seedcracker
ENVIRONMENTAL CONSULTING CC

FINAL ENVIRONMENTAL SCOPING REPORT

FOR

THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS FOR THE ESTABLISHMENT OF A COMMERCIAL/LIGHT INDUSTRIAL DEVELOPMENT ON PORTION 330 OF THE FARM DOORNKLOOF 391 JR

GDACE Ref No: GAUT 002 / 08 – 09 / N0918

PREPARED FOR:

JR 209 INVESTMENTS (PTY) LTD FOR AND ON BEHALF OF

MT DEVELOPMENT

SUBMITTED TO:

THE GAUTENG DEPARTMENT OF AGRICULTURE, CONSERVATION, AND ENVIRONMENT

GAUTENG PROVINCIAL GOVERNMENT

JUNE 2009

PURPOSE OF THIS DOCUMENT

This document presents the proposed Scoping phase and Plan Of Study for Environmental Impact Assessment (EIA) for the proposed commercial/Light Industrial township. The Environmental Impact Assessment (EIA) process followed is in compliance with the National Environmental Management Act: NEMA, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations of 2006 (Government Notice No's R385, 386 and 387 of 2006). The proposed development involves 'listed activities', as defined by the NEMA, 1998. Listed activities are activities, which may potentially have detrimental impacts on the environment and therefore require environmental authorisation from the relevant authorising body, before such activities commence.

This document captures the issues identified by Interested and Affected Parties (I&APs) and those identified through the technical process during the *Scoping Phase* of the EIA. Potentially significant issues have been considered by the EAP, independent specialists and the GDACE conservation department, and have been used to determine the proposed scope of the specialist studies that will be undertaken in the Impact Assessment Phase.

This document further proposes the processes to be followed during the Impact Assessment Phase, namely the technical and public participation processes.

According to the EIA regulations, interested and affected parties must have the opportunity to comment on the proposed project and verify that all the issues raised during the Scoping Phase have been recorded. Interested and Affected Parties had an opportunity to comment on the Draft Scoping Report (due date for comment on the draft Scoping Report was 14/5/2009), and will do the same for the findings of the EIA. The findings of the EIA will be presented to the public in a draft Environmental Impact Report (EIR). After public review, the Draft EIA will be updated and submitted to the approving authority for a decision about the project.

SUMMARY OF WHAT THE DRAFT SCOPING REPORT CONTAINS

- The description of the proposed project
- An overview of the EIA process, including the public participation process
- A description of the existing environment on site
- The potential environmental issues and impacts which have already been identified
- The terms of reference for the specialist studies
- A list of comments raised to date

AN EIA CONSISTS OF THE FOLLLOWING PHASES

SCOPING PHASE: To identify issues to focus the EIA	IMPACT ASSESSMENT PHASE: Detailed studies of potential impacts, positive and negative	ENVIRONMENTAL IMPACT REPORT: Consolidate findings of impact assessment studies	DECISION MAKING PHASE: Proponent and authorities use EIA findings to decide if project goes ahead

ENVIRONMENTAL ASSESSMENT PRACTITIONER

As per the requirements of the National Environmental Management Act: NEMA, 1998 (Act No. 107 of 1998), (NEMA) and the Environmental Impact Assessment Regulations, April 21 2006, the following information is pertinent with regards to the Environmental Assessment Practitioner (EAP) that has been appointed for the Scoping and Environmental assessments for the establishment of a commercial and light industrial township on Portion 330 of the Farm Doornkloof 391 JR.

CONTACT DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER:

Cell: 082 626 4117
Fax: 086 518 4885
P O Box 12460
Clubview
0014

EXPERTISE OF THE EAP TO CARRY OUT THE SCOPING PROCESS:

- BSc Animal Science (Hons).
- BSc Wildlife Management (Hons).
- 5 years experience in the environmental impact assessment field
- Voluntary EAP accreditation underway
- SACNASP accreditation underway

Stephanie Webber (BSc Animal Science Hons, BSc Wildlife Management Hons), established Seedcracker Environmental Consulting in February 2008. Her introduction (in 2003) and subsequent involvement in all fields of environmental and social management have been in leadership positions.

Stephanie has gained advanced knowledge of Integrated Environmental management (IEM) tools and principles, the principles and fundamental criteria of the Environmental Conservation Act, the principles and fundamental criteria of the National Environmental Management Act (NEMA), provincial policies and regulations including draft and future legislation.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF ABBREVIATIONS

BID	Background Information Document
CBO's	Community Based Organisations
DEAT	Department of Environmental Affairs and Tourism
DWAF	Department of Water Affairs and Forestry
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EIR	Environmental Impact Report
EMP	Environmental Management Plan
GDACE	Gauteng Department of Agriculture Conservation and Environment
GIS	Geographic Information System
HIA	Heritage Impact Assessment
I&AP's (IAP's)	Interested and Affected Parties
IDP	Integrated Development Plan

IEM	Integrated Environmental Management
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NSBA	National Spatial Biodiversity Assessment
PoS	Plan of Study
PPP	Public Participation Process
RoD	Record of Decision
SAHRA	South African Heritage Resources Agency
SEC	Seedcracker Environmental Consulting
SR	Scoping Report
ToR	Terms of Reference
TOSF	Tshwane Open Space Framework

GLOSSARY OF TERMS

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

Applicant: Any person who applies for an authorisation to undertake an activity or to cause such activity to be undertaken as contemplated in the National Environmental Management Act (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2006.

Asl: Altitude above sea level.

Biodiversity: The variability among living organisms from all sources including, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are apart.

C-Plan: The GDACE's C-Plan focuses on the mapping and management of biodiversity priority areas within Gauteng. The C-Plan includes protected areas, irreplaceable and important sites due to the presence of Red Data species, endemic species and potential habitat for these species to occur.

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

Environment: All physical, chemical and biological factors and conditions that influence an object and/or organism. Also defined as the surroundings within which humans exist and are made up of the land, water, atmosphere, plant and animal life (micro and macro), interrelationships between the factors and the physical or chemical conditions that influence human health and well-being.

Environmental Impact Assessment: Assessment of the effects of a development on the environment.

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

Open Space: Areas free of building that provide ecological, socio-economic and place-making functions at all scales of the metropolitan area.

Study area: Refers to the entire study area encompassing the total area of the land parcels as indicated on the study area map.

Sustainable Development: Development that has integrated social, economic and environmental factors into planning, implementation and decision making, so as to ensure that it serves present and future generations.

SECTION A INTRODUCTION

Section A outlines all the background information relevant for the application.

SECTION A – 1.1: INTRODUCTION

JR 209 Investments (Pty) Ltd has appointed Seedcracker Environmental Consulting CC, an independent Environmental Assessment Practitioner, to conduct the Scoping and Environmental Impact Assessment, including the Public Participation Process, for the proposed commercial / light industrial development on Portion 330 of the Farm Doornkloof 391 JR.

SECTION A – 1.2: PROJECT LOCALITY AND EXTENT

The property is located such that the eastern boundary comprises the R21 freeway, and the northern boundary comprises Nellmapius Drive. The property is located adjacent west to the Cornwall Hill Country Estate. The property measures approximately 80 hectares in extent.

The site falls within the jurisdiction of the City of Tshwane Metropolitan Municipality. Please see Figure 1 for the locality map.

SECTION A – 1.3: PROJECT MOTIVATION, PURPOSE AND NEED

The following motivation *has been provided by the applicant:*

The presence of the general effects of a growing economy and specifically the growth shown by the commercial and office segment of the market, *Centurion/Irene* in itself has experienced considerable growth due to especially its favourable and strategic location along the R21 highway; and other major off ramps such as John-Vorster and Botha Avenue; which further links with the N1 freeway. Development that has ensued on the eastern side along the R21 (specifically referring to Route 21 Corporate Park) is an accurate reflection of current market trends in the near vicinity.

A specific demand exists within the local area for development of this nature. Obvious reasoning in this regard pertains to the fact that office related and commercial activity investment decisions are based on certain underlying principles. Those principles that guide the investment in property are predominantly *location orientated* and include amongst other the investment in property which will provide *optimal accessibility and high visibility.* Location is also extremely influential as far as required resources are concerned, which in a modern economy is substantially geared towards intellectual capacity of a workforce.

Figure 1: Locality Map of the proposed Commercial and Light Industrial Township

The subject property's eastern boundary comprises the R21 freeway whereas the northern boundary comprises Nellmapius Drive. Properties situated directly adjacent to the R21 present optimal visibility for potential property investors. The proposed development will allow the application site to become part of a prominent commercial/office node along the intersection of the R21 freeway and Nellmapius Drive. The application site's accessibility is also at a premium due to its location adjacent to this axis. Not to exploit the advantages that this particular extension offers or to wrongly utilise the property would be a grave mistake.

Another consideration that needs to be incorporated into any development within Centurion/Irene is the classification and clarification of *underlying soil conditions.* From the preliminary geological investigations and related reports pertaining to the application site, it was evident that the majority of the proposed portion did not prove to be conducive to the construction of residential buildings. It was in light of these geologically unsuitable areas within the boundaries of the application site and due to current market trends that the application site be earmarked for office/commercial/business development.

In light of the above-mentioned underlying soil conditions and due to the favourable location of the application site, this application site can be regarded as an extension of the office and commercial node adjacent to the intersection of the R21 freeway and Nellmapius Drive. The proposed development will further incorporate a truly mixed use development into the spatial context and is the obvious type of development required for the area.

A – 1.4: SURROUNDING LAND USES

The site is situated on the south-west of the intersection of Nellmapius drive and the R21 highway. The surrounding land uses are:

Table 1: Surrounding Land Uses

Direction	Land Use
North	Nellmapius Drive Irene Farm Villages Residential Estate Pierre Van Ryneveld Community
East	Irene Village Mall R21 Highway Rietvlei Dam and Nature Reserve
West	Cornwall Hill Residential Estate Irene Community
South	Irene Glen Residential Estate

A – 1.5: LEGAL DEVELOPMENT RIGHTS

Zoning

The property will undergo a re-zoning application, in parallel with the EIA process. A formal township establishment was initiated, in order to secure the required development rights.

The characteristics of industry and commerce are evolving continuously, and many businesses can be carried out in residential areas without causing unacceptable disturbance through increased noise pollution or other adverse effects. Individual planning decisions will of course depend on such factors as the *scale* of the development, the *nature* of the individual businesses within the development and its *location*.

Municipal urban densification policies indicate that separating industry and commerce - (especially small-scale developments) - from the residential communities for whom they are a source of employment and services, is not always the best option. In areas which are primarily residential, development policies should not restrict commercial and industrial activities of an appropriate scale which would not adversely affect residential amenity.

Where there are specific and significant objections, such as relevant development planning policies, unacceptable noise, unacceptable smell, compromised safety, unacceptable health and environmental impacts or excessive traffic generation against the commercial/industrial township, these objections must be considered in the planning phases, and guide appropriate development rights for the site.

A – 1.6: THE APPLICANT

The details of the project applicant are as follows:

Project applicant:	JR 209 INVESTMENTS (PTY) LTD on behalf of M&T DEVELOPMENT		
Contact person:	Mr Barry Hertzog		
Physical address:	The Board Walk, Block 5, Faerie Glen		
Postal address:	P O BOX 39727 Faerie Glen		
Postal code:	0043	**Cell:**	
Telephone:	012 991 9700	**Fax:**	012 991 4405

A-2 LEGAL REQUIREMENTS APPLICABLE TO THIS APPLICATION

A-2.1 NEMA and the Environmental Impact Assessment Regulations

The Environmental Impact Assessment (EIA) process followed is in compliance with the National Environmental Management Act: NEMA, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations of 2006 (Government Notice No's R385, 386 and 387 of 2006). The proposed development involves 'listed activities', as defined by the NEMA, 1998. Listed activities are activities, which may potentially have detrimental impacts on

the environment and therefore require environmental authorisation from the relevant authorising body, before such activities commence.

The construction of the proposed commercial/Light Industrial Township occurs within the province of Gauteng, and therefore, GDACE are the ultimate decision making authority. The proposed development involves the following listed activities as stipulated in the EIA Regulations of 2006:

As per Government Notice **No. R. 386** of 2006, the following listed activities are included for the above application:

Act, No.R.386 21 April 2006

1k) The construction of facilities or infrastructure, including associated structures or infrastructure, for the bulk transportation of **sewage and water**, including **storm water**, in pipelines with an internal diameter of 0,36 metres or more; or a peak throughput of 120 litres per second or more;

1l) The construction of facilities or infrastructure, including associated structures or infrastructure, for the transmission and distribution of **electricity** above ground with a capacity of more than 33 kilovolts and less than 120 kilovolts;

1m) The construction of facilities or infrastructure, including associated structures or infrastructure, for any purpose 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, excluding purposes associated with existing residential use, but including canals; channels; bridges; dams; and weirs;

1v) Advertisements as defined in classes 1(a), 1(b), 1(c), 3(a), 3(b),3(l) of the South African Manual for Outdoor Advertising Control

4) The **dredging**, excavation, infilling, removal or moving of soil, sand or rock exceeding 5 cubic metres from a river, tidal lagoon, tidal river, lake, in-stream dam, floodplain or wetland.

14) The construction of **masts** of any material or type and of any height, including those used for telecommunication broadcasting and radio transmission, but excluding (a) masts of 15 meters and lower exclusively used (i) by radio amateurs; or (ii) for lighting purposes (b) flag poles; and (c) lightning conductor poles.

15) The construction of a **road** that is wider than 4 metres or that has a reserve wider than 6 metres, excluding roads that fall within the ambit of another listed activity or which are access roads of less than 30 metres long.

16b) The transformation of undeveloped, **vacant** or derelict **land** to – residential, mixed, retail, commercial, industrial or institutional use where such development does not constitute infill and where the total area to be transformed is bigger than 1 hectare.

17) Phased activities where any one phase of the activity may be below a threshold specified in the Schedule but where a combination of the phases, including expansions or extensions, will exceed a specified threshold

19) The development of a new facility or the transformation of an existing facility for the conducting of **manufacturing processes**, warehousing, bottling, packaging or storage, which, including associated structures or infrastructure, occupies an area of 1 000 square metres or more outside an existing area zoned for industrial purposes

The above activities are listed as a *Basic Assessment* activity. However, the application is undergoing a *Scoping and EIA application*, due to the following listed activities as per Government Notice **No. R 387** of 2006:

Act, No.R.387 21 April 2006:

1a (ii)) The construction of facilities or infrastructure, including associated structures or infrastructure, for the generation of **electricity** where the elements of a facility that cover a combined area in excess of 1 hectare.

