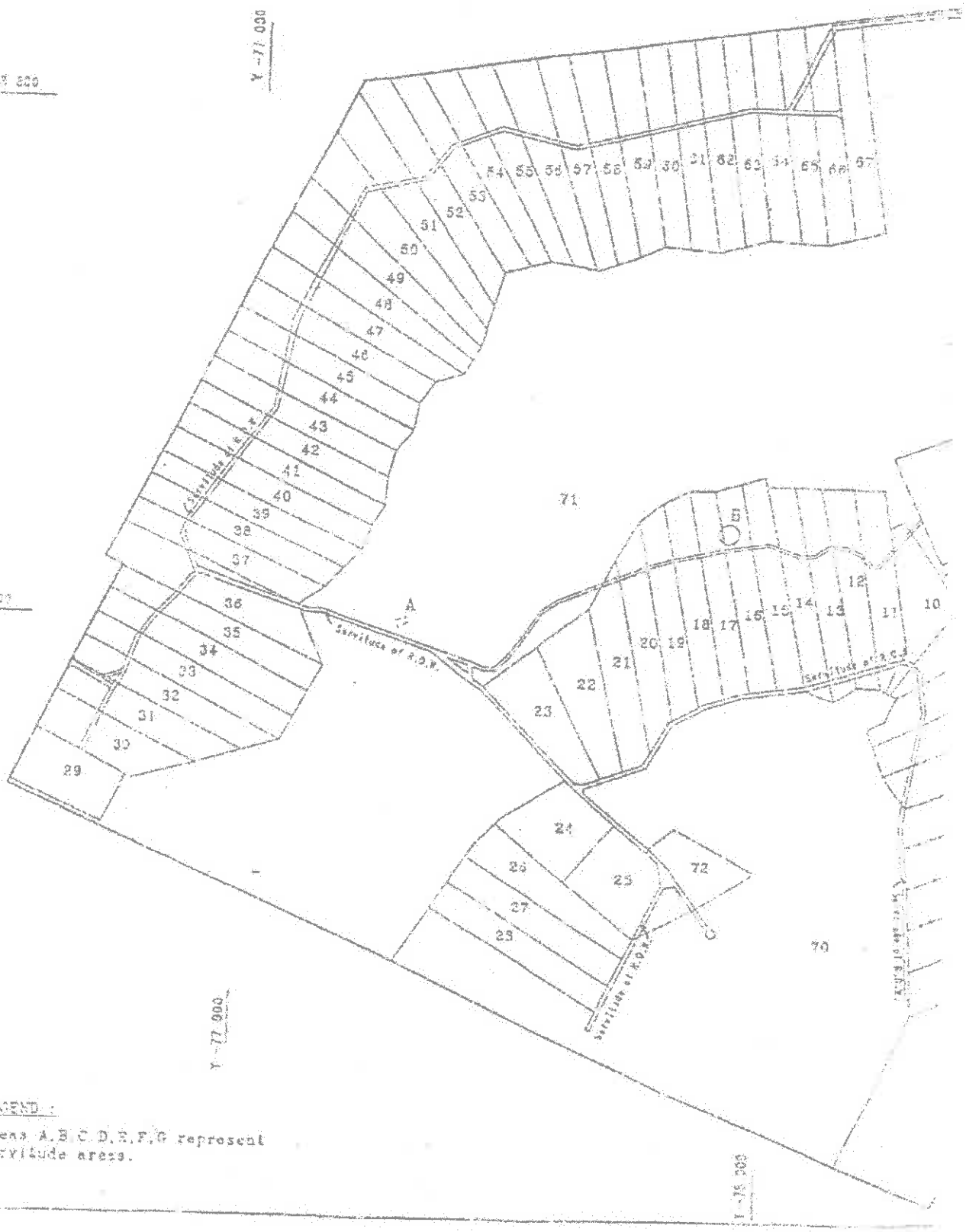
Dr. S.T. Cornelius
Head of Department
Department of Agriculture, Conservation and Environment
Date: 11/04/2005

CC: Eco Assessments

Attn: Christa Custers
Tel. (011) 782-3428
Fax: (011) 888-9589

PROPOSED CONSOLIDATION OF REMAINDER OF PORTION 6 AND PORTION 70 AND SUBSEQUENT SUBDIVISION THEREOF INTO 72 PORTIONS

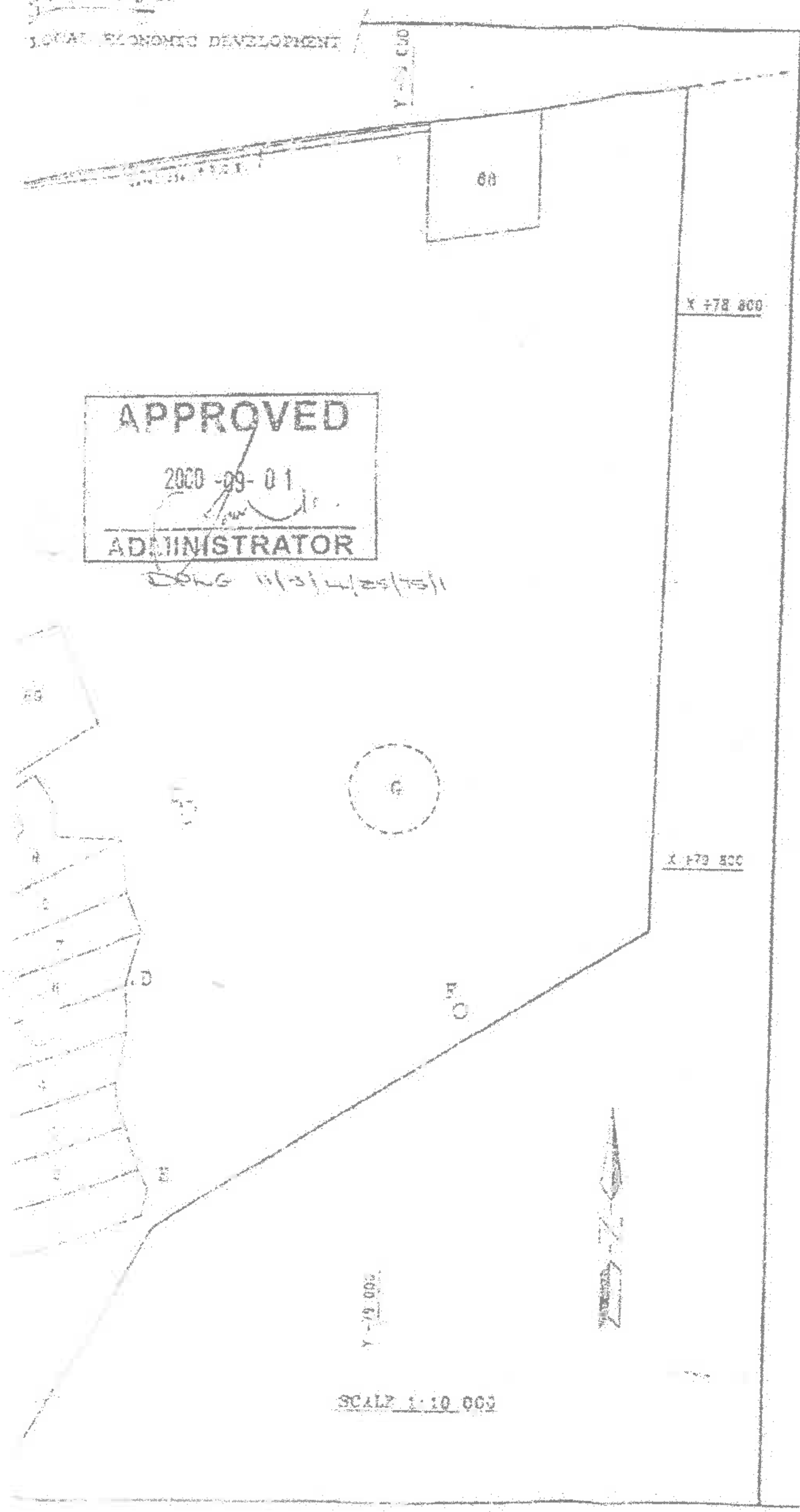
HONINGKLIP 178-IQ



LEGEND :

Areas A,B,C,D,E,F,G represent servitude areas.

LOCAL ECONOMIC DEVELOPMENT



PORTION NO.	AREA (Ha)
1	2.51[illegible]
2	2.3653
3	2.1886
4	2.2793
5	2.3835
6	2.6384
7	2.6235
8	3.6071
9	[illegible]
10	2.0[illegible]
11	2.[illegible]577
12	2.0702
13	2.0230
14	2.0318
15	2.0288
16	2.1102
17	2.0300
18	2.[illegible]139
19	2.0717
20	2.0581
21	2.1239
22	2.3022
23	2.2212
24	2.2783
25	2.2329
26	2.2620
27	2.13[illegible]
28	2.1178
29	2.0510
30	2.0443
31	2.0841
32	2.0593
33	2.1423
34	2.3178
35	2.2361
36	3.4605
37	2.0723
38	2.063[illegible]
39	2.0234
40	2.1817
41	2.0943
42	2.0363
43	2.0423
44	2.0900
45	2.0372
46	2.1317
47	2.2532
48	2.4445
49	2.3279
50	2.2563
51	2.[illegible]
52	2.6800
53	2.3521
54	2.1677
55	2.149[illegible]
56	2.5[illegible]
57	2.[illegible]
58	2.[illegible]
59	2.2131
60	2.0328
61	2.1195
62	2.0573
63	2.1235
64	2.1720
65	2.[illegible]43
66	2.2042
67	2.3407
68	4.2[illegible]
69	4.[illegible]
70	42.[illegible]
71	283.8237
72	2.[illegible]

P.O. Box 94
Krugersdorp
1740
Tel: (011) 951-2000
Fax: (011)
Direct:

Local Municipality

OFFICE OF THE DIRECTOR: LED

Reference: Mr C van Wyk/wh
LED/15/2/2/58
(T) 951 2418
(F) 951 2019

24 August 2005

Smit and Khota Urban Development Consultants
Post Net Suite 120
Private Bag X3
PAARDEKRAAL
1752

Sir/Madam

PROPOSED TOWNSHIP: LETAMO ESTATE TO BE ESTABLISHED ON PORTIONS 222 AND 224 (PORTIONS OF PORTION 152) OF THE FARM HONINGKLIP 178 IQ

Your application regarding the above mentioned refers.

The Executive Mayor of this Municipality resolved on 3 August 2005 under item LED (10) 08/2005 as follows:

URBAN DEVELOPMENT AND BUILDING CONTROL REQUIREMENTS

1. That the application by Smit and Khota Urban Development Consultants, for the establishment of the township Letamo Estate on Portions 222 and 224 (portions of Portion 152), of the farm Honingklip 178 IQ be ***APPROVED*** subject to the following conditions:

   (a) Erf 1 shall be zoned "Special" for a game lodge and related activities, in terms of the Krugersdorp Town Planning Scheme, 1980 and will be subject to the following land use control measures:
   (i) A maximum Floor Area Ratio of 0,019;
   (ii) A Building Line of 5 metres;
   (iii) A maximum height of 2 storeys;
   (iv) Parking spaces shall be provided in the following ratio:
   1 parking area per six (6) seats must be provided on the erf.

   (b) Erven 2 to 6 and 9 to 29 shall be zoned "Special" for game lodge residences in terms of the Krugersdorp Town Planning Scheme, 1980, and the erf and buildings erected thereon or to be erected thereon, shall be subject to the following control measures;

within the area of such servitude or within a distance of 2 metres thereof.

7. The Local Government is entitled to temporarily place any material excavated during the installation, maintenance or removal of a sewerage pipeline or any other works that is deemed necessary on the land adjacent to the servitude and furthermore the Local Government is entitled to reasonable entry to the property on which the servitude is situated for the stated purpose, on the condition that the Local Government will be liable for any damage caused during the installation, maintenance or removal of sewerage pipelines and other works.

8. The erven is situated on land with soil characteristics that may cause damage to buildings and structures to be erected thereon. Building plans submitted to the Local Government must indicate preventative measures in accordance with the recommendations contained in the engineering geology report that was done for the township, in order to limit damage to buildings or structures due to the unfavourable foundation conditions. Preventative measures need not be contained in the building plans if proof can be given by the developer that such measures are not required.

9. In order to limit such damage, the foundations and other structure elements of buildings and structures must be designed by a competent professional engineer. It is recommended that a specific foundation investigation be done for each individual erf prior to any construction taking place thereon.

10. Prior to commencing any construction on the property concerned, Building Plans for each portion shall be submitted to the Director LED (Building Control Section) for consideration and approval.

11. The building plans submitted must consist out of the following:

Building Pans
3 Sets of paper copies submitted at the Building Control Section
Fire Protection Plans
1 Set plastic and 1 set paper copies submitted

12. The site plans and the proposed internal water and sewer reticulation must be submitted to the Directorate Local Economic Development: (Building Control Section) for approval.

ROADS AND SURFACE DRAINAGE AND PUBLIC SAFETY REQUIREMENTS

13. the applicant shall further pay a contribution towards the upgrading of the intersection of Kromdraai Road and the main access road to the proposed township.

14. the applicant shall provide ingress and egress to the erven in the proposed township to the satisfaction of the Director: Infrastructure Management and the Director: Public Safety (Traffic Section).

15. The developer shall at his own cost provide the necessary roadway and storm water drainage systems to ensure that the lower-lying properties and those of the same development are not flooded. The systems so installed shall adhere to the

(i) Floor Area Ratio of between 0,012 and 0,053 as indicated for each individual erf in terms of the Environmental Management Plan approved for the proposed development;
(ii) A Building Line of 5 metres;
(iii) A maximum height of 2 storeys;

(c) Erf 8 shall be zoned "Special" for game farm management in terms of the Krugersdorp Town Planning Scheme, 1980, and the erf and buildings erected thereon or to be erected thereon, shall be subject to the following control measures;
(i) Maximum Floor Area Ratio of 0,097;
(ii) A Building Line of 5 metres;
(iii) A maximum height of 2 storeys.
(iv) Parking spaces shall be provided in the following ratio:
4 parking areas per 100-m2 office floor areas must be provided on the erf.

(d) Erven 7, 30 and 32 shall be zoned "Undetermined" in terms of the Krugersdorp Town Planning Scheme, 1980.

(e) Erf 31 shall be zoned "Special" for staff accommodation in terms of the Krugersdorp Town Planning Scheme, 1980, and the erf and buildings erected thereon or to be erected thereon, shall be subject to the following control measures;
(i) Maximum Floor Area Ratio of 0,033;
(ii) A Building Line of 5 metres;
(iii) A maximum height of 2 storeys.

2. the applicant must comply to the conditions laid down by the respective external Departments and Organizations to the satisfaction of same and the Director: Local Economic Development (Urban Development Section).

3. the applicant shall adhere to the recommendations made in the geo-technical soil report to the satisfaction of the Director : Local Economic Development (Building Control Section).

4. the site development plan to be submitted shall indicate landscaping proposals to ensure that the proposed township conforms to acceptable aesthetical standards to the satisfaction of the Director: Local Economic Development (Building Control) and the Director: Integrated Environmental Management.

5. The erven in the township shall be subject to a servitude 2 metres wide for sewerage and other purposes in favour of the Local Government along any two boundaries other than a street boundary and in the instance of a panhandle erf an additional 2 metres wide servitude for municipal purposes over the access portion of the stand if and when required by the Local Government : provided that the Local Government may dispose of the right to any such servitude.

6. No buildings or any structures may be erected within the servitude area, mentioned in paragraph 6 above and no large rooted

approval and specifications laid down by the Directorate: Infrastructure Management and the Sub-directorate: Roads, Transport and Surface Drainage of the Municipality.

16. A Bulk Services Charge for Roads and Surface Drainage will be calculated on approval and is payable as indicated in the Services Agreement to be entered into between the Municipality and the developer.

17. The Bulk Services Contribution, to be calculated as indicated above, is valid for a total period of 6 calendar months, thereafter is subject to revision.

18. A plan depicting contour intervals, methods of storm water dispersal, underground storm water drainage lines, as well as the expected discharge and flow velocities thereof must be forwarded to the offices of the Sub-Directorate Roads and Surface Drainage for consideration and subsequent approval.
19. Storm water discharge to lower-lying areas shall be by means of a storm water pipeline system to be approved by the Director: Infrastructure Management (Roads and Surface Drainage).

20. The developer shall supply the Sub-Directorate with a detailed Storm Water Drainage scheme with plans, cross sections and specifications as compiled by a civil engineer approved by the Sub-Directorate for the provision of an underground drainage system. Such system must be designed in order to dispose of the run-off of a 1:10 year rainstorm and must ensure that the run-off of a 1:50 year rainstorm be guided to the nearest defined water course without flooding of adjacent properties.

21. The design of the drainage system must contain and describe aspects such as geometric of internal roadways, cross falls, tar macadamization, or paving, kerbing and channelization of roadways as well as the provision of retaining walls if required by the Sub-Directorate: Roads and Surface Drainage.

22. The drainage system shall, if necessary, make provision for the catchment of storm water in catchment pits from where it must be disposed of in watertight pipes in such a way that no water collections or seepage shall occur on or near the ground surface.

23. The mentioned storm water pipes must be manufactured from durable material and must be approved by the Director: Infrastructure Management

24. Municipal water is available. Municipal sewer is not available. The application is therefore not supported.

25. A bulk services contribution is payable to the Municipality and will be contained in a Services Agreement to be entered into between the developer and the municipality.

26. The developer will be responsible for the design and installation of the internal water and sewer reticulation and the wastewater treatment system and will submit such designs to the Directorate: Water and Sanitation for approval.

27. Alterations to external and/or internal services infrastructure as a result of the application shall be for the account of the applicant.

28. No construction of internal services or connections may commence in advance without approval of site plans and connections by the Directorate Water and Sanitation.

29. The applicant shall inform the Municipality in writing of the date of commencement of installation of essential services.

30. The applicant shall, at his own cost, register servitudes to provide access or protect infrastructure on the proposed portions, if required.

31. Certified copies of the site plan, internal services including all detail of long section drawings shall be submitted to the Director: Water and Sanitation after certification by the Surveyor General and prior to commencement of construction.

32. The control and disposal of wastewater and effluent shall be done in accordance with municipal by-laws and SABS to the satisfaction of the Directorate: Water and Sanitation.

33. On completion of this development the developer/owner will be responsible to submit as-built drawings of all service installations to the Directorate: Water and Sanitation.

34. The applicant shall apply to the Director: Infrastructure Management, regarding the supply of electricity to the proposed township.

35. Mogale City LM is the licensed distributor of electricity in the area and the developer shall accordingly submit an application for electricity requirements to this Directorate.

36. Prior to the commencement of any electrical work by the Sub-Directorate: Electricity, the following information will be required from the electrical contractor:
    - A site design;
    - A design of the distribution network, including cable sizes and diagrammatic plans of the distribution boxes;
    - The after Diversity Maximum Demand rating which the design was based on;
    - Volt drop characteristics;
    - Earthing network and lightning design;
    - Fault current detail and limitation equipment;
    - Depth of cables;
    - Proposed metering method.

37. The municipality does not intend to take over any of the internal electrical reticulation and therefore the developer or an established legal entity will maintain the electrical reticulation and streetlight illumination for this purpose in future.

38. All street lightning in the township must be installed according to the standards and specifications of the Council.

39. the applicant shall enter into an agreement with the Council, Eskom and other applicable service providers regarding the provision of internal and external engineering services in the proposed township.

40. a technical development report, stipulating costs for internal and external services according to the Council's specifications shall be required from the developer prior to the establishment of the services provision agreement mentioned in paragraph 40 above.

41. the applicant must pay a contribution toward the provision of bulk engineering services as determined in the services agreement mentioned under paragraph 40 above;

42. A 10% annual escalation is applicable to all Bulk Services Contributions.

43. A 10% contingency shall be paid on all municipal services (installed) and internal services installations.

44. The conditions regarding servitudes contained in the Title Deed of the property are to be repeated in the Title Deeds of the erven in the proposed township.

45. The conditions regarding foundation recommendations, contained in the Geo-technical soil report of the property are to be repeated in the Title Deeds of the subdivided erven.

46. When any development starts, all relevant health legislation and Municipal By laws must be complied with.

47. No developments may take place without consulting the Environmental Health Section regarding health requirements and refuse management systems.

48. The applicant must submit proof of environmental authorization from GDACE regarding the proposed township;

49. All fences to be erected in the township must be environmentally friendly and are subject to the approval of the Director: Integrated Environmental Management

50. A landscaping plan shall be submitted for approval and shall be approved by the Director: Integrated Environmental Management of the municipality

51. Any discovery of archaeological or palaeontological objects / items during development must be reported immediately to the municipality or the Provincial Resources Agency.

52. The applicant shall note that the development of the proposed township is subject to the availability of sufficient municipal engineering services in the area, to the satisfaction of the relevant service providers.

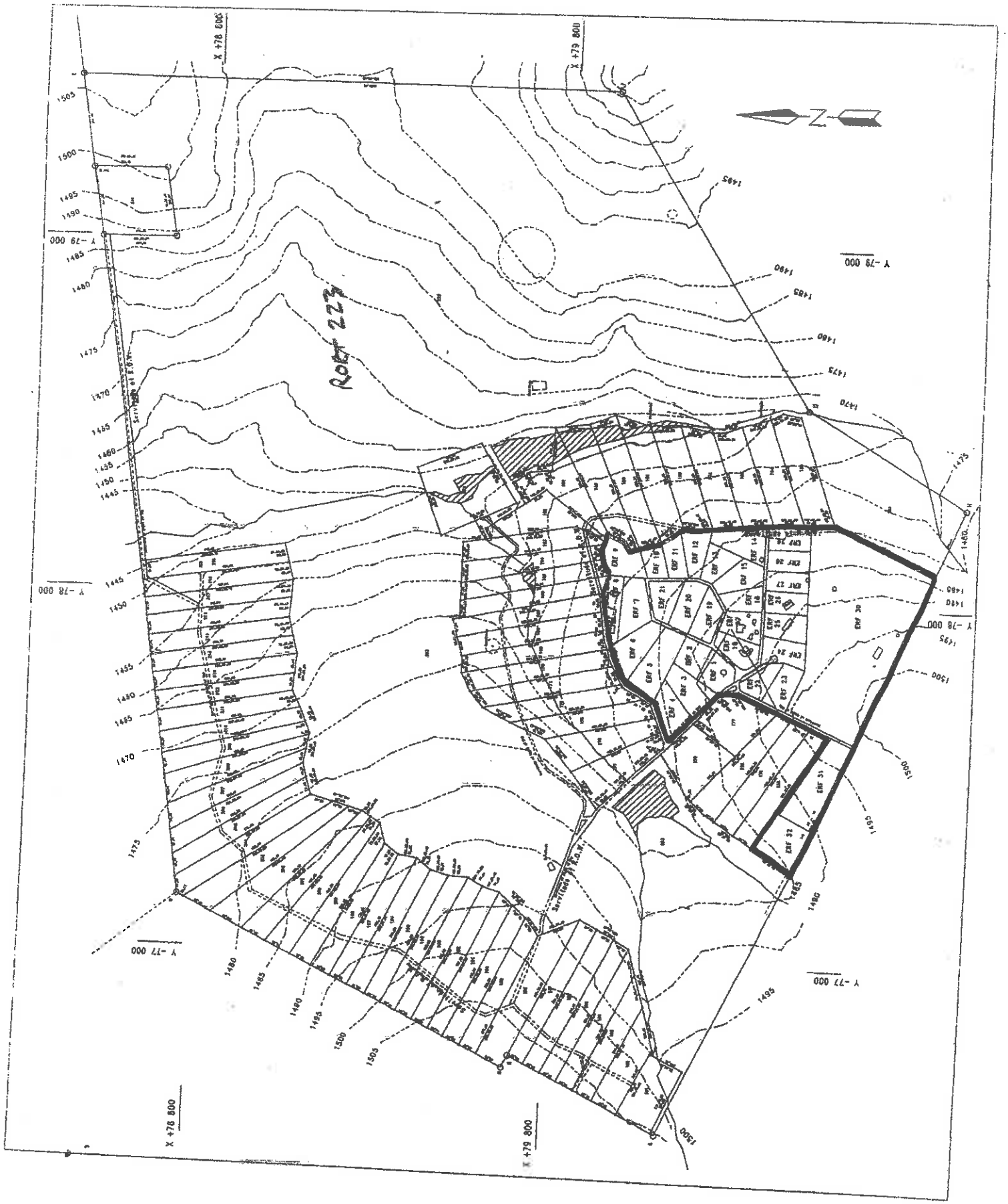
54. The applicant shall note that the proposed township is affected by an existing Telkom Line, which must be relocated or removed at the cost of the developer to the satisfaction of Telkom.

55. The applicant shall submit the agreement reached with the owners of Portion 221 of the farm Honingklip 178 IQ regarding the installation and connection to a package plant to be erected on Portion 221 for sewerage treatment purposes to the Municipality to form part of the services agreement to be entered into between the applicant and the municipality.

56. The township developer shall enter into a separate agreement with the supplier of the package plant mentioned above regarding the treatment of waste water and the operation and maintenance of the package plant.

Yours faithfully

J MATHYE
LAND USE MANAGEMENT
URBAN DEVELOPMENT AND BUILDING CONTROL
DIRECTORATE: LOCAL ECONOMIC DEVELOPMENT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APPENDIX D – ENVIRONMENTAL MANAGEMENT PROGRAMME

ENVIRONMENTAL MANAGEMENT PROGRAMME

FOR

PROPOSED SUBDIVISION AND DEVELOPMENT

ON

ERF 30
LETAMO TOWN
LETAMO ESTATE
FARM HONINGKLIP 178 IQ
MOGALE CITY

CONSULTANT

Ecologic AFRIKA
PO Box 8079
CENTURION
0046

Tel 012-6614863
Fax 012-6615251
ecologic@mweb.co.za

June 2019

viii. No lawn mowers and use of noise generating machinery or equipment may be used before 07h00 and after 18h00 Monday to Friday, or before 08h00 and after 14h00 on Saturdays. The use of similar equipment is not permitted on Sundays or Public Holidays.

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Abbreviations

EMPr	Environmental Management Programme
COHWHS	Cradle of Humankind World Heritage Site
GDARD	Gauteng Department of Agriculture & Rural Development
DEA	Department of Environmental Affairs
ROD	Record of Decision
DWS	Department of Water & Sanitation
MSDS	Material Safety Data Sheet
SAHRA	South African Heritage Resources Agency
C-Plan	Gauteng Conservation Plan
OSHA	Occupational Health and Safety Act (Act No 85 of 1993)
OHSI	Occupational Health and Safety Inspector
NWA	National Water Act (Act No 36 of 1998)
I&AP's	Interested and / or Affected Parties
LGF	Letamo Game Farm Pty Ltd
LE	Letamo Estate

Terminology

Board – *Board of Directors of Letamo Game Farm PTY LTD*

Erf 30 – undetermined Erf in Letamo Town

Environmental Manager – *Farm manager appointed by and reporting to the Board of Directors of Letamo Game Farm* PTY LTD *who are ultimately responsible for implementing the EMPr and ensuring that compliance with the EMPr is maintained.*

Domestic Workers/Gardeners - *a person engaged in a particular field, activity of or pertaining to the home, garden, the household, household affairs, or the family.*

Renter- *People who are renting property from the owners of property on Letamo Estate and Letamo Town.*

Landowners- *The people who own property on Letamo Estate.*

Letamo Estate – Portions 153 – 219 (2 hectare residential portions), Portion 220 (Black Bark Guest house, Portion 221 (Forum Homini Boutique Hotel), Portion 223 (Game Farm) and Erf 1 - 32 (Letamo Town).

Letamo Game Farm – *Letamo Game Farm Pty Ltd, managing company of Letamo Estate.*

Game Farm – *Letamo Game Farm, owner of Portion 223 of the Farm Honingklip 178IQ.*

Letamo Estate (Pty) Ltd – Developer

Shareholder- *Any person, company, or other institution that owns shares in Letamo Game Farm PTY LTD*

Commercial vehicle – *A vehicle that is used purely for construction / commercial purposes. These include trucks, buses and other similar heavy duty vehicles*

Service Provider- *The company/entity appointed by Letamo Game Farm PTY LTD to do specific operations on Letamo Estate.*

~~Bylaw- *A body of local regulations*~~

Riparian Zone- *Areas adjacent to rivers and streams with a differing density, diversity, and productivity of plant and animal species relative to nearby uplands*

Low Impact Activities - *activities which inflict a minimal impact on the surrounding environment (both faunal and floral). Examples include bird hides, picnic spots and hiking trails.*

High Impact Activities – *activities which can have a negative impact on the surrounding environment. These include water sports (speed boats, jet ski's), off road 4X4 and quad biking.*

Aesthetic Impact – *an activity that may inflict a visual impact on the surrounding environment. This can include lighting, intrusive activities in the view shed of other residents, quality of finishing etc.*

Surface water body- *a dam, river or wetland.*

Fuel Depot – *Area where temporary fuel storage takes place on the Letamo Game Farm of which the storage capacity may not exceed 30m^3.*

1. INTRODUCTION

Ecologic Afrika was appointed to formulate an Environmental Management Programme (EMPr) for the proposed subdivision and development of Erf 30. This EMPr concentrates on the Environmental Management mitigation measures and highlights the importance of these. An EMPr checklist is also included here. This will be utilised to carry out environmental audits on an annual basis.

The EMPr is an environmental management tool used to prescribe management mechanisms or methods for the prevention of undue or reasonably avoidable adverse environmental impacts and for the enhancement of the positive environmental benefits.

The location of the Erf 30, Letamo Estate within the Cradle of Humankind World Heritage Site (COHWHS) emphasises the importance of this EMPr due to the sensitivities that are associated with this area. The sensitive nature of the grassland which dominates the landscape at Letamo Estate also highlights the importance of an EMPr in order to protect this sensitive habitat.

This EMPr can aid the Environmental Manager in maintaining the 'country life' atmosphere that is associated with Letamo Estate while still harvesting the economic value of the property. This can only be achieved if the Environmental Manager of the Estate ensure that all activities on the Estate are conducted in a sustainable manner

In order for an EMPr to be effective it needs to be concise and clear, highlighting the implementation measures which need to be taken to ensure the sustainable management of the Estate.

2. THE CRADLE OF HUMANKIND WORLD HERITAGE SITE (COHWHS)

According to the sensitivity map of the COHWHS, several areas have been identified as sensitive. The Management Authority would thus like to stop further development and fragmentation within the core zone to minimise further ecological impact on the natural process that still prevail in the area. Any development that occurs within the COHWHS should aim to enhance the rural character of the area. It is important to remember that it is this rural character that adds the appeal to the COHWHS as a tourist destination. The loss of this 'sense of place' would seriously affect the economic sustainability of the heritage site from a tourism point of view.

Conducting an EIA in the COHWHS

The Master Plan for the COHWHS recommends that all developments within the COHWHS require EIA authorisation. These applications are all to be referred to the Management Authority of the COHWHS for consideration as well as GDARD. Further large scale residential and cluster developments, golf estates and courses, subdivisions and extension of agricultural activities are prohibited within this zone. Activities which do not lead to further fragmentation and that will promote the overall environmental and tourist objectives of the COHWHS will be permitted.

3. THE GAUTENG CONSERVATION PLAN

The Gauteng Conservation Plan (C-Plan) is a tool for Environmental Consultants and alike to identify sensitive areas within Gauteng. This includes Red Data fauna and flora species and sensitive vegetation. The purpose of the Gauteng C-Plan is to identify and map areas that are of importance from a biodiversity perspective and which need protection in Gauteng. This is conducted via a systematic and empirical conservation-planning programme, which provides recommendations and policy strategies for the conservation and management of these areas.

The Gauteng C-Plan has identified the vegetation on Letamo Estate to be that of Endangered Egoli Granite Grassland. This grassland is hardly protected according to Mucina & Rutherford (2004) with only one percent of the vegetation protected country wide. It is therefore essential that building footprints and fenced-in landscaped areas are limited to 1500m² or to a maximum of 15% of each erf size, and strictly adhered to in order to avoid loss of any further grassland.

4. APPLICABLE LEGISLATION AND GUIDELINES

ACT	SECTION	DESCRIPTION
The Constitution (Act 108 of 1996)	Chapter 2	Bill of Rights
	Section 24	Environmental rights
	Section 25	Rights in property
	Section 32	Administrative justice
	Section 33	Access to information
National Environmental Management Act (Act 107 of 1998)	Section 2	Defines the strategic environmental management goals, principles, and objectives of the Government. Applies htroughout the country to the actions of all organs of state that may significantly affect the environment.
	Section 24	Provides for the prohibition, restriction and control of activities which are likely to have a detrimental effect on the environment.

ACT	SECTION	DESCRIPTION
National Environmental Management Act (Act 107 of 1998)	Section 28	Duty of care and remediation of environmental damage. The scheme owner has a general duty to care for the environment and to institute such measures as may be needed to demonstrate such care. The duty of care has been amended to include significant pollution or degradation that occurred before the commencement of NEMA that arises or is likely to arise at a different time from the actual activity that caused the contamination or that arises through an act or activity of a person that results in a change to pre-existing contamination.
	Section 30	Control of emergency incidents. Responsible person's duties relating to reporting and remediation actions regarding emergency incidents. A criminal sanction may be imposed on the responsible person for failure to comply with the reporting requirements and obligations to address any emergency incidents.
National Environment Management Waste Act (Act 59 of 2008)	Section 16	General duty in terms of waste management.
	Section 17	Reduce, re-use, recycle and recover waste.

	Section 26	Prohibition of unauthorized disposal of waste.
	Section 27	Littering
National Environmental Management Biodiversity Act (Act 10 of 2004)	Section 65-69	These sections deals with restricted activities involving alien species and certain alien species totally prohibited, as well as duty of care relating to alien species.
	Section 71&73	These section deal with restricted activities involving invasive species and duty of care relating to listed invasive species.
National Environmental Management Air Quality Act (Act 39 of 2004)	Section 32	Control of dust
	Section 34	Control of noise
	Section 35	Control of offensive odours
ACT	SECTION	DESCRIPTION
National Environmental Management Air Quality Act (Act 107 of 1998)	Schedule 2	Ambient air quality standards
Conservation of Agricultural Resources Act (Act 43 of 1983) and regulations	Section 5&6	Implementation of control measures for alien and invasive plant species.
National Heritage Resources Act (Act 25 of 1999)	Section 35	No person may, without a permit issued by the responsible heritage resources authority, destroy, damage, excavate, alter, deface or otherwise disturb any historical, cultural, archaeological or paleontological site.
	Section 38	This section provides for heritage impact assessments (HIA), which are not covered under NEMA. The HIA will be approved by the authorizing body of the provincial directorate of environmental affairs, which is required to take the provincial heritage resources authorities' comments into account prior to making a decision on the HIA.
Occupational Health & Safety Act (Act 85 of 1993) and regulations	General Administration Regulations GN R1449 –	Material Safety Data Sheets must be made available at the request of any interested or affected party.

	Section 7	
	Section 8	General duties of employers to their employees.
	Section 9	General duties of employers and self-employed persons to persons other than their employees.
National Water Act (Act 36 of 1998)	Section 19	Prevention of, and remedying the effects of pollution on a water body.
	Section 20	Control of emergency incidents.
Hazardous substances Act (Act 15 of 1973)	Chapter 4 and regulations	Use of water and licensing. Provides for the definition, classification, use, operation, modification, disposal or dumping of hazardous substances.
Minimum requirements for storage, handling and disposal of hazardous waste	DWS guidelines 1998 – Section 10	Temporary hazardous waste storage, time, volume and other requirements.

ACT	SECTION	DESCRIPTION
National Environmental Management Protected Areas Act (Act 57 of 2003)	Section 11	The implementation of the management of protected areas.
World Heritage Convention Act (Act 49 of 1999)	Section 5	Enforcement and implementation of the Act.
	Section 6	Identification and nomination of World Heritage Sites.
National Road Traffic Act (Act 93 of 1996)	Section 54	Transportation of dangerous goods.
Fencing Act (Act 31 of 1993)	Section 17	Any person erecting a boundary fence may clear any bush along the line of the fence up to 1,5m on each side thereof and remove any tree standing in the immediate line of the fence. However, this provision must be read in conjunction with the environmental legal provisions relevant to the protection of flora.
National Veld and Forest fires Act (Act 101 of 1998)	Chapter 2	Promoted and regulates the formation of protection associations which aim to manage and coordinate fire protection and fire services in an area.

	Chapter 4&5	Organisations are required to make and maintain firebreaks and fire-fighting equipment and personnel should there be a risk that a fire may start or spread from the premises.
DEA Integrated Environmental Management		DEA Integrated Environmental Management Information Series (2004), Environmental Management Plans: DEA guideline for compiling EMPs.
Municipal systems Act (Act 32 of 2000)		To provide for the principles, mechanisms and processes to ensure that equitable and essential services are provided to all social and economic groups.
SANS 1029		Ambient Air Quality – limits to common pollutants.
SANS 10103		The measurement and rating of environmental noise with respect to land-use, health, annoyance and speech communication.
SANS 10400	Incl SANS 204	National Building Regulations
SANS 10128		Bunding of fuel storage tanks.

5. DEA ENVIRONMENTAL SCREENING TOOL

The environmental screening tool is a recently launched geographically based web-enabled application to pre-screen proposed development sites for environmental sensitivity. The screening tool also provides site specific EIA process and review information. A screening report has been generated for Erf 30 (see Annexure C).

6. LETAMO ESTATE ENVIRONMENTAL POLICY

The owners of Letamo Estate have compiled an Environmental Management Policy that will be honoured at all times, and will be enforced and complied with by all persons on the property described hereunder. This policy is based in the National Environmental Policy for South Africa, as set out in the Preamble of Section 2 of the Environment Conservation Act (No. 73 of 1989) and states:

- Every inhabitant of Letamo Estate, has the right to live, work and relax in a safe, productive, healthy and aesthetically and culturally acceptable environment and therefore also has a personal responsibility to respect the same right of his fellow man."

- Every generation that lives, works and relaxes in this Letamo Game Farm has an obligation to act as trustee of its natural environment and cultural heritage in the interest of succeeding generations.
- Every person on this property has a responsibility to consider all activities that may have an influence on the environment and to take all responsible steps to protect, maintain and improve both the natural environment and the human living environment.
- The maintenance of natural systems and ecological processes and the protection of all species, diverse habitats and land forms are essential for the conservation of biodiversity.
- Renewable resources are part of complex and inter-linked ecosystems and must through proper planning and judicious management be maintained for sustainability. Non-renewable natural resources are limited and their utilisation must be extended through efficient use and maximum reuse of materials with the object of combating further over exploitation of these resources.
- The concept of sustainable development is accepted as the guiding principle for environmental management. Development and educational programmes are necessary to promoted economic growth, social welfare and environmental awareness, to improve standards of living and to curtail the growth in the human population. Such programmes will be formulated and applied with due regard for environmental considerations.

This EMPr must be read in conjunction with the Rules & Regulations of the Letamo Estate.

7. ENVIRONMENTAL MANAGEMENT PROGRAMME

This EMPr seeks to manage and keep to a minimum the negative impacts of a development and at the same time, enhance the positive and beneficial impacts.

7.1 Nature of the EMPr

The EMPr is a legally required document; the document is to ensure that Letamo Estate complies with the requirements of reasonable protection of the environment as imposed by Section 28 of NEMA in particular, which refers to duty of care. The EIA Regulations, 2014, are used as a guideline for the content of the EMPr. The mitigation measures required may include measures to –

Investigate, assess and evaluate the impact on the environment;

- inform and educate employees about the environmental risks of their work and the manner in which their tasks must be performed to avoid causing significant pollution or degradation of the environment;
- cease, modify or control any act, activity or process causing the pollution or degradation;
- contain or prevent the movement of pollutants or the cause of degradation;
- eliminate any source of the pollution or degradation; or
- remedy the effects of the pollution or degradation.

The EMPr, as a standalone document, shall be used to guide and regulate environmental performance. It contains the following elements:

- goal setting and performance measurement;
- compliance management;
- an assessment and management system;
- community relations;
- roles, responsibilities and accountabilities;
- risk management;
- emergency preparedness and response; and
- incident reporting and investigation.

To achieve these environmental management requirements, a defined and implementable system must be in place. This system comprises the what and the how.

- The what: The EMPr indicates to Letamo Estate what is required by setting objectives with measurable targets in place for the successful management of the Game Farm.
- The how: Letamo Estate is required to formulate procedures and/or guideline documents in compliance with its Quality Management System (QMS) requirements on how the objectives will be met.

7.2 Objectives of an EMPr

The objectives of the EMPr are to:

- Identify a range of mitigation measures which could reduce and mitigate the potential impacts to minimal or insignificant levels.
- To identify measures that could optimize beneficial impacts.
- To create management structures that address the concerns and complaints of Interested and/or Affected Parties (I&APs) with regards to the development.
- To establish a method of monitoring and auditing environmental management practices during all phases of development.
- Ensure that the construction and operational phases of the project continues within the principles of Integrated Environmental Management.
- Detail specific actions deemed necessary to assist in mitigating the environmental impact of the project.
- Ensure that the safety recommendations are complied with.

7.2.1 The EMPr seeks to highlight the following

- Avoiding impacts by not performing certain actions.
- Minimising impacts by limiting aspects of an action.
- Rectifying impacts through rehabilitation, restoration, etc of the affected environment.
- Compensating for impacts by providing substitute resources or environments

- Minimising impacts by optimising processes, structural elements and other design features.

- Provide ongoing monitoring and management of environmental impacts of a development and documenting of any digressions /good performances.

- The EMPr is a legally binding document that all parties involved in the project must be aware of and abide by this document.

7.2.2 Environmental Monitoring

This may include regular checks that actions are in line with the EMPr's conditions. A checklist that addresses all the issues / impacts identified is utilised to assess levels of compliance with the EMPr. It is recommended that formal environmental monitoring take place on a biannual basis. These audits will dictate any changes that need to be made to this EMPr. In addition to formal monitoring, it is the Environmental Manager's responsibility to monitor general environmental compliance on a daily basis.

The Continuous Improvement Approach

The approach adopted for this EMPr is derived from the **Deming Cycle** (refer to Figure 1), a cycle of continuous improvement that entails the reiterative actions of **plan**, **do**, **check** and **act**.

- **Plan**

Planning for the operation of the Letamo Estate involves listing activities associated with the works and the environmental aspects that may be impacted on. This provided a starting point from which aspect-specific environmental management objectives were established.

Environmental performance indicators were determined for these objectives and measurable targets were prescribed to monitor the environmental performance of the project. Achieving the targets depends on **compliance with this EMPr** and the legislative requirements that underpin it.

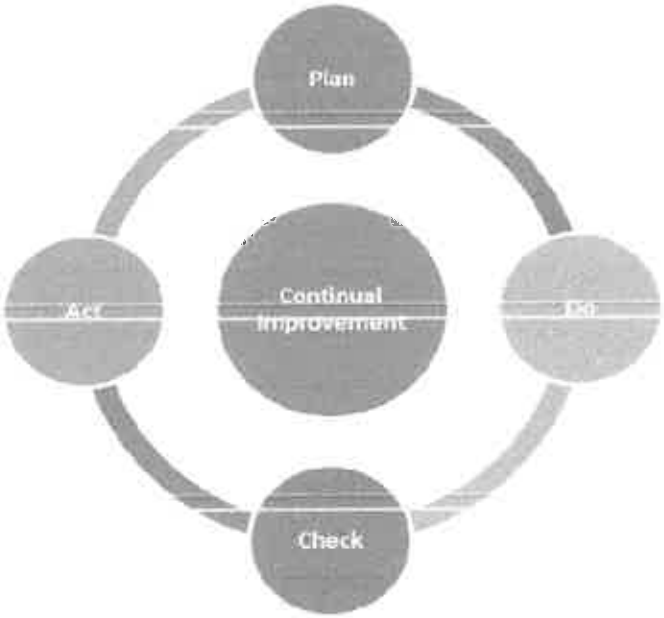


Figure 1: The Deming Cycle.

- **Do**

Throughout the construction, operation of the Letamo Estate, the EM will be required to develop and maintain a QMS (Quality Management System) that is designed to ensure that best management practices are implemented in day-to-day management related to the construction, operation, rehabilitation and decommissioning activities. Such a QMS should at least include the following information:

- location and extent of associated infrastructure;
- resources and experience required (staffing);
- materials and equipment to be used;
- management actions;
- human resources used;
- emergency / disaster incident and reaction procedures; and
- rehabilitation procedures for the impacted environment.

The incorporation of the how and what will ensure that Letamo Estate understands what is required and that it allows systems to be put in place to ensure that the execution of the requirements is monitored. Letamo Estate should also develop a programme for monitoring aspect-specific indicators in terms of the targets provided in the EMPr.

- **Check**

A system of assessing monitoring results has been developed to check LEGF environmental management performance. Continuous assessment facilitates proactive management of environmental issues. Mitigation measures can then be successfully implemented on an ongoing basis to keep environmental indicators within their target thresholds. Moreover, the assessment system also enables the assessment of the efficacy of the EMPr.

Regular auditing of environmental performance is prescribed to prove and preserve accountability in a legislative context.

- **Act**

The assessments and monitoring of the results and findings of the regular audits must be documented within a reporting system. Precautionary mitigation measures and corrective actions will be prescribed and instructions will be given in order to implement these in the field.

The findings of monitoring and auditing programmes can also be used to update the EMPr. Although the EMPr is a project-specific document, it is dynamic and should be updated regularly to address the changing circumstances of the scheme.

7.2.3 Parties Responsible for Implementing EMPr

- *Board of Directors*

The Board of Directors is elected by the home-owners to represent them and to take full responsibility for the affairs of Letamo Estate.

- *Environmental Manager (EM)*

The EM is appointed by and reporting to the Board of Directors of Letamo Game Farm Pty Ltd, and is responsible for monitoring site activities on a daily basis. EM interacts with all the contractors and residents to ensure that desirable / acceptable levels of compliance are reached.

- *Environmental Control Officer (ECO)*

The ECO is appointed by the Game Farm PTY LTD as an independent consultant who is responsible for undertaking regular monitoring of site activities.

- *Home owners and other stakeholders*

Home owners shall be familiar with the contents of the EMPr, and shall ensure that they, or their employees, guests, visitors, contractors and sub-contractors, and service providers comply with the EMPr.

7.1.4 Environmental documentation, reporting and compliance

- **Documentation**

The following documentation must be kept on the project site:

- Environmental Management Programme approved by DEA
- Environmental Authorisations issued by the Competent Authorities
- Environmental Policy of the Game Farm
- Environmental Incident Log
- Communications register
- Register of Audits

- **Environmental inspections and audits**

Environmental audits by the ECO should take place as indicated in the EMPr.
External audits may take place at unspecified times by the DEA and/or other Authorities (ie GDARD, COHWHS). The DEA may, from time to time, also ask to view copies of audit reports drafted by the ECO.

- **Environmental emergency response**

The Letamo Estate emergency procedures must ensure that there will be an appropriate response to unexpected or accidental actions or incidents that could cause environmental impacts. Such incidents may include:

- Accidental discharges to watercourses
- Accidental spillage of hazardous substances such as oil, petrol and diesel
- Accidental toxic emissions into the air
- Specific environmental and ecosystem effects from accidental releases or incidents

The Environmental Emergency Response Plan is separate to the Health & Safety Plan as it is aimed at responding to environmental incidents and must ensure and include the following:

- Employees shall be adequately trained in terms of incidents and emergency situations
- Details of the organisation (manpower) and responsibilities, accountability, liability of personnel

- A list of key personnel and contact numbers
- Details of emergency services (ie fire department, ambulance, spill clean-up services) shall be displayed at the entrance gate, staff quarters and office
- Internal and external communication plans, including prescribed reporting procedures should be indicated
- Actions to be taken in the event of different types of emergencies
- Incident reporting, progress reporting and remediation measures to be implemented must be recorded
- Information on hazardous materials, including Material Safety Data Sheets, potential impact associated with each, and measures to be taken in the event of accidental release

The Letamo Estate will comply with the environmental emergency preparedness and incident- and accident reporting requirements, as required by the Occupational Health & Safety Act (Act 85 of 1993), the National environmental Management Act (Act 107 of 1998), the National Water Act (Act 36 of 1998) and/or any other relevant legislation.

- **Communications register**

All complaints or communications that are received from IAPs or any other stakeholders must be recorder in the Communications Register.

The Communications Register shall include the following:

- Record the time and date of the complaint/communication
- A detailed description of the complaint/communication
- Action and resources used to correct the complaint
- Photographic evidence of the complaint (if possible)
- Written response to the complainant indicating rectification of the complaint
- Information regarding the Competent authorities that were contacted or notified in writing (person, time and date)

The relevant authorities include:

- Department of Environmental Affairs' Environmental Management Inspectorate (e.g. undertaking and ensuring compliance monitoring during operation, rehabilitation and decommissioning);

- Department of Water Affairs (e.g. for any incidents involving the contamination of water resources);
- Department of Agriculture, Forestry and Fisheries (e.g. uses of appropriate herbicides for eradication of alien invasive species, and permits for trees of special concern);
- Department of Health (e.g. for incidents such as contamination of water resources, accidental spill of hazardous substances);

- **Waste manifests**

Letamo Estate shall ensure that all solid waste, including hazardous waste, after the recyclable component has been removed, is removed from site at disposed at a registered landfill site with the capacity to accept the project generated waste. A waste slip/manifest shall be obtained from the landfill site. The waste manifest shall be kept on record for auditing purposes. All recyclable waste shall be recycled.

7.1.5 Layout of EMPr

The impact is identified and given a brief description. Three main phases that have been identified are the planning, construction and operational phases.

- Planning phase

During this pre-construction phase important measures shall be incorporated in the planning, design, and construction/contract documentation to ensure that this EMPr is adhered to during the construction phase.

- Construction phase

The bulk of impacts during this phase will have immediate effect (ie access, construction camp, protection of existing services, pollution). Monitoring and control on a regular basis shall minimize these impacts. This is the critical phase of disruption to adjacent properties and communities.

- Operational phase

This post-construction phase will be fully integrated with the adjacent rural fabric of the area.

The generic and specific provisions are included together under each phase for each environmental consideration. The generic provisions are the general environmental issues, procedures and controls that can be applied to the project and site as a whole. The specific provisions are those environmental issues, procedures and controls that are only relevant to a particular section of the site.

The Environmental Incidence Log (to document incidents, responses and remedies), the EMPr schedule, the DEA environmental sensitivity screening report, the Table with erf sizes, and Letamo Estate Rules & Regulations are attached as Annexures to the report.

7.1.6 Training and Awareness

7.1.6.1. Training of construction workers

The Construction Workers must receive basic training in environmental management, including the storage and handling of hazardous substances, minimisation of disturbance to sensitive areas, management of waste, and prevention of water pollution. They must also be apprised of the EMPr's requirements.

7.1.6.2. Contractor Selection and Performance

The Contractor must ensure that the conditions of the Environmental Management Programme are adhered to. Should the Contractor require clarity on any aspect of the EMPr the Contractor must contact the Environment Consultant/ECO/EM for advice. The contractor shall sign the EMPr with a firm commitment to compliance to all aspects of the document.

8. CONCLUSION AND RECOMMENDATIONS

8.1. Conclusion

This EMPr will aid the Environmental Manager in ensuring that all activities on Letamo Estate, are carried out in a sustainable manner with minimal environmental impacts.

It is essential that alien vegetation control be made a priority on the Game Farm in order to avoid the spread of exotics and ensure that indigenous species prevail. The management of game numbers and the impact of these on the vegetation must also be closely monitored in order to ensure sustainable forage for all species present on the Game Farm.

Due to the fact that the site is located within the Cradle of Humankind World Heritage Site, it is recommended that a copy of the Cradle of Humankind World Heritage Site: Integrated Management Plan 2019-2024 be kept on site so that the Environmental Manager can use this document in conjunction with this EMPr to make informed decisions on the Game Farm. This document will provide the Environmental Manager with Environmental Best Practice methods when more detail is required during environmental monitoring. This document and associated guidelines must be consulted at all times when new developments are planned that fall outside of the boundaries of the site.

It is extremely important that the operational phase of the Estate be managed strictly to ensure that the cumulative impacts of the development are decreased. This includes sustainable management of waste, visual impacts, noise impacts, and water resources. In doing this, the Game Farm can maintain the 'country feel' mentioned above as opposed to becoming more and more urbanised. The COHWHS Management Authority support this effort as it ensures that the 'sense of the place' that the COHWHS currently experiences is maintained.

The endangered status of the grassland on the Game Farm makes it imperative that as much of this vegetation type is preserved as possible. Development footprints must be strictly adhered to when new residential houses are constructed to ensure minimal damage to intact grassland. Previously ploughed areas must be preferred for any new developments and in general new developments must be kept to a minimum.

8.2. Recommendations

Although some negative impacts (see EIA BAR Item 6.3) have been identified as a result of the Game Farm and associated developments, these can be reduced to within the acceptable level, provided that the development is mitigated and monitored at all stages according to this detailed Environmental Management Programme and that any additional studies reveal no adverse negative environmental impacts.

It is imperative that the Environmental Management Programme should also form part of the operational phase of the Game Farm. It is also essential that environmental audits take place during the construction of new residential houses on the Game Farm to ensure compliance with the EMPr.

This EMPr is submitted to GDARD as well as to DEA for their information and to maintain and open line of communication with these authorities.

On approval of this EMPr, copies must be provided to all residents on site as well as to all contractors currently working on the Game Farm.

The following recommendations should be adhered to:

Planning phase

- All owners, residents, occupiers and contractors must be informed of the Amended EMPr and familiarise themselves with the contents thereof.
- All building plans or any other changes to properties must be approved by the Approved architect of Letamo Game Farm Board of Directors and the Local Authority, where applicable.
- Landscape plans must be submitted for approval to the Board prior to installation of same.

Construction phase

- All contractors must be informed that the site is located within the Cradle of Humankind World Heritage Site (COHWHS) and that the uncovering of archaeological find is possible. All finds must be reported immediately to the Environmental Manager.

- Soil conservation measures will need to be implemented for the construction and operational phases such as the rehabilitation of the exposed surfaces by planting appropriate vegetation.
- Separation and recycling of waste must take place.
- Measures to reduce air and noise pollution as well as traffic control measures must be strictly adhered to during construction.

Operational Phase

- All fuels stored on site during construction and operation must be stored in SABS approved containers, set on a concrete plinth with a bund wall to contain 110% of the total volume stored.
- All other hazardous substances stored on site must be stored within locked stores when not in use.
- Lighting should be designed to minimise the visual impact on the surrounding residents, wildlife and birdlife.
- Separation and recycling of waste must take place.
- Regular consultation must be made with the Management Authority of the Cradle of Humankind World Heritage Site. This authority can advise the Environmental Manager of the Game Farm as per the guidelines for the COHWHS. This includes acceptable water extraction and sewage management.
- The Management Authority of the COHWHS must be consulted during the feasibility stages of any new developments.
- The 'precautionary principle' should be applied where information is lacking or an outcome is uncertain. This implies a risk averse and cautious approach that recognises the limits of current knowledge about the environmental consequences of decisions or actions must be adopted, including the consideration of the 'no go' option.
- As recommended in the COHWHS Master Plan it is advised that a Strategic Environmental Assessment be conducted to monitor and mitigate the cumulative impacts of the Game Farm.

ANNEXURE A – INCIDENT LOG

ANNEXURE B – ENVIRONMENTAL MANAGEMENT PROGRAMME

ENVIRONMENTAL MANAGEMENT PROGRAMME

1. Management Responsibility

Management responsibility *– guidelines which describe the manner in which the management of the LE implements the EMPr*	
Responsibility	Board of Directors (Board)
Mitigatory Measures	***Responsibility of the Board*** The Board must be responsible for the implementation of the EMPr. Should the Board not have the capacity or relevant knowledge to implement certain actions then he / she must appoint an Environmental Manager (EM) in order to fulfil his / her responsibilities. ***Consultation with shareholders and landowners*** The Board must convene four board meeting per annum. This meeting is to be an open meeting to all shareholders and landowners. This meeting will serve to update the shareholders and landowners of the environmental status of Letamo Estate, and report any environmental incidents. Comprehensive records of these meetings must be kept and distributed to shareholders and other landowners. ***Changes to the EMPr*** Should any changes to the EMPr be proposed in these meetings, they should be reviewed and included within the EMPr if relevant. Any changes to the EMPr must be approved by DEA. ***Compliance with the ROD*** The Board must ensure that the EM monitor compliance with the EMPr. Should any activities on Letamo Estate infringe on the EIA Authorisation issued by DEA, these must be recorded and a non-compliance report submitted to DEA within 48 hours. All conditions stipulated within the Authorisation must be complied with.

	Auditing The Board must be responsible for appointing a registered, independent environmental auditor to conduct periodic third party audits. It is recommended that internal audits occur monthly during construction and at least annually during operation. These audits will be presented by the EM and will be discussed during a board meeting to which all residents are invited to attend. Actions will be minuted and reports and minutes will be available for the resident's perusal. Where necessary, these reports must be submitted to GDARD for inspection and verification. The Board, through the EM, must be responsible for the implementation of any corrective measures and verify that these measures have been implemented timeously.

2. Management Delegated Responsibility

Management responsibility *– guidelines which describe the manner in which the management of Letamo Estate, implements the EMPr*	
Responsibility	Environmental Manager (EM)
Mitigatory Measures	***Responsibility of the Environmental Manager*** The Environmental Manager must monitor all activities on Letamo Estate and the Game Farm, keep a comprehensive record of all environmental incidents and remediation methods, and report back to the Board. ***Consultation with shareholders and landowners*** The Environmental Manager must attend the four board meeting per annum. This meeting is to be an open meeting to all shareholders and landowners. This meeting will serve to update the shareholders and landowners of the environmental status of Letamo Estate and report any environmental incidents. Comprehensive records of these meetings must be kept and distributed to shareholders and other landowners. ***Changes to the EMPr*** Should any changes to the EMPr be proposed in these meetings, they should be reviewed and included within the EMPr if relevant. Any changes to the EMPr must be approved by DEA. ***Compliance with the ROD*** The Environmental Manager must be responsible for any correspondence with DEA. All conditions stipulated within the ROD must be complied with.
	Auditing It is recommended that internal audits occur monthly during construction and at least annually during operation. These audits will be discussed during the monthly board meeting to which all residents are invited to attend. Actions will be minuted and reports and minutes will be available for the resident's perusal. Where necessary, these reports must be submitted to GDARD for inspection and verification. The Environmental Manager must be responsible for the implementation of any corrective measures and verify that these measures have been implemented timeously.

3. Environmental Awareness

Environmental Awareness *– measures which guide the management as well as the general public on how to implement environmental best practice*	
Responsibility	Environmental Manager
Mitigatory Measures – Construction and Operation Phases	***Legality of the EMPr*** The EMPr must be considered as a legal document and any failure to comply with the requirements may be grounds of the immediate cancellation of any contract.
Mitigatory Measures – Construction Phase	***Contractor compliance with EMPr*** All contractors and residents must be provided with a copy of the EMPr and they must confirm in writing that they will abide by these requirements. They must also agree to comply with any changes and updates. Contractors must be held directly responsible for any environmental incidents on their building sites and are required to report these incidents to the Environmental Manager. Contractors must inform all of their staff of the environmental requirements of Letamo Estate.

4. Communication

Communication *– guidelines for effective communication on Letamo Estate and the necessary protocols*	
Responsibility	Environmental Manager
Mitigatory Measures – Construction and Operation Phases	***Reporting of environmental incidents*** All communications related to environmental issues associated with Letamo Estate and Game Farm must be made for the attention of the Board, through the Environmental Manager. A deputy must be appointed in the absence of the Environmental Manager. ***Response time*** Response to any environmental incidents must be immediate or at least within 24 hours. ***Security*** Security must have 24 hour access to the Environmental Manager. ***Record keeping*** Records must be kept of all internal and external communications regarding environmental incidents including the remedial actions. ***Blasting*** Community within a 2km radius must be notified prior to blasting operations. Requirements of the Explosives Act 1056 shall be adhered to. Blasting to be done at appropriate times to minimise disruption. Contractor to repair any damage caused by blasting.

5. Construction activities

***Management responsibility** – guidelines which describe the manner in which construction activities must comply with the EMPr*	
Responsibility	Environmental Manager (EM), Owner, Contractor
Mitigatory Measures	***Responsibility of the Environmental Manager, Owner and Contractor*** The Owner must ensure that all legal and regulatory requirements are met during preparation, submission and approval of building plans. The Contractor must ensure that all documentation is reviewed and must be familiar with the contents of documentation. The Environmental Manager must monitor all construction activities on the Game Farm, including Letamo Estate, keep a comprehensive record of all environmental incidents and remediation methods, and report back to the Board. ***Legislation*** The Owner must comply with all National, Provincial and Local legislation, laws, by-laws, regulations and guidelines. All the necessary applications, submissions and approvals must be obtained prior to start of construction. ***Boundary pegs*** The Owner must ensure that the property is properly surveyed and boundary pegs must be clearly visible and pointed out to the Contractor. The site number must be clearly visible to enable access and deliveries. ***No trespassing*** No trespassing will be allowed onto any other property that the construction site. **Building site** A chemical toilet must be on site and the building site must be fenced off before any building can commence. ***Damage to adjacent properties*** Status of adjacent properties shall be recorded by the Owner and Contractor, and any damage caused by construction activities shall be repaired by the Contractor. ***Damage to existing buildings, structures and services*** Status of all buildings, structures and services shall be recorded by the EM, Owner and Contractor prior to commencement of construction. Any damage caused by construction activities shall be repaired by the Contractor. ***Dumping of concrete*** No dumping of concrete, o cleaning of concrete trucks are allowed inside the

	Game Farm
	Auditing All work to be done in accordance with National, Provincial and Local legislation, laws, by-laws, regulations and guidelines and proper workmanship and finishes. All work to be done in accordance with the approved plans. All procedures, connections, levies, tests, inspections, records, and payments in accordance with the construction contract, legislation, regulations, guidelines, NBR, NHBRC, SABS, SANS, supplier and manufacturer specifications. It is recommended that internal audits by the EM occur weekly during the construction period. Owner and Contractor to monitor and rectify site activities on a daily basis. The Environmental Manager must be responsible for the implementation of any corrective measures and verify that these measures have been implemented timeously.

6. Safety and Security

Safety and Security *– measures to monitor safety and security on Letamo Estate to ensure a safe environment*	
Responsibility	Environmental Manager
Mitigatory Measures – Construction and Operation Phases	***Labourers*** Labour must be registered at the offices of LGF and carry identification cards at all times while present on Letamo Estate. Labour must be transported to and from the site to discourage loitering in adjacent areas and possible increase in crime or disturbance. Unsocial activities such as unauthorised consumption or illegal selling of alcohol, drug utilisation or selling and prostitution on the site must be banned and any persons found to be engaged in such activities must have disciplinary or criminal action taken against them. Procurement of labour must not take place at the site but must follow formal procurement procedures that should be implemented by the contractor. No labour other than essential personnel required for stand-by situations must be housed on the site. Measures must be put in place, in consultation with the local authority, to prevent squatting on the site and in areas immediately adjacent to the site, should this occur and if specifically related to the development. All contractors and their labourers must vacate Letamo Estate by 18h00 during the week and 14h00 on Saturdays. No construction-related activities will be undertaken outside of these times (Sundays and Public Holidays). ***Boundary fence*** The boundary fence must be regularly patrolled to check for any breaks or holes. The maintenance of the fence is the responsibility of the LGF. A fence energiser may not be used which delivers impulses of electrical energy to an electric fence which are not equal to or within the following values: Peak value of voltage 10 kV Maximum duration of impulse 50 ms Minimum interval between impulses 0.75s Maximum quantity of electricity per impulse 2.5 mC Maximum energy discharge per impulse measured at a 8J resistance of 500 ohms ***Construction sites*** All construction sites must be fenced off and all equipment must be locked away safely. All construction activities must be conducted in accordance with the requirements of the Occupational Health and Safety Act (Act No 85 of 1993).

7. Access to the Game Farm, including Letamo Estate

Access to and within the Game Farm – Measures to monitor who enters / exits Letamo Estate	
Responsibility	Environmental Manager
Mitigatory Measures – Construction and Operation Phases	***Access*** Access must be controlled at the two gates which form the main entrances to the property. Entry time for public access must be determined by management in consultation with residents and any other identified parties where necessary. ***Movement through Letamo Estate*** Movement through the Game Farm must be controlled through strict access control. All visitors are to sign in and out with a pre-access code and the Environmental Manager is to be informed of large parties entering Letamo Estate. A suitably qualified guide must accompany guests (non-shareholders, non-landowners) on excursions through the Game Farm, whether on foot or horseback. Trails and walkways must be designed to limit any disturbance to game, vegetation and watercourses, and limit the potential for soil erosion, Trails and walkways are to be established only at the discretion of the Environmental Manager (approved by the Board) in accordance with the EMPr Individuals must not remove, damage or disturb vegetation, game, or any sites identified as having cultural, historical or archaeological significance. Offenders must be dealt with accordingly (fines, removal from property, etc.).
Mitigatory Measures – Construction Phase	***Access*** Points of entry/exit to the construction site must be coordinated, taking into account the existing road intersections. Traffic signage acknowledging the new access points to the site must be provided. ***Speed limit*** Maximum/minimum speed limits must be maintained. No vehicle may travel at more than 30km/h. No commercial vehicle may travel at more than 20km/h.

	Maintenance Roadways in the immediate vicinity of the site must be maintained and cleared regularly of any spilled building materials from construction vehicles servicing the site. The depositing of any materials, equipment, excavated materials and backfill, or rubbish, must be prevented on the public thoroughfare immediately outside the site boundaries.

8. General Maintenance

General Maintenance – Measures to maintain public areas of Letamo Estate	
Responsibility	Environmental Manager
Mitigatory Measures – Construction and Operation Phases	***Roads*** All roads on the Game Farm must be maintained as required in order to avoid degradation of the road network. ***Speed limits*** Speed limits must be strictly enforced by the Farm Manager of Letamo Estate in order to minimise degradation of roads. ***Parking / Common areas*** Parking lots in common areas must be maintained as required to ensure erosion control, especially in the rainy season. ***Road signs*** Regular checks of road signs and reflectors must be made and any repairs made immediately.
Mitigatory Measures – Construction Phase	N/A

9. Emergency Procedures

Emergency Procedures – Guidelines for emergency situations	
ACCIDENT AND EMERGENCY PROCEDURES – FIRE	
Responsibility	Environmental Manager
Mitigatory Measures – Construction and Operation Phases	***Procedure in the event of a fire*** The local Fire Brigade and the Environmental Manager must be immediately informed of the fire. Contact details for the Fire Brigade must be available at Letamo Entrance Gate, Office and picnic sites on Letamo Estate. Residents and visitors must be immediately alerted, and neighbours of the property shall be advised. Evacuation of the Game Farm with assistance from trained staff must take place if necessary. ***Training*** All Letamo Game Farm Pty Ltd personnel must be trained in fire fighting techniques and first aid. In the event of a fire, personnel must immediately implement necessary and appropriate actions to control the fire and to prevent it from spreading. ***Evacuation of game*** Where game on the property is at risk, the Environmental Manager must, in consultation with the Board and a qualified specialist, take necessary actions to remove game from the danger area. ***Equipment*** All buildings must be equipped with portable fire extinguishers. Fire hydrants must be located at strategic points on the property. Fire extinguishers and hydrants must be checked and approved for use on a regular basis. The Environmental Manager must keep all fire extinguisher and hydrant maintenance records. ***Fire drills*** Fire drills must be held approximately every six months by a Service Provider and associated responsible parties.

	Records The Environmental Manager must keep records of fire and any corrective and preventative actions implemented. ***Fire breaks*** Fire breaks must be burned at the onset of the dry season under controlled conditions to avoid run away fires. Weather conditions must be strictly monitored during the burns. Burning of fire breaks must be conducted in terms of the relevant bylaws. Any controlled burning (see below) must also be in terms of the relevant by-laws.
Mitigatory Measures – Construction Phase	
ACCIDENT AND EMERGENCY PROCEDURES – PETROCHEMICAL SPILLS	
Responsibility	Environmental Manager
Mitigatory Measures – Construction and Operation Phases	***Procedure in the event of a petrochemical spill*** The individual responsible for or who discovers the petrochemical spill must report the incident to the Environmental Manager. The problem must be assessed and the necessary actions required will be undertaken. The immediate response must be to contain the spill. The source of the spill must be identified, controlled, treated or removed wherever possible. ***Remedial actions*** Depending on the nature and extent of the spill, contaminated soil must be either excavated or treated on-site. Excavation of contaminated soil must involve careful removal of soil using appropriate tools/machinery to storage containers until treated or ~~disposed of at a hazardous landfill site~~. The Environmental Manager must determine the precise method of treatment of polluted soil. This could involve the application of soil absorbent materials as well as oil-digestive powders to the contaminated soil. ~~After soil has been rehabilitated, any dead vegetation must be removed~~ and bare areas re-vegetated in accordance with the proposed

	rehabilitation guidelines for Letamo Estate. In the event of a spill on water, the spill must be contained using oil absorbent booms. The booms must be constructed and strategically placed in order to limit or prevent the movement and dispersion of the spill to the broader environment. The application of oil absorbent materials as well as bioremediation powders to the contaminated water may be required. If a spill occurs on an impermeable surface such as cement or concrete, the surface spill must be contained using oil absorbent pads. If necessary, oil absorbent sheets or pads must be attached to leaky machinery or infrastructure. Following this, oil absorbent materials such as pads and bioremediation powders must be applied to the contaminated surface. The relevant local authority must be contacted in case of emergencies. Materials used for the remediation of petrochemical spills must be used according to product specifications and guidance for use. Contaminated remediation materials must be carefully removed from the area of the spill so as to prevent further release of petrochemicals to the environment, and stored in adequate containers until appropriate disposal. The nearest DWS registered hazardous waste site is at Holfontein. ***Monitoring of sensitive receptors*** Water quality must be monitored at various selected points downstream of the spill site, and be assessed in terms of the health of riparian vegetation and aquatic organisms. Specialist hydrological or ecological advice must be sought for appropriate treatment and remediation procedures to be followed if necessary. If the banks of the dams are contaminated as a result of a chemical spill, methods to treat and remediate polluted soil must be implemented. Any dead animal species must be removed and disposed of so that they are not available to scavengers. Where water pollution is localised and not associated with a watercourse, treatment may include the same procedures and materials described above. This water may also be treated by filtration through an oil trap. ***Actions once spill has been contained*** The Environmental Manager must determine whether the need for further remediation treatment is necessary.

	Treatment must be terminated once the spill, the source of the spill, and the contaminated soil/water and treatment materials are contained and pose no threat to the environment. Details of petrochemical spills and remediation actions must be recorded.
Mitigatory – Measures Construction Phase	

10. Occupational Health and Safety Act

<table>
<tr><th colspan="2">Occupational Health and Safety – Measures to ensure the safety of both workers and residents on Letamo Estate</th></tr>
<tr><td>Responsibility</td><td>Environmental Manager</td></tr>
<tr><td>Mitigatory Measures – Construction and Operation Phases</td><td>Electric fences
A fence energiser may not be used which delivers impulses of electrical energy to an electric fence which are not equal to or within the following values:

<table>
<tr><td>Peak value of voltage</td><td>10 kV</td></tr>
<tr><td>Maximum duration of impulse</td><td>50 ms</td></tr>
<tr><td>Minimum interval between impulses</td><td>0.75s</td></tr>
<tr><td>Maximum quantity of electricity per impulse</td><td>2.5 mC</td></tr>
<tr><td>Maximum energy discharge per impulse measured at a resistance of 500 ohms</td><td>8 J</td></tr>
</table>

A fence energiser may not be constructed in a wet or dusty area or locations where there is a fire hazard.
The fence energiser may not receive its energy from an electric supply system where the energiser might sustain mechanical damage or be tampered with; or on any pole of an overhead power or communication line except poles which carry the conductors of the energizer.
The earth of every fence energizer must be free and at least 2 m away from the earth of any other electrical system.
Barbed wire may not be electrified.
Notices need to be conspicuous, warning people that the property is protected by an electric fence.</td></tr>
<tr><td>Mitigatory Measures – Construction Phase</td><td>General
The contractor must ensure that he complies with all aspects of the Occupational Health and safety Act (refer to Appendix 10).</td></tr>
</table>

11. General Management of Surface Water Resources

Management of Surface Water Resources *– Guidelines which govern the establishment and implementation of measures to ensure the correct and sustainable management of surface water resources on the property.* **Although Erf 30 Letamo Town does not have surface water resources, it will be subjected to such management within Letamo Estate.**	
Responsibility	Environmental Manager
Mitigatory Measures – Construction Phase	***Development protocol*** No development should be allowed within the riparian zone of any river on Letamo Estate and only certain low-impact activities (bird hides, picnic spots, fishing etc.) should be allowed within this zone. A buffer between the edge of the riparian zone and any development should be maintained. ***Waste management*** According to the requirements of the General Authorisations in terms of Section 39 of the National Water Act, septic tanks should be placed no closer than 100m from a surface water body and out of the 1:100 year flood line.
Mitigatory Measures – Construction and Operation Phases	***Water bodies on the Game Farm*** In terms of the Regulations in terms of Chapter 5 of the National Environmental Management Act, 1998, Environmental Impact Assessment must be undertaken for any purpose / activity in the one in ten year flood line of a river or stream, or within 32 metres from the bank of a river or stream (where the flood line is unknown) Any water use activities within a surface water body must acquire a water license from DWS if required. No water abstraction from any surface water bodies shall be permitted. A buffer of at least 10m between the edge of a surface water body (including wetlands) and any development should be maintained. No development should be allowed within the riparian zone of any river on Letamo Estate and only certain low-impact activities should be allowed within this zone. A buffer between the edge of the riparian zone and any development should be maintained. Where roads cross wetlands, sufficient culverts must be included in the design to allow flow of water below the road. Where existing roads cross wetlands and contain insufficient culverts, culverts should be retro-fitted. . Where a dam across a watercourse exists weirs and spillways should be modified (if required) to allow the movement of aquatic fauna upstream and downstream. All water leaks shall be repaired immediately by the responsible person – EM on Letamo Estate, Owner on individual properties, and Contractor on construction sites.

	downstream of the dam and to withstand a one in 50 year flood Stream/river crossing points used by game should be managed to prevent erosion from movement of game. High impact recreational use (motorised vessels, noisy activities etc) of any surface water body must not take place. No sewage management systems must be located in or near a surface water resource, unless approved by DEA and DWS. According to the requirements of the General Authorisations in terms of Section 39 of the National Water Act septic tanks should be placed no closer than 100m from a surface water body and out of the 1:100 year flood line. All existing boreholes located within the defined geographical limits of Letamo Estate and/or residential stands must be registered with DWS. ***Wetlands*** Any drains identified within the wetlands on Letamo Estate must be plugged and the affected area rehabilitated New roads should not be constructed through wetlands and alternative routes should be sought. ~~Any head cut / donga erosion affecting a wetland should be rehabilitated~~.

12. Pollution Control

***Pollution Control** – Guidelines which govern the establishment and implementation of pollution control procedures*	
CONTROL OF SEWAGE POLLUTION	
Responsibility	Environmental Manager or the delegated individual
Mitigatory Measures – Construction and Operation Phases	***Sewage Management*** A Department of Water & Sanitation (DWS) approved sewage system must be installed on the Game Farm. These include: -Super sewer -Conservancy tank -Lilliput system The sewage system must be regularly serviced and maintained. The system must operate efficiently to ensure water quality standards are in line with the standards stipulated by (DWS). Random water quality testing must be conducted by the Environmental Manager on the outputs of the sewage management systems every six months to review the reliability of the sewage management systems. No sewage management systems must be located in or near a surface water resource. According to the requirements of the General Authorisations in terms of Section 39 of the National Water Act Septic tanks should be placed at least 100m away from any well or borehole, 100m from a surface water body and out of the 1:100 year flood line.
Mitigatory Measures – Construction Phase	***Ablution facilities*** Chemical toilets must be placed on a construction site if no ablution facilities exist. Anyone not using the designated facilities could be dismissed on the grounds of negligent pollution of the environment. Chemical toilets must not be placed within 20m of the 1:100 year flood line of any drainage systems on Letamo Estate. All toilets on any construction site must be kept in good working order and regularly maintained by an approved contractor
CONTROL OF POLLUTION BY PETROCHEMICAL / HAZARDOUS SUBSTANCES	
Responsibility	Environmental Manager or the delegated individual
Mitigatory Measures – Construction and Operation Phases	***Fuel storage*** No large scale fuel storage must take place on site during operational phase of Letamo Estate. The above ground storage of fuel in excess of 30m^3 requires a full Environmental Impact Assessment to be conducted ***Horticultural chemicals***

The EM shall identify the hazardous status of each material used by LGF.
No substances containing polychlorinated biphenyls (PCBs) may be used on Letamo Estate.
No fertilisers may be used within the 1:100 year flood line of any drainage system Letamo Estate.
Fertilisers should not be used excessively and slow release fertilizers and organic products should be used in preference to highly soluble and inorganic fertilizers.
The use of herbicides and pesticides and other horticultural chemicals should be carefully controlled wherever these are used. Where feasible, 'environmentally friendly' products should be utilised.
Should the use of chemical herbicides be necessary only approved systemic herbicides (which become inert on making contact with the soil) shall be applied.
All persons handling substances which are hazardous in nature must be provided with the necessary handling and safety equipment that is needed for the safe use of these substances.
Persons responsible for all hazardous substances must ensure that any necessary training required for the safe use of these is conducted.

11.2 Storage of horticultural chemicals

Handling of hazardous substances should be in line with the stipulations of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993)
The EM must keep a hazardous substance register of substances used by LGF (this includes substances which can potentially have a significant impact on the ecological integrity of the receiving environment as well as the health and safety of the individuals which handle them).
All hazardous substances used by LGF shall be stored under controlled conditions in a lockable storage area. Access to these areas must be controlled by the EM.
Storage areas which contain hazardous substances shall be demarcated with hazard signs (flammable, poisonous, explosive, chemical, acid, alkaline etc). The Material Safety Data Sheets for all identified hazardous substances must also be available and must be included in the hazardous substance register.
Information on the use of all hazardous substances must be strictly recorded by the EM. Details must include the substance, quantity used, date, location, user identification and the identification of the person authorising the use of the particular substance.
Hazardous substances and petrochemicals used outside of the designated area must be decanted to appropriate containers and transported to the various work sites.
All incidents related to the handling of hazardous materials must be reported to the EM and records of these kept. The relevant corrective measures must be executed.
Any hazardous spills must be removed to a hazardous landfill site.
Use of fertilisers must be kept to a minimum and must not be used within the 1:100 year flood line of any drainage system Letamo Estate.
Fertilisers should not be used excessively and slow release fertilizers and organic products should be used in preference to other fertilizers.
The use of herbicides and pesticides and other horticultural chemicals should be carefully controlled wherever these are used.
Should the use of chemical herbicides be necessary only glyphosphate-based systemic herbicides (which become inert on making contact with the soil) shall

	be used.
Mitigatory Measures – Construction Phase	***Hazardous substances*** All staff handling substances which are hazardous in nature must be provided with the necessary handling and safety equipment that is needed for the safe use of these substances. The person responsible for all hazardous substances must ensure that any necessary training required for the safe use of these is conducted. The Environmental Manager must keep a hazardous substance register (this includes substances which can potentially have a significant impact on the ecological integrity of the receiving environment as well as the health and safety of the individuals which handle them). All contractors must provide a list of all hazardous materials which will be stored on site which must be submitted to the Environmental Manager. The Environmental Manager should identify the hazardous status of each material. No substances containing polychlorinated biphenyls (PCBs) must be allowed Letamo Estate. All hazardous substances on site must be stored under controlled conditions in a lockable storage area. Access to these areas must be controlled. Storage areas which contain hazardous substances must be demarcated with hazard signs (flammable, poisonous, explosive, chemical, acid, alkaline etc). The Material Safety Data Sheets (MSDS) for all identified hazardous substances should also be available and must be included in the hazardous substance register. Information on the use of all hazardous substances must be strictly recorded. Details must include the substance, quantity used, date, location, user identification and the identification of the person authorising the use of the particular substance. Handling of hazardous substances should be in line with the stipulations of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993). Any hazardous spills must be removed to a hazardous landfill site. Hazardous substances and petrochemicals used outside of the designated

	area must be decanted to appropriate containers and transported to the various work sites. All incidents related to the handling of hazardous materials must be reported to the Environmental Manager and records of these kept. The relevant corrective measures must be executed. ***Maintenance of Vehicles and Machinery*** Vehicles and machinery must be kept in good working order in order to avoid any petrochemical spills occurring. All servicing of vehicles and machinery and/or oil changes on site must take place on a sealed concrete surface. Petrochemicals collected must be collected in leak proof containers and stored for disposal at a hazardous landfill site. Maintenance staff must receive specific training to ensure that they carry out their activities in accordance with the EMPr. ***Management of Fuel Depot*** Any fuel tanks Letamo Estate must be stored above ground and must be stabilised so as to minimise any potential accidental release into the surrounding environment. Fuel storage areas must be kept clear of the truck thoroughfares to ensure that accidental spillages do not occur due to trucks knocking tanks over. All fuels must be stored in SABS approved containers. These containers must be set on a concrete plinth, with a bund wall high enough to contain 110% of any spill. Large, visible signage must be implemented at any fuel depot to warn personnel of the petrochemical hazard. Senior staff must supervise the delivery of fuel. All quantities of incoming and outgoing fuel must be strictly recorded. Records must be checked regularly to ensure all fuel is accounted for. Storage tanks must be checked regularly for faults that could result in fuel leakage and the construction areas must be checked regularly for accidental fuel spillages. Verification certificates regarding the integrity of fuel tanks must be submitted to the Environmental Manager. ***Accidental Fuel Spillage*** Should a leak be discovered in the fuel tanks, the Environmental Manager must be informed and action must be taken to determine the extent of pollution. DWS and the Mogale City Local Municipality must be notified and an independent consultant must be appointed to assess the extent of contamination. Rehabilitation may be recommended by this consultant in
	which case it must be implemented. Contaminated soil must be removed to a DWS approved hazardous landfill site (the closest being the Holfontein Landfill in Springs). Records must be kept of such an incident.
CONTROL OF SILT POLLUTION	

Responsibility	Environmental Manager or the delegated individual
Mitigatory Measures – Construction and Operation Phases	***Road maintenance*** All roads in Letamo Estate must be fitted with adequate drainage and storm water control measures (such as berms) and must be regularly maintained (especially after heavy rains) to ensure that any erosion channels are repaired. Areas along drainage lines where active erosion (sheet erosion or donga erosion) is occurring must be rehabilitated.
Mitigatory Measures – Construction Phase	***Silt Control*** All water discharged from the site must be monitored for Total Dissolved Solids and suspended solids. Contaminated water should be fed into a sedimentation pond for filtration. Other measures such as the use of energy breakers and the planting of vegetation (artificial wetland) must also be implemented to trap silt and other pollutants. Silt deposits must be removed for disposal or used for landscaping purposes. Oil traps must be regularly maintained. All contaminants must be removed and disposed of at an appropriate landfill site. No stockpiles and spoil dumps must be located within the 1:100 year flood lines of the drainage systems on site. Water quality samples must be taken at the following strategic points on an annual basis: -the point at which the Blaauwbank / Honingklip Spruit enters the property -the point at which the Blaauwbank / Honingklip Spruit exits the property ***Control of Erosion Runoff*** Construction works must be designed to reduce the potential occurrence of erosion. Bunds must be placed at the base of large spoil dumps to prevent rubble from being washed off the slopes by rain, directly into the river and dams. All stormwater must be diverted to the natural streams on the property in a controlled manner and in accordance with DWAF's requirements. Water speed at the point of discharge into a natural stream must be below 2m/s. Site drainage must be designed to prevent accumulation of water ponds that are at risk of becoming contaminated. Where necessary grassed rock pitched diversion ditches or berms are to be used to divert run off away from exposed soil or construction areas. Silt fences may also be used. Stormwater must be diverted away from construction areas by means of cut – off drains. Where significant stormwater runoff is generated from houses or roads, passive treatment or attenuation areas (such as filter strips, detention areas or small wetlands) shall be used to trap runoff, ensure its slow release, and to assist with the removal of any impurities contained in the runoff. Compacted soil from construction activities must be deep ripped to loosen compacted layers and regraded to even running levels or original levels. Seeding of these areas must take place as soon as possible to avoid soil erosion. Areas must be rehabilitated as soon as they are no longer required for construction. Where an area is to be fully rehabilitated, the exposed surface must be prepared to ensure a suitable medium for plant growth. This includes the

	removal of any waste or foreign substances and objects that could discourage plant growth, before final shaping and application of topsoil. All areas disturbed during construction or other similar activities must be rehabilitated. Exposed areas must be re-vegetated or covered with impermeable materials according to the proposed layout plan as soon as possible. This will prevent excessive levels of dust and of silt pollution of water bodies resulting from runoff from exposed areas. The degree and extent of rehabilitation required can be reduced, by ensuring that the area of disturbance remains as small as possible. All roads in Letamo Estate must be fitted with adequate drainage and storm water control measures (such as berms) and must be regularly maintained (especially after heavy rains) to ensure that any erosion channels are repaired. Bunding must also be placed at the base of large spoil dumps to prevent rubble from being washed off the slopes by rain, directly into the river and dams.
CONTROL OF AIR POLLUTION	
Responsibility	Environmental Manager or the delegated individual
Mitigatory Measures – Construction and Operation Phases	***Burning of waste*** No waste shall be burnt inside Letamo Estate. No organic material/garden refuse shall be Letamo Estate. Veld fires shall be reported immediately to the EM.