1l) The transmission & distribution of above ground **electricity** with a capacity of 120 kilovolts or more.

2) Any development activity, including associated structures and infrastructure, where the total area of the developed area is, or is intended to be, **20 hectares** or more.

5) The route determination of **roads** and design of associated physical infrastructure, including roads that have not yet been built for which routes have been determined before the publication of this notice and which has not been authorised by a competent authority in terms of the Environmental Impact Assessment Regulations, 2006 made under section 24(5) of the Act and published in government Notice No. R. 385 of 2006, where (a) it is a national road as defined in section 40 of the South African National Roads Agency Limited and National Roads Act, 1998 (Act No. 7 of 1998); (b) it is a road administered by a provincial authority; (c) the road reserve is wider than 30 meters; or (d) the road will cater for more than one lane of traffic in both directions.

A-2.2 Acts applicable to the project application

National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)

The purpose of the Biodiversity Act is to provide for the management and conservation of South Africa's biodiversity within the framework of the NEMA and the protection of species and ecosystems that warrant national protection. As part of its implementation strategy, the National Spatial Biodiversity Assessment was developed.

In order to work within the framework of this Act, specialist ecological studies will be conducted for the study area. The specialist studies to be conducted for the development site include:

- Vegetation;
- Red Data Birds;
- Invertebrates;
- Rivers;
- Bullfrogs; and
- Caves.

The results of these assessments will influence the proposed layout of the township. A Wetland Delineation and functional assessment study has been conducted for the site already. Please see Appendix 3 for this specialist study.

National Spatial Biodiversity Assessment

The National Spatial Biodiversity Assessment (NSBA) classifies areas as worthy of protection based on its biophysical characteristics, which are ranked according to priority levels.

In order to work within the framework of this Act, specialist ecological studies will be conducted for the study area. The specialist studies to be conducted for the development site include:

- Vegetation;
- Red Data Birds;
- Invertebrates;
- Rivers;
- Bullfrogs; and
- Caves.

The results of these assessments will influence the proposed layout of the township. A Wetland Delineation and functional assessment study has been conducted for the site already. Please see Appendix 3 for this specialist study.

Protected species – Provincial Ordinances

Provincial ordinances were developed to protected particular plant species within specific provinces. The protection of these species is enforced through permitting requirements associated with provincial lists of protected species. Permits are administered by the Provincial Departments of Environmental Affairs.

In order to work within the framework of this Act, specialist ecological studies will be conducted for the study area. The specialist studies to be conducted for the development site include:

- Vegetation;
- Red Data Birds;
- Invertebrates;
- Rivers;
- Bullfrogs; and
- Caves.

The results of these assessments will influence the proposed layout of the township. A Wetland Delineation and functional assessment study has been conducted for the site already. Please see Appendix 3 for this specialist study.

National Water Act, 1998 (Act No. 36 of 1998)

The National Water Act guides the management of water in South Africa as a common resource. The Act aims to regulate the use of water and activities, which may impact on water resources through the categorisation of 'listed water uses' encompassing water extraction, flow attenuation within catchments as well as the potential contamination of water resources, where the Department of Water Affairs and Forestry (DWAF) is the administering body in this regard.

DWAF shall receive a copy of this final scoping report, for their review and input. This input will assist with the EIA phase of the development.

In order to work within the framework of this Act, specialist ecological studies will be conducted for the study area. The specialist studies to be conducted for the development site include:

- Rivers; and
- Wetlands;

The results of these assessments will influence the proposed layout of the township. A Wetland Delineation and functional assessment study has been conducted for the site already. Please see Appendix 3 for this specialist study.

National Heritage Resources Act, 1999 (Act No. 25 of 1999)

The National Heritage Resources Act legislates the necessity for cultural and heritage impact assessment in areas earmarked for development, which exceed 0.5 ha. The Act makes provision for the potential destruction to existing sites, pending the archaeologist's recommendations through permitting procedures. Permits are administered by the South African Heritage Resources Agency (SAHRA).

A Heritage specialist will be appointed to conduct the Heritage Impact Assessment for the study site. This report will form part of the EIA report, and the findings of the specialist input will be reported upon in detail.

National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003)

The purpose of this Act is to provide for the protection, conservation and management of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes.

In order to work within the framework of this Act, specialist ecological studies will be conducted for the study area. The specialist studies to be conducted for the development site include:

- Vegetation;
- Red Data Birds;
- Invertebrates;
- Rivers;
- Bullfrogs; and
- Caves.

The results of these assessments will influence the proposed layout of the township. A Wetland Delineation and functional assessment study has been conducted for the site already. Please see Appendix 3 for this specialist study.

A - 2.3 PROVINCIAL POLICIES/ GUIDELINES

A-2.3.1 Conservation Plan (C-Plan)

The Gauteng Department of Agriculture Conservation and Environment, 2005: Gauteng Biodiversity Gap Analysis Project: Gauteng conservation Plan Version 2, Johannesburg, GDACE, aims to identify and map the distribution of areas that are of importance to biodiversity in Gauteng.

According to the C-Plan, the following environmental processes are present on the study site:

- *There is a small Irreplaceable site consisting of primary Vegetation,*
- *Red Data invertebrate are noted for the site*
- *A historical location is noted for the site,*
- *Red Data plant historical location is noted for the site,*
- *Red data plant metapopulation that extends from the NE boundary northwards occurs on the site,*
- *There are areas of Evolutionary processes, Hydrological processes, Pollination and Wildlife dispersal in the NW section of the site, and areas of Groundwater dynamics, Hydrological processes, Nutrient cycling and Wildlife Dispersal in a thin strip running from N to S down the middle of the southern half of the site.*

Comments from GDACE Conservation, with regards to the required specialist biodiversity studies, were received on the 28/1/2009. Please see Appendix 1.2 for this correspondence. All these studies shall be completed within the correct seasons, and by suitably qualified, independent specialists, as part of the Impact Assessment Phase of this EIA.

A-2.3.2 GDACE Ridges Policy

The Gauteng Department of Agriculture, Conservation and Environment has produced a guideline on ridges in Gauteng. The purpose of the guideline is to set out the Department's policy on the conservation, development and use of ridges in the province with a view to ensuring that members of the public are able to make informed decisions regarding proposals for development on ridges and the use of ridges; officials make consistent decisions in respect of planning and environmental applications that involve negative impacts on ridges; and the Department's responsibility in respect of the protection of the environment is carried out in an efficient and considered manner.

The guideline indicates that ridges that fall within the following definition are included within the scope of the guideline:

.." A ridge includes hills, koppies, mountains, kloofs and gorges and/or a landscape type or topographic feature that is characterized by two or more of the following features – (i) a crest, (ii) plateau, (iii) cliff or (iv) footslope. In addition, ridges are characterized by slopes of 5° or more when modeled in a Geographic Information System digital elevation model that is based on 20m contour intervals at a scale of 1:50 000.

The functions and benefits provided by ridges range from purely ecological to recreational. The quartzite ridges of Gauteng are extremely limited in distribution. They are characterized by a unique plant species composition that is found nowhere else in South Africa or the world. Many Red List / threatened species of plants and animals inhabit ridges. Due to their threatened status, Red List species require priority conservation efforts in order to ensure their future

survival. The conservation of ridges in Gauteng will contribute significantly to the future persistence of these species. The protection of ridges in their natural condition will greatly improve the bio-geographical capability of the Gauteng urban open space network (Poynton & Roberts, 1985) as ridges can be viewed as naturally existing corridors that can functionally interconnect isolated natural areas (Adams & Dove, 1989) and require minimal or no management (Loney & Hobbs, 1991). Ecological processes associated with ridges, such as wildlife dispersal, evolutionary processes, hydrological processes and pollination, are important for the maintenance and generation of biodiversity and provide important ecosystem services to society.

The study area is characterised by a series of small ridges rising from the southern border of the site (the Sesmylspruit), and curving higher towards the peak within the Cornwall Hill Estate (which has a higher incline than 5%). Subsequently, the principles and guidelines of the Ridges Policy must be applied in the development of the site.

A-2.3.3 Tshwane Open Space Framework

Open Space as defined by the Tshwane Open Space Framework (TOSF), adds ecological, social, economic and place making value to any development, and the integration and appropriate response of development to Open Space must at all times be facilitated. Any development within or adjacent to the TOSF network, must be compatible to the functioning, quality, safety requirements and aesthetics of the Open Space in terms of land use, scale, spatial interaction, appearance and landscaping. Developments must actively contribute to the protection and enhancement of the current and envisioned open space network, without harming the integrity of the open space in any way.

According to the TOSF, open space within a developed area, is referred to as an Urban Environment. This open space becomes Private Open Space, for the exclusive use of the specific community, and is owned and maintained by the representative entity of the development.

Possible open space within the proposed commercial/light industrial township development will be determined through the various specialist studies. The possible presence of protected species, and their associated buffer zones, will determine the extent of this open space, and the ecological function which this open space will fulfil. According to the TOSF, possible open space to be considered for portion 330 of the Farm Doornkloof 391 JR, includes Green (Irreplaceable site, Protected Area, High Ecological Sensitivity) and Blue (Dams, Wetlands and rivers) *Ecological Nodes*, and Green (Ridge systems) and Blue (Watercourses, floodlines) *Ways*. These open space typologies are all considered to be of metropolitan significance and influence. According to GDACE, Green and Blue Nodes are essential in meeting targets set for the conservation of biodiversity in Gauteng.

The Tshwane Open Space Framework provides a holistic Framework within which the sustainable spatial development of the City can be guided and directed. The principles of the TOSF will be implemented in the planning phases of the proposed Commercial and Light Industrial Township. These principles serve to facilitate the merger of development along side areas of conservation importance.

The final layout of the proposed development will accommodate the requirements of the TOSF. The current preliminary layout plan does not include any open space systems at present. These will be determined by the specialist ecological studies. The applicant will refine the preliminary layout, if the Plan of Study for EIA is approved by GDACE, so that the specialist studies can determine the preferred layout.

A-2.3.4 N1/R21 Environmental Management Framework (EMF)

The N1/R21 EMF compiled by Strategic Environmental Focus in 2005, defines and spatially represents the status quo of the environment in the N1/R21 quadrant, emphasizing sensitive environmental and current development pressures.

The N1/R21 Quadrant is located approximately 30 km north of the centre of Gauteng Province (Figure 1). The area falls within the jurisdiction of four local authorities, namely Tshwane Metropolitan Municipality, City of Jo'burg, Ekurhuleni Metropolitan Municipality and Kungwini Local Municipality. Broadly, the area comprises the portion of land between the N1/R21 freeway in the north, the Ben Schoeman freeway to the west, the proposed PWV5 freeway to the south and the P 157/2 (R21) freeway to the east.

Portion 330 of the Farm Doornkloof 391 JR, is located within this study quadrant.

The Quadrant forms part of the core economic area of Gauteng and, as a result, has been experiencing immense development pressure. Furthermore, the study area is home to a number of environmental features, which are under threat from the many developments for the area. The N1/R21 Quadrant forms a large " green lung" between the urbanised areas of Johannesburg and Pretoria, comprising of unique biophysical features worthy of protection. A large proportion of the Quadrant is underlain by dolomite, a rock type prone to sinkholes and dolines. This geology lends itself to the formation of aquifers comprising of groundwater, which at present exhibit good water quality and thus are at threat from development-related pollution.

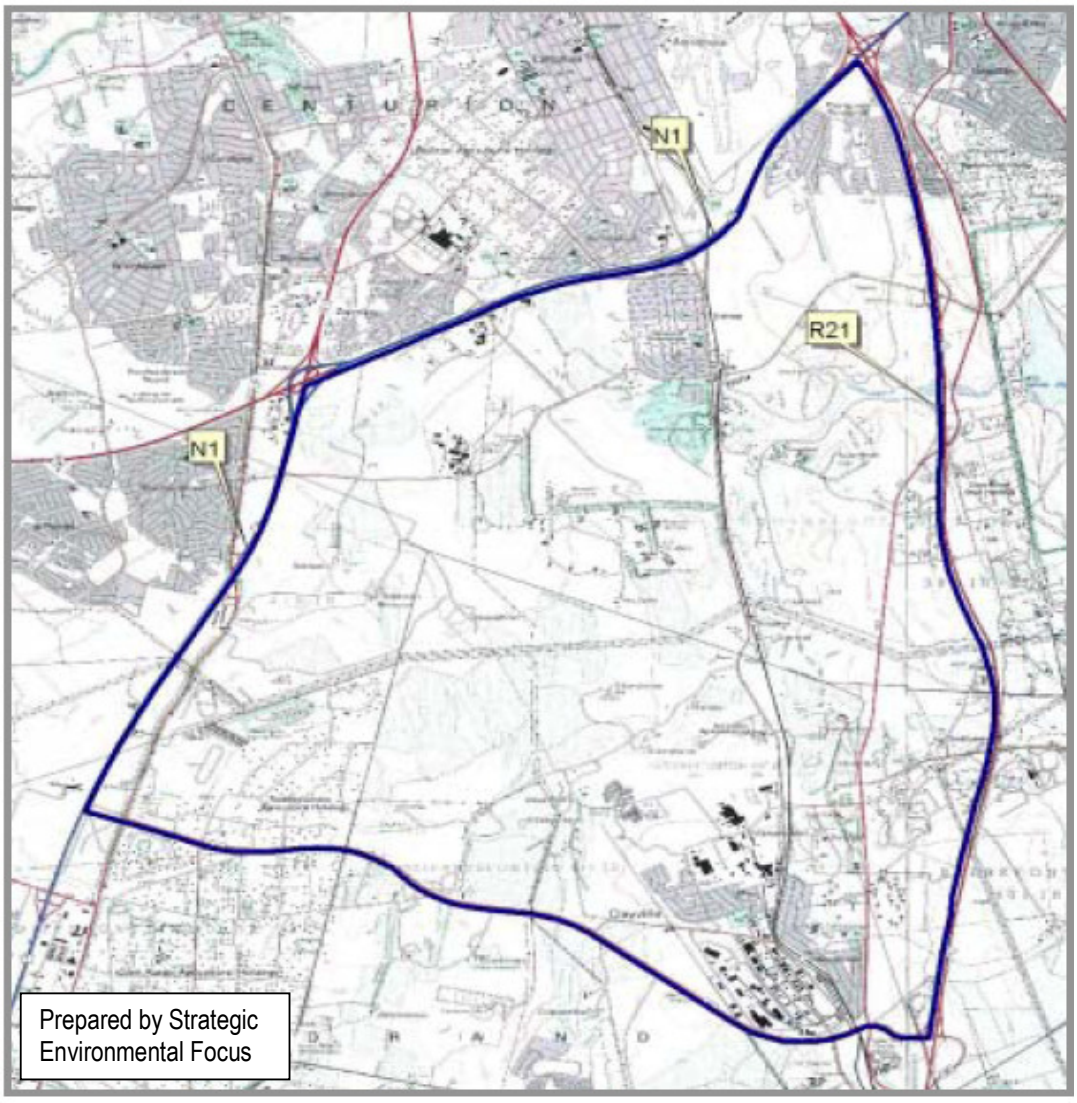


Figure 2. Detailed locality map for the N1/R21 Quadrant.

An ecological assessment conducted in the Quadrant in 2004/2005, revealed that a large portion of the Quadrant comprises of a number of sensitive habitats, including the threatened *Bankenveld grassland*, which forms a habitat for a number of red data fauna and flora species. The area is also very rich in cultural and historic features and includes the Smuts farm and Koppie as well as other historic features, the majority of which are situated around the Irene area and date back to the 1840's.

High-density informal settlements (Ivory Park and Tembisa), situated on the outskirts of the Quadrant, and the industrial node of Olifantsfontein contribute to the pollution within the study area, the greatest concern being the pollution of the Kaalspruit, Olifantspruit and the Sesmylspruit. Siltation, effluent run-off, sewage overflow and erosion have changed the nature of these rivers, which is reflected in the floral and faunal species composition within these wetlands.

The Quadrant falls within the Urban Edge within which growth and expansion are supported and encouraged in order to avoid urban sprawl. The Gauteng Spatial Development Framework (GSDF) (DPLG, 2002) identifies the N1 and R21 as development corridors for establishment of economic development promoting economic growth.

In light of the information presented above, it is evident that areas of potential conflict between development proposals and critical/sensitive environments exist within the Quadrant.

A-2.3.5 N1/R21 Environmental Management Policy

The Environmental Management Policy for the N1/R21 Quadrant emanates from the Environmental Management Framework (EMF) that was undertaken for the Quadrant. The policy gives effect to the main findings and guidelines presented in the EMF, thereby ensuring that development proceeds in a sustainable manner within the Quadrant.

The N1/R21 Quadrant has been divided into five control areas, which differ in their conservation and development potential in line with their sensitivities and current land uses. Land use guidelines have been developed for the various control areas to ensure that future development within the Quadrant takes place in a sustainable manner and does not compromise the integrity of the environment. These guidelines are aimed at facilitating GDACE's task of evaluating development applications by indicating which land uses are and are not supported. They are further intended to assist developers during the planning and design phases of their proposed developments by identifying areas of potential conflict between development proposals and critical/sensitive environments.

Innovative proposals that take the sensitivity of the environment into account, however, and do not compromise the integrity of existing non-renewable resources, will be considered by GDACE.

The five control areas that have been identified are as follows (Figure 3):

- Control Area 1 – Industrial / Commercial;
- Control Area 2 – Agriculture (including the Agricultural Research Council (ARC));
- Control Area 3 – Mixed Land Use;
- Control Area 4 – Ecological (including the Eco-focused development area); and
- Control Area 5 – Existing Built-up.

As can be seen from Figure 3, Portion 330 of the Farm Doornkloof 391 JR, has been classified as a Control Area 4: Ecological Land Use.

Control Area 4 - Ecological Land Use

This control area incorporates an ecological area with a polygon of largely disturbed land set aside for development (eco-focused development area). Apart from the disturbed area, the ecological control area comprises predominantly highly ecologically sensitive habitats and is home to Red Data faunal and floral species. It is situated adjacent to the agricultural control area, which maximises the open space integrity and connectivity for species movement.

The purpose of the Ecological area is to maintain and manage the connection with Rietvlei Nature Reserve and to protect the Red Data habitats and species within it. Thus, no developments within this control area are to compromise these non-renewable natural resources. The Eco-focused development area has been set aside to incorporate development along the R21, one of Gauteng's major transport corridors.

Proposed Land Use Activities

The following land uses are supported within the Ecological area:

- Conservation-related activities/land uses are preferred (e.g. conservancies).
- Low impact, clustered developments may be considered, provided that they do not compromise the integrity or sensitivity of the environment.

The following requirements must also be taken into consideration:

All proposed developments or activities within the Ecological control area must address the following:

- the retention of the habitats in which Red Data species (floral and faunal) are found;
- the retention of habitats where any Red Data species (floral and faunal) could potentially occur;
- the retention of the high ecological integrity of habitats to ensure the continued existence of floral and faunal species within the area; and
- the eradication and control of exotic and invasive vegetation.

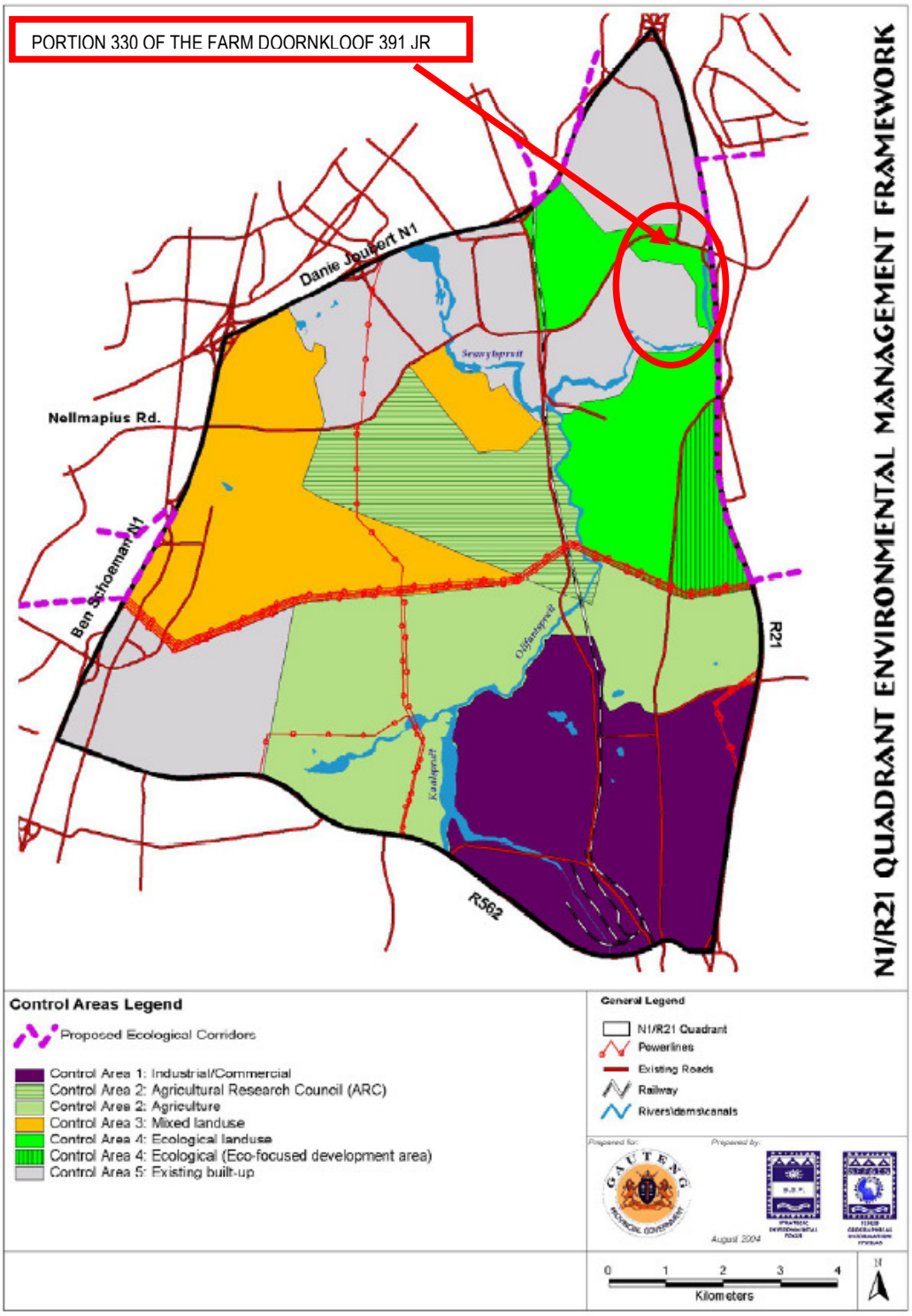


Figure 3: Control Areas of the N1/R21 Quadrant.

Prepared by Strategic Environmental Focus

The proposed ecological corridor to the Rietvlei Nature Reserve must not be compromised in any way.

The following land uses are *not* supported within the Ecological area:

- Industrial activities;
- Low density developments; and
- Any other activities that may undermine the conservation status of the control area.

With regards the above Frameworks and Policies, any development proposal on Portion 330 of the Farm Doornkloof 391 JR, must be subject to a thorough and detailed Environmental Impact Assessment, which incorporates the principles of all the statutory Acts and provincial guidelines or policies.

A – 3 PROJECT DESCRIPTION

JR 209 Investments (Pty) Ltd as applicant, proposes the establishment of a commercial and light industrial township comprising the following land uses: Light Industrial, warehousing, storage, manufacturing, Offices, Showrooms and Motor Showrooms, Retail, Hotel, Shops, Wholesale, Restaurants, Service industries, Banks and Building Societies, on Portion 330 of the Farm Doornkloof 391 JR.

Please see Figure 4 for the *original* Preliminary layout plan submitted for the proposed township development. The preliminary layout plan does *not* include any architectural illustrations or landscaping. These are not available at present. The applicant will undertake these actions, if the Plan of Study for EIA is approved by GDACE, so that the specialist studies can determine the preferred layout.

Subsequent to the review of the Draft Scoping Report, the applicant – JR Investments 209 PTY LTD – has reduced the extent / size of this application. The North Western Portion of the property has been removed from this application. Please see Figure 5 for the amended layout plan.

All IAP's have been informed of this amendment to the extent of the application.