Mitigatory Measures – Construction Phase	***Air pollution control*** Cooking fires shall be controlled and must not cause any hazard or inconvenience to other Owners, residents, the Board or EM. ***Control of dust*** Dust shall be controlled by damping down of haul roads and stockpiles. Topsoil stockpiles shall be covered to prevent or minimise dust, especially during windy conditions.

13. Soil and Water Monitoring

Soil and Water Monitoring *– methods identified to monitor and control soil and water pollution*	
Responsibility	Environmental Manager (collection of soil and water samples)
Mitigatory Measures – Construction and Operation Phases	***Collection of Soil Samples for Petrochemical Analysis*** A representative sampling point must be chosen and approximately 1kg of soil collected using a clean spade. The sample must be placed in a thick, clean plastic bag, sealed and labelled with a reference number (corresponding to date, time, exact location and expected condition of the sample). This plastic bag must then be placed within another bag and sealed. The sample must be placed in an insulated container and delivered to an accredited laboratory for analysis within two hours. ***Collection of Water Samples for Microbiological Analyses*** Approximately 500ml samples of water must be taken at specific points, including a site above the development, and sites at the various dam inlets and outlets. Samples must be collected in clean, sterile polyethylene containers with sealing plastic screw-thread tops. Bottles must be rinsed with about 200ml of sample water prior to taking the sample. Once a sample has been taken, the bottle must be sealed and labelled with a unique reference number (corresponding to date, time, exact location and analyses required of the sample). Samples must be immediately placed in a sealed, insulated container. Ice packs must be used to keep the samples cool but not frozen. Frozen samples must be discarded. The samples must be kept in the dark and delivered to an accredited laboratory for analysis within two hours. ***Collection of Water Samples for Physical / Chemical Analyses*** Samples must be collected in accordance with the procedure prescribed by the laboratory. It is important that samples for oxygen analysis are preserved in an approved manner. After sampling, the bottle must be sealed and labelled with a unique reference number (corresponding to date, time, exact location and analyses required of the sample). The samples must be place in a sealed, insulated container immediately; ice packs must be used to keep the samples cool but not frozen. Frozen samples must be discarded. The samples must be kept in the dark and delivered to an accredited laboratory for analysis within two hours.
	Reporting of Results Results must be compared with the prescribed parameters supplied by DWS as well as the previous records by a competent body. Interpretation of the results must be communicated to the Environmental Manager and further presented at the Management-resident meetings for verification and discussions of results. Corrective actions must be implemented when necessary.

Mitigatory Measures – Construction Phase	As above (monitoring is on-going from the establishment of Letamo Estate)
CONTROL OF WATER ABSTRACTION	
Responsibility	Environmental Manager
Mitigatory Measures – Construction and Operation Phases	***Boreholes*** The existing boreholes on site must be registered with DWS. Abstraction rates must not exceed previous parameters. No new boreholes are to be drilled. Flow meters must be installed at all boreholes on Letamo Game Farm (portion 223) site. Readings must be taken once a week and abstraction rates must be checked by the Environmental Manager. In the event of over abstraction of water, corrective actions must ensure more efficient use of groundwater sources; irrigation and daily domestic consumption controls should be reviewed and implemented. In terms of the Regulations in terms of Chapter 5 of the National Environmental Management Act, 1998, Environmental Impact Assessment should be undertaken for any new groundwater abstraction at a volume where any general authorisation issued in terms of the National Water Act, 1998 (Act No. 36 of 1998) will be exceeded. No abstraction from surface water bodies must take place.
Mitigatory Measures – Construction Phase	

14. Guidelines for Storm water Management

Guidelines for Storm water Management *– Measures to control and monitor storm water on Letamo Estate*	
Responsibility	Environmental Management (co-ordination with the project engineers to ensure DWS specifications are adhered to.
Mitigatory Measures – Construction and Operation Phases	***Storm water control*** Measures to control and manage storm water must be instituted in consultation with the project engineer and in accordance with any specifications issued by DWS. All storm water must be diverted to the natural streams on the property in a controlled manner and in accordance with DWS's requirements. Water speed at the point of discharge into a natural stream must be below 2m/s. Energy breakers and the establishment of artificial wetlands should be implemented to control storm water runoff.
Mitigatory Measures – Construction Phase	***Storm water control*** Storm water must be diverted away from construction areas by means of cut – off drains. ***Site drainage*** Site drainage must be designed to prevent accumulation of water ponds that are at risk of becoming contaminated. Where necessary grassed rock pitched diversion ditches or berms are to be used to divert run off away from exposed soil or construction areas. Silt fences may also be used. ***Construction equipment*** No washing or servicing of vehicles may take place on site. ***Storage and disposal of harmful substances*** The Environmental Manager should be responsible for ensuring that potentially harmful materials are properly stored in a dry, secure environment, with concrete or sealed flooring and a means of preventing unauthorised entry. The main contractor should be responsible for ensuring that used oils / lubricants are not disposed of on / near the site, and that contractors purchasing these materials understand the liability under which they must operate. Contaminated water must be contained and disposed of off-site at an approved landfill site.

	Separate storm water collection areas and interceptors at fuel storage areas; batching plants and other potentially activities shall be constructed. The incorporation of passive treatment areas where potentially harmful substances are stored is important (see below) Adequate, serviced sanitation facilities must be provided for workers. ***Implementation of Sustainable Drainage Systems*** Where possible impermeable surfaces should not be utilised in the design of roads, paving areas, etc. Permeable surfaces (e.g. permeable pavements or gravel and infiltration trenches) should rather be used to allow for the slow infiltration of storm water. Where significant storm water runoff is generated from houses or roads, 'passive treatment / attenuation areas' (such as filter strips, detention areas or small wetlands) should be used to trap runoff, ensure its slow release, and to assist with the removal of any impurities contained in the runoff.

15. Guidelines for Waste Disposal

***Guidelines for Waste Disposal** – Methods of effective waste management*	
ROCK AND SOIL WASTE	
Responsibility	Environmental Manager (location of spoil dumps and stockpiles and disposal)
Mitigatory Measures – Construction and Operation Phases	***Spoil dumps*** Spoil dumps intended for landscape purposes will be shaped to fit the existing topography of the area, or in line with intended landscape features such as that for lodge/conference centre development. Spoil dumps will be covered with a minimum of 300 mm topsoil, and exposed areas will be re-vegetated as soon as possible to prevent erosion of silt-laden runoff. Surface runoff will therefore be conducted through, over, or around spoil dumps.
Mitigatory Measures – Construction Phase	***Construction waste*** Rock waste of particle size greater than 200mm must be collected and transported to a designated spoil dump or rock waste disposal area within the perimeter of the specific work site. Rock waste of particle size smaller than 200mm must be removed and disposed of in sites marked for silt disposal. Spoil dumps (and stockpiles) or disposal areas must be confined to specific areas (within the authorised work site) that are protected from wind and rain. A reputable waste disposal contractor must remove material that is not used for backfill, landscaping or other construction purposes.
NON-HAZARDOUS AND DOMESTIC WASTE	
Responsibility	Environmental Manager (waste disposal, efficient removal of non-hazardous and domestic waste from site by approved waste contractor).

Mitigatory Measures – Construction and Operation Phases	***General waste management*** All individuals must be instructed on the correct method of solid waste disposal. Appropriate measures must be implemented in order to reduce the potential for litter and negligent refuse disposal. Different non-hazardous waste types must be stored in labelled, secure, leak proof waste skips. Personnel must be instructed as to which skips to use. All disposal areas and refuse bins must be made inaccessible to scavengers. ***Recycling (when facilities are available)*** Wherever possible, materials must be re-used or recycled. Collected waste must be sorted and separated (paper, glass, plastic etc.) and stored in labelled, secure, leak-proof waste skips located in a rain and wind protected area. Cages with roofs will prevent wind from blowing loose litter from the storage area. Secure domestic refuse bins must be installed at various locations on site. Domestic waste may include plastic, glass, tins, food, and other biodegradable material). ***Skip bins*** Contents of the skips must be removed and disposed of on a regular basis by the waste contractor, at a registered/approved landfill site. Each building site must be provided with a skip bin during building process. ***Hazardous waste*** Contaminated material must be disposed of using the method for disposal of hazardous waste (see table on Hazardous Waste). Bins must be cleaned daily.
Mitigatory Measures – Construction Phase	All waste material must be contained and disposed of according to the relevant legal requirements. Waste must be stored in such a manner that no pollution of the environment occurs at any time. Provision should be made for storage of general solid waste that will be generated during construction.

	Rubble and other construction waste must be removed from site at regular intervals. Skip waste containers should be maintained on-site including a hazardous skip container. These skip containers must have covers in order to avoid the attraction of vermin. Arrangements must be made for the containers to be collected regularly form the site by the local council to a licensed landfill site. Litter must be controlled at all times. A housekeeping team should be appointed to control litter and other on-site waste during construction. This housekeeping team should be responsible for sorting of waste for recycling. Waste to be recycled includes: - glass bottles (sorted into different colours), - metal tins, - aluminium tins, - paper, - plastic. Whenever necessary, refuse must be removed by the waste contractor from the storage area, and will be re-used, recycled or disposed of at a registered/approved landfill site. Records of disposal must be kept.
HAZARDOUS WASTE	
Responsibility	Environmental Manager
Mitigatory Measures – Construction and Operation Phases	***Staff handling hazardous substances*** All those involved with working with such materials must be clearly instructed on disposal procedures. ***Removal*** Hazardous waste must be removed in adequate labelled storage containers to appropriate hazardous waste storage areas. Secured waste must remain stored until removed periodically by an approved hazardous waste disposal contractor. Records shall be kept. ***Storage*** Storage areas must comprise impermeable concrete floors, surrounded by bund walls, and must display hazard signs indicating the nature of the hazard. In the storage facilities there must be Material Safety Data Sheets (MSDS) for identified hazardous substances. Waste oil must be contained in metal drums with leak proof lids and stored in a secure area to prevent accidental leaks to the external environment.

	Oil recycling Waste oil can be recycled and is of commercial value. Second hand oil may be sold to an approved contractor for recycling. Details of purchased quantities and sold oil must be recorded (including date, supplier/contractor, quantity/volume and relevant certificates). Records must be filed.
Mitigatory Measures – Construction Phase	Hazardous waste facilities will be constructed in order to prevent spillage and subsequent contamination of the surrounding soil, surface or groundwater.
LIQUID WASTE	
Responsibility	Environmental Managers
Mitigatory Measures – Construction and Operation Phases	***Grey waste*** Grey waste (non-sewage) must be disposed of through the current French drains. ***Fat/grease traps*** If a sewage treatment plant cannot digest grease efficiently, fat / grease traps should be installed to provide this function. An approved contractor must be appointed by each individual property owner to service the fat/grease traps every six months and records must be maintained. ***Chemicals*** Only detergents and chemicals approved by the Environmental Managers must be permitted for use on Letamo Game Farm. These must be phosphate-free. ***On-site sewage treatment plants*** New units must attempt to use packaged on-site sewage systems.
Mitigatory Measures – Construction Phase	A contractor must be appointed by the property owner to remove liquid waste contained in the portable chemical toilets. This must be disposed of appropriately.

16. Flora

Flora – Guidelines to conserve and protect flora on Letamo Estate	
Responsibility	Environmental Manager
Mitigatory Measures – Construction and Operation Phases	***Vegetation type*** According to the new vegetation map of South Africa (Mucina & Rutherford 2004) the vegetation of *Letamo Estate* is regarded to be Egoli Granite Grassland which considered to be endangered. Every effort must therefore be made to contain construction to areas of low conservation importance as indicated by the Vegetation Survey Report in the EIA BAR. ***Smallholdings/Erfs*** Owners of the smallholdings/erfs may only fence off an area limited to 1500m² or to a maximum of 15% of each smallholding/erf size, where their residences and gardens may be developed. ***Planting*** Residents must not be allowed to plant alien and/or invasive species in their garden. The Environmental Manager must approve species for planting. Ideally, the only trees which must be planted are those indigenous to the site and its immediate surroundings. Kikuyu (*Pennisetum clandestinum*) grass may only be planted within the confines of resident's property. The dumping of mowed Kikuyu within Letamo Estate (outside of fenced-off area) is strictly prohibited to inhibit the spreading of the species. Where possible and feasible indigenous grass species should be planted. These include: -Couch grass (*Cynodon dactylon)* -LM / Berea (*Dactylenium australe*) No kikuyu is to be planted within any watercourse ***Alien species*** The management plan for the control, and where possible the eradication, of alien invasive trees occurring within the smallholdings and Letamo Estate area must be implemented (see table on Control of Alien Invasive Vegetation).

	Burning A burning program must be developed for the entire Letamo Estate. Because the area is not divided into fenced camps, the burning of fairly large areas at a time is necessary. Only grassland in fairly good condition must be burnt regularly. Pioneer communities of recently ploughed lands must not be burnt regularly. ***Harvesting*** Only controlled harvesting of grass will be allowed as dictated by the Board of Directors. Only indigenous animal species must be introduced and their numbers must be kept well within the recommended stocking rates (see section 6.15). Any medicinal plants on Letamo Estate may not be harvested and must be protected. These are dominated by but not limited to: -*Hypoxis* spp. -*Aloe* spp. -*Boophone disticha* (gifbol) -*Euchomis autumnalis* subsp *clavata*(pineapple lily) ***Sensitive habitats*** No development must take place within or near the already impacted wetland and riverine habitats (within flood line) of the Honingklipspruit and its tributaries. Any activities that could lead to alterations in hydrological patterns and chemical and physical water quality must be avoided. Any recreational structures such as bird hides must, where practical, be constructed in disturbed areas where the indigenous vegetation has been impacted. ***Red Data species*** Care must be taken not disturb any Red Data plant species on Letamo Estate especially *Eucomis autumnalis* subsp *clavata* (Pineapple lily) and *Asclepias fallax* which have both been spotted on Letamo Estate, but not on Erf 30, Letamo Town.

	 Smallholdings/erfs 5-10, 26-29, 20, 36-46 and 66-67 have been identified as areas where Red Data species might occur (Appendix 4). These must be closely monitored by the Environmental Manager for the possible emergence of these species.
Mitigatory Measures – Construction Phase	***Smallholdings/Erfs*** Construction of houses and future alterations within the proposed smallholdings/erfs must be restricted to previously ploughed areas that support pioneer plant communities and are situated above the flood lines of the various water courses. In smallholdings/erfs where such areas are absent, the vegetation that is to be removed during construction must be searched for Red Data plant species by an experienced botanist. The search must take place during February (Summer). ***Red Data species*** Site contractors must be briefed by an experienced botanist to allow them to identify possible Red Data species in their sites. Should a contractor suspect the presence of a Red Data he/she must contact the Environmental Manager regarding his/her concerns and cease construction if necessary. In the event of Red Data species being found, the site contractor must report these to the Environmental Manager who should in turn inform GDARD Nature Conservation and appropriate *in situ* and/or *ex situ* conservation measures must be decided upon with them. These conservation measures include:
	-altering site development plans, -removing the plant(s) to a more appropriate location -cordoning off of plants

17. Fauna

Fauna *- Guidelines to conserve and protect fauna on* Letamo Estate	
Responsibility	Environmental Manager
Mitigatory Measures – Construction and Operation Phases	***Noise*** No loud noise (music) must be allowed on site as this can disturb game and other animal species Letamo Estate. ***Speed Limit*** Speed limits must be strictly adhered to in order to avoid potential accidents with wildlife. ***Driving at night*** Residents must take special care when driving at night on the Game Farm as antelope are easily disoriented by bright lights. No night game drives will be permitted, unless prior approval has been obtained from the Environmental manager. ***Disturbances*** Incidents of disturbance must be reported to the Environmental Manager and offenders will be issued with warning letters. Fines will be issued should any further infringements occur. This includes construction workers, staff, residents and visitors. ***Waste disposal*** Proper disposal of waste material as per the guidelines mentioned above must take place to prevent undue harm to animal and bird species. Waste must be properly contained in order to avoid attracting vermin as well as other small mammals such as mongooses and jackal. ***Domestic animals*** Domestic animals (pets) will be regulated in terms of the Book of Rules. The Environmental Managers reserve the right to destroy any dog found wandering loose on the Game Farm. No domestic livestock of any description shall be permitted on the Game Farm.

	No domestic cats must be allowed on site. ***Firearms*** No unlicensed firearms must be permitted on the Game Farm. Accordingly visitors and resident's vehicles may be subject to searches when entering or leaving Letamo Estate. ***Snaring*** No snaring of animals will be tolerated and offenders must be strictly dealt with. ***Red Data Species*** Care must be taken during construction with regards to protected invertebrate species. Should any large spider or scorpions be discovered, a competent biologist must be consulted in order to determine if they are any of the protected species which have been identified on the site (Appendix 7). ***Fishing*** Any fishing taking place on Letamo Estate must be strictly catch and release. This activity is only available to shareholders & landowners. Fishing must be in strict accordance with Gauteng Nature Conservation Ordinance (Ordinance 12 of 1983 as assigned on 31 March 1995 to Ordinance 22 of 1995) as well as in accordance with regulations set out by the Board of Directors.
Mitigatory Measures – Construction Phase	***Construction footprint*** The construction team must be confined to strictly demarcated areas and must not be allowed to stay on Letamo Estate. ***Red Data Species*** Care must be taken during construction with regards to protected invertebrate species. Should any large spider or scorpions be discovered, a competent biologist must be consulted in order to determine if they are any of the protected species which have been identified on the site (Appendix 7). ***Use of horticultural chemicals*** The use of chemical fertiliser, herbicides, pesticides and soil sterilants must be avoided during the development unless specifically approved by the Environmental Manager.

18. Control of Alien Invasive Species

Control of Alien Invasive Species *– Measures to control and inhibit growth of alien plants (please refer to Appendix 5 for further clarification if needed)*	
Responsibility	Environmental Manager (in consultation with a qualified specialist)
Mitigatory Measures – Construction and Operation Phases	***Control of Alien Plants*** Common Alien species

Species	Common Name
Acacia dealbata	Silver wattle
Acacia mearnsii	Black wattle
Eucalyptus sp.	Blue gum
Melia Azederach	Syringa
Pennisetum clandestinum	Kikuyu
Salix babylonica	Weeping willow
Pyracantha angustifolia	Yellow fire-thorn
Populus x canescens	Poplar

Control of Alien plants must include the following 3 phases (Working for Water, DWS):

-Initial control: drastic reduction of existing population

-Follow-up control: control of seedlings, root suckers and coppice growth

-Maintenance control: sustain low alien plant numbers with annual control

Control of alien invasive species must be achieved by any one or a combination of the following methods: mechanical, chemical, cultural (use of fire) and biological control. The table below illustrates the methods unique to the major species present on the site:

Species	Chemical control	Mechanical control
Acacia dealbata	Registered herbicide	1,4,5
Acacia mearnsii	Registered herbicide	1,2,5,6
Eucalyptus sp.	Registered herbicide	1,2,4,5
Melia Azederach	Registered herbicide	1,4,5
Pennisetum clandestinum	Registered herbicide	3
Salix babylonica	No herbicide registered	5
Pyracantha angustifolia	No herbicide registered	1,5
Populus x canescens	No herbicide registered	3

1. Uproot seedlings
2. Uproot saplings or dig out saplings

3. Dig out roots and underground parts
4. Ringbark
5. Cut or ringbark and apply herbicide afterwards
6. Biological control available
7. Mechanical control not recommended

Chemical control should be avoided and only used as a last resort.

The following chemicals are available for chemical control of the above mentioned species. This list is not exhaustive and other suitable chemicals are also available. The Environmental Manager must always ensure that all chemicals used are biodegradable.

Species	Chemical control	
	Active ingredient (s)	Trade name
Acacia dealbata	Triclopyr / Glyphosate	Garlon 4 / Roundup
Acacia mearnsii	Triclopyr / Glyphosate	Garlon 4 / Roundup
Eucalyptus sp.	Triclopyr / Glyphosate	Garlon 4 / Roundup
Melia Azederach	Imazapyr / Triclopyr	Chopper / Roundup
Pennisetum clandestinum	Glyphosate	Garlon 4
Salix babylonica	No herbicide registered	
Pyracantha angustifolia	No herbicide registered	
Populus x canescens	No herbicide registered	

Priority should be given to removing alien invasive vegetation from drainage lines and wetlands.

The control of alien invasive plants requires follow-up clearing. Alien plants build up a large seed bank and a soon as the summer rains re-growth begins. Seedlings must not be allowed to reach 30cm in height and should be removed as soon as they sprout.

The Environmental Manager must familiarise him / herself with the growth forms of the various alien species on Letamo Estate in order to implement the correct eradication method.

The Environmental Manager must implement a maintenance regime to sustain low numbers of alien plants and aim to remove all alien species in the long term.

Mitigatory Measures – Construction Phase

Control of Alien Plants

Control of alien plants must include the following three phases (Working for Water, DWS):

-Initial control: drastic reduction of existing population -Follow-up control: control of seedlings, root suckers and coppice growth

-Maintenance control: sustain low alien plant numbers with annual control

	All alien vegetation present on a construction site must be removed under the supervision of the Environmental Manager. Removal of alien vegetation must be phased on order to avoid the exposure of soil surfaces to erosion.

19. Burning Programme

Burning Programme *– Guidelines on burning regimes and recommendations for when burning is necessary*	
Responsibility	Environmental Manager (in consultation with a qualified specialist)
Mitigatory Measures – Construction and Operation Phases	***Burning protocols*** A cool downwind fire is required, and hence should be done at an ambient temperature of below 20°C, relative air humidity above 50% and when soil is moist. This is ideally done when the grass is moist after rain or in the evenings or very early mornings when dew is present. Burning is allowed during the six weeks before the expected commencement of the growing season (provided the grass has begun to grow due to sufficient moisture) and for a period of two weeks after the start of the growing season. The Letamo Estate is classified, by virtue of its locality and climatic factors, as sour veld. Sour veld must not be grazed after a fire before the grass sward has grown to a height of at least 15 mm. Grazing before this will reduce the vigour of the grasses and may lead to the establishment of unfavourable grass species. Burnt areas must be large enough in relation to the numbers of game to ensure that grazing pressure on these burnt areas is not excessive. Surrounding land owners as well as residents must be consulted and informed about an intended controlled burn. ***Wetlands*** According to generic wetland guidelines produced by the Mondi Wetlands Project, burning of wetlands should take place on a 3-4 year basis and rotational burning must be encouraged. ~~Wetlands containing moribund material should be prioritised for burning.~~ Environmental Manager must be aware of faunal species inhabiting wetlands when initiating burning (e.g. grass or marsh owls), especially those that are breeding.
Mitigatory Measures – Construction Phase	N/A

20. Game Stocking

Game Stocking *– Guidelines on managing indigenous faunal species* Letamo Estate	
Responsibility	Environmental Manager (in consultation with a qualified specialist)
Mitigatory Measures – Construction and Operation Phases	***Stocking rates*** When deciding on stocking rates, both the availability of forage and the behavioural characteristics of the chosen species must be taken into account. The genetic minimum population size must also be considered. (The minimum number for re-establishment is generally 3 males and 5 females). Current and historical distribution of game species, their habitat requirements and their primary food requirements must be used as the basis for the selection of suitable game species for Letamo Estate. It must be ensured that only herbivores that are suitable for the Game Farm be introduced. These being Blesbok, Burchell's Zebra, Common Duiker, Eland, Mountain Reedbuck, Ostrich, Red Hartebeest, Reedbuck, Steenbok, Impala, Springbuck, Gemsbuck, Kudu, Waterbuck and Black Wildebeest. Careful consideration must be taken before species such as Mountain Reedbuck, Kudu and Buffalo are introduced as they are not considered suitable but their introduction may be successful due to their historical distributions. No Warthog, Klipspringer, Grey Rhebok and Blue Wildebeest must be introduced onto Letamo Estate. Ratios of bulk grazers to concentrate grazers must be approximately 50% Large Animal stock-Unit (LAU) concentrate grazers to 50% (LAU) bulk grazers. These ratios should be revised as required to ensure that overgrazing doesn't become an issue. ***Supplements*** In order to maintain animal condition and to stimulate grazing so that poorer grazing is better utilised, appetite-stimulating licks with ureum or protein base must be used. Licks for game must not contain more than 5% ureum. Energy-rich supplementary feeds are not recommended, except in the case of Hippopotamus. Providing all the fodder requirements of Hippopotamus will be essential to maintain the condition of these animals and to prevent grazing pressure which they would otherwise cause in this relatively small area of sour veld. ***Seed reserves***

	Small seed reserves must be established (5×20 m areas) where palatable species can grow to maturity and from which seed can disperse naturally or be collected and dispersed by hand. ***Burning*** Rotational burning of veld and maintenance of low stocking rates will help to prevent overgrazing as a result of the absence of fenced camps and therefore rotational grazing. ***Veld condition assessment*** The veld condition assessment which has been conducted must be regularly consulted in order to establish the stocking rates and maintain these rates at a sustainable level. An update of the vegetation assessment must be conducted every two years in order to ensure that the veld is being managed accordingly.
Mitigatory Measures – Construction Phase	N/A

21. Historical / Cultural and Archaeological Issues

Historical/Cultural Issues – Guidelines for management of possible heritage artefacts discovered on Letamo Estate	
Responsibility	Environmental Manager (implementation of the procedure and obtaining the necessary permits in terms of the National Heritage Resources Act (Act No 25 of 1999).
Mitigatory Measures – Construction and Operation Phases	***Cultural*** Any cultural ceremonies that have been conducted Letamo Estate during the past must be allowed to prevail. This includes religious ceremonies. ***Archaeological issues*** Provision must be made for visitors to enjoy the archaeological sites that have been identified during the Environmental Impact Assessment that was conducted for Letamo Estate. All archaeological sites must be clearly marked in order to avoid their accidental destruction. Supervised walks and guided tours should be arranged to enjoy these sites. Any archaeological finds must be reported to the South African Heritage Resources Agency (SAHRA). A full Palaeontological Impact Assessment has been conducted for the site as the original survey was indicated to be preliminary and not comprehensive.
Mitigatory Measures – Construction Phase	***Archaeological issues*** The owner must undertake to obtain specialist archaeological input before the construction is started. The owner must verbally confirm that he will protect all recognised sites and must incorporate them into the design of the development. All construction personnel must be instructed/trained to that they are wherever possible, able to identify possible sites during the construction process. If an artefact is uncovered, all construction activities at the site must stop immediately and expert opinion sought. This must be reported to SAHRA. All known sites must be clearly marked and protected so that so that no damage occurs to them. The Environmental Manager must investigate and obtain the necessary permits and implement the relevant requirements in terms of the National Heritage Resources Act (Act No 25 of 1999).

22. Control of Noise

Control of Noise *– Management measures to limit and reduce possible noise impacts* Letamo Estate	
Responsibility	Environmental Manager
Mitigatory Measures – Construction and Operation Phases	***Disturbances*** Any act of disturbance or occurrence resulting in excessive noise must be reported directly to the Environmental Manager or delegated individual via established contact details that must be communicated to the residents. Reporting of incidents must be possible 24 hours a day. The Environmental Manager must take the necessary corrective and preventative action following a complaint, either internally or externally. Records must be kept. No grass cutting, with noise generating machines, are allowed on Sundays and Public Holidays, Mondays to Fridays after 18:00 and Saturdays after 14:00 and never before 7:00 in mornings. No quad bikes or similar recreational vehicles are allowed on Letamo Estate. ***Noise regulations*** There must be a commitment from Management that any regulation, including contract agreements with residents, or by law regarding noise or any act of disturbance, will be enforced. These include: -Noise Control Regulations of the Environment Conservation Act, 1989 (Act no. 73 of 1989) -The Noise Induced Hearing Loss Regulations in terms of Section 43 of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) All noise and sounds generated must adhere to SABS 0103 specifications for maximum allowable noise levels for residential areas. ***Generators*** The use of generators on the Game Farm must be strictly controlled. Should they be required, permission must be granted by the Environmental Manager. Generators to be used must be 'blimped" (quiet) and not exceed 15kV.
Mitigatory Measures – Construction Phase	***Construction noise*** Although noise at the construction phase has a temporary and localised impact, it could cause stress to animals that are unaccustomed to disturbance. Contractors must limit the noise as much as possible and certainly below acceptable legal limits for residential areas.

	Construction teams must not be allowed to stay on the property. ***Construction traffic noise*** Vehicular noise must be limited by controlling vehicle access, and in some instances vehicle types and by designing and constructing working areas and roads to prevent speeding and associated noise. ***Noise regulations*** Noisy activities may take place during allocated construction hours only as per section 25 of the Noise Control Regulations of the Environment Conservation Act, 1989 (Act no. 73 of 1989). According to the South African National Standard SANS 10103:2003, noise levels must not exceed the acceptable noise standards of 50dBA during the day (06h00 – 21h00) and 40dBA during the night (22h00 to 06h00). Surrounding land owners need to be informed of noisy activities or any work going on after normal working hours: Monday – Friday: 08:00 – 17:00, Saturday: 08:00 – 14:00, no work is allowed on Sundays and Public Holidays. The Noise Induced Hearing Loss Regulations in terms of Section 43 of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993), must be adhered to.

23. Control of Air Pollution

Control of Air Pollution – Measures to control air pollution	
Responsibility	The Health Department of the Mogale City Local Municipality and the Environmental Manager (for implementation of controls)
Mitigatory Measures – Construction and Operation Phases	***Exposed areas*** All exposed areas must be well maintained on a regular basis (see 2.9). ***Waste disposal*** Waste disposal facilities must ensure that waste is contained to avoid litter accumulating Letamo Estate. Waste must be removed weekly to avoid the development of odours. Waste removal contractors must regularly remove waste from the storage area. Sewage treatment plants (French drains included) much be maintained regularly to prevent odours. This should be conducted together with the water testing mentioned in section 2.10 above.
	Access Letamo Estate access control must be strictly controlled to restrict the number of vehicles using Letamo Estate roads. Residents, staff and visitors to the hotel, guesthouse and Letamo Estate Game Farm, must adhere to agreements and contracts relevant to access over the property. Speed limits must be strictly adhered to an enforced by security in order to reduce dust from dirt roads. ***Odour control*** Odour absorbing filters in kitchen exhaust ducts must be installed in any commercial kitchens and must be properly maintained.

Mitigatory Measures – Construction Phase	***Dust control*** The effects of dust must be reduced wherever possible. Exposed areas must be re-vegetated or surfaced as soon as possible. Remaining exposed areas must be sprayed with water to limit dust levels. Dispersal of dust during transfer, loading and unloading of materials must be reduced by taking account of weather conditions: fitting tarpaulins over trucks, and if required, wetting material to be transported, or the work area beforehand. Damping down of exposed surfaces must take place to reduce dust, especially in winter. ***Gaseous emission*** Regular servicing of machinery and vehicles must take place off-site in order to limit gaseous emissions. ***Waste management*** On-site ablution facilities must be serviced regularly to prevent odours ***Fire and food preparation*** No open fires must be allowed on-site. Gas stoves must be used for any food preparation. Cooking must only be permitted at in the designated kitchen areas of the specific construction site.

24. Visual Environment

***Control of Light Pollution** – Measures to avoid possible visual impacts including light pollution for residents as well as surrounding land owners*	
VISUAL LANDSCAPE	
Responsibility	Environmental Manager
Mitigatory Measures – Construction and Operation Phases	The approved Landscape Development and Architectural design Plan must be implemented. Residents must comply with the approved architectural design. Board/EM approval must be given for any renovations to a property. The resident must inform the surrounding residents of the proposed renovation.
Mitigatory Measures – Construction Phase	***Screening*** To reduce visual impacts of the houses on the property, particularly in the vicinity of Kromdraai Road, a vegetation screen consisting of "suitable" trees and/or shrubs plants adjacent to one another must be established along this boundary. During construction screening can be achieved by shade cloth fixed to the site fence, thereby reducing the visual impact of the construction site to the surrounding residents. ***Waste management*** A litter free construction site must be maintained. Waste building material must be temporarily off-loaded in designated areas and then removed from site to an approved landfill site. No rubble must remain on site Contractors / labourers must be instructed on the correct and appropriate waste disposal procedures. Unwanted material and litter should be removed on a frequent basis and fed into the waste collection system of Letamo Estate. Skip bins must be placed on site to accommodate these materials and for easy removal. Training of staff members on waste management is necessary. The contractor should exercise strict care in the dumping of construction waste with proof of disposal. This should be logged / registered. ***Signage*** All signage of the proposed development must be according to the SAMOAC guidelines. ***Construction activities*** Construction activities are to be clustered on-site and dust suppression

	methods must be undertaken. Construction of new houses must be within 24 months of registration date, contravention of this timeframe will result in an R 20 000.00 fine per annum payable to the Developer. Resale properties need to start the building process within 12 months of registration into the new owner's name. Construction of new houses must be finalised within 1 year. Renovations or additions must be completed within 1 year. Residents in contravention of these timeframes are liable to a R10 000.00 fine per annum payable to the Game Farm Pty Ltd. ***Landscaping*** The Developer/owner and Landscape Architect should commence planting and landscaping on the site at the earliest possible time. The use of locally indigenous vegetation only will be allowed for the purposes of site's rehabilitation and restoration. Planting and Landscaping of the site should be done in accordance with the recommended planting list (Appendix 12). ***Architectural guidelines*** Pitched roofs are the preferred architectural design for Letamo Estate to ensure that the visual nature of Letamo Estate is uniform (see attached diagram (Appendix 11).
LIGHT POLLUTION	
Responsibility	Environmental Manager
Mitigatory Measures – Construction and Operation Phases	***Positioning of lights*** Any lights erected should be inward and downward pointing to avoid impacting surrounding areas. No lights are allowed to spill out over the fenced off area of the individual stand. The design and layout of the residential units must take cognisance of this issue. Lateral and vertical light spill should be avoided. ***Road lighting*** Access routes through the property must be demarcated with appropriate reflective beacons instead of visible lamps.
Mitigatory Measures – Construction Phase	Any lights erected should be inward and downward pointing to avoid impacting surrounding areas.

25. Rehabilitation of Construction and Excavation Sites

***Rehabilitation** – Guidelines for the rehabilitation of impacted sites* Letamo Estate	
Responsibility	Environmental Managers
Mitigatory Measures – Construction and Operation Phases	
Mitigatory Measures – Construction Phase	***Soil rehabilitation*** Compacted soil from construction activities must be deep ripped to loosen compacted layers and regraded to even running levels or original levels. Seeding of these areas must take place as soon as possible to avoid possible erosion. Areas must be rehabilitated as soon as they are no longer required for construction. Where an area is to be fully habilitated, the exposed surface must be prepared to ensure a suitable medium for plant growth. This includes the removal of any waste or foreign substances and objects that could discourage plant growth, before final shaping and application of topsoil. All areas disturbed during construction and not subject to landscaping activities in the residential component, must be rehabilitated. ***Contaminated soils*** Oil-contaminated soil must be removed from site to a DWS approved hazardous landfill site. If a substance present in the soil cannot be treated, it must be excavated and replaced with topsoil. If a substance is hazardous in nature, it must be disposed of in the manner prescribed in this plan (see table on Hazardous Waste Disposal). ***Exposed areas*** Exposed areas must be re-vegetated or covered with impermeable materials ~~according to the proposed layout plan as soon as possible. This will prevent~~ excessive levels of dust and of silt pollution of water bodies resulting from runoff from exposed areas. The degree and extent of rehabilitation required can be reduced, by ensuring that the area of disturbance remains as small as possible:

	Construction footprint The Environmental Managers must ensure that all construction activities, including stockpiling of building and excavated materials and movement of personnel and vehicles, are restricted to the development sites only (i.e. limited to 1500m² or 15% of smallholding/erf size fenced-in areas set aside for residential development). The development sites must therefore be demarcated clearly and no construction activities must be allowed outside these boundaries. ***Access*** The Environmental Manager must ensure the existing roads and access routes are used to gain access to the construction site. Where possible, the construction of additional roads must be avoided. The movement of all vehicles and personnel must be restricted to the existing roads. ***Topsoil*** During excavation, the topsoil must be removed and stockpiled separately and replaced as a top layer after completion of the construction/excavation activities (i.e. the pre-excavation soil profile should be recreated as far as possible). All areas of disturbance must be kept clear of alien invasive species, to ensure that the natural process of vegetation succession is not impeded. Where possible, no topsoil must be imported into the area. If additional topsoil is required, it must be free of seeds of alien plant species. If alien species do occur in the imported topsoil, seedlings of these species must be removed on a regular basis, to ensure that they do not become established and spread to adjacent areas. The topsoil must contain a sufficient seed bank of indigenous species to naturally colonise these areas. This seed bank will probably supplemented by the natural dispersal of seeds from surrounding grassland areas. Succession in larger disturbed areas can be accelerated by harvesting seeds from adjacent grassland areas and sowing them in the areas of disturbance. ***Seeding*** Commercial seed mixtures must not be utilised as these frequently contain species and/or genotypes not naturally found within the area.

ANNEXURE C – DEA ENVIRONMENTAL SENSITIVITY SCREENING REPORT

SCREENING REPORT FOR AN ENVIRONMENTAL AUTHORIZATION OR FOR A PART TWO AMENDMENT OF AN ENVIRONMENTAL AUTHORISATION AS REQUIRED BY THE 2014 EIA REGULATIONS – PROPOSED SITE ENVIRONMENTAL SENSITIVITY

EIA Reference number: 14/12/16/3/3/1/2001

Project name: Erf 30 Letamo Estate

Project title: Environmental Sensitivity

Date screening report generated: 30/05/2019 10:11:48

Applicant: Letamo Estate Pty Ltd

Compiler: Ecologic Afrika

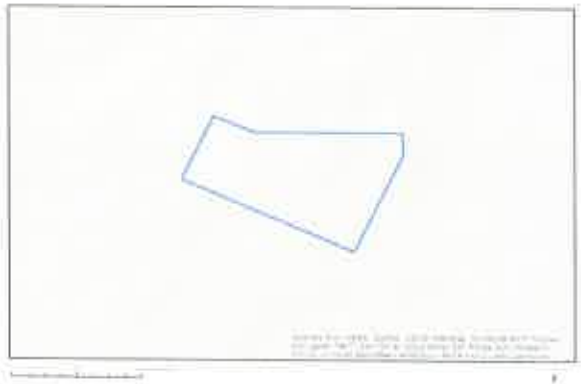
Compiler signature: .....

Table of Contents

Proposed Project Location

Orientation map 1: General location

Map of proposed site and relevant area(s)



Cadastral details of the proposed site

Property details:

No	Farm Name	Farm/Erf Number	Portion	Latitude	Longitude
1	LETAMO	27	00000	-26.03028	27.78004
2	LETAMO	29	00000	-26.03029	27.78126
3	LETAMO	23	00000	-26.03031	27.77714
4	LETAMO	24	00000	-26.03026	27.77809
5	LETAMO	25	00000	-26.03029	27.77878
6	LETAMO	26	00000	-26.03028	27.77944
7	LETAMO	30	00000	-26.03202	27.77884
8	LETAMO	28	00000	-26.03029	27.78063
9	HONINGKLIP	178	00223	-26.02155	27.78349
10	HONINGKLIP	178	00153	-26.03052	27.78317
11	HONINGKLIP	178	00115	-26.0415	27.77036
12	HONINGKLIP	178	00222	-26.02985	27.77855

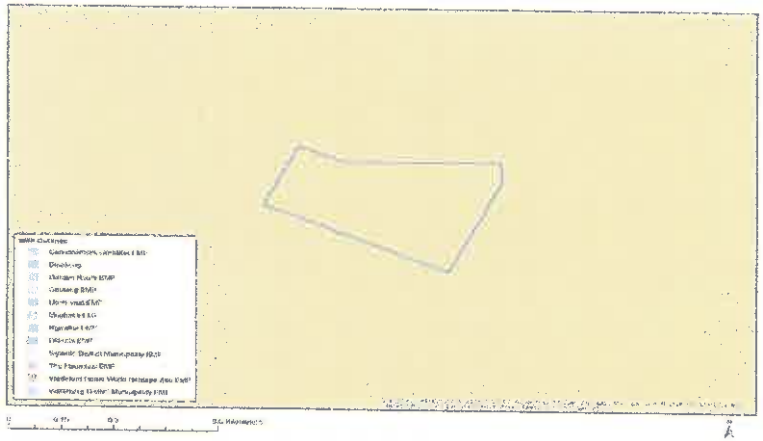
Development footprint[1] details:
No development footprint(s) specified.

Wind and Solar developments with an approved Environmental Authorisation or applications under consideration within 30 km of the proposed area

[1] "development footprint", means the area within the site on which the development will take place and incudes all ancillary developments for example roads, power lines, boundary walls, paving etc. which require vegetation clearance or which will be disturbed and for which the application has been submitted.

No	EIA Reference No	Classification	Status of application	Distance from proposed area (km)
1	12/12/20/2530	Solar PV	Approved	29.6
2	12/12/20/2537	Solar PV	Approved	12.7
3	12/12/20/2539	Solar PV	Approved	6.2

Environmental Management Frameworks relevant to the application



Environmental Management Framework	LINK
Gauteng EMF	https://screening.environment.gov.za/ScreeningDownloads/EMF/Zone_1,_Zone_2,_Zone_3,_Zone_4,_Zone_5.pdf

Environmental screening results and assessment outcomes

The following sections contain a summary of any development incentives, restrictions, exclusions or prohibitions that apply to the proposed development site as well as the most environmental sensitive features on the site based on the site sensitivity screening results for the application classification that was selected. The application classification selected for this report is: Transformation of land|From agriculture or afforestation|Transformation of land - From agriculture or afforestation.

Relevant development incentives, restrictions, exclusions or prohibitions

The following development incentives, restrictions, exclusions or prohibitions and their implications that apply to this site are indicated below.

Incentive,	Implication

restriction or prohibition	
Strategic Transmission Corridor-Central corridor	https://screening.environment.gov.za/ScreeningDownloads/DevelopmentZones/GNR_350_of_13_April_2017.pdf

Map indicating proposed development footprint within applicable development incentive, restriction, exclusion or prohibition zones

Proposed Development Area Environmental Sensitivity

The following summary of the development site environmental sensitivities is identified. Only the highest environmental sensitivity is indicated. The footprint environmental sensitivities for the proposed development footprint as identified, are indicative only and must be verified on site by a suitably qualified person before the specialist assessments identified below can be confirmed.

Theme	Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
Agriculture Theme		X		
Aquatic Biodiversity Theme				X
Archaeological and Cultural Heritage Theme		X		
Civil Aviation Theme		X		
Defence Theme				X
Terrestrial Biodiversity Theme	X			

Specialist assessments identified

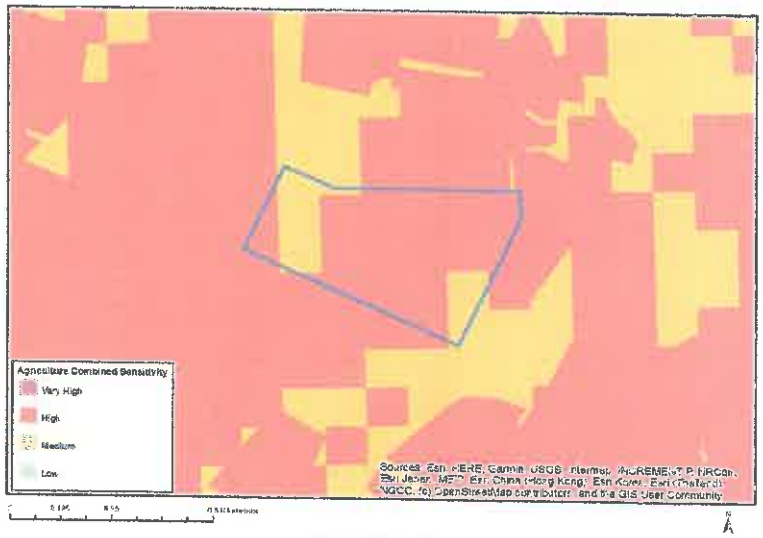
Based on the selected classification, and the environmental sensitivities of the proposed development footprint, the following list of specialist assessments have been identified for inclusion in the assessment report. It is the responsibility of the EAP to confirm this list and to motivate in the assessment report, the reason for not including any of the identified specialist study including the provision of photographic evidence of the site situation.

No	Specialist assessment	Assessment Protocol
1	Agricultural Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf
2	Landscape/Visual Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf
3	Archaeological and Cultural Heritage Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf
4	Palaeontology Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf
5	Terrestrial Biodiversity Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf
6	Aquatic Biodiversity Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf
7	Hydrology Assessment	https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf
8	Socio-Economic Assessment	https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf

Results of the environmental sensitivity of the proposed area.

The following section represents the results of the screening for environmental sensitivity of the proposed site for relevant environmental themes associated with the project classification. It is the duty of the EAP to ensure that the environmental themes provided by the screening tool are comprehensive and complete for the project. Refer to the disclaimer.

MAP OF RELATIVE AGRICULTURE THEME SENSITIVITY

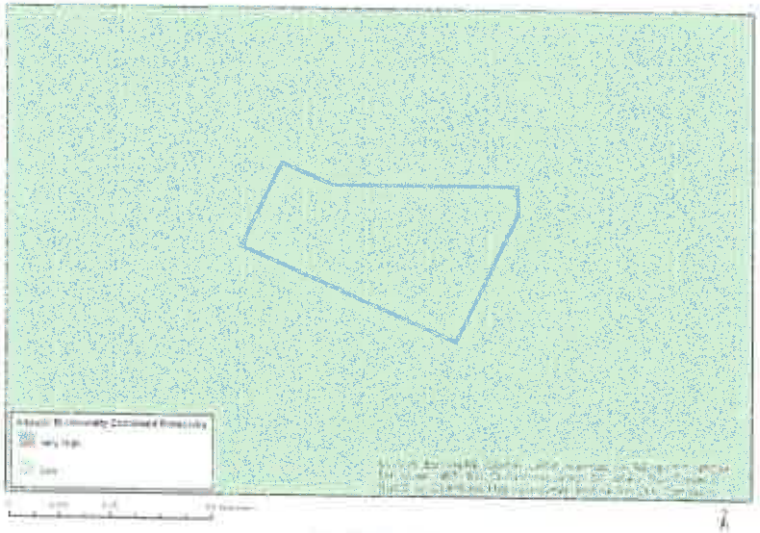


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Land capability;09. Moderate-High/10. Moderate-High
High	Annual Crop Cultivation / Planted Pastures Rotation;Land capability;09. Moderate-High/10. Moderate-High
High	Annual Crop Cultivation / Planted Pastures Rotation;Land capability;06. Low-Moderate/07. Low-Moderate/08. Moderate
Medium	Land capability;06. Low-Moderate/07. Low-Moderate/08. Moderate

MAP OF RELATIVE AQUATIC BIODIVERSITY THEME SENSITIVITY

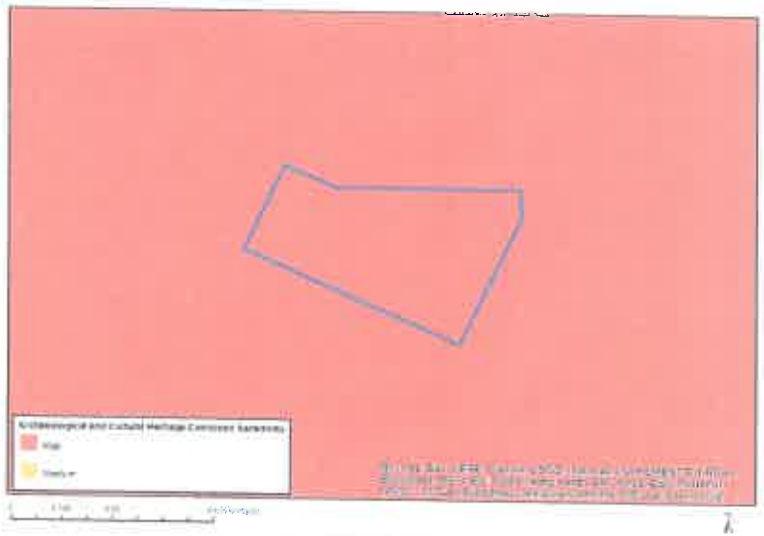


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity Areas

MAP OF RELATIVE ARCHAEOLOGICAL AND CULTURAL HERITAGE THEME SENSITIVITY

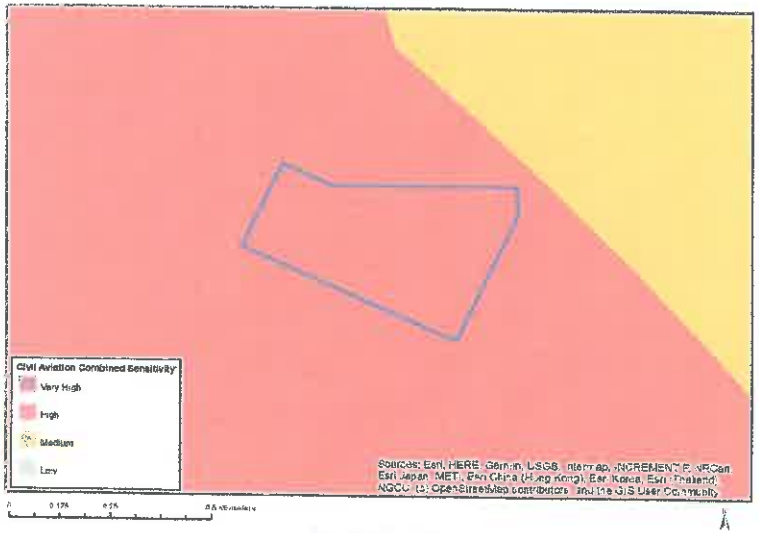


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Within 500 m of a heritage site
High	Within protected area

MAP OF RELATIVE CIVIL AVIATION THEME SENSITIVITY

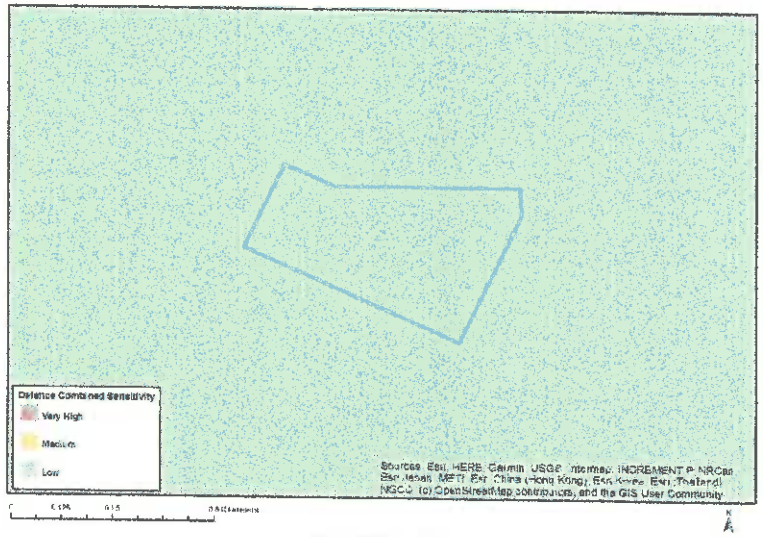


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Within 8 km of other civil aviation aerodrome
Medium	Between 15 and 35 km from a major civil aviation aerodrome

MAP OF RELATIVE DEFENCE THEME SENSITIVITY

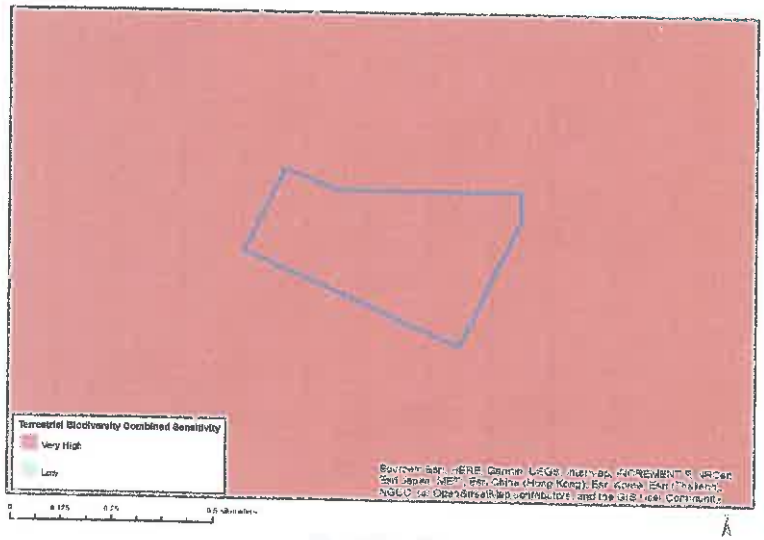


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low sensitivity

MAP OF RELATIVE TERRESTRIAL BIODIVERSITY THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

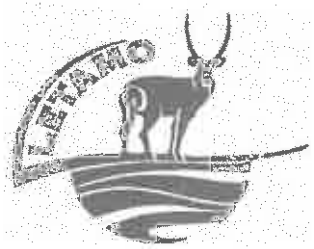
Sensitivity Features:

Sensitivity	Feature(s)
Very High	CBA,Conservation area,Protected area ,FEPA,Focus area for PAES

ANNEXURE D – TABLE WITH ERF SIZES

PORTION	ERF AREA (ha)	FENCED-IN AREA (ha)	WILDLIFE AREA (ha)	LANDUSE
A	0.8863	0.1500	0.7363	RESIDENTIAL
B	1.0293	0.1544	0.8749	RESIDENTIAL
C	0.9142	0.1500	0.7642	RESIDENTIAL
D	1.3493	0.2024	1.1469	RESIDENTIAL
E	1.1194	0.1679	0.9515	RESIDENTIAL
F	1.3684	0.2053	1.1631	RESIDENTIAL
G	1.2267	0.1840	1.0427	RESIDENTIAL
H	1.2377	0.1857	1.0520	RESIDENTIAL
I	1.0608	0.1591	0.9017	RESIDENTIAL
J	1.0880	0.1632	0.9248	RESIDENTIAL
K	1.0532	0.1580	0.8952	RESIDENTIAL
L	0.6094	0.1500	0.4594	RESIDENTIAL
M	0.6473	0.1500	0.4973	PRIVATE OPEN SPACE
N	0.9500	0.1500	0.8000	PRIVATE OPEN SPACE
O	0.5945	0.1500	0.4445	ROADS
TOTAL	15.1345	2.4799	12.6546	

ANNEXURE E – LETAMO BOOK OF RULES



LETAMO GAME FARM PTY LTD

Registration no: 1999/02852/07
(Hereinafter referred to as "**LGF**")

The Book of Rules of Letamo
2017

The Book of Rules of Letamo incorporates, and are subservient to, the Environmental Management Plan as approved by the Department of Environment and Tourism, Mogale City Environmental and by-laws, the Gauteng Department of Agricultural Rural Development, the World Heritage Site Cradle of Humankind, the Department of Water Affairs which shall, in terms of articles 5 and 6 of the Memorandum of Incorporation, govern the Conduct of all Members.

1. Foreword

As a ***Game Farm***, we enjoy a unique experience in an environmentally rich environment. These ***Rules*** are for the protection and reinforcement of this lifestyle and our investment.

To harmoniously share this environment with each other and the wildlife found within our perimeter, all Members shall at all times behave and conduct themselves in a considerate, reasonable and civilised manner, and shall in particular avoid being a Public Nuisance to others and are expected to observe certain restraints, and consider the rights and privileges of each other. Coupled to this, living on a ***Game Farm*** comes with the responsibility to protect, and attend to, the needs of the environment and game.

2. Legislative Issues

2.1. Meanings, Definitions, Acronyms, Abbreviations and References
When used in the Book of Rules of Letamo, words, headings, definitions, acronyms and abbreviations will have the same meaning as in the MOI and the Companies Act. This book of Rules is to be read in conjunction with the: the LGF EMP, the LGF MOI, the Companies Act; the Notarial Deed of Praedial Servitude of Reciprocal Traversing Rights; and the Title Deeds of Stands.

"**Public Nuisance**" means any act, omission or condition on Letamo and or any Stand, which in the opinion of the BOD is offensive or dangerous, or which materially interferes with the ordinary comfort, convenience, peace or quiet of Members, or which adversely effects the safety of Members or the public.

2.2. Mandate of the Board of Directors

2.2.1 To undertake the repair, upkeep, control, management, upgrading and administration of Letamo, excluding the Members dwellings, the payment of local authority charges levied in respect of LGF, including the dwellings if owned by LGF, and for any charges for the supply of electric current, gas, water, fuel and sanitary, security and any other services and for the discharge of any other obligation of LGF, against payment of a levy by all Members, at the discretion of the BOD.

2.2.2 To administer the general security arrangements on Letamo, with particular reference to controlling access and the nature and type of security to be provided from time to time, excluding the security arrangement of any Stand of a Member.

2.2.3 To maintain the infrastructure including, but not limited to: roads, fencing, picnic spots, guardhouses, booms, gardens, dams, water reticulation, water meters, fauna and flora of Letamo.

2.2.4 To ensure that each Member of a Stand on Letamo maintains his Stand in a clean and tidy condition and adheres to the specifications imposed by LGF relating to the environmental, landscaping and ecological planning. In the event of any Member failing to adhere to the specifications and maintenance of his Stand, the BOD shall be entitled, but not obliged, to perform the necessary acts and services and recover from such Member the costs thereof.

3. Responsibility of Members

3.1 Rights and Conditions of the use of a Stand

3.1.1 Member's rights of use shall be exercised by that Member personally or his nominated occupant. The rights and conditions of use shall endure for as long as the Member continues to be the registered owner of a Stand and shall be subject to compliance with the conditions of use. The conditions of use shall be enforceable by LGF against each Member and his nominated occupant and by each Member against LGF.

3.1.2 Every Member shall be entitled to the exclusive use, occupation and enjoyment of a private space area of his Stand as per the Title Deed of his Stand if not specified only to a maximum of 2000m².

3.1.3 Every Member shall be entitled to the shared use and access to Letamo (braai areas, dam areas and demarcated roads, portion 223), excluding the exclusive use areas of the Residential and Commercially Zoned Stands, in common with all the other Members, subject to the respective Title Deeds, the MOI, the EMP and the Rules of Letamo.

3.1.3.1 Members, their nominated occupants, guests, employees and invitees shall use and enjoy Letamo entirely at their own risk, it being specifically recorded that there are potentially dangerous animals on Letamo. LGF accepts no responsibility arising from any injury, loss of life, or any other damage of whatsoever nature caused by such animals or from any other cause whatsoever.

3.1.4 Every Member shall adhere to the conditions, prohibitions, restrictions and servitudes of the Title Deed of his Stand and shall apply to the relevant authority should he wish to change the conditions, prohibitions, restrictions and servitudes of the title Deed of his Stand.

3.1.5 No Member shall be entitled to subdivide his Stand if such restriction, or conditions of subdivision, forms part of the Title Deed of his Stand.

3.1.6 No Member shall be entitled to conduct, or operate, any business from, or on, his Stand including, but not limited to a property time-sharing scheme as defined in the Property Time-Sharing Control Act 1983 or any other similar scheme, unless his Stand is duly zoned as a Commercial Zoned Stand and authorities, including, but not limited to Mogale City Local Authority, have issued an approval for a business to be conducted from the Stand. Once an application for re-zoning and or business rights is approved by the relevant authorities, the BOD will revisit the number of levy units payable by the Member for his Stand.

3.1.7 Members shall prevent their Stands from being used for any purpose that may be illegal or injurious to the other Stands on Letamo or Members themselves.

3.1.8 No Member may place, store, keep or permit to be placed, stored or kept upon any portion of Letamo otherwise than in the dwelling or outbuildings of such Member, any personal belongings.

3.1.9 Members, their nominated occupant, guests, employees and invitees shall not:

3.1.9.1 Cause any nuisance of any nature whatsoever to other owners, nominated occupants or guests including, but not limited to, creating excessive noise and disturbances. The Letamo Farm Manager, appointed by LGF, in his sole discretion, shall determine what constitutes excessive noise, disturbance or nuisance, calling on the relevant authorities as needed.

3.1.9.2 Do, or omit to do, anything which contravenes or may jeopardise any license, authority, consent or permit held by LGF.

3.1.9.3 Make fires in any area outside the private space of the Stand of the Member, these fires to be made only in decimated braai areas and chimneys.

3.1.9.4 Contaminate any of the land and/or dams, streams or rivulets, or litter in any manner on Letamo.

3.1.10 Members, who are owners of a Residential or Commercially Zoned Stand, or their nominated occupant, shall be entitled to have guests on the exclusive use area of his Stand. The number of guests that may be invited to a Residential Stand, at any one time, may not exceed 20 (twenty), subject to a number of guests staying overnight not exceeding 10 (ten). The number of guests that may be invited to a Commercially Zoned Stand, at any one time, may not exceed the number of guests as specified in the zoning approval of the local authority for that Stand.

3.1.11 On application to the BOD, each Member, or his nominated occupant, shall be entitled to have guests on the remainder of Letamo (dams, braai areas and Portion 223), excluding the Residential and Commercially Zoned Stands.

3.1.11.1 The BOD will in its sole discretion be entitled to establish limits on the number of guests and the area of Letamo (dams, braai areas and portion 223) that a Member may invite guests to. All guests are subject to the Book of Rules of Letamo and guests will be the sole responsibility of the Member that extended the invite.

3.1.11.2 Members shall ensure that their nominated occupants, guests, visitors, employees and invitees observe the conditions of use and shall accept full responsibility for the conduct of such nominated occupants, guests, visitors, employees and invitees. The BOD, in its sole discretion, reserves the right to search any vehicle of guests, visitors, employees and invitees at any time. It shall be incumbent upon Members to acquaint all nominated occupants, guests, visitors, employees and invitees with the conditions of use.

3.1.12 Private dwellings and moveable property may be insured by the relevant Member, it being expressly provided that LGF shall have no responsibility with regard thereto. Any moveable property brought onto Letamo by a Member, and or his nominated occupants, guests, visitors, employees and invitees, shall be at the sole risk of the Member, and or his nominated occupants, guests, visitors, employees and invitees. None of the aforementioned shall have any claim whatsoever against LGF in respect of any loss or damage to such property from whatever cause such claim may arise.

4. General Rules

In this section where reference is made to "Person", such reference shall include: all Members and, but not limited to, their Family, Residents, Tenants, Visitors, Guests, Invitees, Employees, Domestic Staff, Delivery persons, Contractors and any other occupants of Stands in Letamo.

4.1 Indemnity

4.1.1 LGF shall be entitled to require any Person to sign, before entering Letamo, a written waiver of all claims against LGF and its employees arising from any loss, damage or injury which such Person may sustain on Letamo from any cause whatsoever and whether or not such loss or damage is occasioned by any act or omission of LGF or any

employees of LGF or by any animal upon Letamo, failing which LGF shall be entitled to deny such Person access to Letamo.

4.1.2 Members hereby indemnify LGF against any loss, damage or injury that the Member, or any Person who the Member allowed onto Letamo, may sustain on or about Letamo from any cause whatsoever, and whether or not such loss or damage is occasioned by any act or omission of LGF or any of the employees of LGF, or by any animal upon Letamo.

4.1.3 Should any Member, or any Person who the Member allowed onto Letamo, cause any damage to Letamo or any improvements erected on Letamo, whether accidentally, negligently or wilfully, the Member herby accepts full liability for the cost of repairing or replacing whatever may have been damaged. Any act by a Person, who the Member allowed onto Letamo, shall be deemed to be the act or omission of the Member, and any notice given to such a Person shall be deemed to be notice also to the Member concerned.

4.1.4 LGF shall not be liable for any damage, whether direct or consequential as a result of interruption or failure of electrical or water services or any other service that may be supplied to Letamo, regardless of the cause thereof, and whether or not such interruption or failure is occasioned by any act or omission by LGF or any of its employees.

4.2 Access Control

4.2.1 Access Control shall apply to all Persons on Letamo. Processes, methods and mechanics may change from time to time, as determined by the BOD and/or circumstances and/or security threats.

4.2.2 The "delivery" gate at the main Letamo entrance on Kromdraai Road, will be locked between 18:00 and 06:00. Deliveries between 18:00 and 06:00 will only be allowed through the "visitors" gate if the vehicle can fit through the entrance with a maximum height of 2, 8 (two comma eight) meters. No articulated vehicles will be allowed through the "visitors" gate at any time. All deliveries must be pre-authorised to be allowed access via the applicable process, as introduced by the BOD from time to time. Delivery persons will be issued with a "Deliveries Board" which must be displayed at all times. Delivery persons must adhere to roads, routes and speeds as indicated on the "Deliveries Board". Delivery persons must return the issued "Deliveries Board" on exiting.

4.2.3 Residents' access will only be granted to Members and their designated Stand occupants residing on Letamo. Vehicle Entrance Tags and Vehicle Identification Stickers must be obtained from the Letamo Office, at the prevailing rate, and must be visibly displayed on all vehicles. Changes of vehicles must be reported to the Letamo Office and new Entrance Tags and Vehicle Identification Stickers must be obtained from the Letamo Office. Members will be issued with a "device" which is not transferrable to any other Person and Members are responsible for these "devices", and the use thereof and will be held accountable for unauthorised use. Unauthorised use can result in the confiscation of the "devices". The loss or theft of any "device" must be immediately *reported* to the Letamo Office to ensure the disabling of the "device". Any vehicle of a Member not displaying the identification sticker, will be treated as a Visitor or Guest in terms of access control.

4.2.4 Visitors to Stands must be pre-authorised to be allowed access via the applicable process, as introduced by the BOD from time to time. Visitors will be issued with a "Visitors Board" which must be displayed at all times. Visitors must adhere to roads, routes and speeds as indicated on the "Visitors Board". Visitors must return the issued "Visitors Board" on exiting.

4.2.5 Hotel and Lodge Guests must have a booking to the hotel/restaurant/lodge and pre-authorised to be allowed access via the applicable process, as introduced by the BOD from time to time. Guests will be issued with a "Guest Board" which must be displayed at all times. Hotel and Lodge Guests must adhere to roads, routes and speeds as indicated on the "Guests Board". Hotel and Lodge Guests must return the issued "Guests Board" on exiting.

4.2.6 Domestics, Gardeners, Staff and Employees of Members must be registered at the Letamo Office. A Letamo ID Card will be issued which must be displayed at all times. If the ID Cardholder is no longer employed by the Member, it must be reported to the Letamo Office to ensure the immediate de-registration of the ID Card. Walk in Staff and Labourers are not allowed to enter/exit the farm during the period 1 September – 30 April before 06:00 and not leave after 18:00, and during the period 1 May to 30 August before 06:30 and not leave after 17:00.

4.2.7 Contractors and their Staff must register copies of their identification documents at the Letamo Office at least one day before building commences. Contractors and their staff ID's must be scanned at the time of entry. Contractors and their staff must be pre-authorised to be allowed access via the applicable process, as introduced by the BOD from time to time. Contractors and their Staff will be issued with a "Contractors Board" which must be displayed at all times. Contractors and their Staff must adhere to roads, routes and speeds as indicated on the "Contractors Board". Contractors and their Staff must return the issued "Contractors Board" on exiting. Contractors are not allowed to walk into or on Letamo. Contractors and their Staff are not allowed to enter Letamo before *07:00* Monday to Saturday and exit after 18:00 Monday to Friday and Saturdays for 08:00 - 14:00. During Sundays and Public Holidays no Contractors or their Staff will be allowed to enter Letamo unless in the case of an emergency and cleared by the Letamo Farm Manager.

4.3 Vehicle Control

4.3.1 No vehicles may travel at more than 30km/h and no commercial vehicles (code 10 and above) may travel at more than 20km/h. Members, who allowed Drivers of Vehicle access to Letamo, will be held responsible for the actions of the Driver and the members will be fined if the Driver is caught speeding. Members acknowledge and agree to the decision of the BOD as to the type of equipment used to measure the speed of a Vehicle on Letamo.

4.3.2 Pedestrians, animals and cyclists have "right of way".

4.3.3 No Person shall drive a vehicle upon Letamo, other than on clearly demarcated main thoroughfares. Firebreaks, service roads and other roads marked "no entry" or "management only" may only be used for the designated purpose or in cases of emergency. "Free Range" driving through the veldt, where there are no roads, is strictly prohibited except in the case of game management tasks or in the event of an emergency.

4.3.4 All operators of motorised vehicles on Letamo must be licenced and the vehicles registered where applicable.

4.3.5 Quad bikes, off road bikes, scramblers, golf carts and or battery operated "look-a-likes" are not permitted to be driven or ridden on Letamo. Transporting these type of vehicles on Letamo must done by trailer, flat-bed or delivery vehicle. Battery operated road worthy vehicles driven by a licenced driver on demarcated roads only without being a noise nuisance is allowed.

4.3.6 The use of motorcycles and scooters by Members and their visitors is limited to only allow access from the entrance/exit of Letamo to the Stand of the Member and not on "Game" or "Free Range" drives or the like.

4.3.7 Deliveries by motorcycle, scooter or bicycle will only be allowed between 06:00 and 18:00.

4.4 Fencing of Private Use Areas on Stands

4.4.1 Members may only fence off an area, for exclusive private use on their Stands, as stipulated in the Title Deed to their Stands. If no provision were made in the Title Deed of their Stand, a maximum of 2,000 square meters would be applicable.

4.4.2 Only the following approved material may be used for fencing: Bonnox or Veldspan game fencing, electric fencing as provided for in the EMP, Clearvu or Galvanished fencing painted black or PWD brown and Ranch style wooden fencing.

4.4.3 Palisade fencing is not permitted due to it being a danger to the game.

4.5 Domestic Animals/Pets

In this section where reference is made to "Owner", such reference includes Members, and, but not limited to, Members Family, Tenants, Visitors, Guests, Employees, Domestic Staff, Contractors and any other occupants of Stands in Letamo.

4.5.1 The Mogale City by-laws (MCBL) relating to pets will be applied in addition to The Letamo Book of Rules. Owners of domestic animals/pets must familiarise themselves with the by-laws of Mogale City pertaining to domestic animals/pets. In the event of a conflict between these Rules and those of the MCBL, those of the MCBL will prevail.

4.5.2 Owners must register and hand in a clear photo of all their domestic animals/pets at the Letamo Office, before they are brought onto Letamo. Every domestic animal/pet must be micro chipped or be fitted with a collar and tag indicating the name, telephone number and/or address of its Owner. For registration purposes, Owners need to hand in, at the Letamo Office, a veterinary certificate, as proof that their pet/animal's compulsory inoculations are up to date and, thereafter yearly on or before the 31st of December. Any domestic animal/pet that that is no longer, for whatever reason, on Letamo must be deregistered at the Office of LGF.

4.5.3 The breeding of domestic animals/pets on Letamo, whether incidental, commercial or otherwise, is not permissible.

4.5.4 Members will only be allowed domestic animals/pets on Letamo if the private area of their Stand is suitably fenced in to secure the domestic animals/pets from leaving the private space.

4.5.5 Poultry, pigeons, aviaries, birds and wild animals or livestock may under no circumstances be kept on the Letamo.

4.5.6 Wild animals may only be brought onto Letamo as part of a rehabilitation program endemic to the game farm by an approved authority and EMP.

4.5.7 Owners will be responsible to arrange for the access of persons who will be taking care of their domestic animals/pets in their absence. The Letamo Office must be informed and contact details of such caretaker must be submitted to the Letamo Office. Any domestic animal/pet found to be neglected by the Owner, or caretaker, will be handed over to the SPCA. In extreme cases, such as uncontrollable attacks on wildlife and people, the domestic animal/pet will be put down. The Owner of the domestic animal/pet will be liable for any and all costs associated with this action.

4.5.8 No domestic animals/pets are permitted to roam on Letamo. Dogs must always be on a leash when outside the private area of the Stand. Domestic animals/pets may under no circumstances be allowed to chase after any wildlife. Any domestic animal/pet found wandering loose or roaming, or not being under supervision or control of its Owner may be, in the sole discretion of the Letamo Farm Manager, be impounded or otherwise be dealt with. The Owner of the domestic animal/pet will be liable to pay a fine plus any other costs associated with this action.

4.5.9 Stray unidentified domestic animals/pets will be impounded, where possible, and handed over to the SPCA. If such strays cannot be impounded, the Letamo Farm Manager may dispose of it in his sole discretion.

4.5.10 Owners must take measures in preventing their pets from becoming a Public Nuisance on Letamo. Any domestic animal/pet causing a nuisance and disturbance of the peace shall be deemed to be a contravention of the Rules by the Owner and such owner shall be guilty of an offence liable and subsequently on conviction to a fine.

4.5.11 Any domestic animal/pet causing Public Nuisance must be reported to the Letamo Office in the form of a written complaint. Written complaints, received by the Letamo Office, shall be dealt with as follows:

4.5.11.1 The Letamo Farm Manager will forward the complaint to the Owner of the domestic animal/pet.

4.5.11.2 The Owner of the domestic animal/pet will then have 5 business days after receiving the complaint to respond in writing.

4.5.11.3 On receipt of the written response, or in the absence of a response within the 5 day period, from the Owner of the domestic animal/pet, the Letamo Farm Manager will make a decision on the relevant action to be taken. Any disputes not resolved within 30 days internally shall be referred to the SPCA for further action.

4.6 Levies

4.6.1 Application and Payment.

4.6.1.1 A Member shall be responsible for payment of all electricity and water consumed on his Residential Stand, and shall pay such deposits as may be applicable to the relevant authority. In the event of rates and taxes or any other imposts being levied by any authority, the Member shall be responsible for payment thereof.

4.6.1.2 LGF levies and special levies are payable in terms of paragraph 6 of the MOI.

4.6.1.3 Monthly levies are due on the first business day of each month and payable within 7 (seven) business days thereafter. Each Member shall pay his monthly levies, free from any deductions, into the designated account of LGF.

4.6.1.4 Interest will be raised on the total of all overdue levies, water supply and fines, at the ABSA Bank prime overdraft rate plus 2 (two) percent per annum.

4.6.1.5 Levies are exempted from the provisions of the National Credit Act.

4.6.1.6 Levies are subject to rulings by SARS made from time to time.

4.6.2 LGF Budget and setting of Levy levels.

4.6.2.1 The BOD shall prepare no later than 1 (one) month prior to the end of each financial year a budget that shall detail the anticipated expenses for the ensuing year and the provisions for any budgeted fund in order to ensure that LGF will be able to fulfil its objectives.

4.6.2.2 The budget shall reflect the total annual and monthly levies required. Each Member shall be responsible for a monthly levy equal to the total monthly levies divided by the total number of Members.

4.6.2.3 In the event that the budget indicate more than a 10 (ten) percent increase on the previous year levies, the budget and levies must be submitted to be considered and approved, with or without amendments, by a General Meeting before the commencement of the ensuing financial year.

4.6.2.4 The basis for the calculation of the levies are as follows:

4.6.2.4.1	Residential stands	1 levy unit
4.6.2.4.2	Portion 220	2 levy units
4.6.2.4.2	Portion 221	3 levy units
4.6.2.4.2	Poole Group	1 levy unit per subdivision.

4.6.2.5 With specific reference to the hippo dam, any improvements, other than those prescribed by the Department of Water Affairs, will be the responsibility of the Member of Portion 221, and for that Member's account, on condition that such improvements and maintenance complies with the required standards at that time as set by the Department of Water Affairs. LGF shall carry out normal maintenance to the dam as per the requirements of the Department of Water Affairs directives issued from time to time.

4.7 Signage

4.7.1 Only road signs pre-approved by the BOD may be erected on Letamo.

4.7.2 Members and their appointed agents shall not be permitted to display a "for sale" sign, a "to let" sign, or any other boards having the same effect, outside the Member's Stand, at the entrance to Letamo, or any other place in Letamo, except within the boundaries of the exclusive rights area of the Member's Stand. In the event of a "show day" a "for sale" sign may be placed at the entrance of the drive way of the Stand.

4.7.3 No signage of whatever nature, including but not limited to any suppliers/contractors/advertising is allowed to be erected anywhere on the Stand of the Member or Letamo, except with the prior approval from the BOD.

5. Environmental Awareness

5.1 EMP

5.1.1 The EMP is a legal and binding document in terms of the National Environmental Management Act and any failure of a Member to comply with the requirements of the EMP may be grounds of the immediate fines, cancellation of any contract and/or legal prosecution.

5.1.2 All contractors, builders and residents must be provided with a copy of the EMP and they must confirm in writing that they will abide by these requirements. They must also agree to comply with any changes and updates.

5.1.3 Contractors, together with the Member who employed such a Contractor, will be held responsible for any environmental incidents on their building sites and are required to report these incidents to the Letamo Environmental Manager.

5.1.4 Contractors must inform all of their staff of the environmental requirements of LGF.

5.2 Environmental Management

5.2.1 Should the Environmental Manager not have the relevant knowledge to implement certain actions then he must ensure that he has access to this knowledge in order to fulfill his responsibilities.

5.2.2 The Environmental Manager, in line with approval from the BOD, is responsible for any correspondence with GDARD.

5.2.3 Should any activity on Letamo Game Farm infringe on the Record of Decision issued by GDARD, it must be recorded and a non-compliance report submitted to GDARD within 48 hours. All conditions stipulated within the ROD must be complied with.

5.2.4 Internal audits by the Letamo Farm Manager will occur monthly during construction on a building site for the period the building takes place.

5.2.5 Audits will be discussed during the monthly board meeting to which all residents are invited to attend. Actions will be recorded in the minute and reports will be available for the resident's perusal. Where necessary, these reports must be submitted to GDARD for inspection and verification.

5.3 Waste and Refuse Removal

All handling of waste and refuse will be subject to the provisions of the EMP.

5.3.1 Members, or their nominated occupier, of a Stand shall maintain in a hygienic and dry condition a receptacle, or refuse bin, for refuse for the dwelling and ensure that refuse placed in such receptacle, or refuse bin, is securely wrapped.

5.3.2 Member, or their nominated occupier, shall ensure that the receptacle for purposes of having refuse collected shall be within the area and at the times designated by the Letamo Environmental Manager.

5.3.3 Members, or their nominated occupier, shall prevent the accumulation of trash, garbage or other waste material, including but not limited to garden refuse, on their Stands except in designated containers located in appropriate areas screened from public view and concealed in order that odours do not emanate from such containers.

5.3.4 Recyclable items such as plastic, tin, glass and paper must be put in separate clearly marked or transparent refuse bags.

5.3.5 No garden refuse to be placed in household or recyclable refuse bags.

5.3.6 Refuse will be removed from the designated areas on Mondays, barring if the Monday days falls on a Public Holiday, the refuse will be collected the first business day after the Public Holiday. Refuse removal will take start at 07:00 on the aforementioned days.

5.3.7 Refuse to be put out for removal in sealed bags only on the aforementioned days and not prior to it, as it may be a health risk to the game on Letamo.

5.4 **Harvesting of Excess Game**

Harvesting, and culling of injured game, is part of running a game farm and the Letamo Farm Manager has a strict protocol regarding shooting on Letamo. Members shall comply with all notices sent out by the Letamo Office regarding culling times and dates.

6. Architectural and Landscaping

(Please note that these are specific rules and not guidelines)

6.1 **Architectural Design**

6.1.1 The design and construction of the dwelling and or improvement on a Stand shall be harmonious with the Letamo environment.

6.1.2 Farm Style designs will be approved. The Member is responsible for the fee payable to the approved architect to approve any plans or changes to the exterior of the property on behalf of the BOD.

6.1.3 A dwelling or improvement on a Stand shall be a single or double storey structure dwelling inclusive of servant's quarters, garage and outbuildings. No dwelling or improvement shall exceed two storeys.

6.1.4 Servant quarters, garages and other approved outbuildings must form part of the main dwelling and be under one roof structure

6.1.5 The dwelling shall be constructed in a good, proper and workmanlike manner.

6.1.6 No dwelling or improvement shall provide sleeping accommodation for more than 10 (ten) persons – including adults, children and servants unless otherwise approved by the BOD in writing.

6.1.7 All residential designs should adhere to a Building height restriction of 9.5m measured from natural ground level at midpoint of site to top of roof.

6.1.8 Every effort must be made to have living spaces (sitting rooms, dining rooms, family rooms and bedrooms) facing north.

6.1.9 The privacy of surroundings properties must be considered. Consideration should be taken for balconies not to overlook the living areas of adjacent properties.

6.1.10 No pre-fabricated garden sheds or wendy houses will be allowed on the Estate.

6.1.11 Awnings, air conditioning units, satellite dishes and other external fitted equipment must be clearly shown and annotated on the drawings and approved by the BOD. Air conditioning units must be concealed.

6.1.12 Solar geysers are allowed, but should be hidden in the roof space of a dwelling. Only the solar panels to be on top of roof.

6.1.13 Carports, pergolas, canopies and verandas must form an integral part of the design of the main structure and must be tied in with the original design. No stand-alone carports will be allowed.

6.1.14 These rules do not replace any statutory requirements, prescribed submissions to and approval by authorities. These rules are in addition to the standing National Building

Regulations, Occupational Health and Safety Act and other Local and National Authority Requirements, Rules and Laws. The document should be read in relation to each other.

List of important documents:

- Environmental Management Plan (EMP)
- Record of Decision (ROD)
- Approved conditions of Township Establishments
- Sales Agreement
- Memorandum of Incorporation
- Building Contractor Rules

6.2 **Building Lines**

6.2.1 A dwelling or improvement on portions 153 -176 & 182 - 219 of Letamo is subject to a 100 (one hundred) meter building line from portion 223 of Letamo and any watercourse or dam.

6.2.2 A dwelling or improvement, on portions 153 to 219, shall have a building line reserve of 10 (ten) meters.

6.2.3 A dwelling or improvement on a Stand known as Letamo Town Erf 1 to 32 shall have a building line reserve of 5 (five) meters.

6.3 **Building Material**

The following specifications shall apply to all dwellings and improvements on Letamo:

6.3.1 Roof covering: Pitched roof in Thatch, Chromo Deck in Corrugated and IBR sheeting profile, Slate tiles, Clay Tiles and Shingles, painted or manufactured in grey colours, i.e. Charcoal or Grey. Only 5% concrete roof on the main dwelling will be allowed as a flat concrete roof.

6.3.2 Exterior Walls: Plaster, Face brick, Semi face brick, approved stone cladding, Rugged Poles or Vermont plank - painted or manufactured to blend in with Coprox 5L Tan and earthy (sand) colours. All other cladding on selected panels (only 10% of façade) to be approved by BOD.

6.3.3 Window frames: Wood, Aluminium or Steel - aluminium to be bronze in colour and steel to be painted PWD Brown. Tinting or glazing will be permitted but reflective glazing will not be permitted. No uPVC frame windows will be permitted.

6.3.4 Staff accommodation and kitchen areas must open onto screened yards: a brick wall of maximum 2 (two) meters high and minimum 1.8 meters high, finished same as the dwelling, must be built to screen the yard from the side of the road.

6.3.5 Roof lights: will only be permitted if in clear glazing and in the same pane as the roof. Tinted or reflective roof lights are prohibited. The position and design of roof lights and skylights are for the BOD scrutiny and approval.

6.3.6 Burglar proofing and security elements: All such elements must be designed and installed to be unobtrusive in appearance with preference to horizontal and vertical and combinations lines and patterns. These elements may only be installed on the inside reveals of windows and openings. Spanish bars are not permitted. Security gates may be installed on outside of external doors but must be unobtrusive I design and colour. Details to be approved by BOD.