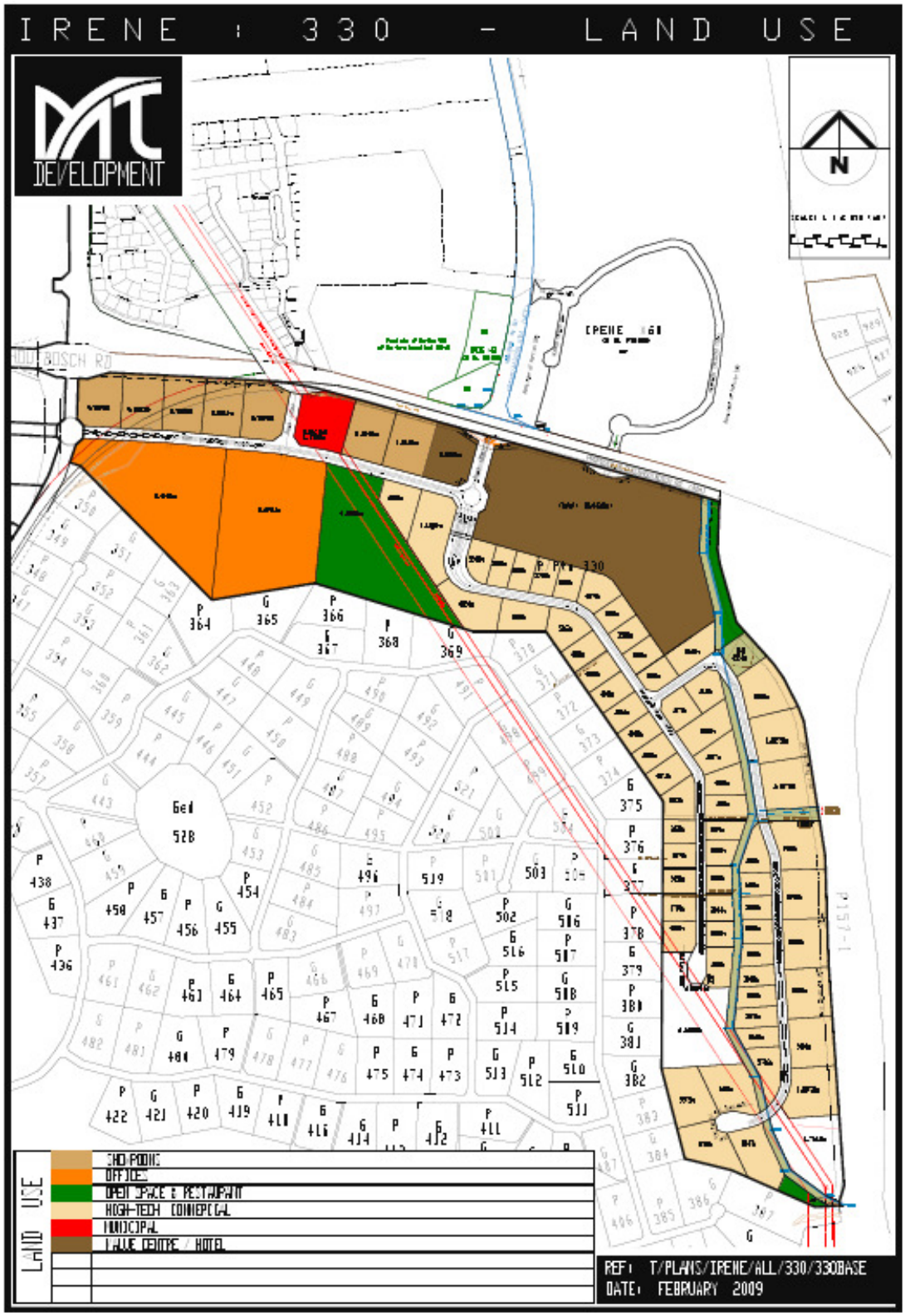


Figure 4: **Original** Preliminary layout plan for the proposed development

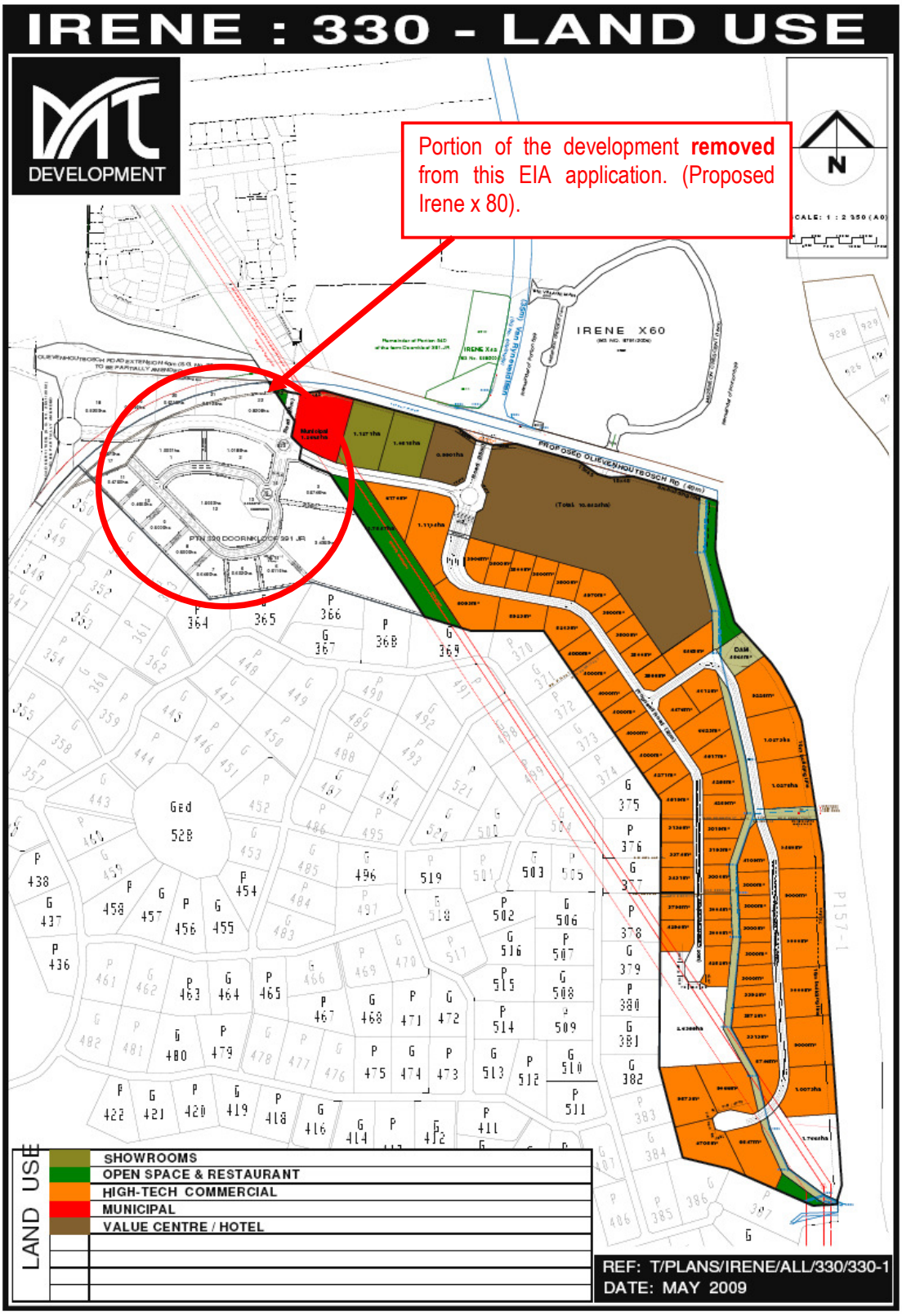


Figure 5: **New** Preliminary layout plan for the proposed development

SECTION B ENVIRONMENTAL IMPACT ASSESSMENT (EIA) PROCESS

B-1 SCOPE OF WORK AND APPROACH TO THE EIA

An Environmental Impact Assessment (EIA) is a planning process used to help ensure that environmental matters are taken into account *early in the project planning process*, along with the more traditional technical and economic considerations. The EIA is a valuable tool that enables undesirable effects on the environment that may arise from the implementation of a project to be identified and avoided. It is an *aid* to planners, and decision makers. An EIA facilitates the following:

- Identifies adverse environmental problems as well as benefits that might be expected to occur,
- Allows the incorporation of appropriate mitigation measures into a project,
- Identifies the critical problems which require further study or monitoring, and
- Enables the selection of optimal alternatives from the various relevant options available.

The EIA for the proposed Commercial/Light Industrial Township on Portion 330 of the Farm Doornkloof 390 JR, complies with the NEMA EIA Regulations of the Department of Environmental Affairs and Toursim (DEAT). The guiding principles of an EIA are discussed below.

B-2 GOALS, OBJECTIVES AND GUIDING PRINCIPLES FOR AN EIA

An EIA should be seen as part of the project development proposal and not as a separate process. Environmental Assessment Practitioners must improve project planning, by incorporating environmental management considerations into the decision-making process.

B-2.1 Goal of the EIA process

To promote environmentally sustainable livelihoods and development.

B-2.2 Long-term Objectives of the EIA process

- Conservation and sustainable use of natural resources,
- Protection and enhancement of the quality of all forms of life,
- Promotion of public awareness on environmental issues,
- Strengthening and building capacities to carry out EIA,
- Integration of environmental considerations in development planning process,
- Generation, storage, and dissemination of environmental information, and
- Linking grassroots development strategies to global and international initiatives.

B-2.3 Short-term Objectives (Project Specific) of the EIA process

- To assess the nature, intensity and duration of impacts, positive and / or negative, to proposed development projects,
- To assist in decision-making with regard to costs and benefits of proposed development projects,
- To promote local community and public participation in the EIA process, and
- To promote social and cultural considerations in project design.

B-3 SCOPING PHASE OF THE EIA

This Final Scoping Report represents the initial identification of key issues or concerns as highlighted by the relevant authorities, interested and / or affected parties (I&APs), NGO bodies and professional judgement of the Environmental Assessment Practitioner (EAP) and technical project team.

The plan of study for scoping for the EIA (indicating which specialist studies have been conducted, and which still need to be conducted for the EIA, as well as the terms of reference for these studies) forms a part of this report, and will be submitted to the approving authority, GDACE, for their consideration and approval. The scoping phase of the EIA, forms part of the overall project planning process, and is the first step in identifying all the possible environmental issues related to the construction of the Commercial/Light Industrial Township on Portion 330 of the Farm Doornkloof 391 JR.

B-3.1 Application for authorization

An EIA application for authorization was submitted to the GDACE on the 9/12/2008. The approving authority acknowledged receipt of the EIA application on the 9/01/2009 and issued SEC with a reference number (GAUT 002/ 08 - 09/ N0918) with which to advertise, and thereby initiate the Scoping phase of the project.

B-3.2 Information gathering

Early in the Scoping process, SEC identified the information that would be required for the EIA impact assessment and the relevant data started to be obtained. The public participation process was aimed at notifying interested and affected parties of the proposed development, and to receive any local knowledge of the area and / or the project proposal. Authority support tools were consulted, and previous EIA studies conducted for similar projects have been studied. SEC has visited the site to gain first-hand information, and an understanding of the existing operations on site, as well as the elements of the proposed project. The appointed specialists will do the same.

B-3.3 Specialist studies

The EIA process requires the identification and the undertaking of specialist studies to inform the Scoping Report and the EIA Report. The following specialist studies were identified by the GDACE Biodiversity division, to be undertaken during the EIA process:

- Vegetation;
- Red Data Birds;
- Invertebrates;
- Rivers;
- Bullfrogs; and
- Caves;

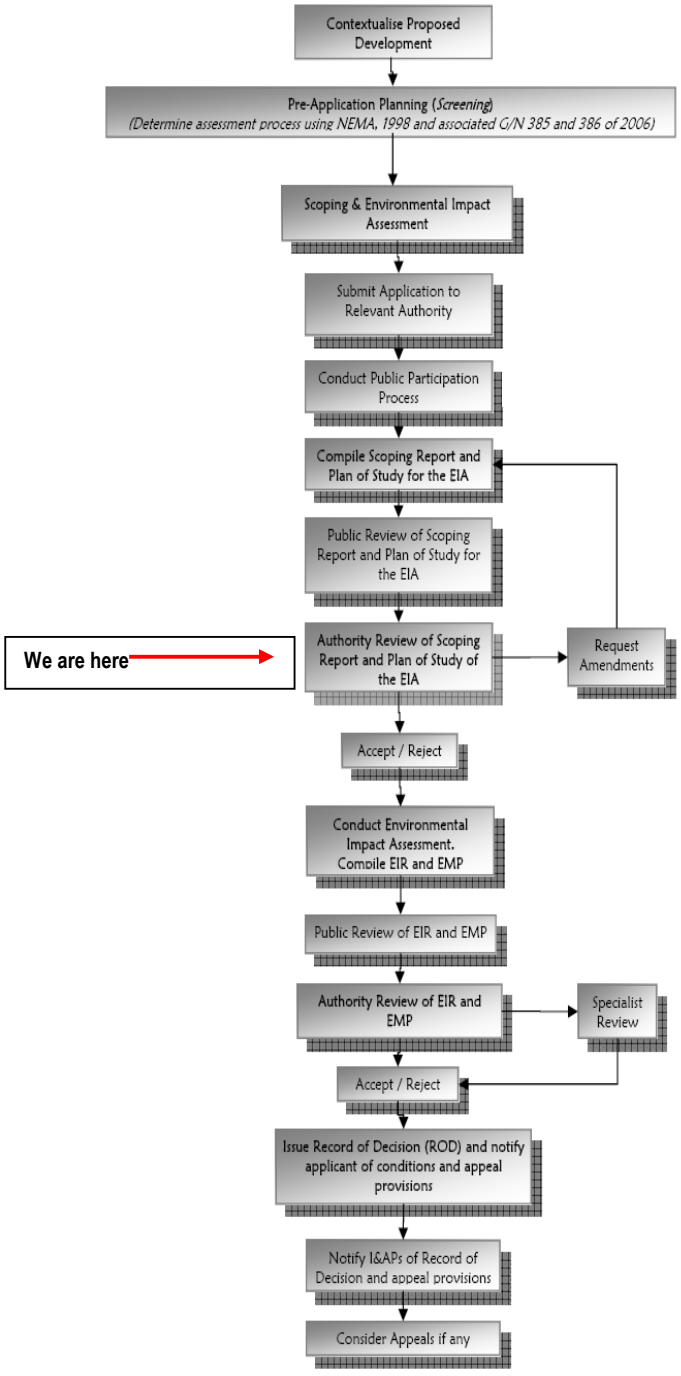
The Wetland Delineation and Functional Assessment of the study site were completed in February 2009. Please see Appendix 3 for the full specialist report.

Further detailed studies to be undertaken during the EIA phase of the EIA process include:

- Heritage Impact Assessment;
- Geotechnical Study;
- Traffic Impact Study;
- Civil Services Assessment;
- Noise Impact Assessment;
- Visual Impact Assessment; and
- Independent Property Evaluation.

B-4 ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

Upon approval of the Scoping Report and Plan of Study for EIA, the EIA phase of the project planning process serves to further investigate and address the environmental issues identified in the scoping phase. The results of the specialist studies, a full assessment of the impacts and proposed alternatives will form part of the EIA Report. The EIA phase also provides recommendations regarding feasible mitigation measures to reduce the potential impacts associated with project implementation. These mitigation measures assist GDACE with their decision making process.



Note:
EIR = Environmental Impact Report
EMP = Environmental Management Plan

SECTION C THE RECEIVING ENVIRONMENT

Section C briefly outlines the *existing* environment in the project area.

C-1 BIOPHYSICAL ENVIRONMENT

C-1.1 Geology and Geotechnical Suitability

The majority of the N1/R21 Quadrant, of which the study site forms a part, is located on dolomite. The northern and central sections of the Quadrant are dominated by dolomite, chert and syenite of the Oaktree and Monte Christo Formations, Chuniespoort Group and Transvaal Supergroup. Dolomite stability studies should be carried out before initiation of any development, as sinkholes and dolines will develop if poor water management takes place.

In 2003, a Phase 1 geotechnical investigation was undertaken by Intraconsult Consulting Engineering Geologists & Engineers over 400 hectares located between Irene, Cornwall Hill and Irene Farm Villages. The findings of this study, subdivided the greater study area into five Dolomitic Stability Zones. Most areas were characterized as reflecting a medium to high risk of sinkhole and doline formation with respect to water ingress. Such risk classes may only be considered for commercial, light industrial development, parks or open spaces.

The groundwater level in the study area was found to be at great depths (>95m). Groundwater management should form an integral part of a Dolomite Risk Management Strategy. Any local or regional artificial lowering of the groundwater level, may impact negatively on the stability of portions of the site and the surrounding densely developed Centurion Area.

Please See Appendix 4 for the Phase 1 geotechnical investigation undertaken by Intraconsult Consulting Engineering Geologists & Engineers. A detailed Geotechnical Report will be conducted for Portion 330 of the Farm Doornkloof 391 JR, and included in the EIA report.

C-1.2 Topography and Ridges

The site is characterised by a series of small ridges rising from the southern border of the site (the Sesmylspruit), and curving higher towards the peak within the Cornwall Hill Estate (which has a higher incline than 5%). Drainage of the site is in a South Easterly Direction toward the Sesmylspruit.

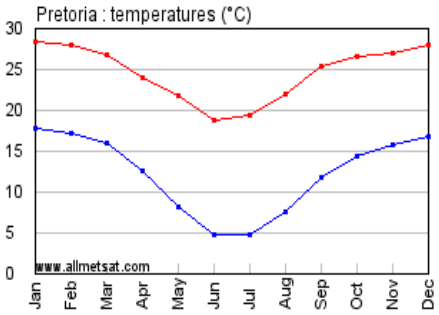
The study area covers the higher ridges and peaks with an average altitude of 1480 meters asl. The northern portion of the study area is characterised by average rocky slopes at 1480 – 1520 meters asl.

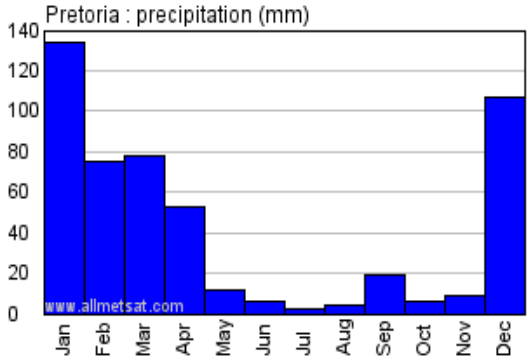
C-1.3 Climate

The climate is typical of Highveld conditions, with relatively warm to hot summers, with fairly high rainfall and moderate to cool winters with little or no rain. Valleys and wetlands are much cooler at night and more prone to frost than higher lying areas. The area experiences thunderstorms, which usually occur in the late afternoons during the summer months.

C-1.3.1 Temperature and precipitation

Month	Temperature (° C)				Precipitation		
	Highest Recorded	Average Daily Maximum	Average Daily Minimum	Lowest Recorded	Average Monthly (mm)	Average Number of days with >= 1mm	Highest 24 Hour Rainfall (mm)
January	36	29	18	8	136	14	160
February	36	28	17	11	75	11	95
March	35	27	16	6	82	10	84
April	33	24	12	3	51	7	72
May	29	22	8	-1	13	3	40
June	25	19	5	-6	7	1	32
July	26	20	5	-4	3	1	18
August	31	22	8	-1	6	2	15
September	34	26	12	2	22	3	43
October	36	27	14	4	71	9	108
November	36	27	16	7	98	12	67
December	35	28	17	7	110	15	50
Year	**36**	**25**	**12**	**-6**			





C-1.4 Flora

Information gathered from a desktop survey of the study area, as well as the site visits, identifies the study area as Rocky Highveld Grassland, or Bankenveld (Low & Rebelo (1996) and Acocks (1988)).

Site visits revealed that different vegetation units are present within the study area, namely, Moist Grasslands, Rocky Grasslands, Disturbed Grasslands, Exotic vegetation (most evident in areas affected by dumping) and *Acacia* Woodlands. Historic anthropogenic activities on site include borrow pits, cattle grazing and dumping. The areas of disturbance seem to be concentrated in the northern half of the property. A mini substation is situated close to the north-western boundary of the site.

A Vegetation specialist will be appointed to conduct the floral assessment for the site. This specialist report will be included in the EIA report.

C-1.5 Fauna

The habitat of the Rocky Highveld Grassland is rocky mountains, hills, ridges and plains of quartzite, conglomerate, shale, dolomite and sometimes andesitic lava. These different habitats can support a wide range of herpetofauna, mammals and invertebrates. Sensitive features mainly include aquatic systems (such as rivers, wetlands and rocky outcrops) within the grassland vegetation system.

C-1.5.1 Mammals

According to residents of the Cornwall Hill Country Estate, small mammal activity on the site is still prolific. Sightings of Black Backed Jackal have been noted. Common mammal species are expected to make use of the site, based on the availability of suitable habitat.

A specialist faunal assessment will be conducted for the study area. The results of this study will be incorporated into the EIA Report.

C-1.5.2 Invertebrates

A number of invertebrate species are expected to occur on site due to the availability of suitable habitat. Hills and koppies generally have more insects than the immediate surroundings.

A specialist invertebrate assessment will be conducted for the study area. The results of this study will be incorporated into the EIA Report.

C-1.5.3 Amphibians

The Giant Bullfrog is a threatened amphibian species listed for the study area. A bullfrog assessment will be undertaken for this application, and included in the EIA report.

C-1.6 Birds

The study area is characterised by a number of different vegetation types and subsequently habitats. The bird life on site during the site visit was high. Adequate habitat exists for Grass Owls. A specialist Avi-Fauna Assessment for the site will be conducted for the study area. The results of this study will be incorporated into the EIA Report.

C-1.7 Wetlands

As a consequence of topography, many steams in Gauteng originate on ridges, and subsequently form and control water inputs into wetlands and ultimately rivers.

Scientific Aquatic Services were requested to asses Portion 330 of the farm Doornkloof 390 JR to determine if any wetland resources occur on the subject property. Please see Appendix 3 for this report.

Based on Scientific Aquatic Services findings, the drainage features on the subject property cannot be considered to be a wetland feature and the small earth dam on the subject property can be considered to be an artificial wetland system created by the earth dam. No formal delineation of the feature as a wetland is, therefore, deemed necessary.

C-1.8 Rivers

The Sesmylspruit forms the southern boundary of the study area. The Sesmylspruit flows westward from the Rietvlei Dam, under the M21 bridge and passes the southernmost point of the site about 1km downstream from the man made dam wall.

C-1.9 Caves

A Karst Ecologist will be appointed to determine the presence of caves on the site.

C-1.10 Ecological Sensitivity

Following the outcome of the individual specialist studies, a collated ecological sensitivity map will be compiled, and will be used to indicate the location and extent of all sensitive areas on site, that must be protected from transforming land uses.

C-1.11 Air Pollution

The most common sources of atmospheric emissions that impact on air quality in South Africa include:

- **Industrial and commercial activities** and non-domestic fuel-burning appliances operated by businesses, schools, and hospitals;
- Transport – petrol- and diesel-driven vehicle tailpipe emissions, vehicle-entrained road dust, brake- and tyre-wear fugitives and rail- and aviation-related emissions

Air pollution was highlighted as a major concern by the interested and affected parties. The impacts of the proposed commercial/light industrial township to the air quality of the area will be investigated in the EIA report.

C-1.12 Noise

Different people respond differently to the same level of noise. However, above certain levels, noise can affect everybody. Excessive noise levels can interfere with daily activities such as working, children doing homework, watching television, sleeping and talking on the telephone.

The growth in the Irene study area has brought more construction and more traffic to the area, which has contributed to increased noise levels. The proposed Commercial and Industrial township development, will contribute to this situation even further.

Potential Noise sources of the commercial/light industrial township development are:

Traffic Noise: Traffic noise generated from the proposed development has been highlighted by the surrounding communities, as a major concern. Noise mitigation measures will be discussed in the EIA report, as measures to manage anticipated noise from Nellmapius drive, and internal roads located adjacent to residential estates.

Construction Noise: During construction activities, people are often exposed to different levels of pounding, roaring, beeping and other loud noises from construction work. The EIA report and EMP will address construction noise abatement measures, to ensure that the construction activities are not a source of excessive noise. Noise problems can also be prevented through better planning such as building design. These measures will be looked at in the EIA report.

Operational Noise: Commercial operators commonly generate noise from their ventilation systems. Trades and industries can reduce noise pollution from their operation through proper selection and maintenance of their equipment and ensuring compliance with legal requirements. Recommendations to manage operational noise will be made in the EIA report.

A specialist Noise Impact Assessment will be conducted during the EIA phase of this EIA application, in accordance with the National Environmental Management Act. The impact of noise the proposed development will have on the directly adjacent neighbours, will be addressed in the specialist report. Please see the Plan Of Study for EIA for the scope of work to be addressed in the Specialist Noise Impact Assessment.

C-2 SOCIAL ENVIRONMENT

C-2.1 Quality of Life

The effects of urbanization on our environment are predominantly accepted as negative. Steps to minimize the negative effects of development have become essential, to maintain a desirable quality of life. Significant impacts on the environment during rapid growth in urban areas include: (1) increased ambient temperature, (2) decreased air quality, (3) increased water runoff, (4) decreased quality of runoff water, and (5) loss of aesthetic beauty of the community.

These factors all contribute to what is referred to as "decreased quality of life."

(1) Increased Ambient Temperature. Commercial development in cities can result in elevated ambient temperatures. This is due to a combination of decreased tree canopy and additional heat generating sources, such as buildings and exposed parking lots. A primary cause of temperature elevation is the removal of vegetation, particularly trees, during development. As a result of excessive tree removal, increased air temperature causes higher air conditioning bills and more smog due to the combination of car exhaust and high temperatures. Excessive removal of trees causes increased exposure of buildings and parking lots to direct sun which increases the already elevated temperature.

(2) Decreased Air Quality. As cities grow, an undesirable combination of events occurs leading to a decline in air quality. The number of trees is reduced due to development, and the number of cars increases due to more people. In effect, development reduces our air filters, trees, and increases the amount of pollutants that must be filtered. Much of the harmful pollutants in urban areas, such as ozone, sulfur dioxide, and nitrogen dioxide, come from vehicle exhausts. Much of the ozone that forms in cities occurs on hot summer days when the heat stimulates chemical reactions in the exhaust of vehicles. Other sources of ozone include power plants, buildings, and lawn mowers.

Trees are critical components of our environmental life support system and are necessary to prevent or minimize the negative combination of high temperature and vehicle exhausts from spinning out of control and causing harmful ozone levels.

Trees improve air quality by providing a cooling effect through transpirational water loss from their leaves and by filtering atmospheric pollutants through their leaves. By decreasing both the

temperature and the amount of pollutants in the atmosphere, trees can have a positive effect on air quality.

(3) Increased Water Run-Off. Commercial development substantially changes the topography of an area. The land usually starts as a forested area or at a minimum, a clear area with grass and/or other vegetation. The effect of the vegetation and soil is to slow the movement of water and to provide an opportunity for water to enter the ground. Development removes vegetation that soften the impact of rain. As a result, rain hits the ground with greater force and compacts the soil surface. This reduces the amount of water that can enter the soil and increases water "run-off." In addition, buildings, parking lots, and other impervious structures reduce percolation of water into the soil and promote run-off. The result is large volumes of water entering the storm water system or creeks in a short period of time.

Capturing run-off water is an expensive exercise. A goal during development should be to minimize the amount of impervious area and capture water at the point of impact. Intercepting water near the point of impact is cheaper than developing elaborate storm water systems. The essential Green Space area reduces the amount of run-off.

(4) Decreased Quality of Run-Off Water. Rain water that hits the surface is usually clean, unless we have high levels of atmospheric pollutants. When clean water impacts the ground in natural areas, much of it percolates into the soil and eventually into the water table. Water that does not percolate will flow toward low areas after it is filtered by grass and other vegetation.

Urbanization increases the amount of rain striking impervious surfaces such as roof tops and asphalt parking lots. The rain washes surface material, such as dirt and petroleum products, into the surrounding streams. This causes high levels of particulate material and chemicals in streams. Streams are important sources of drinking water, irrigation water and wildlife habitat. Development should occur in a manner to ensure clean water entering streams.

Rain water also washes the pollutants from the air before they enter the water-ways. Vegetative areas are essential to filter the water before it enters watersheds. To manage run-off water quality, we must also manage that amount and location of Green Spaces in developing urban areas. Cleaning water through vegetative filters helps avoid the higher cost of artificial filtration.

(5) Loss of Aesthetic Beauty/Character of the Community. The removal of large tracts of indigenous vegetation can drastically alter the appearance and character of a community. The highveld is characterized by unique grassland communities. This unique vegetation community gives residential communities aesthetic beauty and the environmental cleansing aspects of the “open space” within an urban setting.

In many cases, trees add value to residential and commercial property. A well landscaped property adds value to the property. This value usually far exceeds the initial costs of

landscaping. Therefore, a well landscaped property is one way to add significantly to property value and to improve the quality of the environment.

In addition to the monetary benefit of a well landscaped property, there is the important psychological aspect. Trees "soften" the appearance of their surroundings, cool the air, and provide a tranquil environment where people are more relaxed. Trees also provide habitat for wildlife and the soothing sounds of birds and other creatures of a total forest ecosystem.

The EIA report will address these negative impacts of urban development, and provide significance ratings for each of these impacts, as acceptable or unacceptable. Following from this significance rating, recommendations and mitigation measures will be provided, to ultimately be used as guidelines and tools for sustainable development.

C-2.2 Visual Impact

Industry and commerce have always sought location advantage in response to various external factors. These include: the demands of customers; access to raw materials and suppliers; links with other businesses; the workforce catchments area; and various transport considerations. Business often gives high priority to good access to roads and high visibility.

The study area is located on a ridge system and along the foothills of these ridges. Due to the scale and nature of the proposed development, in comparison to the immediate surrounding land uses, the visual impact of the development on surrounding communities is considered significant.

A Specialist Visual Impact Assessment will be conducted during the EIA phase of this EIA application, and in accordance with the National Environmental Management Act. The visual impact of the proposed development on the surrounding communities will be addressed in this specialist report. Please see the Plan Of Study for EIA for the scope of work to be addressed in the Specialist Visual Impact Assessment. This scope of work will be undertaken, once the specialist ecological and traffic studies have been completed, and a preferred layout plan is available. This Specialist study will work closely with the projects architect and the CHHA, to accommodate appropriate composition of building elements, textures, materials, colours and design.

C-2.3 Heritage Resources

As per the requirements of the National Heritage Resources Act, 1999 (Act 25 of 1999), it is necessary to identify elements of historical and cultural significance for conservation.

During the site visits undertaken by the environmental consultants, no evidence of historically significant elements were noted, ie. Graves, structures older than 60 years, stone age tools, etc. Mr Johnny Van Schalkwyk has however been appointed by M&T Development to conduct

the Heritage Impact Assessment for the project. This report will form part of the EIA report, and the findings of the specialist input will be incorporate in the EIA report.

SECTION D THE PUBLIC PARTICIPATION PROCESS

D-1 PUBLIC PARTICIPATION PROCESS

Public and stakeholder involvement in the EIA process is widely recognised as being an *essential* component of the EIA process. The input and contribution added to the process, by public comment and involvement, leads to better and more acceptable decision-making. The involvement of interested parties, adjacent land owners, NGO bodies and rate payers associations, can help to identify whether all impacts have been included and whether all risk groups have been identified.

Taking stakeholders viewpoints into account improves project viability. The World Bank (1991) has found that where such views are seriously considered and incorporated in the EIA process, projects are likely to be more successful. Public and stakeholder involvement is particularly important during the scoping, impact assessment, and mitigation phases of an EIA. During **scoping**, public involvement is undertaken to ensure that all the significant issues are identified, local information about the project is gathered and alternative ways of achieving the project objectives are considered. Public involvement is particularly important in understanding the nature and extent of potential socio-cultural impacts

Participants need to be able to see that they can *influence the direction of a project*. Participation has the advantages that it can help to demonstrate that vested interests are not having an undue influence and it can play a role by promoting dialogue in consensus building.