6.3.7 No intentionally mottled or false aged plaster or special paint effects will be permitted.

6.3.8 Timber pergolas to be treated with approved oil, creosote or timber preservative with approved colour stain. All jointing must be bolted with galvanized dome nuts. No visible gang-nail connectors are allowed. Pergolas may not be finished with timber slating or timber laths.

6.3.9 No shade netting may be used for carports or any other coverage unless approved by the BOD.

6.3.10 No rock art in ant shape, form or material will be permitted.

6.4 **Approval of buildings and improvements**

6.4.1 The approval of any development on, or improvement to, a Residential or Commercial Zoned Stand shall be conducted in 3 (three) phases, namely:

6.4.1.1 the BOD or their appointed approved architect to approve, sign and date the building plans as specified by Mogale City Building Council. The BOD may approve, suggest changes, recommendations or turn down any such application within 30 days of submission, giving reasons for their decisions, if a Member feels the decision of the BOD is unreasonable, the process as set out in article 6 of the MOI shall be followed.

6.4.1.2 the neighbours directly adjacent to all sides of the Stand shall sign and date the "Neighbours Consent" form inclusive of the building plans as specified by Mogale City Building Council. The consent shall indicate clearly the intent, point out the position to erect a dwelling, or extend the existing dwelling, or build a swimming pool or make any other improvement whatsoever to the Stand/Building.

6.4.1.3 Mogale City Council to finally approve and sign off the building plans as specified by Mogale City Building Council.

6.4.2 The Member and his nominated Builder shall sign and submit the agreement of "undertaking" between themselves and LGF, together with the final approval of Mogale City Building Council before any building or improvement can commence.

6.4.3 No member may begin his building operations without his building operations being finally approved by the MCBC, and submitted to the LGF office. In the event that a Member begin to undertake any development on, or improvement to, a Stand without having Mogale City Building Council final approval, then LGF shall have the right to demand that any buildings erected on, or improvements effected, to the Stand be altered, removed or demolished without prejudice to any other rights that LGF may then have against the Member.

6.4.4 A Property Owner shall be responsible to LGF for the professional expenses and costs incurred by the BOD, or it's duly appointed nominee, for the consideration, evaluation and approval of the plans on behalf of the BOD. Such expenses and costs shall be payable to LGF on presentation of a statement from LGF. Failure of payment of such statement will lead to withdrawal by the BOD of their approval.

6.4.5 No exterior alterations, including the application of paint to the exterior, shall be made to the dwelling without the prior written consent of the BOD of LGF.

6.4.6 No plan submitted, will be processed before confirmation is obtained that all levies are up to date and that the building performance deposit (EMP fee) was received by LGF.

6.5 **Building Phase**

6.5.1 A Member shall not be entitled to erect any dwelling, or affect any improvements to an existing dwelling, prior to the Stand being registered and transferred into the Member, or his designated nominee's name.

6.5.2 A Property Owner shall, in submitting plans to the BOD, or its duly appointed nominee, accept the supervision rights and responsibilities of the BOD, or its duly appointed nominee, over the development of, or improvements to, the Residential or Commercially Zoned Stand.

6.5.3 An Owner shall not construct a building on his Residential Stand in a manner that causes danger, nuisance or disturbance to the occupiers of the neighbouring stands and where applicable, the Members shall cause suitable screens and or barricades to be erected to reduce the emission of noise, dust, waste, effluent or other nuisance from the Residential Stand.

6.5.4 A Property Owner shall not burn or permit to burn any materials or rubbish resulting from or connection with construction on the Residential Stand and shall ensure that such materials or rubbish be removed from the Residential Stand.

6.5.5 A Property Owner shall repair at his cost and expense any damage to the infrastructure, sidewalks and road shoulders or any part of the common or public areas in Letamo caused by the Property Owner or his agent(s) during the course of the construction on the Residential Stand.

6.5.6 A Member shall not interfere with the convenience of the common or public areas within Letamo during construction of any approved building.

6.5.7 A Property Owner shall ensure that all responsible means are used to prevent the roads leading to the Stand from being damaged or injured by any act or omission of the building contractor and or sub-contractor engaged by the Property Owner in respect of the construction on the Stand and the subcontractor/s of the building contractor/s and the servant/s or agent/s of the Property Owner whilst moving equipment and materials to and from the Stand.

6.5.8 A Member shall indemnify and shall keep LGF indemnified in respect of any and all loss, damage, cost or expense, which may be suffered by LGF as a result of any claim, demand, suit or proceedings which may be instituted against LGF as a result of any breach of any of the above obligations by the Member

6.5.9 A Member shall not erect any fencing or walling on a Stand, nor install television or radio aerials or solar heating panels, limited to domestic use, without the prior written approval of the BOD, which approval shall not be withheld unless the BOD are of the opinion that such fencing, walling and or installation is inconsistent with the aesthetic appearance of the homes and gardens in Letamo.

6.5.10 A Member shall not make any additions or extensions to any building in Letamo or erect any further building or structure, in particular, but not limited to, carports, garages, servants quarters, storerooms and pergolas, whether of a temporary or a permanent nature, upon land in Letamo without the prior written approval of LGF, which approval shall not be withheld unless the BOD are of the opinion that such building or structure is not in keeping with the architectural style of the existing buildings of the house concerned.

6.5.11 No Member may use any other access to his Stand other than the access road provided by LGF.

6.5.12 A Member shall not be entitled to erect any dwelling, or affect any improvements to an existing dwelling, prior to the appointment of a registered land surveyor to ensure that the proposed development is within the correct site area. The surveyor's beacon certificates must form part of the documents for plan submission to the BOD.

6.6 Building Contractors

6.6.1 The Member must provide his appointed building contractor, sub-contractor and agent with a copy of the Book of Rules of Letamo and the EMP.

6.6.2 The Member shall pay R 10,000 (ten thousand rand) non-refundable EMP levy towards LGF, on receipt of the BOD approval of the development of a new dwelling, towards implementing the Book of Rules of Letamo by the Letamo Farm Manager to oversee and control the building operations of the Member and to improve roads damaged by delivery trucks. Any excessive costs in the maintenance of this will be for the Property Owner's account.

6.6.3 The Letamo Farm Manager will weekly do inspections to ensure that the Book of Rules of Letamo is abided by. The Letamo Farm Manager will enforce the Book of Rules of Letamo and shall stay or halt the Member's development or improvement in order to ensure that all the building contractors, sub-contractors and agents to the Stand adhere to the Book of Letamo Rules.

6.6.4 In the constructing of a dwelling, the Member shall use his best endeavours to minimise inconvenience to other Members and their guests, and shall fence off the building site.

6.6.5 During the construction phase on a Stand, the Stand shall be kept clean, at all times, of any rubbish or building rubble. Building materials may only be off-loaded on the Stand and not on the surface of any access road. Cement or concrete may only be mixed on the Stand and not on the surface of any access road.

6.6.6 No Contractors and or their Staff shall be allowed to remain overnight on the Stand, or Letamo.

6.6.8 No open fires are allowed on the building site of the Member.

6.6.9 Before building can commence the Stand must be fenced off to a minimum height of 1500mm and supplied with gate that can close securely, be supplied with a skip bin with lid, or shade netting, to prevent refuse from blowing around and a chemical or vacuum toilet.

6.6.10 The private area of the Stand may be cleared by hand or by TLB. No top soil is to be removed from Letamo.

6.6.11 No cement to be spilled or loaded outside the private area. Building site must be kept clean of plastic and paper on a daily basis. All building rubble to be removed on a weekly basis.

6.6.12 The gate to the building site shall be closed every evening.

6.6.13 No construction may commence unless: The water connection is installed on site, an approved site toilet has been installed, and all outstanding levies are paid.

6.7 Building Plan Submission

6.7.1 The following must be adhered to before building plans will be considered for scrutiny:

6.7.1.1 A non-refundable plan approval fee escalate at 8% per annum paid to LGF.

6.7.1.2 An EMP levy as prescribed in (6.6.2) must also be paid.

6.7.1.3 Three sets of plans (1 set in colour, 2 sets monochrome) necessary for Mogale City Council approval, with a fourth set for BOD record purposes. Plan submission to and approval fees for the City Council are for the Property Owner's account.

6.7.2 A checklist for plan scrutiny can be obtained from the appointed Architect.

6.7.3 A signed copy of the last page of the "Book of Rules" must accompany plan submissions.

6.8 Final Inspection

7.6.1 Final inspection is done to ensure that all dwellings are as per the approved plans on file at the LGF Office.

7.6.2 If the dwelling deviates from approved plans, "As Built" plans must be submitted for approval depicting all variations.

7.6.3 The building has to be completed to such an extent that the owner can move into the house, and all building activity and contractors are off the building site.

7.6.4 The BOD reserves the right to prevent the occupation of any houses if the above is not fully adhered with, an day insist on adjustments to the building if the "as built" and plans are vastly different or no longer comply with these rules or other guidelines.

6.9 Selling of Stand

6.9.1 The Member may use the Offer to Purchase provided by the estate agent.

6.9.2 No Property will be transferred without the following documents:

6.9.2.1 Signed Letamo Book of Rules

6.9.2.2 Clearance Certificate issued by Letamo Office

6.9.2.3 Undertaking to correct any transgression within a certain period of time, e.g. loose standing buildings/car ports/fenced off area bigger than 1500m² - buyer/seller must correct problem before clearance certificate will be issued.

6.9.2.4 Seller must sign a CM 42 to transfer share linked to property to new owner. Cost to transfer share is for the account of the seller.

6.9.3 All outstanding accounts payable to LGF must be paid up to date of the date the clearance certificate is issued for.

7. Governance of these Rules

Rules and regulations are governed in terms of paragraph 6.5 of the MOI. It is the duty of the Letamo Farm Manager to ensure compliance by the Members with the rules, and to this end to issue such notices or do such things as may be necessary or requisite.

7.1 Breach of Rules

In the event of any breach of the Rules by a Member or any Members' household or his guests or invitees or Lessee or the like under his supervision or control, such breach shall be deemed to have been committed by the Member himself, without prejudice to the foregoing, the BOD may take or cause to be taken steps against the person actually committing the breach as they in their discretion may deem fit.

7.2 Enforcement of Rules

For the enforcement of the Rules the BOD may take or cause to be taken such steps as they may consider necessary, including instituting legal proceedings in court, to remedy the breach of a Rule of which a Member may be guilty, and debit the costs, on a scale as between attorney

and client, of so doing to the Member concerned, which amount shall be deemed to be a debt owing by that Member to LGF. Further impose a system of fines or other penalties and the amounts and conditions of such fines shall be submitted, reviewed and confirmed at each Annual General Meeting of LGF.

7.3 **The Process of reporting a breach**

7.3.1 Only complaints received in writing, and signed by the Member lodging the complaint, will be acted on. Complaints must reach the office within 2 (two) business days of the alleged breach.

7.3.2 Once a complaint is received, the Letamo Farm Manager will forward the written complaint to the alleged transgressor.

7.3.3 The alleged transgressor will be given 5 business days to respond in writing.

7.3.4 The Letamo Farm Manager will investigate the complaint within 5 business days after response was received from the alleged transgressor or if no response from alleged transgressor.

7.3.5 Letamo Farm Manager to inform both parties of the outcome of the investigation.

7.3.6 The Letamo Farm Manager will impose a fine or suggest an action, accordingly refer to incident to the relevant authorities.

7.3.7 If the parties are not satisfied with outcome suggested by the Letamo Farm Manger, they shall refer the outcome to BOD.

7.3.4 The BOD will attend to the matter at next set BOD meeting and advise the outcome to all parties.

7.4 **The results of a breach**

If a Member, his nominated occupant, guests, employees or invitees commits a breach:

7.4.1 of any of the provisions of the Book of Rules for Letamo, and fails to remedy such breach within 7 (seven) business days of delivery of written notice to the Member, his nominated occupant, guests, employees, staff or invitees, requiring such breach to be remedied, or

7.4.2 of the same or similar provision as set out above on 3 (three) or more occasions during any 12 (twelve) month period, after having been warned in writing by the BOD of LGF to desist there from, then, and without prejudice to any other rights which LGF may have in terms hereof or at law, LGF shall be entitled to implement the provisions in the "FINES" section, as set out hereunder, against the relevant Member on giving written notice to the relevant owner and to recover from the owner concerned all amounts which that owner may then owe to LGF.

7.4.3. In the event of any Member disputing the fact that he has committed a breach of any of the Rules, the procedure provided for in paragraph 6.17 of the MOI will apply.

8. Fines

8.1 First transgression – written warning to be issued.

8.2 Second transgression – R500.00 fine.

8.3 Transgression not fixed – R500.00 fine per month until the transgression is fixed limited to a Maximum of 6 months thereafter procedures to be followed as set out in MOI (6.3 & 6.6).

9. Acknowledgment

I hereby confirm that I have read the rules and are aware that our rules are subservient to the

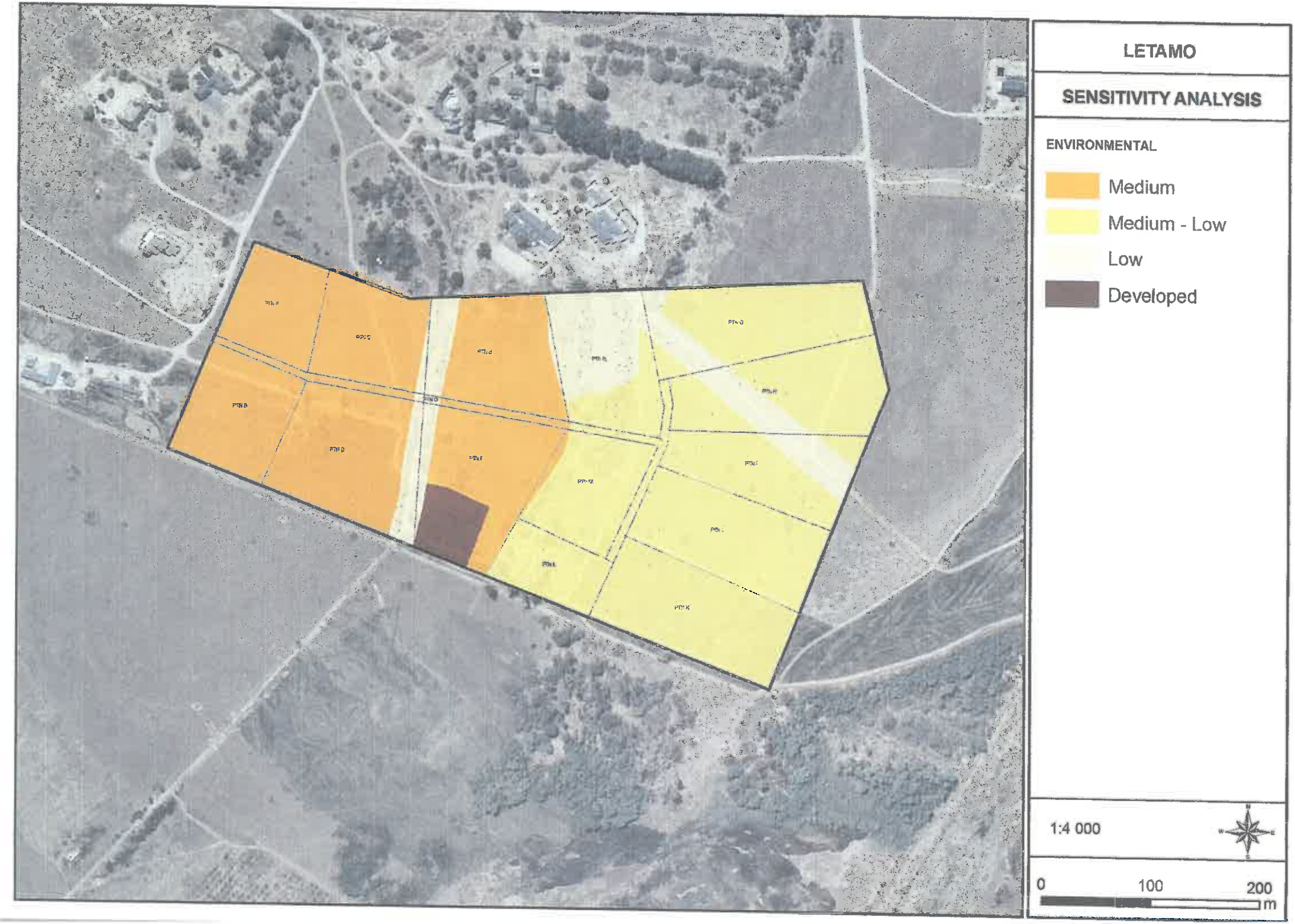
By laws as set out on page 1 of this document.

Signed on this _____ day of _____ 20____

_____ Initials and Surname
Owner

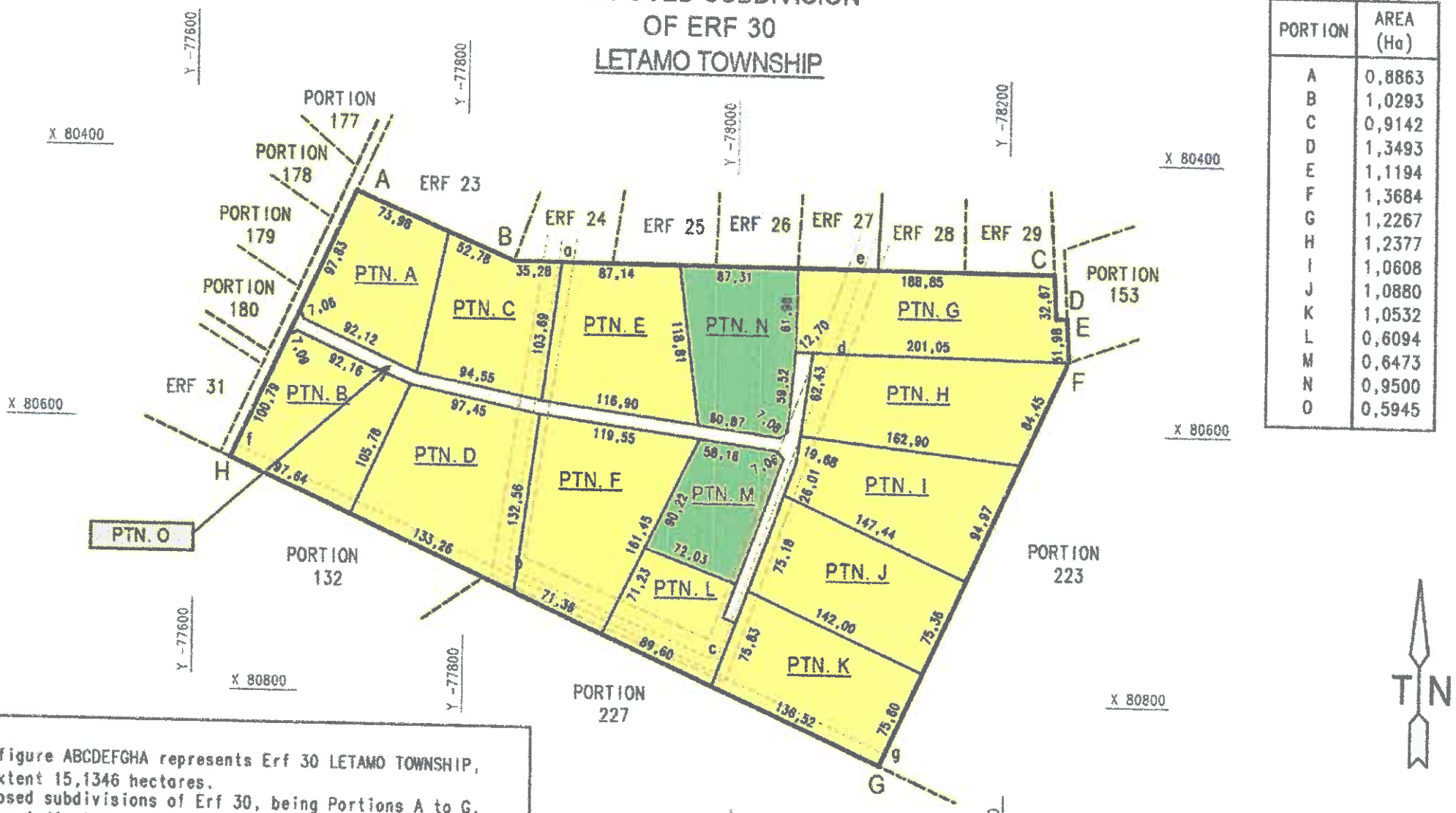
_____ Initial and Surname
Owner

ENVIRONMENTAL SENSITIVITY MAP


LETAMO
SENSITIVITY ANALYSIS
ENVIRONMENTAL
Medium
Medium - Low
Low
Developed
1:4 000
0
100
200
m

SITE LAYOUT PLAN

PROPOSED SUBDIVISION OF ERF 30 LETAMO TOWNSHIP



PORTION	AREA (Ha)
A	0,8863
B	1,0293
C	0,9142
D	1,3493
E	1,1194
F	1,3684
G	1,2267
H	1,2377
I	1,0608
J	1,0880
K	1,0532
L	0,6094
M	0,6473
N	0,9500
O	0,5945

NOTES:
1. The figure ABCDEFGHA represents Erf 30 LETAMO TOWNSHIP, in extent 15,1346 hectares.
2. Proposed subdivisions of Erf 30, being Portions A to G, are as indicated.
3. The line abcde represents the centreline of a proposed 22m wide powerline servitude.
4. The line fg represents the northern boundary of a 10m wide Right of Way servitude.
5. Measurements are given in metres.
6. Dimensions are approximate and subject to final survey.

SCALE 1: 4000 (A4)

0 20 40 60 80 100 200 300
Metres

Manda Smit
Tel. 010 591 2817
Cell. 083 702 2567

URBAN DEVCO

APPENDIX E – GEOTECHNICAL REPORT

Plaaslike Raad van – Local Council of

KRUGERSDORP

Fax: (011) 665-1781
Tel: (011) 951-2194
Cell: 082-414-3463
E-mail: sdt.envir@infodoor.co.za

PO Box 94
KRUGERSDORP
1740

Meld asb verwysing:
Please quote reference: DcomS/17/E/9(sdt)

30-Oct-2000

Letamo Estate (Pty) Ltd.
PO Box 344
KRUGERSDORP
1740

Attention: GA Janeke

RE: DOLOMITIC INSTABILITY AND SINKHOLE FORMATIONS

Following recent newspaper reports on the above-mentioned issues, I would like to mention that several concerns were channelled to my office that gives a clear indication that, due to a lack of local knowledge, these reports led room for misinterpretation and wrong perceptions. There is for example a perception that the whole Cradle of Human Kind World Heritage Site is underplayed by dolomites, and hence susceptible to catastrophic events such as sinkhole formation and groundwater contamination. For this purpose I would like to point out to you the following:

- Letamo is not underplayed by dolomites, but mainly by Amphibolite, consisting of Maific and Ultramafic rocks (this was confirmed by the Geotechnical Survey, as well as by Independent Consultants who were involved with the Environmental Impact Assessment – the closest dolomites are situated approximately 3km north-west of the property).
- This geology was historically known for its integrity with regards to development and no sinkholes were ever recorded in it. Evince that supports this statement is provided by several buildings that were constructed in that area in the early 1900s and are still in relative good shape.
- The groundwater in this geology (i.e. underlying Letamo) is of very pristine nature – due to little industrial and mining related activities – and is separated from the dolomitic aquifer. Chemical and biological analysis of this water resource confirms this statement.
- It is, however, true that the dolomitic aquifer is currently under some pressure due to several point and diffuse pollution sources that affects groundwater quality via sinkholes, and that sinkholes as a result of human related activities starts to develop in certain high risk areas. I would therefore like to state categorically that Letamo is NOT considered a high risk area, based on the information provided above.

REPORT ON GEOTECHNICAL SOILS INVESTIGATION

FOR

PROPOSED LETAMO TOWNSHIP

(Portions 221-222 and 224 of the Farm Honingklip 178 I.Q.)

CLIENT	:	**LETAMO ESTATE (Pty) Ltd.** **Kromdraai** **KRUGERSDORP**
TOWN AND REGIONAL PLANNERS	:	**SMIT & KHOTA URBAN DEVELOPMENT CONSULTANTS** **Postnet Suite 120** **Private Bag X3** **PAARDEKRAAL** **1752**
ENGINEERING GEOLOGIST	:	**TECHNO-EG CONSULTANTS c.c.** **Dr. H.J. OLIVIER** **P.O. Box 21880** **HELDERKRUIN** **1733** **Cell: 082 454-6342** **Fax: (011) 768-5605**

January 2005

REPORT ON GEOTECHNICAL SOILS INVESTIGATION

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January 2005

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REPORT ON GEOTECHNICAL SOILS INVESTIGATION

FOR

PROPOSED LETAMO TOWNSHIP

(Situated on Portions 221, 222 and 224 of the Farm Honingklip 178 - I.Q.)

1. INTRODUCTION

At the request of Ms.Manda Smit of Smit & Khota Urban Development Consultants, who are acting on behalf of their Client, Mr. Manie van Aswegen of Letamo Estate (Pty) Ltd., a geotechnical soils investigation was carried out at the above site.

The purpose of this investigation would be to determine the engineering properties of the soils underlying the site and to provide a report suitable for an official township proclamation application.

This report gives the results of the investigation, which was carried out by means of the soil profiling of 31 No. trial pits (excavated with a TLB back-acting excavator) and the laboratory testing of a limited number of representative soil samples.

The study was carried out according to the general guidelines of the Council for Geoscience (Department of Mineral and Energy Affairs) and the National Home Builders Registration Council.

2. DESCRIPTION OF SITE (Refer Dwg. No. LET/GEO/1)

2.1 Location

The proposed site is located on Portions 221, 222 and 224 of the farm Honingklip 178 - I.Q. within the Mogale Local Council area.

The total area of the site is approximately 50,4 ha. It is bounded on the west, north and east by Portion 223 of the farm Honingklip 178 - I.Q. and on the south by Portion 132 and Remainder of Portion 115 of the same farm. The site itself is a partially developed game farm with individual game lodge residences, as well as a chapel and staff accommodation buildings. The original residential farm buildings are being utilized at present as the administrative offices of the project. To date none of the existing buildings or newly developed residential game lodges have shown any signs of major distress caused by unfavourable foundation conditions.

2.2 Topography

The site has an undulating topography and slopes from the southwest to the northeast at a general shallow gradient of approximately 1:25. There are several minor outcrops and sub-outcrops of hard rock at isolated sections of the site.

Two natural surface drainage courses, each draining into an earth-fill storage dam, exist to the immediate west (southwest-northwest trending) and approximately 1 km to the east of the site (south-north trending) respectively. The main surface drainage is from the southwest to the northeast.

3. FIELD WORK

Thirty one trial pits (No's TP 1 - TP 31) were excavated by means of a CASE 528 backactor to the maximum reach of the machine (3,0 m). "Refusal" conditions were encountered in all the trial pits at depths varying from 0,8 m to 3,0 m.

The plan positions of the trial pits are shown on Dwg. No. LET/GEO/1.

The soil profiling of the trial pits was carried out according to the guidelines proposed by Jennings et al (1973). A fairly limited number of representative disturbed soil samples were taken of the various soil types for laboratory testing. The profile logs of the trial pits are given in Appendix A, while the excavation results are summarized in Table 1.

TABLE 1 : SUMMARY OF TRIAL PIT EXCAVATION RESULTS

Trial Pit No.	Final Depth (m)	Soil Material at Final Depth R: "Refusal" Conditions	Soil Sample Depth (m)
TP 1	1,9	R : Medium weathered, medium hard rock, mafic greenstone	1,5
TP 2	2,2	R : Slightly weathered, hard rock, mafic greenstone	-
TP 3	2,6	R : Medium weathered, medium hard rock, shaly greenstone	1,2
TP 4	2,6	R : Medium weathered, medium hard rock, mafic greenstone	2,0
TP 5	0,8	R : Slightly weathered, very hard rock, mafic greenstone	-
TP 6	1,4	R : Slightly weathered, hard rock, mafic greenstone	-
TP 7	1,4	R : Slightly weathered, very hard rock, mafic greenstone	0,3
TP 8	1,8	R : Medium weathered, medium hard rock, mafic greenstone	-
TP 9	2,6	R : Medium weathered, medium hard rock, shaly greenstone	0,8
TP 10	2,7	R : Medium weathered, medium hard rock, mafic greenstone	-
TP 11	0,9	R : Slightly weathered, very hard rock, mafic greenstone	-
TP 12	2,5	R : Medium weathered, medium hard rock, mafic greenstone	-
TP 13	2,5	R : Medium weathered, medium hard rock, mafic greenstone	0,6
TP 14	2,8	R : Medium weathered, medium hard rock, mafic greenstone	-
TP 15	2,6	R : Slightly weathered, hard rock, mafic greenstone	0,5

Trial Pit No.	Final Depth (m)	Material at Final Depth R: "Refusal" Conditions SR: "Semi-refusal" Conditions	Soil Sample Depth (m)
TP 16	1,3	R : Slightly weathered, hard rock, mafic greenstone	-
TP 17	0,8	R : Slightly weathered, very hard rock, mafic greenstone	-
TP 18	1,1	R : Medium weathered, medium hard rock, mafic greenstone	-
TP 19	2,2	R : Slightly weathered, hard rock, mafic greenstone	-
TP 20	1,6	R : Slightly weathered, hard rock, mafic greenstone	-
TP 21	2,5	R : Medium weathered, medium hard rock, mafic greenstone	1,5
TP 22	2,4	R : Slightly weathered, very hard rock, mafic greenstone	-
TP 23	2,7	R : Medium weathered, medium hard rock, shaly greenstone	-
TP 24	2,3	R : Slightly weathered, hard rock, mafic greenstone	0,9
TP 25	2,4	R : Medium to slightly weathered, hard rock, mafic greenstone	-
TP 26	3,0	R : Medium weathered, medium hard rock, mafic greenstone	-
TP 27	1,8	R : Medium weathered, hard rock mafic greenstone	-
TP 28	2,8	R : Medium weathered, medium hard rock, shaly greenstone	-
TP 29	2,8	R : Slightly weathered, hard rock, metamorphosed greenstone	1,5
TP 30	1,1	R : Medium weathered, medium hard rock, metamorphosed greenstone	-
TP 31	2,5	R : Medium weathered, medium hard rock, metamorphosed greenstone	1,0

4. SITE GEOLOGY

4.1 General Geology

According to the available 1:250 000 scale geological map (No. 2626 West Rand) the proposed Letamo township area under consideration is underlain by mafic and ultra-mafic greenstone rock formations of the Swaziland Supergroup.

The strike of these is approximately northwest-southeast with an average dip of 20° to the southwest.

The strike, dip and thickness of the various rock formations can vary considerably, even over short distances. They are usually highly weathered to a depth of several metres, while dense to very dense, completely weathered, residual soil formations also occur at some localities (Brink, 1979).

Isolated diabase intrusives of post-Witwatersrand age also occur in the area.

The highly and completely weathered (residual) greenstone rock formations generally do not form outcrops or sub-outcrops on the ground surface and are overlain by variable thicknesses of silty or gritty sand of hillwash origin.

The Pebble Marker horizon, demarcating the lithological boundary between the transported (pedogenic) soils and the underlaying highly weathered or residual completely weathered greenstone rock formations, usually occurs in the area concerned. Hard rock boulders (tallus formation) also at some localities (usually along elevated hill slopes).

4.2 Detailed Geology

The detailed soil profile of the site, as indicated by the exploratory trial pits (Appendix A), is as follows:

(a) A surface layer of hillwash material, varying in thickness from 0,2 m to

0,7 m (average 0,3 m), consisting of **loose** to **medium dense** gritty sand with grass roots and scattered fine grits.

(b) The Pebble Marker horizon, consisting of **loosely packed** hard rock pebbles and coarse grits in **medium dense** gritty sand. This discontinuous horizon was encountered in 16 No. of the trial pits down to an average depth of 0,5 m below the ground surface with an average thickness of 0,2 m.

(c) **Medium dense** to **dense**, completely weathered (residual) mafic and shaly greenstone rock formations occurring down to depths varying from 0,5 m to 2,8 m, with an average thickness of 1,0 m. At some localities these materials appear to become less weathered and **very dense** to **firm** with depth.

(d) Highly to completely weathered, closely fractured, **soft** to **very soft** rock greenstone, with numerous open stained joints, which appears to exists down to depths varying from 0,8 m to 2,5 m, with an average thickness of 1,1 m below the existing ground surface. These rock formations tend to become less weathered and harder with depth.

(e) Medium weathered, jointed, **medium hard** to **very hard** mafic and shaly greenstone, occurring at depths apparently varying from 0,8 m to 3,0 m (average 2,0 m) below the existing ground surface. "Refusal" conditions were encountered at these depths in these **competent** rock layers.

(b) The groundwater table was not encountered in any of the trial pits.

5. LABORATORY TESTING

Eleven representative disturbed soil samples were taken from the trial pits for foundation indicator tests. These were carried out by Matrobab Group (Pty) Ltd of Pretoria and included sieve and hydrometer analyses, as well as Atterberg Limits.

The most important results are summarized in Table 2, while the detailed results are included in Appendix B.

TABLE 2 : SUMMARY OF FOUNDATION INDICATOR TEST RESULTS

Trial Pit No.	Sample Depth (m)	Soil Description	L.L. %	G.M.	PI Whole Sample	Clay Content (-2μ)	Potential Expansiveness (v.d.Merwe, 1975)
TP 1	1,5	Dense, sl. clayey residual greenstone	45	1,05	12	13,0	Medium
TP 3	1,2	Med. dense, sl. clayey residual shaly rock	53	1,54	10	20,0	Low
TP 4	2,0	Highly weath. very soft rock greenstone	38	0,67	10	8,0	Low
TP 7	0,3	Loose gritty sand, hillwash	38	1,01	11	12,0	Low
TP 9	0,8	Dense, sl. clayey residual shaly rock	39	0,85	10	8,0	Low
TP 13	0,6	Med. dense residual greenstone	49	1,63	9	17,0	Low
TP 15	0,5	Highly weath. very soft rock, greenstone	36	0,78	9	5,0	Low
TP 21	1,5	Dense residual greenstone	38	0,15	7	13,0	Low
TP 24	0,9	Med. dense residual greenstone	41	1,44	7	6,0	Low
TP 29	1,5	Highly weath. soft rock, greenstone	33	1,26	3	2,0	Low
TP 31	1,0	Highly weath. very soft rock, greenstone	35	1,51	4	2,0	Low

6. GEOTECHNICAL APPRAISAL

6.1 **Trial Pits** (Table 1, Appendix A)

The trial pit profiling results indicated a fairly uniform soil/rock engineering scenario over the whole of the site.

The depth of "**refusal**" by the TLB backactor varied from 0,8 m to 3,0 m below the existing ground surface (average depth 2,0 m). Such rock types should constitute a **competent** founding horizon for strip foundation footings. The overlying medium dense, residual, completely weathered greenstone formations, on the contrary, appears to be a **less competent** founding horizon, particularly for double storey structures.

6.2 **Foundation Indicator Tests** (Table 2, Appendix B)

The plasticity indices, recorded for the test samples, showed mainly "low" values for the residual and highly weathered, very soft rock greenstone existing down to a depth of approximately 2,5 m below the present ground surface. "Low" values were also recorded for the gritty hillwash material existing down to an average depth of 0,3 m.

The Van der Merwe (1975) classification indicates a **"low"** to **"medium" activity** for the residual greenstones and underlaying highly to completely weathered rock materials. These should, therefore, not constitute any undue heaving problems under conditions of moisture migration.

6.3 **Excavation Conditions**

It is anticipated that excavations for foundations and engineering services within the hillwash, residual soils and highly weathered, closely fractured, soft rock formations should be accomplished by means of backacting excavators, or by pick and shovel. For excavations at depths below that of the backactor "refusal" depths, the use of pneumatic tools would however, be necessary.

6.4 Founding Conditions

The results of the geotechnical soils investigation have indicated the absence of any undue geotechnical constraints for the "low" to "medium" activity soil and rock formations at the site concerned (below depths of approximately 1,5 m) and therefore confirmed the presence of favourable founding conditions (provided that certain precautionary construction measures are taken). The construction recommendations that would be applicable to Portions 221, 222 and 224 of the Farm Honingklip 178 - I.Q., are discussed below.

7. CONSTRUCTION RECOMMENDATIONS

The geotechnical assessment of the site indicated the following relevant criteria to be taken into consideration for the design and construction of both single and multi-storey structures :

7.1 National Home Builders Registration Council (NHBRC) Site Classification (Rev. No.1, February 1999)

7.1.1 Site Class Designation

It is considered that a **R/S Residential Site Classification** (NHBRC Tables 5 and 7, Part 1, Section 2) applies to the major portion of the site concerned, while a **C/S Classification** applies to mainly the north-eastern section of the site.

A **R/S** designation rating applies to shallow rock areas (including discontinuous minor hard rock outcrops and sub-outcrops) with overlaying gritty sand of hillwash and residual greenstone origin. Such soil materials indicate both a "low" **plasticity** and "low" **potential compressibility**.

A **C/S** designation rating applies to fine-grained soils (clayey silts and clayey sands of a low plasticity), as well as sand and gravelly soils. These should be only **slightly compressible** with limited **consolidation settlement** at some localities and should therefore indicate neglible soil movement when subjected to moisture re-distribution and/or substantial end bearing pressure under load.

7.1.2 Foundation Design, Building Procedures and Precautionary Measures - (Tehcno-EG Consultants c.c.)

- **R/S Designation Area - Normal Construction**

  It is recommended that conventional (unreinforced) strip footings should be laid down to a **minimum** depth of 1,3 m below the present ground surface (to the top of the footings) or at "hard" rock levels if these are present at shallower depths. The footings should be 700 mm wide with 230 mm thick concrete.

  Such foundations should provide a safe allowable bearing capacity of 150 - 200 kPa, which should be adequate for multi-storey buildings.

- **C/S Designation Area - Modified Normal Construction**

  This technique incorporates :

  (i) **Lightly reinforced** strip footings installed down to a **minimum** depth of 1,5 m below the present ground surface (to the top of the footings).

  (ii) **Compaction** of in situ soils below individual footings - this consists of the removal of the soil material below the planned footings to a depth and width of 1,5 times the foundation width (or down to hard rock if present at a shallower depth) and replacement with the excavated material compacted to 93% Mod.ASSHTO density at -1% to +2% optimum moisture content.

  A safe allowable bearing capacity of 150 - 200 kPa should be applicable for multi-storey buildings.

- The necessary site drainage and plumbing/service precautionary measures should be implemented for the whole of the Letamo site.

7.1.3 Summary Conclusion

The above observations and recommendations are based on the assumption that the geological conditions will not vary drastically from those encountered during the geotechnical site investigation (fairly widely-spaced trial pits).

7.2 Additional Construction Criteria (Techno-EG Consultants c.c.)

(a) Foundation trenches must be inspected by competent personnel prior to the casting of concrete footings.

(b) Articulation joints at all external and some internal doors and openings.

(c) Brick force should be included in all external and internal walls. It should be laid every course for the first four courses above the strip footings and thereafter every fourth course.

(d) 80 mm Unreinforced floor slabs are to placed on approximately 300mm of approved hard core granular material, compacted to 93% Mod.ASSHTO density.

(e) Adequate provision should be made for the drainage of surface run-off water and a concrete apron should be placed around all buildings to protect the underlying foundations from the infiltration of such water.

(f) All structures should have sound waterproofing, as development of perched groundwater conditions below the foundations are possible.

8. REFERENCES

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Van der Merwe, D.H. (1975) : The prediction of heave from the Plasticity Index and the percentage clay fraction in soils. Proceedings 6th Regional Conference for Africa on Soil Mechanics and Foundation Engineering, Durban, Vol.2, pp 166-167.

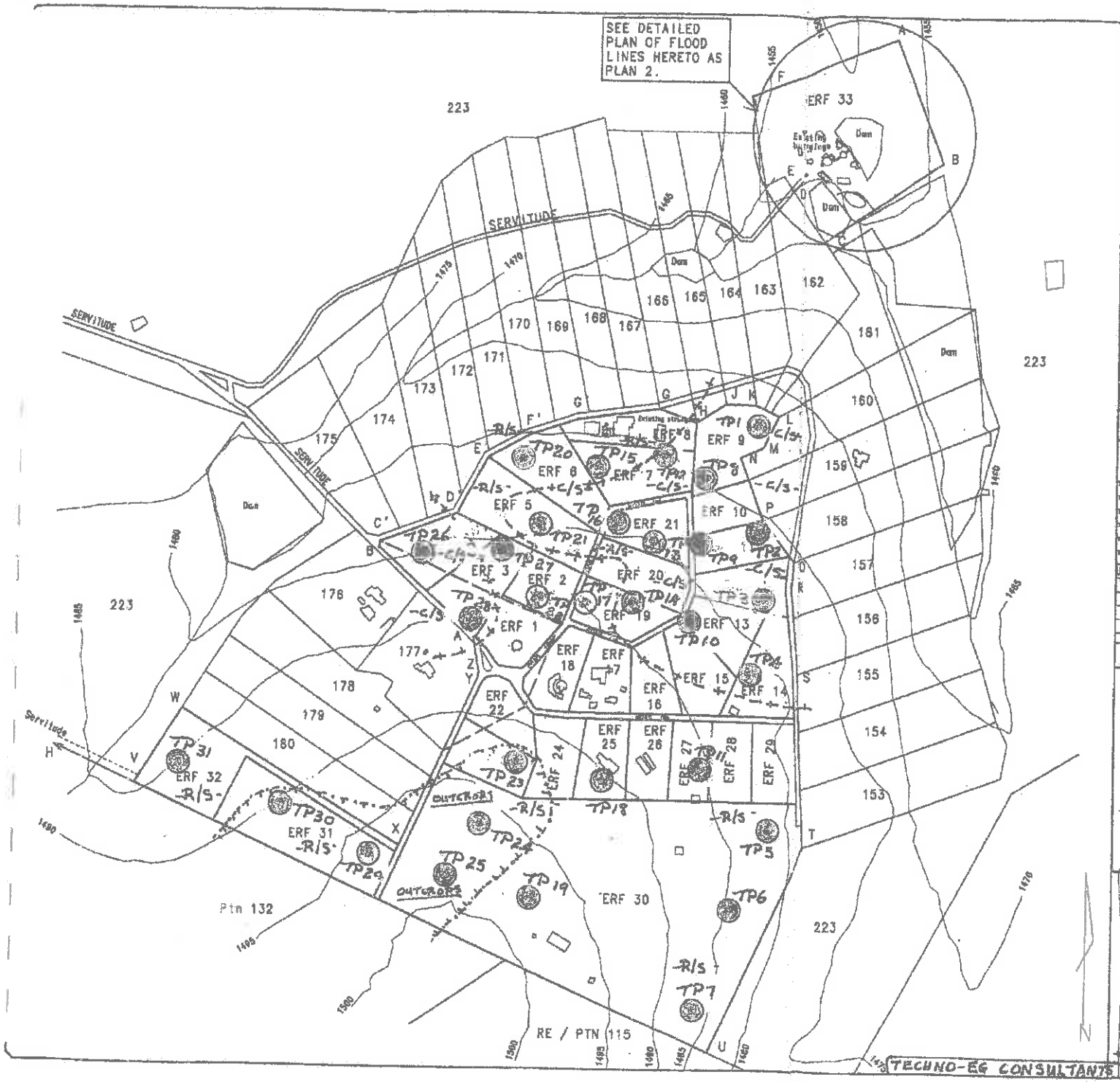
H.J. OLIVIER Pr.Sci.Nat.,PhD

Consulting Engineering Geologist

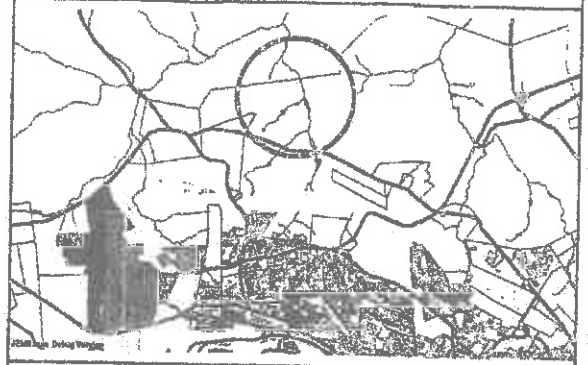
12 January 2005

DWG. No. LET/GEO/1

SITE PLAN SHOWING LOCALITIES OF TRIAL PITS



PROPOSED TOWNSHIP
LETAMO
SITUATED ON
PORTIONS 221-222 AND 224 OF THE FARM HONINGKLIP 178-IQ



LAND USE	NO OF ERVEN	AREA (Hectares)	% OF TOTAL AREA
"Special" for bush lodge purposes	33	4,97	9,86
"Special" for game farm management	8	0,84	1,67
"Special" for game lodge residences	2-6,9-29	16,54	32,83
"Special" for chapel & related activities	1	0,76	1,51
"Special" for staff accommodation	31	2,26	4,48
"Special" for road purposes		6,96	13,81
Undetermined	7,30,32	18,08	33,84
TOTAL		50,39	100%

GENERAL NOTES:

- THE FIGURES ABCDEFA, GHJKLMNPQRSTUVWXYZA'B'C'D'E'F'G' AND H'J'K'L'M'N' REPRESENT THE LAYOUT PLAN INDICATING THE NEW TOWNSHIP LETAMO
- THE CONTOURS WITH A 5M INTERVAL CONFORM TO THE STANDARDS LAID DOWN IN REGULATION 18 OF THE TOWN PLANNING AND TOWNSHIPS REGULATIONS
- ALL AREAS AND DISTANCES ARE APPROXIMATE AND SUBJECT TO A FINAL SURVEY
- ONLY ERF 35 IS AFFECTED BY A FLOOD LINE - SEE PLAN 2 HERETO.

SCALE 1: 5500

DWG. No. LET/GEO/1

PLAN SHOWING LOCALITIES OF TRIAL PITS

T'T'T' ROCK OUTCROPS

TP1 : TRIAL PIT

-R/S-+: NHBRC SITE CLASS

APPENDIX A

PROFILE LOGS OF TRIAL PITS

APPENDIX A

LETAMO ESTATE
(Portions 221 - 222 and 224, Farm Honingklip 178 I.Q.)

TRIAL PIT PROFILE LOGS

Contractor : Kosmos Plant Hire, CASE 528 Backactor
Operator : Longile
Excavation Dates : 11 & 12 November 2004

TP 1

0,0 - 0,3 m Brown, dry, **medium dense**, gritty SAND with occasional coarse grits and pebbles. Hillwash.

0,3 - 0,6 m Loosely packed hard rock pebbles and coarse grits in orange-brown, **medium dense** gritty SAND. Pebble Marker.

0,6 - 1,0 m Orange-brown, mottled orange, dry, **dense**, gritty SAND. Residual completely weathered mafic greenstone (Swaziland Supergroup).

1,0 - 1,9 m Pale green-grey, damp, **dense**, slightly clayey SAND. Residual completely weathered mafic GREENSTONE (Swaziland Supergroup), becoming **very dense** to **firm** with depth.

End of Trial Pit at 1,9 m - Refusal on medium weathered, **medium hard** rock, mafic greenstone.

Notes :
i. Groundwater table not encountered.
ii. Disturbed soil sample taken at 1,5 m.

TP 2

0,0 - 0,5 m Orange-brown, dry, **medium dense**, gritty SAND with grass roots and numerous coarse grits. Hillwash.

0,5 - 0,9 m Orange, mottled yellow, dry, **dense**, gritty SAND. Residual completely weathered mafic greenstone (Swaziland Supergroup).

0,9 - 2,2 m Pale green-grey, highly to completely weathered, closely fractured, **very soft** rock, mafic GREENSTONE (Swaziland Supergroup), becoming less weathered and **harder** with depth.

End of Trial Pit at 2,2 m - Refusal on slightly weathered, **hard** rock, mafic greenstone.

Note : Groundwater table not encountered.

TP 3

0,0 - 0,3 m Orange-brown, dry, **loose**, gritty SAND with grass roots and scattered coarse grits. Hillwash.

0,3 - 0,6 m Loosely packed coarse grits and hard rock pebbles in **dense** gritty SAND. Pebble Marker.

0,6 - 1,4 m Orange-red, mottled orange, damp, **medium dense**, slightly clayey SAND. Residual completely weathered shaly rock (Swaziland Supergroup).

1,4 - 2,6 m Yellow-grey, damp, **dense**, silty SAND. Residual completely weathered shaly greenstone (Swaziland Supergroup), becoming less weathered and **very dense** to **firm** with depth.

End of Trial Pit at 2,6 m - Refusal on medium weathered, **medium hard** rock, shaly greenstone.

Notes :

i. Groundwater table not encountered.

ii. Disturbed soil sample taken at 1,2 m.

TP 4

0,0 - 0,3 m Brown, mottled yellow, dry, **loose**, gritty SAND with numerous coarse grits and hard rock pebbles. Hillwash/Pebble Marker.

0,3 - 1,6 m Orange-grey, mottled orange, dry, **medium dense**, gritty SAND. Residual completely weathered, mafic greenstone (Swaziland Supergroup).

1,6 - 2,6 m Pale green-grey, highly to completely weathered, closely fractured, **very soft** rock, mafic GREENSTONE (Swaziland Supergroup), becoming less weathered and **harder** with depth.

End of Trial Pit at 2,6 m - Refusal on medium weathered, **medium hard** rock, mafic greenstone.

Notes :
i. Groundwater table not encountered.
ii. Disturbed soil sample taken at 2,0 m.

TP 5

0,0 - 0,3 m Light orange-brown, dry, **loose**, gritty SAND with grass roots and scattered hard rock pebbles. Hillwash.

0,3 - 0,6 m Yellow-grey, highly weathered, very closely fractured, **soft** rock, mafic GREENSTONE (Swaziland Supergroup) with numerous open stained joints.

0,6 - 0,8 m Pale green-grey, medium weathered, closely fractured, **hard** rock, mafic GREENSTONE (Swaziland Supergroup), becoming less weathered and **very hard** with depth.

End of Trial Pit at 0,8 m - Refusal on slightly weathered, **very hard** rock, mafic greenstone.

Note : Groundwater table not encountered.

TP 6

0,0 - 0,4 m Light orange-brown, dry, **loose** gritty SAND with grass roots and numerous coarse grits and small hard rock pebbles. Hillwash/Pebble Marker.

0,4 - 1,0 m Orange-grey, mottled orange, highly to completely weathered, closely fractured, **soft** rock, mafic GREENSTONE (Swaziland Supergroup), with numerous open stained joints.

1,0 - 1,4 m Pale green-grey, medium weathered, closely fractured, **medium hard** rock, mafic GREENSTONE (Swaziland Supergroup), becoming less weathered and **harder** with depth.

End of Trial Pit at 1,4 m - Refusal on slightly weathered, **hard** rock, mafic greenstone.

Note : Groundwater table not encountered.

TP 7

0,0 - 0,4 m Orange-brown, dry, **loose** gritty SAND with scattered coarse grits. Hillwash.

0,4 - 1,0 m Yellow-grey, highly weathered, closely fractured, blocky, **medium hard** rock, mafic GREENSTONE (Swaziland Supergroup), with numerous open stained joints.

1,0 - 1,4 m Pale green-grey, medium weathered, closely fractured, blocky, **hard** rock, mafic GREENSTONE (Swaziland Supergroup) with numerous open stained joints.

End of Trial Pit at 1,4 m - Refusal on slightly weathered, fractured, **very hard** rock, mafic greenstone.

Notes :

i. Groundwater table not encountered.

ii. Disturbed soil sample taken at 0,3 m.

TP 8

0,0 - 0,3 m Orange-brown, dry, **medium dense**, gritty SAND with grass roots and rare hard rock fragments. Hillwash.

0,3 - 0,8 m Orange, mottled yellow, dry, **dense** gritty SAND. Residual completely weathered mafic greenstone (Swaziland Supergroup).

0,8 - 1,8 m Pale green-grey, dry, highly weathered, closely fractured, **soft** rock, mafic GREENSTONE (Swaziland Supergroup), becoming less weathered and **harder** with depth.

End of Trial Pit at 1,8 m - Refusal on medium weathered, **medium hard** rock, mafic greenstone.

Note: Groundwater table not encountered.

TP 9

0,0 - 0,4 m Orange-brown, dry, **medium dense**, gritty SAND with grass roots and numerous coarse grits. Hillwash.

0,4 - 0,9 m Orange-brown, mottled yellow, **dense**, slightly clayey, gritty SAND. Residual completely weathered shaly greenstone (Swaziland Supergroup).

0,9 - 2,6 m Yellow-grey, damp, highly to completely weathered, thinly laminated, **very soft** rock, shaly GREENSTONE (Swaziland Supergroup), becoming less weathered and **harder** with depth.

End of Trial Pit at 2,6 m - Refusal on medium weathered, **medium hard** rock, shaly greenstone.

Notes :

i. Groundwater table not encountered.

ii. Disturbed soil sample taken at 0,8 m.

TP 10

0,0 - 0,5 m Brown, dry, **loose**, gritty SAND with grass roots and numerous coarse grits and hard rock pebbles. Hillwash/Pebble Marker.

0,5 - 1,3 m Orange-grey, mottled orange, damp, **medium dense**, gritty SAND. Residual completely weathered, mafic GREENSTONE (Swaziland Supergroup).

1,3 - 2,7 m Yellow-grey, becoming pale green-grey, highly weathered, closely fractured, **very soft** rock, mafic GREENSTONE (Swaziland Supergroup), becoming less weathered and **harder** with depth.

End of Trial Pit at 2,7 m - Refusal on medium weathered, **medium hard** rock, mafic greenstone.

Note : Groundwater table not encountered.

TP 11

0,0 - 0,1 m Yellow-brown, dry, **loose** gritty SAND. Fill material.

0,1 - 0,6 m Yellow-grey, medium weathered, closely fractured, **soft** rock, mafic GREENSTONE (Swaziland Supergroup).

0,6 - 0,9 m Pale grey, slightly weathered, very closely fractured, **hard** rock, mafic GREENTONE (Swaziland Supergroup) with open stained joints, becoming less weathered and **very hard** with depth.

End of Trial Pit at 0,9 m - Refusal on slightly weathered, **very hard** rock, mafic greenstone.

Note : Groundwater table not encountered.

TP 12

0,0 - 0,2 m Orange-brown, dry, **loose**, gritty SAND with grass roots and scattered coarse grits. Hillwash.

0,2 - 0,6 m Loosely packed hard rock pebbles and coarse grits in orange-brown, **medium dense** gritty SAND. Pebble Marker.

0,6 - 1,5 m Orange-red, dry, **medium dense**, clayey SAND with relicts of hard rock quartz veins. Residual completely weathered, mafic greenstone (Swaziland Supergroup).

1,5 - 2,5 m Yellow-grey, highly to completely weathered, closely fractured, **soft** rock, mafic GREENSTONE (Swaziland Supergroup), becoming less weathered and **harder** with depth.

End of Trial Pit at 2,5 m - Refusal on medium weathered, **medium hard** rock, mafic greenstone.

Note : Groundwater table not encountered.

TP 13

0,0 - 0,4 m Orange-brown, dry, **loose**, gritty SAND with numerous coarse grits and hard rock pebbles. Hillwash/Pebble Marker.

0,4 - 1,0 m Orange-red, mottled yellow, **medium dense** gritty SAND. Residual completely weathered mafic GREENSTONE (Swaziland Supergroup).

1,0 - 2,5 m Pale green-grey, highly to completely weathered, closely fractured, **very soft** rock, mafic GREENSTONE (Swaziland Supergroup), becoming less weathered and **harder** with depth.

End of Trial Pit at 2,5 m - Refusal on medium weathered, **medium hard** rock, mafic greenstone.

Notes :

i. Groundwater table not encountered.

ii. Disturbed soil sample taken at 0,6 m.

TP 14

0,0 - 0,7 m Orange-brown, dry, **loose**, gritty SAND with numerous coarse grits and hard rock pebbles. Hillwash/Pebble Marker.

0,7 - 1,2 m Orange-brown, dry, **medium dense**, gritty SAND. Residual completely weathered mafic greenstone (Swaziland Supergroup).

1,2 - 2,8 m Pale green-grey, mottled yellow, **dense**, gritty SAND. Residual completely weathered mafic greenstone (Swaziland Supergroup), becoming less weathered and **very dense** to **firm** with depth.

End of Trial Pit at 2,8 m - Refusal on medium weathered, **medium hard** rock, mafic greenstone.

Note : Groundwater table not encountered.

TP 15

0,0 - 0,2 m Light brown, dry, **loose**, gritty SAND with numerous coarse grits and scattered hard rock pebbles. Hillwash/Pebble Marker.

0,2 - 0,6 m Yellow-brown, mottled orange, highly to completely weathered, very closely fractured, **very soft** rock, mafic GREENSTONE (Swaziland Supergroup).

0,6 - 2,6 m Pale green-grey, highly weathered, closely fractured, **soft** rock, mafic GREENSTONE (Swaziland Supergroup), becoming less weathered and **harder** with depth.

End of Trial Pit at 2,6 m - Refusal on slightly weathered, **hard** rock, mafic greenstone.

Notes :

i. Groundwater table not encountered.

ii. Disturbed soil sample taken at 0,5 m.

TP 16

0,0 - 0,2 m Yellow-brown, dry, **loose**, gritty SAND with numerous coarse grits. Hillwash.

0,2 - 0,5 m Orange-yellow, dry, **medium dense**, gritty SAND. Residual completely weathered mafic greenstone (Swaziland Supergroup).

0,5 - 1,3 m Pale green-grey, medium weathered, very closely fractured, **soft** rock, mafic GREENSTONE (Swaziland Supergroup), becoming less weathered and **harder** with depth.

End of Trial Pit at 1,3 m - Refusal on slightly weathered, widely fractured, **hard** rock, mafic greenstone.

Note : Groundwater table not encountered.

TP 17

0,0 - 0,2 m Yellow-brown, dry, **loose**, gritty SAND with grass roots. Hillwash.

0,2 - 0,6 m Orange-yellow, mottled yellow, dry, **dense**, gritty SAND. Residual completely weathered mafic greenstone (Swaziland Supergroup).

0,6 - 0,8 m Pale green-grey, medium weathered, very closely fractured, **medium hard** rock, mafic GREENSTONE (Swaziland Supergroup), becoming less weathered and **harder** with depth.

End of Trial Pit at 0,8 m - Refusal on slightly weathered, **very hard** rock, mafic greenstone.

Note : Groundwater table not encountered.

TP 18

0,0 - 0,2 m Light brown, dry, **loose**, gritty SAND with grass roots. Hillwash.

0,2 - 0,5 m Loosely packed hard rock pebbles and fragments in **medium dense**, gritty SAND. Pebble Marker.

0,5 - 1,1 m Yellow-grey, highly weathered, very closely fractured, blocky, **soft** rock, mafic GREENSTONE (Swaziland Supergroup), becoming less weathered and **harder** with depth.

End of Trial Pit at 1,1 m - Refusal on medium weathered, **medium hard** rock, mafic greenstone.

Note : Groundwater table not encountered.

TP 19

0,0 - 0,5 m Light grey, highly to completely weathered, closely fractured, blocky, **soft** rock, mafic GREENTONE (Swaziland Supergroup) with open stained joints, becoming less weathered and **harder** with depth.

0,5 - 2,2 m Green-grey, medium weathered, closely fractured, blocky, **medium hard** rock, mafic GREENSTONE (Swaziland Supergroup) with open stained joints, becoming less weathered and **harder** with depth.

End of Trial Pit at 2,2 m - Refusal on slightly weathered, **hard** rock, mafic greenstone.

Note : Groundwater table not encountered.

TP 20

0,0 - 0,3 m Light orange-brown, dry, **loose**, gritty SAND with numerous grits and scattered hard rock pebbles. Hillwash/Pebble Marker.

0,3 - 1,0 m Yellow-grey, mottled yellow, highly weathered, very closely fractured, **soft** rock, mafic GREENSTONE (Swaziland Supergroup).

1,0 - 1,6 m Pale green-grey, medium weathered, very closely fractured, **medium hard** rock, mafic GREENSTONE (Swaziland Supergroup).

End of Trial Pit at 1,6 m - Refusal on slightly weathered, **hard** rock, mafic greenstone.

Note : Groundwater table not encountered.

TP 21

0,0 - 0,4 m Light brown, dry, **loose**, gritty SAND with numerous coarse grits and hard rock pebbles. Hillwash/Pebble Marker.

0,4 - 1,0 m Orange-brown, dry, **medium dense**, gritty SAND. Residual completely weathered mafic greenstone (Swaziland Supergroup).

1,0 - 2,5 m Light yellow-grey, damp, **dense**, silty SAND. Residual completely weathered mafic greenstone (Swaziland Supergroup), becoming less weathered and **very dense** to **firm** with depth.

End of Trial Pit at 2,5 m - Refusal on medium weathered, **medium hard** rock, mafic greenstone.

Notes :

i. Groundwater table not encountered.

ii. Disturbed soil sample taken at 1,5 m.

TP 22

0,0 - 0,4 m Brown, dry, **loose**, gritty SAND with numerous coarse grits and hard rock pebbles. Hillwash/Pebble Marker.

0,4 - 2,4 m Yellow-grey and pale green-grey, medium weathered, very closely fractured, **medium hard** rock, mafic GREENSTONE with numerous open stained joints (Swaziland Supergroup), becoming less weathered and **harder** with depth.

End of Trial Pit at 2,4 m - Refusal on slightly weathered, **very hard** rock, mafic greenstone.

Note : Groundwater table not encountered.

TP 23

0,0 - 0,3 m Brownish-grey, dry, **loose**, gritty SAND with grass roots and scattered coarse grits. Hillwash.

0,3 - 1,4 m Green-grey, mottled yellow, highly to completely weathered, very closely fractured, laminated, low-dipping, **very soft** rock, shaly GREENSTONE (Swaziland Supergroup).

1,4 - 2,7 m Green-grey, medium weathered, closely fractured, **soft** rock, metamorphosed shaly GREENSTONE (Swaziland Supergroup), with numerous open stained joints, becoming less weathered and **harder** with depth.

End of Trial Pit at 2,7 m - Refusal on medium weathered, **medium hard** rock, shaly metamorphosed greenstone.

Note : Groundwater table not encountered.

TP 24

0,0 - 0,4 m Grey, dry, **loose**, gritty SAND (Hillwash) with scattered coarse grits and hard rock pebble stringer at 0,4 m. Pebble Marker.

0,4 - 1,4 m Orange-brown, damp, **medium dense**, gritty SAND. Residual completely weathered, mafic rock, greenstone (Swaziland Supergroup).

1,4 - 2,3 m Pale green-grey, medium weathered, closely fractured, blocky, **medium hard** rock, mafic GREENSTONE (Swaziland Supergroup), becoming less weathered and **harder** with depth.

End of Trial Pit at 2,3 m - Refusal on slightly weathered, **hard** rock, mafic greenstone.

Notes :

i. Groundwater table not encountered.

ii. Disturbed soil sample taken at 0,9 m.

TP 25

0,0 - 0,2 m Grey, dry, **loose**, gritty SAND with grass roots and scattered coarse grits. Hillwash.

0,2 - 1,1 m Grey, mottled brown, highly to completely weathered, very closely fractured, laminated, **very soft** rock, metamorphosed shaly GREENSTONE (Swaziland Supergroup).

1,1 - 2,4 m Pale green-grey, medium weathered, closely fractured, laminated, **soft** rock, metamorphosed shaly GREENSTONE (Swaziland Supergroup), becoming less weathered and **harder** with depth.

End of Trial Pit at 2,4 m - Refusal on medium to slightly weathered, **hard** rock mafic greenstone.

Note : Groundwater table not encountered.

TP 26

0,0 - 0,4 m Orange-brown, dry, **loose**, gritty SAND with grass roots and scattered coarse grits. Hillwash.

0,4 - 1,6 m Yellow-grey, mottled orange, highly to completely weathered, very closely fractured, blocky, **very soft** rock, mafic GREENSTONE.

1,6 - 3,0 m Pale green-grey, highly weathered, closely fractured, **soft** rock, mafic GREENSTONE (Swaziland Supergroup), becoming less weathered and **harder** with depth.

End of Trial Pit at 3,0 m - Refusal on medium weathered, **medium hard** rock, mafic greenstone.

Note : Groundwater table not encountered.

TP 27

0,0 -0,4 m Orange-brown, dry, **loose**, gritty SAND with grass roots and scattered coarse grits. Hillwash.

0,4 - 0,9 m Yellow-grey, mottled yellow, **medium dense**, gritty SAND. Residual completely weathered mafic greenstone (Swaziland Supergroup).

0,9 - 1,8 m Pale green-grey, highly weathered, closely fractured, blocky, **medium hard** rock, mafic GREENSTONE (Swaziland Supergroup), becoming less weathered and **harder** with depth.

End of Trial Pit at 1,8 m - Refusal on medium weathered, **hard** rock, mafic greenstone.

Note : Groundwater table not encountered.

TP 28

0,0 - 0,4 m Yellow-brown, dry, **medium dense**, gritty SAND with scattered coarse grits and grass roots. Hillwash.

0,4 - 0,6 m **Loosely packed** hard rock pebbles and coarse grits in **medium dense** gritty sand. Pebble Marker.

0,6 - 1,2 m Orange-yellow, damp, **medium dense**, slightly clayey SAND. Residual completely weathered shaly greenstone (Swaziland Supergroup).

1,2 - 2,8 m Yellow-grey, mottled yellow, damp, **dense**, slightly clayey SAND. Residual completely weathered shaly greenstone (Swaziland Supergroup), becoming less weathered and **very dense** to **firm** with depth.

End of Trial Pit at 2,8 m - Refusal on medium weathered, **medium hard** rock, shaly greenstone.

Note : Groundwater table not encountered.

TP 29

0,0 - 0,2 m Light brown, dry, **loose**, gritty SAND with grass roots and scattered coarse grits. Hillwash.

0,2 - 0,7 m **Loosely packed** hard rock small boulders in light brown **medium dense** gritty SAND. Tallus.

0,7 - 2,8 m Yellow-grey, mottled brown, highly weathered, very closely fractured, thinly laminated, **soft** rock, metamorphosed GREENSTONE (Swaziland Supergroup), becoming less weathered and **harder** with depth.

End of Trial Pit at 2,8 m - Refusal on slightly weathered, **hard** rock, metamorphosed greenstone.

Notes :

i. Groundwater table not encountered.

ii. Disturbed soil sample taken at 1,5 m.

TP 30

0,0 - 0,3 m Light brown, dry, **loose**, gritty SAND with grass roots and scattered coarse grits. Hillwash.

0,3 - 1,1 m Green-grey, highly weathered, very closely fractured, thinly laminated, **soft** rock, metamorphosed mafic GREENSTONE (Swaziland Supergroup), becoming less weathered and **harder** with depth.

End of Trial Pit at 1,1 m - Refusal on medium weathered, **medium hard** rock, metamorphosed greenstone.

Note : Groundwater table not encountered.

TP 31

0,0 - 0,5 m Light brown, damp, **dense**, silty SAND with grass roots. Hillwash.

0,5 - 1,5 m Yellow-grey, mottled grey, highly to completely weathered, closely fractured, laminated, **very soft** rock, metamorphosed shaly GREENSTONE (Swaziland Supergroup).

1,5 - 2,5 m Dark grey, highly weathered, closely fractured, laminated **soft** rock, metamorphosed shaly GREENSTONE (Swaziland Supergroup), becoming less weathered and **harder** with depth.

End of Trial Pit at 2,5 m - Refusal on medium weathered, **medium hard** rock, metamorphosed greenstone.

Notes :

i. Groundwater table not encountered.

ii. Disturbed soil sample taken at 1,0 m.

APPENDIX B

LABORATORY TEST RESULTS
(Foundation Indicator Tests)

MATROLAB GROUP (PTY.) LTD.

- CIVIL ENGINEERING SERVICES -

418 RUSTIC AVENUE SILVERTONDALE
P.O. BOX 912 387 SILVERTON 0127

Tel. : 012-8049552/3
Fax : 012-8049555
Email : bennievn@matrolab.co.za

TEST RESULTS

TECHNO-EG CONSULTANTS
P.O. BOX 21880
HELDERKRUIN
1020
Attention: Dr H Olivier

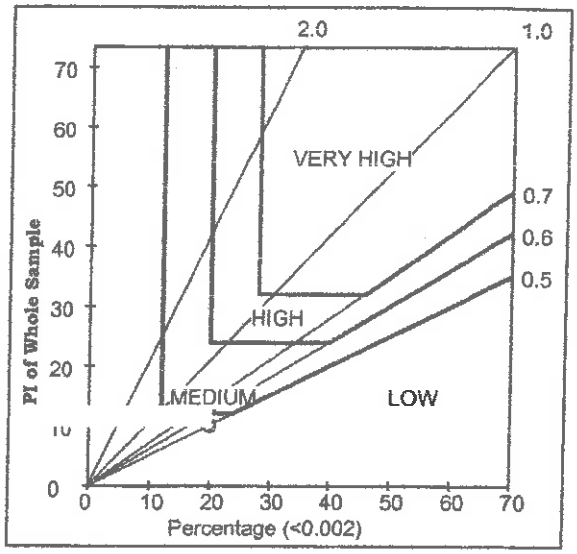
Project : Letamo

Your Ref :
Our Ref : 0/PL/13307
Date Reported : 25.11.2004

FOUNDATION INDICATOR (ASTM: D422)

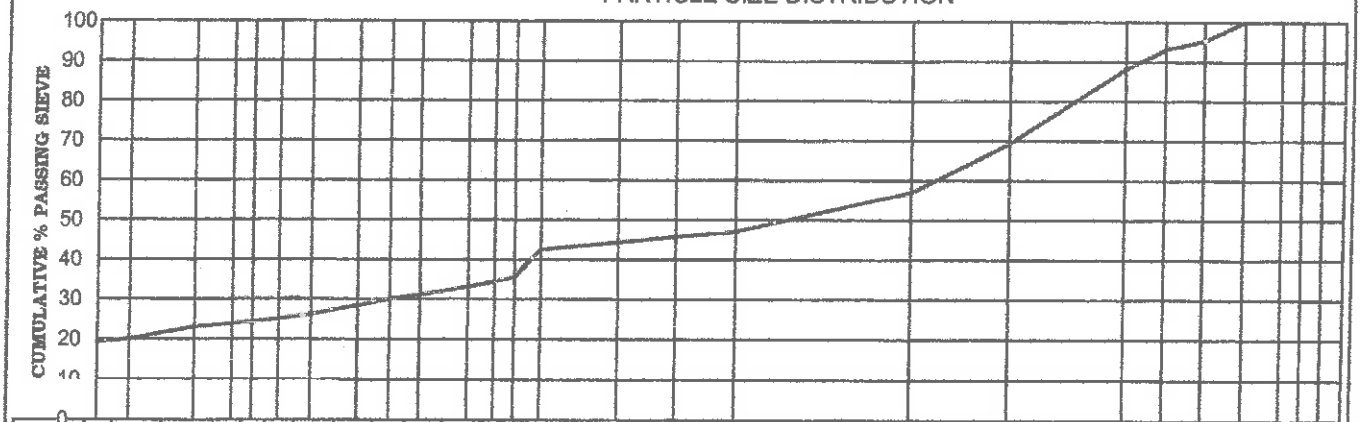
Sample No. : A9557 Hole No. : TP 3 Depth (mm) : 1200
Material Description : Dusky Red Silty Clayey Sandy Gravel

Liquid Limit (%)	: 53	Moisture Content (%)	: 12.3
Plasticity Index	: 22	P.R.A. Classification	: A-7-5(5)
Linear Shrinkage (%)	: 11.5	Unified Soil Classification	: SM
Grading Modulus	: 1.54	Activity	: 0.50
Percentage (<0.002)	: 20.0	Heave Classification	: LOW
PI of Whole Sample	: 10		



	Clay (%)	Silt (%)	Sand (%)	Gravel (%)	Classification
Jennings	23.8	10.6	22.6	43.1	SANDY CLAY
Astm	23.8	18.6	26.9	30.7	SANDY CLAY
British Standard	20.0	15.6	21.3	43.1	SANDY CLAY

PARTICLE SIZE DISTRIBUTION



Sieve Size (mm)	0.0015	0.0020	0.0036	0.0050	0.0060	0.0075	0.0100	0.0150	0.0200	0.0260	0.0400	0.0500	0.0600	0.0750	0.1500	0.2500	0.4250	2.0000	4.7500	13.200	19.000	26.500	37.500	53.000	63.000	75.000
% Pass. Sieve	19	20	23	24	24	25	26	28	30	31	33	34	36	42	44	46	47	57	69	88	93	95	100	100	100	100

JENN	CLAY		SILT			SAND			GRAVEL	
ASTM	CLAY		SILT		FINE SAND		MEDIUM SAND	COARSE SAND	GRAVEL	
BS	CLAY	FINE SILT	MEDIUM SILT	COARSE SILT	FINE SAND	MEDIUM SAND	COARSE SAND	FINE GRAVEL	MEDIUM GRAVEL	COARSE GRAVEL

Remarks :

FORM: A6 Program ver 2.3

for MATROLAB GROUP (PTY) LTD.

MATROLAB GROUP (PTY.) LTD.

- CIVIL ENGINEERING SERVICES -

418 RUSTIC AVENUE SILVERTONDALE
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TEST RESULTS

TECHNO-EG CONSULTANTS
P.O. BOX 21880
HELDERKRUIN
1020
Attention: Dr H Olivier

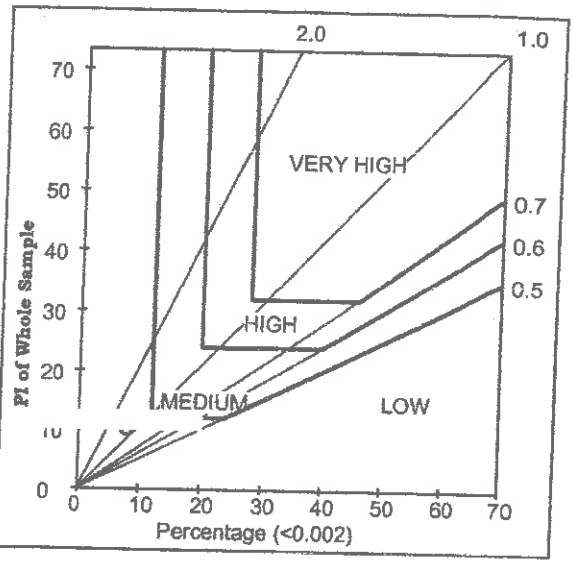
Project : Letamo

Your Ref :
Our Ref : 0/PL/13307
Date Reported : 25.11.2004

FOUNDATION INDICATOR (ASTM: D422)

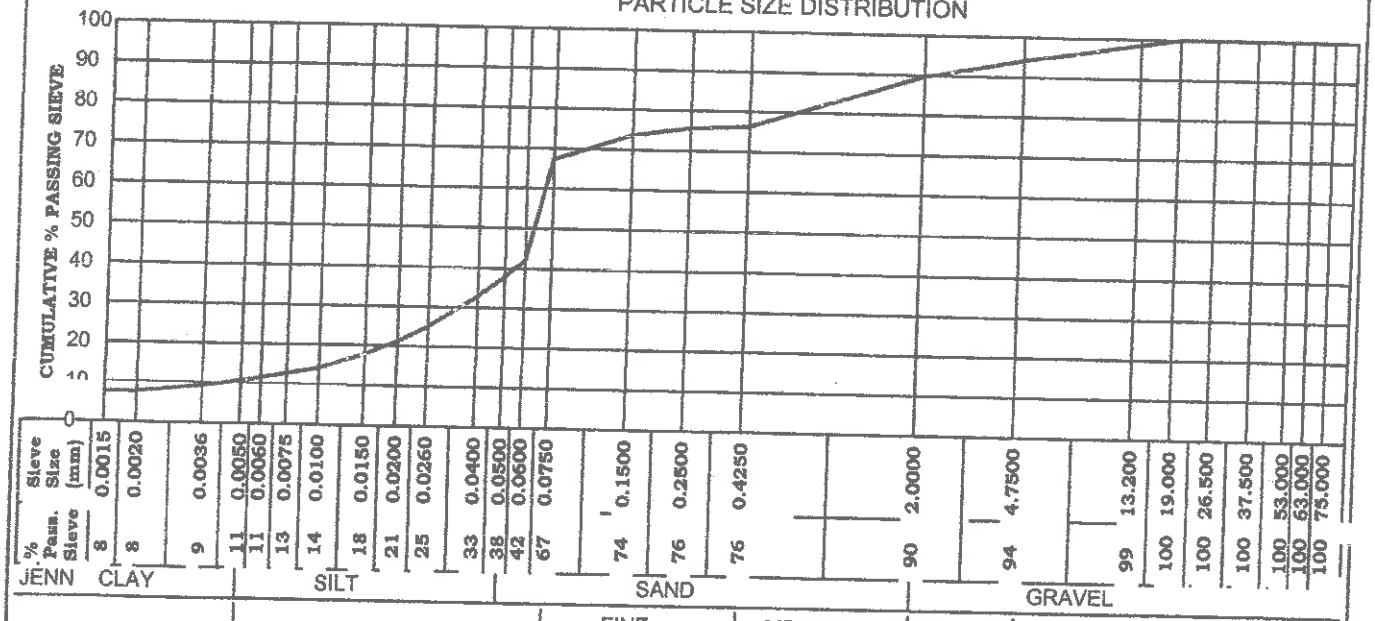
Sample No. : A9558 Hole No. : TP 4 Depth (mm) : 2000
Material Description : Dk Yellow Clayey Sandy Silt

Liquid Limit (%)	: 38	Moisture Content (%)	: 14.9
Plasticity Index	: 13	P.R.A. Classification	: A-6(8)
Linear Shrinkage (%)	: 6.5	Unified Soil Classification	: OL
Grading Modulus	: 0.67	Activity	: 1.31
Percentage (<0.002)	: 8.0	Heave Classification	: LOW
PI of Whole Sample	: 10		



	Clay (%)	Silt (%)	Sand (%)	Gravel (%)	Classification
Jennings	10.6	27.0	52.1	10.3	SILTY SAND
Astm	10.6	56.7	26.9	5.8	SANDY SILT
British Standard	7.6	34.7	47.4	10.3	SILTY SAND

PARTICLE SIZE DISTRIBUTION



Sieve Size (mm)	0.0015	0.0020	0.0036	0.0050	0.0060	0.0075	0.0100	0.0150	0.0200	0.0260	0.0400	0.0500	0.0600	0.0750	0.1500	0.2500	0.4250	2.0000	4.7500	13.200	19.000	26.500	37.500	53.000	63.000	75.000
% Pass. Sieve	8	8	9	11	11	13	14	18	21	25	33	38	42	67	74	76	76	90	94	99	100	100	100	100	100	100

JENN CLAY | SILT | SAND | GRAVEL

ASTM CLAY | SILT | FINE SAND | MEDIUM SAND | COARSE SAND | GRAVEL

BS CLAY | FINE SILT | MEDIUM SILT | COARSE SILT | FINE SAND | MEDIUM SAND | COARSE SAND | FINE GRAVEL | MEDIUM GRAVEL | COARSE GRAVEL

Remarks :

FORM: A6 Program ver 2.3

for MATROLAB GROUP (PTY) LTD.

MATROLAB GROUP (PTY.) LTD.

- CIVIL ENGINEERING SERVICES -

418 RUSTIC AVENUE SILVERTONDALE
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TEST RESULTS

TECHNO-EG CONSULTANTS
P.O. BOX 21880
HELDERKRUIN
1020
Attention: Dr H Olivier

Project : Letamo

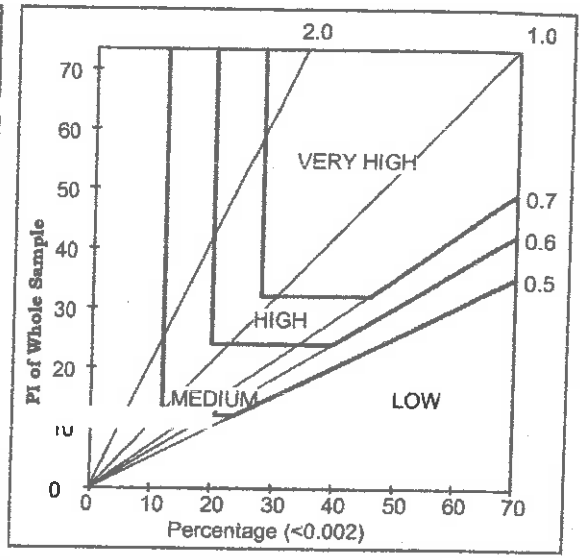
Your Ref :
Our Ref : 0/PL/13307
Date Reported : 25.11.2004

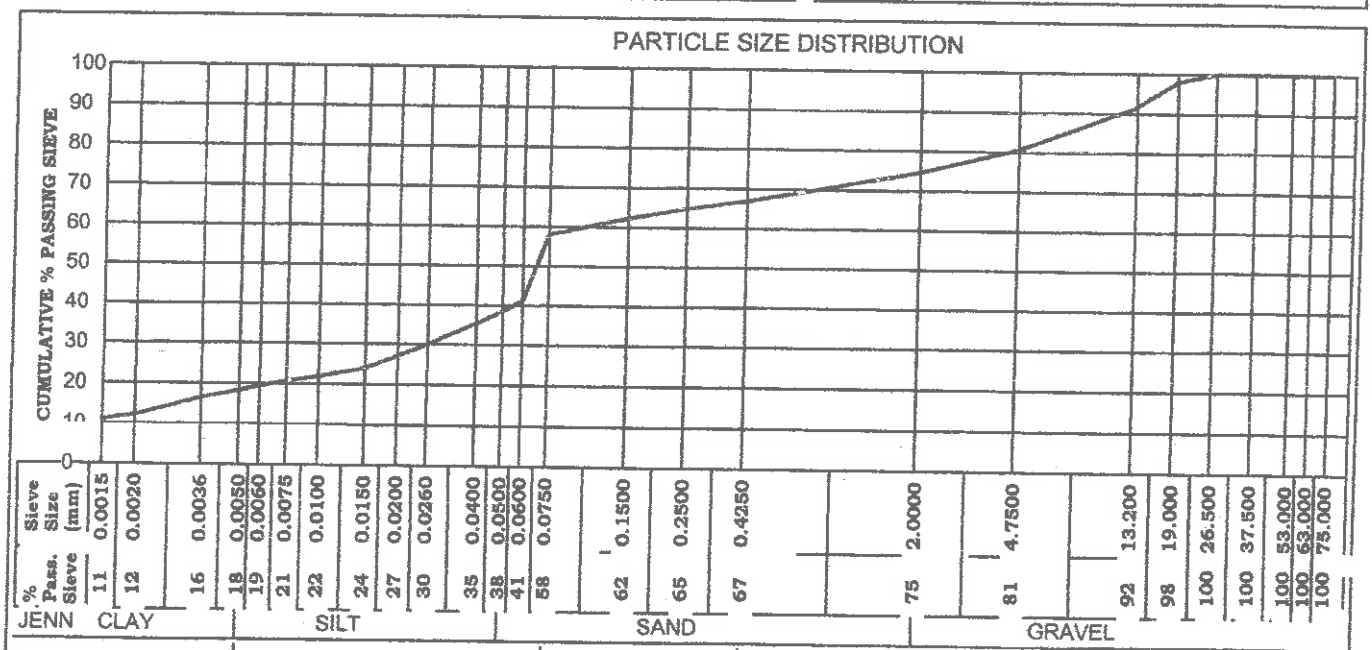
FOUNDATION INDICATOR (ASTM: D422)

Sample No. : A9565 Hole No. : TP 7 Depth (mm) : 300
Material Description : Dk Rd Br Clayey Gravelly Sandy Silt

Liquid Limit (%)	: 38	Moisture Content (%)	: 7.0
Plasticity Index	: 17	P.R.A. Classification	: A-6(7)
Linear Shrinkage (%)	: 9.0	Unified Soil Classification	: CL
Grading Modulus	: 1.01	Activity	: 0.91
Percentage (<0.002)	: 12.0	Heave Classification	: LOW
PI of Whole Sample	: 11		

	Clay (%)	Silt (%)	Sand (%)	Gravel (%)	Classification
Jennings	18.2	20.1	36.3	25.4	CLAYEY SAND
Astm	18.2	39.8	22.6	19.4	CLAYEY SILT
British Standard	12.1	29.1	33.3	25.4	SANDY SILT





Remarks :

FORM: A6 Program ver 2.3

for MATROLAB GROUP (PTY) LTD.

MATROLAB GROUP (PTY.) LTD.

- CIVIL ENGINEERING SERVICES -

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TEST RESULTS

TECHNO-EG CONSULTANTS
P.O. BOX 21880
HELDERKRUIN
1020
Attention: Dr H Olivier

Project : Letamo

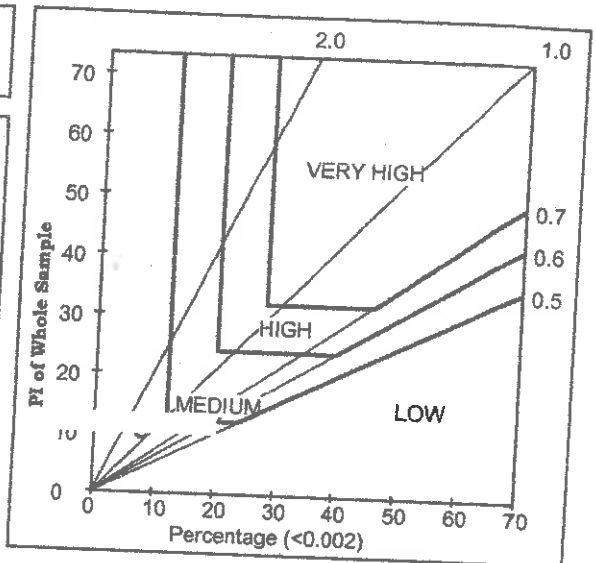
Your Ref :
Our Ref : 0/PL/13307
Date Reported : 25.11.2004

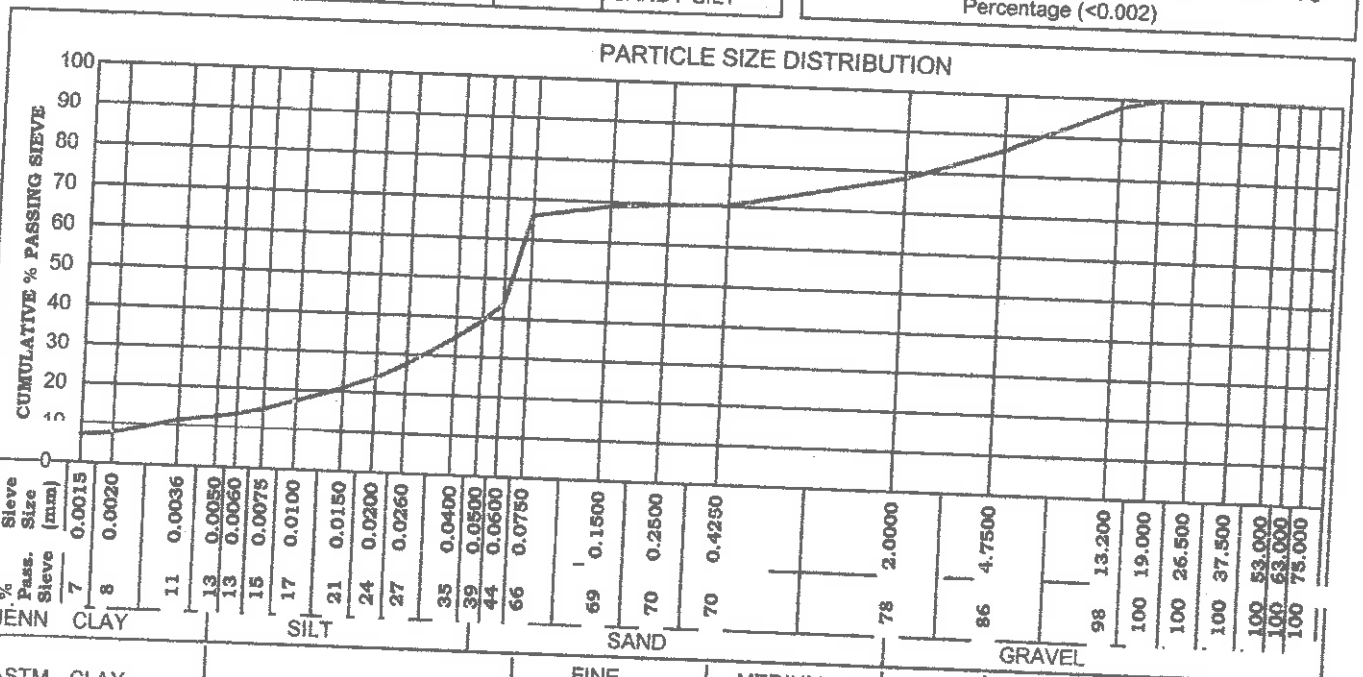
FOUNDATION INDICATOR (ASTM: D422)

Sample No. : A9559 Hole No. : TP 4 Depth (mm) : 800
Material Description : Dk Yl Or Clayey Gravelly Sandy Silt

Liquid Limit (%)	: 39	Moisture Content (%)	: 13.8
Plasticity Index	: 14	P.R.A. Classification	: A-6(8)
Linear Shrinkage (%)	: 7.5	Unified Soil Classification	: OL
Grading Modulus	: 0.85	Activity	: 1.30
Percentage (<0.002)	: 8.0	Heave Classification	: LOW
PI of Whole Sample	: 10		

	Clay (%)	Silt (%)	Sand (%)	Gravel (%)	Classification
Jennings	12.6	26.7	39.2	21.6	SILTY SAND
Astm	12.6	53.4	20.2	13.8	SANDY SILT
British Standard	7.7	36.0	34.7	21.6	SANDY SILT





Remarks :

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TEST RESULTS

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P.O. BOX 21880
HELDERKRUIN
1020
Attention: Dr H Olivier

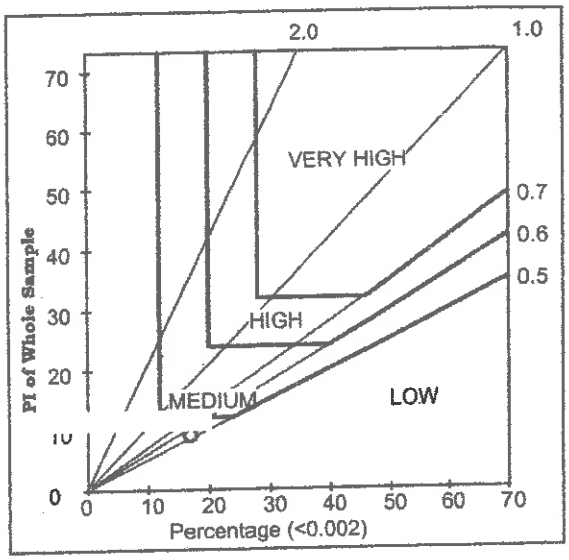
Project : Letamo

Your Ref :
Our Ref : 0/PL/13307
Date Reported : 25.11.2004

FOUNDATION INDICATOR (ASTM: D422)

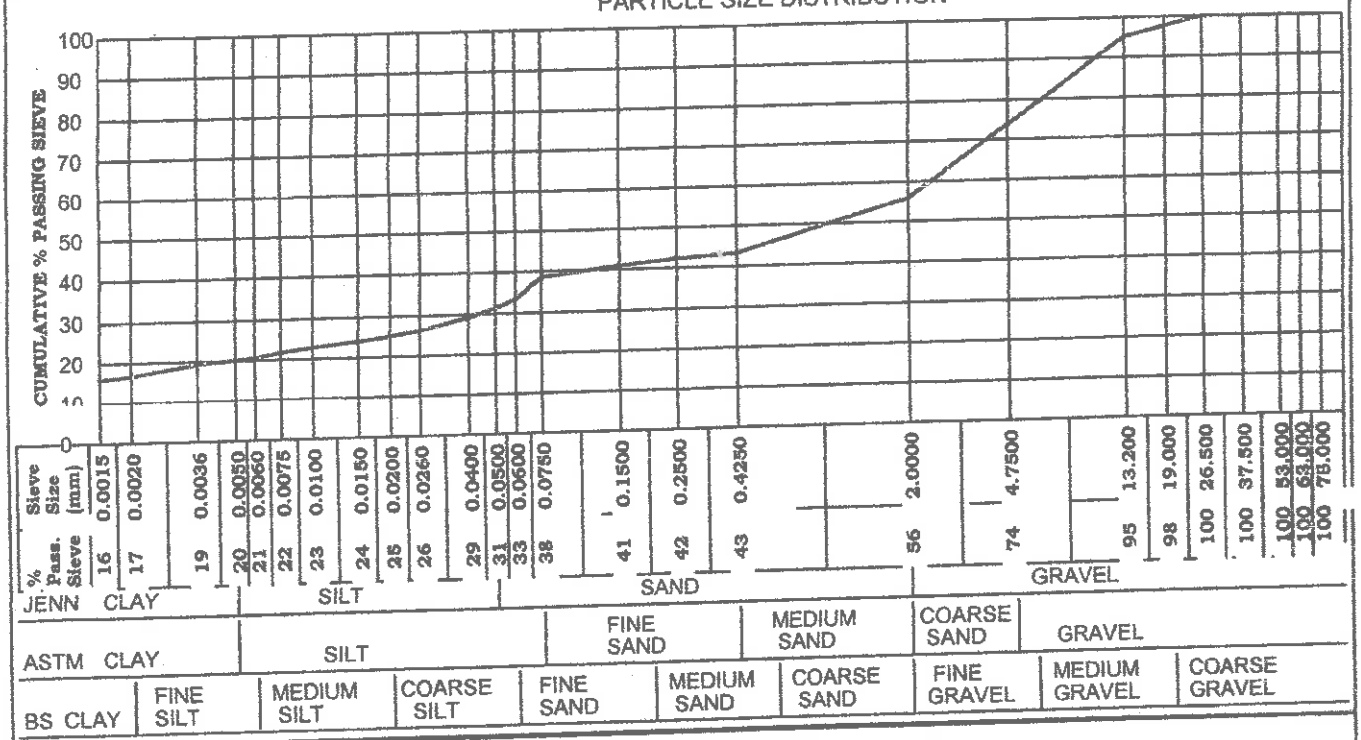
Sample No. : A9560 Hole No. : TP 13 Depth (mm) : 600
Material Description : Dk Rd Or Silty Clayey Gravelly Sand

Liquid Limit (%)	: 49	Moisture Content (%)	: 10.0
Plasticity Index	: 20	P.R.A. Classification	: A-7-6(3)
Linear Shrinkage (%)	: 10.0	Unified Soil Classification	: SM
Grading Modulus	: 1.63	Activity	: 0.54
Percentage (<0.002)	: 17.0	Heave Classification	: LOW
PI of Whole Sample	: 9		



	Clay (%)	Silt (%)	Sand (%)	Gravel (%)	Classification
Jennings	20.1	11.2	24.5	44.2	SANDY CLAY
Astm	20.1	18.4	35.4	26.2	CLAYEY SAND
British Standard	16.6	16.7	22.5	44.2	CLAYEY SAND

PARTICLE SIZE DISTRIBUTION



Remarks :

for MATROLAB GROUP (PTY) LTD.

FORM: A6 Program ver 2.3

MATROLAB GROUP (PTY.) LTD.

- CIVIL ENGINEERING SERVICES -

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Email : bennievn@matrolab.co.za

TEST RESULTS

TECHNO-EG CONSULTANTS
P.O. BOX 21880
HELDERKRUIN
1020
Attention: Dr H Olivier

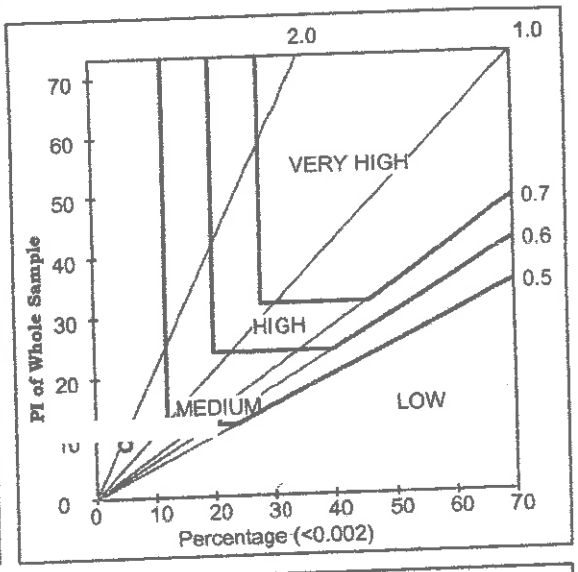
Project : Letamo

Your Ref :
Our Ref : 0/PL/13307
Date Reported : 25.11.2004

FOUNDATION INDICATOR (ASTM: D422)

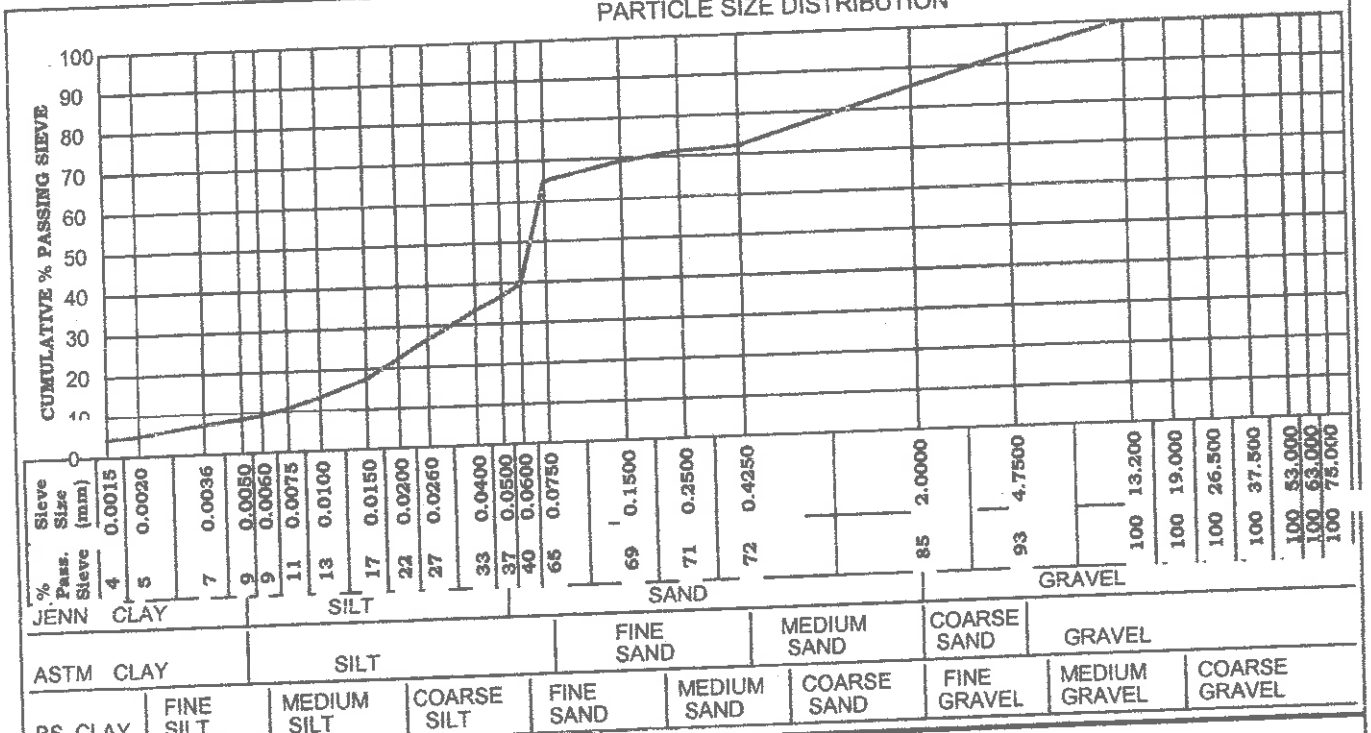
Sample No. : A9562 Hole No. : TP 15 Depth (mm) : 500
Material Description : Dk Yl Or Sandy Silt

Liquid Limit (%)	: 36	Moisture Content (%)	: 7.6
Plasticity Index	: 12	P.R.A. Classification	: A-6(7)
Linear Shrinkage (%)	: 6.0	Unified Soil Classification	: CL
Grading Modulus	: 0.78	Activity	: 1.80
Percentage (<0.002)	: 5.0	Heave Classification	: LOW
PI of Whole Sample	: 9		



	Clay (%)	Silt (%)	Sand (%)	Gravel (%)	Classification
Jennings	8.5	28.0	48.7	14.7	SILTY SAND
Astm	8.5	56.4	27.7	7.4	SANDY SILT
British Standard	5.0	34.7	45.6	14.7	SILTY SAND

PARTICLE SIZE DISTRIBUTION



Remarks :

for MATROLAB GROUP (PTY) LTD.

FORM: A6 Program ver 2.3

MATROLAB GROUP (PTY.) LTD.

- CIVIL ENGINEERING SERVICES -

513 PLASTIC AVENUE SILVERTONDALE
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TEST RESULTS

TECHNO-EG CONSULTANTS
P.O. BOX 21880
HELDERKRUIN
0220
Attention: Dr H Olivier

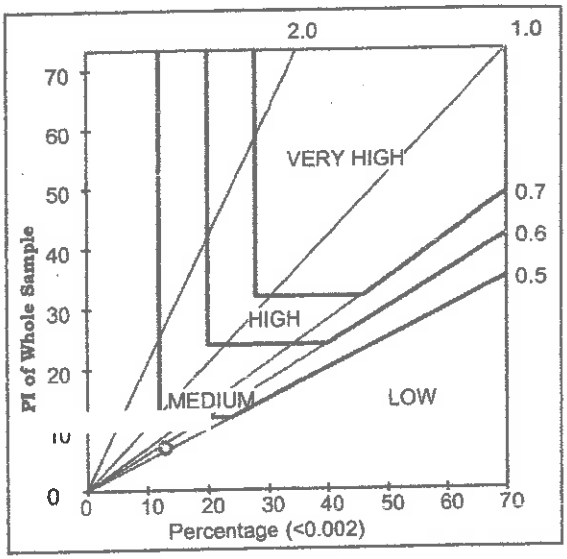
Project : Letamo

Your Ref :
Our Ref : 0/PL/13307
Date Reported : 25.11.2004

FOUNDATION INDICATOR (ASTM: D422)

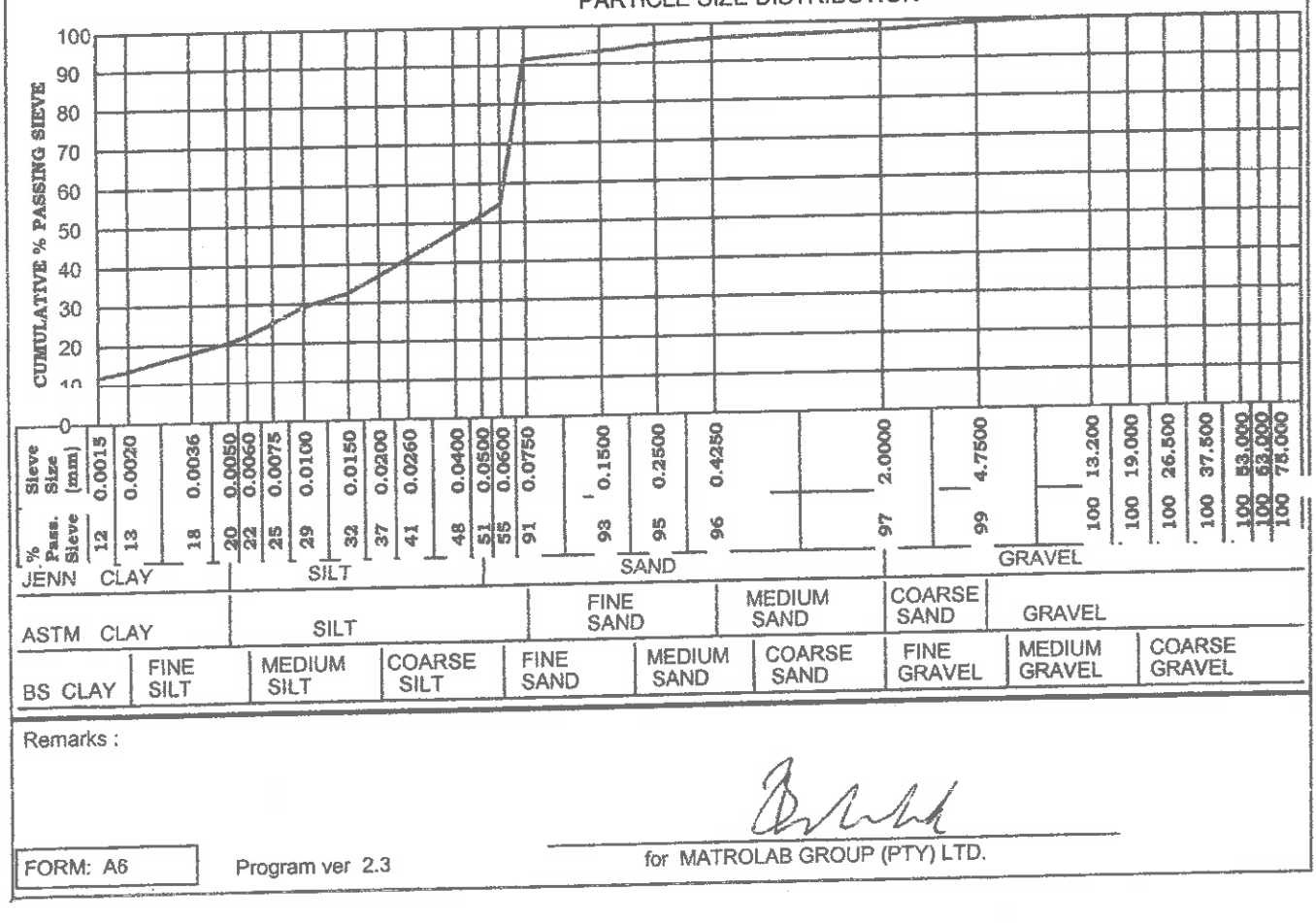
Sample No. : A9561 Hole No. : TP 21 Depth (mm) : 1500
Material Description : Lt Yl Or Clayey Silt

Liquid Limit (%)	: 38	Moisture Content (%)	: 4.3
Plasticity Index	: 7	P.R.A. Classification	: A-4(8)
Linear Shrinkage (%)	: 3.0	Unified Soil Classification	: OL
Grading Modulus	: 0.15	Activity	: 0.52
Percentage (<0.002)	: 13.0	Heave Classification	: LOW
PI of Whole Sample	: 7		



	Clay (%)	Silt (%)	Sand (%)	Gravel (%)	Classification
Jennings	20.2	31.3	46.0	2.5	CLAYEY SAND
Astm	20.2	71.1	7.8	0.8	CLAYEY SILT
British Standard	13.5	41.3	42.7	2.5	SANDY SILT

PARTICLE SIZE DISTRIBUTION



Remarks :

for MATROLAB GROUP (PTY) LTD.

FORM: A6 Program ver 2.3

MATROLAB GROUP (PTY.) LTD.

- CIVIL ENGINEERING SERVICES -

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TEST RESULTS

TECHNO-EG CONSULTANTS
P.O. BOX 21880
HELDERKRUIN
1020
Attention: Dr H Olivier

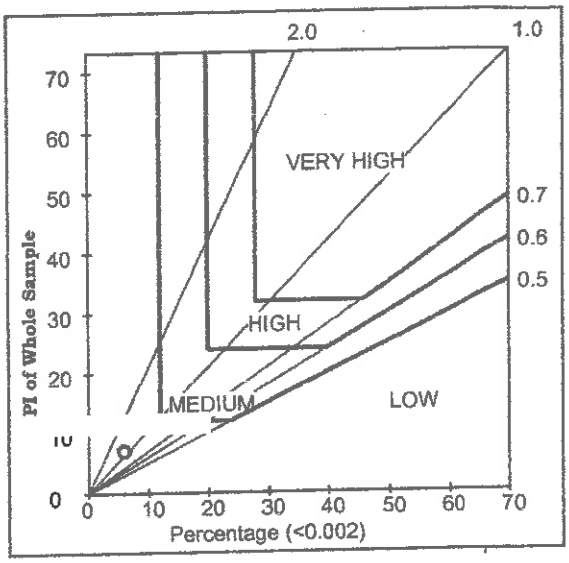
Project : Letamo

Your Ref :
Our Ref : 0/PL/13307
Date Reported : 25.11.2004

FOUNDATION INDICATOR (ASTM: D422)

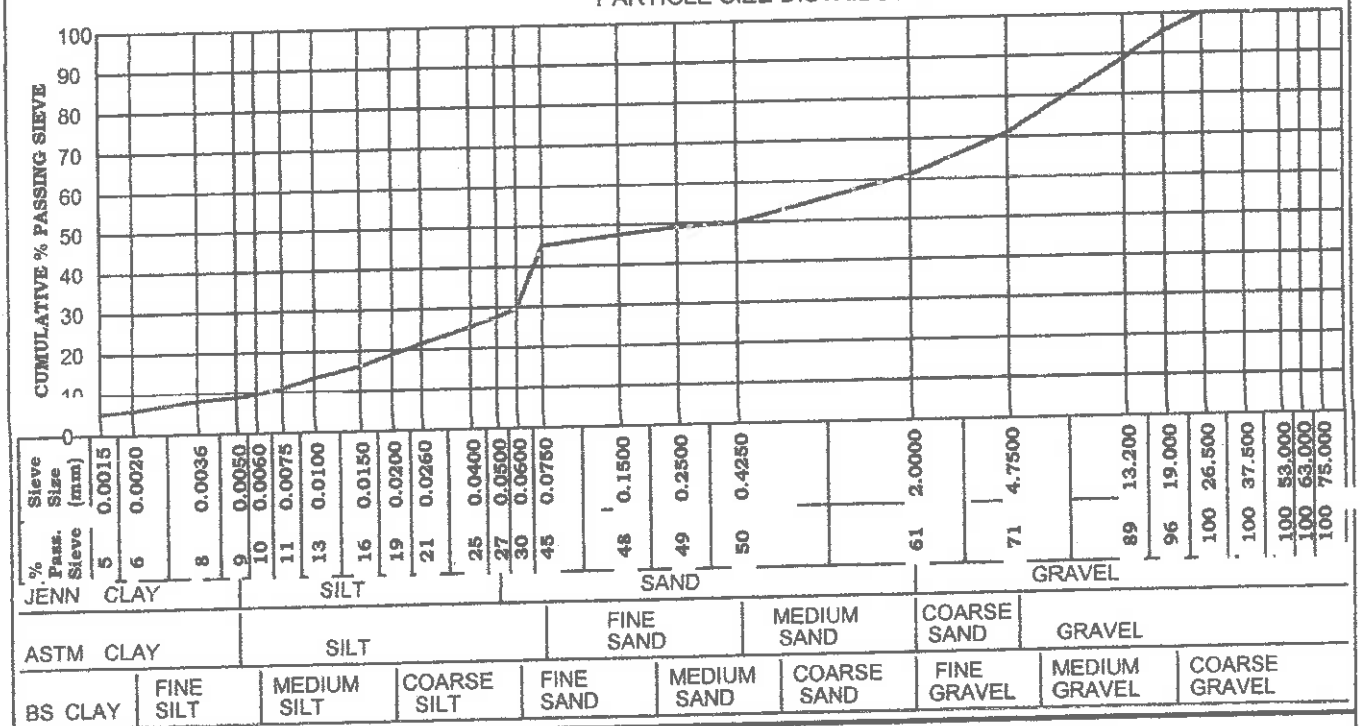
Sample No. : A9566 Hole No. : TP 24 Depth (mm) : 900
Material Description : Dk Rd Br Sandy Gravelly Silt

Liquid Limit (%)	: 41	Moisture Content (%)	: 13.3
Plasticity Index	: 14	P.R.A. Classification	: A-7-6(3)
Linear Shrinkage (%)	: 7.0	Unified Soil Classification	: SM
Grading Modulus	: 1.44	Activity	: 1.17
Percentage (<0.002)	: 6.0	Heave Classification	: LOW
PI of Whole Sample	: 7		



	Clay (%)	Silt (%)	Sand (%)	Gravel (%)	Classification
Jennings	9.0	18.5	33.6	38.9	SILTY SAND
Astm	9.0	36.2	25.9	29.0	SANDY SILT
British Standard	6.0	23.7	31.4	38.9	SILTY SAND

PARTICLE SIZE DISTRIBUTION



Remarks :

for MATROLAB GROUP (PTY) LTD.

FORM: A6 Program ver 2.3

MATROLAB GROUP (PTY.) LTD.

- CIVIL ENGINEERING SERVICES -

418 RUSTIC AVENUE SILVERTONDALE
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TEST RESULTS

TECHNO-EG CONSULTANTS
P.O. BOX 21880
HELDERKRUIN
1020
Attention: Dr H Olivier

Project : Letamo

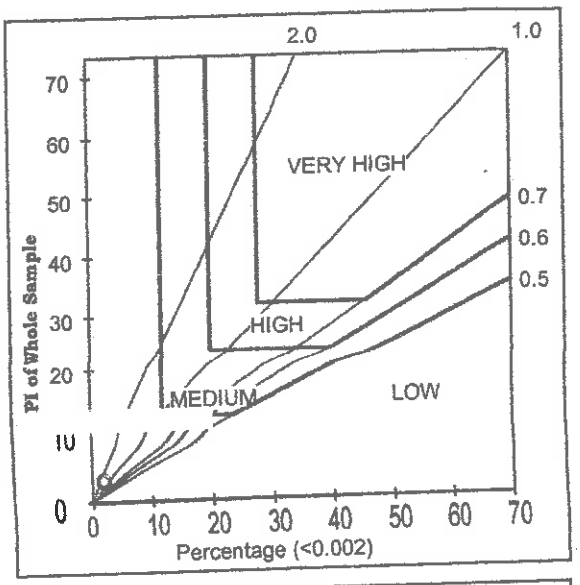
Your Ref :
Our Ref : 0/PL/13307
Date Reported : 25.11.2004

FOUNDATION INDICATOR (ASTM: D422)

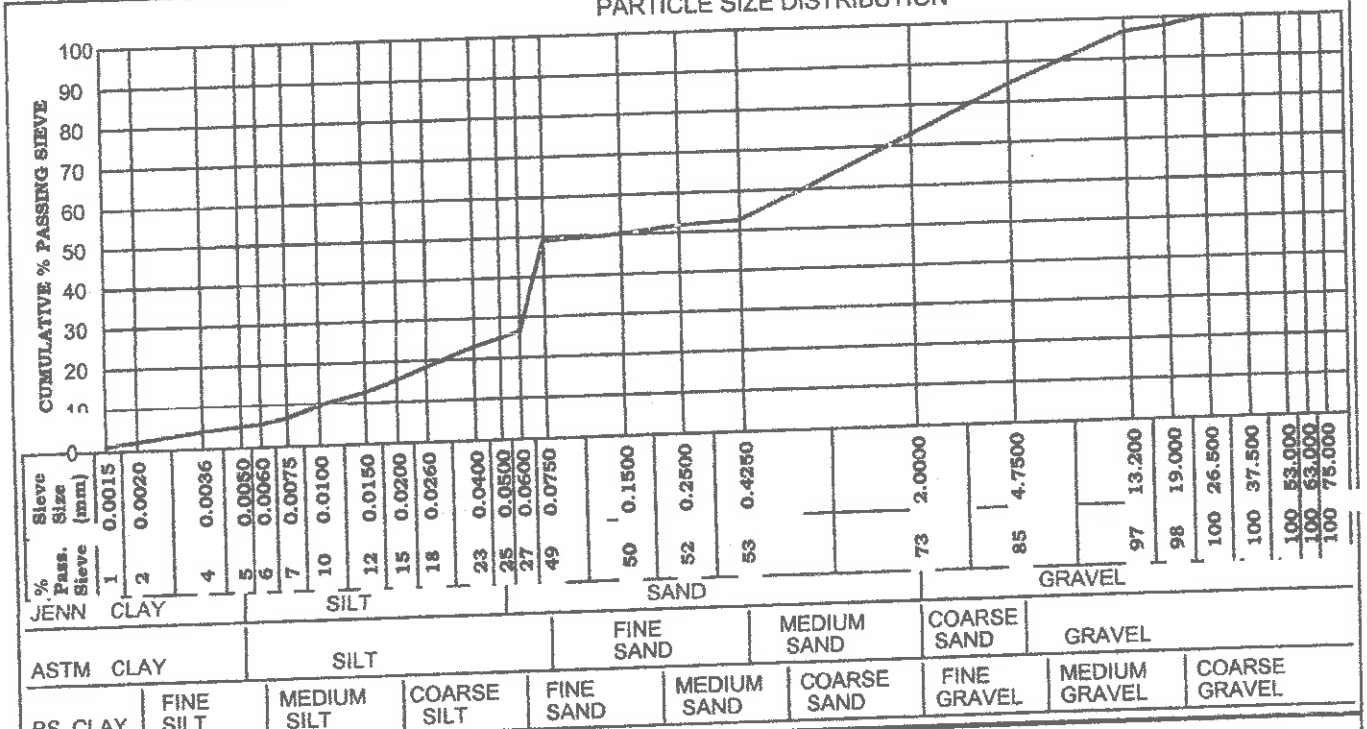
Sample No. : A9564 Hole No. : TP 29 Depth (mm) : 1500
Material Description : Dk Rd Br Gravelly Sandy Silt

Liquid Limit (%)	: 33	Moisture Content (%)	: 8.5
Plasticity Index	: 6	P.R.A. Classification	: A-4(3)
Linear Shrinkage (%)	: 3.0	Unified Soil Classification	: SM
Grading Modulus	: 1.26	Activity	: 1.48
Percentage (<0.002)	: 2.0	Heave Classification	: LOW
PI of Whole Sample	: 3		

	Clay (%)	Silt (%)	Sand (%)	Gravel (%)	Classification
Jennings	5.2	19.6	48.0	27.2	SILTY SAND
Astm	5.2	43.8	35.6	15.4	SANDY SILT
British Standard	2.0	24.5	46.2	27.2	SILTY SAND



PARTICLE SIZE DISTRIBUTION



Remarks :

for MATROLAB GROUP (PTY) LTD.

FORM: A6 Program ver 2.3

MATROLAB GROUP (PTY.) LTD.

- CIVIL ENGINEERING SERVICES -

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TEST RESULTS

TECHNO-EG CONSULTANTS
P.O. BOX 21880
HELDERKRUIN
1020
Attention: Dr H Olivier

Project : Letamo

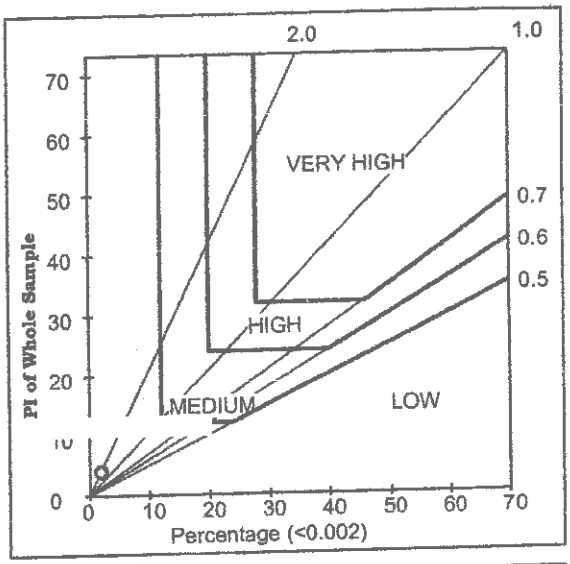
Your Ref :
Our Ref : 0/PL/13307
Date Reported : 25.11.2004

FOUNDATION INDICATOR (ASTM: D422)

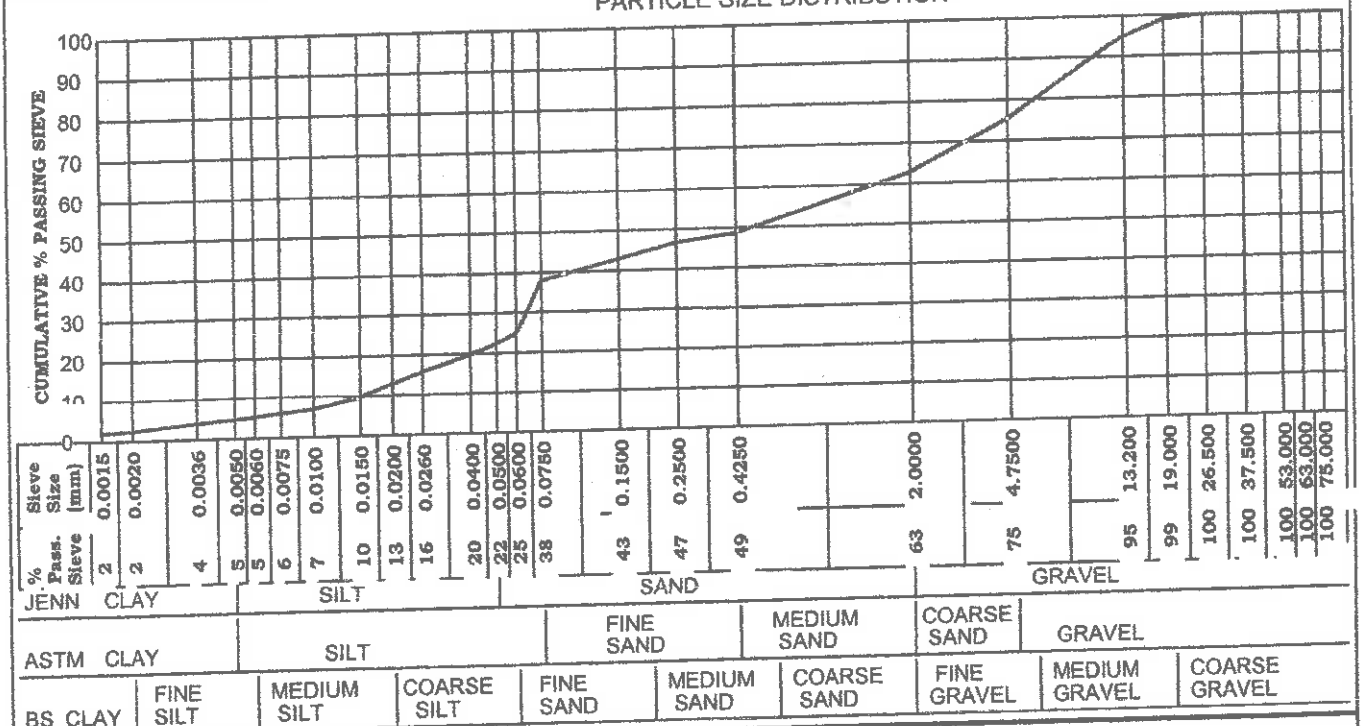
Sample No. : A9563 Hole No. : TP 31 Depth (mm) : 1000
Material Description : Dk Rd Br Gravelly Silty Sand

Liquid Limit (%)	: 35	Moisture Content (%)	: 13.4
Plasticity Index	: 8	P.R.A. Classification	: A-4(1)
Linear Shrinkage (%)	: 4.0	Unified Soil Classification	: SM
Grading Modulus	: 1.51	Activity	: 1.67
Percentage (<0.002)	: 2.0	Heave Classification	: LOW
PI of Whole Sample	: 4		

	Clay (%)	Silt (%)	Sand (%)	Gravel (%)	Classification
Jennings	4.8	17.5	40.6	37.1	SILTY SAND
Astm	4.8	33.0	37.5	24.7	SILTY SAND
British Standard	2.4	22.3	38.1	37.1	SILTY SAND



PARTICLE SIZE DISTRIBUTION



Remarks :

for MATROLAB GROUP (PTY) LTD.

FORM: A6 Program ver 2.3

APPENDIX F – CIVIL ENGINEERING SERVICES REPORT

PROPOSED SUBDIVISION OF ERF 30 LETAMO

OUTLINE SERVICES SCHEME REPORT FOR PROPOSED SUBDIVISION OF ERF 30 LETAMO

17 April 2019

Prepared By:
Ilifa Africa Engineers (Pty) Ltd
20 Ontdekkers Road, Roodepoort
Tel : (011) 955 5334
Fax: (086) 515 2225

Prepared For:
Letamo Estate (Pty) Ltd
Kromdraai Road,1739

TITLE : OUTLINE SCHEME REPORT	OUTLINE SERVICES SCHEME REPORT FOR PROPOSED SUBDIVISION OF ERF 30 LETAMO	
ILIFA PROJECT NO : K18-092-01	DATE : 17 April 2019	REPORT STATUS : Revision 2

CARRIED OUT BY :	COMMISSIONED BY :
Ilifa Africa Engineers (Pty) Ltd 20 Ontdekkers Road KRUGERSDORP 1734 Tel: (011) 955 5334 E-mail: jaco.m@ilifa.biz	URBAN DEVCO 54 Shannon Road Noordheuwel Krugersdorp Tell: (010) 591 2517 E-mail: manda@urbandevco.co.za
AUTHOR:	CLIENT CONTACT PERSON:
T. Khulu	Manda Smit

SYNOPSIS :

OUTLINE SERVICES SCHEME REPORT FOR PROPOSED SUBDIVISION OF ERF 30 LETAMO

KEY WORDS :

Proposed development, Water, sewer, roads and stormwater Services

QUALITY VERIFICATION — SACAS ISO 9001:2008

This report has been prepared under the controls established by a certified ISO 9001:2008 quality management system developed by Ecosphere (Pty) Ltd.

Verification	Capacity	Name	Signature	Date
By Author	Technician	T. Khulu (ND Eng. Civil)		17/04/2019
Checked by	Professional Technologist	J.v S Mouton (Pr Tech Eng.)		17/04/2019
Authorized by	Executive Office Manager.	A.B. Kriel (Pr Eng.)		17/04/2019

No. of Copies Made:	Print Date:	No of Reprints:	Date:
1	17/04/2019	Nil	

Copies sent to:	Deliver Method:
Manda Smit	Transmitted

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FIGURES

TABLES

ANNEXURES

1. INTRODUCTION

This Outline Services Scheme Report addresses the installation of the civil engineering services required for the proposed subdivision of erf 30 Letamo.

The report is submitted to the Mogale City Local Municipality (MCLM) to assist with the approval of the proposed subdivision of Erf 30.

2. BACKGROUND

2.1 PROPERTY DESCRIPTION

Erf 30 is situated in the jurisdiction area of the MCLM. The site is situated North of N14 and East of R540. The total area of erf 30 is 15.1345 ha.

The topography of the area forms part of a rural area with a moderate relief sloping downwards towards the East with an approximately slope of 5%.

2.2 EXISTING ZONING

The property is currently zoned "Undetermined".

2.3 PROPOSED ZONING

The particulars of the proposed subdivision of erf 30 Letamo are as follows:

a) Portions A to K "Residential 1" with a density of one dwelling per erf
   - Primary Use: As per scheme
   - Consent Use: A Second dwelling unit
   - Height: As per Scheme
   - Coverage: As per Scheme
   - Building Lines: As per Scheme

b) Portions L "Residential 1" with a density of one dwelling per 3000 m²
   - Primary Use: As per scheme
   - Consent Use: A Second dwelling unit
   - Height: As per Scheme
   - Coverage: As per Scheme

   - Building Lines: As per Scheme

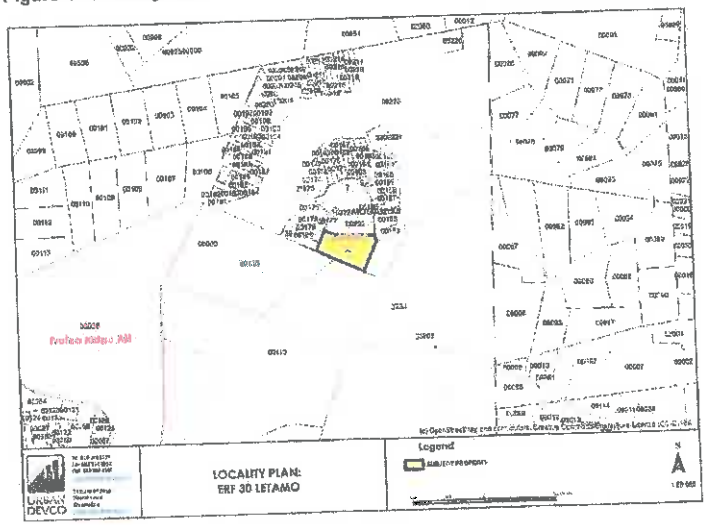
c) Portions M & N "Private Open Space"

d) Portion O "Special"
   - Primary Use: Access, access control, engineering services and uses incidental thereto.

Table 1 : Schedule of Rights

DESCRIPTION	ZONING	NO.
Portions A to K	"Residential 1" with a density of one dwelling per erf	11
Portions L	"Residential 1" with a density of one dwelling per 3000 m²	1
Portions M & N	"Private Open Space"	2
Portion O	"Special" Access, access control, engineering services and uses incidental thereto	1

Figure 1 : Locality Plan



3. EXISTING SERVICES

3.1 WATER RETICULATION

Letamo Estate is currently connected to the existing municipal water network along the R540. From the bulk connection, water is reticulated through a water network, owned and operated by Letamo Game Farm (Pty) Ltd, providing connections to each individual stand of Letamo Estate.

3.2 SANITATION

No existing municipal sewer infrastructure exists in Letamo Estate. Each stand is utilizing septic tanks for sewage disposal.

3.3 ROADS

Access to Erf 30 is currently from a public gravel road, maintained by Letamo Game Farm (Pty) Ltd, via road R540 located along the Southern boundary of Letamo Estate.

3.4 STORMWATER

No existing municipal stormwater infrastructure is located within the vicinity of the proposed development.

4. PROPOSED SERVICES

The design criteria's are in accordance with, but not limited to, the following guidelines:

- Guidelines for Human Settlement Planning and Design (Red Book)
- Johannesburg Water (JW) Design Standards and Guidelines
- Johannesburg Roads Agency (JRA) Roads and Stormwater Manual
- Drainage Manual

4.1 WATER RETICULATION

4.1.1 WATER DEMAND

The estimated Average Daily Demand (ADD) for Erf 30 is 7.2 kl/day, summarized in Table 2.

Table 2 : Water Consumption

ZONING	QNT	UNIT DEMAND	ADD (kl/day)	FLOW RATE (l/s)
Portions A to K "Res 1"	11 No	0.600 kl/Erf/day	6.6	0.076
Portions L "Res 1"	1 No	0.600 kl/Erf/day	0.6	0.007
Portions M & N "P.o.S"	2 No		0.0	0.000
Portion O "Special for Access"	1 No		0.0	0.000
TOTAL			7.2	0.083
PEAK FLOW RATE (PF=25) Excluding Fire Flow				2.083

4.1.2 PROPOSED WATER NETWORK

The proposed portions of Erf 30 will connect to the existing water network, owned and operated by Letamo Game Farm (Pty) Ltd.

4.2 SANITATION

4.2.1 SEWAGE OUTFLOW

The estimated Dry Weather Flow (DWF) for Erf 30 is 6.0 kl/day, summarized in Table 3.

Table 3 : Sewage Outflow

ZONING	QNT	OUTFLOW	DWF (kl/day)	FLOW RATE (l/s)
Portions A to K "Res 1"	11 No	0.500 kl/Erf/day	5.5	0.064
Portions L "Res 1"	1 No	0.000 kl/Erf/day	0.5	0.006
Portions M & N "P.o.S"	2 No		0.0	0.000
Portion O "Special for Access"	1 No		0.0	0.000
TOTAL			6.0	0.069
Peak Flow Rate (PF=2.5)				0.174
Add Inflow and Infiltration (15%)				0.026
PEAK DAILY WET WEATHER FLOW (PDWWF)				0.200

4.2.2 Proposed Sewage Network

The proposed portions of Erf 30 will not connect to a sewer network due to a lack of existing sewer services in the vicinity of Erf 30. The proposed portions of Erf 30 will therefore utilize new individual septic tanks for sewage disposal.

4.3 Stormwater

4.3.1 Proposed Stormwater Network

The stormwater runoff from high lying properties will be collected and channelled along the new public gravel roads, flowing in an easterly direction towards the proposed P.o.S; and along the Northern boundary of Portion H, discharging on the neighbouring property. Please refer to the drawings attached as Annexure B.

5. Bulk Contributions

5.1 Water and Sanitation

No bulk contributions will be payable for water and sewer due to the lack of existing municipal water and sewer infrastructure in the vicinity of Erf 30. This needs to be confirmed by the Mogale City Local Municipality (MCLM).

5.2 Roads

No bulk contributions will be payable for roads since Access to Erf 30 is from a public gravel road, maintained by Letamo Game Farm (Pty) Ltd via the provincial road D540 (Kromdraai Road). This needs to be confirmed by the Mogale City Local Municipality (MCLM).

6. Legal Implications

6.1 Ownership and Maintenance

The new civil engineering services will not be handed over to MCLM on completion of the construction works. The responsibility of the operations and maintenance will be for Letamo Game Farm (Pty) Ltd.

7. Conclusion

From the report it is evident that the proposed subdivision of erf 30 Letamo can be supported based on the following:

a) Potable water will be supplied from the existing water network, owned and operated by Letamo Game Farm (Pty) Ltd.

b) New septic tanks will be utilized in terms of sewage disposal.

c) Access will be from a public gravel road, maintained by Letamo Game Farm (Pty) Ltd.

d) No bulk contributions are payable due to the proposed subdivision of Erf 30. This need to be confirmed by the Mogale City Local Municipality (MCLM).

8. Recommendations

It is recommended that the municipality approve the proposed subdivision of erf 30.

9. References

1. Red Book, The guidelines for human settlement planning and design volume. *CSIR, 2000.*

2. Drainage Manual. : *The South African National Roads Agency Limited, 2006.*

3. Guidelines and Standards for the design and maintenance of water and sanitation services. : *City of Johannesburg Metropolitan Municipality (CJMM), July 2016*

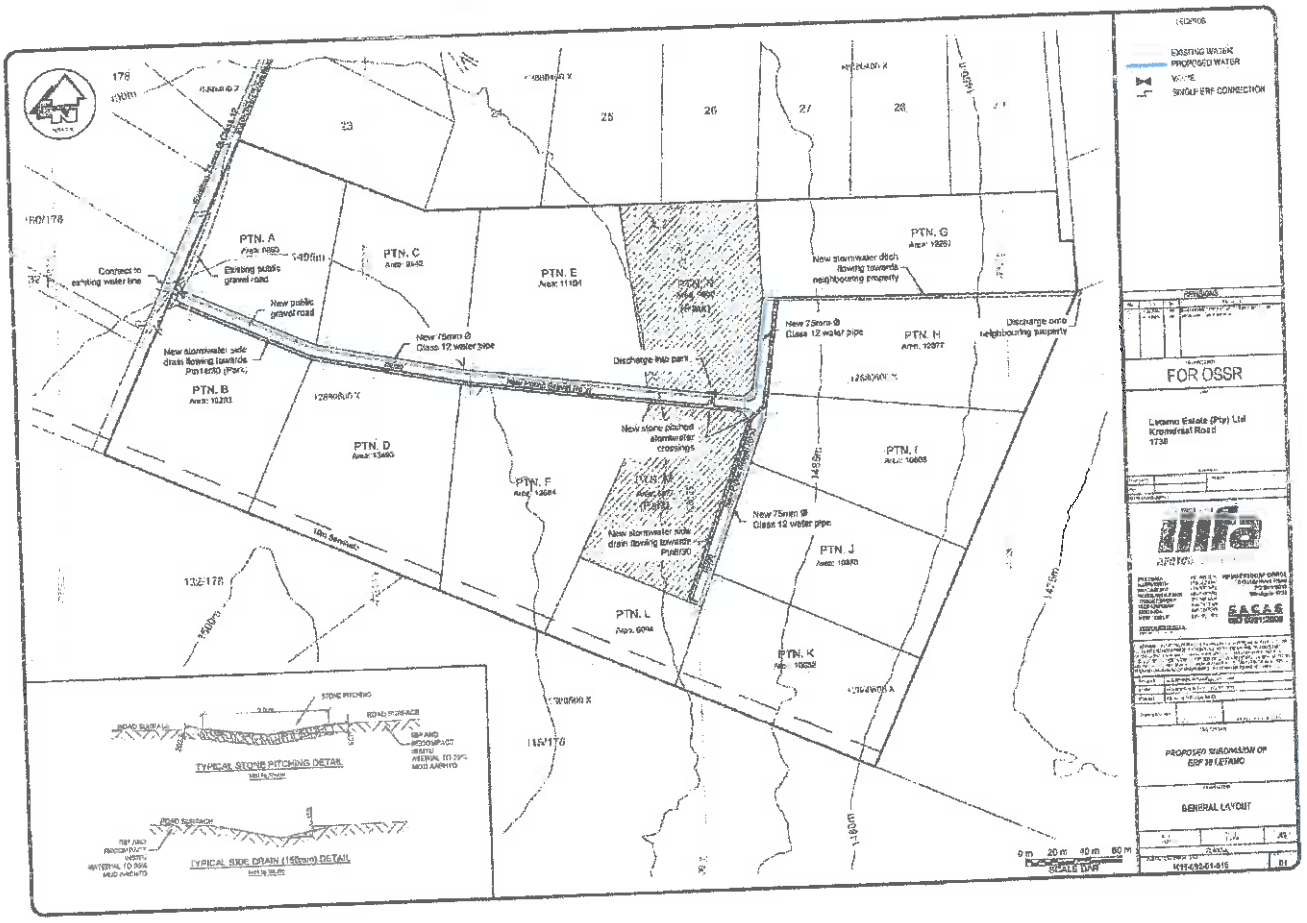
4. Guidelines for the design and construction of water and sanitation systems. : *City of Tshwane Metropolitan Municipality (CTMM), June 2007*

ANNEXURE A

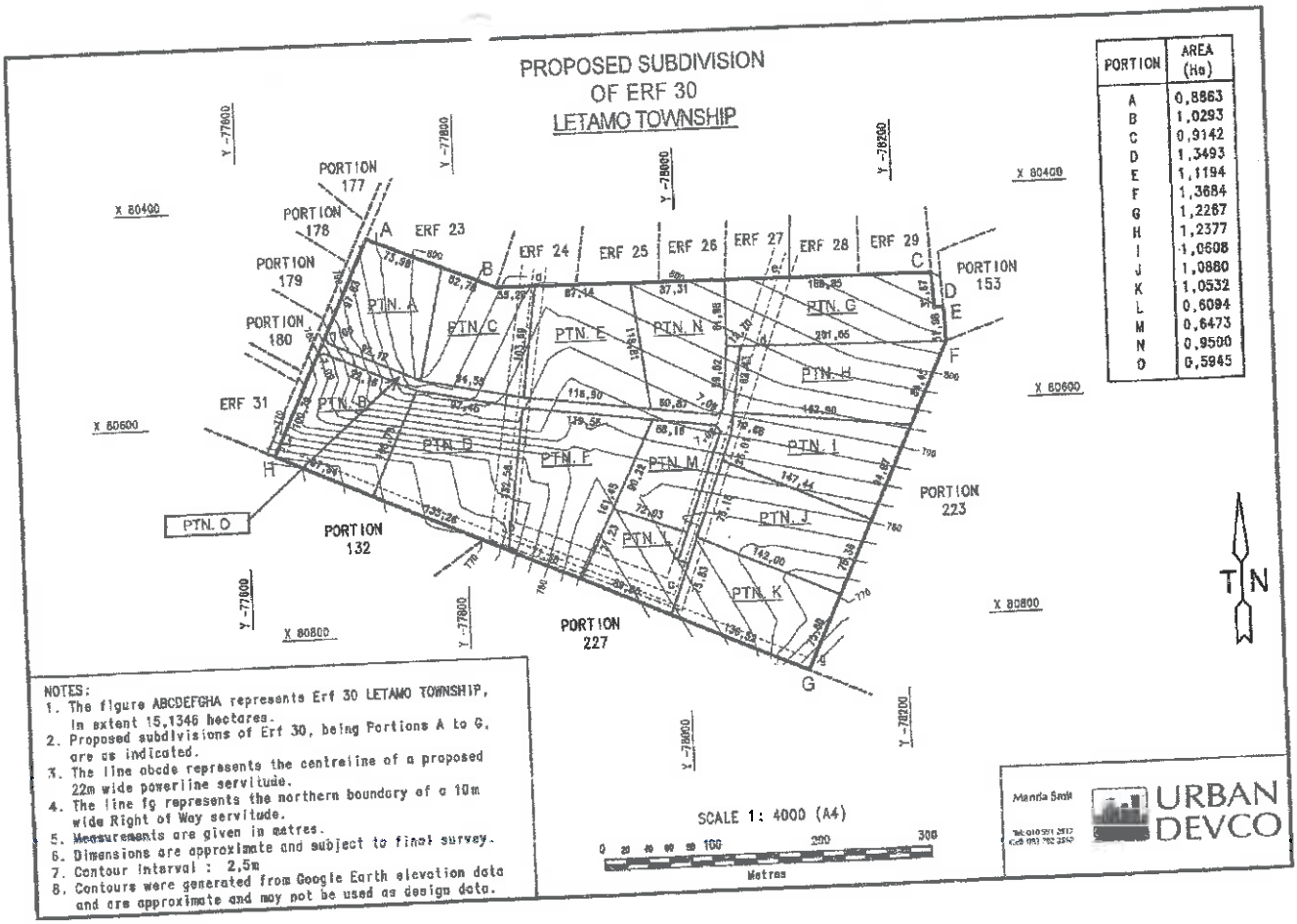
(Locality Plan)

ANNEXURE B

(Drawings)



PROPOSED SUBDIVISION OF ERF 30 LETAMO TOWNSHIP



PORTION	AREA (Ha)
A	0,8863
B	1,0293
C	0,9142
D	1,3493
E	1,1194
F	1,3684
G	1,2267
H	1,2377
I	1,0608
J	1,0880
K	1,0532
L	0,6094
M	0,6473
N	0,9500
O	0,5945

NOTES:
1. The figure ABCDEFGHA represents Erf 30 LETAMO TOWNSHIP, in extent 15,1346 hectares.
2. Proposed subdivisions of Erf 30, being Portions A to G, are as indicated.
3. The line abcde represents the centreline of a proposed 22m wide powerline servitude.
4. The line fg represents the northern boundary of a 10m wide Right of Way servitude.
5. Measurements are given in metres.
6. Dimensions are approximate and subject to final survey.
7. Contour Interval : 2,5m
8. Contours were generated from Google Earth elevation data and are approximate and may not be used as design data.

SCALE 1: 4000 (A4)

0 20 40 60 80 100 200 300
Metres

Manrie Smit

URBAN DEVCO

APPENDIX G – ELECTRICAL ENGINEERING SERVICES REPORT

PROPOSED DEVELOPMENT

LETAMO ERF 30

MOGALE CITY LOCAL MUNICIPALITY

ELECTRICAL SERVICES SCHEME REPORT

16 April 2019

Prepared by:

H J Storm Pr Techni (Eng) Pr CPM

LYO EMFULENI ENGINEERS (PTY) LTD

Electrical Consulting Engineers

P O Box 3925

VANDERBIJLPARK

1900

ELECTRICAL SERVICES SCHEME REPORT

CONTENTS

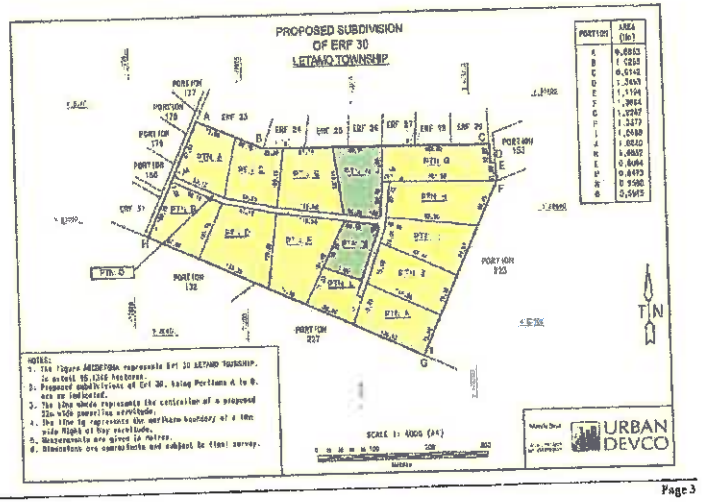
1 INTRODUCTION AND TERMS OF REFERENCE

Lyo Emfuleni Consulting Electrical Engineers were requested to prepare a services report for the proposed development in Letamo Erf 30 by Letamo Estate (Pty) Ltd, Mogale City Local Municipality.

2 DEVELOPMENT

The proposal is to rezone the subject property as follows:

Rezoning			
Current Erf No. Current zoning &	Proposed Subdivision Ptns	Proposed zoning	Development Controls
ERF 30 LETAMO "Undetermined"	Part of Erf 30 (Portions A-K) Part of Erf 30 (Portion L)	"Residential 1" (i) with a density of "one dwelling per erf" "Residential 1" (i) with a density of "One dwelling per 3000 m²"	*Primary Use:* As per scheme *Consent Use:* A Second dwelling unit *Height:* As per Scheme *Coverage:* As per Scheme *Building Lines:* As per Scheme
	Part of Erf 30 (Portions M & N)	"Private Open Space" (XX)	
	Part of Erf 30 (Portion O)	"Special" (XXIV)	*Primary Use:* Access, access control, engineering services and uses incidental thereto.



3 EXISTING INFRASTRUCTURE

The electrical connection to the property is from Eskom and a 100kVA transformer supply the existing property.

4 PROJECTED DEMAND

The Developer will not make use of the Eskom grid for the planned subdivisions. The supply to the stands will be off grid with alternative energy sources such as PV cells, batteries and Light Petroleum Gas (LPG).

5 NETWORK CAPACITY AND CONNECTION TO ENVISAGED DEVELOPMENT

No additional capacity is required from Eskom.

6 ADDITIONAL REQUIREMENTS FROM ESKOM

The existing 100kVA supply will be retained only for the existing residential units on the property.

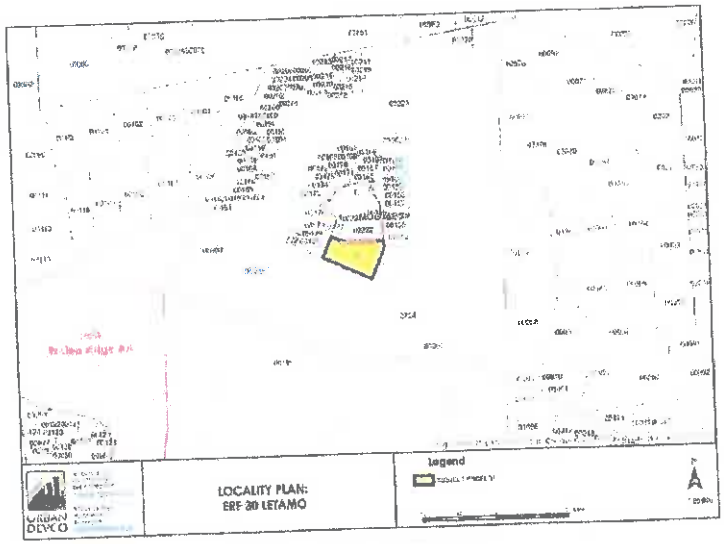


FIGURE 1 – LOCALITY MAP

7 OWNERSHIP AND RESPONSIBILITY FOR MAINTENANCE

There will be no infrastructure that will be taken over by Eskom and it will remain the responsibility of each owner to maintain the off-grid services. It must also be a condition in the Deed of Sale that no Eskom electricity will be available for the erven and that only alternative energy sources must be used.

8 EXECUTION OF WORKS

It will be the House owner's responsibility to install the alternative energy sources and the House owners will bear all costs.

9 CONCLUSION

The electrical aspects relating to the development envisaged do not present any obstacles and can proceed.

LYO EMFULENI ENGINEERS (PTY) LTD

H STORM Pr Techni (Eng), Pr CPM

P:\2018\VE 1813 Krugersdorp Scheme Reports\Letamo Erf 30 Rezoning\C - CORRESPONDENCE\Lyo\Services Report Letamo 30 Rev 2 2019-04-16.docx

APPENDIX H – HERITAGE REPORT

Development on Portion 152 of the Farm Honingklip 178IQ, Erf 30, Letamo Estate, Mogale Local Municipality, Gauteng

PALAEONTOLOGICAL IMPACT ASSESSMENT

REPORT

Compiled by: Dr JF Durand (Sci.Nat.)

For:

ecologic AFRIKA
083 635 7315
012 661 4863
ecologic@mweb.co.za
PO Box 8079
Centurion
0046

9 June 2019

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1. Executive Summary

The underlying geology in the study area is mostly covered with grass and shallow soil and few outcrops are visible. The underlying rocks will be exposed during development.

The study site is underlain by highly deformed and metamorphosed mafic and ultramafic igneous rocks of the Muldersdrift Complex of the Archaean Basement. It is considered by some that this geological unit may contain microfossils based on the chronostratigraphic correlation with similar Swazian-aged rocks in the Barberton area. No microfossils have been reported from the Archaean Basement rocks in Gauteng however and it is highly unlikely that any would be found here.

2. Introduction

The Heritage Act of South Africa stipulates that fossils and fossil sites may not be altered or destroyed. The purpose of this document is to detail the probability of finding fossils in the study area that may be impacted by the proposed development.

The palaeontological heritage of South Africa is unsurpassed and can only be described in superlatives. The South African palaeontological record gives us insight in inter alia the origin of dinosaurs, mammals and humans. Fossils are also used to identify rock strata and determine the geological context of the subregion with other continents and played a crucial role in the discovery of Gondwanaland and the formulation of the theory of plate tectonics. Fossils are also used to study evolutionary relationships, sedimentary processes and palaeoenvironments.

South Africa has the longest record of palaeontological endeavour in Africa. South Africa was even one of the first countries in the world in which museums displayed fossils and palaeontologists studied earth history. South African palaeontological institutions and their vast fossil collections are world-renowned and befittingly the South African Heritage Act is one of the most sophisticated and best considered in the world.

Fossils and palaeontological sites are protected by law in South Africa. Construction and mining in fossiliferous areas may be mitigated in exceptional cases but there is a protocol to be followed.

This is a Palaeontological Impact Assessment which was prepared in line with Regulation 28 of the National Environmental Management Act (No. 107 of 1998) Regulations on Environmental Impact Assessment. This involved a site visit where the palaeontologist evaluated the nature of the geology and potential palaeontology of the study site and an overview of the literature on the palaeontology and associated geology of the area.

3. Terms of reference for the report

According to the South African Heritage Resources Act (Act 25 of 1999) (Republic of South Africa, 1999), certain clauses are relevant to palaeontological aspects for a terrain suitability assessment.

- **Subsection 35(4)** No person may, without a permit issued by the responsible heritage resources authority-
- (a) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;
- (b) destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;
- (c) trade in, sell for private gain, export or attempt to export from the republic any category of archaeological or palaeontological material or object, or any meteorite; or
- (d) bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist with the detection or recovery of metals or archaeological material or objects, or use such equipment for the recovery of meteorites.
- **Subsection 35(5)** When the responsible heritage resources authority has reasonable cause to believe that any activity or development which will destroy, damage or alter any archaeological or palaeontological site is under way, and where no application for a permit has been submitted and no heritage resources management procedures in terms of section 38 has been followed, it may-
- (a) serve on the owner or occupier of the site or on the person undertaking such development an order for the development to cease immediately for such period as is specified in the order;
- (b) carry out an investigation for the purpose of obtaining information on whether or not an archaeological or palaeontological site exists and whether mitigation is necessary;
- (c) if mitigation is deemed by the heritage resources authority to be necessary, assist the person on whom the order has been served under paragraph (a) to apply for a permit as required in subsection (4); and
- (d) recover the costs of such investigation form the owner or occupier of the land on which it is believed an archaeological or palaeontological site is located or from the person proposing to undertake the development if no application for a permit is received within two weeks of the order being served.

South Africa's unique and non-renewable palaeontological heritage is protected in terms of the NHRA. According to this act, heritage resources may not be excavated, damaged, destroyed or otherwise impacted by any development without prior assessment and without a permit from the relevant heritage resources authority.

As areas are developed and landscapes are modified, heritage resources, including palaeontological resources, are threatened. As such, both the environmental and heritage legislation require that development activities must be preceded by an assessment of the impact undertaken by qualified professionals. Palaeontological Impact Assessments (PIAs) are specialist reports that form part of the wider heritage component of:

- Heritage Impact Assessments (HIAs) called for in terms of Section 38 of the National Heritage Resources Act, Act No. 25, 1999 by a heritage resources authority.
- Environmental Impact Assessment process as required in terms of other legislation listed in s. 38(8) of NHRA;
- Environmental Management Plans (EMPs) required by the Department of Mineral Resources.

HIAs are intended to ensure that all heritage resources are protected, and where it is not possible to preserve them in situ, appropriate mitigation measures are applied. An HIA is a comprehensive study that comprises a palaeontological, archaeological, built environment, living heritage, etc specialist studies. Palaeontologists must acknowledge this and ensure that they collaborate with other heritage practitioners. Where palaeontologists are engaged for the entire HIA, they must refer heritage components for which they do not have expertise on to appropriate specialists. Where they are engaged specifically for the palaeontology, they must draw the attention of environmental consultants and developers to the need for assessment of other aspects of heritage. In this sense, Palaeontological Impact Assessments that are part of Heritage Impact Assessments are similar to specialist reports that form part of the EIA reports. The standards and procedures discussed here are therefore meant to guide the conduct of PIAs and specialists undertaking such studies must adhere to them. The process of assessment for the palaeontological (PIA) specialist components of heritage impact assessments, involves:

Scoping stage in line with regulation 28 of the National Environmental Management Act (No. 107 of 1998) Regulations on Environmental Impact Assessment. This involves an **initial assessment** where the specialist evaluates the scope of the project (based, for example, on NID/BIDs) and advises on the form and extent of the assessment process. At this stage the palaeontologist may also decide to compile a **Letter of Recommendation for Exemption from further Palaeontological Studies**. This letter will state that there is little or no likelihood that any significant fossil resources will be impacted by the development. This letter should present a reasoned case for exemption, supported by consultation of the relevant geological maps and key literature.

A **Palaeontological Desktop Study** – the palaeontologist will investigate available resources (geological maps, scientific literature, previous impact assessment reports, institutional fossil collections, satellite images or aerial

photos, etc) to inform an assessment of fossil heritage and/or exposure of potentially fossiliferous rocks within the study area. A Desktop studies will conclude whether a further field assessment is warranted or not. Where further studies are required, the desktop study would normally be an integral part of a field assessment of relevant palaeontological resources.

A **Phase 1 Palaeontological Impact Assessment** is generally warranted where rock units of high palaeontological sensitivity are concerned, levels of bedrock exposure within the study area are adequate; large-scale projects with high potential heritage impact are planned; and where the distribution and nature of fossil remains in the proposed project area is **unknown**. In the recommendations of Phase 1, the specialist will inform whether further monitoring and mitigation are necessary. The Phase 1 should identify the rock units and significant fossil heritage resources present, or by inference likely to be present, within the study area, assess the palaeontological significance of these rock units, fossil sites or other fossil heritage, comment on the impact of the development on palaeontological heritage resources and make recommendations for their mitigation or conservation, or for any further specialist studies that are required in order to adequately assess the nature, distribution and conservation value of palaeontological resources within the study area.

A **Phase 2 Palaeontological Mitigation** involves planning the protection of significant fossil sites, rock units or other palaeontological resources and/or the recording and sampling of fossil heritage that might be lost during development, together with pertinent geological data. The mitigation may take place before and / or during the construction phase of development. The specialist will require a Phase 2 mitigation permit from the relevant Heritage Resources Authority before Phase 2 may be implemented.

A **'Phase 3' Palaeontological Site Conservation and Management Plan** may be required in cases where the site is so important that development will not be allowed, or where development is to co-exist with the resource. Developers may be required to enhance the value of the sites retained on their properties with appropriate interpretive material or displays as a way of promoting access of such resources to the public.

The assessment reports will be assessed by the relevant heritage resources authority, and depending on which piece of legislation triggered the study, a response will be given in the form of a Review Comment or Record of Decision (ROD). In the case of PIAs that are part of EIAs or EMPs, the heritage resources authority will issue a comment or a record of decision that may be forwarded to the consultant or developer, relevant government department or heritage practitioner and where feasible to all three.

4. Details of study area and the type of assessment:

The study area (yellow rectangle in Figure 1) is situated in the area bordering the Cradle of Humankind World Heritage Site (COHWHS) north of Krugersdorp in Gauteng.

Figure 1: Google Earth photo indicating the study area (yellow rectangle)

The study site was visited and the relevant literature and geology map for the study area, in which the development is proposed to take place, have been studied for a Palaeontological Impact Assessment.

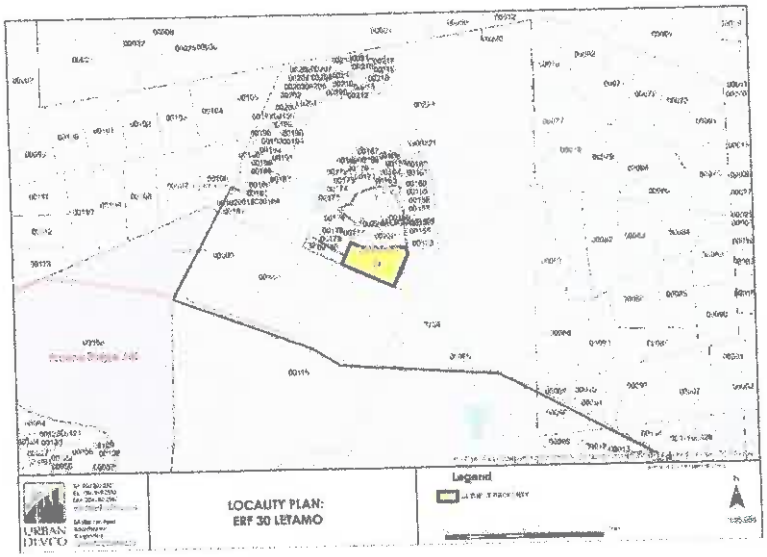

Figure 2: Site plan of proposed development

The study site is situated in the existing Letamo Estate (see Fig. 2). The estate is known for its low housing density, natural grassland, wetland and wildlife. A previous palaeontological assessment was done in 2001 for the Letamo Estate.

5. Geological setting of the study area

Figure 3: Geology of the study site and surroundings. Adapted from the 2626 WEST RAND 1:250 000 Geology Map (Geological Survey, 1986)

GEOLOGICAL LEGEND

	Lithology	Stratigraphy		Age
Vdi	Diabase			
Vmd	Stromatolitic carbonates (limestone, dolomite), minor chert, mudrock and carbonaceous shale.	Malmani Subgroup of the Chuniespoort Group	Transvaal Supergroup	Vaalian
Vbr	Quartz arenites, conglomerates and subordinate mudrocks	Black Reef Formation		
Rh	Ferruginous shale, quartzite	Hospital Hill of the West Rand Group	Witwatersrand Supergroup	Randian
Ro	Quartzite, shale	Orange Grove of the West Rand Group		
Zm	Mafic and ultramafic rocks	Muldersdrift Complex		Swazian

Mafic and ultramafic igneous rocks of the Muldersdrif Complex of the Johannesburg Dome underlie the study site (Ahaeusser, 1978) (see Fig. 3). The Muldersdrif ultramafic layered intrusion consists of dunite, harzburgite and pyroxenite, all of which had been metamorphosed into serpentinite and various amphibolite, chlorite and talc schists (Anhausser, 2009). The age of this intrusion could not be determined directly because of the lack of material suitable for dating

but may be older than the 3.20-3.34 Ga intrusive tonalitic and trondhjemitic gneisses recoded elsewhere on the Johannesburg Dome (Anhausser, 2009).

The sedimentary layers that constitute the Witwatersrand Supergroup were deposited on top of the Archaean Basement when deltas, fed by large river systems, fed into an inland sea in the Witwatersrand Basin approximately 2.8 Ga (McCarthy and Rubidge, 2005).

The 8000 m thick Witwatersrand Supergroup is subdivided into two main divisions, the lower unit called the West Rand Group and an upper unit known as the Central Rand Group. The West Rand Group is in turn subdivided into three units: the Hospital Hill Subgroup, Government Reef Subgroup and Jeppestown Subgroup. The Central Rand Group is subdivided into the Johannesburg Subgroup and the Turffontein Subgroup. Each of these strata derived its name from the area where it was first described, but is not limited to that area. The Johannesburg Subgroup of the Central Rand Group contained the richest deposit of gold and was mined extensively throughout the Witwatersrand Basin (McCarthy and Rubidge, 2005, Viljoen and Reimold, 2002).

The Transvaal Supergroup overlies the Ventersdorp Supergroup discordantly. The basal layer of this sequence, called the Black Reef, consists of sedimentary rock which contains limited deposits of gold. The area occupied by the Witwatersrand Basin sediment was eroded heavily by an extensive northwards-flowing river system more than 2.2 Ga (Viljoen and Reimold, 2002).

The Chuniespoort Group of the Transvaal Supergroup overlies the Black Reef Formation. The Chuniespoort Group consists of chemical and biochemical sediments including stromatolitic carbonates and banded ironstone. This unit which is approximately 1200-2000m thick in Gauteng and Northwest Province was set down during the transgression of the Transvaal Supergroup epeiric sea approximately 2.67 – 2.46 Ga (Eriksson *et al.*, 2001). The carbonates which were set down 2.643 - 2.520 Ga (Obbes, 2000) are subdivided into several formations most of which were dolomitised and partially silicified (Eriksson and Reczko, 1995) (Fig.4). The Transvaal Supergroup rocks include quartzite, mudstone, shale, siltstone, conglomerate, limestone, diamictite, tuff and andesite suggesting a range of depositional sources ranging from alluvial fans, floodplains, deltas to coastal and deep basinal environments (Eriksson et al, 2009).

6. Site visit

Figure 4: 26°01'55.32"S 27°46'39.65"E looking North

Figure 5: Rocky outcrop at 26°01'55.32"S 27°46'39.65"E

7. Palaeontological potential of the study area

Figure 5: Palaeosensitivity map of the study site (white polygon) and surroundings (SAHRA, 2019)

Colour	Palaeontological Significance	Action
RED	VERY HIGH	Field assessment and protocol for finds are required.
GREEN	MODERATE	Desktop study is required.
BLUE	LOW	No palaeontological studies are required however a protocol for finds is required.

The Plio-Pleistocene palaeontological sites in South Africa are situated within the Malmani Subgroup dolomites in the northern part of South Africa. The abundance of the dolomitic caves in this region is the main reason for the concentration of heritage resources in the COHWHS. Although hundreds of fossil site have been discovered in the Cradle of Humankind and surroundings, 13 were selected for their exceptional fossil content and preservation for inscription into the COHWHS by UNESCO. These are: Bolt's Farm, Sterkfontein, Swartkrans, Coopers, Kromdraai, Minnaars, Drimolen, Wonder Cave, Motsetse, Gondolin, Haasgat, Gladysvale and the one closest to the proposed development: Plovers Lake. These sites yielded hundreds of thousands of fossils, including hominin fossils. Subsequently, after the proclamation of the COHWHS, more hominin-bearing fossil sites were discovered inclusing Rising Star Cave and Malapa. The fossiliferous Malmani rocks are situated approximately 2 km west northwest of the study site.

Although no fossils have been reported from the igneous Archaean Basement rocks in Gauteng, some consider that there may be a possibility that microbial fossils and microbial trace fossils could be preserved within cherts and volcanic

glasses similar to those in similar-aged Barberton Greenstone Belt rocks (Groenewald & Groenewald, 2014). For this reason the rocks of the study area are considered to be of Low Palaeontological Sensitivity (see Fig. 5) and a Chance Find Procedure has to be included in the report (pp. 15-16).

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8. Conclusion and recommendations:

The study area (Portion 152 of the Farm Honingklip 178 IQ, Erf 30 Letamo Town) is covered in shallow soil and tall grass with few rocky outcrops. The shallowness of the soil is vividly evident from the neighbouring area (Portion 132, Honingklip 178 IQ) to the south of Letamo where the developer has removed the soil and vegetation and has graded the property down to the bedrock for development. I could not find any SAHRA heritage report for this development however.

The study site is underlain by the igneous mafic and ultramafic rocks of the Archaean Basement. It is highly improbable that any fossils would be found in these rocks.

In the highly unlikely event that a significant fossil find is made in chert or volcanic glass in the highly distorted and metamorphosed igneous rocks or the soil cover of the study site, the ECO should take the following steps:

PROCEDURE FOR CHANCE PALAEONTOLOGICAL FINDS

Extracted and adapted from the National Heritage Resources Act, 1999 Regulations Reg No. 6820, GN: 548.

The following procedure must be considered in the event that previously unknown fossils or fossil sites are exposed or found during the life of the project:

1. Surface excavations should continuously be monitored by the ECO and any fossil material be unearthed the excavation must be halted.

2. If fossiliferous material has been disturbed during the excavation process it should be put aside to prevent it from being destroyed.

3. The ECO then has to take a GPS reading of the site and take digital pictures of the fossil material and the site from which it came.

4. The ECO then should contact a palaeontologist and supply the palaeontologist with the information (locality and pictures) so that the palaeontologist can assess the importance of the find and make recommendations.

5. If the palaeontologist is convinced that this is a major find an inspection of the site must be scheduled as soon as possible in order to minimise delays to the development.

From the photographs and/or the site visit the palaeontologist will make one of the following recommendations:

a. The material is of no value so development can proceed, or:

b. Fossil material is of some interest and a representative sample should be collected and put aside for further study and to be incorporated into a recognised fossil repository after a permit was obtained from SAHRA for the removal of the fossils, after which the development may proceed, or:

c. The fossils are scientifically important and the palaeontologist must obtain a SAHRA permit to excavate the fossils and take them to a recognised fossil repository, after which the development may proceed.

7. If any fossils are found then a schedule of monitoring will be set up between the developer and palaeontologist in case of further discoveries.

9. Declaration of Independence:

I, Jacobus Francois Durand declare that I am an independent consultant and have no business, financial, personal or other interest in the proposed development, application or appeal in respect of which I was appointed other than fair remuneration for work performed in connection with the activity, application or appeal. There are no circumstances that compromise the objectivity of my performing such work.

Palaeontological specialist:
Dr JF Durand (Sci. Nat.)
BSc Botany & Zoology (RAU), BSc Zoology (WITS), Museology Dipl. (UP), Higher Education Diploma (RAU), PhD Palaeoritology (WITS)

APPENDIX J – VEGETATION REPORT

ECOAGENT

A vegetation, flora and avifauna assessment, with particular reference to grass owls, of Erf 30 Letamo Estate, Gauteng

April 2019

A vegetation, flora and avifauna assessment, with particular reference to grass owls, of Erf 30 Letamo Estate, Gauteng

by

G.J. Bredenkamp D.Sc. Pr.Sci.Nat.

J.P.C. van Wyk M.Sc. Pr.Sci.Nat.

Commissioned by

ecologicAFRIKA

EcoAgent CC
PO Box 25533
Monument Park
0181
Tel 012 4602525
Cell 082 5767046

April 2019

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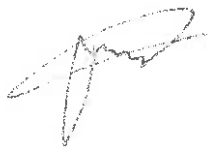
DECLARATION OF INDEPENDENCE

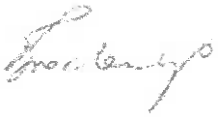
We,
George Johannes Bredenkamp (SACNASP # 400086/83) and
Jacobus Casparus Petrus Van Wyk (SACNASP # 400062/09),

declare that we:

- hold higher degrees in the biological sciences, which allowed registration by S.A. Council for National Scientific Professions (SACNASP) as Professional Ecologist or Zoologists that sanction us to function independently as specialist scientific consultants;
- declare that as per prerequisites of the Natural Scientific Professions Act No. 27 of 2003 this project was our own work from inception and reflects exclusively our observations and unbiased scientific interpretations, and executed to the best of our abilities;
- abide by the Code of Ethics of the SACNASP;
- are committed to biodiversity conservation but concomitantly recognize the need for economic development. Whereas we appreciate opportunities to learn through constructive criticism and debate, we reserve the right to form and hold our own opinions within the constraints of our training, experience and results and therefore will not submit willingly to the interests of other parties or change our statements to appease or unduly benefit them;
- are subcontracted as specialist consultants for the project "**A vegetation, flora and avifauna assessment, with particular reference to grass owls, of Erf 30 Letamo Estate, Gauteng**" as described in this report;
- have no financial interest in the proposed development other than remuneration for the work performed;
- do not have, and will not have in the future any vested or conflicting interests in the proposed development;
- undertake to disclose to the consultant and its client(s) as well as to the competent authority any material information that may have the potential to influence any decisions by the competent authority, as required in terms of the Environmental Impact Assessment Regulations 2006;
- reserve the right to only transfer our intellectual property contained in this report to the client(s), (party or company that commissioned the work) on full payment of the contract fee. Upon transfer of the intellectual property, we recognise that written consent from the client will be required for any of us to release of any part of this report to third parties.
- In addition, remuneration for services provided by us is not subjected to or based on approval of the proposed project by the relevant authorities responsible for authorising this proposed project.