D-1.1 Key stakeholders and affected parties

Interested and affected parties (I&APs) representing the following sectors of society were identified during the first public participation process (see **Appendix 2)** for a complete I&AP distribution list):

- National, provincial and local government
- Surrounding landowners
- Tshwane Ward Councillors
- DME
- ESKOM
- Non-Governmental Organisations (WESSA)
- City of Tshwane Nature Conservation
- DWAF
- Health
- Sasol Gas
- Heritage Association (SAHRA)
- Other.

D-1.2 Public awareness measures

The project was made public via the following measures:

- Publication of media advertisements in the following media:
  - Local and regional newspaper, the **PRETORIA NEWS** on the 15th January 2009. (**Appendix 2**).
  - Local newspaper, the **CENTURION REKORD** on the 16th January 2009. (**Appendix 2**).

- Highly visible site notices advertising the EIA process were placed on site, as well as highly visible intersections leading to the site. (**Appendix 2**).

- Hand-delivering Background Information Documents and Registration and Comment sheets to directly affected I&APs and/or landowners on the 15th January 2009. **(Appendix 2)**

- Making available the draft scoping report for public review at the following public venues:
  - Irene AND Pierre Van Ryneveld Community Libraries, from **16/3/2009 – 14/5/2009**.
  - Emailing the draft Scoping Report and its Appendices to all registered IAP's

D-1.3 Consultation with I&APs

Following the public awareness measures, a number of objections toward the proposed development were received. The concerns of the IAP's were brought to the attention of the applicant. Subsequently, a public meeting specifically aimed at presenting the project proposal to the community, in order to capture all the concerns/comments and objections; was conducted.

A public meeting was arranged with the registered IAP's, and other interested parties, on the **24th February 2009**, from 6pm – 8pm at the Cornwall Hill College Auditorium. The purpose of the public meeting was to provide I&APs with the available detail regarding the proposed applications. This meeting had value in allowing I&APs' to raise their views and issues with regards the proposed environmental applications, and thereby ensure that the relevant environmental concerns are addressed sufficiently in the EIA process.

All parties who attended the meeting were asked to fill in the attendance register, in order to be registered on the EIA database for the application. All comments raised at the public meeting were minuted by Seedcracker Environmental Consulting CC. Minutes of the public meeting were subsequently forwarded (via fax and email) to all the parties who had attended the public meeting, as well as other interested parties. This was done to ensure that the attendees at the

public meeting were satisfied that their comments were indeed captured, and would form a part of the Scoping and EIA reports.

D-1.4 Raising issues for investigation by EIA specialists

I&APs have had the first opportunity to raise issues either in writing, by telephone or email. All the issues raised by I&APs during the scoping process have been captured in the Comment and Response Report (see **Appendix 2**) and I&APs received letters / emails acknowledging their contributions.

D-1.5 Draft Scoping Report

All the issues raised to date were captured in the Draft Scoping Report, which was made available to the public in English. The EIA Regulations specify that I&APs must have an opportunity to verify that their issues have been captured. A period of 30 days will be available for public comment on the Draft Scoping Report. The availability of the Draft Scoping Report was announced via fax, email and telephone to the registered I&APs on the distribution list.

The Draft Scoping Report will be distributed for comment as follows:

- Placed in the Irene and Pierre Van Ryneveld Community Libraries
- Emailing the draft Scoping Report and its Appendices to all registered IAP's
- Hand-delivered to the relevant authorities, ie. DWAF, CTMM
- Hand-delivered to I&APs who request hard copies
- CD copies provided to relevant authorities and I&APs who request copies

D-1.5.1 Comments received on the Draft Scoping Report

Following the end of the public review period, a formal objection toward the proposed development was received from Cameron Cross Incorporated. Cameron Cross Incorporated were appointed as the attorneys to represent the Cornwall Hill Homeowners Association (CHHA). Please See Appendix 2 for this objection letter.

Further, Cameron Cross Incorporated requested AGES South Africa Environmental Assessment Practitioners, to review the Draft Scoping Report, and deliver critical findings on the Draft Scoping Report. Please See Appendix 2 for this review letter.

Both the objection letter received from Cameron Cross Incorporated, and the review letter received from AGES South Africa Environmental Assessment Practitioners, have been taken into consideration by S.E.C and the applicant. The Final Scoping Report has accordingly been updated to include the requirements and comments from these parties.

In addition to the above, a letter received from Kgabo V. – Sacotso Mia Trust dated 30/4/2009, brought to the applicant's attention, that a valid *land claim* for the said property has been lodged with the South African Land Claim Court. Kgabo V. – Sacotso Mia Trust act as duly

appointed agents on behalf of the Bakgatla Ba Mmakau Paramount Chiefdom. Please see Appendix 2 for this written comment.

Kgabo V. – Sacotso Mia Trust demanded that the applicant cease with the rezoning of the property, and to engage into discussions with the Trust's Property Development Consultants. Hence, the applicant is currently addressing this issue. M&T have subsequently been in contact with this objector. The conclusion of this matter will be reported upon in the EIA report, however, at this stage, M&T have confirmed that this land claim is erroneous.

D-1.6 Final Scoping Report

The Final Scoping Report has been prepared following the end of the public review period. The report has been updated with additional issues raised by I&APs. The final Scoping Report is submitted to GDACE for review and comment.

D-1.7 Public participation during the Impact Assessment Phase

Public participation during the Impact Assessment Phase of the EIA will involve a review of the findings of the EIA and inputs into the Environmental Management Plan (EMP). The findings will be presented in a Draft Environmental Impact Assessment Report and EMP and the specialist studies.

D-1.8 Conclusion

In terms of the public participation exercise and associated social scoping assessment, the following conclusions and recommendations can be made:

- A number of the I&APs consulted had objections to the proposed development.
- The Cornwall Hill Homeowners Association (CHHA) have appointed Cameron Cross Incorporated as their attorneys to object against the proposed development on their behalf.
- The comments raised during this public participation process and the perceived negative impacts identified pertain around the following impacts:
    - Incompatible Land Use;
    - Application not in line with Environmental Policies and guidelines for the area;
    - Significant Negative Visual Impact;
    - Significant Negative Traffic Impact;
    - Significant Noise Impact;
    - Insufficient information regarding alternatives to be considered in the EIA phase;
    - Property values;
    - Environmental concern;

- Safety and Security; and
- Stormwater Management and pollution to the Sesmylspruit
- The Final Scoping Report must be amended to include the Objections received from Cameron Cross Incorporated, on behalf of the Cornwall Hill Homeowners Association (CHHA). The Final Scoping Report must be amended to address the objections received.
- Specialist studies to be conducted during the EIA phase of the application include (but not limited to) Noise, Visual, Traffic and Civil Services.
- The CHHA must be involved in the proposed development layout and the architectural design of the development.

SECTION E ENVIRONMENTAL SCOPING

E-1 ENVIRONMENTAL ISSUES AND IMPACT IDENTIFICATION

The overall aim of ecologically sound urban development is to minimize the negative impact of development on the environment. The key environmental issues listed in the following section have been determined through the views of interested and affected parties; relevant legislation; and the professional understanding of the environmental assessment practitioner and specialist consultants.

The most common environmental impacts related to urban developments include:

- Geological conditions;
- Topography;
- Soil erosion and pollution;
- Catchment processes and Hydrological systems (including wetlands, rivers, and associated aquatic systems);
- Soil and water (surface and groundwater) contamination;
- Ecological functioning;
- Heritage and culture;
- Safety and security;
- Impact on existing Infrastructure;
- Traffic;
- Socio economic;
- Visual impact;
- Socio economic impact;
- Health impacts

How these issues will affect the environment will be discussed and detailed in the EIA report. The EIA Report will assess the impacts of each of the construction and operation activities, as well as investigate the cumulative impacts the commercial development will have on the receiving environment. The EIA report will identify measures to mitigate the significance of the impacts, and provide meaningful recommendations. The EIA report will also include an Environmental Management Plan (EMP) which will contain detailed mitigation measures for the various phases of the project.

The results of the specialist studies listed in sections A and C of this report will be analysed and integrated into the EIA Report. Specialist recommendations will help to assess the potential impacts of the distribution line, and will assist with the identification of potential alternatives. Mitigation measures provided by the specialists will be integrated into the EIA report, in order to minimise negative impacts and optimise positive impacts. Specialist recommendations will also be incorporated into the EMP.

E-2 SIGNIFICANCE DESCRIPTION METHODOLOGY

The assessment of the significance of environmental impacts will be conducted according to the following methodology:

The identification and assessment of environmental impacts is a multi-faceted process, which combines quantitative and qualitative descriptions and evaluations. It involves the application of scientific measurements and professional judgement to determine the significance of environmental impacts associated with the proposed project. The process involves consideration of *inter alia*: the purpose and need for the project; views and concerns of interested and affected parties, general public interest; and environmental legislation and guidelines.

The generic criteria and systematic approach used to identify, describe and assess impacts are outlined below. The assessment of the impacts will be conducted according to a synthesis of criteria required by the integrated environmental management procedure.

- **Nature of impact**
  This is an appraisal of the type of effect the proposed activity would have on the affected environmental component. Its description should include receiving environment and how it is impacted. Is the impact destructive, or not?

- **Extent**
  The physical and spatial size of the impact, which is classified as:
  i. Local:
     The impacted area extends only as far as the activity, e.g. a footprint of proposed activity.
  ii. Site:
     The impact could affect the whole, or a measurable portion of the above mentioned property.
  iii. Regional:
     The impact could affect the area including the neighbouring farms the transport routes and the adjoining towns.

- **Duration**
  The lifetime of the impact; this is measured in the context of the life-time of the proposed project.
  i. Short term (0-5 years):
     The impact will either disappear with mitigation or will be mitigated through natural process in a span shorter than any proposed phases.
  ii. Medium term (5-15 years):
     The impact will last up to the end of the phases, where after it will be entirely negated.

iii. Long term (duration of operation):
The impact will continue or last for the entire operational life of the development, but will be mitigated by direct human action or by natural processes thereafter.

iv. Permanent:
The only class of impact, which is considered non transitory. Mitigation, either by man or natural process, will not occur in such a way or in such a time span that the impact can be considered transient.

- **Intensity**

This will be a relative evaluation within the context of all the activities and the other impacts within the framework of the project. Does it destroy the impacted environment, alter its functioning, or render it slightly altered? These are rated as:

i. None:
No known impacts

ii. Low:
The impact alters the affected environment in such a way that the natural processes or functions are not affected.

iii. Medium:
The affected environment is altered, but function and process continue, albeit in a modified way.

iv. High:
Function or process of the affected environment is disturbed to the extent that it temporarily or permanently ceases.

- **Probability**

This describes the likelihood of the impacts actually occurring. The impact may occur for any length of time during the life cycle of the activity, and not at any given time. The classes are rated as follows:

i. Improbable
The possibility of the impact occurring is very low, due to the circumstances, design or experience.

ii. Probable
There is a possibility that the impact will occur to the extent that provisions must be made to mitigate the impacts.

iii. Highly probable
It is most likely that the impacts will occur at some or other stage of the development. Plans must be drawn up before the undertaking of the activity.

iv. Definite
The impact will take place regardless of any prevention plans, and thus mitigatory actions or contingency plans must be relied on to contain the effect.

- **Determination of significance**

  Significance is determined through a synthesis of impact characteristics. Significance is an indication of the importance of the impact in terms of both physical extent and time scale and therefore indicates the level of mitigation required. The classes are rated as follows:

  - No significance
    The impact is not substantial and does not require any mitigatory action.
  - Low
    The impact is of minimal importance, but may require limited mitigation.
  - Medium
    The impact is of importance and therefore considered to have a negative impact. Mitigation is required to reduce the negative impacts to acceptable levels.
  - High
    The impact is of great importance. Failure to mitigate, with the objective reducing the impact to acceptable levels, could render the entire development option or entire project proposal unacceptable. Mitigation is therefore essential.

g) Status

Taking all the criteria into account, the status of the impact will either be classified as a positive or negative impact.

Table 2: Summary of anticipated impacts as identified during the Scoping phase

Environmental Aspect	Relevant Area	Environmental Goal	Potential Environmental Impacts	Specialist Investigations	Potential Mitigation
PHYSICAL					
Geology and soils	Site	To ensure that the foundations are suitable for development and/or the necessary measures are implemented in order to ensure its suitability.	Cracking of built structures, unstable foundations.	Geotechnical and Soils Investigations	Engineering techniques, Buffer potentially collapsible areas.
Surface and ground water	Regional	To ensure that the Sesmylspruit and other surrounding water resources are not adversely affected to the detriment of the environment and the surrounding communities; To prevent the disruption of catchment processes and functioning; To minimise erosion; and to Prevent surface and water contamination.	Disruption of habitats through development; Disruption of natural drainage patterns; Altered flow regimes as a result of hardened surfaces; and Potential contamination of surface and groundwater through the use of chemicals associated with maintenance.	Wetland and Aquatic Assessments	No development within the 1:100 year floodlines, 100 m from drainage channels and 50 m around wetlands; and Stormwater Management Plan must be developed and implemented.

Environmental Aspect	Relevant Area	Environmental Goal	Potential Environmental Impacts	Specialist Investigations	Potential Mitigation
Terrestrial Ecology	Regional	To ensure that species of conservation importance are identified and preserved. To ensure that the ecological integrity and functionality of the system is maintained.	Fragmentation of habitat, loss of species of conservation importance, loss of biodiversity, disruption of natural processes and functionality.	Ecological Assessments including: Vegetation; Invertebrates; Caves and Avifauna.	Delineation of sensitive habitats, species of conservation importance and migration corridors, Minimise impacts of undisturbed areas;
Aquatic ecology	Regional	To ensure that the ecological integrity and functionality of the riverine system is maintained.	Hardening of the catchment, deceleration of infiltration rates, exposure of soils and earthmoving activities will impact upon the wetlands.	Aquatic Assessment	Pre-emptive engineering to protect the wetlands and the drainage lines in which they occur must be effected to counteract the hardening of the catchment. Wherever possible, all outflows of storm water drains must be engineered to minimise water velocity. These outflows should preferably – after deceleration of the water – drain through reno mattresses or grassed swales. Reno mattresses must be incorporated in the landscaping of the drainage lines in order to ensure stability of these lines.