J.C.P. van Wyk



G.J. Bredenkamp

DISCLAIMER:

Even though every care is taken to ensure the accuracy of this report, environmental assessment studies are limited in scope, time and budget. Discussions and proposed mitigations are to some extent made on reasonable and informed assumptions built on *bone fide* information sources, as well as deductive reasoning. Deriving a 100% factual report based on field collecting and observations can only be done over several years and seasons to account for fluctuating environmental conditions and migrations. Since environmental impact studies deal with dynamic natural systems additional information may come to light at a later stage. The vegetation and fauna team can thus not accept responsibility for conclusions and mitigation measures made in good faith based on own databases or on the information provided at the time of the directive. Although the authors exercised due care and diligence in rendering services and preparing documents, they accept no liability, and the client, by receiving this document, indemnifies the authors against all actions, claims, demands, losses, liabilities, costs, damages and expenses arising from or in connection with services rendered, directly or indirectly by the authors and by the use of this document. This report should therefore be viewed and acted upon with these limitations in mind.

ABSTRACT

Vegetation and Flora
Eight plant communities (mapping units, ecosystems) + one developed area were mapped, ecologically assessed and described.

The Secondary *Hyparrhenia hirta* Grassland has Medium-Low ecological sensitivity and it is suggested that development can be supported in these areas.

Secondary bush along road, Bush on old dam wall, the Transformed grassland on dam floor, the Transformed *Eucalyptus* area and the *Searsia lancea* alley all have Low ecological sensitivity and development can be supported in these areas.

The vegetation of the *Trachypogon spicatus* Grassland has medium ecological sensitivity, therefore this vegetation may be considered for the proposed development.

There are no red data listed plant species and two provincially protected plant species (*Babiana hypogoea* and *Gladiolus crassifolius*) occur in *Trachypogon spicatus* Grassland on the site.

Note that the Degraded *Searsia pyroides* Bush is earmarked for open space.

The proposed development of the site can be supported.

Grass-owl
There is suitable habitat for the African grass-owl on the 600-hectare Letamo Game Farm (Figure 8.1). However, there is almost no possibility that grass-owls may use the Letamo Portion 30 study site of 15.2 ha for breeding, as there is not suitable habitat and grass cover on the site.

Fire and grazing are important tools for the management of grassland and wetland habitats, but regular heavy grazing and too frequent burning prevent the development of rank grassland habitat required by African grass owls. The burning of moist grassveld on wetland edges in the Letamo Game Reserve and the number of grazing game in the reserve will affect the long-term survival of the African grass-owls on the Game Farm.

Some other Red Data bird species may treat the site as part of their home ranges / territories. Most of them are associated with the wetland areas and open dams on Letamo Game Farm and not within Letamo Portion 30. Some species like the Verreauxs' eagle and Cape vulture will fly over the site and may sometimes only use the large open areas of the Letamo Game Farm for feeding purposes.

From an avian fauna perspective, and particularly grass owls, no objection can be raised against the proposed development due to the small size and nature of the study site.

Conclusion
It is suggested that the proposed development be supported.

1. BACKGROUND INFORMATION

The locality of the It is proposed to subdivide Portion 30, located within the approximately 600 hectare Letamo Game Farm on the Farm Honingklip 178 IQ, Gauteng. The size of Portion 30 is 15.1346-hectares. The Letamo Game Farm is located north of the N14 and east of the R540 roads (Figure 1.1, 1.2). It is proposed that Portion 30 be divided into fifteen Portions (Figure 1.3). It is furthermore planned sell 12 Portions – most larger than 1 hectare - and it is expected that residences will be built on these 12 Portions.

The current regulations stipulate that only 15% of a stand may be fenced to protect the houses, and the rest remains open, continuous with the Game Park veld.

The site is mainly on secondary grassland that developed on old agricultural fields and degraded grassland (Figure 1.4), within the Egoli Granite Grassland Vegetation Type (Gm 10) (Mucina & Rutherford 2006). The patch of original grassland that remained was disturbed and degraded in recent historical times (last 50-60 years).

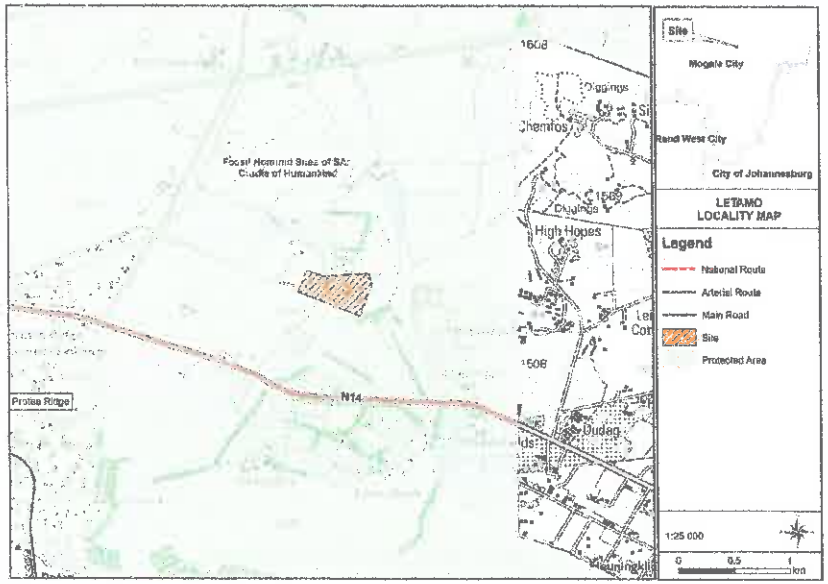


Figure 1.1: The locality of the site.

Figure 1.2: The locality of the site in relation to roads and surrounding land-use.

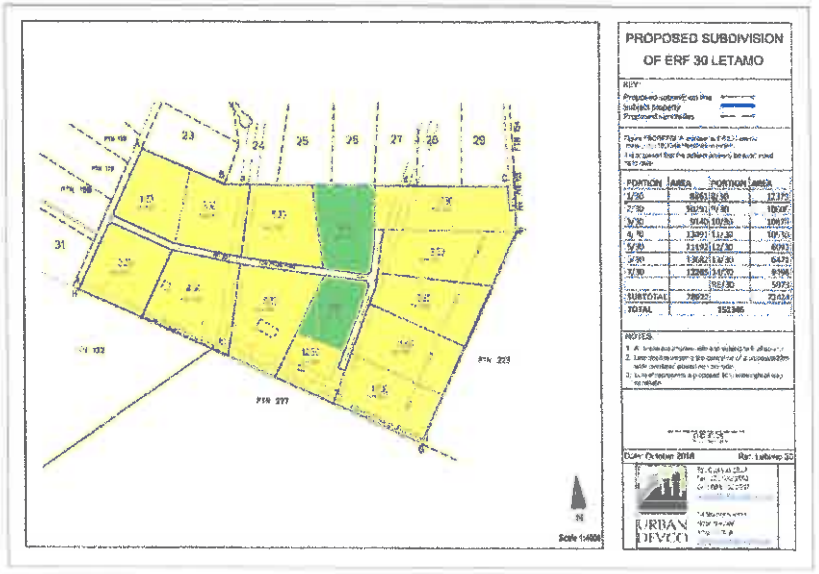


Figure 1.3: The proposed subdivision of Portion 30 (map provided by Letamo Game Farm).

Figure 1.4: The site as seen on Google Earth, indicating the disturbed condition of the grassland vegetation in 2019 (top) and 2009 (bottom).

The planned subdivision and development require an Environmental Impact Assessment. Biodiversity assessments are parts of the Environmental Impact Assessment process. Eco-Agent CC was appointed by ecologicAFRIKA to assess the vegetation and flora and the presence of grass owls on the site, as was requested by GDARD This report includes an avifauna assessment with particular emphasis on grass owls.

This investigation is in accordance with the EIA Regulations No. R982-985, Department of Environmental Affairs and Tourism, 4 December 2014 emanating from Chapter 5 of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as well as the National Water Act 1998 (Act 36 of 1998) and additions, and other relevant legislation.

The assignment is interpreted as follows: Compile a study of the vegetation, flora and the possible presence of the grass owl of the site. In order to compile this study, the following had to be done:

1.1. Initial preparations:

- Obtain all relevant maps and information on the natural environment of the concerned area.
- This includes information on Red Data plant species that may occur in the area.

1.2. Vegetation and habitat survey:

- List the plant species (trees, shrubs, grasses and herbaceous species) present for plant community and ecosystem delimitation.
- Identify potential red data plant species, alien plant species, and medicinal plants.
- Examine the diversity and structure of the plants (trees, shrubs, grasses and herbaceous species) present, to delimit those plant communities and ecosystems relevant to vertebrate fauna distributions and abundance.

1.3. Plant community delimitation and description

- Process data (vegetation and habitat classification) to determine vegetation types (= plant communities) on an ecological basis.
- Describe the habitat and vegetation.
- Determine the sensitivity of the site for biodiversity and presence of rare or protected plant species.
- Prepare a vegetation map of the area.
- Prepare a sensitivity map of the plant communities present, if relevant.

1.4. Faunal assessment

- Do an avifaunal assessment particularly relevant for Portion 30
- Assess the quantitative and qualitative condition of suitable habitat for grass owls that may occur in the area.
- Assess the possibility of the grass owl being present on the study site, Portion 30..

1.5. Identify and map ecologically sensitive areas.

- Identify and map ecological sensitive areas to assist in the planning and layout of the development,
- Identify transformed areas in need of special treatment or management, e.g. bush encroachment, erosion, water pollution, degraded areas, reclamation areas.
- Make recommendations on aspects that should be monitored during development.

1.7. Impact Assessment

- Compile prescribed impact assessment tables and associated descriptions of impacts on vegetation, flora, and grass owl, if present, and suggest possible mitigation measures.

This report includes a site visit by the EcoAgent team on 13 April 2019 to assess the vegetation, flora, and possible presence of the grass owl on the site and also the possible impacts of the proposed development on Portion 30 on the vegetation and grass owl and to suggest possible mitigation options where needed.

2. RATIONALE AND SCOPE

It is widely recognised that to conserve natural resources it is of the utmost importance to maintain ecological processes and life support systems for plants, animals and humans. To ensure that sustainable development takes place, it is therefore important that possible impacts on the environment are considered before relevant authorities approve any development. This led to legislation protecting the natural environment. In 1992, the Convention of Biological Diversity, a landmark convention, was signed by more than 90 % of all members of the United Nations. In South Africa, the Environmental Conservation Act (Act 73 of 1989), the National Environmental Management Act, 1998 (NEMA) (Act 107 of 1998) and the National Environmental Management Biodiversity Act, 2004 (Act 10 0f 2004) ensure the protection of ecological processes, natural systems and natural beauty, as well as the preservation of biotic diversity within the natural environment. They also ensure the protection of the environment against disturbance, deterioration, defacement or destruction as a result of man-made structures, installations, processes, products or activities. In support of these Acts, a draft list of Threatened Ecosystems was published (Government Gazette 2009), as part of the National Environmental Management Biodiversity Act, 2004 (Act 10 of 2004), and these Threatened Ecosystems are described by SANBI & DEAT (2009) and a list of Threatened or Protected Species (TOPS) regulations is also available (NEMBA Notice 388 of 2013). International and national Red Data lists have also been produced for various plant and animal taxa.

All components of the ecosystems (physical environment, vegetation, animals) at a site are interrelated and interdependent. A holistic approach is therefore imperative to include effectively the development, utilisation and, where necessary, conservation of the given natural resources into an integrated development plan, which will address all the needs of the modern human population (Bredenkamp & Brown 2001).

It is therefore necessary to make a thorough inventory of the plant communities, flora and vertebrate fauna on the site, in order to evaluate the biodiversity and possible presence of species of conservation concern, red listed species and protected species. This inventory should then serve as a scientific and ecological basis for the planning exercises and the subsequent development.

Definitions and Legal Framework

Authoritative legislation that lists impacts and activities on biodiversity and wetlands and riparian areas that requires authorisation includes (Armstrong, 2009):

- National Environmental Management Act, 1998 (Act No. 107 of 1998);
- National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004).
- The older Environment Conservation Act, 1989 (Act 73 of 1989);
- Conservation of Agriculture Resources Act, 1983 (Act 43 of 1983);
- National Water Act, 1998 (Act 36 of 1998);
- National Forests Act, 1998 (Act 84 of 1998);

- National Environmental Management: Protected Areas Act 2003 (Act 57 Of 2003) (as Amendment Act 31 of 2004 and Amendment Act 15 of 2009)
- Government Notice Regulation 1182 and 1183 of 5 September 1997, as amended (ECA);
- Government Notice Regulation 385, 386 and 387 of 21 April 2006 (NEMA);
- Government Notice Regulation 392, 393, 394 and 396 of 4 May 2007 (NEMA);
- Government Notice Regulation 398 of 24 March 2004 (NEMA); and
- Government Notice Regulation 544, 545 and 546 of 18 June 2010 (NEMA)
- Government Notice Regulation 982, 983, 984 and 985 of 4 December 2014 (NEMA).

The Scope and objectives of this study is therefore:

- To identify and map the vegetation units as ecosystems that occur on the site,
- To assess the ecological sensitivity of these ecosystems and comment on ecologically sensitive areas, in terms of their plant diversity and where needed ecosystem function
- To assess qualitatively and quantitatively the significance of the grass owl habitat components and current general conservation status of the site,
- To comment on connectivity with natural vegetation and habitats on adjacent sites,
- To provide a list of plant species that do or might occur on site and that may be affected by the development, and to identify species of conservation concern,
- To highlight potential impacts of the proposed development on vegetation, fauna and grass owl of the study site, and
- To provide management recommendations that might mitigate negative and enhance positive impacts, should the proposed development be approved.

3. STUDY SITE

3.1 Location and the receiving environment

The locality of Erf 30 Letamo Estate, Gauteng, is within the Letamo Game Farm, north of the N14 and east of the R540 roads (Figure 1.1, 1.2). The size of the site is 15.1346 ha. It is proposed to subdivide Portion 30 into 15 separate Portions (Figure 1.3). It is furthermore planned to build residences on 12 of these Portions.

The site is mainly on secondary grassland that developed on old agricultural fields (Figure 1.4), within the Egoli Granite Grassland Vegetation Type (Gm 10) (Mucina & Rutherford 2006)(Figure 3.1). Limited patches of original grassland remained, though this was disturbed and degraded in recent historical times (last 50-60 years).

3.2 Geology and Soil

The area is underlain by Halfway House granites of the Johannesburg Dome. The soil is shallow, course and well-grained.

3.3 Regional Climate

Summer rainfall and with a mean annual precipitation of about 600 mm. Summers are warm while winters are cold with frost.

3.4 Topography and Drainage

The site is located on a flat plain with a slight slope towards the north. There are no drainage lines on the site though there are spruits and wetlands that flow northwards, about 380 m west, 230 m east and <100 m south-east of the site (Figure 3.2).

3.5 Land-use

The land–use in the general area is agriculture and residential (Figure 1.1).

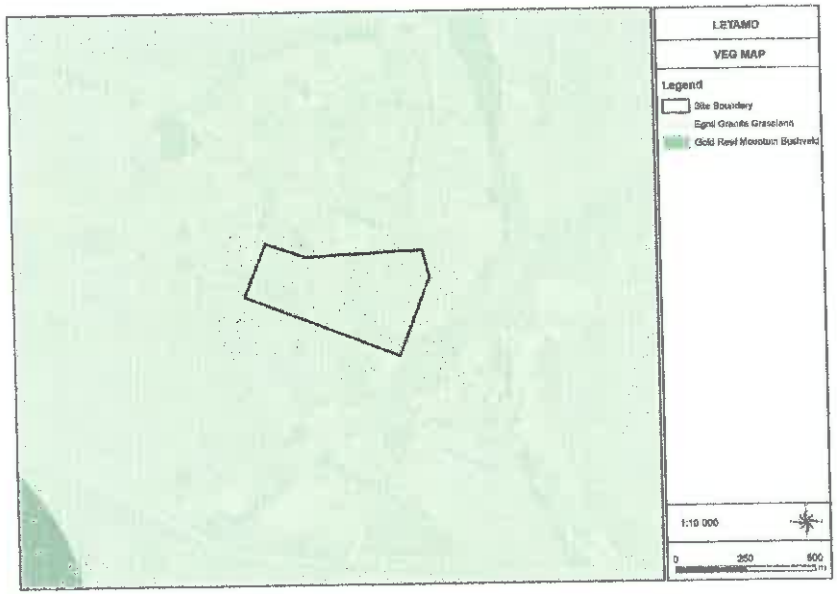


Figure 3.1: The site is located within Egoli Granite Grassland

3.6 Vegetation Types

The site is situated within the Egoli Granite Grassland (Gm 10) vegetation type (Mucina & Rutherford 2006)(Figure 3.1). The Egoli Granite Grassland is regarded as an Endangered vegetation type (Mucina & Rutherford 2006) and an Endangered Ecosystem (SANBI & DEAT 2011), as only about 35% of this vegetation type remained as natural untransformed grassland, much is already transformed by agriculture, mining and urban sprawl (Mucina and Rutherford 2006). The specific site (Portion 30) had however, been largely transformed by agriculture and is now largely covered with secondary grassland. Little primary vegetation, much disturbed, remained on Portion 30.

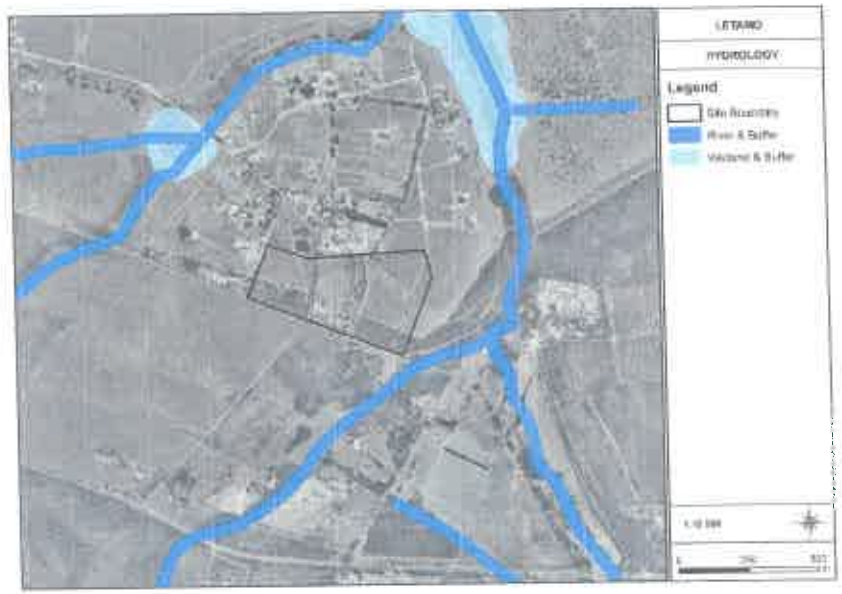


Figure 3.2: The site in relation to wetlands and drainage lines.

4. METHODS: VEGETATION AND FLORA

4.1. Initial preparations:

For background information, the relevant maps, aerial photographs and other information on the natural environment of the concerned area were obtained.

4.2. Site visit: vegetation and flora

The field survey took place on 13 April 2019. Different habitat types were identified on aerial images of the site. At several sampling sites within each plant community / habitat type, a description of the dominant and characteristic species found was made. These descriptions were based on total floristic composition, following established vegetation survey techniques (Mueller-Dombois & Eilenberg 1974; Westhoff & Van der Maarel 1978). Data recorded resulted in a list of the plant species present, including trees, shrubs, grasses and forbs. A species list was therefore derived for the site. These vegetation survey methods have been used as the basis of a national vegetation survey of South Africa (Mucina *et al.* 2000) and are considered to be an efficient method of describing vegetation and capturing species information. Additional notes were made of any other features that might have an ecological influence.

The identified systems are not only described in terms of their plant species composition, but also evaluated in terms of the potential habitat for Red Data plant species.

Threatened ecosystems are identified using Mucina & Rutherford (2006) and SANBI & DEAT 2011).

Critically Endangered, Endangered, Vulnerable and Protected Species (NEMBA species, TOPS species) are evaluated against the list published in Department of Environmental Affairs and Tourism Notice No. 2007 (National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004)).

Protected trees are identified in accordance with the list of nationally protected trees published in Government Notice No. 29062 3 (2006) (National Forests Act, 1998 (Act No. 84 0f 1998), as Amended (Department of Water Affairs Notice No 897, 2006).

Lists of Red Data plant species for the area were obtained from the SANBI data bases, with updated threatened status, (Raimondo *et al* 2009) for the map grid 2527DB. These lists were then evaluated in terms of habitat available on the site.

Previously declared weeds and invasive plants were controlled by regulations of the Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983) (CARA). Later Alien and Invasive Species Regulations, as well as a new draft list of categories of invasive species in terms of the National Environmental Management: Biodiversity Act (Act 10 of 2004) was published in the Government Gazette No. 32090, in April 2009. Several amendments followed. Considering Sections 66(1), 67(1) 70(1)(a), 71(3) and 71A of the National Environmental Management: Biodiversity Act (Act 10 of 2004) the latest Alien and

Invasive plant **species list** was published in 2016 (Government Gazette 40166, Notice 864, 29 July 2016) This notice replaces and repeals any Alien and Invasive **species lists** published under the Act, including Notice 599 of 1 August 2014, (Government Gazette 37886) and Notice R507, 508 and 509 of 19 July 2013 (Government Gazette 36683).
and other weeds Bromilov (2010) are indicated.

Medicinal plants are indicated according to Van Wyk, Van Oudtshoorn & Gericke (1997).

4.3. Conservation Value

The following **conservation value** categories were used for assessing the study site:
High: Ecologically sensitive and valuable land with high species richness and/or sensitive ecosystems or red data species that should be conserved and no developed allowed.
Medium-high: Land where sections are disturbed but which is in general ecologically sensitive to development/disturbances.
Medium: Land on which low impact development with limited impact on the vegetation / ecosystem could be considered for development. It is recommended that certain portions of the natural vegetation be maintained as open space.
Medium-low: Land of which small sections could be considered to conserve but where the area in general has little conservation value.
Low: Land that has little conservation value and that could be considered for developed with little to no impact on the vegetation.

4.4 Ecological Sensitivity

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

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

In order to determine the sensitivity of the vegetation (ecosystem) on the site, weighting scores are calculated per plant community. The following six criteria are used and each allocated a value of 0-3.

- Conservation status of a regional vegetation unit;
- Listed ecosystem (e.g. wetlands, hills and ridges etc)
- Legislative protection (e.g. threatened ecosystems, SANBI & DEAT 2009)
- Plant species of conservation concern (e.g. red listed, nationally or provincially protected plant species, habitat or potential habitat to plants species of conservation concern, protected plants or protected trees);
- Situated within ecologically functionally important features (e.g. wetlands or riparian areas; important habitat for rare fauna species)
- Conservation importance (e.g. untransformed and un-fragmented natural vegetation, high plant species richness, important habitat for rare fauna species).

Sensitivity is calculated as the sum the values of the criteria. The vegetation with the lowest score represents the vegetation that has the least / limited sensitivity). A maximum score of 18 can be obtained, a score of 15-18 indicated high sensitivity. The sensitivity scores are as follows (Table 4.1):

Table 4.1: Sensitivity weighting scores for vegetation.

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

Development on vegetation that has High sensitivity will normally not be supported, except that specific circumstances may still lead to support of the proposed development.

Portions of vegetation with Medium-High or Medium sensitivity should be conserved.

Development may be supported on vegetation considered to have Medium-Low or Low sensitivity.

4.4 Plant Species Status

Plant species recorded in each plant community with an indication of the status of the species by using the following symbols:
A = Alien woody species; D = Dominant; d = subdominant; G = Garden or Garden Escape; M = Medicinal plant species; P = Protected trees species; p = provincially protected species; RD = Red data listed plant; W = weed.

4.5 Species Richness

Species Richness is interpreted as follows: Number of indigenous species recorded in the sample plots representing the plant community. Alien woody species and weeds are not included (Table 4.2).

Table 4.2: Categories of plant species richness.

No of species	Category
1-24	Low
25-39	Medium
40-59	High
60+	Very High

4.5 Limitations

The disturbed nature of the herbaceous layer.

5. METHODS: AVIFAUNA AND GRASS OWL SURVEY

5.1. Field Surveys

The site visit was conducted on 13 April 2019. During the site visit, birds were identified by visual sightings through random transect walks and patrolling with a vehicle. No mist netting was conducted as the terms of reference did not require such intensive work. In addition, birds were identified by their calls, old nests, moulted feathers, spoor, droppings and food remains.

The 500 meters of adjoining properties were scanned for important fauna habitats.

5.2 Desktop Surveys

A list of bird species expected to occur on site was derived initially from the quarter-degree grid records presented in an atlas of southern African birds (Harrison *et al.* 1997). Based on an assessment of the habitats present at the site, as well as publications such as Birds of the Transvaal (Tarboton, Kemp & Kemp, 1987), The Atlas of Southern African Birds. Vol. 1 & 2. (Harrison, Allan, Underhill, Herremans, Tree, Parker & Brown (eds.). 1997), Roberts – Birds of Southern Africa, VIIth ed. (Hockey, Dean, & Ryan, (eds) 2005), The Chamberlain Guide to Birding Gauteng (Marais & Peacock 2008), Sasol Birds of Southern Africa, 4th ed. (Sinclair, Hockey, Tarboton & Ryan, 2011), The Eskom Red Data book of birds of South Africa, Lesotho and Swaziland (Taylor, Peacock & Wannless, 2015) &.www.sabap2.org.za the list was then reduced to those species that were judged as 'possible' or 'likely' to occur within those habitats as residents or regular visitors. Due to the considerable aerial mobility of birds, a number of additional species might be expected as infrequent nomads or vagrants, but these were not included on the list. It was judged that the habitats available would offer no significant material support or conservation assistance to these species, and that if they did occur, it would be temporarily and in insignificant numbers. 'Possible' refers to species that might use their mobility to make intermittent use of the habitats available when they are in a particular condition (during or after rain, flood, drought, burn, grazing, seeding, flowering) or season (regional, intra-African or inter-continental migrants). 'Likely' refers to species that are expected to make regular use of the site for feeding, roosting and/or breeding. Species actually recorded on site during the field survey are expected to fall into the latter category unless annotated otherwise.

No objective assessment was made of the carrying capacity of the habitat for any species, since this varies through time and birds are capable of arriving or departing as conditions change. Special attention was paid to species considered as threatened internationally or nationally (Taylor *et al.* 2015), and to those considered as species of conservation priority within Gauteng (GDARD 2014a & b). The category assigned to these species was raised to include infrequent visitors as 'likely', based on the precautionary principle. Further details of the extent and limits of various habitat types detected during the field survey and on adjacent properties were also obtained by studying satellite images from Google Earth.

5.3 Specific requirements

Birds: To identify Red Data species likely to occur on the site and to express an opinion regarding their probable occurrence, based on specific habitat requirements and guided by the existing lists compiled for such species within the relevant quarter-degree grid and pentad cells by regional and national bird atlases (Harrison, Allan, Underhill, Herremans, Tree, Parker & Brown, 1997; www.sabap2.org.za and Hockey, Dean & Ryan, 2005) the most recent assessment of the threatened status of South Africa's avifauna, The 2015 Eskom Red Data Book of Birds of South Africa, Lesotho and Swaziland (Taylor, Peacock & Wanless, 2015), was used.

Specific emphasis was placed on the possible presence of grass owls and suitable habitat for grass owls.

6. RESULTS: VEGETATION

6.1 Vegetation (map units) Classification

The vegetation on the site is largely dominated by secondary grassland that developed on old agricultural fields in the eastern part and degraded grassland on the western part. Remains of bush occur in the central part of the site and along roads. The dominant grass found on the eastern secondary grassland is *Hyparrhenia hirta* while *Trachypogon spicatus* is prominent on the western grassland. The most prominent woody species in the bush areas is *Searsia pyroides* while some alien invasive species are locally present.

Eight vegetation units and one developed area were mapped (Figure 6.1, Table 6.1)

Table 6.1: List of mapping units with ecological sensitivity:

	Vegetation mapping unit	GDARD sensitivity	Sensitivity analysis result
1	Secondary *Hyparrhenia hirta* grassland	Low	Medium-Low
2	Secondary bush along road	Low	Low
3	Bush on old dam wall	Low	Low
4	Transformed grassland on old dam floor	Low	Low
5	Transformed *Eucalyptus* area	Low	Low
6	*Trachypogon spicatus* grassland	High	Medium
7	Degraded *Searsia pyroides* bush	Low	Medium-Low
8	*Searsia lancea* alley	Low	Low
9	Developed (area old stables)	Low	Low

A vegetation map indicating the distribution of the mapping units is presented in Figure 6.1, while the ecological sensitivity is given in Figure 6.2.

Figure 6.1: A vegetation map of the site.

Figure 6.2: Ecological sensitivity of the site.

Left: GDARD sensitivity,

Right: Sensitivity analysis results

6.2 Description of the vegetation of the mapping units

6.2.1. Secondary *Hyparrhenia hirta* Grassland

This secondary grassland developed on the old agricultural fields that covers the eastern half of the site (Figure 6.1), with *Hyparrhenia hirta* the dominant grass species (Figure 6.3). The southern part of this plant community occurs in a fenced enclosure used as a quarantine camp for game animals. In this enclosed area some woody species occur, including indigenous species such as *Vachellia karroo* and *Searsia pyroides* and also some alien invasive species such as *Acacia mearnsii* and *Pyracantha angustifolia*. Herbaceous plants are rare and only widely scatted individuals of a few species are found in the tall grassland.

Figure 6.3: The Secondary *Hyparrhenia hirta*-dominated Grassland that occurs on the eastern half the site.

The following plant species were recorded in this plant community:

Trees and shrubs, dwarf shrubs

Acacia mearnsii	A2	*Searsia pyroides*	
Asparagus laricinus		*Seriphium plumosum*	W
Eucalyptus camaldulensis	A1b/2	*Vachellia karroo*	M
Pyracantha angustifolia	A1b		

Grasses and sedges

Aristida congesta		*Eragrostis plana*	
Cynodon dactylon		*Hyparrhenia dregeana*	
Digitaria eriantha		*Hyparrhenia hirta*	D
Eragrostis curvula	d	*Melinis repens*	

Forbs

Agrimonia procera	A1b	*Scabiosa columbaria*	M
Campuloclinium macrocephalum	A1b	*Senecio inornatus*	
Conyza podocephala	W	*Verbena bonariensis*	W
Gomphocarpus fruticosus	W	*Verbena braziliensis*	W
Helichrysum rugulosum		*Withania somnifera*	M
Helichrysum sp			

Table 6.2 Number of species recorded:

	Indigenous	Aliens / Weeds	Total	Red Data	Protected	Medicinal
Trees and shrubs	2	5	7	0	0	1
Grasses	8	0	8	0	0	0
Forbs	5	6	11	0	0	2
Total	15	11	26	0	0	3

The species richness is low, and no red data listed species was found. No protected tree species and no provincially protected forb species were recorded on the site.

Table 6.3 Secondary *Hyparrhenia hirta* Grassland summary			
Status	Secondary grassland on old agricultural field		
Soil	Shallow to deep loam soil	**Rockiness**	0-1%
Conservation value:	Low	**Ecological sensitivity**	Medium-Low
Species richness:	Low	**Need for rehabilitation**	Low
Dominant spp.	*Eragrostis curvula, Hyparrhenia hirta*		

Discussion

This grassland is secondary as it developed on old agricultural fields. The species richness is low Due to its secondary status the conservation value and sensitivity is regarded to be low and consequently it is suggested that the proposed development can be supported in this area. All alien and invasive species must be removed.

6.2.2. Secondary bush along road.

Some woody plant species, notably *Searsia pyroides* and *Asparagus laricinus*, became established along the road in the eastern part of the site (Figures 1.2 and 6.1), forming a narrow line of bush. (Figure 6.4) Only a few plant species are present in this linear plant community.

Figure 6.4: The line of bush along the road.

The following plant species were recorded in this plant community:

Trees and shrubs, dwarf shrubs

Asparagus laricinus	d	*Searsia lencea*	
Gymnosporia buxifolia		*Searsia pyroides*	D
Pyracantha angustifolia	A		

Grasses and sedges

Aristida congesta		*Eragrostis curvula*	d
Cynodon dactylon		*Hyparrhenia hirta*	D
Digitaria brazzae		*Melinis repens*	
Digitaria eriantha		*Themeda triandra*	

Forbs

Achyranthes aspera	W	*Solanum incanum*	W
Bidens bipinnata	W	*Tagetes minuta*	W
Conyza podocephala	W	*Verbena bonariensis*	W
Plantago lanceolate	W		

Table 6.4. Number of species recorded:

	Indigenous	Aliens / Weeds	Total	Red Data	Protected	Medicinal
Trees and shrubs	4	1	5	0	0	0
Grasses	8	0	8	0	0	0
Forbs	0	7	7	0	0	0
Total	12	8	20	0	0	0

The species richness is low. No red data listed species was found and no protected tree or other protected species were recorded in this plant community.

Table 6.5 Secondary bush along road summary			
Status	Transformed		
Soil	Loam soil	Rockiness	1%
Conservation value:	Low	Ecological sensitivity	Low
Species richness:	Low	Need for rehabilitation	Low
Dominant spp.	*Searsia pyroides, Asparagus laricinus, Hyparrhenia hirta*		

Discussion

It is suggested that the proposed development can be supported in this area. All alien and invasive trees should be removed.

6.2.3. Bush on old dam wall.

An old dam wall is present in the eastern part of the site (Figure 6.1). This dam is currently not functional. Some woody plant species, notably *Searsia pyroides* and *Asparagus laricinus*, became established on the dam wall (Figure 6.5). Only a few plant species are present in this secondary plant community.

Figure 6.5: The bush on the old dam wall.

The following plant species were recorded in this plant community:

Trees and shrubs, dwarf shrubs

Asparagus laricinus	d	*Gymnosporia buxifolia*	
Diospyros lycioides		*Searsia pyroides*	D
Eucalyptus camaldulensis	A1b		

Grasses and sedges

Aristida congesta		*Eragrostis curvula*	d
Cynodon dactylon		*Melinis repens*	

Forbs

Achyranthes aspera	W	*Tagetes minuta*	W
Solanum incanum	W	*Verbena bonariensis*	W

Table 6.6. Number of species recorded:

	Indigenous	Aliens / Weeds	Total	Red Data	Protected	Medicinal
Trees and shrubs	4	1	5	0	0	0
Grasses	4	0	4	0	0	0
Forbs	0	4	4	0	0	0
Total	8	5	13	0	0	0

The species richness is low. No red data listed species was found and no protected tree or other protected species were recorded in this plant community.

Table 6.7 Bush on old dam wall summary			
Status	Transformed		
Soil	Loam soil	**Rockiness**	1%
Conservation value:	Low	**Ecological sensitivity**	Low
Species richness:	Low	**Need for rehabilitation**	Medium – remove alien plants
Dominant spp.	*Searsia pyroides, Asparagus laricinus*		

Discussion

This dam wall is located within the proposed "green belt" conservation area, therefore excluded from the stands that will be developed. It is therefore suggested that that the proposed planning be supported for this area. Although Letamo Game Farm has been granted a permit for *Eucalyptus camaldulensis* these trees should be controlled, all individuals with a stem diameter of <500 mm at a height of 1000 mm must be removed and indigenous plant species promoted on the dam wall.

6.2.4. Transformed grassland on old dam floor.

The floor of the old dam (Figure 6.1) is currently covered by herbaceous plant species (Figure 6.6). This dam is currently not functional. Only a few plant species are present in this secondary plant community. The most abundant plant species include the grasses *Eragrostis curvula, Melinis repens, Hyparrhenia hirta* and *Cynodon dactylon.* Other conspicuously present species are invasive pom-pom weed, *Campyloclinium macrocephalum,* while young plants of the alien invasive woody *Eucalyptus camaldulensis, Acacia mearnsii* and *Pyracantha angustifolia* were also observed on the old dam floor and particularly surrounding the dam floor (Figure 6.6).

Figure 6.6: The transformed vegetation on the old dam floor.

The following plant species were recorded in this plant community:

Trees and shrubs, dwarf shrubs			
Acacia mearnsii	A2	*Pyracantha angustifolia*	A1b
Eucalyptus camaldulensis	A1b	*Seriphium plumosum*	W
Grasses and sedges			
Aristida congesta		*Eragrostis curvula*	d
Cynodon dactylon		*Hyparrhenia hirta*	
Digitaria eriantha		*Melinis repens*	
Forbs			
Campuloclinium macrocephalum	W1b	*Richardia braziliensis*	W
Helichrysum rugulosum		*Solanum incanum*	W
Pellaea viridis		*Verbena bonariensis*	W
Plantago lanceolata	W	*Withania somnifera*	W

Table 6.8. Number of species recorded:

	Indigenous	Aliens / Weeds	Total	Red Data	Protected	Medicinal
Trees and shrubs	1	3	4	0	0	0
Grasses	6	0	6	0	0	0
Forbs	2	6	8	0	0	0
Total	9	9	18	0	0	0

The species richness is low. No red data listed species was found and no protected tree or other protected species were recorded in this plant community.

Table 6.9 Transformed grassland on the old dam floor summary			
Status	Transformed		
Soil	Loam soil	**Rockiness**	1%
Conservation value:	Low	**Ecological sensitivity**	Low
Species richness:	Low	**Need for rehabilitation**	Medium – remove alien plants
Dominant spp.	*Searsia pyroides, Asparagus laricinus*		

Discussion

This dam is located within the proposed "green belt" conservation area, therefore excluded from the stands that will be developed. It is therefore suggested that that the proposed planning be supported for this area. Although Letamo Game Farm has been granted a permit for *Eucalyptus camaldulensis* these trees should be controlled, all individuals with a stem diameter of <500 mm at a height of 1000 mm must be removed. All other alien invasive species should be removed, and indigenous plant species promoted.

6.2.5. Transformed *Eucalyptus* areas.

The *Eucalyptus* areas occur at the old dam in the central-northern part of the site (Figure 6.1). The dominant species here is *Eucalyptus camaldulensis* and other woody species include a few shrubby individuals of *Searsia pyroides* and *Asparagus laricinus.* Herbaceous species are scanty with the grasses *Eragrostis curvula, Melinis repens, Hyparrhenia hirta* and *Cynodon dactylon* present. Other (Figure 6.7).

Figure 6.7: *Eucalyptus camaldulensis* area.

The following plant species were recorded in this plant community:

Trees and shrubs, dwarf shrubs

Asparagus laricinus		*Searsia pyroides*	
Eucalyptus camaldulensis	A1b	*Vachellia karroo*	M
Pyracantha angustifolia	A1b		

Grasses and sedges

Aristida congesta		*Hyparrhenia hirta*	
Cynodon dactylon		*Melinis repens*	
Eragrostis curvula	d		

Forbs

Helichrysum rugulosum		*Solanum incanum*	W
Plantago lanceolata	W	*Verbena bonariensis*	W
Richardia braziliensis	W		

Table 6.10. Number of species recorded:

	Indigenous	Aliens / Weeds	Total	Red Data	Protected	Medicinal
Trees and shrubs	3	2	5	0	0	0
Grasses	5	0	5	0	0	0
Forbs	1	4	5	0	0	0
Total	9	6	15	0	0	0

The species richness is low. No red data listed species was found and no protected tree or other protected species were recorded in this plant community.

Table 6.11 Transformed *Eucalyptus area* summary			
Status	Transformed		
Soil	Loam soil	**Rockiness**	1%
Conservation value:	Low	**Ecological sensitivity**	Low
Species richness:	Low	**Need for rehabilitation**	Medium – remove young *Eucalyptus*
Dominant spp.	*Eucalyptus camaldulensis Searsia pyroides, Asparagus laricinus*		

Discussion

The area close to the old dam is included in the planned open space area. Although a permit for *Eucalyptus* was obtained by Letamo Game Farm, this species should not be allowed to spread. All young plants <500 mm diameter at 1000 mm height must be removed.

6.2.6. *Trachypogon spicatus* Grassland

This grassland is located in the western part of the site (Figure 6.1). The soil is fairly shallow and was probably only partly ploughed in the past. Remains of previous stables and old residence are present in the southernmost part of this plant community, where several indigenous and alien invasive woody plant species e.g. *Searsia pyroides* and *Eucalyptus camaldulensis*. *Trachypogon spicatus* and *Schizachyrium sanguineum* are the most prominent grass species (Figure 6.8). Several herbaceous plants are found in this grassland.

Figure 6.8: The *Trachypogon spicatus* Grassland.

The following plant species were recorded in this plant community:

Trees and shrubs, dwarf shrubs

Asparagus laricinus		*Searsia lancea*	
Diospyros lycioides		*Searsia pyroides*	
Eucalyptus camaldulensis	A1b/2	*Seriphium plumosum*	W
Pyracantha angustifolia	A1b	*Vachellia karroo*	M

Grasses and sedges

Aristida congesta		*Hyparrhenia hirta*	
Brachiaria serrata		*Melinis repens*	
Cymbopogon caesius		*Schizachyrum sanguineum*	d
Cynodon dactylon		*Setaria sphacelata*	
Digitaria eriantha		*Themeda triandra*	
Eragrostis curvula	d	*Trachypogon spicatus*	D
Eragrostis plana			

Forbs

Acalypha angustata		*Justicia anagalloides*	
Babiana hypogoea	p	*Ledebouria revoluta*	
Campyloclinium macrocephalum	W	*Macledium zeyheri*	
Conyza podocephala	W	*Nidorella hottentotica*	
Dicoma anomala		*Richardia braziliensis*	W
Geigeria burkei		*Scabiosa columbaria*	M
Gladiolus crassifolius	p	*Senecio coronatus*	
Gomphocarpus fruticosus	W	*Senecio erubescens*	
Helichrysum coriaceum		*Senecio venosus*	
Helichrysum nudifolium		*Solanum incanum*	W
Helichrysum rugulosum		*Verbena bonariensis*	W
Hermannia depressa		*Vernonia natalensis*	
Hypoxis rigidula		*Withania somnifera*	M

Table 6.12 Number of species recorded:

	Indigenous	Aliens / Weeds	Total	Red Data	Protected	Medicinal
Trees and shrubs	6	2	8	0	0	1
Grasses	13	0	13	0	0	0
Forbs	20	6	26	0	2	2
Total	39	8	47	0	2	3

The species richness is medium to high, and no red data listed species was found. Two provincially protected forb species were recorded on the site.

Table 6.13 *Trachypogon spicatus* Grassland summary			
Status	Grassland – locally and patch highly disturbed and degraded		
Soil	Shallow loam soil	**Rockiness**	0-5%
Conservation value:	Medium	**Ecological sensitivity**	Medium
Species richness:	Low	**Need for rehabilitation**	Low
Dominant spp.	*Trachypogon spicatus, Schizachyrium sanguineum, Eragrostis curvula*		

Discussion

According to GDARD regulations primary grassland, even if disturbed and degraded, must be regarded to have high sensitivity. Furthermore, this grassland is representative of the endangered Egoli Granite Grassland. The species richness is medium to high and two provincially protected plant species were recorded in this grassland. The condition of this grassland is disturbed and therefore its conservation value and ecological sensitivity is regarded as only medium.

This is seen in the context of the planned development, where only 1500 m^2 of the mostly >1 hectare plots may be fenced to protect the house, the rest of the plot must remain open and be continuous with the Letamo Game Farm veld (as is the case with all the previous development of existing stands).

Development of this area can be considered. All alien and invasive species must be removed.

6.2.7. Degraded *Searsia pyroides* bush.

This is the north-south stretching strip of bush in the central-eastern part of the site (Figure 6.1). In the development plan this strip of bush is indicated as open space (Figures 1.3 and 1.4). The dominant indigenous woody plant species is *Searsia pyroides* but some other woody species, both indigenous and alien invasive species, are present in this bush (Figure 6.9). Only a few grass and forb species were recorded.

Figure 6.9: The Degraded *Searsia pyroides* bush left of the track.

The following plant species were recorded in this plant community:

Trees and shrubs, dwarf shrubs

Acacia mearnsii	A2	*Gymnosporia buxifolia*	
Asparagus laricinus		*Pinus cf patula*	A2
Celtis africana		*Pyracantha angustifolia*	A1b
Diospyros lycioides		*Searsia lancea*	
Ehretia rigida		*Searsia pyroides*	D
Eucalyptus camaldulensis	A1b	*Ziziphus mucronata*	

Grasses and sedges

Aristida congesta		*Hyparrhenia hirta*	
Cynodon dactylon		*Melinis repens*	
Digitaria brazzae		*Setaria megaphylla*	
Digitaria eriantha	D	*Setaria sphacelata*	
Eragrostis curvula	d		

Forbs

Achyranthes aspera	W	*Plantago lanceolata*	W
Bidens bipinnata	W	*Pupalea lapacea*	W
Campyloclinium macrocephalum	W	*Solanum incanum*	W
Conyza podocephala	W	*Tagetes minuta*	W
Ledebouria revoluta		*Verbena bonariensis*	W
Pellaea viridis			

Table 6.14. Number of species recorded:

	Indigenous	Aliens / Weeds	Total	Red Data	Protected	Medicinal
Trees and shrubs	8	4	12	0	0	0
Grasses	9	0	9	0	0	0
Forbs	2	9	11	0	0	0
Total	19	13	32	0	0	0

The species richness is low. No red data listed species was found and no protected tree or other protected species were recorded in this plant community. Many alien invasive species and weeds occur in this plant community.

Table 6.15 Degraded *Searsia pyroides* bush summary			
Status	Degraded to Transformed		
Soil	Loam soil	**Rockiness**	1%
Conservation value:	Medium-Low	**Ecological sensitivity**	Medium-Low
Species richness:	Low	**Need for rehabilitation**	Medium
Dominant spp.	*Searsia pyroides, Asparagus laricinus*		

Discussion

In the original layout plan this area is indicated as open space. However, this bush has low plant species richness, and many of the woody plants are alien invader species and most herbaceous species are weeds. In general, from a biodiversity perspective, this area is not as sensitive as the *Trachypogon spicatus* Grassland. By removing the alien and invasive species and keeping the indigenous woody species, the ecological value and indigenous biodiversity of this area can be improved.

6.2.8. *Searsia lancea* alley.

This is the north-south stretching strip of bush under a powerline in the central-western part of the site (Figure 6.1). The dominant indigenous woody plant species is *Searsia lancea* that was planted long ago along the road at the powerline. Some other woody species, both indigenous and alien invasive species, are present in this bush (Figure 6.10). Only a few grass and forb species were recorded.

Figure 6.10: The *Searsia lancea* alley along the powerline.

The following plant species were recorded in this plant community:

Trees and shrubs, dwarf shrubs

Asparagus laricinus		*Pyracantha angustifolia*	A1b
Eucalyptus camaldulensis	A1b	*Searsia lancea*	D
Pinus cf patula	A2	*Searsia pyroides*	d

Grasses and sedges

Aristida congesta		*Eragrostis curvula*	d
Cynodon dactylon		*Melinis repens*	
Digitaria eriantha	D		

Forbs

Achyranthes aspera	W	*Tagetes minuta*	W
Plantago lanceolata	W	*Verbena bonariensis*	W
Solanum incanum	W		

Table 6.16. Number of species recorded:

	Indigenous	Aliens / Weeds	Total	Red Data	Protected	Medicinal
Trees and shrubs	3	3	6	0	0	0

Grasses	5	0	5	0	0	0
Forbs	0	5	5	0	0	0
Total	8	8	16	0	0	0

The species richness is low. No red data listed species was found and no protected tree or other protected species were recorded in this plant community. Many alien invasive species and weeds occur in this plant community.

Table 6.17 *Searsia lancea* alley summary			
Status	Transformed		
Soil	Loam soil	**Rockiness**	1%
Conservation value:	Medium-Low	**Ecological sensitivity**	Low
Species richness:	Low	**Need for rehabilitation**	Medium
Dominant spp.	*Searsia pyroides, Asparagus laricinus*		

Discussion

This vegetation is located along the boundary between stands and will not be affected by the proposed development.

6.3 Plants of Conservation Concern

Plants of conservation concern are those plants that are important for South Africa's conservation decision making processes and include all plants that are Threatened, Extinct in the wild, Data deficient, Near-threatened, Critically rare, Rare and Declining. These plants are nationally protected by the National Environmental Management: Biodiversity Act (Raimondo *et al*, 2009).

Threatened species are those that are facing high risk of extinction, indicated by the categories Critically Endangered (CE), Endangered (EN) and Vulnerable (VU). Species of Conservation Concern include the Threatened Species, but additionally have the categories Near Threatened (NT), Data Deficient (DD), (DDT = lack of taxonomic data), Critically Rare (CR), Rare (R) and Declining (D). This is in accordance with the new Red List for South African Plants (Raimondo *et al.* 2009).

Table 6.6 Plant species of conservation concern listed from the Egoli Granite Grassland

1.) Populations of the following Red/Orange List plant taxa were recorded from on the actual study site (Letamo Portion 30) or in the near vicinity of the study site.

- None

2.) The following Red/Orange List plant taxa have been recorded from the farm for Letamo game farm on Portion. 30 of the farm Honingklip 178-IQ; quarter degree. on which the study site is situated / within 5km of the study site.

- *Aloe peglerae*
- *Brachycorythis conica* subsp. *transvaalensis*

These species may occur on the ridges about 2-3 km south of the site. There is no suitable habitat present on the site, which is located on the plains north of the ridges.

Table 6.18: The following Red/Orange List plant taxa have been recorded from the quarter degree grid 2627BB in which the study site is situated (according to GDARD April 2019).

Species	**Suitable habitat**	**Present on site**
Adromisdhus umbraticola subsp. *umbraticola*	No	No
Alepidea attenuata	No	No
Aloe peglerae	No	No
Boophane disticha	Yes	No
Bowiea volubilis subsp. *volubilis*	Marginally	No
Brachycorythis conica subsp. *transvaalensis*	No	No

Callilepis leptophylla	No	No
Cineraria austrotransvaalensis	No	No
Delosperma leendertziae	No	No
Eucomis autumnalis	No	No
Habenaria barbertoni	No	No
Habenaria mossii	No	No
Holothrix randii	No	No
Hypoxis hemerocallidea	Yes	No
Ilex mitis var. *mitis*	No	No
Melolobium subspicatum	No	No
Pearsonia bracteata	Yes	No

There is very limited suitable habitat for *Hypoxis hemerocallidea* and to a lesser degree *Pearsonia bracteata* on the site, but no plants were observed. *Hypoxis hemerocallidea* does occur on the Letamo Game Farm but not on Portion 30.

6.4. Provincially Protected Plants

Two provincially protected plant species were found on the site. *Babiana hypogoea* and *Gladiolus crassifolius* occur in the *Trachypogon spicatus* grassland. Both these species occur widespread and are not rare.

6.5. Nationally Protected Plants

The National Forest Act, 1998 (Act No. 84 of 1998) enforces the protection of a number of indigenous trees. The removal, thinning or relocation of protected trees will require a permit from the Department of Agriculture, Forestry and Fisheries (DAFF) (Notice of the List of Protected Tree Species under the National Forests Act, 1998, Notice 835, Government Gazette, 23 September 2010).

No nationally protected trees or TOPS /NEMBA plant species occur on the site.

6.6. Critical Biodiversity Areas

Figure 6.11 indicates that the site is not in a Critical Biodiversity Area. The site is in Letamo Town located within the Letamo Game Farm.

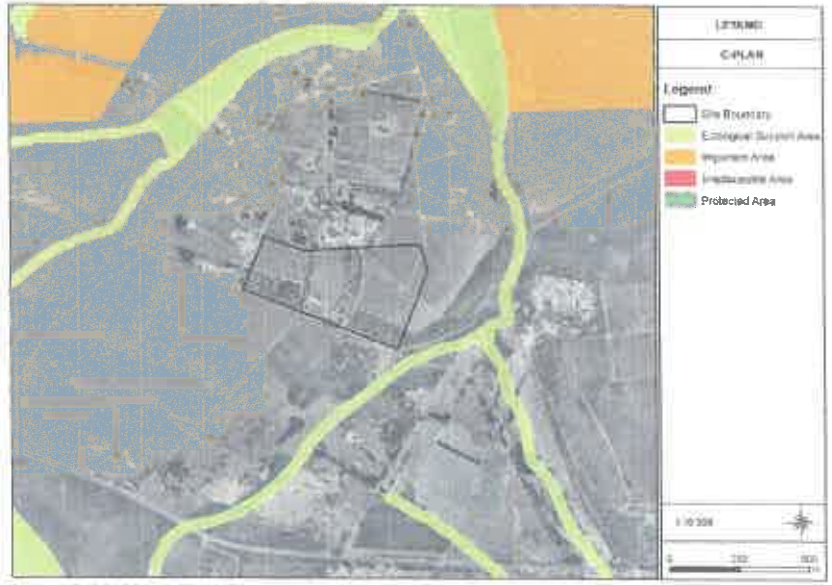


Figure 6.11: No Critical Biodiversity Areas or Ecological Support Areas occur in the vicinity of the site.

6.7. Alien Invasive Plant Species

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

Previously declared weeds and invasive plants were controlled by regulations of the Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983) (CARA). Later Alien and Invasive Species Regulations, as well as a new draft list of categories of invasive species in terms of the National Environmental Management: Biodiversity Act (Act 10 of 2004) was published in the Government Gazette No. 32090, in April 2009. Several amendments followed. Considering Sections 66(1), 67(1) 70(1)(a), 71(3) and 71A of the National Environmental Management: Biodiversity Act (Act 10 of 2004) the latest Alien and Invasive plant **species list** was published in 2016 (Government Gazette 40166, Notice 864, 29 July 2016) This notice replaces and repeals any Alien and Invasive **species lists** published under the Act, including Notice 599 of 1 August 2014, (Government Gazette 37886) and Notice R507, 508 and 509 of 19 July 2013 (Government Gazette 36683).

Below is a brief explanation of the categories in terms of the National Environmental Management: Biodiversity Act (Act 10 of 2004) (NEMBA) and described in Regulation Gazette 10244, Vol 590, and No 37885 (1 August 2014):

Category 1a: Invasive species requiring **compulsory** control. Any specimens of Category 1a listed species need, by law, to be eradicated from the environment. A person in control of a Category 1a Listed Invasive Species must **immediately** take steps to combat or **eradicate** listed invasive species in compliance with sections 75(1), (2) and (3) of the Act; and allow an authorised official from the Department to enter onto land to monitor, assist with or implement the combatting or eradication of these listed invasive species. No permits will be issued.

Category 1b: Invasive species require **compulsory** control as part of an invasive species **control program** that will result in **removal and destruction** of all such listed species. These plants are deemed to have such a high invasive potential that infestations can qualify to be placed under a government sponsored invasive species management program. No permits will be issued.

Category 2:
Listed Invasive Species are those species listed by notice in terms of section 70(1)(a) of the Act as species which require a **permit** to carry out a restricted activity within an area specified in the Notice or an area specified in the permit (e.g. a plantation, woodlot, orchard etc.), as the case may be.

Unless otherwise indicated in the Notice, no person may carry out a restricted activity in respect of a Category 2 Listed Invasive Species without a permit.

A landowner on whose land a Category 2 Listed Invasive Species occurs or person in possession of a permit, must ensure that the specimens of the species do not spread outside of the land or the area specified in the Notice or permit.

If an Invasive Species Management Programme has been developed in terms of section 75(4) of the Act, a person must control the listed invasive species in accordance with such programme.

Unless otherwise specified in the Notice, any species listed as a Category 2 Listed Invasive Species that occurs outside the specified area contemplated in sub-regulation (1), must, for purposes of these regulations, be considered to be a Category 1 b Listed Invasive Species and must be managed according to Regulation 3.

Notwithstanding the specific exemptions relating to existing plantations in respect of Listed Invasive Plant Species published in Government Gazette No. 37886, according to Notice 599 of 1 August 2014 (as amended), any person or organ of state must ensure that the specimens of such Listed Invasive Plant Species do not spread outside of the land over which they have control.

In summary: Category 2 Invasive species are regulated within a specific **area**. A **permit** for this specific area is required to import, possess, grow, breed, move, sell, buy or accept as a gift any plants listed as Category 2 plants. A landowner on whose land a Category 2 Listed Invasive Species occurs, or a person in possession of a permit, **must ensure that the**

specimens of the species do not spread outside of the land or the area specified in the Notice or permit.

Category 2 Listed Invasive Species that occur outside the specified area contemplated, must, for purposes of these regulations, be considered as Category 1b listed invasive species and must be managed accordingly.

No permits will be issued for Category 2 species to exist in riparian zones. These are considered as Category 1b listed invasive plants species, and must be managed accordingly.

Category 3: Invasive species regulated by activity. Category 3 Listed Invasive Species are species that are subject to **exemptions** in terms of section 71(3) and **prohibitions** in terms of section 71A of Act. This means that a permit to have these species on the particular property is **not required**, though the land owner is still responsible to control this species and is prohibited of growing, breeding or in any other way propagating these listed invasive species, or allow it to multiply and spread. Selling or otherwise trading in, buying, receiving, giving, donating or accepting as a gift, or in any way acquiring or disposing of any specimen of these listed invasive species are also prohibited.

Any plant species identified as a Category 3 Listed Invasive Species that occurs in riparian areas, must, for the purposes of these regulations, be considered as a Category 1b Listed Invasive Species and must be managed accordingly.

The landowner is responsible:
In terms of the amendments to the regulations under the Conservation of Agriculture Resources Act, 1983 (Act No. 43 of 1983) and Regulation 598, Government Gazette 37885, August 2014) (Alien and Invasive Species Regulations), landowners are legally responsible for the control of alien species on their properties.

It should further be noted that the National Environmental Management: Biodiversity Act (2004), Chapter 5, Part 2, Section 73(2), states that a person who is the owner of land on which a listed invasive species occurs must notify any relevant competent authority in writing of the listed invasive species that occur on that land.

Furthermore, that according to the National Environmental Management: Biodiversity Act (2004), Alien and Invasive species Regulations (2017), Chapter 7, Section 29 (1), (2) and (3), the seller of any immovable property must, prior to the conclusion of the relevant sale agreement, notify the purchaser of that property in writing of the presence of listed invasive species on that property.

The declared invasive plant species that occur on the site that should be removed and controlled by the landowner are:

Species	**Category**
Acacia mearnsii	2/1b
Campyloclinium macrocephalum	1b
Eucalyptus camaldulensis	1b

Pinus sp	2/1b
Pyracantha angustifolia	1b
Solanum mauritianum	1b

It should be noted that the Letamo Game Farm obtained a permit to keep certain individuals of Eucalyptus camaldulensis, however this species should be controlled to prevent further invasion, therefore all individuals with a stem diameter of <500 mm at 1000 mm height must be removed. All other invasive species that occur on the site must be removed.

6.8. Vegetation Importance and Sensitivity

The result of the sensitivity analysis is given in Table 6.19 (see Table 4.1).

Table 6.19: Scoring of vegetation that occurs within the study area.

Vegetation	Conservation Status of regional Vegetation unit	Listed Ecosystem	Legislated Protection	Species of conservation concern	Ecological Function	Conservation Importance	Total Score out of max of 18
1 Secondary *Hyparrhenia hirta* Grassland	3	0	0	0	2	1	6 Medium-Low
2 Secondary bush along road 3 Bush on old dam wall 4 Transformed grassland on old dam floor 8 *Searsia lancea* alley	3	0	0	0	1	0	4 Low
5 Transformed *Eucalyptus area*	1	0	0	0	0	0	1 Low
7 Degraded *Searsia pyroides* bush	3	0	1	0	3	1	8 Medium-Low
6 *Trachypogon spicatus* Grassland	3	2	1	1	2	1	10 Medium

The result of the sensitivity assessment (Table 6.19) indicates that:

- the vegetation of the *Trachypogon spicatus* Grassland has, in accordance with the GDARD High ecological sensitivity, though the sensitivity analysis indicates a Medium ecological sensitivity, and this area may be considered for the proposed development.
- The Degraded *Searsia pyroides* Bush and the Secondary *Hyparrhenia hirta* Grassland have Medium-Low ecological sensitivity but note that that the Degraded *Searsia pyroides* Bush is earmarked for open space.
- The Secondary bush along road, Bush on old dam wall, the Transformed grassland on dam floor, the Transformed *Eucalyptus* area and the *Searsia lancea* alley all have Low ecological sensitivity and development can be supported in these areas.

6.9: Conclusion: Vegetation and Flora.

Eight plant communities (mapping units, ecosystems) + one developed area were mapped, ecologically assessed and described.

The Secondary *Hyparrhenia hirta* Grassland has Medium-Low ecological sensitivity and it is suggested that development can be supported in these areas. Note that the Degraded *Searsia pyroides* Bush is earmarked for open space.

Secondary bush along road, Bush on old dam wall, the Transformed grassland on dam floor, the Transformed *Eucalyptus* area and the *Searsia lancea* alley all have Low ecological sensitivity and development can be supported in these areas.

The vegetation of the *Trachypogon spicatus* Grassland has medium ecological sensitivity, therefore this vegetation may be considered for the proposed development.

There are no red data listed plant species and two provincially protected plant species (*Babiana hypogoea* and *Gladiolus crassifolius*) occur in *Trachypogon spicatus* Grassland on the site.

The proposed development of the site can be supported.

8. RESULTS: BIRDS

8.1 General

The habitats occupied by flighted birds differ from those of most terrestrial vertebrates in being explicitly three-dimensional, especially for aerial-feeding species and in the airspace above landscapes with low relief and short vegetation, such as occurred at the site. In the two primarily terrestrial dimensions, most birds are also more dependent on vegetation structure, and substrate texture and colour, than they are on vegetation composition, with the exception of a minority of species with particular food requirements of foliage, flowers, fruit or seeds. However, the vegetation biomes and units most recently described for South Africa are defined primarily on structure and include vegetation composition, they do offer good analyses of the abiotic factors that also underlie these divisions, such as topography, geology, soil types and climate, and on general structural features of vegetation types and landscapes (Mucina & Rutherford, 2006). The habitats at the site occur primarily within the Carletonville Dolomite Grassland (Mucina & Rutherford, 2006).

The aerial mobility of most bird species makes their presence in an area vary from permanent residency to infrequent vagrancy, depending on the biology of the species and/or the quantity and quality of its preferred habitats available. The best recent data sets available stem from the first Southern African Bird Atlas Project (SABAP1), with a quarter-degree grid cell (QDGC) resolution and data collection that ended in 1992, while the second phase SABAP2, with a pentad resolution commenced in 2007 and ongoing (Harrison et al. 1997; www.sabap2.adu.org) allows comparison over time to detect trends in population distribution and relative abundance.

Birds are also a relatively visible and audible group of homeothermic vertebrates, active throughout the year, and with habitat preferences that can be evaluated from experience, by reference to the comprehensive literature available and by the subset of species that can be detected by a field survey during a particular season and time of day. Such information and experience also inform and enable searches for particular species of conservation concern.

Avian habitats at the site consist of small areas of primary grassland, secondary grassland and wetlands. The site is located in an urbanised area, but there is sufficient connectivity to make it likely that birds move through the site to a greater extent than would be the case if it were entirely surrounded by urban developments.

8.2 Bird Habitat Assessment

The two main avian habitats in the study area could be separated into 1) Open water and aquatic vegetation in the buffer areas of study site, 2) grassland or disturbed grassland, with scattered indigenous and exotic trees. Most birds associated with aquatic habitats and their margins are notoriously widespread and mobile, due to the extreme seasonal and inter-annual changes that such systems experience. Only threatened Red Data species are included, based on the Precautionary Principle that even if they just use the habitat in passing it may still contribute to their survival.

8.3 Expected and Observed Bird Species Richness

Given that the study area has terrestrial habitat in the form of disturbed grassveld and small areas of wetland off-site, sandwiched between densely occupied housing areas, 274 species of those historically possible could ever be expected to reside on or visit the study area, of which only 41 were recorded during the site visit to the study area (Table 8.1). The probability of their occurrence is estimated subjectively as high, medium or low based on three criteria: their known distribution ranges, habitat preferences and the quality and quantity of suitable habitats in the study area. In this instance, the extensive transformation and degradation of the habitats and their surroundings was the most significant factor.

The two main avian habitats in the study area could be separated into 1) Open water and aquatic vegetation in the buffer areas of study site, 2) grassland or disturbed grassland, with scattered indigenous and exotic trees. Most birds associated with aquatic habitats and their margins are notoriously widespread and mobile, due to the extreme seasonal and inter-annual changes that such systems experience. Only threatened Red Data species are included, based on the Precautionary Principle that even if they just use the habitat in passing it may still contribute to their survival.

Table 8.1: Bird species diversity expected and observed at the study site and adjacent vicinity. Names and systematic order after Hockey *et al.* (2005), estimated probability of occurrence: * - possible; ** - likely; S – sighted; H – heard), and national Red Data (Taylor *et al.* 2015)

Common English Name	Scientific Name	Status Codes (see below)			Probability of occurrence				
		RO	S	E	High	Medium	Low	1	2
Red-winged Francolin	*Scleroptila levaillantii*						L		X
Coqui Francolin	*Peliperdix coqui*						L		X
Orange River Francolin	*Scleroptila levaillantoides*						L		X
Swainson's Spurfowl	*Pternistis swainsonii*				H				X
Common Quail	*Coturnix coturnix*						L		X
Helmeted Guineafowl	*Numida meleagris*				H				X
Fulvous Duck	*Dendrocygna bicolor*						L	X	
White-faced Duck	*Dendrocygna viduata*				H			X	
Egyptian Goose	*Alopochen aegyptiaca*				H			X	
Spur-winged Goose	*Plectropterus gambensis*				H			X	
Cape Teal	*Anas capensis*						L	X	
African Black Duck	*Anas sparsa*						L	X	

Common English Name	Scientific Name	Status Codes (see below)			Probability of occurrence				
		NCO	S	E	High	Medium	Low	1	2
Yellow-billed Duck	*Anas undulata*				H			X	
Cape Shoveler	*Anas smithii*						L	X	
Red-billed Teal	*Anas erythrorhyncha*				H			X	
Kurrichane Buttonquail	*Turnix sylvaticus*					M			X
Red-throated Wryneck	*Jynx ruficollis*					M			X
Cardinal Woodpecker	*Dendropicos fuscescens*					M			X
Southern Yellow-billed Hornbill	*Tockus leucomelas*						L		X
African Grey Hornbill	*Tockus nasutus*					M			X
Green Wood-Hoopoe	*Phoeniculus purpureus*					M			X
European Roller	*Coracias garrulus*						L		X
Lilac-breasted Roller	*Coracias caudatus*						L		X
Purple Roller	*Coracias naevius*						L		X
Acacia Pied Barbet	*Tricholaema lecomelas*				H		L		X
Black-collared Barbet	*Lybius torquatus*				H		L		X
Crested Barbet	*Trachyphonus vaillantii*				H				X
African Hoopoe	*Upupa africana*				H				X
Half-collared Kingfisher	*Alcedo semitorquata*						L	X	
Malachite Kingfisher	*Alcedo cristata*						L	X	
Woodland Kingfisher	*Halcyon senegalensis*						L		X
Brown-hooded Kingfisher	*Halcyon albiventris*						L	X	X
Giant Kingfisher	*Megaceryle maxima*						L	X	
Pied Kingfisher	*Ceryle rudis*					M		X	
White-fronted Bee-eater	*Merops bullockoides*					M			X
Little Bee-eater	*Merops pusillus*					M		X	
European Bee-eater	*Merops apiaster*				H			X	
Speckled Mousebird	*Colius striatus*				H				X
Red-Faced Mousebird	*Urocolius indicus*				H				X

Common English Name	Scientific Name	Status Codes (see below)			Probability of occurrence				
		NCO	S	E	High	Medium	Low	1	2
Jacobin Cuckoo	*Clamator jacobinus*						L		X
Red-chested Cuckoo	*Cuculus solitarius*						L		X
Black Cuckoo	*Cuculus clamosus*						L		X
Diderick Cuckoo	*Chrysococcyx caprius*						L		X
Burchell's Coucal	*Centropus burchellii*					M		X	
African Palm-Swift	*Cypsiurus parvus*				H			X	
Alpine Swift	*Tachymarptis melba*					M		X	
African Black Swift	*Apus barbatus*					M		X	
Little Swift	*Apus affinis*				H			X	
Horus Swift	*Apus horus*					M		X	
White-rumped Swift	*Apus caffer*				H			X	
Grey Go-away-bird	*Corythaixoides concolor*				H				X
Barn Owl	*Tyto alba*					M			X
African Grass-Owl	*Tyto capensis*						L		X
Spotted Eagle-Owl	*Bubo africanus*					M			X
Marsh Owl	*Asio capensis*				H				X
European Nightjar	*Caprimulgus europaeus*						L		X
Fiery-necked Nightjar	*Caprimulgus pectoralis*					M			X
Freckled Nightjar	*Caprimulgus tristigma*						L		X
Rufous-cheeked Nightjar	*Caprimulgus rufigena*					M			X
Rock Dove	*Columba livia*				H				X
Speckled Pigeon	*Columba guinea*				H				X
Laughing Dove	*Streptopelia senegalensis*				H				X
Cape Turtle-Dove	*Streptopelia capicola*				H				X
Red-eyed Dove	*Streptopelia semitorquata*				H				X
Emerald-spotted Wood-Dove	*Turtur chalcospilos*						L		X
Namaqua Dove	*Oena capensis*					M			X
White-bellied Korhaan	*Eupodotis senegalensis*						L		X

Common English Name	Scientific Name	Status Codes (see below)			Probability of occurrence				
		RD	S	E	High	Medium	Low	1	2
Northern Black Korhaan	*Afrotis afraoides*					M			X
Blue Crane	*Anthropoides paradiseus*	NT					L		X
African Finfoot	*Podica senegalensis*	VU					L	X	
Red-chested Flufftail	*Sarothrura rufa*						L	X	
African Rail	*Rallus caerulescens*						L	X	
African Crake	*Crecopsis egregia*		LC				L	X	
Corn Crake	*Crex crex*		NSM				L	X	
Black Crake	*Amaurornis flavirostra*				H			X	
Baillon's Crake	*Porzana pusilla*						L	X	
African Purple Swamphen	*Porphyrio madagascariensis*						L	X	
Common Moorhen	*Gallinula chloropus*				H			X	
Red-knobbed coot	*Fulica cristata*				H			X	
African Snipe	*Gallinago nigripennis*				H			X	
Marsh Sandpiper	*Tringa stagnatilis*		NMM			M		X	
Common Greenshank	*Tringa nebularia*		NMM			M		X	
Wood Sandpiper	*Tringa glareola*		NMM			M		X	
Common Sandpiper	*Actitis hypoleucos*		NMM			M		X	
Little Stint	*Calidris minuta*		NA			M		X	
Curlew Sandpiper	*Calidrus ferruginea*						L	X	
Ruff	*Philomachus pugnax*		NMM			M		X	
African Jacana	*Actophilornis africanus*						L	X	
Spotted Thick-knee	*Burhinus capensis*					M			X
Black-winged Stilt	*Himantopus himantopus*					M		X	
Pied Avocet	*Recurvirostra avosetta*						L	X	
Common Ringed Plover	*Charadrius hiaticula*		NMM				L	X	
Kittlitz's Plover	*Charadrius pecuarius*						L	X	
Three-banded Plover	*Charadrius tricollaris*				H			X	
Blacksmith Lapwing	*Vanellus armatus*				H			X	

Common English Name	Scientific Name	Status Codes (see below)			Probability of occurrence				
		RD	S	E	High	Medium	Low	1	2
African Wattled Lapwing	*Vanellus senegallus*				H			X	
Crowned Lapwing	*Vanellus coronatus*				H				X
Grey-headed Gull	*Chroicocephalus cirrocephalus*					M		X	
White-winged Tern	*Chlidonias leucopterus*		NMM			M		X	
African Cuckoo Hawk	*Aviceda cuculoides*						L		X
European Honey-Buzzard	*Pernis apivorus*						L		X
Black-shouldered Kite	*Elanus caeruleus*				H				X
Black Kite	*Milvus migrans*		NMM				L		X
African Fish-Eagle	*Haliaeetus vocifer*						L	X	
Cape Vulture	*Gyps coprotheres*	EN					L	X	
Black-chested Snake-Eagle	*Circaetus pectoralis*						L		X
African Marsh Harrier	*Circus ranivorus*	EN					L	X	
African Harrier-Hawk	*Polyboroides typus*						L		X
Lizard Buzzard	*Kaupifalco monogrammicus*						L		X
Shikra	*Accipiter badius*						L		X
Little Sparrowhawk	*Accipiter minullus*						L		X
Ovambo Sparrowhawk	*Accipiter ovampensis*						L		X
Black Sparrowhawk	*Accipiter melanoleucus*						L		X
Steppe Buzzard	*Buteo buteo*		NMM		H				X
Jackal Buzzard	*Buteo rufofuscus*						L		X
Verreaux's Eagle	*Aquila verreauxii*	VU				M			X
African Hawk-Eagle	*Aquila spilogaster*						L		X
Martial Eagle	*Polemaetus bellicosus*	EN					L		X
Long-crested Eagle	*Lophaetus occipitalis*						L		X
Secretarybird	*Sagittarius serpentarius*	VU					L		X
Lesser Kestrel	*Falco naumanni*		NMM				L		X
Greater Kestrel	*Falco rupicoloides*						L		X

Common English Name	Scientific Name	Status Codes (see below)			Probability of occurrence				
		RD	S	E	High	Medium	Low	1	2
Amur Falcon	*Falco amurensis*				H				X
Red-footed Falcon	*Falco vespertinus*	NT					L		X
Eurasian Hobby	*Falco subbuteo*						L		X
Lanner Falcon	*Falco biarmicus*	VU					L		X
Little Grebe	*Tachybaptus ruficollis*				H			X	
Greater Crested Grebe	*Podiceps cristatus*						L	X	
African Darter	*Anhinga rufa*					M		X	
Reed Cormorant	*Phalacrocorax africanus*				H			X	
White-breasted Cormorant	*Phalacrocorax lucidus*					M		X	
Black Heron	*Egretta ardesiaca*						L	X	
Little Egret	*Egretta garzetta*				H			X	
Yellow-billed Egret	*Egretta intermedia*						L	X	
Great Egret	*Egretta alba*					M		X	
Grey Heron	*Ardea cinerea*				H			X	
Black-headed Heron	*Ardea melanocephala*				H			X	X
Goliath Heron	*Ardea goliath*						L	X	
Purple Heron	*Ardea purpurea*					M		X	
Cattle Egret	*Bubulcus ibis*				H				X
Squacco Heron	*Ardeola ralloides*					M		X	
Green-backed Heron	*Butorides striata*						L	X	
Black-crowned Night-Heron	*Nycticorax nycticorax*						L	X	
Little Bittern	*Ixobrychus minutus*					M		X	
Hamerkop	*Scopus umbretta*					M		X	
Glossy Ibis	*Plegadis falcinellus*				H			X	
Hadeda Ibis	*Bostrychia hagedash*				H			X	X
African Sacred Ibis	*Threskiornis aethiopicus*				H			X	
African Spoonbill	*Platalea alba*					M		X	
Yellow-billed Stork	*Mycteria ibis*	EN					L	X	

Common English Name	Scientific Name	Status Codes (see below)			Probability of occurrence				
		RD	S	E	High	Medium	Low	1	2
Black Stork	*Ciconia nigra*	VU					L	X	
Abdim's Stork	*Ciconia abdimii*	NT					L		X
White Stork	*Ciconia ciconia*					M			X
Black-headed Oriole	*Oriolus larvatus*					M			X
African Paradise-Flycatcher	*Terpsiphone viridis*					M			X
Black-backed Puffback	*Dryoscopus cubla*						L		X
Black-crowned Tchagra	*Tchagra senegalusX*						L		X
Brown-crowned Tchagra	*Tchagra australis*						L		X
Southern Boubou	*Laniarius ferrugineus*						L	X	
Crimson-breasted Shrike	*Laniarius atrococcineus*						L		X
Bokmakierie	*Telophorus zeylonus*					M			X
White-crested Helmet-Shrike	*Prionops plumatus*						L		X
Chinspot Batis	*Batis molitor*						L		X
Pied crow	*Corvus albus*				H				X
Red-backed Shrike	*Lanius collurio*					M			X
Lesser Grey Shrike	*Lanius minor*						L		X
Common Fiscal	*Lanius collaris*				H				X
Magpie Shrike	*Corvinella melanoleuca*						L		X
Southern Black Tit	*Parus niger*						L		X
Ashy Tit	*Parus cinerascens*						L		X
Sand Martin	*Riparia riparia*						L	X	
Brown-throated Martin	*Riparia paludicola*					M		X	
Banded Martin	*Riparia cincta*						L	X	
Barn Swallow	*Hirundo rustica*				H			X	
White-throated Swallow	*Hirundo albigularis*				H			X	
Pearl-breasted Swallow	*Hirundo dimidiata*					M		X	
Greater Striped Swallow	*Cecropis cucullata*				H			X	

Common English Name	Scientific Name	Status Codes (see below)			Probability of occurrence				
		RD	S	E	High	Medium	Low	1	2
Lesser Striped Swallow	*Cecropis abyssinica*		RM			M		X	
Red-breasted Swallow	*Cecropis semirufa*						L	X	
South African cliff-Swallow	*Petrochelidon spilodera*			B(*)	H			X	
Rock Martin	*Hirundo fuligula*						L	X	
Common House-Martin	*Delichon urbicum*		RBM			M		X	
Dark-capped Bulbul	*Pycnonotus tricolor*				H				X
Fairy Flycatcher	*Stenostira scita*						L		X
Cape Grassbird	*Sphenoeacus afer*						L		X
Long-billed Crombec	*Sylvietta rufescens*						L		X
Little Rush-Warbler	*Bradypterus baboecala*				H			X	
Sedge Warbler	*Acrocephalus schoenobaenus*		NBM			M		X	
African Reed-Warbler	*Acrocephalus baeticatus*		RM		H			X	
Marsh Warbler	*Acrocephalus palustris*		NBM			M		X	
Great Reed-Warbler	*Acrocephalus arundinaceus*		NBM			M		X	
Lesser Swamp-Warbler	*Acrocephalus gracilirostris*				H			X	
Willow Warbler	*Phylloscopus trochilus*						L		X
Arrow-marked Babbler	*Turdoides jardineii*						L		X
Chestnut-vented Tit-Babbler	*Parisoma subcaeruleum*						L		X
Cape White-eye	*Zosterops virens*				H				X
Lazy Cisticola	*Cisticola aberrans*						L		X
Rattling Cisticola	*Cisticola chiniana*						L		X
Wailing Cisticola	*Cisticola lais*						L		X
Levaillant's Cisticola	*Cisticola tinniens*				H			X	X
Neddicky	*Cisticola fulvicapilla*				H				X
Zitting Cisticola	*Cisticola juncidis*				H			X	
Desert Cisticola	*Cisticola aridulus*					M			X
Cloud Cisticola	*Cisticola textrix*			(*)			L		X
Wing-snapping Cisticola	*Cisticola ayresii*						L		X

Common English Name	Scientific Name	Status Codes (see below)			Probability of occurrence				
		RD	S	E	High	Medium	Low	1	2
Tawny-flanked Prinia	*Prinia subflava*				H			X	
Black-chested Prinia	*Prinia flavicans*					M			X
Bar-throated Apalis	*Apalis thoracica*						L		X
Melodious Lark	*Mirafra cheniana*			(*)			L		X
Rufous-naped Lark	*Mirafra africana*					M			X
Eastern clapper Lark	*Mirafra fasciolata*						L		X
Sabota Lark	*Calendulauda sabota*						L		X
Spike-heeled Lark	*Chersomanes albofasciata*						L		X
Eastern Long-billed Lark	*Certhilauda semitorquata*						L		X
Chestnut-backed Sparrowlark	*Eremopterix leucotis*					M			X
Red-capped Lark	*Calandrella cinerea*					M			X
Groundscraper Thrush	*Psophocichla litsitsirupa*					M			X
Kurrichane Thrush	*Turdus libonyanus*						L		X
Karoo Thrush	*Turdus smithi*				H				X
Fiscal Flycatcher	*Sigelus silens*				H				X
Spotted Flycatcher	*Muscicapa striata*						L		X
Grey Tit-Flycatcher	*Myioparus plumbeus*						L		X
Cape Robin-Chat	*Cossypha caffra*				H				X
African StoneChat	*Saxicola torquatus*				H				X
Mountain Wheatear	*Oenanthe monticola*						L		X
Capped Wheatear	*Oenanthe pileata*					M			X
Familiar Chat	*Cercomela familiaris*						L		X
Ant-eating Chat	*Myrmecocichla formicivora*						L		X
Mocking Cliff-Chat	*Thamnolaea cinnamomeiventris*						L		X
Red-winged Starling	*Onychognathus morio*						L		X
Cape Glossy Starling	*Lamprotornis nitens*				H				X
Violet-backed Starling	*Cinnyricinclus leucogaster*						L		X

Common English Name	Scientific Name	Status Codes (see below)			Probability of occurrence				
		RD	S	E	High	Medium	Low	1	2
Pied Starling	*Lamprotornis bicolor*			(*)		M			X
Wattled Starling	*Creatophora cinerea*					M			X
Common Myna	*Acridotheres tristis*				H				X
Amethyst Sunbird	*Chalcomitra amethystina*						L		X
White-bellied Sunbird	*Cinnyris talatala*						L		X
White-browed Sparrow-Weaver	*Plocepasser mahali*						L		X
Cape Weaver	*Ploceus capensis*			(*)	H				X
Southern Masked-Weaver	*Ploceus velatus*				H				X
Red-billed Quelea	*Quelea quelea*				H				X
Yellow-crowned Bishop	*Euplectes afer*				H			X	
Southern Red Bishop	*Euplectes orix*				H			X	X
White-winged Widowbird	*Euplectes albonotatus*				H				X
Red-collared Widowbird	*Euplectes ardens*				H				X
Long-tailed Widowbird	*Euplectes progne*				H				X
Thick-billed Weaver	*Amblyospiza albifrons*					M			X
Orange-breasted Waxbill	*Amandava subflava*						L		X
African Quailfinch	*Ortygospiza fuscocrissa*						L		X
Red-headed Finch	*Amadina erythrocephala*						L		X
Cut-throat Finch	*Amadina fasciata*						L		X
Common Waxbill	*Estrilda astrild*				H				X
Blue Waxbill	*Uraeginthus angolensis*				H				X
African Firefinch	*Laginosticta rubricata*						L		X
Jameson's Firefinch	*Lagonosticta rhodopareia*						L		X
Bronze Mannikin	*Spermestes cucullata*						L		X
Pin-tailed Whydah	*Vidua macroura*				H				

Common English Name	Scientific Name	Status Codes (see below)			Probability of occurrence				
		RD	S	E	High	Medium	Low	1	2
Purple Indigobird	*Vidua purpurascens*						L		X
House Sparrow	*Passer domesticus*				H				X
White-browed Sparrow-Weaver	*Plocepasser mahali*						L		X
Cape Sparrow	*Passer melanurus*				H				X
Southern Grey-headed Sparrow	*Passer diffusus*						L		X
African Pied Wagtail	*Motacilla aguimp*						L		X
Cape Wagtail	*Motacilla capensis*				H			X	
Cape Longclaw	*Macronyx capensis*					M			X
African Pipit	*Anthus cinnamomeus*				H				X
Yellow-fronted Canary	*Crithagra mozambicus*						L		X
Black-throated Canary	*Crithagra atrogularis*				H				X
Yellow Canary	*Crithagra flaviventris*						L		X
Streaky-headed Seedeater	*Crithagra gularis*						L		X
Lark-like Bunting	*Emberiza impetuani*						L		X
Cape Bunting	*Emberiza capensis*						L		X
Golden-Breasted Bunting	*Embreriza flaviventris*								
Cinnamon-breasted Bunting	*Emberiza tahapisi*						L		X

Red Status	Status in south Africa (S)	Endemism in South Africa (E)
		Endemism in South Africa (E) (not southern Africa as in field guides)
		* = endemic
		(*) = near endemic (i.e. ~70% or more of population in RSA)
		B* = breeding endemic
		B(*) = breeding near endemic

8.4 Threatened and Red Listed Bird Species

A total of 21 threatened or near threatened species (Taylor, Peacock & Wanless, 2015) have been recorded in the area (Table 4). However, of these species, only a few species are likely to occur at the site, because for many the nature of the site is such that their occurrence is extremely unlikely (Table 4). Due to the limited extent and quality of the habitats of the actual study site, half the species are expected to be at best erratic visitors and the other half are only expected as infrequent vagrants, their inclusion being primarily due to the Precautionary Principle. As can be seen from the estimates of the habitats as support for the basic requirements of the species, they are considered at best as only mediocre for all the threatened species. The only exception may be grass-owls, because a part of the study site's buffer areas still provides habitat for this species. The Verraux's eagles, which nest nearby the site at the Walter Sisulu National Botanical Gardens, may use the site as a small part of their foraging area. The same applies for the Cape vultures of the nearby Magaliesberg Mountain range. The odd lanner falcon and the red-footed falcons may also use the study site as part of their hunting area. Secretarybirds and blue cranes sometimes use the Letamo Game Farm for foraging. The fact that aquatic habitats occur in the buffer areas surrounding the study site dramatically improves the chances for water-dependent Red Data birds to occur on or near the study site.

Table 8.2: Red-listed species whose possible presence at the site of the proposed development was evaluated during the assessment process.

Species	Scientific name	Red Data[1]	Assessment of likelihood of presence at site
Stork, Yellow-billed	*Mycteria ibis*	EN	Possible, but unlikely. Forages in a diversity of permanent and seasonal wetlands such as the buffer area of the site.
Stork, Black	*Ciconia nigra*	VU	Possible, but unlikely. Forages for fish in dams such as those in the buffer area of the site.
Stork, Abdim's	*Ciconia abdimii*	NT	Possible, but unlikely. Occurs in grasslands, woodlands and cultivated fields in rural areas.
Flamingo, Greater	*Phoenicopterus ruber*	NT	Extremely unlikely – no suitable habitat on site.
Flamingo, Lesser	*Phoenicopterus minor*	NT	Extremely unlikely – no suitable habitat on site.
Duck, Maccoa	*Oxyura maccoa*	NT	Unlikely – occurs in permanent standing water bodies. The temporary pan and man-made dams near the site are probably too small to host this species.
Secretarybird	*Sagittarius serpentarius*	VU	Possible. Site is too small to host this species, but some individuals may occur on site from time to time.
Vulture, Cape	*Gyps coprotheres*	EN	It occurs within 50 km of site, and therefore possible that birds traverse the area from time to time.
Falcon, Lanner	*Falco biarmicus*	VU	Occurrence possible, but the area is unlikely to be important hunting habitat.
Falcon, Red-footed	*Falco vespertinus*	NT	Small possibility. Occurs in open savannas, and may roost in stands of *Eucalyptus* trees on site.
Eagle, Verreaux's	*Aquila verreauxii*	VU	Largely confined to mountainous areas. However, occurs within 20 km of site, and therefore possible that birds traverse the area from time to time.
Eagle, Martial	*Polemaetus bellicosus*	EN	Possible, but unlikely - requires huge areas of suitable habitat..
Marsh-harrier, African	*Circus ranivorus*	EN	Possible but unlikely. The study site is too small, but suitable habitat occurs in some buffer areas.
Finfoot, African	*Podica senegalensis*	VU	Extremely unlikely – requires slow-flowing water in large river systems. The two drainage lines in the buffer areas are too small and disturbed to host this species.
Crane, Blue	*Anthropoides paradiseus*	NT	Possible, but unlikely. Site too small, but may occur in the undisturbed surroundings.
Korhaan, White-bellied	*Eupodotis senegalensis*	VU	Possible, but unlikely. Site too small, but may occur in the undisturbed surroundings.

Painted-snipe, Greater	*Rostratula benghalensis*	NT	Unlikely. The water edges of the dams in the buffer areas are too exposed and do not have vegetation cover.
Pratincole, Black-winged	*Glareola nordmanni*	NT	Unlikely. Site too small.
Grass-owl, African	*Tyto capensis*	VU	**Possible, but unlikely. Site too disturbed and too much human activity. May occur in suitable habitat in the buffer areas.**
Kingfisher, Half-collared	*Alcedo semitorquata*	NT	Possible, but unlikely. Habitat not suitable on site, but may possibly occur at the drainage line, east of the site.
Roller, European	*Coracias garrulus*	NT	Possible, but unlikely. Habitat not suitable on site.

8.5 African Grass-Owls

8.5.1 Distribution

African grass-owls, *Tyto capensis,* have a patchy distribution from west and central Africa to South Africa. This species is uncommon to rare over much of its range.

The African grass-owl is a habitat specialist and is largely restricted to the Grassland Biome in southern Africa. Within the region, it is largely confined to areas of higher rainfall in the eastern half of South Africa. Except for the Northern Cape Province (only one record), the grass-owl occurs in the other eight provinces of South Africa. It is most commonly reported from Gauteng, KwaZulu-Natal and Mpumalanga (Wittington-Jones &. Peacock, 2015).

8.5.2 Population and Demography

This species is uncommon to rare over much of its range. They usually occur singly, in pairs or family groups after the breeding season. A comparison between SABAP 1 and 2 data suggests that the status of the African grass-owl has declined even further.

The species is believed to have undergone a decline of 30% in population size in the past three generations and is projected to decline by at least 10% within the next three generations (Wittington-Jones &. Peacock, 2015).

The African grass-owl population is estimated to be less than 5000. The South African range has contracted locally. Distribution is becoming increasingly fragmented elsewhere. It is believed to be decreasing in several densely populated parts of its range, especially in Mpumalanga and KwaZulu-Natal provinces.

8.5.3 Habitat

It is most common in areas with 700-800 mm of annual rainfall (Tarboton & Erasmus, 1998) and has been recorded at altitudes from sea-level to 1900 masl.

The species is habitat–specific, and only a small proportion of its distribution represents suitable ecological conditions. It often occurs in treeless areas associated with damp substrata, mainly marshes and vleis and favours patches of tall, rank grass, sedges or reeds, which have not been burnt or trampled by cattle. They often occur alongside marsh owls but are usually outnumbered by the latter.

8.5.4 General Habits

The species is largely nocturnal, returning to roost just before dawn. When flushed by day it often only flies a short distance, with legs dangling, before dropping back into ground cover. Its roost develops into a series of 'caves' in grass, interconnected by tunnels and open landing platforms. In paired birds, the male and female roost apart.

Grass owls have a quartering hunting style whereby they systematically fly low over an area looking for their prey of rodents, shrews, some birds and insects. Their flat facial disc allows them to locate their prey by sound as well as eyesight. When they locate the unsuspecting prey, they plunge into the grass with legs extended to catch it with sharp talons. Their favourite meal is vlei rats (*Otomys*). Owls swallow their prey whole and 12 to 24 hours later they regurgitate a compact pellet of all indigestible bones, fur, feathers and shells. They roost in regular locations and you can identify an active roost site by the accumulation of these compact pellets.

8.5.5 Breeding

The peak breeding season (February-April) coincides with maximum grass cover. However, being opportunistic hunters responsive to rodent outbreaks, African grass-owls may hunt or even breed in sub-optimal habitats in years of high rodent abundance.

When they breed, the female lays up to six eggs. The eggs are laid on a pad of grass at the end of inter-leading grassy tunnels, made by the parent owls. The female incubates and the male feeds her. They repeat a rhythmic clicking call that rises to a pitch as they approach each other in flight or as they bring prey to the nest. At five weeks of age, the young owls start to move about and will hide in other compartments if disturbed. At seven weeks, they start to fly.

8.5.6 Threats

The primary threat to the African grass-owl in the region is loss of habitat. The footprint of urbanisation, afforestation, mining and cultivation, in the three provinces that comprise the remaining core of the African Grass Owl's range in South Africa, are the reasons for their decline.

Their habitat is often threatened under normal conditions by fire, grazing and flooding. Game farming and reintroduction of large wildlife like buffalo often destroy their habitat by the trampling of their eggs and tunnels. Inappropriate fire regimes (in areas of annual clean burns, the grass rarely gets long/rank enough to be suitable), and overgrazing by cattle, sheep or game such as blesbok destroy suitable habitat for grass-owls. The chicks' critical fledging period is from March to May and landowners are advised not burn at this time.

The species frequently hunts along road verges, where it is likely preying on rodents attracted to grain spilled by passing trucks. Consequently, vehicles frequently kill African Grass Owls at night.

Entanglement in barbed-wire fences is another potentially significant but poorly documented cause of mortality.

8.6 African Grass-Owls at Letamo Portion 30

The peak breeding season (February-April) coincides with maximum grass cover. The site visit was therefore conducted at a good time to confirm whether grass-owls were present on the site or not.

Typically, grass-owls require tall (knee-high plus), dense grass or sedges – typically dense stands of *Imperata cylindrica* represent ideal habitat. Although such habitat does occur on the Letamo Game Farm, particularly about 1.5 km to the north of the site and to a lesser degree 800-1000 m west of the site.

The grassland along the spruit about 200 m to the east of the site is dominated by *Themeda triandra*, which does not represent suitable grass owl habitat, or maybe sub-optimal habitat. A further limiting factor (for grass owls) is that this area is highly preferred by the grazing game species on the Letamo Game Farm, resulting in shorter and often disturbed grass cover. Regular burning in this area also limit the suitability for grass owl habitat. Grass-owls have long-term roosts or nests and well-established tunnels that the birds create by bending over the tops of the grasses/sedges so that the tunnels are invisible from above. Tunnels can be between one and two meters long and often have a primary entrance on one end and a secondary (or emergency) entrance/ exit at the other. Extensive transect walks in this area habitat, no such tunnels were found during the site visit. When flushed, grass-owls fly up with long legs dangling, but immediately drop again to the ground nearby. No grass-owls were flushed from their hiding places during the survey.

8.7 Conclusion

There is suitable habitat for the African grass-owl on the 600-hectare Letamo Game Farm (Figure 8.1). However, there is almost no possibility that grass-owls may use the Letamo Portion 30 study site of 15.2 ha for breeding, as there is not suitable habitat and grass cover on the site.

Fire and grazing are important tools for the management of grassland and wetland habitats, but regular heavy grazing and too frequent burning prevent the development of rank grassland habitat required by African grass owls. The burning of moist grassveld on wetland edges in the Letamo Game Reserve and the number of grazing game in the reserve will affect the long-term survival of the African grass-owls on the Game Farm.

Figure 8.1. Suitable African grass-owl habitat west of the study site on the Letamo Game Farm.

Some Red Data bird species may treat the site as part of their home ranges / territories. Most of them are associated with the wetland areas and open dams on Letamo Game Farm and not within Letamo Portion 30. Some species like the Verreauxs' eagle and Cape vulture will fly over the site and will only use the large green areas of the Letamo Game Farm for feeding purposes if the opportunity presents itself.

From an Avian fauna perspective, and particularly grass owls, no objection can be raised against the proposed development due to the small size and nature of the study site.

9. IMPACT ASSESSMENT

9.1. Methods

The methods and format of the impact tables used in this chapter are in accordance to the requirements of the 2014 Regulations.

- The **nature**, which shall include a description of what causes the effect, what will be affected and how it will be affected.
- The **probability (P)** *of occurrence*, which shall describe the likelihood of the impact actually occurring. Probability will be estimated on a scale of 1–5, where 1 is very improbable (probably will not happen), 2 is improbable (some possibility, but low likelihood), 3 is probable (distinct possibility), 4 is highly probable (most likely) and 5 is definite (impact will occur regardless of any prevention measures).
- The **duration (D)**, wherein it will be indicated whether:
  - the lifetime of the impact will be of a very short duration (0–1 years) – assigned a score of 1;
  - the lifetime of the impact will be of a short duration (2-5 years) - assigned a score of 2;
  - medium-term (5–15 years) – assigned a score of 3;
  - long term (> 15 years) - assigned a score of 4; or
  - permanent - assigned a score of 5;
- The **extent (E)**, wherein it will be indicated whether the impact will be local (limited to the immediate area or site of development) or regional, and a value between 1 and 5 will be assigned as appropriate (with 1 being low and 5 being high):
- The **magnitude (M)**, quantified on a scale from 0-10, where 0 is small and will have no effect on the environment, 2 is minor and will not result in an impact on processes, 4 is low and will cause a slight impact on processes, 6 is moderate and will result in processes continuing but in a modified way, 8 is high (processes are altered to the extent that they temporarily cease), and 10 is very high and results in complete destruction of patterns and permanent cessation of processes.
- the **significance (S)**, which shall be determined through a synthesis of the characteristics described above (Table 9.1).
  The significance rating is calculated by the following formula:
  S (significance) = (D + E + M) x (P)
- the **status**, which will be described as either positive, negative or neutral.
- the degree to which the impact can be reversed.
- the degree to which the impact may cause irreplaceable loss of resources.
- the *degree* to which the impact can be *mitigated.*

The numerical value of the calculation is assigned to a significance category.

Table 9.1: Significance ranking of impacts

SIGNIFICANCE	**Very High**	**High**	**Moderate**	**Low**	**Minor**
	80-100	**60-79**	**40-59**	**20-39**	**1-19**

Impacts should be identified for the construction and operational phases of the proposed development. Proposed mitigation measures should be practical and feasible such that they can be realistically implemented by the applicant.

9.2 Impacts of the proposed development on the vegetation and flora of the site

Based on the identified plant communities (ecosystems) and degree of ecological sensitivity the impacts on vegetation were assessed.

The assessments are grouped as follows:

Group 1: Medium ecological sensitivity –
Trachypogon spicatus grassland
Group 2: Medium-Low ecological sensitivity –
Secondary *Hyparrhenia hirta* grassland
Group 3: Medium-Low ecological sensitivity –
Degraded *Searsia pyroides* bush
Group 4: Low ecological sensitivity –
Secondary bush along road, Bush on old dam wall, Transformed grassland on old dam floor, Transformed *Eucalyptus* area and *Searsia lancea* alley

The impact on Grass-owls is assessed separately.

It should however be emphasised that in all cases only 15% of every stand (mostly >1 hectare) may be fenced-off and developed, leaving the remainder 85% (>8000 m^2) as open veld, continuous with the open veld vegetation of the Letamo Game Farm. As this impact is limited to only the fenced area. The impacts on the open veld vegetation on the remaining of the stands are almost nill, implying that the impact of the development on most of the vegetation on the 15 ha site as a whole is insignificant. This lowers the impact of the proposed development on the vegetation and flora considerably of the site considerably. The exact placement of the houses with the fenced area then becomes important and assistance should be seeked from a qualified ecologist.

The following impacts represent a worst-case scenario for the particular plant communities.

Group 1: Medium ecological sensitivity –
Trachypogon spicatus grassland

9.2.1. Impact on *Trachypogon spicatus* Grassland

The ecological sensitivity of this grassland community (plant community 6) is considered to be medium (see Table 6.1). Although this vegetation is locally quite disturbed and even degraded, is still considered as basically primary, with high sensitivity according to the GDARD regulations. However, the current analysis resulted in a medium sensitivity, mainly due to the disturbances and degradation that can be observed locally in this area.

Table 9.2: Impact on *Trachypogon spicatus* Grassland: Loss of indigenous vegetation due to clearing for construction of the development.

Nature: The footprint for the proposed development will totally clear the grassland vegetation. This footprint includes only the 15% fenced area that may be developed, the remaining area will remain grassland. This will result in little loss of few indigenous species. The disturbance of plant populations and the fragmentation of the plant community is of little importance. The removal of vegetation will expose soil, increasing the risk of erosion, therefore rehabilitation / gardening must be implemented as soon as possible after construction. Construction of houses on the different stands will not be simultaneously.				
	Without mitigation		**With mitigation**	
CONSTRUCTION PHASE				
Probability	Definite	5	Definite	5
Duration	2-5 years	2	2-5 years	2
Extent	Limited to 15% Site	1	Limited to 15% Site	1
Magnitude	Major	7	Moderate	5
Significance	**Moderate**	**50**	**Moderate**	**40**
Status (positive or negative)	Negative		Negative	
OPERATIONAL PHASE				
Probability	Definite	5	Definite	5
Duration	Permanent	5	Permanent	5
Extent	Limited to 15% Site	1	Limited to 15% Site	1
Magnitude	Major	7	Moderate	5
Significance	**High**	**65**	**Moderate**	**55**
Status (positive or negative)	Negative		Negative	
Reversibility	Low		Medium	
Irreplaceable loss of resources?	Moderate		Moderate	
Can impacts be mitigated?	Yes			
Mitigation: • The clearing of vegetation must remain within the 15% area of the stands; • Construction must be completed as quickly as possible, • Disturbed open areas must be rehabilitated immediately after construction has been completed in that area by planting appropriate indigenous tree and grass species, • During the construction phase workers must be limited to areas under construction and access to the open areas must be strictly controlled, • Rehabilitated areas must be monitored to ensure the establishment of re-vegetated areas, • Plant indigenous trees – no alien species.				
Cumulative impacts: Expected to reduce the grassland environment in the area a little.				
Residual Risks: Little anticipated provided that the mitigation measures are implemented correctly.				

9.2.2 Impact due to increase in alien plant species

All cleared areas within the development sites may be prone to increase of alien trees and weed species.

Table 9.3: Increase of alien invasive plant species.

Nature: Alien invasive plant species and weeds may encroach into disturbed areas.				
	Without mitigation		**With mitigation**	
CONSTRUCTION PHASE				
Probability	Definite	4	Probable	2
Duration	Medium-term	3	Medium-term	1
Extent	Limited to site	1	Limited to Site	1
Magnitude	Moderate	5	Low	2
Significance	**Low**	**36**	**Minor**	**8**

Status (positive or negative)	Negative		Positive	
OPERATIONAL PHASE				
Probability	Improbable	2	Very Improbable	1
Duration	Permanent	5	Permanent	5
Extent	Limited to site	1	Limited to Site	1
Magnitude	Low	2	Low	1
Significance	**Minor**	**16**	**Minor**	**7**
Status (positive or negative)	Negative		Positive	
Reversibility	Moderate		High	
Irreplaceable loss of resources?	Moderate		Moderate	
Can impacts be mitigated?	Yes			

Mitigation:

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

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

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

Group 2: Medium-Low ecological sensitivity –
Secondary *Hyparrhenia hirta* grassland

9.2.3. Impact on secondary *Hyparrhenia hirta* Grassland

The ecological sensitivity of this grassland community (plant community 1) is considered to be medium-low (see Table 6.1). This area was previously cultivated; and the secondary tall anthropogenic vegetation developed on these old fields. Due to low species richness the impact in indigenous species is rather low. As on all stands within the 15-ha site, only 1500 m^2 may be developed. The rest of the stands' vegetation will remain intact.

Table 9.4: Impact on secondary *Hyparrhenia hirta* Grassland: Loss of indigenous vegetation due to clearing for construction of the development.

Nature: The footprint for the proposed development will totally clear the grassland vegetation. This footprint includes only 15% fenced area that may be developed, the remaining area will remain secondary grassland. This will result in little loss of few indigenous species. The disturbance of plant populations and the fragmentation of the plant community is of little importance. The removal of vegetation will expose soil, increasing the risk of erosion, therefore rehabilitation / gardening must be implemented as soon as possible after construction. Construction of houses on the different stands will not be simultaneously.

	Without mitigation		With mitigation	
CONSTRUCTION PHASE				
Probability	Definite	5	Definite	5
Duration	2-5 years	2	2-5 years	2
Extent	Limited to 15% Site	1	Limited to 15% Site	1
Magnitude	Moderate	5	Low	3
Significance	**Moderate**	**40**	**Low**	**30**
Status (positive or negative)	Negative		Negative	
OPERATIONAL PHASE				
Probability	Definite	5	Definite	5
Duration	Permanent	5	Permanent	5
Extent	Limited to 15% Site	1	Limited to 15% ^{2} Site	1
Magnitude	Major	7	Moderate	5
Significance	**High**	**65**	**Moderate**	**55**
Status (positive or negative)	Negative		Negative	
Reversibility	Low		Medium	
Irreplaceable loss of resources?	Moderate		Moderate	
Can impacts be mitigated?	Yes			

Mitigation:

- The clearing of vegetation must remain within the 15% area of the stands;
- Construction must be completed as quickly as possible,
- Disturbed open areas must be rehabilitated immediately after construction has been completed in that area by planting appropriate indigenous tree and grass species,
- During the construction phase workers must be limited to areas under construction and access to the open areas must be strictly controlled,
- Rehabilitated areas must be monitored to ensure the establishment of re-vegetated areas,
- Plant indigenous trees – no alien species.

Cumulative impacts: Expected to reduce the grassland environment in the area a little.

Residual Risks: Little anticipated provided that the mitigation measures are implemented correctly.

9.2.4 Impact due to increase in alien plant species

All cleared areas within the development sites may be prone to increase of alien trees and weed species.

Table 9.5: Increase of alien invasive plant species.

Nature: Alien invasive plant species and weeds may encroach into disturbed areas.

	Without mitigation		With mitigation	
CONSTRUCTION PHASE				
Probability	Definite	4	Probable	2
Duration	Medium-term	3	Medium-term	1
Extent	Limited to site	1	Limited to Site	1
Magnitude	Moderate	5	Low	2
Significance	**Low**	**36**	**Minor**	**8**
Status (positive or negative)	Negative		Positive	

OPERATIONAL PHASE				
Probability	Improbable	2	Very Improbable	1
Duration	Permanent	5	Permanent	5
Extent	Limited to site	1	Limited to Site	1
Magnitude	Low	2	Low	1
Significance	**Minor**	**16**	**Minor**	**7**
Status (positive or negative)	Negative		Positive	
Reversibility	Moderate		High	
Irreplaceable loss of resources?	Moderate		Moderate	
Can impacts be mitigated?	Yes			

Mitigation:

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

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

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

Group 3: Medium-Low ecological sensitivity –
Degraded *Searsia pyroides* bush

9.2.5. Impact on degraded *Searsia pyroides* bush

The ecological sensitivity of this bush community (plant community 7) is considered to be medium-low (see Table 6.1). It is claimed that this was originally a bush vegetation and it is included in the open space area of the 15-ha site. There will be no development in this area and therefore not any impact on its current vegetation. However, this area is quite degraded, particularly by the presence of many individuals of alien invasive woody species. "Development" here can be seen as the removal and control of the alien and invasive woody species. This will improve the ecological quality of this open space area considerably.

Table 9.6: Impact on Degraded *Searsia pyroides* bush: Improvement of indigenous vegetation due to clearing of alien and invasive woody species.

Nature: several individuals of the alien and invasive woody species *Eucalyptus camaldulensis, Pyracantha angustifolia, Acacia mearnsii, Pinus* sp and the herbaceous *Campyloclinium macrocephalum* occur in this vegetation. These must all be removed.		
	Remove some	**Remove all**

INITIAL PHASE				
Probability	Definite	5	Definite	5
Duration	2-5 years	2	2-5 years	2
Extent	Almost Entire area of the plant community	3	Entire area of the plant community	4
Magnitude	Moderate	6	Low	9
Significance	**Moderate**	**55**	**High**	**75**
Status (positive or negative)	Positive		Positive	
CONTINOUS OPERATIONAL PHASE				
Probability	Definite	5	Definite	5
Duration	Medium term	3	Permanent	5
Extent	Entire area of the plant community	3	Entire area of the plant community	1
Magnitude	Major	6	Moderate	9
Significance	**High**	**60**	**High**	**75**
Status (positive or negative)	Positive		Positive	
Reversibility	Probable with lower maintenance		Improbable with high maintenance	
Irreplaceable loss of resources?	-		Moderate	
Can impacts be mitigated?	Yes			

Mitigation:

- Clear and control alien and invasive species continuously

Cumulative impacts: Expected to reduce the grassland environment in the area a little.

Residual Risks: Little anticipated provided that the mitigation measures are implemented correctly.

Group 4: Low ecological sensitivity –
Secondary bush along road, Bush on old dam wall, Transformed grassland on old dam floor, Transformed *Eucalyptus* area and *Searsia lancea* alley

9.2.6. Impact on Secondary bush along road, Bush on old dam wall, Transformed grassland on old dam floor, Transformed *Eucalyptus* area and *Searsia lancea* alley

The ecological sensitivities of all these secondary, transformed plant communities (plant communities 2, 3, 4, 5 and 8) are considered to be low (see Table 6.1). The current vegetation, mostly woody, was man-induced and is therefore secondary. Due to low species richness the impact in indigenous species is rather low. As on all stands within the 15-ha site, only 15% may be developed. The rest of the stands' vegetation will remain intact.

Table 9.7: Impact on secondary *Hyparrhenia hirta* Grassland: Loss of indigenous vegetation due to clearing for construction of the development.

Nature: The footprint for the proposed development will totally clear the grassland vegetation. This footprint includes only the 15% fenced area that may be developed, the remaining area will remain secondary grassland. This will result in little loss of few indigenous species. The disturbance of plant populations and the fragmentation of the plant community is of little importance. The removal of vegetation will expose soil, increasing the risk of erosion, therefore rehabilitation / gardening must be implemented as soon as possible after construction. Construction of houses on the different stands will not be simultaneously.				
	Without mitigation		**With mitigation**	
CONSTRUCTION PHASE				
Probability	Definite	5	Definite	5
Duration	2-5 years	2	2-5 years	2
Extent	Limited to 15% Site	1	Limited to 15% Site	1
Magnitude	Moderate	5	Low	3
Significance	**Moderate**	**40**	**Low**	**30**
Status (positive or negative)	Negative		Negative	
OPERATIONAL PHASE				
Probability	Definite	5	Definite	5
Duration	Permanent	5	Permanent	5
Extent	Limited to 15% Site	1	Limited to 15% Site	1
Magnitude	Major	7	Moderate	5
Significance	**High**	**65**	**Moderate**	**55**
Status (positive or negative)	Negative		Negative	
Reversibility	Low		Medium	
Irreplaceable loss of resources?	Moderate		Moderate	
Can impacts be mitigated?	Yes			
Mitigation: • The clearing of vegetation must remain within the 15% area of the stands; • Construction must be completed as quickly as possible, • Disturbed open areas must be rehabilitated immediately after construction has been completed in that area by planting appropriate indigenous tree and grass species, • During the construction phase workers must be limited to areas under construction and access to the open areas must be strictly controlled, o Rehabilitated areas must be monitored to ensure the establishment of re-vegetated areas, • Plant indigenous trees – no alien species.				
Cumulative Impacts: Expected to reduce the grassland environment in the area a little.				
Residual Risks: Little anticipated provided that the mitigation measures are implemented correctly.				

9.2.6 Impact due to increase in alien plant species

All cleared areas within the development sites may be prone to increase of alien trees and weed species.

Table 9.5: Increase of alien invasive plant species.

Nature: Alien invasive plant species and weeds may encroach into disturbed areas.				
	Without mitigation		**With mitigation**	
CONSTRUCTION PHASE				
Probability	Definite	4	Probable	2
Duration	Medium-term	3	Medium-term	1
Extent	Limited to site	1	Limited to Site	1
Magnitude	Moderate	5	Low	2
Significance	**Low**	**36**	**Minor**	**8**
Status (positive or negative)	Negative		Positive	
OPERATIONAL PHASE				
Probability	Improbable	2	Very Improbable	1
Duration	Permanent	5	Permanent	5
Extent	Limited to site	1	Limited to Site	1
Magnitude	Low	2	Low	1
Significance	**Minor**	**16**	**Minor**	**7**
Status (positive or negative)	Negative		Positive	
Reversibility	Moderate		High	
Irreplaceable loss of resources?	Moderate		Moderate	
Can impacts be mitigated?	Yes			
Mitigation: • An alien invasive management programme must be incorporated into the Environmental Management Programme; • Ongoing alien plant control must be undertaken; • Areas which have been disturbed will be quickly colonised by invasive alien species. An ongoing management plan must be implemented for the clearing/eradication of alien species. • Monitor all sites disturbed by construction activities for colonisation by exotics or invasive plants and control these as they emerge. o Avoid planting of exotic plant species, use indigenous species.				
Cumulative impacts: Moderate, should mitigation measure not be implemented. Alien invader plant species pose an ecological threat as they alter habitat structure; lower biodiversity, change ecosystem services and processes e.g. change nutrient cycling and productivity, and modify food webs.				
Residual Risks: None anticipated provided that the mitigation measures are implemented correctly and rehabilitation of the site is undertaken.				

9.3 Impacts on grass owls

9.3.1 General comments

No suitable habitats for grass owls occur on the Letamo 30 site, though marginally suitable habitat is present about 200 m away, along the spruit situated east of the site. The field visit

and analysis however revealed that the grass at this habitat (*Themeda triandra*) is mostly too short (grazed by game) and regularly burned, creating conditions that are not suitable for grass owls. It is therefore expected that the proposed development on Portion 30 will not have any impact on grass owls.

9.3.2 Grass owl habitat loss on or close to Letamo Portion 30

Table 10.6. Impacts on grass owl habitat

Nature: On the site is no grass owl habitat, As the *Themeda triandra* grassland close to the site is too short, often grazed by game and often burned, this area does not represent good grass owl habitat.

	Without mitigation		With mitigation	
CONSTRUCTION PHASE				
Probability	Definite	5	Definite	5
Duration	Short duration	1	Short duration	1
Extent	Site specific	1	Site specific	1
Magnitude	Very low	2	Very low	2
Significance	Low	20	Low	20
Status (positive or negative)	Negative			
OPERATIONAL PHASE				
Probability	Improbable	5	Improbable	5
Duration	Permanent	5	Permanent	5
Extent	Site specific	1	Site specific	1
Magnitude	Very low	1	Very low	1
Significance	Low	35	Low	35
Status (positive or negative)	Negative		Negative	
Reversibility	High		High	
Irreplaceable loss of resources?	No		No	
Can impacts be mitigated?	Yes			

Mitigation:

- The spatial extent of construction activities must be minimized, and as far as possible must be restricted to the areas on which buildings, roads etc will actually be located. Particular care must be taken to minimize activities in some areas of the site, marked for open space or parks etc.
- The boundaries of the development footprint areas are to be clearly demarcated and it must be ensured that all activities remain within the demarcated footprint area.
- Disturbance by residents of any birds breeding and foraging (grass owls will not breed in this area) in the area, should be minimized.
- Any bird nests of any bird species that are found during the construction period must be reported to the Environmental Control Officer (ECO).

Cumulative Impacts: Expected to be minimal.

Residual Risks: None

10. GENERAL CONCLUSIONS

Vegetation and Flora

Eight plant communities (mapping units, ecosystems) and one developed area were mapped, ecologically assessed and described.

The Secondary *Hyparrhenia hirta* Grassland has Medium-Low ecological sensitivity and it is suggested that development can be supported in these areas.

Secondary bush along road, Bush on old dam wall, the Transformed grassland on dam floor, the Transformed *Eucalyptus* area and the *Searsia lancea* alley all have Low ecological sensitivity and development can be supported in these areas.

The vegetation of the *Trachypogon spicatus* Grassland has medium ecological sensitivity, therefore this vegetation may be considered for the proposed development.

There are no red data listed plant species and two provincially protected plant species (*Babiana hypogoea* and *Gladiolus crassifolius*) occur in *Trachypogon spicatus* Grassland on the site.

Note that the Degraded *Searsia pyroides* Bush is earmarked for open space.

The proposed development of the site can be supported.

Birds, grass owls

From an avifaunal perspective, the conservation status of this site is low. At a broader spatial scale, the site is located in a highly transformed urbanized and agricultural landscape with most of the surrounding area consisting of agricultural fields, disturbed grassland, and urban areas. Therefore, although avian habitats will be destroyed, the ultimate impact of the development on birds is considered to be insignificant and the development can be supported.

11. LIMITATIONS, ASSUMPTIONS AND GAPS IN KNOWLEDGE

Even though every care is taken to ensure the accuracy of this report, environmental assessment studies are limited in scope, time and budget. Discussions and proposed mitigations are to some extent made on reasonable and informed assumptions built on *bone fide* information sources, as well as deductive reasoning. Deriving a 100% factual report based on field collecting and observations can only be done over several years and seasons to account for fluctuating environmental conditions and migrations. Since environmental impact studies deal with dynamic natural systems, additional information may come to light at a later stage. EcoAgent can therefore not accept responsibility for conclusions and mitigation measures made in good faith based on own databases or on the information provided at the time of the directive. This report should therefore be viewed and acted upon with these limitations in mind.

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- MGSSA Grassland Society of Southern Africa
  - 1986 Elected as Sub-editor for the Journal
  - 1986-1989 Serve on the Editorial Board of the Journal
  - 1990 Organising Committee: International Conference: Meeting Rangeland challenges in Southern Africa
  - 1993 Elected as professional member
- Pr.Sci.Nat. South African Council for Natural Scientific Professions **Reg No 400086/83**
  - 1993-1997 **Chairman** of the Professional Advisory Committee: Botanical Sciences

- 1993-1997: **Council** Member
- 1992-1994: Publicity Committee
- 1994-1997: Professional Registration Committee

Professional career:

• Teacher in Biology 1970-1973 in Transvaal Schools
• Lecturer and senior lecturer in Botany 1974-1983 at University of the North
• Associate professor in Plant Ecology 1984-1988 at Potchefstroom University for CHE
• Professor in Plant Ecology 1988-2008 at University of Pretoria.
• Founder and owner of the Professional Ecological Consultancy firms Ecotrust Environmental Services CC and Eco-Agent CC, 1988-present.

Academic career:

• Students:
- Completed post graduate students: M.Sc. 53; Ph.D. 14.
- Presently enrolled post-graduate students: M.Sc. 4; Ph.D. 1.

• Author of:
- 175 scientific papers in refereed journals
- >150 papers at national and international congresses
- >300 scientific (unpublished) reports on environment and natural resources
- 17 popular scientific papers.
- 39 contributions in books

• Editorial Committee of
- South African Journal of Botany,
Journal Grassland Society of Southern Africa,
Bulletin of the South African Institute of Ecologists.
Journal of Applied Vegetation Science.(Sweden)
- Phytocoenologia (Germany)
• FRD evaluation category: C1 (=leader in South Africa in the field of Vegetation Science/Plant Ecology)

Membership:

• International Association of Vegetation Science.
• International Society for Ecology (Intecol)
• Association for the Taxonomic study of the Flora of Tropical Africa (AETFAT).
• South African Association of Botanists (SAAB)
1988-1993 Elected to the **Council** of SAAB.
1989-1990 Elected as **Chairman** of the Northern Transvaal Branch
1990 Elected to the Executive Council as **Vice-President**
1990- Sub-editor Editorial Board of the Journal
1991-1992 Elected as **President** (2-year period)
1993 **Vice-President** and Outgoing President
• Wildlife Management Society of Southern Africa

• Suid-Afrikaanse Akademie vir Wetenskap en Kuns
(=South African Academy for Science and Art).
• Wildlife Society of Southern Africa
1975 - 1988: Member
1975 - 1983: Committee member, Pietersburg Centre
1981 - 1982: **Chairman**, Pietersburg Centre
• Dendrological Society of Southern Africa
1984 - present: Member
1984 - 1988: Committee member, Western Transvaal Branch
1986 - 1988: **Chairman**, Western Transvaal Branch
1987 - 1989: Member, Central Committee (National level)
1990 - 2000: Examination Committee
• Succulent Society of South Africa
1987 - present: Member
• Botanical Society of South Africa
2000 – present: Member
2001- 2008: Chairman, Pretoria Branch
2009-present Committee member Pretoria Branch
2002 – present: Chairman, Northern Region Conservation Committee
2002- 2007: Member of Council

Special committees:

• Member or past member of 10 special committees re ecology, botany, rangeland science in South Africa.
• Member of the International Code for Syntaxonomical Nomenclature 1993-1996.

Merit awards and research grants:

1968 Post graduate merit bursary, CSIR, Pretoria.
1977-1979 Research Grant, Committee re Research Development, Dept. of Co-operation and Development, Pretoria.
1984-1989 Research Grant, Foundation for Research Development, CSIR, Pretoria.
1986-1987 Research Grant, Dept. of Agriculture and Water Supply, Potchefstroom.
1990-1997 Research Grant, Dept. of Environmental Affairs & Tourism, Pretoria.
1991-present Research Grant, National Research Foundation , Pretoria.
Research Grant, Water Research Commission.
1999-2003 Research Grant, Water Research Commission.
2006 South African Association of Botanists Silwer Medal for outstanding contributions to South African Botany

Abroad:

1986 Travel Grant, Potchefstroom University for Christian Higher Education, Potchefstroom
Visits to Israel, Italy, Germany, United Kingdom, Portugal.
1987 Travel Grant, Potchefstroom University for Christian Higher Education, Potchefstroom.
Visits to Germany, Switzerland, Austria, The Netherlands, United Kingdom.
1990 Travel Grant, FRD.

Visit to Japan, Taiwan, Hong-Kong.
1991 Travel Grant, FRD.
Visits to Italy, Germany. Switzerland, Austria, France, The Netherlands, United Kingdom.
1993 Travel Grant, University of Pretoria.
Visits to the USA, Costa Rica, Czech Republic, Austria.
1994 Travel Grant FRD.
Visits to Switzerland, The Netherlands, Germany, Czech Republic.
1995 Travel Grant FRD, University of Pretoria
Visits to the USA
Travel Grant, University of Pretoria
Visit to the UK.
Travel Grant University of Pretoria, Visit Czech Republic, Bulgaria
Travel Grant, University of Pretoria, Visit Czech Republic, Italy, Sweden
Travel Grant, University of Pretoria, Visit Hungary, Spain, USA
Travel Grant, University of Pretoria, Visit Poland, Italy, Greece.
Travel Grant, NRF, Visit Brazil
2006 German Grant Invited lecture in Rinteln, Germany

Consultant

Founder and owner of Ecotrust Environmental Services CC and Eco-Agent CC
Since 1988 **>300** reports as consultant on environmental matters, including:
Game Farm and Nature Reserve planning,
Environmental Impact Assessments,
Environmental Management Programme Reports,
Vegetation Surveys,
Wildlife Management,
Veld Condition and Grazing Capacity Assessments,
Red data analysis (plants and animals).

ABRIDGED CURRCULUM VITAE: JACOBUS CASPARUS PETRUS (JACO) VAN WYK

Identity number	680804 5041 08 4
Gender	Male
Date of birth	4 August 1968
Nationality	South African
Home languages	Afrikaans, fluent in English
Postal address	P.O. Box 25085, Monument Park, Pretoria, 0105.
	Tel no +27 12 347 6502, Cell +27 82 410 8871
	E-mail **jcpvanwyk@absamail.co.za**
Present position	Co-Department Head, Environmental Education & Life Sciences, Hoërskool Waterkloof
Consultant	Specialist Environmental Assessments, EIAs, writing, photo-recording
Qualifications	**B.Sc**. (U.F.S.) **B.Sc. (Hon.)** (U.F.S.), **H.E.D** (U.F.S.), **M.Sc.** (U.F.S.)
Honours	Foundation of Research Development bursary holder
	Professional Natural Scientist (Zoology) – S.A Council for Natural Scientific Professions, Registration # 400062/09
Notable Research Contribution	In-depth field study of the giant bullfrog
Formal Courses Attended	Outcomes Based Education, University of the South Africa (2002)
	Introductory Evolution, University of the Witwatersrand (2008)
	OBE, GET & FET training, 2002-2008, Education Department

Employment history

2009 – Present Vertebrate surveys for different Environmental Companies.

2000 – 2018 Co-Department Head for Environmental Education & Life Sciences, Hoërskool Waterkloof, Pretoria.

1985 - 1999 Teaching Biology (Grades 8 – 12) and Physics / Chemistry (Grades 8 – 9) at the Wilgerivier High School, Free State. Duties included teaching, mid-level management and administration.

July 1994 – Dec 1994 Teaching Botany practical tutorials to 1st year students at the Botany & Zoology Department of the Qwa-Qwa campus of the University of Free State, plant collecting, amphibian research

1993 - 1994 Mammal Research Institute (University of Pretoria) research associate on the Prince Edward Islands: topics field biology and population dynamics of invasive alien rodents, three indigenous seals, invertebrate assemblages, censussing king penguin chicks and lesser sheathbills, and marine pollution

1991 - 1993 Laboratory demonstrator for Zoological and Entomological practical tutorials, and caring for live research material, University of the Free State

1986 - 1990 Wildlife management and eco-guiding, Mt. Everest Game Farm, Harrismith

Professional Achievement **Research:** Author and co-author of 52 scientific publications in peer-reviewed and popular subject journals, and >250 contractual EIA research reports. Extensive field work and laboratory experience in Africa

Public Recognition: Public speaking *inter alia* radio talks, TV appearances

Hobbies: Popular writing, travel, marathon running, climbing (viz Kilimanjaro), photography, biological observations, public speaking.

APPENDIX K – GDARD BIODIVERSITY

Ian Roos

From: SETSIBA, ALBERTINA (GDARD) <ALBERTINA.SETSIBA@gauteng.gov.za>
Sent: 26 September 2018 01:50 PM
To: Ian Roos
Subject: RE: shapefiles - Letamo wildlife estate

Follow Up Flag: Follow up
Flag Status: Flagged

Dear Ian

With regard to the above project, specialist biodiversity studies are required to investigate the following aspects:

* Plants, with specific reference to *Gnaphalium nelsonii*

* Birds, with specific reference to confirmed habitat for African Grass Owl (*Tyto Capensis)*

* Primary Vegetation (Falls within Egoli granite grassland threatened ecosysytem).

* Falls within SANBI NPAES

The absence of wetlands on site should be verified. Should a wetland be located, a wetland specialist study will be required.

Please note that this information is relevant solely for the study site specified in your request. Red/Orange Listed plant species information relevant to a wider geographic area can be obtained from Lorraine Mills (Lorraine.Mills@gauteng.gov.za).

All specialist studies must comply with GDARD Requirements for Biodiversity Assessments. The most recent version of this document (currently version 2) can be obtained by e-mailing gdard biodiversityinfo2@gauteng.gov.za.

Should the environmental assessment practitioner be of the opinion that any of the above specialist studies are unnecessary for the site/activity in question, then an ecologically-based motivation justifying why the studies are deemed unnecessary must be submitted to GDARD as part of the application. This submission will be evaluated and either accepted or returned to the applicant for the completion of the necessary studies.

Regards

EIA Unit

APPENDIX L – INTERESTED & AFFECTED PARTY (IAPs) NOTIFICATIONS

ecologicAFRIKA
planning & design studio
design with NATURE

environmental studies
landscape architecture
earth & eco architecture
golf & sports architecture
environmental engineering
enviro resource economics

14 November 2018

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Property description _____

NOTICE OF PROPOSED ENVIRONMENTAL IMPACT BASIC ASSESSMENT ON ERF 30, LETAMO WILDLIFE ESTATE, MOGALE CITY

Notice is hereby given that ecologic AFRIKA planning & design studio, on behalf of Letamo Estate (Pty) Ltd, is applying to undertake an EIA Basic Assessment for proposed subdivision and development of Erf 30 along the southern boundary of the estate, just northeast of the intersection of road N14 and road R540, south of Krugersdorp.

Please study, as an Interested & Affected Party, the attached Notice, Locality Plan, and Layout Plan. Further information is available from our offices.

Kind regards
ecologic AFRIKA

ian roos

CJ Roos EAP
Cell 0836357315

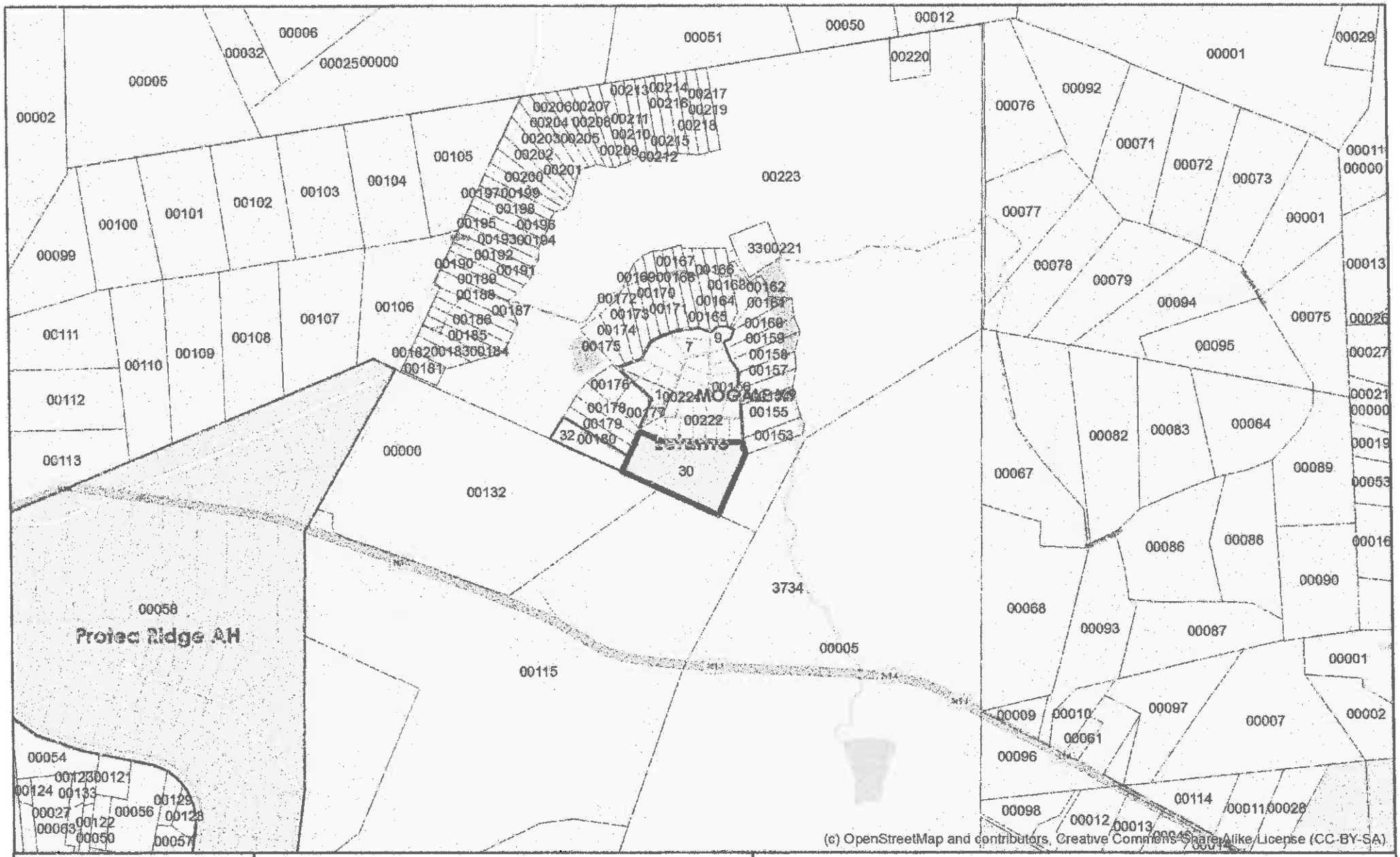
environmentally integrated and ecologically sustainable planning, design & development
PO Box 8079, Centurion 0046, South Africa • tel +27(0)12 661 4863 • fax +27(0)12 661 5251
Christiaan J Roos • NCArch, NCEng, BSLArch (Texas A&M), ML (Pret), MDP Proj Mgmt (Unisa)
e-mail: ecologic@mweb.co.za • Proverbs 3:5&6 • web: www.ecologicafrika.co.za
supporting ecologicAFRIKA gospel adventures

NOTICE OF ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

Notice is given in terms of Regulations published in Government Notice R.324, 325, 326, and 327, according to Chapter 5 of the National Environmental Management Act (Act 107 of 1998) of the application for an EIA Basic Assessment, which will be submitted to the Department of Environmental Affairs, for the purpose of:

- Proposed subdivision and development (Listing Notice 327 – Activities 1.27 and 1.28)
- Property description: Erf 30, Letamo Estate, Mogale City
- Property location: Along the southern boundary of the estate, just northeast of the intersection of road N14 and road R540, south of Krugersdorp.
- Proponent: Letamo Estate (Pty) Ltd
- Consultant: ecologic AFRIKA planning & design studio
  PO Box 8079, CENTURION 0046
  Tel 012-6614863
  Fax 012-6615251
  e-mail: ecologic@mweb.co.za
- Contact person: CJ Roos
  Cell 0836357315
- Date of Notice: 14 November 2018

In order to ensure that you are identified as an interested and/or affected party please submit your name, association, contact information and interest in the matter to the contact person given above within 30 days of the date of this notice (by 14 December 2108 at 12h00 noon).



URBAN DEVCO
Tel: 010 591 2517
Fax: 086 538 8552
Cell: 083 702 2567
manda@urbandevco.co.za
54 Shannon Road
Noordheuwel
Krugersdorp
www.urbandevcosa.co.za

LOCALITY PLAN: ERF 30 LETAMO

Legend

SUBJECT PROPERTY

N

730 365 0 730 Meters

1:25,000

PROPOSED SUBDIVISION OF ERF 30 LETAMO

N

Scale 1:4000

KEY:

Proposed subdivision line

Subject property

Proposed servitudes

Figure ABCDEFGHA represents Erf 30 Letamo measuring 15,1346 Hectares in extent.

It is proposed that the subject property be subdivided as follows:

PORTION	AREA	PORTION	AREA
1/30	8861	8/30	12375
2/30	10291	9/30	10606
3/30	9140	10/30	10879
4/30	13491	11/30	10530
5/30	11192	12/30	6092
6/30	13682	13/30	6471
7/30	12265	14/30	9498
		RE/30	5973
SUBTOTAL	78922		72424
TOTAL	151346		

NOTES:

1. All areas are approximate and subject to final survey.
2. Line abcd represents the centreline of a proposed 22m wide overhead powerline servitude.
3. Line ef represents a proposed 10m wide right of way servitude.

D.C. GIBB
Pr. Pln 1807/2013

Date: October 2018 Ref: Letamo 30

URBAN DEVCO
Tel: 010 591 2517
Fax: 086 538 8552
Cell: 083 702 2567
manda@urbandevco.co.za
54 Shannon Road
Noordheuwel
Krugersdorp
www.urbandevcosa.co.za

Ian Roos

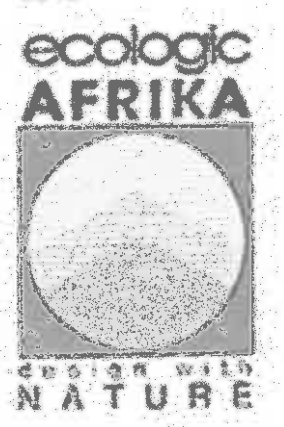
From: Ian Roos <ecologic@mweb.co.za>
Sent: 14 November 2018 02:28 PM
To: 'zillah.maguire@gmail.com'
Subject: Notice of Proposed EIA on Erf 30, Letamo Wildlife Estate, Mogale City
Attachments: Adj owner notify.pdf; EIA ba newspaper ad Gaut.pdf; Locality 30.jpg; Subdivision Plan_v4.pdf

Ward Councillor, Ward 39
Me Zillah Wehinger-Maquire,

Please find documentation attached.

Regards

Ian Roos
ecologic AFRIKA
Cell: 083 635 7315
Tel: 012 661 4863
Fax: 012 661 5251
ecologic@mweb.co.za
PO Box 8079
Centurion
0046



Ian Roos

From: Ian Roos <ecologic@mweb.co.za>
Sent: 14 November 2018 02:39 PM
To: 'norman@ncherry.co.za'
Subject: FW: Notice of Proposed EIA on Erf 30, Letamo Wildlife Estate, Mogale City
Attachments: Adj owner notify.pdf; EIA ba newspaper ad Gaut.pdf; Locality 30.jpg; Subdivision Plan_v4.pdf

Owner Portion 132 of Honingklip 178-IQ
Norman Cherry,

Please find documentation attached.

Regards
Ian Roos
ecologic AFRIKA
Cell: 083 635 7315
Tel: 012 661 4863
Fax: 012 661 5251
ecologic@mweb.co.za
PO Box 8079
Centurion
0046

ecologic AFRIKA design with NATURE

norman

Ian Roos

From: Ian Roos <ecologic@mweb.co.za>
Sent: 14 November 2018 02:44 PM
To: 'info@dagonmir.net'
Subject: FW: Notice of Proposed EIA on Erf 30, Letamo Wildlife Estate, Mogale City
Attachments: Adj owner notify.pdf; EIA ba newspaper ad Gaut.pdf; Locality 30.jpg; Subdivision Plan_v4.pdf

Owner Portion 227 of Honingklip 178-IQ
Dr Ghersi,

Please find documentation attached.

Regards

Ian Roos
ecologic AFRIKA
Cell: 083 635 7315
Tel: 012 661 4863
Fax: 012 661 5251
ecologic@mweb.co.za
PO Box 8079
Centurion
0046

List of REGISTERED LETTERS
Lys van GEREGISTREERDE BRIEWE
(with an insurance option/met 'n versekeringsopsie)

Full tracking and tracing/Volledige volg en spoor

Post Office

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

Name and address of sender:
Naam en adres van afsender: ECOLOGIC AFRIKA
PO BOX 8079
CENTURION 0046

No	Name and address of addressee / Naam en adres van geadreseerde	Insured amount / Versekerde bedrag	Insurance fee / Verseke-ringsgeld	Postage / Posgeld	Service fee / Diensgeld	Affix Track and Trace customer copy / Plak Volg-en-Spoor-kliëntafskrif REGISTERED LETTER (with a domestic insurance option) RC223690803ZA A BOOK COPY
1	MOGALE CITY LOCAL MUNICIPALITY PO BOX 94, KRUGERSDORP 1740					
2						
3						
4						
5						
6						
7						
8						
9						
10						
	Total / Totaal	R	R	R	R	

Number of letters posted / Getal briewe gepos: 1

Signature of client / Handtekening van kliënt: [signature]

Signature of accepting officer / Handtekening van aanneembeampte: [signature]

SA POST OFFICE Stamp
BRANCH MANAGER
2018 -11- 14
HIGHVELD PARK 0067
SA POST OFFICE Datumstempel

The value of the contents of these letters is as indicated and compensation is not payable for a letter received unconditionally. Compensation is limited to R100.00. No compensation is payable without documentary proof.
Optional insurance of up to R200.00 is available and applies to domestic registered letters only.

Die waarde van die inhoud van hierdie briewe is soos aangedui en vergoeding sal nie betaal word vir 'n brief wat sonder voorbehoud ontvang word nie. Vergoeding is beperk tot R100.00. Geen vergoeding is sonder dokumentère bewys betaalbaar nie. Opsionele versekering van tot R2 000.00 is beskikbaar en is slegs binnelandse geregistreerde briewe van toepassing.

701248

ecologicAFRIKA
planning & design studio
design with NATURE

environmental studies
landscape architecture
earth & eco architecture
golf & sports architecture
environmental engineering
enviro resource economics

MOGALE CITY LOCAL MUNICIPALITY

P.O. BOX 94

KRUGERSDORP

1740

14 November 2018

Property description LOCAL AUTHORITY

NOTICE OF PROPOSED ENVIRONMENTAL IMPACT BASIC ASSESSMENT ON ERF 30, LETAMO WILDLIFE ESTATE, MOGALE CITY

Notice is hereby given that ecologic AFRIKA planning & design studio, on behalf of Letamo Estate (Pty) Ltd, is applying to undertake an EIA Basic Assessment for proposed subdivision and development of Erf 30 along the southern boundary of the estate, just northeast of the intersection of road N14 and road R540, south of Krugersdorp.

Please study, as an Interested & Affected Party, the attached Notice, Locality Plan, and Layout Plan. Further information is available from our offices.

Kind regards
ecologic AFRIKA

Ian Roos

CJ Roos EAP
Cell 0836357315

environmentally integrated and ecologically sustainable planning, design & development
PO Box 8079, Centurion 0046, South Africa ◦ tel +27(0)12 661 4863 ◦ fax +27(0)12 661 5251
Christiaan J Roos ◦ NCArch, NCEng, BSLArch (Texas A&M), ML (Pret), MDP Proj Mgmt (Unisa)
e-mail: ecologic@mweb.co.za ◦ Proverbs 3:5&6 ◦ web: www.ecologicafrika.co.za
supporting ecologicAFRIKA gospel adventures

Ian Roos

From: admin@letamo.net
Sent: 14 November 2018 08:41 AM
To: 'Ian Roos'
Subject: FW: Letamo Town Erf 30 Environmental
Attachments: Adj owner notify.pdf; EIA ba newspaper ad Gaut.pdf; Locality 30.jpg; Subdivision Plan_v4.pdf

Importance: High

From: admin@letamo.net [mailto:admin@letamo.net]
Sent: 14 November, 2018 8:31 AM
To: Graham Rowley; Lisa Rowley
Subject: FW: Letamo Town Erf 30 Environmental
Importance: High

Dear Resident,

Attached hereto please find information for your attention.

Kind regards
Melinda
Letamo Game Farm Pty Ltd
010 595 0283

From: Ian Roos [mailto:ecologic@mweb.co.za]
Sent: 13 November, 2018 12:52 PM
To: 'Letamo Game Farm'
Subject: Letamo 30 environmental
Importance: High

Melinda
Please forward the attached documentation to the following adjacent owners to Erf 30, Letamo **tomorrow**:
Erf 31
Erf 32
Ptn 180
Ptn 179
Ptn 178
Ptn 177
Erf 23
Erf 24
Erf 25
Erf 26
Erf 27
Erf 28
Erf 29
Ptn 154
Ptn 153
Ptn 223

Ian Roos

From: admin@letamo.net
Sent: 14 November 2018 08:50 AM
To: 'Ian Roos'
Subject: FW: Letamo Town Erf 30 Environmental
Attachments: Adj owner notify.pdf; EIA ba newspaper ad Gaut.pdf; Locality 30.jpg; Subdivision Plan_v4.pdf

Importance: High

From: admin@letamo.net [mailto:admin@letamo.net]
Sent: 14 November, 2018 7:51 AM
To: Colleen Passano; Louis Passano
Subject: Letamo Town Erf 30 Environmental
Importance: High

Dear Resident,

Attached hereto please find information for your attention.

Kind regards
Melinda
Letamo Game Farm Pty Ltd
010 595 0283

From: Ian Roos [mailto:ecologic@mweb.co.za]
Sent: 13 November, 2018 12:52 PM
To: 'Letamo Game Farm'
Subject: Letamo 30 environmental
Importance: High

Melinda
Please forward the attached documentation to the following adjacent owners to Erf 30, Letamo **tomorrow**:
Erf 31
Erf 32
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Ptn 179
Ptn 178
Ptn 177
Erf 23
Erf 24
Erf 25
Erf 26
Erf 27
Erf 28
Erf 29
Ptn 154
Ptn 153
Ptn 223

Ian Roos

From: admin@letamo.net
Sent: 14 November 2018 08:41 AM
To: 'Ian Roos'
Subject: FW: Letamo Town Erf 30 Environmental
Attachments: Adj owner notify.pdf; EIA ba newspaper ad Gaut.pdf; Locality 30.jpg; Subdivision Plan_v4.pdf

Importance: High

From: admin@letamo.net [mailto:admin@letamo.net]
Sent: 14 November, 2018 8:36 AM
To: Eugene Joubert
Subject: FW: Letamo Town Erf 30 Environmental
Importance: High

More Eugene,

Sien asb die onderstaande epos vir jou aandag.

Ian Roos sê ek moet dit ook aan die eienaars van gedeelte 223 stuur, dus moet ek dit aan al die Letamo eienaars stuur.

Groete
Melinda
Letamo Game Farm Pty Ltd
010 595 0283

From: Ian Roos [mailto:ecologic@mweb.co.za]
Sent: 13 November, 2018 12:52 PM
To: 'Letamo Game Farm'
Subject: Letamo 30 environmental
Importance: High

Melinda
Please forward the attached documentation to the following adjacent owners to Erf 30, Letamo **tomorrow**:
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Ptn 178
Ptn 177
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Erf 24
Erf 25
Erf 26
Erf 27
Erf 28
Erf 29
Ptn 154
Ptn 153

Ian Roos

From: admin@letamo.net
Sent: 14 November 2018 08:41 AM
To: 'Ian Roos'
Subject: FW: Letamo Town Erf 30 Environmental
Attachments: Adj owner notify.pdf; EIA ba newspaper ad Gaut.pdf; Locality 30.jpg; Subdivision Plan_v4.pdf

Importance: High

From: admin@letamo.net [mailto:admin@letamo.net]
Sent: 14 November, 2018 8:31 AM
To: Piet Visagie (124)
Subject: FW: Letamo Town Erf 30 Environmental
Importance: High

Dear Resident,

Attached hereto please find information for your attention.

Kind regards
Melinda
Letamo Game Farm Pty Ltd
010 595 0283

From: Ian Roos [mailto:ecologic@mweb.co.za]
Sent: 13 November, 2018 12:52 PM
To: 'Letamo Game Farm'
Subject: Letamo 30 environmental
Importance: High

Melinda
Please forward the attached documentation to the following adjacent owners to Erf 30, Letamo **tomorrow**:
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Ptn 177
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Erf 24
Erf 25
Erf 26
Erf 27
Erf 28
Erf 29
Ptn 154
Ptn 153
Ptn 223

Ian Roos

From: admin@letamo.net
Sent: 14 November 2018 08:41 AM
To: 'Ian Roos'
Subject: FW: Letamo Town Erf 30 Environmental
Attachments: Adj owner notify.pdf; EIA ba newspaper ad Gaut.pdf; Locality 30.jpg; Subdivision Plan_v4.pdf

Importance: High

From: admin@letamo.net [mailto:admin@letamo.net]
Sent: 14 November, 2018 8:31 AM
To: Hendrik Marais
Subject: FW: Letamo Town Erf 30 Environmental
Importance: High

Dear Resident,

Attached hereto please find information for your attention.

Kind regards
Melinda
Letamo Game Farm Pty Ltd
010 595 0283

From: Ian Roos [mailto:ecologic@mweb.co.za]
Sent: 13 November, 2018 12:52 PM
To: 'Letamo Game Farm'
Subject: Letamo 30 environmental
Importance: High

Melinda
Please forward the attached documentation to the following adjacent owners to Erf 30, Letamo **tomorrow**:
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Erf 26
Erf 27
Erf 28
Erf 29
Ptn 154
Ptn 153
Ptn 223

Ian Roos

From: admin@letamo.net
Sent: 14 November 2018 08:41 AM
To: 'Ian Roos'
Subject: FW: Letamo Town Erf 30 Environmental
Attachments: Adj owner notify.pdf; EIA ba newspaper ad Gaut.pdf; Locality 30.jpg; Subdivision Plan_v4.pdf

Importance: High

From: admin@letamo.net [mailto:admin@letamo.net]
Sent: 14 November, 2018 8:31 AM
To: Domenique Walters
Subject: FW: Letamo Town Erf 30 Environmental
Importance: High

Dear Resident,

Attached hereto please find information for your attention.

Kind regards
Melinda
Letamo Game Farm Pty Ltd
010 595 0283

From: Ian Roos [mailto:ecologic@mweb.co.za]
Sent: 13 November, 2018 12:52 PM
To: 'Letamo Game Farm'
Subject: Letamo 30 environmental
Importance: High

Melinda
Please forward the attached documentation to the following adjacent owners to Erf 30, Letamo **tomorrow:**
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Ptn 178
Ptn 177
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Erf 24
Erf 25
Erf 26
Erf 27
Erf 28
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Ptn 154
Ptn 153
Ptn 223

Ian Roos

From: admin@letamo.net
Sent: 14 November 2018 08:41 AM
To: 'Ian Roos'
Subject: FW: Letamo Town Erf 30 Environmental
Attachments: Adj owner notify.pdf; EIA ba newspaper ad Gaut.pdf; Locality 30.jpg; Subdivision Plan_v4.pdf

Importance: High

From: admin@letamo.net [mailto:admin@letamo.net]
Sent: 14 November, 2018 8:31 AM
To: David Haarhoff
Subject: FW: Letamo Town Erf 30 Environmental
Importance: High

Dear Resident,

Attached hereto please find information for your attention.

Kind regards
Melinda
Letamo Game Farm Pty Ltd
010 595 0283

From: Ian Roos [mailto:ecologic@mweb.co.za]
Sent: 13 November, 2018 12:52 PM
To: 'Letamo Game Farm'
Subject: Letamo 30 environmental
Importance: High

Melinda
Please forward the attached documentation to the following adjacent owners to Erf 30, Letamo **tomorrow**:
Erf 31
Erf 32
Ptn 180
Ptn 179
Ptn 178
Ptn 177
Erf 23
Erf 24
Erf 25
Erf 26
Erf 27
Erf 28
Erf 29
Ptn 154
Ptn 153
Ptn 223

Ian Roos

From: admin@letamo.net
Sent: 14 November 2018 08:41 AM
To: 'Ian Roos'
Subject: FW: Letamo Town Erf 30 Environmental
Attachments: Adj owner notify.pdf; EIA ba newspaper ad Gaut.pdf; Locality 30.jpg; Subdivision Plan_v4.pdf

Importance: High

From: admin@letamo.net [mailto:admin@letamo.net]
Sent: 14 November, 2018 8:31 AM
To: Brian Bontekoning
Subject: FW: Letamo Town Erf 30 Environmental
Importance: High

Dear Resident,

Attached hereto please find information for your attention.

Kind regards
Melinda
Letamo Game Farm Pty Ltd
010 595 0283

From: Ian Roos [mailto:ecologic@mweb.co.za]
Sent: 13 November, 2018 12:52 PM
To: 'Letamo Game Farm'
Subject: Letamo 30 environmental
Importance: High

Melinda
Please forward the attached documentation to the following adjacent owners to Erf 30, Letamo **tomorrow**:
Erf 31
Erf 32
Ptn 180
Ptn 179
Ptn 178
Ptn 177
Erf 23
Erf 24
Erf 25
Erf 26
Erf 27
Erf 28
Erf 29
Ptn 154
Ptn 153
Ptn 223

Ian Roos

From: admin@letamo.net
Sent: 14 November 2018 08:41 AM
To: 'Ian Roos'
Subject: FW: Letamo Town Erf 30 Environmental
Attachments: Adj owner notify.pdf; EIA ba newspaper ad Gaut.pdf; Locality 30.jpg; Subdivision Plan_v4.pdf

Importance: High

From: admin@letamo.net [mailto:admin@letamo.net]
Sent: 14 November, 2018 8:26 AM
To: Nico de Louwere
Subject: FW: Letamo Town Erf 30 Environmental
Importance: High

Dear Resident,

Attached hereto please find information for your attention.

Kind regards
Melinda
Letamo Game Farm Pty Ltd
010 595 0283

From: Ian Roos [mailto:ecologic@mweb.co.za]
Sent: 13 November, 2018 12:52 PM
To: 'Letamo Game Farm'
Subject: Letamo 30 environmental
Importance: High

Melinda
Please forward the attached documentation to the following adjacent owners to Erf 30, Letamo **tomorrow:**
Erf 31
Erf 32
Ptn 180
Ptn 179
Ptn 178
Ptn 177
Erf 23
Erf 24
Erf 25
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Erf 27
Erf 28
Erf 29
Ptn 154
Ptn 153
Ptn 223

Ian Roos

From: admin@letamo.net
Sent: 14 November 2018 08:41 AM
To: 'Ian Roos'
Subject: FW: Letamo Town Erf 30 Environmental
Attachments: Adj owner notify.pdf; EIA ba newspaper ad Gaut.pdf; Locality 30.jpg; Subdivision Plan_v4.pdf

Importance: High

From: admin@letamo.net [mailto:admin@letamo.net]
Sent: 14 November, 2018 8:26 AM
To: Itumeleng Mokate
Subject: FW: Letamo Town Erf 30 Environmental
Importance: High

Dear Resident,

Attached hereto please find information for your attention.

Kind regards
Melinda
Letamo Game Farm Pty Ltd
010 595 0283

From: Ian Roos [mailto:ecologic@mweb.co.za]
Sent: 13 November, 2018 12:52 PM
To: 'Letamo Game Farm'
Subject: Letamo 30 environmental
Importance: High

Melinda
Please forward the attached documentation to the following adjacent owners to Erf 30, Letamo **tomorrow**:
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Erf 28
Erf 29
Ptn 154
Ptn 153
Ptn 223

Ian Roos

From: admin@letamo.net
Sent: 14 November 2018 08:41 AM
To: 'Ian Roos'
Subject: FW: Letamo Town Erf 30 Environmental
Attachments: Adj owner notify.pdf; EIA ba newspaper ad Gaut.pdf; Locality 30.jpg; Subdivision Plan_v4.pdf

Importance: High

From: admin@letamo.net [mailto:admin@letamo.net]
Sent: 14 November, 2018 8:26 AM
To: Tjaart Riekert
Subject: FW: Letamo Town Erf 30 Environmental
Importance: High

Dear Resident,

Attached hereto please find information for your attention.

Kind regards
Melinda
Letamo Game Farm Pty Ltd
010 595 0283

From: Ian Roos [mailto:ecologic@mweb.co.za]
Sent: 13 November, 2018 12:52 PM
To: 'Letamo Game Farm'
Subject: Letamo 30 environmental
Importance: High

Melinda
Please forward the attached documentation to the following adjacent owners to Erf 30, Letamo **tomorrow**:
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Ptn 178
Ptn 177
Erf 23
Erf 24
Erf 25
Erf 26
Erf 27
Erf 28
Erf 29
Ptn 154
Ptn 153
Ptn 223

Ian Roos

From: admin@letamo.net
Sent: 14 November 2018 08:41 AM
To: 'Ian Roos'
Subject: FW: Letamo Town Erf 30 Environmental
Attachments: Adj owner notify.pdf; EIA ba newspaper ad Gaut.pdf; Locality 30.jpg; Subdivision Plan_v4.pdf

Importance: High

From: admin@letamo.net [mailto:admin@letamo.net]
Sent: 14 November, 2018 8:26 AM
To: Shane Merriman
Subject: FW: Letamo Town Erf 30 Environmental
Importance: High

Dear Resident,

Attached hereto please find information for your attention.

Kind regards
Melinda
Letamo Game Farm Pty Ltd
010 595 0283

From: Ian Roos [mailto:ecologic@mweb.co.za]
Sent: 13 November, 2018 12:52 PM
To: 'Letamo Game Farm'
Subject: Letamo 30 environmental
Importance: High

Melinda
Please forward the attached documentation to the following adjacent owners to Erf 30, Letamo **tomorrow**:
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Ptn 178
Ptn 177
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Erf 24
Erf 25
Erf 26
Erf 27
Erf 28
Erf 29
Ptn 154
Ptn 153
Ptn 223

Ian Roos

From: Ian Roos <ecologic@mweb.co.za>
Sent: 14 November 2018 04:59 PM
To: 'nico de louwere'
Subject: RE: Letamo Town Erf 30 Environmental

Confirmation of receipt of registration as IAP.
Regards

Ian Roos
ecologic AFRIKA
Cell: 083 635 7315
Tel: 012 661 4863
Fax: 012 661 5251
ecologic@mweb.co.za
PO Box 8079
Centurion
0046

From: nico de louwere [mailto:nlouwere@me.com]
Sent: 14 November 2018 11:33 AM
To: ecologic@mweb.co.za
Subject: Re: Letamo Town Erf 30 Environmental
Importance: High

As owner and resident of portion 28 of Letamo Eastate I herby give notice that I am interested and a affected party of yje subdivision of portion 30 of Letamo

Nico de Louwere
nlouwere@me.com
0836166051

Nico

> On 14 Nov 2018, at 08:26, admin@letamo.net wrote:
>
> Dear Resident,
>
> Attached hereto please find information for your attention.
>
> Kind regards
> Melinda
> Letamo Game Farm Pty Ltd
> 010 595 0283

Ian Roos

From: nico de louwere <nlouwere@me.com>
Sent: 14 November 2018 11:33 AM
To: ecologic@mweb.co.za
Subject: Re: Letamo Town Erf 30 Environmental

Importance: High

Follow Up Flag: Follow up
Flag Status: Flagged

As owner and resident of portion 28 of Letamo Eastate I herby give notice that I am interested and a affected party of yje subdivision of portion 30 of Letamo

Nico de Louwere
nlouwere@me.com
0836166051

Nico

> On 14 Nov 2018, at 08:26, admin@letamo.net wrote:
>
> Dear Resident,
>
> Attached hereto please find information for your attention.
>
> Kind regards
> Melinda
> Letamo Game Farm Pty Ltd
> 010 595 0283
>
> **From:** Ian Roos [mailto:ecologic@mweb.co.za]
> **Sent:** 13 November, 2018 12:52 PM
> **To:** 'Letamo Game Farm'
> **Subject:** Letamo 30 environmental
> **Importance:** High
>
> Melinda
> **Please forward the attached documentation to the following adjacent owners to Erf 30, Letamo tomorrow:**
> Erf 31
> Erf 32
> Ptn 180
> Ptn 179
> Ptn 178
> Ptn 177
> Erf 23
> Erf 24
> Erf 25
> Erf 26
> Erf 27
> Erf 28
> Erf 29

Ian Roos

From: Ian Roos <ecologic@mweb.co.za>
Sent: 14 November 2018 04:59 PM
To: 'Juan'
Subject: RE: Letamo Town Erf 30 Environmental

Confirmation of registration as IAP.
Regards

Ian Roos
ecologic AFRIKA
Cell: 083 635 7315
Tel: 012 661 4863
Fax: 012 661 5251
ecologic@mweb.co.za
PO Box 8079
Centurion
0046

From: Juan [mailto:juan@agricolasa.co.za]
Sent: 14 November 2018 12:00 PM
To: ecologic@mweb.co.za
Subject: Letamo Town Erf 30 Environmental
Importance: High

Dear Mr Roos

I am reacting to the attached document;

I wish to be identified as an interested and affected party. I am a landowner and resident on Letamo Game Farm. I am also a Shareholder in Letamo Game Farm (Pty) LTD which is the owner of portion 223.

I can be contacted by email at: juan@agricolasa.co.za

Please confirm that I have been identified as an interested and affected party.

Kind regards

Juan

Besturende Direkteur

Ian Roos

From: Juan <juan@agricolasa.co.za>
Sent: 14 November 2018 12:00 PM
To: ecologic@mweb.co.za
Subject: Letamo Town Erf 30 Environmental
Attachments: EIA ba newspaper ad Gaut.pdf

Importance: High

Follow Up Flag: Follow up
Flag Status: Flagged

Dear Mr Roos

I am reacting to the attached document;

I wish to be identified as an interested and affected party. I am a landowner and resident on Letamo Game Farm. I am also a Shareholder in Letamo Game Farm (Pty) LTD which is the owner of portion 223.

I can be contacted by email at: juan@agricolasa.co.za

Please confirm that I have been identified as an interested and affected party.

Kind regards

Juan

Besturende Direkteur
Agrisure Beherend (Edms) Bpk
Cell: 082 340 8686

From: admin@letamo.net [mailto:admin@letamo.net]
Sent: 14 November 2018 09:11 AM
To: admin@letamo.net
Subject: FW: Letamo Town Erf 30 Environmental
Importance: High

Dear Resident,

Attached hereto please find information for your attention.

Kind regards
Melinda
Letamo Game Farm Pty Ltd
010 595 0283

Ian Roos

From: Ian Roos <ecologic@mweb.co.za>
Sent: 14 November 2018 08:15 PM
To: 'Tjaart Riekert'
Subject: RE: Letamo Town Erf 30 Environmental

Herewith confirmation of receipt of your registration as IAP.
Regards

Ian Roos
ecologic AFRIKA
Cell: 083 635 7315
Tel: 012 661 4863
Fax: 012 661 5251
ecologic@mweb.co.za
PO Box 8079
Centurion
0046

-----Original Message-----
From: Tjaart Riekert [mailto:tjaartr@gmail.com]
Sent: 14 November 2018 06:19 PM
To: ecologic@mweb.co.za; Letamo Game Farm <melinda.letamo@gmail.com>; van Aswegen Manie & Ria <manria@webmail.co.za>
Subject: Letamo Town Erf 30 Environmental

Hi,

I would hereby conform receipt of the information regarding the proposed subdivision of Erf 30 Letamo town and request that i be informed on all relevant information regarding the initiative

Regards,

Tjaart Riekert

tjaartr@gmail.com

072 111 3323

Ian Roos

From: Tjaart Riekert <tjaartr@gmail.com>
Sent: 14 November 2018 06:19 PM
To: ecologic@mweb.co.za; Letamo Game Farm; van Aswegen Manie & Ria
Subject: Letamo Town Erf 30 Environmental

Hi,

I would hereby conform receipt of the information regarding the proposed subdivision of Erf 30 Letamo town and request that i be informed on all relevant information regarding the initiative

Regards,

Tjaart Riekert

tjaartr@gmail.com

072 111 3323

Ian Roos

From: Ian Roos <ecologic@mweb.co.za>
Sent: 15 November 2018 07:59 AM
To: 'Eugene Joubert'
Subject: RE: Letamo sub-division stand 30

Confirmation of receipt of registration as IAP.
Regards

Ian Roos
ecologic AFRIKA
Cell: 083 635 7315
Tel: 012 661 4863
Fax: 012 661 5251
ecologic@mweb.co.za
PO Box 8079
Centurion
0046

From: Eugene Joubert [mailto:eugene@rebels.co.za]
Sent: 15 November 2018 07:02 AM
To: ecologic@mweb.co.za
Subject: Letamo sub-division stand 30

Attention Mr CJ Roos,

Kindly note me as an affected party to the proposed sub-division of stand 30 Letamo as I am a direct neighbour i.e. stand 153 Letamo.

Regards,

JH Eugenè Joubert
CP(Int) CMP MCE M.Inst.D FICM

CORPORATE REBELS
Group Chairman

P.O. Box 437 Ruimsig 1732 South Africa
Ruimsig Country Office Park - Block C
Hole-in-One Street - Roodepoort - Gauteng
Tell: 0627709404 or 0623713301
Cell: 082 926 0251
eugene@rebels.co.za www.rebels.co.za

Ian Roos

From: Eugene Joubert <eugene@rebels.co.za>
Sent: 15 November 2018 07:02 AM
To: ecologic@mweb.co.za
Subject: Letamo sub-division stand 30

Attention Mr CJ Roos,

Kindly note me as an affected party to the proposed sub-division of stand 30 Letamo as I am a direct neighbour i.e. stand 153 Letamo.

Regards,

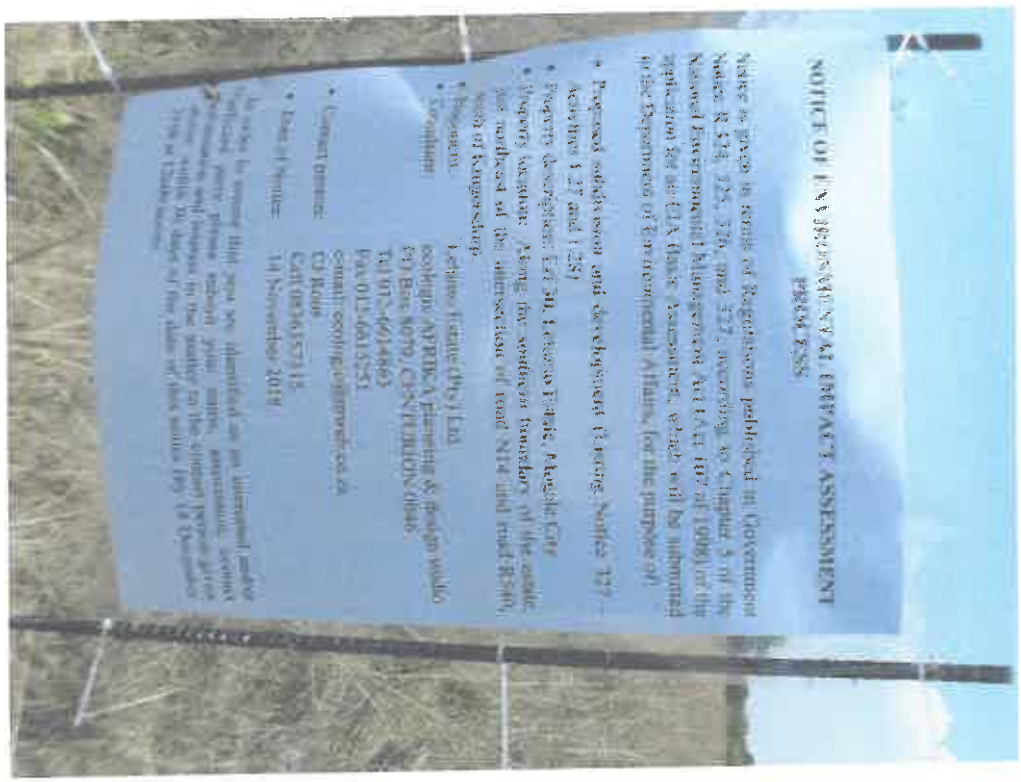
JH Eugenè Joubert
CP(Int) CMP MCE M.Inst.D FICM

CORPORATE REBELS
Group Chairman

P.O. Box 437 Ruimsig 1732 South Africa
Ruimsig Country Office Park - Block C
Hole-in-One Street - Roodepoort - Gauteng
Tell: 0627709404 or 0623713301
Cell: 082 926 0251
eugene@rebels.co.za www.rebels.co.za

APPENDIX M – SITE ADVERTISEMENT

Proof of site advertisement



Detail of site advertisement

APPENDIX N – NEWSPAPER ADVERTISEMENT

The Star

Legals & Tenders

715 Tenders | 715 Tenders | 715 Tenders | 715 Tenders | Legals | 700 Business Licence | 700 Business Licence | 700 Business Licence | 711 Public Notices | 716 Town Planning

of Bulk Refuse Containers as and when required basis for a period of three (3) years.

to score a minimum of 20 points in order to be considered for further evaluation.

2018 at 11h00

IEM (WAQ) 09/2019
Tenders are hereby invited from service providers for the Supply and Delivery of Office Waste Recycling Bins, Waste Recycling Trolleys, Waste Platform Floor Scales, Paper Shredding Machine and 1100L Recycling Bins.

Tenders will be evaluated using functionality evaluation criteria of 10 points of which the contractor is required to score a minimum of 07 points in order to be considered for further evaluation.

Technical: Maria Mandiwana, tel. (011) 951 2131 / cell. 061 409 7913
Tender Documents: Kefilwe Jobeta, tel. (011) 951 2177/ 2541/2014 cell. 071 884 6958

Tuesday, 27 November 2018 at 11h00

TENDERS WILL BE EVALUATED USING THE 80/20 PREFERENCE POINT SYSTEM WHICH AWARDS 80 POINTS FOR PRICE AND 20 POINTS FOR ATTAINING THE BBBEE STATUS LEVEL OF CONTRIBUTION FOR EXEMPTED MICRO ENTERPRISES AND QUALIFYING SMALL ENTERPRISES ONLY.

THE CONDITIONS OF THE ABOVE-MENTIONED TENDERS ARE INCLUDED IN THE TENDER DOCUMENTS

Non-Refundable Document Fee: R500-00 payable in cash or by bank guaranteed cheque, payable between 08h00 and 15h00 at the cashiers in the Rates Hall of the Civic Centre, Mogale City.

Documents Available: As from Friday, 16 November 2018 during office hours, from the Reception Desk of Supply Chain Management Unit, situated on the upper level of the West Wing of Mogale City Civic Centre, Corner Commissioner and Market Streets in Krugersdorp (011 951-2014/2177)

Tender Box Venue: Tender boxes are situated at the reception desk of the Supply Chain Management Unit, situated on the upper level of the West Wing of the Mogale City Civic Centre, Corner Commissioner and Market Streets in Krugersdorp.

MR PRINGLE RAEDANI, MUNICIPAL MANAGER

BRAKPAN BUS COMPANY (SOC) LTD

Registration No: 2000/024331/30
P.O BOX 10298 DALVIEW 1544
011- 999- 8250
Email: William.Magwele@ekurhuleni.gov.za

An Entity of Ekurhuleni Municipality hereby invites current and prospective service providers as well as co-operatives to re- apply for registration on our Supplier Database as required by the Municipal

APPLICATIONS FOR AMENDMENT OF GAMING MACHINE (SITE) LICENSES

Notice is hereby given that:
- Flutter and East CC trading as Krugers Pub and Grill Restaurant, situated at 627 Paul Kruger Street, Elardale, Pretoria intends submitting an application for an amendment of a site license, to increase the number of limited payout machines from two (2) to five (5).
- Jinhuo Zheng trading as Fatima Cafe and

APPLICATIONS FOR GAMING MACHINE (SITE) LICENSES

Notice is hereby given that:
- Scrooge Diner Randburg (Pty) Ltd trading as Scrooge Diner restaurant, intends submitting an application to the Gauteng Gambling Board for a Type "B" site license to operate 10 (ten) limited payout machines at Scrooge Diner Restaurant situated at Shop G24 Randburg Brightwater Commons, Bounded by Republic Road and Cross Avenue, President Ridge Ext 7, Ferndale, in the district of Johannesburg.