Environmental Aspect	Relevant Area	Environmental Goal	Potential Environmental Impacts	Specialist Investigations	Potential Mitigation
SOCIAL SURROUNDINGS					
Safety & Security	Site	To assure safety within the site, prevent trespassers from accessing adjacent estates from the commercial development.	Trespassers; Threat to safety of residents.	None warranted	High security with controlled access and constant monitoring.
Visual aspects	Regional	To minimise light and visual pollution; To ensure that the development blends in with the landscape character; and To maintain an undisrupted skyline.	Visual Impacts; Alteration of Landscape Character	Visual Impact Assessment	Strategic locations in order to minimise the visibility of structures; Utilisation of colours and materials which blend in with the natural landscape, minimise the use of lighting and select low intensity lighting; landscaping as screening measures and Non intrusive architectural design.
Noise	Site	To minimise noise levels during construction and operational phases.	Excessive noise levels can interfere with daily activities such as working, children doing homework, watching television, sleeping and talking on the telephone.	Noise Impact Assessment	Defined working hours, well maintained heavy vehicle machinery, best building design
Heritage and Culture	Site	To ensure that all buildings, artefacts and symbols of culture and heritage significance are identified and preserved.	Loss of significant symbols of heritage and culture.	Heritage Impact Assessment	Identification and mapping of sites and artefacts worthy of preservation. Delineation of buffer zones.

Environmental Aspect	Relevant Area	Environmental Goal	Potential Environmental Impacts	Specialist Investigations	Potential Mitigation
Socio-economic	Regional	To assure that the development is sustainable through community upliftment and involvement as well as the procurement of local people; Employment, transfer of skills and training.	Employment, Social upliftment; Increased investments in the area.	None warranted	Procurement policies and integration of local communities.
Traffic	Local	To ensure the future road network can accommodate the increased vehicular movement in the study area.	Increased traffic, noise and air pollution	Traffic Impact Assessment	None
Property Values	Regional	Well landscaped property adds value to the property. This value usually far exceeds the initial costs of landscaping.	Vegetative clearance of indigenous flora, replaced by exotics.	Independent Property Valuer	A well landscaped property is one way to add significantly to property value and to improve the quality of the environment.

The EIA report will address the results of the specialist studies, and the potential impacts of the commercial/light industrial development on the environment. Mitigation measures shall be detailed in the EIA report, in order to minimise negative impacts and optimise positive impacts. The specialist recommendations will be incorporated in the Environmental Management Plan (EMP).

SECTION F: PLAN OF STUDY FOR ENVIRONMENTAL IMPACT ASSESSMENT

An EIA is a systematic process to identify potential positive and negative impacts on the environment (biophysical, socio-economic and cultural) which are associated with a proposed activity or development. It examines alternative "means" to achieve a desired goal, in order to minimise negative impacts and optimise positive consequences of proposed development projects. It also aims to prevent substantial detrimental impacts on the environment.

The overarching environmental legislation for the management of the environment in South Africa is NEMA. The principles of this Act ensures that sustainable development encompasses the integration of social, economic and environmental factors in the planning, implementation and evaluation of environmental decisions, to ensure that development serves present and future generations.

NEMA was amended in 2004 (Act No. 8 of 2004 "NEMA Amendment Act") and a proposed second amendment bill was published for comment on 4 May 2007. In April 2006, new EIA Regulations were promulgated and became effective from 1 July 2006. The purpose of these Regulations is "*to regulate procedures and criteria as stated in Chapter 5 of the National Environmental Management Act for the submission, processing, consideration and decision of applications for environmental authorisation of activities and for matters pertaining thereto.*" These new EIA regulations replaced the Environmental Impact Assessment Regulations promulgated under the Environment Conservation Act, 1989 (Act 73 of 1989 "ECA").

Section 24 (F) of the NEMA Amendment Act prohibits a listed activity from commencing prior to the authorisation thereof by the competent authority. A listed activity is defined in Government Notice R. 385 (NEMA Regulations 2006) as follows: "(a) *an activity identified in Government Notice No. R.386 and No. R. 387 of 2006 as a listed activity or (b) in any other notice published by the Minister or MEC in terms of section 24D of the Act as a listed activity or specified activity."*

These activities are listed as a result of their potential to have a significant detrimental impact on the environment. The *main* listed activity for this project is identified as activity number 5 in Government Notice R. 387 as follows:

- **2)** Any development activity, including associated structures and infrastructure, where the total area of the developed area is, or is intended to be, **20 hectares or more.**

Section 24 of the NEMA Amendment Act requires that an EIA be undertaken in order to inform the authorisation process for a listed activity. Government Notice R. 385, published in terms of Chapter 5 of NEMA, defines the manner in which the EIA is to be undertaken. Guideline documents have been published by the Department of Environmental Affairs and Tourism (DEAT) and the Gauteng Department of Agriculture, Conservation and Environment (GDACE), and these provide further guidance in implementing the EIA Regulations, 2006. According to Government Notice R. 385, GDACE is the competent authority for this project and is accordingly responsible for making a decision regarding the authorisation of the proposed project.

The following guidelines have been considered in the preparation of this report:

National DEAT guideline documents

- Guideline 3: General guide to EIA regulations;
- Guideline 5: Assessment of Alternatives and Impacts;
- DEAT Public Participation Guidelines as published in Government Gazette No. 28854, 19 May 2006; and
- Detailed Guide to Implementation of the Environmental Impact Assessment Regulations: 2006

National Acts

- National Water Act;
- National Heritage Resources Act;
- National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004); and
- National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003)

Section B-4 of the scoping report provides the flow diagram for the process to be followed in this EIA. The process is consistent with the regulations and applicable guideline documents.

F-1 APPROACH TO THE EIA PHASE OF THE PROJECT

In the EIA Phase, Seedcracker Environmental Consulting CC as the Environmental Assessment Practioner (EAP) shall consider and evaluate all the key issues identified during the Scoping Phase. Specialist studies in cultural/heritage, socio-economic and ecological spheres, shall be undertaken for the proposed commercial and light industrial township. The findings of these assessments shall be captured in an Environmental Impact Report (EIR), which shall contain the information required in terms of Regulation 32 of Government Notice R. 385 and will be submitted to GDACE for review after the receipt of public comments of the draft EIA report.

The approach to the EIA Phase shall comprise the following tasks:

- Submitting the final scoping report to GDACE;
- Reviewing the comments received from GDACE regarding the Scoping Report and Plan of Study for EIA;
- Compilation, submission and approval of an amended Scoping Report and/or Plan of Study of EIA (if necessary);
- Appointment of relevant specialists to undertake specialist investigations such as cultural and heritage resources and ecological assessments. Detailed Terms of References for specialist studies will be provided to each specialist study;
- Review and Integration of the specialist reports by the EAP.
- Integration of the findings of the assessment of impacts by specialists and, alternatives and potential mitigation measures for the project;
- Documenting the findings of the EIA Phase into a Environmental Impact Report (EIR);
- Notification to all registered I&APs of the availability of the EIR for review and comment;
- Incorporation of IAPs comments into the EIR and submission to GDACE; and
- Amendment of the EIR (if necessary) based on GDACE comments and resubmission (after further public opportunity to review amended report) and
- Notification of GDACE decision of application to all registered I&APs.

F-2 METHODOLOGY OF ASSESSMENT OF IMPACTS

The method to be employed in the EIA phase, is one in which the significance of impacts can be further evaluated by the input of outstanding specialist judgement, ie. Heritage Impact Assessment. The methodology to be in the EIA report, has no numerical weighting system. Significance ratings are based on collective professional judgement of the study team. Public participation is undertaken as one among several means to determine the impact of the project on key stakeholders.

F-3 PUBLIC PARTICIPATION DURING THE EIA PHASE

F-3.1 Stakeholder Engagement

Public and stakeholder involvement in the EIA process is widely recognised as being an *essential* component of the EIA process. The input and contribution added to the process, by public comment and involvement, leads to better and more acceptable decision-making. The involvement of interested parties, adjacent land owners, NGO bodies and rate payers associations, can help to identify whether all impacts have been included and whether all risk groups have been identified.

The engagement process will provide stakeholders with the opportunity to raise their issues and concerns and to interact on a one-on-one basis with the project team. *Phase 2* of the PPP will entail *inter alia* the following:

- Update the existing stakeholder database, following the review of the draft scoping report by registered IAP's, and the review of the final scoping report by GDACE;
- Announcement of the project, which entails the following:
  - Distribution of Letters and BIDs to all registered I&APs via email, fax or post;
  - Publication of advertisements in local and regional newspapers (if necessary);
  - Posting of site notices on the application site (if necessary);
- Hosting Public Meeting;
- Integration of comments into a Comments and Response Report;

F-3.2 Interested and Affected Parties (I&AP) Identification during the EIA Phase

The existing Interested and affected parties categories includes, inter alia:

- Parastatal's;
- Provincial Authorities (Gauteng);
- Local Authorities;
- Adjacent Landowners / Tenants;
- Ward Councillors
- Non-governmental Organisations;
- Adjacent Residential Estates; and
- Other

F-3.3 I&AP Communication

Registered I&APs shall be informed of the approval or rejection of the final scoping report, and will be encouraged to continue their active participation in the EIA process by staying involved in the process, and commenting on the scoping report approval conditions / requirements.

Each issue, concern, question identified through communication with Seedcracker Environmental Consulting, will be included in the Comments Register and appropriately addressed.

F-3.4 I&APs Issues Identified during the Scoping Procedure

All the issues brought forward by the registered I&AP's during the Scoping phase, will be investigated during the EIA phase of the project.

F-3.5 Public Participation Report

PP Report

A Public Participation Report will form part of the EIA report. This report will be the updated version of the PP report already contained in the scoping report.

Comments received from I&AP's

The comments received from I&AP's will be captured and included in the PP report throughout the EIA process. The PP report will include all comments, concerns, questions and statements recorded by SEC, during the duration of the project. The name(s) of the person(s) who raised the issue will appear in the report.

F-3.6 Public Review of the Draft EIR

The draft EIR will be published for public comments at the same locations as the draft scoping report. Hard copies of the report will also be provided to Provincial Authorities, ie DWAF, SAHRA, CTMM. The review period of the Draft EIR will be communicated with the IAP's.

F-4 SPECIALIST STUDIES CONDUCTED FOR THE EIA PHASE

GDACE department of conservation, have indicated the required specialist studies for the proposed commercial/light industrial township.

Specialist biodiversity studies are required for the following aspects:

- Birds, with specific reference to African Grass Owl.
- Amphibians, with specific reference to Giant bullfrog.
- Vegetation
- Wetlands
- Rivers
- Caves

This information is relevant solely for the study site. All specialist studies will comply with the GDACE Requirements for Biodiversity Assessments.

Scientific Aquatic Services were requested to asses Portion 330 of the farm Doornkloof 391 JR to determine if any wetland resources occur on the subject property. Please see Appendix

3 for this report. Based on Scientific Aquatic Services findings, the drainage features on the subject property cannot be considered to be a wetland feature and the small earth dam on the subject property can be considered to be an artificial wetland system created by the earth dam. No formal delineation of the feature as a wetland is, therefore, deemed necessary.

Furthermore, the following detailed studies will be undertaken during the EIA phase of the EIA process:

- Heritage Impact Assessment;
- Noise Impact Assessment;
- Visual Impact Assessment;

The terms of Reference for the following specialist studies must be informed by the relevant specialist in their respective field:

- Geotechnical Study;
- Traffic Impact Study;
- Property Evaluation

F-4.1 Terms of Reference for the specialist studies

As per the Integrated Environmental Management (IEM) guidelines, specialists' terms of reference must be clearly defined and clarified. This is to ensure that the specialists have covered all the issues and topics in an appropriate manner and at an appropriate level of detail.

F-4.1.1 Ecological Assessment

This specialist study will focus on vegetation and terrestrial ecology issues on site. Whilst attention must be directed principally to possible direct vegetation effects, the specialist should also indicate clearly how these effects are likely to influence other components of the environment (for example, aesthetic values, cultural heritage issues, etc.). An integral component of this evaluation will be the need to demonstrate whether or not the vegetation and terrestrial ecology components of the study area contribute to and support viable populations of certain mammal species.

Within this broad definition, the specific Terms of Reference for the vegetation and terrestrial ecology study require the Vegetation/Terrestrial Ecology Specialist to:

- Assess and describe the present status and diversity of the terrestrial flora of the proposed development site. This description should include:

- A classification and description of the vegetation communities that occur on the site.

- Accurate maps showing the extent of each vegetation community in relation to the location and extent of the project components (for example, access roads, tower structures, etc).

- A description of the ecological sensitivity or vulnerability of each vegetation community, with the various degrees of sensitivity shown on a map.

- A broad (but brief) description of the animal (mammals and birds) communities that commonly occur in the area and how these relate to and depend on the flora (or specific elements/species of the flora) of the project site.

- Indicate how important the general vegetation (and specific vegetation elements) of the project site and its environs are as habitat for plants and animals that occur in the area.

- Indicate the importance of key ecological processes at the project site (migration corridors, species refuges, provision of food and shelter sources, nutrient cycling, riverbank stability, pollination/seed set/seed storage).

- Assess the possible direct, indirect and cumulative impacts that the different project activities, site will have on the plant (and animal) communities of the site.

- Make recommendations as to what extent the proposed development site(s) should be rehabilitated, for example, the removal of exotic vegetation, and how best this could be achieved. At all times, these recommendations should be economical, reasonable and practicable. If any existing activities or use of the vegetation is deemed to be illegal or undesirable, this feature should be noted by the specialist.

- Assess the extent to which the proposed development and its operation will have positive and/or negative impacts on the terrestrial vegetation and current land-use patterns in areas adjacent to the project site.

- Assess the extent to which the proposed development will have positive and/or negative impacts on the vegetation, terrestrial ecology and biodiversity of the study area.

- Recommend (with reasons) the best economical options for mitigating impacts on terrestrial vegetation, and indicate (quantitatively) the extent to which each proposed mitigatory action would reduce specific adverse impacts and enhance specific positive impacts.

Special care will need to be taken in terms of identifying the different elements and species of the vegetation, since most plant identifications are based on flowering or fruiting material. Any species of rare, vulnerable or endangered plants should be clearly identified and their locations indicated on an appropriate map.