The above applications will be open for public inspection at the offices of Johannesburg Roads Agency (PTY) Ltd.

www.jra.org.za

GAUTENG GAMBLING ACT, 1995

APPLICATION FOR A GAMING MACHINE LICENCE

Notice is hereby given that:
- Andre Martin Valla, trading as Jebula Tavern, situated at No. 9 - 14th Avenue, Corner Main Road, Stand No. 310, Nigel, in the district of Ekurhuleni;
- David Makepisi Sboko, trading as Pelazola Tavern, situated at Erf No. 2838, Blastok Street, Rotondo, in the district of Heidelberg;
- Moses Makwakwa, trading as Moh Coffee Bar, situated at Shop No. 6, 17 Queen Street, Germiston, in the district of Ekurhuleni

GAUTENG GAMBLING ACT NO 4, OF 1995 (as amended)

APPLICATION FOR AN AMENDMENT OF A LICENCE

Notice is hereby given that Phumelela Gaming and Leisure Limited t/a TAB of No 14 Turf Club Street, Turffontein, 2190 intend submitting an application to the Gauteng Gambling Board for an amendment of license to relocate the TAB license from the following site: **Mamelodi TAB, Stand No 14843 Phatudi Drive, Mamelodi East to Betting World Mamelodi, Stand No 14852 Phatudi Drive, Mamelodi East.**

DRAFT ORDER

Having heard Counsel and having considered the matter, an order is granted in the following terms:

1. That the Respondent be placed under a provisional winding up order in the hands of the Master of this Honourable Court.

2. That a *rule nisi* be issued calling upon the Respondent and all interested parties to show cause, if any, on 28 November 2018, as to why the order in prayer 1 above should not be made a final winding-up order in the hands of the Master of the above Honourable Court.

3. That upon the granting of the order in prayer 1 above, that this order be served as follows:
3.1. by publication, once, in an Independent newspaper;
3.2. on the South African Revenue Service;
3.3. upon the Respondent at its registered address;

4. That the costs of this application be costs in the liquidation.

5. Further and/or alternative relief.

BY ORDER OF THE COURT
The Registrar
(STAR 11027503)

NOTICE OF ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

Notice is given in terms of Regulations published in Government Notice R.324, 326, 326, and 327, according to Chapter 5 of the National Environmental Management Act (Act 107 of 1998) of the application for a EIA Basic Assessment, which will be submitted to Gauteng Province's Department of Agriculture & Rural Development, for the purpose of:
- Proposed township establishment (Listing Notice 327 - Activities 1.12, 1.19 and 1.27)

east and adjacent to the Proposed PWV 5.

Particulars of the application is open to inspection during the normal office hours at the office of the Executive Director: Development Planning, Civic Centre, 158 Loveday Street, A-Block, Room 8100, 8th Floor, Braamfontein, for a period of 28 (twenty-eight) days from 14 November 2018.

Objections or representations in respect of the application must be lodged with or made in writing and in duplicate to the Municipality at the above address or at PO Box 30733, Braamfontein, 2017, or a facsimile send to (011) 339-4000, or an e-mail send to: objectionsplanning@joburg.org.za, by no later than 12 December 2018.

OWNER / AUTHORISED AGENT:
Full Name:
Munette Lombaard
HUNTER THERON INC.
TOWN PLANNERS
Postal Address:
P.O. Box 489, Florida Hills
Code: 1716
Tel No (w): (011) 472-1613
Fax No: (011) 472-3454
Email Address: munette@huntertheron.co.za
(STAR 11026375)

CITY OF JOHANNESBURG

NOTICE OF APPLICATION FOR AMENDED TOWNSHIP APPLICATION

ROODEPOORT TOWN PLANNING SCHEME, 1987

The City of Johannesburg hereby gives notice in terms Section 56(4) of the Town Planning and Townships Ordinance, 1986, (Ordinance 15 of 1986) read with Section 20 (10) and 26(3) of the City of Johannesburg Municipal Planning By-Law 2016, that I the undersigned, intend to apply to the City of Johannesburg for the amendment of a township, sion or commants and/or objections

12 December 2018

Contact details of applicant (authorized agent)
Full Name: Neil Hutton of Common Ground Development Facilitation
Postal Address:
PO Box 73 Lonehill 2061
Physical Address:
43 Pinelopes Gardens
Telephone numbers:
082 821 2055
Email Address:
Neil@cgdf.co.za
Date: 14 November 2018
(STAR 11027045)

APPENDIX O – IAP REGISTER

IAP register for EIA Application for Authorisation on Erf 30, Letamo Estate

DATE	STATUS	NAME	CONTACT INFO	DESCRIPTION
14 Nov 18	Adjacent owner	Nico de Leuwere	nlouwere@me.com	Progress information
14 Nov 18	Adjacent owner	Juan	juan@agricolasa.co.za	Progress information
14 Nov 18	Adjacent owner	Tjaart Rickert	tjaartr@gmail.com	Progress information
15 Nov 18	Adjacent owner	Eugene Joubert	eugene@rebels.co.za	Progress information

APPENDIX P – PROOF OF SUBMISSION OF DRAFT BAR

PROOF OF SUBMISSION OF DRAFT BAR

Globeflight

2720772093

DATE	ACCOUNT NUMBER	COST CENTRE	SHIPPER'S REFERENCE	ORIGIN	DESTINATION	No. OF PIECES
12 Feb 19	[illegible]					1

SHIPPER: (YOUR NAME)

COMPANY NAME:

STREET ADDRESS:

CITY

COUNTRY: POST/ZIP CODE:

TELEPHONE NUMBER & E-MAIL:

TO: (RECIPIENT'S NAME)

COMPANY NAME:

STREET ADDRESS:

CITY

COUNTRY: POST/ZIP CODE:

TELEPHONE NUMBER & E-MAIL:

1	52	x	22	x	1		
		x		x			
		x		x			
		x		x			
		x		x			
		x		x			
		x		x			

IMPORT & EXPORT CODE

GLOBAL DOCUMENT EXPRESS		OVERNIGHT EXPRESS	X	SAME DAY	
GLOBAL PARCEL EXPRESS		IN CITY DELIVERY		DAWN DELIVERY BY 09H00	
SPECIALS		BUDGET CARGO 21-48 HRS		SATURDAY DELIVERY	
AIRFREIGHT		ROAD FREIGHT 48-96 HRS		AFTER HOURS	
CROSS BORDER ROAD FREIGHT				PUBLIC HOLIDAY	

CUSTOMS VALUE

HAZARDOUS CARGO? YES NO X

INSURANCE YES NO X

AMOUNT:

WE HAVE SEEN AND AGREE TO THE STANDARD CONDITIONS OF CARRIAGE OF GLOBEFLIGHT WORLDWIDE EXPRESS
PRINT NAME:
SIGNATURE:
DATE: TIME:

RECEIVED BY GLOBEFLIGHT WORLDWIDE EXPRESS
PRINT NAME:
SIGNATURE:
DATE: TIME:

RECEIVED IN GOOD ORDER AND CONDITION
PRINT NAME:
CONSIGNEE SIGNATURE:
DATE: TIME:

Globeflight reserves the right to choose the service "Budget" should no service label be selected

Please note indemnity clause in Terms & Conditions

Globeflight

HEAD OFFICE: 011 922 2680

2720772091

DATE	ACCOUNT NUMBER	COST CENTRE	SHIPPER'S REFERENCE	ORIGIN	DESTINATION	No. OF PIECES
12 Feb 19	[illegible]					1

SHIPPER: (YOUR NAME)

COMPANY NAME:

STREET ADDRESS:

CITY

COUNTRY: POST/ZIP CODE:

TELEPHONE NUMBER & E-MAIL:

TO: (RECIPIENT'S NAME)

COMPANY NAME:

STREET ADDRESS:

CITY

COUNTRY: POST/ZIP CODE:

TELEPHONE NUMBER & E-MAIL:

1	52	x	22	x	1		
		x		x			
		x		x			
		x		x			
		x		x			
		x		x			
		x		x			

IMPORT & EXPORT CODE

GLOBAL DOCUMENT EXPRESS		OVERNIGHT EXPRESS	X	SAME DAY	
GLOBAL PARCEL EXPRESS		IN CITY DELIVERY		DAWN DELIVERY BY 09H00	
SPECIALS		BUDGET CARGO 21-48 HRS		SATURDAY DELIVERY	
AIRFREIGHT		ROAD FREIGHT 48-96 HRS		AFTER HOURS	
CROSS BORDER ROAD FREIGHT				PUBLIC HOLIDAY	

CUSTOMS VALUE

HAZARDOUS CARGO? YES NO X

INSURANCE YES NO X

AMOUNT

WE HAVE SEEN AND AGREE TO THE STANDARD CONDITIONS OF CARRIAGE OF GLOBEFLIGHT WORLDWIDE EXPRESS
PRINT NAME:
SIGNATURE:
DATE: TIME:

RECEIVED BY GLOBEFLIGHT WORLDWIDE EXPRESS
PRINT NAME:
SIGNATURE:
DATE: TIME:

RECEIVED IN GOOD ORDER AND CONDITION
PRINT NAME:
CONSIGNEE SIGNATURE:
DATE: TIME:

Ian Roos

From: Ian Roos <ecologic@mweb.co.za>
Sent: 22 February 2019 08:28 AM
To: 'Paballo Mohafa'
Subject: Erf 30, Letamo Estate, Mogale City
Attachments: ERF 30.pdf

Paballo
Please find attached the Draft EIA BAR submitted to DEA.
Comments please
Regards

Ian Roos
ecologic AFRIKA
Cell: 083 635 7315
Tel: 012 661 4863
Fax: 012 661 5251
ecologic@mweb.co.za
PO Box 8079
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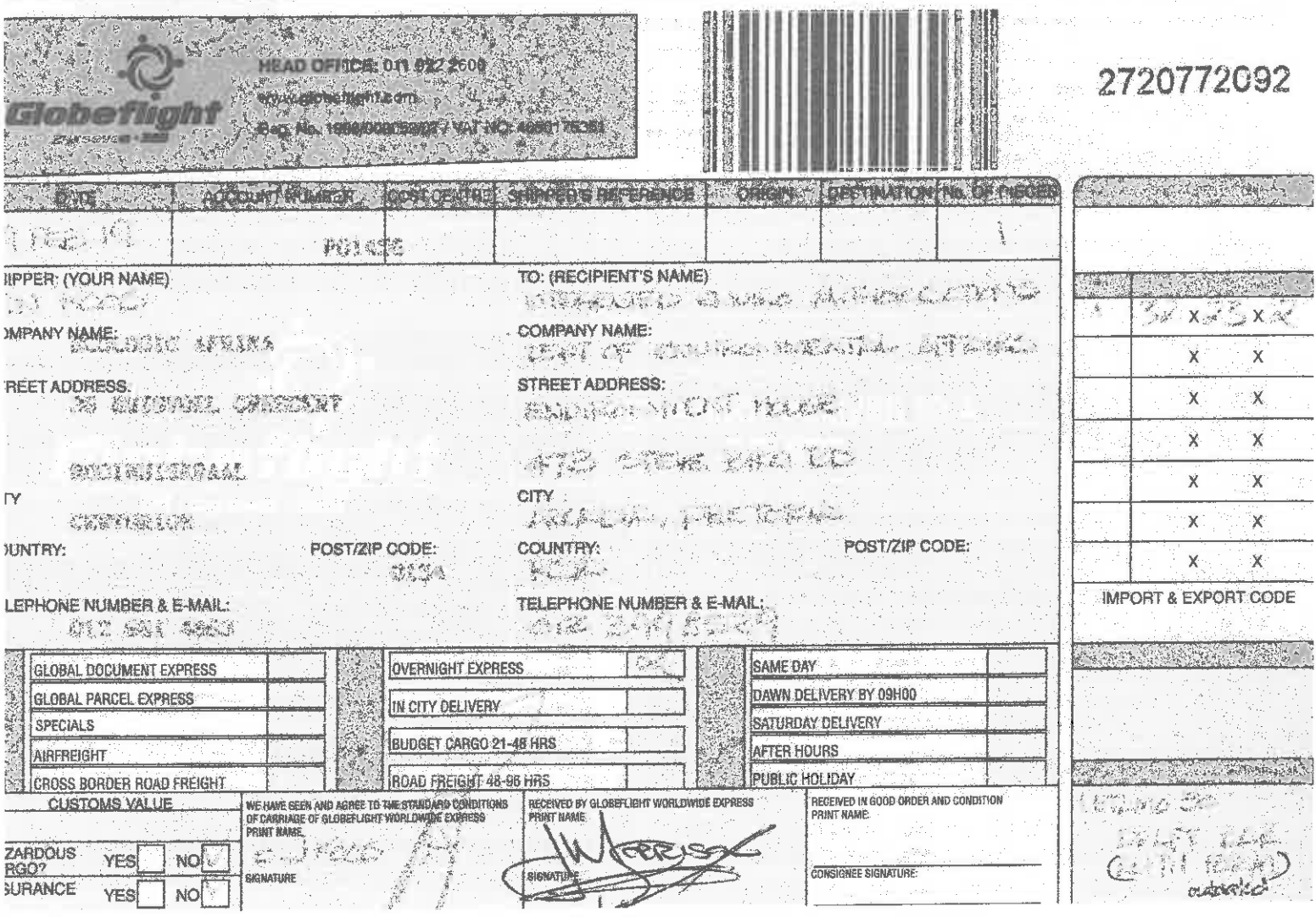
0046

ecologic AFRIKA



PROOF OF SUBMISSION OF FINAL BAR

Ian Roos

From:	Ian Roos <ecologic@mweb.co.za>
Sent:	05 June 2019 05:11 PM
To:	'hein.pienaar@gauteng.gov.za'; 'tntloko@environment.gov.za'; 'Mathebe Tshepo (GAU)'
Cc:	'nico de louwere'; 'Juan'; 'Tjaart Riekert'; 'Eugene Joubert'; 'Manda Smit'; 'admin@letamo.net'
Subject:	Erf 30, Letamo Estate final BAR
Attachments:	ecologic complete scan.pdf

Please find attached final Basic Assessment Report (BAR) for proposed subdivision and development.
Deadline for comments is 05 July 2019.
Regards

Ian Roos
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PO Box 8079
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0046

Globeflight

HEAD OFFICE: 011 922 2800
www.globeflight.com
Reg. No: [illegible] / VAT NO: [illegible]

2720772133

DATE	ACCOUNT NUMBER	COST CENTRE	SHIPPER'S REFERENCE	ORIGIN	DESTINATION	No. OF PIECES
[illegible]	[illegible]					1

SHIPPER. (YOUR NAME)

COMPANY NAME:

STREET ADDRESS:

CITY

COUNTRY: POST/ZIP CODE: 0154

TELEPHONE NUMBER & E-MAIL: 012 661 [illegible]

TO: (RECIPIENT'S NAME)

COMPANY NAME:

STREET ADDRESS:

CITY

COUNTRY: POST/ZIP CODE:

TELEPHONE NUMBER & E-MAIL:

GLOBAL DOCUMENT EXPRESS	OVERNIGHT EXPRESS	SAME DAY
GLOBAL PARCEL EXPRESS	IN CITY DELIVERY	DAWN DELIVERY BY 09H00
SPECIALS	BUDGET CARGO 21-48 HRS	SATURDAY DELIVERY
AIRFREIGHT	ROAD FREIGHT 48-96 HRS	AFTER HOURS
CROSS BORDER ROAD FREIGHT		PUBLIC HOLIDAY

IMPORT & EXPORT CODE

CUSTOMS VALUE

HAZARDOUS CARGO? YES NO

INSURANCE YES NO

AMOUNT:

WE HAVE SEEN AND AGREE TO THE STANDARD CONDITIONS OF CARRIAGE OF GLOBEFLIGHT WORLDWIDE EXPRESS
PRINT NAME
SIGNATURE
DATE TIME

RECEIVED BY GLOBEFLIGHT WORLDWIDE EXPRESS
PRINT NAME
SIGNATURE
DATE TIME

RECEIVED IN GOOD ORDER AND CONDITION
PRINT NAME:
CONSIGNEE SIGNATURE.
DATE: TIME:

Globeflight reserves the right to choose the service "Budget" should no service label be selected

Please note indemnity clause in Terms & Conditions

We also supply a wide range of stationary & cartridges at, discounted prices!!012 6612981

Received in good order

Signed_______________ Date_______________

Sub Total		97.39
Discount @	0.00%	0.00
Amount Excl Tax		97.39
Tax		14.61
Total		112.00

Globeflight

2720772135

DATE	ACCOUNT NUMBER	COST CENTRE	SHIPPER'S REFERENCE	ORIGIN	DESTINATION	No. OF PIECES

SHIPPER: (YOUR NAME)

COMPANY NAME:

STREET ADDRESS:

CITY

COUNTRY:

POST/ZIP CODE:

TELEPHONE NUMBER & E-MAIL:

TO: (RECIPIENT'S NAME)

COMPANY NAME:

STREET ADDRESS:

CITY

COUNTRY:

POST/ZIP CODE:

TELEPHONE NUMBER & E-MAIL:

	X X
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IMPORT & EXPORT CODE

GLOBAL DOCUMENT EXPRESS		OVERNIGHT EXPRESS	X	SAME DAY	
GLOBAL PARCEL EXPRESS		IN CITY DELIVERY		DAWN DELIVERY BY 09H00	
SPECIALS		BUDGET CARGO 21-48 HRS		SATURDAY DELIVERY	
AIRFREIGHT		ROAD FREIGHT 48-96 HRS		AFTER HOURS	
CROSS BORDER ROAD FREIGHT				PUBLIC HOLIDAY	

CUSTOMS VALUE

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URANCE YES NO

OUNT:

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DATE TIME

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CONSIGNEE SIGNATURE:
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Globeflight

HEAD OFFICE: 011 [illegible]

www.globeflight.com

Reg. No. [illegible]

272077213

DATE	ACCOUNT NUMBER	COST CENTRE	SHIPPER'S REFERENCE	ORIGIN	DESTINATION	No. OF PIECES
[illegible]	[illegible]					

SHIPPER: (YOUR NAME)

COMPANY NAME:

STREET ADDRESS:

CITY

COUNTRY:

POST/ZIP CODE:

TELEPHONE NUMBER & E-MAIL:

TO: (RECIPIENT'S NAME)

COMPANY NAME:

STREET ADDRESS:

CITY

COUNTRY:

POST/ZIP CODE:

TELEPHONE NUMBER & E-MAIL:

	X	X
	X	X
	X	X
	X	X
	X	X
	X	X
	X	X

IMPORT & EXPORT COD

GLOBAL DOCUMENT EXPRESS		OVERNIGHT EXPRESS	X	SAME DAY	
GLOBAL PARCEL EXPRESS		IN CITY DELIVERY		DAWN DELIVERY BY 09H00	
SPECIALS		BUDGET CARGO 21-48 HRS		SATURDAY DELIVERY	
AIRFREIGHT		ROAD FREIGHT 48-96 HRS		AFTER HOURS	
CROSS BORDER ROAD FREIGHT				PUBLIC HOLIDAY	

CUSTOMS VALUE

HAZARDOUS CARGO? YES [ ] NO [X]

INSURANCE YES [ ] NO [X]

AMOUNT:

WE HAVE SEEN AND AGREE TO THE STANDARD CONDITIONS OF CARRIAGE OF GLOBEFLIGHT WORLDWIDE EXPRESS
PRINT NAME: [illegible]
SIGNATURE
DATE [illegible] TIME

RECEIVED BY GLOBEFLIGHT WORLDWIDE EXPRESS
PRINT NAME
SIGNATURE
DATE TIME

RECEIVED IN GOOD ORDER AND CONDITION
PRINT NAME:
CONSIGNEE SIGNATURE:
DATE: TIME:

[illegible]

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Signed _____ Date _____

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Discount @	0.00%	0.00
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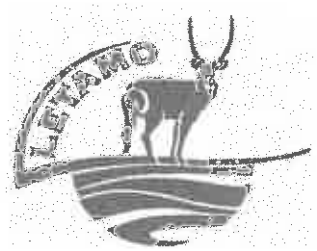
APPENDIX Q - LETAMO GAME FARM RULES & REGULATIONS



LETAMO GAME FARM PTY LTD

Registration no: 1999/02852/07
(Hereinafter referred to as "**LGF**")

The Book of Rules of Letamo 2017

The Book of Rules of Letamo incorporates, and are subservient to, the Environmental Management Plan as approved by the Department of Environment and Tourism, Mogale City Environmental and by-laws, the Gauteng Department of Agricultural Rural Development, the World Heritage Site Cradle of Humankind, the Department of Water Affairs which shall, in terms of articles 5 and 6 of the Memorandum of Incorporation, govern the Conduct of all Members.

1. Foreword

As a ***Game Farm***, we enjoy a unique experience in an environmentally rich environment. These ***Rules*** are for the protection and reinforcement of this lifestyle and our investment.

To harmoniously share this environment with each other and the wildlife found within our perimeter, all Members shall at all times behave and conduct themselves in a considerate, reasonable and civilised manner, and shall in particular avoid being a Public Nuisance to others and are expected to observe certain restraints, and consider the rights and privileges of each other. Coupled to this, living on a ***Game Farm*** comes with the responsibility to protect, and attend to, the needs of the environment and game.

2. Legislative Issues

2.1. Meanings, Definitions, Acronyms, Abbreviations and References
When used in the Book of Rules of Letamo, words, headings, definitions, acronyms and abbreviations will have the same meaning as in the MOI and the Companies Act. This book of Rules is to be read in conjunction with the: the LGF EMP, the LGF MOI, the Companies Act; the Notarial Deed of Praedial Servitude of Reciprocal Traversing Rights; and the Title Deeds of Stands.

"Public Nuisance" means any act, omission or condition on Letamo and or any Stand, which in the opinion of the BOD is offensive or dangerous, or which materially interferes with the ordinary comfort, convenience, peace or quiet of Members, or which adversely effects the safety of Members or the public.

2.2. Mandate of the Board of Directors

2.2.1 To undertake the repair, upkeep, control, management, upgrading and administration of Letamo, excluding the Members dwellings, the payment of local authority charges levied in respect of LGF, including the dwellings if owned by LGF, and for any charges for the supply of electric current, gas, water, fuel and sanitary, security and any other services and for the discharge of any other obligation of LGF, against payment of a levy by all Members, at the discretion of the BOD.

2.2.2 To administer the general security arrangements on Letamo, with particular reference to controlling access and the nature and type of security to be provided from time to time, excluding the security arrangement of any Stand of a Member.

2.2.3 To maintain the infrastructure including, but not limited to: roads, fencing, picnic spots, guardhouses, booms, gardens, dams, water reticulation, water meters, fauna and flora of Letamo.

2.2.4 To ensure that each Member of a Stand on Letamo maintains his Stand in a clean and tidy condition and adheres to the specifications imposed by LGF relating to the environmental, landscaping and ecological planning. In the event of any Member failing to adhere to the specifications and maintenance of his Stand, the BOD shall be entitled, but not obliged, to perform the necessary acts and services and recover from such Member the costs thereof.

3. Responsibility of Members

3.1 Rights and Conditions of the use of a Stand

3.1.1 Member's rights of use shall be exercised by that Member personally or his nominated occupant. The rights and conditions of use shall endure for as long as the Member continues to be the registered owner of a Stand and shall be subject to compliance with the conditions of use. The conditions of use shall be enforceable by LGF against each Member and his nominated occupant and by each Member against LGF.

3.1.2 Every Member shall be entitled to the exclusive use, occupation and enjoyment of a private space area of his Stand as per the Title Deed of his Stand if not specified only to a maximum of 2000m².

3.1.3 Every Member shall be entitled to the shared use and access to Letamo (braai areas, dam areas and demarcated roads, portion 223), excluding the exclusive use areas of the Residential and Commercially Zoned Stands, in common with all the other Members, subject to the respective Title Deeds, the MOI, the EMP and the Rules of Letamo.

3.1.3.1 Members, their nominated occupants, guests, employees and invitees shall use and enjoy Letamo entirely at their own risk, it being specifically recorded that there are potentially dangerous animals on Letamo. LGF accepts no responsibility arising from any injury, loss of life, or any other damage of whatsoever nature caused by such animals or from any other cause whatsoever.

3.1.4 Every Member shall adhere to the conditions, prohibitions, restrictions and servitudes of the Title Deed of his Stand and shall apply to the relevant authority should he wish to change the conditions, prohibitions, restrictions and servitudes of the title Deed of his Stand.

3.1.5 No Member shall be entitled to subdivide his Stand if such restriction, or conditions of subdivision, forms part of the Title Deed of his Stand.

3.1.6 No Member shall be entitled to conduct, or operate, any business from, or on, his Stand including, but not limited to a property time-sharing scheme as defined in the Property Time-Sharing Control Act 1983 or any other similar scheme, unless his Stand is duly zoned as a Commercial Zoned Stand and authorities, including, but not limited to Mogale City Local Authority, have issued an approval for a business to be conducted from the Stand. Once an application for re-zoning and or business rights is approved by the relevant authorities, the BOD will revisit the number of levy units payable by the Member for his Stand.

3.1.7 Members shall prevent their Stands from being used for any purpose that may be illegal or injurious to the other Stands on Letamo or Members themselves.

3.1.8 No Member may place, store, keep or permit to be placed, stored or kept upon any portion of Letamo otherwise than in the dwelling or outbuildings of such Member, any personal belongings.

3.1.9 Members, their nominated occupant, guests, employees and invitees shall not:

3.1.9.1 Cause any nuisance of any nature whatsoever to other owners, nominated occupants or guests including, but not limited to, creating excessive noise and disturbances. The Letamo Farm Manager, appointed by LGF, in his sole discretion, shall determine what constitutes excessive noise, disturbance or nuisance, calling on the relevant authorities as needed.

3.1.9.2 Do, or omit to do, anything which contravenes or may jeopardise any license, authority, consent or permit held by LGF.

3.1.9.3 Make fires in any area outside the private space of the Stand of the Member, these fires to be made only in decimated braai areas and chimneys.

3.1.9.4 Contaminate any of the land and/or dams, streams or rivulets, or litter in any manner on Letamo.

3.1.10 Members, who are owners of a Residential or Commercially Zoned Stand, or their nominated occupant, shall be entitled to have guests on the exclusive use area of his Stand. The number of guests that may be invited to a Residential Stand, at any one time, may not exceed 20 (twenty), subject to a number of guests staying overnight not exceeding 10 (ten). The number of guests that may be invited to a Commercially Zoned Stand, at any one time, may not exceed the number of guests as specified in the zoning approval of the local authority for that Stand.

3.1.11 On application to the BOD, each Member, or his nominated occupant, shall be entitled to have guests on the remainder of Letamo (dams, braai areas and Portion 223), excluding the Residential and Commercially Zoned Stands.

3.1.11.1 The BOD will in its sole discretion be entitled to establish limits on the number of guests and the area of Letamo (dams, braai areas and portion 223) that a Member may invite guests to. All guests are subject to the Book of Rules of Letamo and guests will be the sole responsibility of the Member that extended the invite.

3.1.11.2 Members shall ensure that their nominated occupants, guests, visitors, employees and invitees observe the conditions of use and shall accept full responsibility for the conduct of such nominated occupants, guests, visitors, employees and invitees. The BOD, in its sole discretion, reserves the right to search any vehicle of guests, visitors, employees and invitees at any time. It shall be incumbent upon Members to acquaint all nominated occupants, guests, visitors, employees and invitees with the conditions of use.

3.1.12 Private dwellings and moveable property may be insured by the relevant Member, it being expressly provided that LGF shall have no responsibility with regard thereto. Any moveable property brought onto Letamo by a Member, and or his nominated occupants, guests, visitors, employees and invitees, shall be at the sole risk of the Member, and or his nominated occupants, guests, visitors, employees and invitees. None of the aforementioned shall have any claim whatsoever against LGF in respect of any loss or damage to such property from whatever cause such claim may arise.

4. General Rules

In this section where reference is made to "Person", such reference shall include: all Members and, but not limited to, their Family, Residents, Tenants, Visitors, Guests, Invitees, Employees, Domestic Staff, Delivery persons, Contractors and any other occupants of Stands in Letamo.

4.1 Indemnity

4.1.1 LGF shall be entitled to require any Person to sign, before entering Letamo, a written waiver of all claims against LGF and its employees arising from any loss, damage or injury which such Person may sustain on Letamo from any cause whatsoever and whether or not such loss or damage is occasioned by any act or omission of LGF or any

employees of LGF or by any animal upon Letamo, failing which LGF shall be entitled to deny such Person access to Letamo.

4.1.2 Members hereby indemnify LGF against any loss, damage or injury that the Member, or any Person who the Member allowed onto Letamo, may sustain on or about Letamo from any cause whatsoever, and whether or not such loss or damage is occasioned by any act or omission of LGF or any of the employees of LGF, or by any animal upon Letamo.

4.1.3 Should any Member, or any Person who the Member allowed onto Letamo, cause any damage to Letamo or any improvements erected on Letamo, whether accidentally, negligently or wilfully, the Member herby accepts full liability for the cost of repairing or replacing whatever may have been damaged. Any act by a Person, who the Member allowed onto Letamo, shall be deemed to be the act or omission of the Member, and any notice given to such a Person shall be deemed to be notice also to the Member concerned.

4.1.4 LGF shall not be liable for any damage, whether direct or consequential as a result of interruption or failure of electrical or water services or any other service that may be supplied to Letamo, regardless of the cause thereof, and whether or not such interruption or failure is occasioned by any act or omission by LGF or any of its employees.

4.2 **Access Control**

4.2.1 Access Control shall apply to all Persons on Letamo. Processes, methods and mechanics may change from time to time, as determined by the BOD and/or circumstances and/or security threats.

4.2.2 The "delivery" gate at the main Letamo entrance on Kromdraai Road, will be locked between 18:00 and 06:00. Deliveries between 18:00 and 06:00 will only be allowed through the "visitors" gate if the vehicle can fit through the entrance with a maximum height of 2, 8 (two comma eight) meters. No articulated vehicles will be allowed through the "visitors" gate at any time. All deliveries must be pre-authorised to be allowed access via the applicable process, as introduced by the BOD from time to time. Delivery persons will be issued with a "Deliveries Board" which must be displayed at all times. Delivery persons must adhere to roads, routes and speeds as indicated on the "Deliveries Board". Delivery persons must return the issued "Deliveries Board" on exiting.

4.2.3 Residents' access will only be granted to Members and their designated Stand occupants residing on Letamo. Vehicle Entrance Tags and Vehicle Identification Stickers must be obtained from the Letamo Office, at the prevailing rate, and must be visibly displayed on all vehicles. Changes of vehicles must be reported to the Letamo Office and new Entrance Tags and Vehicle Identification Stickers must be obtained from the Letamo Office. Members will be issued with a "device" which is not transferrable to any other Person and Members are responsible for these "devices", and the use thereof and will be held accountable for unauthorised use. Unauthorised use can result in the confiscation of the "devices". The loss or theft of any "device" must be immediately *reported* to the Letamo Office to ensure the disabling of the "device". Any vehicle of a Member not displaying the identification sticker, will be treated as a Visitor or Guest in terms of access control.

4.2.4 Visitors to Stands must be pre-authorised to be allowed access via the applicable process, as introduced by the BOD from time to time. Visitors will be issued with a "Visitors Board" which must be displayed at all times. Visitors must adhere to roads, routes and speeds as indicated on the "Visitors Board". Visitors must return the issued "Visitors Board" on exiting.

4.2.5 Hotel and Lodge Guests must have a booking to the hotel/restaurant/lodge and pre-authorised to be allowed access via the applicable process, as introduced by the BOD from time to time. Guests will be issued with a "Guest Board" which must be displayed at all times. Hotel and Lodge Guests must adhere to roads, routes and speeds as indicated on the "Guests Board". Hotel and Lodge Guests must return the issued "Guests Board" on exiting.

4.2.6 Domestics, Gardeners, Staff and Employees of Members must be registered at the Letamo Office. A Letamo ID Card will be issued which must be displayed at all times. If the ID Cardholder is no longer employed by the Member, it must be reported to the Letamo Office to ensure the immediate de-registration of the ID Card. Walk in Staff and Labourers are not allowed to enter/exit the farm during the period 1 September – 30 April before 06:00 and not leave after 18:00, and during the period 1 May to 30 August before 06:30 and not leave after 17:00.

4.2.7 Contractors and their Staff must register copies of their identification documents at the Letamo Office at least one day before building commences. Contractors and their staff ID's must be scanned at the time of entry. Contractors and their staff must be pre-authorised to be allowed access via the applicable process, as introduced by the BOD from time to time. Contractors and their Staff will be issued with a "Contractors Board" which must be displayed at all times. Contractors and their Staff must adhere to roads, routes and speeds as indicated on the "Contractors Board". Contractors and their Staff must return the issued "Contractors Board" on exiting. Contractors are not allowed to walk into or on Letamo. Contractors and their Staff are not allowed to enter Letamo before 07:00 Monday to Saturday and exit after 18:00 Monday to Friday and Saturdays for 08:00 - 14:00. During Sundays and Public Holidays no Contractors or their Staff will be allowed to enter Letamo unless in the case of an emergency and cleared by the Letamo Farm Manager.

4.3 **Vehicle Control**

4.3.1 No vehicles may travel at more than 30km/h and no commercial vehicles (code 10 and above) may travel at more than 20km/h. Members, who allowed Drivers of Vehicle access to Letamo, will be held responsible for the actions of the Driver and the members will be fined if the Driver is caught speeding. Members acknowledge and agree to the decision of the BOD as to the type of equipment used to measure the speed of a Vehicle on Letamo.

4.3.2 Pedestrians, animals and cyclists have "right of way".

4.3.3 No Person shall drive a vehicle upon Letamo, other than on clearly demarcated main thoroughfares. Firebreaks, service roads and other roads marked "no entry" or "management only" may only be used for the designated purpose or in cases of emergency. "Free Range" driving through the veldt, where there are no roads, is strictly prohibited except in the case of game management tasks or in the event of an emergency.

4.3.4 All operators of motorised vehicles on Letamo must be licenced and the vehicles registered where applicable.

4.3.5 Quad bikes, off road bikes, scramblers, golf carts and or battery operated "look-a-likes" are not permitted to be driven or ridden on Letamo. Transporting these type of vehicles on Letamo must done by trailer, flat-bed or delivery vehicle. Battery operated road worthy vehicles driven by a licenced driver on demarcated roads only without being a noise nuisance is allowed.

4.3.6 The use of motorcycles and scooters by Members and their visitors is limited to only allow access from the entrance/exit of Letamo to the Stand of the Member and not on "Game" or "Free Range" drives or the like.

4.3.7 Deliveries by motorcycle, scooter or bicycle will only be allowed between 06:00 and 18:00.

4.4 **Fencing of Private Use Areas on Stands**

4.4.1 Members may only fence off an area, for exclusive private use on their Stands, as stipulated in the Title Deed to their Stands. If no provision were made in the Title Deed of their Stand, a maximum of 2,000 square meters would be applicable.

4.4.2 Only the following approved material may be used for fencing: Bonnox or Veldspan game fencing, electric fencing as provided for in the EMP, Clearvu or Galvanished fencing painted black or PWD brown and Ranch style wooden fencing.

4.4.3 Palisade fencing is not permitted due to it being a danger to the game.

4.5 **Domestic Animals/Pets**

In this section where reference is made to "Owner", such reference includes Members, and, but not limited to, Members Family, Tenants, Visitors, Guests, Employees, Domestic Staff, Contractors and any other occupants of Stands in Letamo.

4.5.1 The Mogale City by-laws (MCBL) relating to pets will be applied in addition to The Letamo Book of Rules. Owners of domestic animals/pets must familiarise themselves with the by-laws of Mogale City pertaining to domestic animals/pets. In the event of a conflict between these Rules and those of the MCBL, those of the MCBL will prevail.

4.5.2 Owners must register and hand in a clear photo of all their domestic animals/pets at the Letamo Office, before they are brought onto Letamo. Every domestic animal/pet must be micro chipped or be fitted with a collar and tag indicating the name, telephone number and/or address of its Owner. For registration purposes, Owners need to hand in, at the Letamo Office, a veterinary certificate, as proof that their pet/animal's compulsory inoculations are up to date and, thereafter yearly on or before the 31st of December. Any domestic animal/pet that that is no longer, for whatever reason, on Letamo must be deregistered at the Office of LGF.

4.5.3 The breeding of domestic animals/pets on Letamo, whether incidental, commercial or otherwise, is not permissible.

4.5.4 Members will only be allowed domestic animals/pets on Letamo if the private area of their Stand is suitably fenced in to secure the domestic animals/pets from leaving the private space.

4.5.5 Poultry, pigeons, aviaries, birds and wild animals or livestock may under no circumstances be kept on the Letamo.

4.5.6 Wild animals may only be brought onto Letamo as part of a rehabilitation program endemic to the game farm by an approved authority and EMP.

4.5.7 Owners will be responsible to arrange for the access of persons who will be taking care of their domestic animals/pets in their absence. The Letamo Office must be informed and contact details of such caretaker must be submitted to the Letamo Office. Any domestic animal/pet found to be neglected by the Owner, or caretaker, will be handed over to the SPCA. In extreme cases, such as uncontrollable attacks on wildlife and people, the domestic animal/pet will be put down. The Owner of the domestic animal/pet will be liable for any and all costs associated with this action.

4.5.8 No domestic animals/pets are permitted to roam on Letamo. Dogs must always be on a leash when outside the private area of the Stand. Domestic animals/pets may under no circumstances be allowed to chase after any wildlife. Any domestic animal/pet found wandering loose or roaming, or not being under supervision or control of its Owner may be, in the sole discretion of the Letamo Farm Manager, be impounded or otherwise be dealt with. The Owner of the domestic animal/pet will be liable to pay a fine plus any other costs associated with this action.

4.5.9 Stray unidentified domestic animals/pets will be impounded, where possible, and handed over to the SPCA. If such strays cannot be impounded, the Letamo Farm Manager may dispose of it in his sole discretion.

4.5.10 Owners must take measures in preventing their pets from becoming a Public Nuisance on Letamo. Any domestic animal/pet causing a nuisance and disturbance of the peace shall be deemed to be a contravention of the Rules by the Owner and such owner shall be guilty of an offence liable and subsequently on conviction to a fine.

4.5.11 Any domestic animal/pet causing Public Nuisance must be reported to the Letamo Office in the form of a written complaint. Written complaints, received by the Letamo Office, shall be dealt with as follows:

4.5.11.1 The Letamo Farm Manager will forward the complaint to the Owner of the domestic animal/pet.

4.5.11.2 The Owner of the domestic animal/pet will then have 5 business days after receiving the complaint to respond in writing.

4.5.11.3 On receipt of the written response, or in the absence of a response within the 5 day period, from the Owner of the domestic animal/pet, the Letamo Farm Manager will make a decision on the relevant action to be taken. Any disputes not resolved within 30 days internally shall be referred to the SPCA for further action.

4.6 **Levies**

4.6.1 Application and Payment.

4.6.1.1 A Member shall be responsible for payment of all electricity and water consumed on his Residential Stand, and shall pay such deposits as may be applicable to the relevant authority. In the event of rates and taxes or any other imposts being levied by any authority, the Member shall be responsible for payment thereof.

4.6.1.2 LGF levies and special levies are payable in terms of paragraph 6 of the MOI.

4.6.1.3 Monthly levies are due on the first business day of each month and payable within 7 (seven) business days thereafter. Each Member shall pay his monthly levies, free from any deductions, into the designated account of LGF.

4.6.1.4 Interest will be raised on the total of all overdue levies, water supply and fines, at the ABSA Bank prime overdraft rate plus 2 (two) percent per annum.

4.6.1.5 Levies are exempted from the provisions of the National Credit Act.

4.6.1.6 Levies are subject to rulings by SARS made from time to time.

4.6.2 LGF Budget and setting of Levy levels.

4.6.2.1 The BOD shall prepare no later than 1 (one) month prior to the end of each financial year a budget that shall detail the anticipated expenses for the ensuing year and the provisions for any budgeted fund in order to ensure that LGF will be able to fulfil its objectives.

4.6.2.2 The budget shall reflect the total annual and monthly levies required. Each Member shall be responsible for a monthly levy equal to the total monthly levies divided by the total number of Members.

4.6.2.3 In the event that the budget indicate more than a 10 (ten) percent increase on the previous year levies, the budget and levies must be submitted to be considered and approved, with or without amendments, by a General Meeting before the commencement of the ensuing financial year.

4.6.2.4 The basis for the calculation of the levies are as follows:

4.6.2.4.1	Residential stands	1 levy unit
4.6.2.4.2	Portion 220	2 levy units
4.6.2.4.2	Portion 221	3 levy units
4.6.2.4.2	Poole Group	1 levy unit per subdivision.

4.6.2.5 With specific reference to the hippo dam, any improvements, other than those prescribed by the Department of Water Affairs, will be the responsibility of the Member of Portion 221, and for that Member's account, on condition that such improvements and maintenance complies with the required standards at that time as set by the Department of Water Affairs. LGF shall carry out normal maintenance to the dam as per the requirements of the Department of Water Affairs directives issued from time to time.

4.7 Signage

4.7.1 Only road signs pre-approved by the BOD may be erected on Letamo.

4.7.2 Members and their appointed agents shall not be permitted to display a "for sale" sign, a "to let" sign, or any other boards having the same effect, outside the Member's Stand, at the entrance to Letamo, or any other place in Letamo, except within the boundaries of the exclusive rights area of the Member's Stand. In the event of a "show day" a "for sale" sign may be placed at the entrance of the drive way of the Stand.

4.7.3 No signage of whatever nature, including but not limited to any suppliers/contractors/advertising is allowed to be erected anywhere on the Stand of the Member or Letamo, except with the prior approval from the BOD.

5. Environmental Awareness

5.1 EMP

5.1.1 The EMP is a legal and binding document in terms of the National Environmental Management Act and any failure of a Member to comply with the requirements of the EMP may be grounds of the immediate fines, cancellation of any contract and/or legal prosecution.

5.1.2 All contractors, builders and residents must be provided with a copy of the EMP and they must confirm in writing that they will abide by these requirements. They must also agree to comply with any changes and updates.

5.1.3 Contractors, together with the Member who employed such a Contractor, will be held responsible for any environmental incidents on their building sites and are required to report these incidents to the Letamo Environmental Manager.

5.1.4 Contractors must inform all of their staff of the environmental requirements of LGF.

5.2 Environmental Management

5.2.1 Should the Environmental Manager not have the relevant knowledge to implement certain actions then he must ensure that he has access to this knowledge in order to fulfill his responsibilities.

5.2.2 The Environmental Manager, in line with approval from the BOD, is responsible for any correspondence with GDARD.

5.2.3 Should any activity on Letamo Game Farm infringe on the Record of Decision issued by GDARD, it must be recorded and a non-compliance report submitted to GDARD within 48 hours. All conditions stipulated within the ROD must be complied with.

5.2.4 Internal audits by the Letamo Farm Manager will occur monthly during construction on a building site for the period the building takes place.

5.2.5 Audits will be discussed during the monthly board meeting to which all residents are invited to attend. Actions will be recorded in the minute and reports will be available for the resident's perusal. Where necessary, these reports must be submitted to GDARD for inspection and verification.

5.3 Waste and Refuse Removal

All handling of waste and refuse will be subject to the provisions of the EMP.

5.3.1 Members, or their nominated occupier, of a Stand shall maintain in a hygienic and dry condition a receptacle, or refuse bin, for refuse for the dwelling and ensure that refuse placed in such receptacle, or refuse bin, is securely wrapped.

5.3.2 Member, or their nominated occupier, shall ensure that the receptacle for purposes of having refuse collected shall be within the area and at the times designated by the Letamo Environmental Manager.

5.3.3 Members, or their nominated occupier, shall prevent the accumulation of trash, garbage or other waste material, including but not limited to garden refuse, on their Stands except in designated containers located in appropriate areas screened from public view and concealed in order that odours do not emanate from such containers.

5.3.4 Recyclable items such as plastic, tin, glass and paper must be put in separate clearly marked or transparent refuse bags.

5.3.5 No garden refuse to be placed in household or recyclable refuse bags.

5.3.6 Refuse will be removed from the designated areas on Mondays, barring if the Monday days falls on a Public Holiday, the refuse will be collected the first business day after the Public Holiday. Refuse removal will take start at 07:00 on the aforementioned days.

5.3.7 Refuse to be put out for removal in sealed bags only on the aforementioned days and not prior to it, as it may be a health risk to the game on Letamo.

5.4 **Harvesting of Excess Game**

Harvesting, and culling of injured game, is part of running a game farm and the Letamo Farm Manager has a strict protocol regarding shooting on Letamo. Members shall comply with all notices sent out by the Letamo Office regarding culling times and dates.

6. Architectural and Landscaping

(Please note that these are specific rules and not guidelines)

6.1 **Architectural Design**

6.1.1 The design and construction of the dwelling and or improvement on a Stand shall be harmonious with the Letamo environment.

6.1.2 Farm Style designs will be approved. The Member is responsible for the fee payable to the approved architect to approve any plans or changes to the exterior of the property on behalf of the BOD.

6.1.3 A dwelling or improvement on a Stand shall be a single or double storey structure dwelling inclusive of servant's quarters, garage and outbuildings. No dwelling or improvement shall exceed two storeys.

6.1.4 Servant quarters, garages and other approved outbuildings must form part of the main dwelling and be under one roof structure

6.1.5 The dwelling shall be constructed in a good, proper and workmanlike manner.

6.1.6 No dwelling or improvement shall provide sleeping accommodation for more than 10 (ten) persons – including adults, children and servants unless otherwise approved by the BOD in writing.

6.1.7 All residential designs should adhere to a Building height restriction of 9.5m measured from natural ground level at midpoint of site to top of roof.

6.1.8 Every effort must be made to have living spaces (sitting rooms, dining rooms, family rooms and bedrooms) facing north.

6.1.9 The privacy of surroundings properties must be considered. Consideration should be taken for balconies not to overlook the living areas of adjacent properties.

6.1.10 No pre-fabricated garden sheds or wendy houses will be allowed on the Estate.

6.1.11 Awnings, air conditioning units, satellite dishes and other external fitted equipment must be clearly shown and annotated on the drawings and approved by the BOD. Air conditioning units must be concealed.

6.1.12 Solar geysers are allowed, but should be hidden in the roof space of a dwelling. Only the solar panels to be on top of roof.

6.1.13 Carports, pergolas, canopies and verandas must form an integral part of the design of the main structure and must be tied in with the original design. No stand-alone carports will be allowed.

6.1.14 These rules do not replace any statutory requirements, prescribed submissions to and approval by authorities. These rules are in addition to the standing National Building

Regulations, Occupational Health and Safety Act and other Local and National Authority Requirements, Rules and Laws. The document should be read in relation to each other.

List of Important documents:

- Environmental Management Plan (EMP)
- Record of Decision (ROD)
- Approved conditions of Township Establishments
- Sales Agreement
- Memorandum of Incorporation
- Building Contractor Rules

6.2 **Building Lines**

6.2.1 A dwelling or improvement on portions 153 -176 & 182 - 219 of Letamo is subject to a 100 (one hundred) meter building line from portion 223 of Letamo and any watercourse or dam.

6.2.2 A dwelling or improvement, on portions 153 to 219, shall have a building line reserve of 10 (ten) meters.

6.2.3 A dwelling or improvement on a Stand known as Letamo Town Erf 1 to 32 shall have a building line reserve of 5 (five) meters.

6.3 **Building Material**

The following specifications shall apply to all dwellings and improvements on Letamo:

6.3.1 Roof covering: Pitched roof in Thatch, Chromo Deck in Corrugated and IBR sheeting profile, Slate tiles, Clay Tiles and Shingles, painted or manufactured in grey colours, i.e. Charcoal or Grey. Only 5% concrete roof on the main dwelling will be allowed as a flat concrete roof.

6.3.2 Exterior Walls: Plaster, Face brick, Semi face brick, approved stone cladding, Rugged Poles or Vermont plank - painted or manufactured to blend in with Coprox SL Tan and earthy (sand) colours. All other cladding on selected panels (only 10% of façade) to be approved by BOD.

6.3.3 Window frames: Wood, Aluminium or Steel - aluminium to be bronze in colour and steel to be painted PWD Brown. Tinting or glazing will be permitted but reflective glazing will not be permitted. No uPVC frame windows will be permitted.

6.3.4 Staff accommodation and kitchen areas must open onto screened yards: a brick wall of maximum 2 (two) meters high and minimum 1.8 meters high, finished same as the dwelling, must be built to screen the yard from the side of the road.

6.3.5 Roof lights: will only be permitted if in clear glazing and in the same pane as the roof. Tinted or reflective roof lights are prohibited. The position and design of roof lights and skylights are for the BOD scrutiny and approval.

6.3.6 Burglar proofing and security elements: All such elements must be designed and installed to be unobtrusive in appearance with preference to horizontal and vertical and combinations lines and patterns. These elements may only be installed on the inside reveals of windows and openings. Spanish bars are not permitted. Security gates may be installed on outside of external doors but must be unobtrusive I design and colour. Details to be approved by BOD.

6.3.7 No intentionally mottled or false aged plaster or special paint effects will be permitted.

6.3.8 Timber pergolas to be treated with approved oil, creosote or timber preservative with approved colour stain. All jointing must be bolted with galvanized dome nuts. No visible gang-nail connectors are allowed. Pergolas may not be finished with timber slating or timber laths.

6.3.9 No shade netting may be used for carports or any other coverage unless approved by the BOD.

6.3.10 No rock art in ant shape, form or material will be permitted.

6.4 **Approval of buildings and improvements**

6.4.1 The approval of any development on, or improvement to, a Residential or Commercial Zoned Stand shall be conducted in 3 (three) phases, namely:

6.4.1.1 the BOD or their appointed approved architect to approve, sign and date the building plans as specified by Mogale City Building Council. The BOD may approve, suggest changes, recommendations or turn down any such application within 30 days of submission, giving reasons for their decisions, if a Member feels the decision of the BOD is unreasonable, the process as set out in article 6 of the MOI shall be followed.

6.4.1.2 the neighbours directly adjacent to all sides of the Stand shall sign and date the "Neighbours Consent" form inclusive of the building plans as specified by Mogale City Building Council. The consent shall indicate clearly the intent, point out the position to erect a dwelling, or extend the existing dwelling, or build a swimming pool or make any other improvement whatsoever to the Stand/Building.

6.4.1.3 Mogale City Council to finally approve and sign off the building plans as specified by Mogale City Building Council.

6.4.2 The Member and his nominated Builder shall sign and submit the agreement of "undertaking" between themselves and LGF, together with the final approval of Mogale City Building Council before any building or improvement can commence.

6.4.3 No member may begin his building operations without his building operations being finally approved by the MCBC, and submitted to the LGF office. In the event that a Member begin to undertake any development on, or improvement to, a Stand without having Mogale City Building Council final approval, then LGF shall have the right to demand that any buildings erected on, or improvements effected, to the Stand be altered, removed or demolished without prejudice to any other rights that LGF may then have against the Member.

6.4.4 A Property Owner shall be responsible to LGF for the professional expenses and costs incurred by the BOD, or it's duly appointed nominee, for the consideration, evaluation and approval of the plans on behalf of the BOD. Such expenses and costs shall be payable to LGF on presentation of a statement from LGF. Failure of payment of such statement will lead to withdrawal by the BOD of their approval.

6.4.5 No exterior alterations, including the application of paint to the exterior, shall be made to the dwelling without the prior written consent of the BOD of LGF.

6.4.6 No plan submitted, will be processed before confirmation is obtained that all levies are up to date and that the building performance deposit (EMP fee) was received by LGF.

6.5 **Building Phase**

6.5.1 A Member shall not be entitled to erect any dwelling, or affect any improvements to an existing dwelling, prior to the Stand being registered and transferred into the Member, or his designated nominee's name.

6.5.2 A Property Owner shall, in submitting plans to the BOD, or its duly appointed nominee, accept the supervision rights and responsibilities of the BOD, or its duly appointed nominee, over the development of, or improvements to, the Residential or Commercially Zoned Stand.

6.5.3 An Owner shall not construct a building on his Residential Stand in a manner that causes danger, nuisance or disturbance to the occupiers of the neighbouring stands and where applicable, the Members shall cause suitable screens and or barricades to be erected to reduce the emission of noise, dust, waste, effluent or other nuisance from the Residential Stand.

6.5.4 A Property Owner shall not burn or permit to burn any materials or rubbish resulting from or connection with construction on the Residential Stand and shall ensure that such materials or rubbish be removed from the Residential Stand.

6.5.5 A Property Owner shall repair at his cost and expense any damage to the infrastructure, sidewalks and road shoulders or any part of the common or public areas in Letamo caused by the Property Owner or his agent(s) during the course of the construction on the Residential Stand.

6.5.6 A Member shall not interfere with the convenience of the common or public areas within Letamo during construction of any approved building.

6.5.7 A Property Owner shall ensure that all responsible means are used to prevent the roads leading to the Stand from being damaged or injured by any act or omission of the building contractor and or sub-contractor engaged by the Property Owner in respect of the construction on the Stand and the subcontractor/s of the building contractor/s and the servant/s or agent/s of the Property Owner whilst moving equipment and materials to and from the Stand.

6.5.8 A Member shall indemnify and shall keep LGF indemnified in respect of any and all loss, damage, cost or expense, which may be suffered by LGF as a result of any claim, demand, suit or proceedings which may be instituted against LGF as a result of any breach of any of the above obligations by the Member

6.5.9 A Member shall not erect any fencing or walling on a Stand, nor install television or radio aerials or solar heating panels, limited to domestic use, without the prior written approval of the BOD, which approval shall not be withheld unless the BOD are of the opinion that such fencing, walling and or installation is inconsistent with the aesthetic appearance of the homes and gardens in Letamo.

6.5.10 A Member shall not make any additions or extensions to any building in Letamo or erect any further building or structure, in particular, but not limited to, carports, garages, servants quarters, storerooms and pergolas, whether of a temporary or a permanent nature, upon land in Letamo without the prior written approval of LGF, which approval shall not be withheld unless the BOD are of the opinion that such building or structure is not in keeping with the architectural style of the existing buildings of the house concerned.

6.5.11 No Member may use any other access to his Stand other than the access road provided by LGF.

6.5.12 A Member shall not be entitled to erect any dwelling, or affect any improvements to an existing dwelling, prior to the appointment of a registered land surveyor to ensure that the proposed development is within the correct site area. The surveyor's beacon certificates must form part of the documents for plan submission to the BOD.

6.6 Building Contractors

6.6.1 The Member must provide his appointed building contractor, sub-contractor and agent with a copy of the Book of Rules of Letamo and the EMP.

6.6.2 The Member shall pay R 10,000 (ten thousand rand) non-refundable EMP levy towards LGF, on receipt of the BOD approval of the development of a new dwelling, towards implementing the Book of Rules of Letamo by the Letamo Farm Manager to oversee and control the building operations of the Member and to improve roads damaged by delivery trucks. Any excessive costs in the maintenance of this will be for the Property Owner's account.

6.6.3 The Letamo Farm Manager will weekly do inspections to ensure that the Book of Rules of Letamo is abided by. The Letamo Farm Manager will enforce the Book of Rules of Letamo and shall stay or halt the Member's development or improvement in order to ensure that all the building contractors, sub-contractors and agents to the Stand adhere to the Book of Letamo Rules.

6.6.4 In the constructing of a dwelling, the Member shall use his best endeavours to minimise inconvenience to other Members and their guests, and shall fence off the building site.

6.6.5 During the construction phase on a Stand, the Stand shall be kept clean, at all times, of any rubbish or building rubble. Building materials may only be off-loaded on the Stand and not on the surface of any access road. Cement or concrete may only be mixed on the Stand and not on the surface of any access road.

6.6.6 No Contractors and or their Staff shall be allowed to remain overnight on the Stand, or Letamo.

6.6.8 No open fires are allowed on the building site of the Member.

6.6.9 Before building can commence the Stand must be fenced off to a minimum height of 1500mm and supplied with gate that can close securely, be supplied with a skip bin with lid, or shade netting, to prevent refuse from blowing around and a chemical or vacuum toilet.

6.6.10 The private area of the Stand may be cleared by hand or by TLB. No top soil is to be removed from Letamo.

6.6.11 No cement to be spilled or loaded outside the private area. Building site must be kept clean of plastic and paper on a daily basis. All building rubble to be removed on a weekly basis.

6.6.12 The gate to the building site shall be closed every evening.

6.6.13 No construction may commence unless: The water connection is installed on site, an approved site toilet has been installed, and all outstanding levies are paid.

6.7 Building Plan Submission

6.7.1 The following must be adhered to before building plans will be considered for scrutiny:

6.7.1.1 A non-refundable plan approval fee escalate at 8% per annum paid to LGF.

6.7.1.2 An EMP levy as prescribed in (6.6.2) must also be paid.

6.7.1.3 Three sets of plans (1 set in colour, 2 sets monochrome) necessary for Mogale City Council approval, with a fourth set for BOD record purposes. Plan submission to and approval fees for the City Council are for the Property Owner's account.

6.7.2 A checklist for plan scrutiny can be obtained from the appointed Architect.

6.7.3 A signed copy of the last page of the "Book of Rules" must accompany plan submissions.

6.8 Final Inspection

7.6.1 Final inspection is done to ensure that all dwellings are as per the approved plans on file at the LGF Office.

7.6.2 If the dwelling deviates from approved plans, "As Built" plans must be submitted for approval depicting all variations.

7.6.3 The building has to be completed to such an extent that the owner can move into the house, and all building activity and contractors are off the building site.

7.6.4 The BOD reserves the right to prevent the occupation of any houses if the above is not fully adhered with, an day insist on adjustments to the building if the "as built" and plans are vastly different or no longer comply with these rules or other guidelines.

6.9 Selling of Stand

6.9.1 The Member may use the Offer to Purchase provided by the estate agent.

6.9.2 No Property will be transferred without the following documents:

6.9.2.1 Signed Letamo Book of Rules

6.9.2.2 Clearance Certificate issued by Letamo Office

6.9.2.3 Undertaking to correct any transgression within a certain period of time, e.g. loose standing buildings/car ports/fenced off area bigger than 1500m² - buyer/seller must correct problem before clearance certificate will be issued.

6.9.2.4 Seller must sign a CM 42 to transfer share linked to property to new owner. Cost to transfer share is for the account of the seller.

6.9.3 All outstanding accounts payable to LGF must be paid up to date of the date the clearance certificate is issued for.

7. Governance of these Rules

Rules and regulations are governed in terms of paragraph 6.5 of the MOI. It is the duty of the Letamo Farm Manager to ensure compliance by the Members with the rules, and to this end to issue such notices or do such things as may be necessary or requisite.

7.1 Breach of Rules

In the event of any breach of the Rules by a Member or any Members' household or his guests or invitees or Lessee or the like under his supervision or control, such breach shall be deemed to have been committed by the Member himself, without prejudice to the foregoing, the BOD may take or cause to be taken steps against the person actually committing the breach as they in their discretion may deem fit.

7.2 Enforcement of Rules

For the enforcement of the Rules the BOD may take or cause to be taken such steps as they may consider necessary, including instituting legal proceedings in court, to remedy the breach of a Rule of which a Member may be guilty, and debit the costs, on a scale as between attorney

and client, of so doing to the Member concerned, which amount shall be deemed to be a debt owing by that Member to LGF. Further impose a system of fines or other penalties and the amounts and conditions of such fines shall be submitted, reviewed and confirmed at each Annual General Meeting of LGF.

7.3 **The Process of reporting a breach**

7.3.1 Only complaints received in writing, and signed by the Member lodging the complaint, will be acted on. Complaints must reach the office within 2 (two) business days of the alleged breach.

7.3.2 Once a complaint is received, the Letamo Farm Manager will forward the written complaint to the alleged transgressor.

7.3.3 The alleged transgressor will be given 5 business days to respond in writing.

7.3.4 The Letamo Farm Manager will investigate the complaint within 5 business days after response was received from the alleged transgressor or if no response from alleged transgressor.

7.3.5 Letamo Farm Manager to inform both parties of the outcome of the investigation.

7.3.6 The Letamo Farm Manager will impose a fine or suggest an action, accordingly refer to incident to the relevant authorities.

7.3.7 If the parties are not satisfied with outcome suggested by the Letamo Farm Manger, they shall refer the outcome to BOD.

7.3.4 The BOD will attend to the matter at next set BOD meeting and advise the outcome to all parties.

7.4 **The results of a breach**

If a Member, his nominated occupant, guests, employees or invitees commits a breach:

7.4.1 of any of the provisions of the Book of Rules for Letamo, and fails to remedy such breach within 7 (seven) business days of delivery of written notice to the Member, his nominated occupant, guests, employees, staff or invitees, requiring such breach to be remedied, or

7.4.2 of the same or similar provision as set out above on 3 (three) or more occasions during any 12 (twelve) month period, after having been warned in writing by the BOD of LGF to desist there from, then, and without prejudice to any other rights which LGF may have in terms hereof or at law, LGF shall be entitled to implement the provisions in the "FINES" section, as set out hereunder, against the relevant Member on giving written notice to the relevant owner and to recover from the owner concerned all amounts which that owner may then owe to LGF.

7.4.3. In the event of any Member disputing the fact that he has committed a breach of any of the Rules, the procedure provided for in paragraph 6.17 of the MOI will apply.

8. Fines

8.1 First transgression – written warning to be issued.

8.2 Second transgression – R500.00 fine.

8.3 Transgression not fixed – R500.00 fine per month until the transgression is fixed limited to a Maximum of 6 months thereafter procedures to be followed as set out in MOI (6.3 & 6.6).

9. Acknowledgment

I hereby confirm that I have read the rules and are aware that our rules are subservient to the

By laws as set out on page 1 of this document.

Signed on this _____ day of _____ 20____

_____ _____

Initials and Surname
Owner

Initial and Surname
Owner

APPENDIX R – FEEDBACK FROM DEA

environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

Private Bag X 447· PRETORIA · 0001· Environment House · 473 Steve Biko Road, Arcadia, PRETORIA

DEA Reference: 14/12/16/3/3/1/2001
Enquiries: Ms Thabile Sangweni
Telephone: (012) 399 9409 **E-mail:** TSangweni@environment.gov.za

Mr CJ Roos
Ecologic Afrika
PO Box 8079
CENTURION
0046

Telephone Number: (012) 661 4863
Email Address: ecologic@mweb.co.za

PER E-MAIL / MAIL

Dear Mr Roos

COMMENTS ON THE DRAFT BASIC ASSESSMENT REPORT FOR THE PROPOSED SUBDIVISION AND DEVELOPMENT (RESIDENTIAL 1 – BUSH LODGE RESIDENCES, AND SPECIAL FOR ACCESS AND ACCESS CONTROL PURPOSES, AND PRIVATE OPEN SPACE) ON ERF 30, LETAMO ESTATE, MOGALE CITY, GAUTENG PROVINCE

The draft Basic Assessment Report (BAR) received by this Department on 20 February 2019 refers.

This Department has the following comments on the abovementioned application:

i. The EAP is required to familiarise himself with the requirements of Regulation 13 of the Environmental Impact Assessment (EIA) Regulations, 2014 as amended.
ii. The BAR must include a clear motivation for the need and desirability of the proposed development as per the requirements of Appendix 1(3)(f) of the EIA Regulations, 2014 as amended.
iii. The BAR must include a proper assessment and must comply and include the requirements of Appendix 1(3)(1)(i), (j), (k), and (l).
iv. A clear motivation for the preferred site and activity must be included in the BAR as per the requirements of Appendix 1(3)(1)(g) of the EIA Regulations, 2014 as amended.
v. All specialist studies must be conducted by a suitably qualified specialist in the relevant field, must be conducted in accordance to Appendix 6 of the EIA Regulations, 2014 as amended, and must be dated.
vi. The Vegetation Report submitted as part of this application is noted. However, it does not address the comments and concerns raised by the Gauteng Department of Agriculture and Rural Development in the letter dated 26 September 2018. As such, this must be addressed and included in the BAR.
vii. A detailed biodiversity assessment inclusive of the following terms of reference for discussion must be undertaken:
    - Plants, with specific reference to *Gnaphalium nelsonii*;
    - Birds, with specific reference to confirmed habitat for African Grass Owl (*Tyto Capensis)*;
    - Primary vegetation (falls within the Egoli granite grassland threatened ecosystem);
    - Falls within SANBI NPAES; and,
    - Verification of the presence or absence of wetlands on site.
viii. Please ensure that all relevant listed activities are applied for, are specific and that it can be linked to the development activity or infrastructure as described in the project description. Only activities applicable to the development must be applied for and assessed.

ix. If the activities applied for in the application form differ from those mentioned in the BAR, an amended application form must be submitted. Please note that the Department's application form template has been amended and can be downloaded from the following link https://www.environment.gov.za/documents/forms.

x. It is imperative that the relevant authorities are continuously involved throughout the basic assessment process as the development property possibly falls within geographically designated areas in terms of numerous GN R. 985 Activities. Written comments must be obtained from the relevant authorities and submitted to this Department. In addition, a graphical representation of the proposed development within the respective geographical areas must be provided.

xi. Please ensure that all issues raised and comments received during the circulation of the draft BAR from registered I&APs and organs of state which have jurisdiction in respect of the proposed activity are adequately addressed in the BAR. Proof of correspondence with the various stakeholders must be included in the BAR. Should you be unable to obtain comments, proof should be submitted to the Department of the attempts that were made to obtain comments. The Public Participation Process must be conducted in terms of Regulation 39, 40, 41, 42, 43 and 44 of the EIA Regulations 2014 as amended.

xii. The EAP must provide proof that the key stakeholders received written notification of the proposed activity as well as the draft BAR.

xiii. The BAR must include a copy of the newspaper advert taken from the actual newspaper.

xiv. Comments from this Department's Biodiversity and Conservation, World Heritage Management, as well as the Cradle of Humankind Management Authority must be sought and must form part of the BAR.

xv. Please provide a description of any identified alternatives for the proposed activity that are feasible and reasonable, including the advantages and disadvantages that the proposed activity or alternatives will have on the environment and on the community that may be affected by the activity as per Appendix 1 (2) (e) and 3 (1) (h) (i) of GN R.982 of 2014 as amended. Alternatively, you should submit written proof of an investigation and motivation if no reasonable or feasible alternatives exist in terms of Appendix 1.

xvi. The BAR must include a comments and responses table indicating who the comments are from, the date on which the comments were received as well as the response from the EAP. For ease of reference, please see Annexure 1.

xvii. In accordance with Appendix 1 (3) (1) (a) of the EIA Regulations 2014 as amended, the details of—
(i) the EAP who prepared the report; and
(ii) the expertise of the EAP to carry out Environmental Impact assessment procedures;
must be submitted.

xviii. You are further reminded that the BAR to be submitted to this Department must comply with all the requirements in terms of the scope of assessment and content of Basic Assessment reports in accordance with Appendix 1 and Regulation 19(1) of the EIA Regulations, 2014, as amended.

xix. The BAR must provide an assessment of the impacts and mitigation measures for each of the listed activities applied for.

xx. Cumulative impacts of similar type of developments in the area must form part of the studies that must be assessed as part of the BAR process.

xxi. The BAR must provide the technical details of the proposed facility in a table format as well as their description and/or dimensions.

xxii. The BAR must provide the four corner coordinate points for the proposed development site (note that if the site has numerous bend points, at each bend point coordinates must be provided) as well as the start, middle and end point of all linear activities.

xxiii. The BAR must provide the following:
- Clear description of all associated infrastructure.
- Details of the future plans for the site and infrastructure after decommissioning and the possibility of upgrading the proposed infrastructure to more advanced technologies.

xxiv. A copy of the final site layout map. All available biodiversity information must be used in the finalisation of the layout map. Existing infrastructure must be used as far as possible e.g. roads. The layout map must indicate the following:
- Facility and associated infrastructure;

- Wetlands, drainage lines, rivers, stream and water crossing of roads indicating the type of bridging structures that will be used;
- The location of sensitive environmental features on site e.g. CBAs, ESAs, protected areas, wetlands, drainage lines etc. that will be affected by the activity and its associated infrastructure;
- All existing infrastructure on the site;
- Buffer areas; and,
- All "no-go" areas.

xxv. An environmental sensitivity map indicating environmental sensitive areas and features identified during the BAR process.

xxvi. A map combining the final layout map superimposed (overlain) on the environmental sensitivity map.

A new Environmental Management Programme (EMPr) i.e. specific to the proposed development and not the one approved for the previous application must be submitted to the Department. The EMPr to be submitted as part of the BAR must include the following:

i. The EMPr must comply with the requirements of Appendix 6 of the EIA Regulations, 2014 as amended.
ii. All recommendations and mitigation measures recorded in the BAR and the specialist studies conducted.
iii. The final site layout map.
iv. Measures as dictated by the final site layout map and micro-siting.
v. An environmental sensitivity map indicating environmental sensitive areas and features identified during the BAR process.
vi. A map combining the final layout map superimposed (overlain) on the environmental sensitivity map.
vii. An alien invasive management plan to be implemented during construction and operation of the facility. The plan must include mitigation measures to reduce the invasion of alien species and ensure that the continuous monitoring and removal of alien species is undertaken.
viii. A plant rescue and protection plan which allows for the maximum transplant of conservation important species from areas to be transformed. This plan must be compiled by a vegetation specialist familiar with the site and be implemented prior to commencement of the construction rehabilitation plan to be implemented during the construction and operation of the facility. Restoration must be undertaken as soon as possible after completion of construction activities to reduce the amount of habitat converted at any one time and to speed up the recovery to natural habitats.
ix. A storm water management plan to be implemented during the construction and operation of the facility. The plan must ensure compliance with applicable regulations and prevent off-site migration of contaminated storm water or increased soil erosion. The plan must include the construction of appropriate design measures that allow surface and subsurface movement of water along drainage lines so as not to impede natural surface and subsurface flows. Drainage measures must promote the dissipation of storm water run-off.
x. An erosion management plan for monitoring and rehabilitating erosion events associated with the facility. Appropriate erosion mitigation must form part of this plan to prevent and reduce the risk of any potential erosion.
xi. An effective monitoring system to detect any leakage or spillage of all hazardous substances during their transportation, handling, use and storage. This must include precautionary measures to limit the possibility of oil and other toxic liquids from entering the soil or storm water systems.
xii. Measures to protect hydrological features such as streams, rivers, pans, wetlands, dams and their catchments, and other environmental sensitive areas from construction impacts including the direct or indirect spillage of pollutants.

The EAP must provide detailed motivation if any of the above requirements is not required by the proposed development and not included in the EMPr.

The EAP is requested to contact the Department to make the necessary arrangements to conduct a site visit with this Department, and the respective units prior to the submission of the final BAR.

Based on the above, you are therefore requested to amend the draft BAR to include the above requirements and circulate it for another round of comments for a period of 30 days. You are further reminded to comply with regulation 19(1) (a) of the Environmental Impact Assessment Regulations, 2014 as amended, which states that:

"Where basic assessment must be applied to an application, the applicant must, within 90 days of receipt of the application by the competent authority, submit to the competent authority -
(a) a basic assessment report, inclusive of specialist reports, an EMPr, and where applicable a closure plan, which have been subjected to a public participation process of at least 30 days and which reflects the incorporation of comments received, including any comments of the competent authority"

Should there be significant changes or new information that has been added to the basic assessment report or EMPr which changes or information was not contained in the reports or plans consulted on during the initial public participation process, you are therefore required to comply with regulation 19(b) which states:

"the applicant must, within 90 days of receipt of the application by the competent authority, submit to the competent authority – (b) a notification in writing that the basic assessment report, inclusive of specialist reports an EMPr, and where applicable, a closure plan, will be submitted within 140 days of receipt of the application by the competent authority, as significant changes have been made or significant new information has been added to the basic assessment report or EMPr or, where applicable, a closure plan, which changes or information was not contained in the reports or plans consulted on during the initial public participation process contemplated in subregulation (1)(a) and that the revised reports or, EMPr or, where applicable, a closure plan will be subjected to another public participation process of at least 30 days".

Further note that in terms of Regulation 45 of the EIA Regulations 2014 as amended, this application will lapse if the applicant fails to meet any of the timeframes prescribed in terms of the these Regulations, unless an extension has been granted in terms of Regulation 3(7).

You are hereby reminded of Section 24F of the National Environmental Management Act, Act No 107 of 1998, as amended, that no activity may commence prior to an environmental authorisation being granted by the Department.

Yours faithfully

Mr Sabelo Malaza
Chief Director: Integrated Environmental Authorisations
Department of Environmental Affairs
Signed by: Mr Coenrad Agenbach
Designation: Deputy Director: Strategic Infrastructure Developments
Date: 25/03/2019

cc:	H Van Aswegen	Letamo Estate Pty Ltd	Email: letamo.estate98@gmail.com

Annexure 1

Format for Comments and Response Trail Report:

Date of comment, format of comment name of organisation/I&AP	Comment	Response from EAP/Applicant/Specialist
27/01/2016 Email Department of Environmental Affairs: Strategic Infrastructure Development (John Soap)	Please record C&R trail report in this format Please update the contact details of the provincial environmental authority	EAP: (~~Noted~~)The C&R trail report has been updated into the desired format, see Appendix K EAP: Details of provincial authority have been updated, see page 16 of the Application form

APPENDIX S – FEEDBACK FROM GDARD

GAUTENG PROVINCE
AGRICULTURE AND RURAL DEVELOPMENT
REPUBLIC OF SOUTH AFRICA

Reference: Gaut 004/18-19/0060
Enquiries: Xoliswa Bobelo
Telephone: 011 240 3391
E-mail: Xoliswa.Bobelo@gauteng.gov.za

EcologicAFRIKA
P.O. Box 8079
CENTURION
0046

Attention: Christiaan J Roos
Tel No: 012 661 4863
Fax No: 012 661 5251
E-Mail: ecologic@mweb.co.za

Dear Sir,

COMMENTS ON THE DRAFT BASIC ASSESSMENT REPORT: THE PROPOSED SUBDIVISION AND DEVELOPMENT OF RESIDENTIAL 1 BUSH LODGE RESIDENCES, SPECIAL FOR ACCESS AND ACCESS CONTROL PURPOSES, AND PRIVATE OPEN SPACE ON ERF 30 AT LETAMO ESTATE, MOGALE CITY LOCAL MUNICIPALITY

The Draft Basic Assessment Report (DBAR) regarding the above -mentioned development received by the Department on 25 February 2019 has reference.

The proposal entails subdivision of Erf 30 into 12 residential stands and 2 private open space stands, and development of residential 1 bush lodge residence, and special for access and access control purposes, and private open space on the above-mentioned. The proposed site falls within world heritage site, priority red listed bird habitat, primary vegetation and a threatened ecosystem type of vegetation dominated by Egoli Granite grassland which is considered endangered in terms of the relevant information contained in the Departmental information database including Geographic Information System (GIS) and Conservation Plan Version 3.3. In terms of the Gauteng Provincial Environmental Management Framework (GPEMF), 2015 the study area falls within environmental management zone 3 which is high control zone dominated by sensitive areas outside the urban development zone, and the proposed activity is undesirable within the urban development zone. The size of the proposed site measures approximately **15, 1346 hectares** in extent.

The Department will like to comment as follows:

1. **Alignment of the activity with applicable legislations and policies**

The development has a direct bearing on the National Environmental Management Act (NEMA) (Act No. 107 of 1998, as amended) at both national and provincial levels. The proposed development corresponds with the activity applied for under the Environmental Impact Assessment (EIA) Regulations, 2014, (GN R.983). This activity is listed under Listing Notice 1 activities 27 and 28 (ii) published under the National Environmental Management Act (NEMA) (Act No. 107 of 1998, as amended). The Draft Basic Assessment Report refer to Listed activity: GN. R325, 07 April 2017 ***Listing 2*** Activity 12 (c) (ii) of which it is of the Department's view that the listed activity should refer to ***Listing 3***. However, in terms of the relevant information contained in the Departmental information database including Geographic Information System (GIS) and Conservation Plan Version 3.3., the subject property as indicated on the Locality Plan does not fall within Conservation Plan Version 3.3.

2. **Guidelines GDARD requirements**

The proposed site falls within world heritage site, priority red listed bird habitat, primary vegetation and a threatened ecosystem type of vegetation dominated by Egoli Granite grassland in terms Geographic Information System (GIS). It is noted that a Vegetation Report prepared by Naomi Esterhuyse is attached in the Draft Basic Assessment Report, however, the Department recommends that this report be in line with the minimum requirements for Biodiversity Assessments. The following specialist studies are attached in the Draft Basic Assessment Report:

a. Report on Geotechnical Soils Investigation prepared by Techno-EG Consultants c.c. dated January 2005;
b. Outline Services Scheme Report prepared by Ilifa Africa Engineers (Pty) Ltd dated 6 February 2019;
c. Electrical Services Scheme Report prepared by LYO Emfuleni Engineers (Pty) Ltd dated 13 November 2018;
d. Report on the Palaeontological Survey prepared by Dr J.F. Durand; and
e. Vegetation Report prepared by Naomi Esterhuyse.

3. **Alternatives**

Motivation has been given for the reasons that no alternative sites have been considered, and the reasons for the proposed activity have also been justified. However, the Final Basic Assessment Report must take into consideration other possible means by which the purpose and need of the activity could be accomplished including, but not limited to, design and technology to be used for the proposed development.

4. **Significant rating of Impacts**

The identification, assessment and rating of impacts should be sufficiently reliable to enable sound conclusion on the mitigation measures to be employed to reduce the identified impacts to acceptable levels. All impacts associated with activities to be undertaken inclusive of all associated structures and infrastructures such as conservancy tanks must be identified, assessed and significantly rated.

5. **Locality map and layout plans or facility illustrations**

The detailed site development and layout plans overlain by a composite sensitivity map that meets the minimum requirements for Biodiversity Assessment must be attached in the Final Basic Assessment Report. This plan must take into consideration all activities listed inclusive of associated infrastructure such as access routes and bulk services connection, and must reflect proper legends.

6. **EMPr**

A site (project) specific Environmental Management Programme (EMPr) which is practical, enforceable and in line with the content requirements as stipulated in Appendix 4 of the Environmental Impact Assessment (EIA) Regulations, 2014 is attached in the Draft Basic Assessment Report. However, the EMPr must incorporate management and mitigation measures to impacts identified during the impact assessment as well as in the specialist studies compiled as part of this application for environmental authorisation.

7. Public participation process

It is noted that the Draft Basic Assessment Report (DBAR) is currently being circulated for comment and that part of the public participation process is undertaken in accordance with the requirements of the regulations in that site notices were placed on strategic locations and the newspaper advertisement was placed in The Star on 14 November 2018. However, all public participation information including, but not limited to, comments and responses report should be attached in the appropriate Appendices in the Final Basic Assessment Report.

8. Recommendations

a. A description of all the activities to be undertaken must be listed, specified and must be in line with all activities applied for under the Environmental Impact Assessment (EIA) Regulations, 2014.
b. The Draft Basic Assessment Report inclusive of the Environmental Management Programme and specialist studies refer to various portions of the farm Honingklip 178 IQ, therefore clarity must be given as to how these portions of the farm Honingklip 178 IQ are related to Erf 30.
c. The development footprint size of the proposed activity must be clearly defined in relation to the site development and layout plan.
d. A detailed master stormwater management plan for the site (including storm water management measures to be implemented temporarily during the construction phase and permanent measures to be installed for the operational phase) must be developed by a suitably qualified engineer and approved by the Local Municipality.

If you have any queries regarding this letter, contact the official at the contact details provided above.

Yours faithfully

Mr Steven Mukhola
Director: Impact Management
Date: 27/3/2019

APPENDIX T – FEEDBACK FROM MOGALE CITY

Mogale City

PO Box 94
Krugersdorp, 1740
Tel: 011 951-2109 (w)
081-380-9962
musa.ndlela@mogalecity.gov.za

MUSA NDLELA
Control Sheet No: 82277-17/29/3/2/384

EcologicAFRICA
PO Box 8079
Centurion
0046

Tel :(012) 661 4863
email: ecologic@mweb.co.za

Attention: Christian J Roos

DRAFT BAR: APPLICATION FOR THE PROPOSED SUBDIVISION AND DEVELOPMENT OF RESIDENTIAL 1 BUSH LODGE ON ERF 30 IN LETAMO ESTATE, MOGALE CITY LOCAL MUNICIPALITY.

The above matter has reference.

The Department: Integrated Environmental Management (DIEM) of Mogale City Local Municipality (MCLM) received your Draft Basic Assessment Report (BAR) for the above-mentioned development.

This office conducted a site inspection on 28 February 2019, consulted the MCLM's EMF and the findings thereof were discussed at DIEM's Environmental Advisory Task Team (EATT) on 05 March 2019. DIEM therefore comments as follows:

- According to MCLM's Waste Management By-Laws (2007), please be advised that the municipality can render a service for the collection and removal of business, domestic, garden, builders, dry industrial refuse, bulky mass, special refuse from the premises on payment of a tariff charge.

- The Waste Management Plan must incorporate high levels of separation of waste at source in order to reduce quantities going to the landfill site.

- The proposed development should take necessary precautions to prevent noise nuisances or noise disturbances above threshold levels, as defined in Gauteng Noise Control Regulations issued in terms of the Environment Conservation Act (Act 73 of 1989).

- The proposed development must also take cognisance of the proposed possible future road (PWV 8.04) by Gautrans, which will be situated on the south eastern corner of the afore-mentioned property.

- The subject property is not designated as a Critical Biodiversity Area in terms of the West Rand Bioregional Plan (2013), or an Irreplaceable Site/Ecological Support Area, due to the fact that it is in an advanced stage of ecological degradation caused by horse stables and other anthropological activities.

- The whole site has been included within the Letamo Game Farm Estate and thus the conditions imposed by Letamo Board, which are in line with the Environmental Authorization and Environmental Management Plan (EMP), need to be adhered to at all times.

- Even though there is an existing EMP, it is strongly recommended that the EMP for the whole Letamo that dates back to 2000 be amended to reflect new legislation, norms & standards, policies and guidelines from National, Provincial & Local Government.

- The applicant must ensure that the following mitigation measures be incorporated in the development (aligned with the approved Climate Change Action Plan of MCLM (2015) and the approved Integrated Water Resource Management Strategy of MCLM):
    - *Water Conservation:* The applicant must incorporate the following:
        - "Water-wise" gardens with endemic and indigenous plants;
        - Water harvesting, re-use and other water conservation initiatives;
        - The applicant must comply with the provisions contained under the National Environmental Management: Biodiversity Act (Alien and Invasive Species Regulations, 2014) regarding alien invasive species on the subject site;
    - *Improve flood/storm surge control:* The applicant must make provision for Green Infrastructure and Sustainable Urban Drainage (SUD) principles for all storm water runoff areas. As a minimum, the all surfacing for driveways and parking areas must be permeable;
    - *Renewable Energy:* The use of PV/Solar panels for electricity supply, batteries, LP Gas and standby silent generator are supported in order to ensure that the power supply to the township is off-grid.

- Matters related to the Integrated Water Resources Management Strategy of MCLM:
    - The use of vacuum/conservancy tanks for sewage is supported. No French drains are allowed in terms of the approved Environmental Guidelines for Subdivisions, Rezoning & Consent Use Applications;
    - No new boreholes are allowed to be drilled without permission from Department of Water & Sanitation (Gauteng Regional Office).

- Open Space Management: The following conditions will apply in terms of the Urban Greening & Biodiversity Bylaws, read with the Draft Opens Space Contribution Policy of MCLM:
    - The submission of a Landscape Development Plan (LDP) to DIEM is required that complies with the requirements of the aforementioned By-Law;
    - Indigenous trees for every 4 parking bays need to be planted;
    - Trees will be no smaller than 2 meters in height from at least a 50 ℓ container. Trees in lawn and paved areas will be provided with a concrete tree ring of no less than 1 meter in diameter and will be covered with a grid if such tree is closer than three meters from a pedestrian walkway.
    - The provision for Private Open Spaces (POS) need to adhere to the minimum requirements of the said By-Law and Draft Opens Space Contribution Policy;
    - The POS must be integrated with the rest of the Letamo Game Farm in order to allow for continual natural ecological processes and access of wildlife at all times.

- All recommendations proposed in the specialist studies within the report must be complied with.

- A copy of the Environmental Authorisation must be submitted to this office for compliance monitoring purposes.

In addition to the above, cognisance must be taken that no construction must take place prior to the Department of Environmental Affairs granting an Environmental Authorisation. Non-compliance with the above will result in the relevant authority issuing a directive to address the non-compliance, including an order to stop the activity as well as instituting criminal and/or civil proceedings to enforce compliance. In addition, all the statutory requirements including those of National, Provincial Governments and MCLM's by-laws and policies must be adhered to.

Should you have any queries regarding the above matter, please do not hesitate to contact Musa Ndlela at 011 951 2109.

Yours faithfully,

Acting EM

TMM MATSHEGO
EXECUTIVE MANAGER: IEM
DATE: 22/03/2019

APPENDIX U – FEEDBACK FROM COHWHS

environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

Private Bag X447, Pretoria, 0001, Environment House, 473 Steve Biko Road, Pretoria, 0002 Tel: +27 12 399 9000, Fax: +27 86 625 1042

Ref:
Enquiries: Ms Thumeka Ntoko
Tel: 012 399 8531 Email: TNtoko@environment.gov.za

Mr Christiaan J Roos
Ecologic Africa
PO Box 8079
CENTURION
0046

Email: ecologic@mweb.co.za

Dear Mr Roos

COMMENTS ON THE ENVIRONMENTAL IMPACT ASSESSMENT AND BASIC ASSESSMENT REPORT FOR THE PROPOSED SUBDIVISION AND DEVELOPMENT (RESIDENTIAL 1- BUSHLODGE RESIDENCES, AND SPECIAL FOR ACCESS AND ACCESS CONTROL PURPOSES, AND PRIVAYE OPEN SPACE) ON ERF 30, LETAMO ESTATE, MOGALE CITY, GAUTENG PROVINCE

The Directorate: World Heritage Management received the Draft Basic Assessment Report for the proposed subdivision and development (residential 1- Bush Lodge residences, and special for access and access control purposes, and private open spaces).

The Letamo Wildlife Estate has been in existence for over 10 years and offers free hold stands to residents within a wildlife sanctuary. The estate comprises erven including a boutique hotel and extends 46ha.

COMMENTS ON THE ENVIRONMENTAL IMPACT ASSESSMENT AND BASIC ASSESSMENT REPORT FOR THE PROPOSED SUBDIVISION AND DEVELOPMENT (RESIDENTIAL 1- BUSHLODGE RESIDENCES, AND SPECIAL FOR ACCESS AND ACCESS CONTROL PURPOSES, AND PRIVAYE OPEN SPACE) ON ERF 30, LETAMO ESTATE, MOGALE CITY, GAUTENG PROVINCE

Letamo Estate, Erf 30 measuring 15, 1346 ha is located within the proclaimed boundaries of the Cradle of Humankind World Heritage Site as published on Government Gazette No. 30590 on 18 December 2007.

After a thorough review of your Draft Basic Assessment Report in terms of the Environmental Impact Assessment Regulations, 2014, promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended, the Directorate World Heritage Management would like to register the following comments:

1. The Cradle of Humankind is a proclaimed world heritage site and due to the unique cultural significance of the site, the COHWHS should not be subjected to any future developments that may negatively affect the "Outstanding Universal Value" of the COHWHS.

2. Paragraph 2.3.4 of the draft BAR indicates that the zoning of Erf 30 is currently undetermined within the Letamo Estate. Erf 30 is located within the secondary zone of the COHWHS Environmental Management Framework, 2011 (EMF). The secondary zone consists of two distinct geographical zones which essentially comprises elements of OUV associated with the COHWHS that surrounds the primary zone. It is worth noting that the COHWHS Environmental Management Framework, 2011 and development guidelines do not support subdivision of land within the boundary of the world heritage site. The Directorate: World Heritage Management does not support the subdivision of Erf 30 into 12 residential stands

3. Even though the draft BAR states that there are no cultural/historical features on the site of the proposed extension, the developer must also take into consideration that the Cradle of Humankind (H) is a proclaimed world heritage site should consider potential future fossil sites and findings within the larger area

4. In view of the fact that the area in question is very sensitive with defined Dolomitic Karst system, associated natural grasslands and bio-diversity and a rural landscape with limited visual elements the development might have negative impacts on the world heritage status particularly the OUV.

5. The Directorate: World Heritage Management notes that a Heritage Impact Assessment has not been conducted, and in order for the department to determine whether the development will negatively impact the OUV or not, the developer is requested to conduct a HIA using the *ICOMOS Guidance on Heritage Impact Assessments for Cultural World Heritage Properties, January 2011.* The HIA will enable the Directorate: World Heritage Management to ascertain the compatibility of the future intended use with the protection of the Outstanding Universal Value (OUV) of the World Heritage Site. The HIA should clearly indicate the impact of the proposed development on the Outstanding Universal Value of the world heritage site. The said HIA will have to be submitted to the United Nations Educational and Cultural Organisation (UNESCO) if the development is approved.

6. Since Section 38 of the National Heritage Resources Act (Act No. 25 of 1999) is applicable to the proposal, the Directorate: World Heritage Management thus advises that you request written comments from the South African Heritage Resources Agency (SAHRA). The SAHRA is the competent authority for issuing of Record of Decisions for Heritage Impact Assessments and therefore the developer should ensure that all SAHRA processes are fully complied with.

7. The cultural-heritage zone is highly sensitive to visual disturbance especially related to structures and infrastructure due to the intact natural character of the area. In terms of visual sensitivity both the visual impact of the proposed development on the site and its immediate structural elements as well as the visual impact of the proposed development within its immediate view shed and region especially views from access roads and facilities that support the outstanding universal value of the COH WHS must be investigated. It is advised that Final BAR be supported by a Visual Impact Assessment (VIA).

8. The developer needs to take into consideration that the construction of the facility will release emission into the atmosphere, noise will be generated during the construction, increase in traffic levels will emanate from this development and the construction will pose potential impact to the vegetation, fauna, and both ground and surface water and all these will certainly have unpleasant impacts on the sense of place.

COMMENTS ON THE ENVIRONMENTAL IMPACT ASSESSMENT AND BASIC ASSESSMENT REPORT FOR THE PROPOSED SUBDIVISION AND DEVELOPMENT (RESIDENTIAL 1, BUSHLODGE RESIDENCES, AND SPECIAL FOR ACCESS AND ACCESS CONTROL PURPOSES AND PRIVATE OPEN SPACE) ON ERF 30, LETAMO ESTATE, MOGALE CITY, GAUTENG PROVINCE

9. It is worth noting that, even though the proposed development is said to be an extension of an existing development and the operational phase activities may not vary that much, there will be cumulative impacts.

10. Pending a full HIA, the Directorate: World Heritage Management entrusted to ensure the protection, conservation and preservation of the Outstanding Universal Value (OUV) of the World Heritage Site **does not support** the proposed sub division of Erf 30 and proposed development of a residential area within the boundary of the proclaimed Cradle of Humankind World Heritage Site.

The Directorate: World Heritage Management requests that the developer ensures that all necessary steps are taken to ensure compliance and will await submission of final BAR containing the necessary impact assessments.

Should you require more information or clarity on the matter, please do not hesitate to contact the Assistant Director: World Heritage Management, Ms Pabalo Mohafa, at Tel: 012 399 9533 or email: PMohafa@environment.gov.za.

Yours sincerely

Ms Nosipho Ngcaba
Director-General
Department of Environmental Affairs
Letter signed by: Ms Thumeka Ntloko
Designation: Director: World Heritage Management
Date: 22/05/2019

Ian Roos

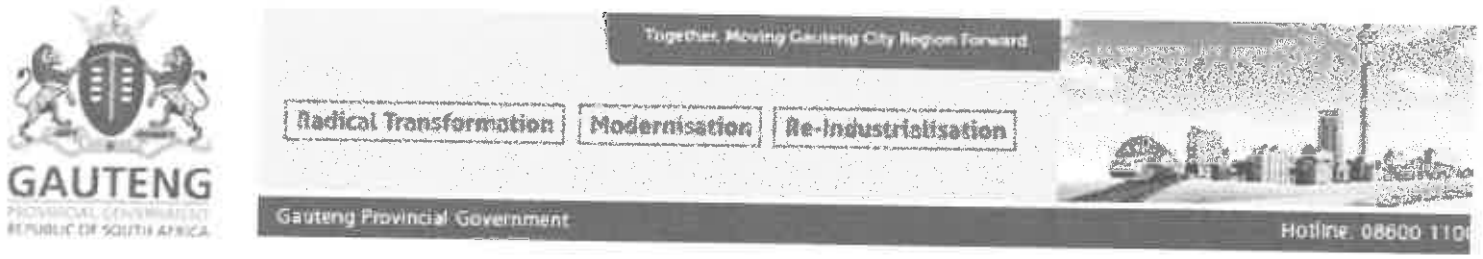
From: PIENAAR, HEIN (GDARD) <HEIN.PIENAAR@gauteng.gov.za>
Sent: 07 May 2019 07:14 AM
To: Ian Roos
Subject: RE: Letamo Wildlife Estate inside/outside COHWHS
Attachments: COHWHS.pdf

Morning Ian

The area indicated in yellow on your locality plan (Letamo Estate) is located entirely within the boundary of the proclaimed COHWHS. Please see the attached proclamation notice attached for confirmation

Regards

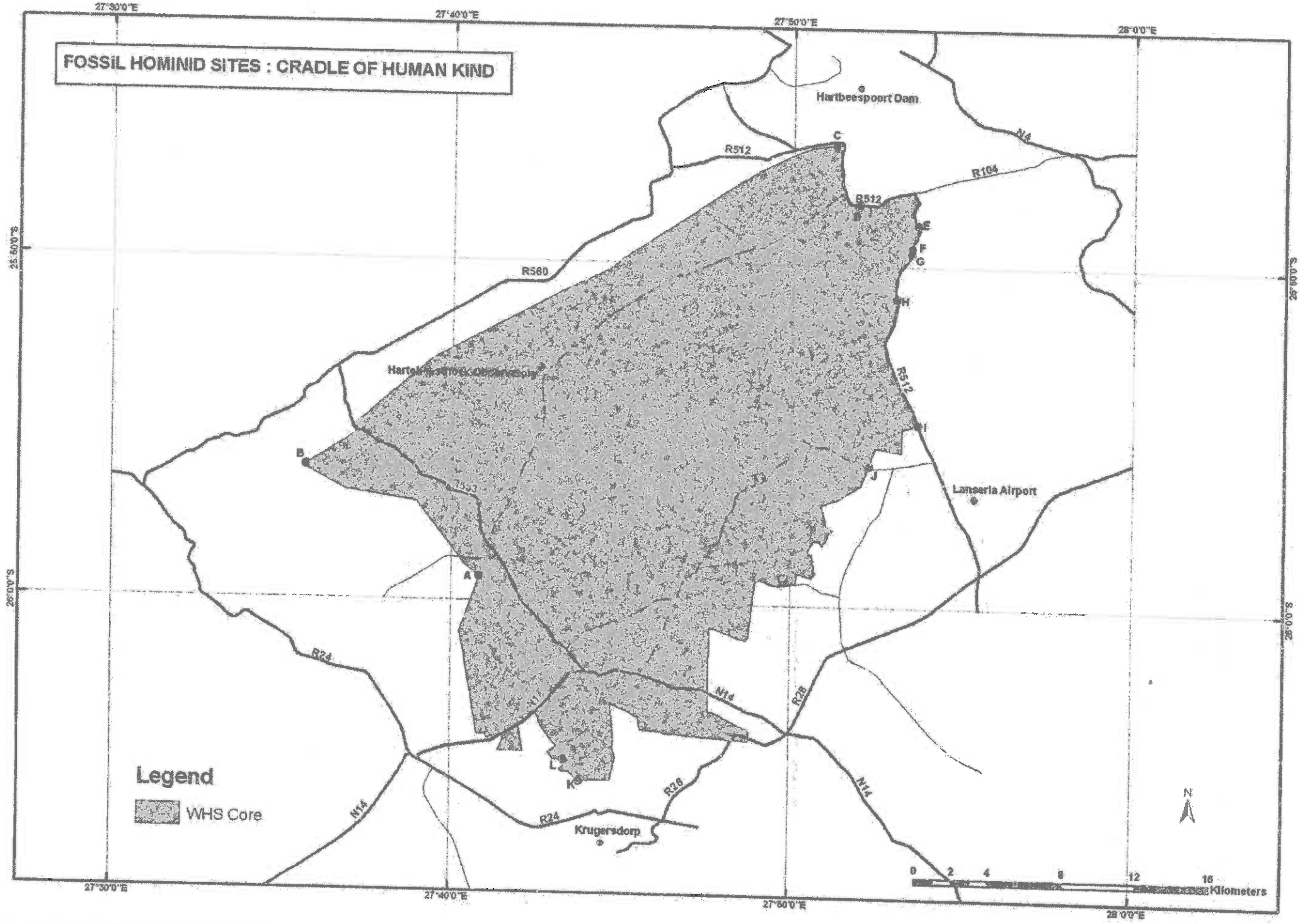
Hein



From: Ian Roos [mailto:ecologic@mweb.co.za]
Sent: 18 April 2019 12:08 PM
To: PIENAAR, HEIN (GDARD)
Subject: Letamo Wildlife Estate inside/outside COHWHS
Importance: High

Hein
Please find attached the locality Plan for Letamo Estate in Mogale City.
Please indicate if the property is located inside or outside the Cradle of Humankind, since we get conflicting information.
We need to Amend the EMPr and has to know where to submit (DEA or GDARD).
Regards

Ian Roos
ecologic AFRIKA
Cell: 083 635 7315
Tel: 012 661 4863
Fax: 012 661 5251
ecologic@mweb.co.za
PO Box 8079
Centurion
0046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R512
N4
R104
R560
Lanseria Airport
R24
N14
R28
Krugersdorp
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Kilometers

APPENDIX V – STORMWATER MANAGEMENT PLAN

STORMWATER MANAGEMENT PLAN

FOR

PROPOSED SUBDIVISION AND DEVELOPMENT

ON

ERF 30, LETAMO ESTATE
MOGALE CITY

June 2019

TABLE OF CONTENTS

1. Introduction

Erf 30, Letamo Estate is located within Letamo Township (approved and proclaimed township) within the Letamo greater Letamo Estate. The entire Estate, including existing residential developments and vast free-roaming wildlife areas are submjected to an EMPr regulating environmental aspects over the entire Estate. Although many aspects of stormwater management are discussed in this report, not all are relevant or applicable to Erf 30, but are presented in view of the greater Letamo Estate stormwater management system.

The stormwater management plan for Erf 30, Letamo Estate was formulated to manage the slight increase in stormwater runoff due to increase in impenetrable surfaces, to optimise the use of stormwater, and to minimise the potential of groundwater pollution.

It is widely recognised that developments impact negatively on natural drainage systems in several ways, including:

- Reduced permeability of catchment areas by introduction of impervious surfaces such as paving and buildings/roofs. This results in increased catchment runoff volumes.
- The introduction of efficient stormwater drainage results in reduced catchment response times with concomitant increased downstream flow peaks.
- Manipulation of groundwater tables, which can have severe effects on wetland functioning and the survival of many terrestrial plant communities.
- Alteration to the natural flow regimes in river systems resulting in both geomorphologic (e.g. channel / bank erosion) and aquatic ecosystem changes over time.
- Deteriorating water quality as a result of industrial fallout, fertilisers and other pollutants that are conveyed by stormwater systems directly to receiving water bodies, without any attempt to ameliorate en route.

The site is located along the southern boundary inside the Letamo Estate, just northeast of the intersection of road N14 and road R540 south of Krugersdorp, Mogale City, Gauteng. The property measures 15,1345ha.

2. Objective of stormwater management plan

The stormwater management plan for the proposed development was formulated to manage the slight increase in stormwater runoff due to increase in impenetrable surfaces, to optimise the use of stormwater, and to minimise the potential of groundwater pollution.

2.1 Minimise the Threat of Flooding

This remains a key objective of any stormwater management system. However the challenge when contemplating design of stormwater management systems is to consider the following:

- To mimic pre-development responses to storms.
- To reduce the volume of runoff by promoting infiltration.
- To reduce the peak flows and increase the time-to-peak through detaining the runoff and releasing it at a gradual rate.
- Where necessary, to construct means to contain flood waters and safely convey them out of the urban area.

2.2 Protection of Receiving Water Bodies

Receiving water bodies include the following:

- Rivers / streams.
- Groundwater.
- Wetlands which include vleis, lakes, seasonal marshes, and pans.
- The sea.

It should be noted that the "receiving water body" is not necessarily the system into which stormwater is discharged directly, but can also be a natural system located further downstream in the catchment. Every endeavour should be made to achieve the following, as far as possible:

- Maintain natural flow regimes and seasonality.
- Prevent deterioration in water quality.
- Prevent erosion or sedimentation of natural wetlands or rivers.
- Preserve natural river channels, wetlands and vegetation, and preclude engineering interventions that may alter their physical and ecological characteristics.

The need to design appropriate stormwater management systems for new developments should be seen as an opportunity to preserve or, if possible, improve natural freshwater ecosystems that have suffered degradation as a result of past activities, and in some cases, to create additional freshwater habitats that will contribute to the availability of appropriate, high quality river and wetland habitat that mimics the natural condition.

2.3 Promote Multi-Functional Use of Stormwater Management Systems

Resources such as land and water are becoming increasingly scarce and multiple use of these must be strived for. Stormwater systems provide a wide range of opportunities for multi-functionality. These can have significant implications on:

- The initial and long term costs of development. Eg. Instead of constructing a detention pond and a focus point/sportsfield, these uses could be combined.
- The quality of the natural and urban environment. Eg. The pressure of private development requirements on land for public land use, conservation, etc can be alleviated by combining compatible land uses such as conservation, recreation and stormwater systems (including wetlands, vleis, dams and rivers) enabling an improved natural and urban environment.
- Maintenance efficiency. Eg. Instead of meeting the maintenance requirements of stormwater systems and public open space separately, they could be combined and could include walking/bicycle trails and parks.

2.4 Development of Sustainable Environments

Developers should think beyond their short-term involvement with the project and consider the sustainability of the stormwater management system that is to be implemented. All relevant factors that will impact on future operation and maintenance should be taken into account.

Environmental policies such as promoting the use of locally indigenous vegetation in planting programmes will also reduce the long-term maintenance requirements of the development.

3. Site evaluation relating to stormwater management

The following information should be collated for each site, during the planning stage and used to feed into the more detailed site assessment:

- Catchment area in which site is located
- Catchment or river management plans - The overall management objectives and recommend key management actions with respect to runoff quantity, quality and other associated environmental and social issues, where such plans exist for the catchment in question, must be met in the design stage.
- Existing reports relating to the sensitivity of known wetlands / rivers / other natural ecosystems on or associated with the study area.

Cognisance must be taken of the interdependencies that exist between the various water related services such as water supply, sanitation and stormwater management. This includes consideration of the impact of effluent discharges into or water abstraction from stormwater management systems.

3.1 Site Overview

As part of the site analysis process an overview of the following site aspects/resources were conducted:

- Topography
- Geology and Soils
- Groundwater
- Climate and Microclimate
- Hydrology
- Natural Ecosystems (flora and fauna)
- Cultural and Historical Landscapes and Archaeological Sites
- Development Requirements
- Ownership Opportunities and Constraints
- Spatial Opportunities and Constraints
- Surrounding Developments
- Maintenance Capacity

3.2 Site Analysis

The physical characteristics of the site reflect the existing course of runoff and stormwater. Working with the natural environment and processes has been found to be safer, more sustainable and easier to maintain in the long term than more traditional engineering approaches aimed at controlling these processes.
On sites that have been substantially disturbed, consideration should be made of what the natural drainage and runoff conditions would have been, as well as the existing situation. This will enable potential problems, and opportunities, to be identified. The following are some of the main features that should be considered and collated in the form of a site analysis plan that should be used to inform the design process:

- **Topography**

The following topographical factors should be considered:

- Gradients dictate the direction of flow and runoff/drainage routes can be plotted over land, identifying areas of ponding and concentration of loads. The site is relatively flat (1:20) draining towards the east.
- Topography influences the potential for erosion to occur. Due to the flat topography the erosion potential is low. An old damwall is present, although broken and not holding water anymore.
- The commercial (and aesthetic) value of different sections of a development area is also frequently derived from different topographical characteristics.

- **Geology, Soils and Groundwater**

A good understanding of the geology, soil and groundwater conditions is an important factor in assessing the infiltration potential of the site. The following factors should be considered:

- Geology consists of moderately shallow greenstone, which have previously been disturbed for cultivation and horse paddock/grazing.
- Soil types affect surface permeability and hence rate of runoff. Soils are fairly silty, with a low erosion potential (further negated by the flat slopes).

- **Climate and Microclimate**

The following climatic factors should be considered:

- Storm rainfall parameters are major design factors and must be carefully determined. Typically the site is characterised by summer afternoon thunderstorms, although flash floods are highly unlikely due to the flat topography.
- The general climatic characteristics of an area will also impact on the site and stormwater systems implemented, ie whether the site is generally waterlogged or dry and if evaporation levels are high or low.
- Microclimate conditions can inform the spatial layout of water treatment and attenuation, particularly those associated with specific planting and multifunctional uses. The southeastern corner of the site is the lowest point, although stormwater runoff will be as surface sheetflow, with high infiltration, due to flat topography and only 15% of each property to be developed. The remainder of each erf will remain natural veld, with free-roaming wildlife.

- **Hydrology**

It is essential, for successful, sustainable and integrated stormwater management, that the existing and/or natural hydrological response and functions of the site are understood.

The following factors should be considered:
- The natural drainage that was characteristic of the development area, to the extent that this is possible, should be determined and both the irreversible as well as less permanent changes that have taken place should be identified. No significant hydrological characteristics occur on the site.

- **Natural Ecosystems, Flora and Fauna**

The site should be assessed in terms of the natural ecosystems and habitat types that it supports. The following factors should be considered:

- Conservation (or improvement) of bio-diversity and ecosystem function must be one of the objectives of a management plan. The indigenous vegetation strip will be retained, whilst exotic invaders in this area will be removed, monitored and controlled. Free-roaming wildlife will utilise the remaining 85% of each erf not to be developed.
- Some habitats are afforded protection by existing legislation and guideline (e.g. wetlands; buffers around rivers and wetlands). The Egoli Granite Grassland vegetation, as well as the *Trachypogon spicatus* grassland occurring over the west of the site will, to a large extent be protected – only 15% of each erf will be developed.
- Where the site intercepts natural corridors of movement between ecologically important areas, stormwater management should seek to retain or recreate such corridors. The entire Letamo Estate is managed as a game farm, with free-roaming wildlife on the natural areas.
- Endangered or threatened vegetation, animals and/or habitats should be identified and their opportunities and constraints for stormwater management assessed. No Red Data species observed.
- Vegetation and animals that have roles or functions that can improve water quality, amelioration and/or infiltration should be identified, and their natural status and integrity determined. Not applicable.
- Healthy, diverse and/or relatively undisturbed natural systems should be identified and assessed in terms of their habitat integrity and importance (environmentally, socially and culturally), and, wherever possible, be accommodated within the future planning and development of the site. The entire site is already disturbed, although development will be limited the remainder of the site will be natural.
- The presence of invasive alien animals (e.g. fish, birds) or plants should be discouraged from any developments. Alien flora or fauna associated with habitats created or maintained for the management of stormwater from a site should not be allowed to pass into any downstream or associated water bodies. All alien/exotic vegetation will be removed, monitored and controlled.

- **Cultural and Historical Landscapes and Archaeological Sites**

Areas, routes, vegetation and landmarks that have a cultural and/or historical use or significance should be identified. Development and stormwater planning should avoid disturbing these areas where possible. Although no aspects of historical or archaeological significance occur on the site, the possibility exists due to the location of the site within the COHWHS..

- **Surrounding Developments**

Stormwater management design options should take cognisance of developments in the upstream catchment that are likely to impact on the timing, quality or quantity of stormwater generated upstream of the development area. Identification of these issues will highlight potential problem areas in stormwater management. The following factors should be considered:

- It is important that site planning be done in context with the adjacent properties to ensure effective stormwater systems and integrated stormwater corridors. Sufficient retention facilities should therefore be planned and provided on site as part of an integrated open space system. Stormwater runoff from the site will be low, surface runoff that will infiltrate into the soil on sute. Infiltration of groundwater, subsurface aquifer recharge, rainwater harvesting, and biodiversity enhancement will also be incorporated into the stormwater management system for the site.
- Clarity on the stormwater management principles employed in upstream developments should also be obtained so that anticipated stormwater runoff from these areas can be quantified. Due to the rural nature of the development and surrounding areas, no stormwater system, except along the tarred roads, are in place in the area. The Environmental Manager on the Estate will monitor and enforce stormwater management, especially relating to runoff to the stream further east from the site.
- The rate of growth and anticipated land-use of surrounding developments and areas that discharge onto the development site should also be taken into account to determine the future pressures on the stormwater systems. No shortterm future developments within the area is anticipated.
- The general capacity of the stormwater systems of surrounding developments that lie downstream of the site, and the current rate of growth and pressure on these systems should be taken into account during site planning and design. The estimated stormwater generation and increase can be contained on the site.

4. Stormwater management facilities and techniques

Various facilities and techniques that may be utilised to manage stormwater runoff from the development have been grouped by generic function as follows:

4.1 Conveyance

Use of natural or artificial channels, natural or artificial wetlands or pipes and culverts for stormwater conveyance as well as the prevention of erosion.

Some designs have in the past only applied "hard" stormwater conveyance techniques that facilitate the rapid and efficient removal of stormwater from a development, with little regard for other aspects such as improving water quality en route, providing social and aesthetic amenities such as water corridors, rehabilitation or creation of wetland and riverine habitat. In this section, these "hard" type techniques are assessed in terms of their ecological and other (e.g. social, health and safety) implications, and a number of additional approaches to stormwater conveyance are also evaluated. In general terms, the developer when selecting designs for stormwater conveyance should consider the following aspects:

- The anticipated quality of stormwater runoff – severely polluted water may constitute a health hazard to downstream residents and an ecological hazard to downstream aquatic ecosystems.

Stormwater collection mechanisms will be provided: rainwater tanks for collection of water from all roofs. PVC tanks will be provided strategically to collect all rainwater from roofs through gutters and downpipes. Erfs will be sold off, with prospective buyers bound by Letamo Rules and Regulations, as well as the EMPr to comply with stricy development guidelines. These tanks may be interconnected and slightly elevated to allow for gravitation feed for irrigation purposes (a submersible pump may also be provided). Potential spill zones will be provided with an impenetrable concrete surface sloping towards grids inlets that are interconnected to an oil separator with sump – fuelling area for Estate, but not within Erf 30. All paved parking areas will be sloped to allow surface sheetflow towards the kerb outlets along the kerb, thus allowing stormwater to drain onto landscaped areas.

- The availability of open space for stormwater conveyance – large areas of open public or private space often lend themselves to the creation of wide, artificial waterways, which may also have ecological, recreational and aesthetic value in addition to providing a stormwater function. Soft landscaping (grassing, groundcovers) will contribute to stormwater attenuation.

4.2 Ponding

A form of flow rate control, this term usually refers to methods of infiltrating runoff into the ground or otherwise holding it back for a period, reducing peak runoff, contributing to extended base-flows, improving water quality and creating natural habitats.

Ponding is an important component of stormwater management, in countering the effects of construction and development such as increased runoff (peak and volume) and diminished water quality. Ponding utilizes temporary storage of stormwater runoff for periods ranging from a few hours to a day or more. This is achieved by providing an outlet or outlets with a capacity which is smaller than the anticipated flow peaks, thus aiming to restore as far as possible the natural flow regime of the watercourse and also facilitating groundwater recharge. In some situations, in highly pervious soils, it may be possible to completely retain the stormwater runoff and only provide an emergency overflow. Such ponds could be termed "retention ponds". Retention ponds may be "dry" – no water retained between storm events, or "wet" – permanent water body is retained.

Developers wishing to make use of ponding should take cognisance of the following:

- The purpose of these ponds in reducing runoff is to mimic nature (pre-development conditions) as far as possible over the full range of anticipated flows and not just a particular recurrence interval.
- Seasonal changes in water table height – ideally, ponding structures should not intercept groundwater, particularly during the low flow season. Where interception does occur, the effects of seepage on the functioning of the facility need to be investigated.
- Wet ponds should not be specified in areas where they might be utilised for swimming. No ponds will be provided on site, due to infiltration of runoff contained on site.

4.3 Infiltration

Reduces runoff volume and contributes to groundwater recharge. Infiltration devices are designed to reduce the amount of runoff produced and thereby achieve a reduction in the storm runoff volume and peak, to replenish ground water and to enhance water quality. This is achieved by the promotion of infiltration of runoff into porous media and into the soil, to reduce runoff volumes and peaks and to improve water quality. The landscaped areas around the proposed development (on 15% of each erf) provide infiltration areas. The paved surfaces (roads and parking) provide limited infiltration potential.

4.4 Filtration and Treatment

Water quality may be improved by a number of means including ponding and filtration and to a lesser extent conveyance facilities and techniques. By carrying out this function as close to source as possible impact on stormwater systems and habitat functioning may be minimised.

In addition to structural designs, stormwater management design should also provide for more subtle forms of stormwater control, which allow a reduction in quantity or improvement in quality of stormwater at source, rather than symptomatic management of stormwater produced. Examples include, passing water from gutters onto grassed surfaces, rather than directly into road stormwater drains or minimising areas of impervious surfaces at a development scale.
Residential streets (all roads within the Estate are gravel) and green open space would ideally be incorporated into stormwater design to enable temporary storage and infiltration, at the same time as providing a visual amenity. Minor streets in a development should be considered as areas for construction of swales and for retention.
As a general principle litter, silt and other pollutants emanating from a catchment should be trapped as close to source as possible. This is of particular importance when the stormwater discharges into a sensitive environment, and where damage may result if the pollutant is not trapped and removed.
Filtration of pollutants from stormwater is a vital component of stormwater management, although its prominence in the overall stormwater management plan of a development will depend on the extent to which water quality is likely to be a problem, either within the development area, or to freshwater ecosystems and human users in the catchment downstream.
Pollutants addressed during filtration include: sediment, nutrients, heavy metals, petrol- and oil-based compounds and numerous other pollutant types, depending on land use within the development area and in the upstream catchment. Filtration is best by passage of water across vegetated areas. A degree of filtration (particularly of sediments) does however take place in infiltration systems. Where plants are used to provide filtration, it should be noted that different plant species have different capacities for absorption or assimilation of different pollutants.
Designs that rely primarily on filtration for their successful function need to take cognisance of the following factors:
- Site topography – filtration is best achieved at very gentle gradients.
- Plant species utilised – different species have different filtering capacities, as well as aesthetic qualities.
- Soil type – highly porous soils are often more suited to infiltration than filtration systems, and do not always retain sufficient moisture to maintain plant growth.
- Stormwater quality and water quality of receiving water body – the degree of filtering that can be realistically expected from a filtering device of a particular size and constitution should be calculated. In some circumstances, water quality in surface effluent may be too poor for treatment to acceptable standards to be a realistic option. These aspects are not applicable to Erf 30.

5. Stormwater management plan

5.1 Planning and design

The Environmental Management Programme (EMPr) included in the EIA BAR will ensure that development projects comply with current environmental regulations and that environmental "best practice" procedures and governance are incorporated into the all phases of development.

The EMPr, as well as the stormwater management plan, must be included in all contract/tender documents and it must be ensured that an Environmental Manager (EM) be appointed by the Board of Directors to monitor and report enforcement, and

that an Environmental Control Officer (ECO) be appointed by the Board to do annual audits.

5.2 Construction

• Protection of Stormwater Systems during Construction

Sediment-laden stormwater should not be allowed to pass directly off the development during the establishment phase. It should be routed into areas where sediment can settle out and be removed. In some cases, infiltration structures may be used as temporary sedimentation areas during the stabilisation phase, if they are not dug down to their final design depth. Sediment can therefore accumulate on material that will be excavated at the end of the stabilisation phase, thus exposing the filtration surface. Cutoff drains shall be provided during construction to contain stormwater on site.

• Vegetation and Stabilisation

Structures that rely on infiltration for their efficacy should not come into operation until their runoff areas have been stabilised, following construction. This will prevent the need for early and costly maintenance of structures. If stabilisation by planting is envisaged, plants should be established before the onset of the rainy season. A phased approach to construction should be considered, where the extent of the water course is such that planting of the whole area will take too long for stabilisation to be effective, or where construction activities are likely to take longer than the period between the end of the wet season and the end of the dry season, when planting should take place.
It is strongly recommended that any planting programmes carried out in stormwater management systems make use of locally indigenous plant species. Indigenous species tend to require less costly nurturing than do exotics. Moreover, they are often less prone to disease and, from an ecological perspective, can also provide areas of indigenous habitat, potentially linking areas of natural indigenous habitat, across the development area.

• Enhancing Ecological Function

Where enhanced ecological function is one of the objectives of a project, a freshwater ecologist/landscape architect should participate in on-site supervision of landscaping, to maximise the opportunities for habitat creation. Planting in a stormwater system should be multifunctional. This influences the choice of plant itself, such as those with edible fruit or seeds, medicinal properties or commercial value; and how the plant is used: for shade, screening, security, bank stabilization, infiltration and habitat. Plants can have historic and cultural importance, as well as aesthetic and recreational appeal.

5.3 Operations and maintenance

• Allocation of Responsibilities

Responsibility for the operation and maintenance of the stormwater rests with Board, through the EM. The following duties should form part of the responsible person's job description:

Operation and repair of stormwater systems, watercourses.
Cleaning of certain litter traps; removal of dumped material.
Health and safety risks posed by stormwater system.

Stormwater management during construction on each erf will be the responsibility of the Owner and Contractor, reporting to the EM.

• Education

It is important for the EM to take full responsibility of the stormwater system in the sense of becoming aware of its purpose and benefits and the way in which it is intended to function.
It is also important that education programmes are put in place to train staff with the appropriate skills to carry out the correct operation and maintenance of each different area.
It is imperative that the specific functions and objectives of the stormwater system components are understood, along with the implications and requirements of each.

• Maintenance

Plant Establishment Parameters
Plant Material Requirements
Indigenous Seed: A minimum of 60% cover (with acceptable plants). No bare patches with a maximum dimension greater than 800mm (except where rocks and boulders are present).
Commercial Grass Seed: A minimum of 75% cover (with acceptable plants). No bare patches with a maximum dimension greater than 500mm (except where rocks and boulders are present).
Grass Sodding: Full area covered with live grass after 3 months.
Planting: A minimum of 90% cover (with acceptable plants).
The Developer must ensure that the works contract includes and ensures the following: The landscape subcontractor visits the site often enough to ensure that maintenance is sufficiently undertaken. The maintenance team of the landscape subcontractor is sufficient to undertake and complete the maintenance required. This would depend on the specific site, particularly with regard to the size of the area to be maintained, and whether irrigation is manual or automatic. The maintenance requirements and tasks should be clearly specified and understood, along with other site specific requirements, and would generally include watering, weeding, litter control, erosion control and replanting. The maintenance time period and establishment requirements are sufficiently understood and defined. The budget is allowed for and that payment agreement is put in place to provide the landscape subcontractor with an incentive to complete the works.

Monitoring and modification

Where stormwater structures have been set in place specifically to address particular environmental (or human health) requirements (e.g. improvement in stormwater quality; reduction of erosion), monitoring of the effectiveness of such structures should be carried out on a regular basis. Where they are found not to have met their design objectives, modifications to their structure, or to the stormwater management plan, should take place.

Ongoing assessment and refinement of stormwater design

It is recommended that assessment of the ecological impact, and degree to which structures meet their stated objectives (their efficacy, ecological impact, strengths and weaknesses) should all form the basis of assessments, carried out immediately after implementation, and again after the elapse of one year.

6. Conclusion

This set of guidelines strives to promote the development of stormwater systems in such a manner as to provide the best value for money. Care of the environment is a key component together with well-planned multi-use of facilities and effective maintenance of structures.

This stormwater management plan for the proposed development on Erf 30, Letamo Estate was formulated to manage the increase in stormwater runoff due to slight increase in impenetrable surfaces, to optimise the use of stormwater, and to minimise the potential of groundwater pollution.

APPENDIX W – EROSION MANAGEMENT PLAN

EROSION MANAGEMENT PLAN

FOR

PROPOSED SUBDIVISION AND DEVELOPMENT

ON

ERF 30, LETAMO ESTATE
MOGALE CITY

June 2019

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1. Introduction

Erf 30, Letamo Estate is located within Letamo Township (approved and proclaimed township) within the greater Letamo Estate. The entire Estate, including existing residential developments and vast free-roaming wildlife areas are subjected to an EMPr regulating environmental aspects over the entire Estate. Although many aspects of erosion management are discussed in this report, not all are relevant or applicable to Erf 30, but are presented in view of the greater Letamo Estate erosion management system.

The erosion management plan for Erf 30, Letamo Estate was formulated to minimise exposed soil areas, to reduce clearing and grubbing areas for construction, to minimise topsoil loss, to reduce the formation of gullies and rills, and to prevent siltation and sediments in watercourses and wetlands.

The site is located along the southern boundary inside the Letamo Estate, just northeast of the intersection of road N14 and road R540 south of Krugersdorp, Mogale City, Gauteng. The property measures 15,1345ha.

This report should be read with the Stormwater Management Plan (see Appendix V).

2. Objective of erosion management plan

The erosion management plan for the proposed development was formulated to minimise exposed soil areas, to reduce clearing and grubbing areas for construction, to minimise topsoil loss, to reduce the formation of gullies and rills, and to prevent siltation and sediments in watercourses and wetlands.

2.1 Manage stormwater runoff

This remains a key objective of any erosion management system. However the challenge when contemplating design of erosion management systems is to consider the following stormwater management aspects:

- To mimic pre-development responses to storms.
- To reduce the volume of runoff by promoting infiltration.
- To reduce the peak flows and increase the time-to-peak through detaining the runoff and releasing it at a gradual rate.
- Where necessary, to construct means to contain flood waters and safely convey them out of the urban area.

2.2 Minimise exposed soil areas

Exposed soil is very prone to erosion, depending on soil structure and texture. The footprint for construction should thus be minimised to the actual building footprint, construction camp area, and the absolute minimum area for delivery and storage of materials.

2.3 Reduce clearing and grubbing areas

Clearing and grubbing areas (removal of above and below ground vegetative material) should also be reduced to the absolute minimum, to reduce the disturbance of soil particles and in-situ soil stability.

2.4 Minimise topsoil loss

Topsoil should be removed from construction areas (250mm deep excavated) and stockpiled for future landscaping use around the residence. Stockpiles should not be higher that 2m to ensure sustainable micro biota in the topsoil. Stockpile should be kept moist and should be protected with plastic sheeting to prevent washing away during rain and to prevent dust pollution.

2.5 Reduce formation of gullies and rills

Gullies (deeply eroded furrows/dongas) and rills (slight/surface eroded furrows) are signs of existing erosion, and should be mitigated and remedied prior to further clearing of construction areas.

2.6 Prevent siltation and sedimentation

Siltation and sedimentation are the results of erosion, and may only be observed downstream from the construction site. Both these aspects can block stormwater systems, can reduce volume capacity of retention ponds, and can cause downstream degradation of watercourses and wetlands.

3. Site evaluation relating to erosion management

The following information should be collated for each site, during the planning stage and used to feed into the more detailed site assessment:

- Catchment area in which site is located.
- Soil characteristics relating to stability and risk of erosion.
- Slope and slope stability evaluation to determine character of stormwater flow and susceptibility to erosion.
- Vegetative cover over surrounding area.

3.1 Site Overview

As part of the site analysis process an overview of the following site aspects/resources were conducted:

- Topography
- Geology and Soils
- Groundwater
- Climate and Microclimate
- Hydrology
- Natural Ecosystems (flora and fauna)
- Cultural and Historical Landscapes and Archaeological Sites
- Development Requirements
- Surrounding Developments
- Maintenance Capacity

3.2 Site Analysis

The physical characteristics of the site reflect the existing course of runoff and stormwater. Working with the natural environment and processes has been found to be safer, more sustainable and easier to maintain in the long term than more traditional engineering approaches aimed at controlling these processes.
On sites that have been substantially disturbed, consideration should be made of what the natural drainage and runoff conditions would have been, as well as the existing situation. This will enable potential problems, and opportunities, to be identified. The following are some of the main features that should be considered and collated in the form of a site analysis plan that should be used to inform the design process:

- **Topography**

The following topographical factors should be considered:

- Gradients dictate the direction of flow and runoff/drainage routes can be plotted over land, identifying areas of ponding and concentration of loads. The site is relatively flat (1:20) draining towards the east.
- Topography influences the potential for erosion to occur. Due to the flat topography the erosion potential is low. An old damwall is present, although broken and not holding water anymore.

- **Geology, Soils and Groundwater**

A good understanding of the geology, soil and groundwater conditions is an important factor in assessing the infiltration potential of the site. The following factors should be considered:

- Geology consists of moderately shallow greenstone, which have previously been disturbed for cultivation and horse paddock/grazing. Signs of erosion on the site are minimal.
- Soil types affect surface permeability and hence rate of runoff. Soils are fairly silty, with a low erosion potential (further negated by the flat slopes).
- Trampling and compaction of soil should be limited in order to preserve the integrity of the topsoil layer.

- **Climate and Microclimate**

The following climatic factors should be considered:

- Storm rainfall parameters are major design factors and must be carefully determined. Typically the site is characterised by summer afternoon thunderstorms, although flash floods are highly unlikely due to the flat topography.
- The southeastern corner of the site is the lowest point, although stormwater runoff will be as surface sheetflow, with high infiltration, due to flat topography and only 15% of each property to be developed.
- The remainder of each erf will remain natural veld, with free-roaming wildlife.

- **Hydrology**

It is essential, for successful, sustainable and integrated erosion management, that the existing and/or natural hydrological response and functions of the site are understood.

The following factors should be considered:
- The natural drainage that was characteristic of the development area, to the extent that this is possible, should be determined and both the irreversible as well as less permanent changes that have taken place should be identified. No significant hydrological characteristics occur on the site.

- **Natural Ecosystems, Flora and Fauna**

The site should be assessed in terms of the natural ecosystems and habitat types that it supports. The following factors should be considered:

- Conservation (or improvement) of bio-diversity and ecosystem function must be one of the objectives of a management plan. The indigenous vegetation strip will be retained, whilst exotic invaders in this area will be removed, monitored and controlled. Free-roaming wildlife will utilise the remaining 85% of each erf not to be developed.
- Some habitats are afforded protection by existing legislation and guideline (e.g. wetlands; buffers around rivers and wetlands). The Egoli Granite Grassland vegetation, as well as the *Trachypogon spicatus* grassland occurring over the west of the site will, to a large extent be protected – only 15% of each erf will be developed.
- Where the site intercepts natural corridors of movement between ecologically important areas, erosion management should seek to retain or recreate such corridors. The entire Letamo Estate is managed as a game farm, with free-roaming wildlife on the natural areas. Vegetative cover is good.
- Endangered or threatened vegetation, animals and/or habitats should be identified and their opportunities and constraints for erosion management assessed. No Red Data species observed.
- Healthy, diverse and/or relatively undisturbed natural systems should be identified and assessed in terms of their habitat integrity and importance (environmentally, socially and culturally), and, wherever possible, be accommodated within the future planning and development of the site. The entire site is already disturbed, although development will be limited the remainder of the site will be natural.
- The presence of invasive alien animals (e.g. fish, birds) or plants should be discouraged from any developments. Alien flora or fauna associated with habitats created or maintained for the management of erosion from a site should not be allowed to pass into any downstream or associated water bodies. All alien/exotic vegetation will be removed, monitored and controlled. Care should be taken to stabilise and revegetate these areas to minimise erosion, especially during the rainy season.

- **Cultural and Historical Landscapes and Archaeological Sites**

Areas, routes, vegetation and landmarks that have a cultural and/or historical use or significance should be identified. Development and erosion planning should avoid disturbing these areas where possible. Although no aspects of historical or archaeological significance occur on the site, the possibility exists due to the location of the site within the COHWHS.

- **Surrounding Developments**

Erosion management design options should take cognisance of developments in the upstream catchment that are likely to impact on the timing, quality or quantity of stormwater generated upstream of the development area. Identification of these issues will highlight potential problem areas in stormwater and erosion management. The following factors should be considered:

- It is important that site planning be done in context with the adjacent properties to ensure effective stormwater systems and erosion control. Sufficient retention facilities should therefore be planned and provided on site as part of an integrated open space system. Stormwater runoff from the site will be low, surface runoff that will infiltrate into the soil on site. Infiltration of groundwater, subsurface aquifer recharge, rainwater harvesting, and biodiversity enhancement will also be incorporated into the stormwater and erosion management system for the site.
- Clarity on the stormwater and erosion management principles employed in upstream developments should also be obtained so that anticipated stormwater runoff and erosion control from these areas can be quantified. Due to the rural nature of the development and surrounding areas, no stormwater system, except along the tarred roads, are in place in the area. The Environmental Manager on the Estate will monitor and enforce stormwater and erosion management, especially relating to runoff to the stream further east from the site.
- The rate of growth and anticipated land-use of surrounding developments and areas that discharge onto the development site should also be taken into account to determine the future pressures on the stormwater systems and erosion potential. No shortterm future developments within the area is anticipated.
- The general capacity of the stormwater systems of surrounding developments that lie downstream of the site, and the current rate of growth and pressure on these systems should be taken into account during site planning and design. The estimated stormwater generation and increase, as well as erosion risk can be contained on the site.

4. Erosion management facilities and techniques

Various facilities and techniques that may be utilised to manage erosion from the development have been grouped by generic function as follows:

4.1 Vegetation

Vegetation remains the most effective sustainable natural means to kerb or prevent erosion, and can be achieved by the following means:

- Seeding. The seeding can either be manually, hydroseeding or mechanical spreading. Seeding should be done early in spring to ensure rapid germination. Exposed areas should be protected, by means of biodegradable sheeting or mulching, to minimise erosion during the establishment phase.
- Sodding. Sodding provide instant coverage over exposed areas, although roots would take some time to establish. Sodding is dependent on the availability of suitable sodding material ie indigenous *Cynodon dactylon* lawn sods.

4.2 Earthworks

- Earthworks are effective means of creating barriers to either block/concentrate or deviate stormwater flow.
- Humps can be created to form an obstruction in the stormwater path, thus channeling stormwater in a different direction or slowing down the intensity of stormwater flow. These means can create effective settling of stormwater, thus providing a means of infiltration and sedimentation.
- Swales can also be created to achieve the above results. In both instances the protection of the earthworks through vegetation or other means is important.
- Retention ponds. Ponds can be created to reduce the velocity of stormwater flow and also achieving infiltration and sedimentation.
- Cutoff drains. This is an effective means to control stormwater runoff, and thus erosion potential, on construction sites, and must only be seen as a temporary measure – which should be rehabilitated once construction is completed.

These are all forms of flow rate control, a term usually refers to methods of infiltrating runoff into the ground or otherwise holding it back for a period, reducing peak runoff, contributing to extended base-flows, improving water quality and creating natural habitats.

4.3 Surfacing

- Surfacing create platforms for stormwater flow, which could concentrate stormwater runoff and increase stormwater velocity. Outlets can be provided for this concentrated flows, provided with dissipating structures to manage and control stormwater.
- Paving can create an effective means for channelization of stormwater, also over areas prone to erosion. Paving can either be tar-surfacing, interlocking pavers, grouted paving, pavers loosely laid on a sand bed, grass blocks, or sustainable urban drainage systems. This means can also improve infiltration of stormwater into the surface.
- Stone/rock packing can also be used to create a more aesthetically and environmentally integrated surface.

4.4 Structures

- Structures can reduce runoff volume, contribute to groundwater recharge, and reduce erosion.
- Hessian/geojute biodegradable cloth can be used as cover over newly seeded or other exposed areas. This cover will reduce erosion and will disintegrate over time, once to vegetation has been established.
- Mulching can also be provided on flatter slopes. This can reduce evaporation, provide protection over the seedbed, and reduce erosion.
- Horizontal barriers. These are generally vegetative materials (either dead or alive) that are pegged diagonally across erosion channels, to reduce stormwater flow and allow for settling of sediments. These will also either disintegrate over time or grow into effective barriers and/or windrows.
- Splitter blocks. These are normally provided at concentrated stormwater outlets to reduce the velocity of flow, and potential downstream erosion.
- Gabions. These are larger scale erosion problem solutions, which are not applicable to the site.

Although the erosion potential during the construction periods are deemed low, these techniques can assist in prevention of erosion in the event of occurrence.

5. Stormwater management plan

5.1 Planning and design

The Environmental Management Programme (EMPr) included in the EIA BAR will ensure that development projects comply with current environmental regulations and that environmental "best practice" procedures and governance are incorporated into the all phases of development.

The EMPr, as well as the stormwater and erosion management plans, must be included in all contract/tender documents and it must be ensured that an Environmental Manager (EM) be appointed by the Board of Directors to monitor and report enforcement, and that an Environmental Control Officer (ECO) be appointed by the Board to do annual audits.

5.2 Construction

- **Protection of Erosion Systems during Construction**

Sediment-laden stormwater, or any stormwater runoff from the construction site, should not be allowed to pass directly off the development during the establishment phase. It should be routed into areas where sediment can settle out and be removed. In some cases, infiltration structures may be used as temporary sedimentation areas during the stabilisation phase, if they are not dug down to their final design depth. Sediment can therefore accumulate on material that will be excavated at the end of the stabilisation phase, thus exposing the filtration surface. Cutoff drains shall be provided during construction to contain stormwater on site.

- **Vegetation and Stabilisation**

Structures that rely on infiltration for their efficacy, as well as erosion prone areas, should not come into operation until their runoff areas have been stabilised, following construction. This will prevent the need for early and costly maintenance of structures. If stabilisation by planting is envisaged, plants should be established before the onset of the rainy season. A phased approach to construction should be considered, where the extent of the water course is such that planting of the whole area will take too long for stabilisation to be effective, or where construction activities are likely to take longer than the period between the end of the wet season and the end of the dry season, when planting should take place.
It is strongly recommended that any planting programmes carried out in stormwater and erosion management systems make use of locally indigenous plant species. Indigenous species tend to require less costly nurturing than do exotics. Moreover, they are often less prone to disease and, from an ecological perspective, can also provide areas of indigenous habitat, potentially linking areas of natural indigenous habitat, across the development area.

- **Enhancing Ecological Function**

Where enhanced ecological function is one of the objectives of a project, a freshwater ecologist/landscape architect should participate in on-site supervision of landscaping, to maximise the opportunities for habitat creation. Planting in a stormwater and erosion system should be multifunctional. This influences the choice of plant itself, such as those with edible fruit or seeds, medicinal properties or commercial value; and how the plant is used: for flow reduction, shade, screening, security, bank stabilization, infiltration and habitat.

5.3 Operations and maintenance

- **Allocation of Responsibilities**

Responsibility for the operation and maintenance of ersion rests with Board, through the EM. The following duties should form part of the responsible person's job description:

Ensure proper rehabilitation of construction site prior to occupation.
Operation and repair of stormwater systems, watercourses.
Monitor and remedy erosion damage.
Cleaning of certain litter traps; removal of dumped material.
Health and safety risks posed by stormwater system.

Erosion management during construction on each erf will be the responsibility of the Owner and Contractor, reporting to the EM.

- **Education**

It is important for the EM to take full responsibility of the erosion system in the sense of becoming aware of its purpose and benefits and the way in which it is intended to function.
It is also important that education programmes are put in place to train staff with the appropriate skills to carry out the correct operation and maintenance of each different area.
It is imperative that the specific functions and objectives of the erosion system components are understood, along with the implications and requirements of each.

- **Maintenance**

Plant Establishment Parameters
Plant Material Requirements
Indigenous Seed: A minimum of 60% cover (with acceptable plants). No bare patches with a maximum dimension greater than 800mm (except where rocks and boulders are present).
Commercial Grass Seed: A minimum of 75% cover (with acceptable plants). No bare patches with a maximum dimension greater than 500mm (except where rocks and boulders are present).
Grass Sodding: Full area covered with live grass after 3 months.
Planting: A minimum of 90% cover (with acceptable plants).
The Developer must ensure that the works contract includes and ensures the following: The landscape subcontractor visits the site often enough to ensure that maintenance is sufficiently undertaken. The maintenance team of the landscape subcontractor is sufficient to undertake and complete the maintenance required. This would depend on the specific site, particularly with regard to the size of the area to be maintained, and whether irrigation is manual or automatic. The maintenance requirements and tasks should be clearly specified and understood, along with other site specific requirements, and would generally include watering, weeding, litter control, erosion control and replanting. The maintenance time period and establishment requirements are sufficiently understood and defined. The budget is allowed for and that payment agreement is put in place to provide the landscape subcontractor with an incentive to complete the works.

Monitoring and modification

Where stormwater structures have been set in place specifically to address particular environmental (or human health) requirements (e.g. improvement in stormwater quality; reduction of erosion), monitoring of the effectiveness of such structures should be carried out on a regular basis. Where they are found not to have met their design objectives, modifications to their structure, or to the stormwater and erosion management plan, should take place.
, and again after the elapse of one year.

6. Conclusion

This set of guidelines strives to promote the development of erosion systems in such a manner as to provide the best value for money. Care of the environment is a key component together with well-planned multi-use of facilities and effective maintenance of structures.

The erosion management plan for the proposed development was formulated to minimise exposed soil areas, to reduce clearing and grubbing areas for construction, to minimise topsoil loss, to reduce the formation of gullies and rills, and to prevent siltation and sediments in watercourses and wetlands.

APPENDIX X – WASTE MANAGEMENT PLAN

WASTE MANAGEMENT PLAN

FOR

PROPOSED SUBDIVISION AND DEVELOPMENT

ON

ERF 30, LETAMO ESTATE
MOGALE CITY

June 2019

TABLE OF CONTENTS

1. Introduction

Erf 30, Letamo Estate is located within Letamo Township (approved and proclaimed township) within the greater Letamo Estate. The entire Estate, including existing residential developments and vast free-roaming wildlife areas are subjected to an EMPr regulating environmental aspects over the entire Estate.

The waste management plan for Erf 30, Letamo Estate forms part of the existing waste management plan for the entire Estate, which is currently in operation.

The site is located along the southern boundary inside the Letamo Estate, just northeast of the intersection of road N14 and road R540 south of Krugersdorp, Mogale City, Gauteng. The property measures 15,1345ha.

This report should be read with the EMPr (see Appendix D).

2. Objectives of the waste management plan

The waste management plan for the proposed development is integrated with the current waste management system in operation over the entire Letamo Estate.

Responsibility for the operation and maintenance of waste management rests with Board, through the EM. The following duties should form part of the responsible person's job description:

- Ensure awareness and requirements for waste management with prospective buyers/home owners.
- Communicate waste management systems and procedures.
- Ensure compliance with waste management systems and procedures.
- Ensure proper management of waste collection, removal to transit site, recycling and maintenance of waste transit facility.

2.1 Reduce

Waste generation should be reduced through careful planning prior to waste generation, consideration for use of any by-products to be generated, through using biodegradable shopping bags, and through limiting potential waste to be generated.

2.2 Re-use

Any potential waste generating action should consider the re-use of any or all of the by-products, ie off=cuts to be used for firewood, shopping bags to be used again, plastic containers to be used for storage or planting/germination/mini greenhouses.

2.3 Recycle

Current initiatives include the recycling of plastic, glass and aluminium. These should be extended to include paper and electronic waste, and maybe also organic waste (which may pose a health risk).

2.4 Disposal

Disposal of waste should be minimised to items that cannot be re-used or recycled. The current system in operation at Letamo Estate makes a big difference in the volume of waste taken to landfill sites.

3. Site evaluation relating to waste management

3.1 Overview

The following information should be collated for each site, during the planning stage and used to feed into the more detailed site assessment:

- Owner awareness to be stimulated regarding the benefits if the waste management plan.
- Enforcement by EM for owners to comply with the waste management plan and arrangements related to construction waste, domestic waste (putting out of waste, ways of putting out waste, days and times for putting out waste) and hazardous waste, although the latter would be minimal.
- Location of residence on each erf and access to waste bin.
- Internal collection routes for waste collection to economise travel.

4. Waste management during construction phase

Waste management during the construction phase is the responsibility of the Owner and Contractor, under supervision and enforcement by the EM.

The same principles of reduce, re-use, recycle and disposal apply.

Waste collection should be done daily and waste generated should be kept in enclosed containers on the premises, until removal – which should occur at regular intervals.

- Domestic waste (food containers, plastic and glass bottles, paper bags) can be put out with domestic waste programme, upon agreement with the EM.
- Builder's rubble (broken bricks, concrete waste, timber, ceiling boards, packaging) should be removed by the Contractor at regular intervals before a negative visual impact is created.
- Hazardous waste (cement bags, oil, varnish) should also be removed by the Contractor or a registered hazardous waste contractor to a registered hazardous waste site.

Such waste should either be separated for recycling on site, or proof should be provided if waste is taken off site in bulk, for recycling elsewhere.

5. Waste management during operational phase

5.1 Domestic waste generation

The above principles of reduce, re-use, recycle, and disposal should be stimulated with each new Owner, in order to achieve the objectives and enhance the longevity of landfill sites.

5.2 Domestic waste collection

Domestic waste should be put out at the entrance of each residence on Monday mornings. No waste shall be put out earlier, except when arranged with the EM, and where such waste containers are lockable (to ensure that no access by animals, birds or vermin is possible, and that waste cannot be spilled if container falls over). Owners may also have a covered built-in refuse area on the property boundary, accessible from both inside and outside the property. Letamo Estate employees collect waste from each erf on Mondays and transport it to the waste transit site in the northwestern corner of the Estate.

5.3 Domestic waste separation and recycling

- **Waste separation**

All waste that is collected from individual erfs/residences are taken to the transit waste site in the northwestern corner of the Estate by either bakkie or tractor with trailer, with limited damage to roads and potential injury to wildlife.

Waste is then separated into plastic, glass, aluminium and waste. Recyclables are stored in transparent plastic bags, in order to identify the contents, whilst other waste is stored in refuse bags in waste skips that are covered with tarpaulins to prevent wild-blown littering and access to wildlife, birds and vermin. The waste transit site is fenced with lockable gates, and only accessible to Letamo waste management employees, Mogale City, and recycling contractor.

- **Recycling**

Recycling is done by Letamo employees at the waste transit premises and plastic, glass and aluminium are stored in separate transparent plastic bags for ease of identification. A recycling contractor collect and remove recyclables from the transit site on Wednesdays. Paper and electronic waste recycling may be added in future.

5.4 Domestic waste removal

Waste is removed on Mondays for the transit site by Mogale City as part of their municipal services to the Estate.

6. Conclusion

The current waste management plan is adequate to integrate the 12 new residences with the system. The system is fully operational and working well.

The recycling initiative has a huge positive impact in reducing waste to landfill, thus extending the lifecycle of these sites and contributing to sustainable living.

APPENDIX Y – VISUAL IMPACT OVERVIEW

VISUAL IMPACT OVERVIEW

FOR

PROPOSED SUBDIVISION AND DEVELOPMENT

ON

ERF 30, LETAMO ESTATE
MOGALE CITY

June 2019

TABLE OF CONTENTS

1. Introduction

Erf 30, Letamo Estate is located within Letamo Township (approved and proclaimed township) within the greater Letamo Estate. The entire Estate (total area 490.12ha), including existing residential developments (33.309ha) and vast free-roaming wildlife areas (456.811ha) are subjected to an EMPr regulating environmental aspects over the entire Estate.

The site is located along the southern boundary inside the Letamo Estate, just northeast of the intersection of road N14 and road R540 south of Krugersdorp, Mogale City, Gauteng. The property measures 15,1345ha.

This report should be read with the EMPr (see Appendix D).

2. Site evaluation relating to visual impact

The site is located on a fairly flat valley bottom, draining towards a central spruit flowing from south to north through the site, with a dam in it. The vegetation of the site consists of a combination of open grassland and savannah. Savannah areas are associated more with the lower-lying drainage channels. Letamo Estate consists of more than 450ha of natural veld with free-roaming wildlife, and just over 33ha of mainly upmarket and expensive residential development with primarily indigenous landscaping around.

Development on Letamo Estate consists of two entrance gates (main entrance and service entrance) with controlled access. Erf 30 forms part of the 111 erfs that forms part of the Estate, with residences scattered throughout the perimeter of the Estate. The central core represent open natural veld for free-roaming wildlife, combined with 85% of residential erfs that remain part of the free-roaming wildlife area. The Forum homini hotel and a guesthouse are also located within the Estate.

Letamo Estate thus represents an attractive tourism/dining/wildlife/accommodation experience contributing to the exposure to both local and international tourists of the Cradle of Humankind.

Views from Erf 30 are limited due to fairly flat topography and trees in certain areas. Vistas from Erf 30 are mostly southwards, towards the Krugersdorp ridge separating the area from Krugersdorp, some distance south of the Estate.

Visibility to Erf 30 is restricted again due to the fairly flat slope and trees in the area. There are no external roads close to Erf 30, with road N14 to Ventersdorp about 1km south of the site. The area between Erf 30 and road N14 is screened by a 3m high wall around the development southwest of the site, and trees on the vacant property south of the site.

Visual quality of both the natural and development areas within the Estate are of high quality due to natural open grassland and savannah, as well as strict aesthetical guidelines governing design and construction of residences within the Estate.

3. Visual impact during construction phase

Construction activities are controlled through both the EMPr and Letamo Rules and Regulations. Construction site must be fenced off, with controlled access. Pollution, deliveries of materials, storage of materials, construction camp, noise control are all

regulated by the EMPr (see Appendix D) and Letamo Rules and Regulations (see Appendix Q).

4. Visual impact during operational phase

The well-defined aesthetical guidelines and considerable monetary investment, combined with rehabilitation guidelines and controls in the EMPr and Letamo Rules ensure high quality living standards and maintenance of individual properties.

5. Conclusion

The visual impact of the proposed subdivision and development of Erf 30 will thus contribute to an already high quality visual experience within the Estate, as well as to the surrounding area.

APPENDIX Z – SECURITY INCIDENTS

SECURITY Incident records 2019

DATE	NO	OWNER	CASE	REMARKS
21/01/2019	320	Lameck	N/A	Solar panels 4x stolen during night of 20/01/2019 - 21/01/2019. Site under construction
04/02/2019	35	R. Brands	CAS 41/2/2019	Attempted breakin at # 35 @ 02h20 . See report. Fence cut on Kromdraai road
04/02//2019	LGF	LGF	CAS 92/2/2019	Fence found cut on eastern side. 1x baby kudu out.No other reports
13/03/2019	FHH	H. Marais	CAS 274/3/2019	break I & Attempted break in/ TV, DVD taken. Shots fired at guard. See report

SECURITY INCIDENT RECORDS 2018

DATE	NO	OWNER	CASE	REMARKS
05/03/2018	278	W. de Wet	N/A	Attemp to steal gate motor and fence cut next to gate
05/03/2018	6	A Cotton	N/A	Electric fence tampered with during night
06/03/2018	12	D. Stevenson	XXXXX	BREAK - IN. 2x tv and whiskey, 2x bicycles. Kitchen broken open. SAPS never came. Ref# 1495609
06/03/2018	117	J. Arkert	XXXXX	Break-in. 2x computers, headphones and i-pad taken from office. Ref # 1495609
06/03/2018	68	M. Clark	XXXXX	Break-in. Cellphone, tekkies and vanity case taken. SAPS never arrived
08/03/2018	7	Gareth	XXXXX	Came to office and reforted a break - in. Nothing was taken and SAPS not opening case
12/03/2018	XX	XXXX	XXXXX	Fence found cut behind Bartlet water resivoir. No incident reported
16/07/2018	LGF	LGF OFFICE	328/7/2018	See report
11/08/2018	XX	XXXX	XXXXX	Cyclist shot and robbed of his bike and bike shoes . Helicopter transported him from Letamo
	XXX	XXXXX	XXXXXXX	He was shot at 6 times but luckily only 2 rounds hit him. Speed calming outside Letamo maingate
03/09/2018	LGF	XXXXX	XXXXXXXX	Wholfhart egg staff worker saw 4 bravos jump fence to their side. See report
16/12/2018	Hotel	Hotel	xxxxx	GM phoned me to assist with drunk staff member who was suspended. Death treats made. See report
23/12/2018	lgf / 22	#22 Theo	xxxxxxxx	SEE REPORT

AGE 1 SECURITY INCIDENT RECORDS LETAMO 2017

ATE	OWNER	NO	REMARKS	CASE NO
1/2017	HOTEL	108 LT	Person L. Meiring residing. Small window opened. Laptops & tv taken - 01h30 - 4h15	CAS 480/1/2017
XXXXX	XXXX	108 LT	Perernitot fence cut . SAPS say we can use same case number	
2/2017	M. Street	42	Break in discovered at around 11h55 by neighbours . TV, laptop taken. Sliding door entry	
XXXXX	XXXX	42	Owner on holiday. Sliding door opened. Alarm not connected to a security company	CAS 232/2/2012
2/2017	B. Wheatcroft	37	Entry gained thru sliding door, tv, laptop, handbag taken	CAS 71/2/2017
2/2017	R. Klaiber	40	Attempted break in along his fence. Passive moved / alarm activated - no entry gained	no case no
2/2017	K. Peace	102	Padlock broken of. No entry gained. Cops do not want to open docket	COPS NOT OPEN
2/2017	P. Walker	43	Report that window at garage broken open at 01H15. After patrolls done. No entry	
2/2017	P. Walker	43	Another attemp. Alarm activated and garage door forsed opened. Nothing taken	
2/2017	ELIAZ	16	Break in. Two t.v. taken and suitcase and selected bottles of whisky	CAS 269/2/2017
2/2017	A. Seeber	50	3Bicycles taken - not sure when	CAS 303/2/2017
2/2017	H. Willemse	66	His peremiter fence cut....triggerd alarm....no entry	no case no
2/2016	K. Schroeder	19	Fence cut , window forced open. Nothing taken	not opening
2/2017	J. v Rensburg	109	# 9 LT TOWN still under construction reports electrical tools stolen over weekend	no case no
2/2017	N. de Louvere	28	Break in thry fence and window. TV, coffeemachine, kettle, bedding, soundsystem	CAS 351/2/2017
2/2017	J. Meintjies	33	Report that he had an attempted break in at kitchen door - pet door- alarm activated	no case no
2/2017	J v. Rensburg	109 LT	Solar panels stolen 18 Off - wheelbarrows and tools - same spoor as always - still building	
2/2017	M. Niemand	104	Attempted break in - alarm triggered	CAS 481/2/2017
2/2017	Shana	125	Attemted break in....screamed and suspects fled	CAS 481/2/2017
2/2017	LGF Alex	N/A	Suspects entered / exited behind stables.....same case number as above	CAS 481/2/2017
/2017	LGF Alex	N/A	Fence cut at monument in Kromdraal road. Suspects detected and fled from office	CAS 545/2/2017
XXXXX	xxxxxxxxxx	xxxx	shoutedto security guard "shoot .....shoot him"when they ran away	xxxxxxxx
2/2017	J. Janeke	24	Saw fence cut and drill , screwdrivers missing from stoep	CAS 62/3/2017
/2017	G. Stiles	7	Late report. Owner was away. Found fences cut when back.	CAS 162/3/2017
/2017	I. Povey	59	Intruders on property at 02h40.....no case opened	xxxxxxxx
/2017	T. S	68	Botorbike and bicycle stolen thru fence at outflow	

FIGURE 1 – SITE PHOTOGRAPHS

Central site to north

Central site to south

Central site to northeast

Central site to southwest

Central site to east

Central site to west

Central site to southeast

Central site to northwest

Old gatehouse on Erf 4

Watercourse further east from site

Store on Erf 6

Exotic trees to be removed

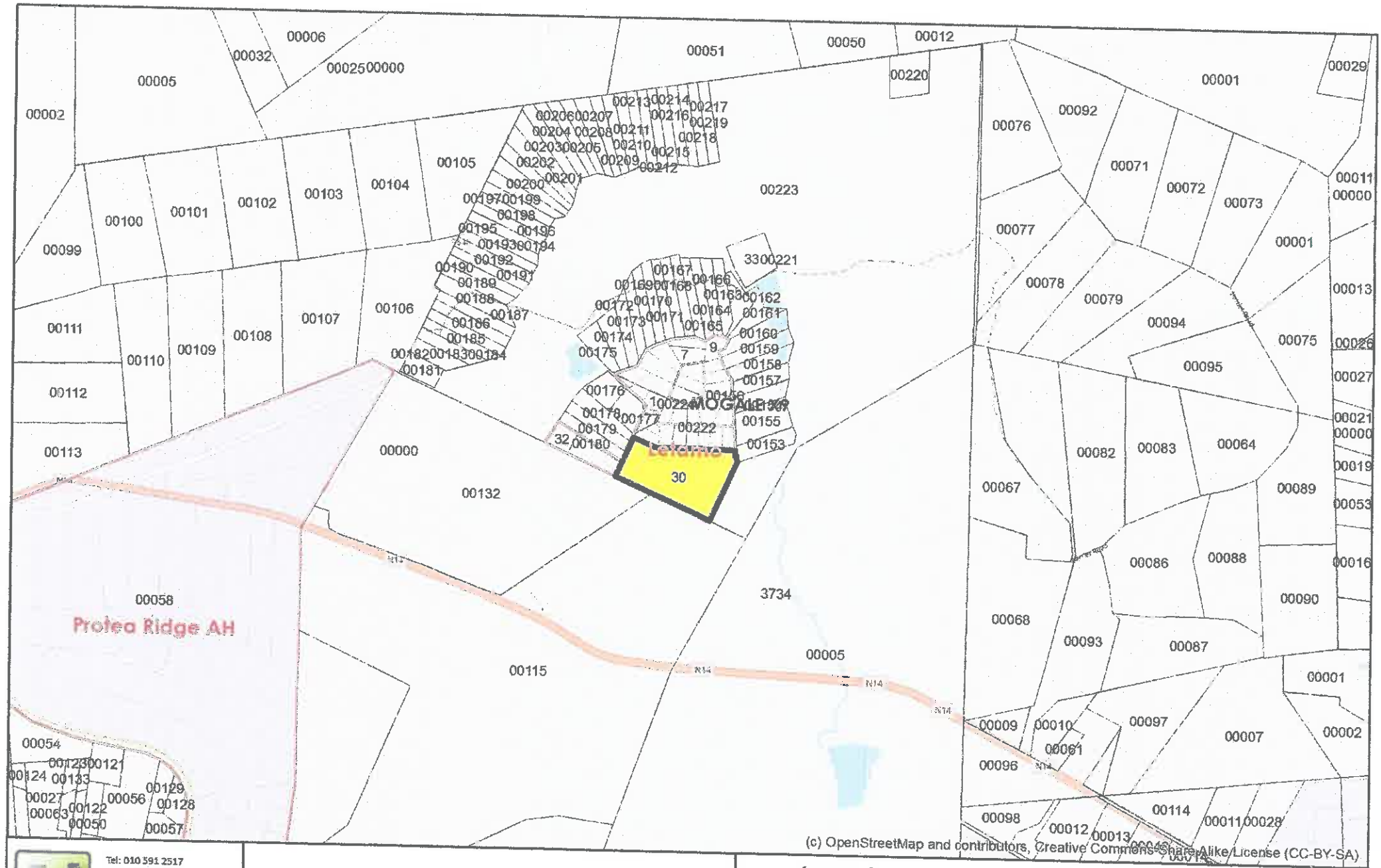
Savannah on Erf 13 and 14

Exotics in private open space to be removed

Old building under powerline on Erf 12

Bluegum tree to be removed

DRAWING 1 - LOCALITY PLAN



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LOCALITY PLAN: ERF 30 LETAMO

Legend

SUBJECT PROPERTY

N

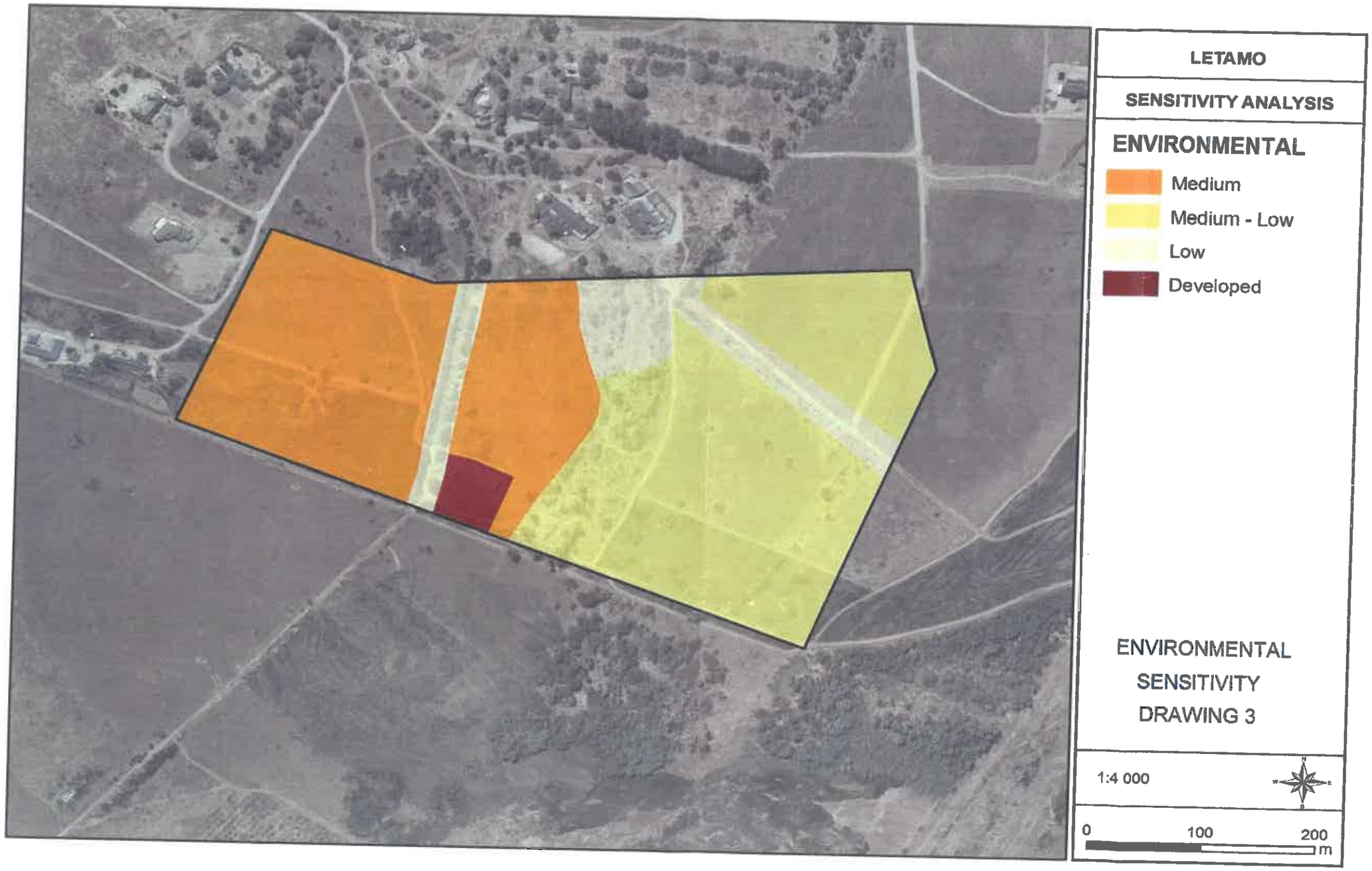
1:25,000

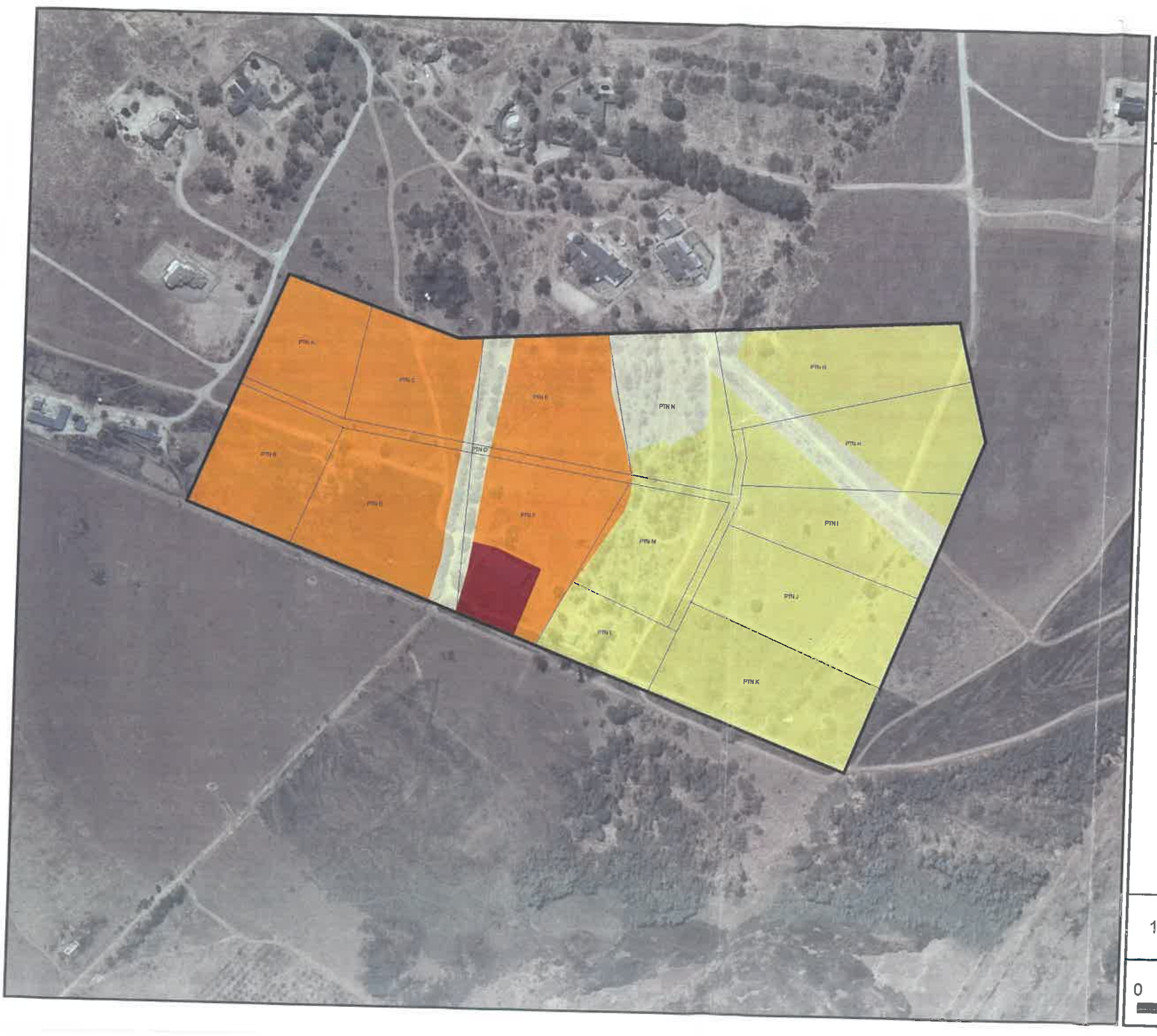
DRAWING 2 – SITE PLAN

ERF 30, LETAMO ESTATE

SITE PLAN

DRAWING 3 – ECOLOGICAL SENSITIVITY MAP


LETAMO
SENSITIVITY ANALYSIS
ENVIRONMENTAL
Medium
Medium - Low
Low
Developed
ENVIRONMENTAL
SENSITIVITY
DRAWING 3
1:4 000
N
W
E
S
0
100
200
m



LETAMO

SENSITIVITY ANALYSIS

ENVIRONMENTAL

- Medium
- Medium - Low
- Low
- Developed

ENVIRONMENTAL SENSITIVITY
WITH PROPOSED SITE LAYOUT
DRAWING 4

1:4 000

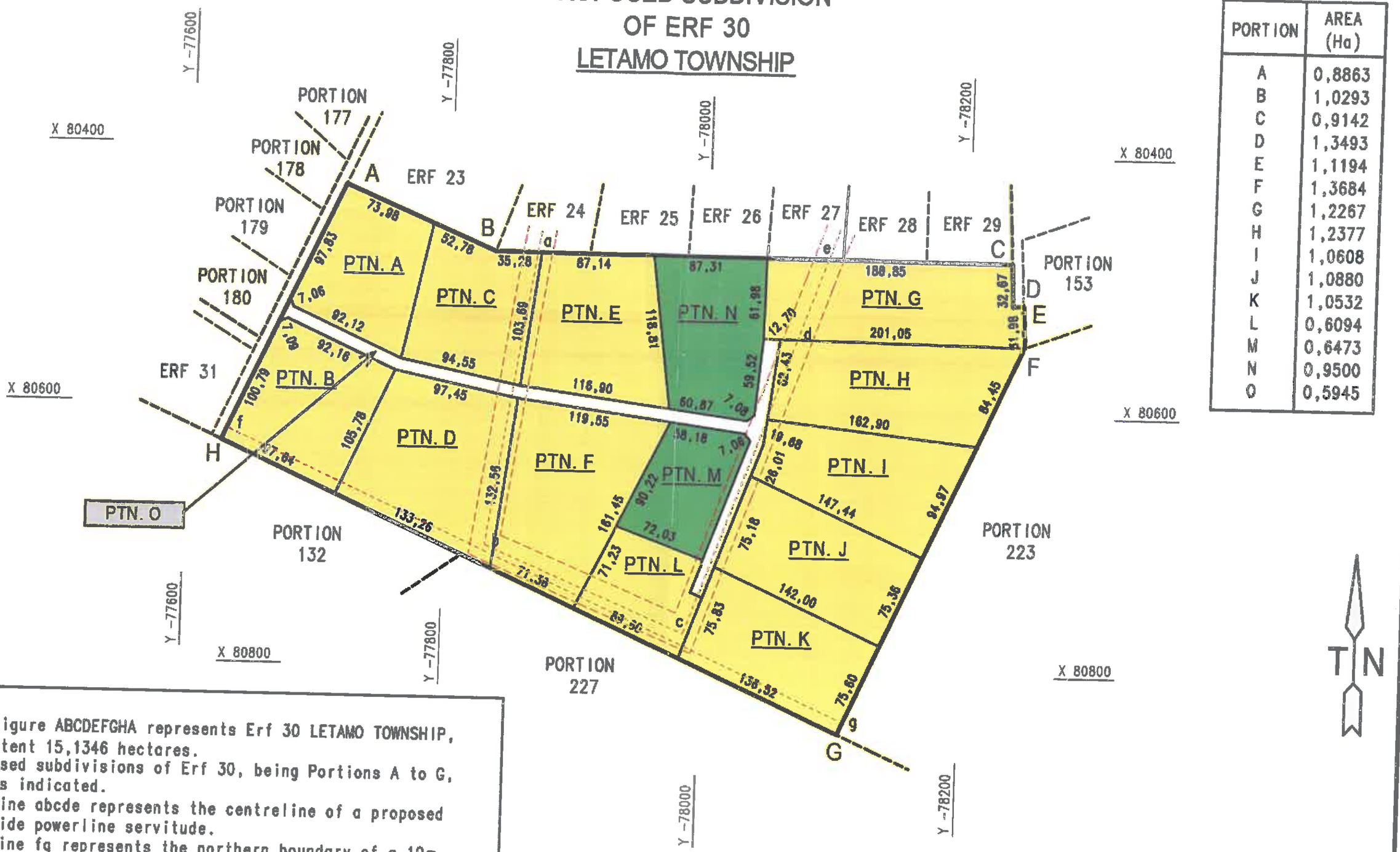
N
W
E
S

0 100 200 m

DRAWING 4 - PROPOSED DEVELOPMENT

PROPOSED SUBDIVISION OF ERF 30 LETAMO TOWNSHIP

PORTION	AREA (Ha)
A	0,8863
B	1,0293
C	0,9142
D	1,3493
E	1,1194
F	1,3684
G	1,2267
H	1,2377
I	1,0608
J	1,0880
K	1,0532
L	0,6094
M	0,6473
N	0,9500
O	0,5945



NOTES:
1. The figure ABCDEFGHA represents Erf 30 LETAMO TOWNSHIP, in extent 15,1346 hectares.
2. Proposed subdivisions of Erf 30, being Portions A to G, are as indicated.
3. The line abcde represents the centreline of a proposed 22m wide powerline servitude.
4. The line fg represents the northern boundary of a 10m wide Right of Way servitude.
5. Measurements are given in metres.
6. Dimensions are approximate and subject to final survey.

SCALE 1: 4000 (A4)

0 20 40 60 80 100 200 300

Metres

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