F-4.1.2 Birds Assessment, with specific reference to the African Grass owl

The Avifaunal assessment will be conducted with emphasis on the occurrence of the African Grass owl, as well as the presence of suitable habitat for the grass owls. The grass owls will be identified and, where necessary, verified using Roberts Birds of Southern Africa, VIIth ed. (Hockey *et al*., 2005). Birds will also identified by means of their calls and other signs such as nests, discarded egg shells (Tarboton, 2001) and feathers. Particular attention will be paid to suitable roosting, foraging and nesting habitat for the listed species.

Bird data will be collected by means of point counts (see Buckland *et al.,* 1993). Points will be randomly chosen and will be at least 200 m apart to ensure independence of observations. Data from the point counts will be analyzed to determine typical or dominant species according to Clarke & Warwick (1994), and will be based on the percentage contribution (%) of each species within each proposed cluster, as well as the consistency (calculated as the similarity coefficient/standard deviation) of its contribution within the study area.

The terms of reference for this assessment are to:

- Conduct a survey to determine the on-site status of the African Grass Owl,
- Survey the site for the presence of any other red data bird species,
- Assess if any suitable habitat occurs on site for the African Grass Owl or any other red data bird species,
- Map bird sensitive sections, i.e. sections where the risks of impacts on birds are considered to be higher than elsewhere along the proposed routes;
- Indicate how a resource or community will be affected: Typical impacts that could be expected from the development will be listed as well as the expected impact on the bird communities. Impacts will be quantified (if possible) and a full description of predicted impacts (direct and indirect) will be provided;
- Assessment of impacts: The potential impact on the birds will be assessed and evaluated according to the magnitude, spatial scale, timing duration, reversibility, probability and significance;

- Propose and explain mitigation measures: An impact summary table must be provided, discussing expected impacts before and after mitigation; and

- Provide recommendations for the proposed development, if ecologically viable.

F-4.1.3 Amphibians, with specific reference to Giant bullfrog

This specialist study will focus on the possible occurrence of the Giant Bullfrog on the site. The occurrence of the Giant bullfrog will be determined by:

- Seeking evidence of any breeding activity, such as calling / croaking, amplexis, signs of male territorial defence;

- Identify the existence of habitats suitable for breeding;

- Seeking evidence of the presence of adults, juveniles, eggs or tadpoles,

- Identifying suitable habitats on site for foraging areas;

- Determining the presence of suitable soils and conditions for burrows.

- The study area must be surveyed on foot to identify any of the conditions listed above. The survey will be commissioned within the correct season, when aspects of Giant Bullfrog breeding behaviour are likely to be observed.

A summary of the potential implications of the findings must be included in the specialist report.

F-4.1.4 Rivers

The terms of reference for the Aquatic Assessment includes the following:

- An ecological study, with specific emphasis on ecological processes and connectivity;

- Photographs of any crossing points showing the pre-construction state of the river's habitat and morphology;

- An assessment of the current ecological state of the river or stream;

- Health Programme biomonitoring protocol (FAII, SASS5, IHI, IHAS and RVI) and classification;

- Measurement of *in situ* water quality parameters;

- Delineation of the riparian zone according to "DWAF, 2003: A Practical Guideline Procedure for the Identification and Delineation of Wetlands and Riparian Zones" for the two crossing sites;

- Delineation of a buffer zone from the edge of the riparian area;

- Impact assessment of the proposed development on the hydrological regime and the change thereof, including the effect of that change on the downstream habitat and integrity of the system;

- Mitigation measures for any crossing points;

- Recommendations on surface runoff and storm water management where applicable;

- A sensitivity map where riparian zones and buffer zones are designated as sensitive;
- Propose and explain mitigation measures: An impact summary table must be provided, discussing expected impacts before and after mitigation; and

- Provide recommendations for the proposed development, if ecologically viable.

F-4.1.5 Caves

If necessary, a Karst Ecologist will be appointed to conduct the Caves Assessment. This assessment will be undertaken in order to assess the presence of any caves on site, the impacts and significance in terms ecological significance, and propose mitigation measures.

The terms of reference for this specialist report will be guided by the appointed Karst Ecologist, however, specific objectives of this study will include:

- Desktop Study (consulting existing and appropriate literature;

- Site visit of the study area to determine the presence of caves on site;

- Provide mitigation measures to prevent and/or mitigate any impacts to the cave (if present) that may occur due to the proposed project; and

- Compile a report indicating findings, recommendations and maps indicating sensitive and / or no-go areas.

F-4.1.6 Heritage Impact Assessment

A Heritage Impact Assessment will be undertaken in order to assess the impacts and significance in terms of culture and heritage on the alternative routes and propose mitigation measures.

The terms of reference will include, but not be limited to:

- Conduct a desk-top investigation of the area;
- Conduct a site visit to the proposed development site;
- Identify possible archaeological, cultural and historic sites within the proposed development areas;
- Evaluate the potential impacts of construction, operation and maintenance of the proposed development on archaeological, cultural and historical resources; and
- Recommend mitigation measures to ameliorate any negative impacts on areas of archaeological, cultural or historical importance.
- The following proposed methodology will be undertaken:
- The investigation will include a survey of the available literature in order to review previous research and to determine the potential of the area;
- Various databases will be consulted. These include the Archaeological Data Recording Centre (ADRC), housed at the National Cultural History Museum, Pretoria and the Environmental Potential Atlas;
- The topo-cadastral and other maps will also be studied. Similarly, aerial photographs, if available, will be studied;
- The study area will be inspected. Special attention will be given to archaeologically sensitive areas, e.g. outcrops (for stone walled sites and rock engravings), hills (for settlements and rock shelters), river banks (for Iron Age settlements), etc.
- All sites, objects and structures that are identified will be documented according to the general minimum standards accepted by the archaeological profession; and
- Coordinates of individual localities will be determined by means of the Global Positioning System (GPS) and plotted on a map.

F-4.1.7 Visual Impact Assessment

A visual impact assessment (VIA) will be undertaken, to determine the visual impacts of the proposed commercial/light industrial development on the adjacent communities. The VIA must consider:

- The applicable development frameworks for the study area, as well as relevant Environmental Policies and Guidelines; and

- Urban and landscape design to ensure satisfactory aesthetic quality and amenity is achieved for both the proposed township development, and the adjacent land owners. Aesthetics must respond to the environment and to the desired future character of the study Area.

The VIA of the site and its surrounds must include an on-site inspection and photographic desk top analysis to determine the features of the site and the surrounding context. The natural environment and existing built form must be assessed, identifying the opportunities and constraints of the site and its surrounds. The degree of change brought about by the proposed development is the key consideration in assessing the impact of the proposed development on the receiving visual environment. The degree of change from the current land use to the proposed land use observed by the viewing audiences, must define the potential adverse visual or landscape effects.

The VIA must identify and consider the areas from which the property is visible, as well as the likely viewing audiences

The objectives of the VIA must be to:

- Address the concerns that are raised during public participation events which relates to visual or sense of place aspects;
- Determine the impact on the visual resource, i.e. the impact on the aesthetic values placed on the landscape and the sense of place;
- Determine the impact on the observers in the study area due to change to the visual characteristics of the receiving environment; and
- Recommend mitigation measures to alleviate or reduce the anticipated impacts.

V.I.A Methodology

The above objectives will be met through the implementation of the following methodology:

- Delineate the study area through the use of a viewshed analysis (visibility mapping);
- Discuss the proposed project's visible elements and divide the project into logical phases and development components;
- Discuss the character of the receiving environment on a regional and site scale in order to establish a baseline condition for evaluation;
- Conduct a Visual Resource Assessment (VRA) in which the aesthetic value of the visual resource is assessed through the evaluation of quantitative and qualitative parameters;
- Identify the affected observers in the delineated Zone of Visual Influence (ZVI);

- Identify key viewpoints from which to assess the potential visual impacts and to generate visual models of the development in its context;
- Determine the sensitivity of the visual resource and its susceptibility to impacts on its character and sense of place;
- Determine the sensitivity of the affected observers and their visual perception of the proposed project;
- Assess the significance of the impacts on the visual resource an observers as a result of the proposed project for each of the different phases;
- Provide a statement on the cumulative impacts; and
- Recommend mitigation measures in order to alleviate the impacts on the visual resource and on the affected observers.

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F-4.1.8 Noise Impact Assessment

The terms of reference for the Noise Impact Assessment includes (but is not limited to) the following:

- A description of the existing acoustic environment of the Project Area;
- An overview of applicable construction and operational noise for the proposed project;
- Discussion of relevant legislation and guidelines;
- Noise calculations to predict the potential noise impacts at the closest sensitive receivers during construction and operation of the Project; and
- An overview of possible mitigation measures which could be incorporated into the Project to minimise the potential for impacts.

F-4.2 ENVIRONMENTAL ISSUES IDENTIFIED DURING SCOPING

The key environmental issues identified by the Scoping phase were determined through a process of analysing the project components, the potential sources of impacts input from the approving authority, interested and affected parties, and professional understanding. The key environmental issues, potential risk sources and impacts will be identified by SEC and the various specialists, who visit the study area to appraise the environment and identify the potential impacts of the development. Following the review of the final Scoping report, the inputs from GDACE will help to identify additional environmental issues.

The specialist reports will evaluate and highlight the most significant issues that require further investigation during the EIA. The EIA will focus on specific fields, examining each significant issue in further detail through the relevant specialist studies. Those issues identified through consultation with I&APs during the scoping phase will be assessed independently in the EIA report.

An evaluation and prediction of the likely impacts of the proposed development on the receiving environment will be performed in the EIA report. The environment includes the physical, ecological, archaeological, aesthetic, cultural, economic, institutional, and social aspects of the surrounding communities.

For each aspect of the environment, the following activities will be performed:

- Identification and assessment of the potential impacts of the project;
- Identification and assessment of cumulative impacts;
- Identification of alternatives to the development proposal;
- Recommendations for practical mitigation measures that should be implemented to manage impacts; and
- Discussion of the best management practices for all of the identified mitigation measures.

The EAP shall ensure that each specialist considers the abovementioned aspects for the proposed development.

Issues relevant to the environmental investigation were included in the list of key environmental issues. The EIA Report will examine each issue and, based on the findings of the specialist studies, assess the significance of the environmental impacts. Suitable mitigation measures for all identified impacts will be provided by all specialist studies. The potential impacts and key issues identified include:

- Catchment processes in terms of wetlands and watercourses;
- Soil erosion and pollution;
- Soil and water (surface and groundwater) contamination;
- Suitability of geological and soil conditions for construction of the proposed infrastructure;

- Destruction of flora and displacement of fauna;
- Impacts of the infrastructure on the bird life;
- Impacts on features with historical and cultural value;
- Traffic Impacts;
- Socio-economic impacts;
- Visual impacts of the development;
- Noise impacts during construction phase; and
- Air pollution impacts on the surrounding land owners.

F-4.2.1 Methodology of Assessment of Impacts

The possible impacts of the project shall be described using specified criteria to describe the extent (spatial scale), duration, intensity and probability of occurring. Impact prediction shall involve assessing each of the impacts according to the following criteria:

See Section E-2 of this report.

The EIA Phase shall involve comparing the impact prediction table prior to mitigation with the same table post mitigation. In this way, the significance of the residual impact (impact after mitigation) shall be determined. In order to maintain consistency, all potential impacts including cumulative impacts shall be listed in a table similar to the example shown in Table 2. The assessment conventions used in the table will be applied to all of the impacts and a brief descriptive review of the impacts and their significance provided in the text of the report.

Table 3: Significance of impacts *without* mitigation measures

Project phase	**Extent**	**Duration**	**Reversibility**	**Probability**	**Significance without mitigation**	**Status**	**Confidence**
Tower placement							

Table 4: Significance of impacts *with* mitigation measures

Project phase	**Extent**	**Duration**	**Reversibility**	**Probability**	**Significance without mitigation**	**Status**	**Confidence**
Tower placement							

The assessment shall highlight the potential development consequences if no measures are applied to mitigate the impacts. The management objectives, design standards etc, which, if achieved, can eliminate, minimise or enhance potential impacts or benefits, shall, wherever

possible, be expressed as measurable targets. National standards or criteria are examples, which can be stated as mitigation objectives. The objectives shall be reported as concise statements. Once the above objectives have been stated and pragmatic recommendations for mitigation provided the potential impacts shall be re-evaluated as per Table 2.

F-4.2.2 Mitigation measures

Specialist mitigation measures will be recommended in order to enhance benefits and minimise negative impacts and they should address the following:

Mitigation objectives: what level of mitigation must be aimed at?

For each identified impact, the specialist must provide mitigation objectives (tolerance limits) which would result in a measurable reduction in impact. Where limited knowledge or expertise exists on such tolerance limits, the specialist must make an "educated guess" based on his / her professional experience.

Recommended mitigation measures

For each impact the specialist must recommend practicable mitigation actions that can measurably affect the significance rating. The specialist must also identify management actions, which could enhance the condition of the environment. Where no mitigation is considered feasible, this must be stated and reasons provided.

Effectiveness of mitigation measures

The specialist must provide quantifiable standards (performance criteria) for reviewing or tracking the effectiveness of the proposed mitigation actions, where possible.

Recommended monitoring and evaluation programme

The specialist is required to recommend an appropriate monitoring and review programme, which can track the efficacy of the mitigation objectives – if required. Each environmental impact is to be assessed before and after mitigation measures have been implemented. The management objectives, design standards etc., which, if achieved, can eliminate, minimise or enhance potential impacts or benefits must, wherever possible, be expressed as measurable targets. National standards or criteria are examples, which can be stated as mitigation objectives.

Once the above objectives have been stated, feasible management actions, which can be applied as mitigation, must be provided. A duplicate column on the impact assessment tables

described above should indicate how the application of the proposed mitigation or management actions has reduced the impact. If the proposed mitigation is to be of any consequence, it should result in a measurable reduction in impacts (or, where relevant, a measurable benefit).

SEC shall integrate the findings of the specialist reports into the EIA report. The result of this integration and understanding of the cumulative impacts, will provide GDACE with the information required to deliver an informed decision on the application.

F-4.2.3 The assessment of cumulative impacts

A cumulative impact is defined as the cumulative effects of the interaction of individual impacts of development, or groups of impacts, on the environment. Cumulative impacts can be thought of as the additive and interactive effects of various projects and activities on an ecosystem over space and time. In other words, long-term changes in an ecosystem may occur not only as a result of a single action, but also due to the combined effects of successive actions.

Cumulative effects represent an ecosystem's threshold level of tolerance to disturbance. Ecological systems cannot always cope with human disturbances without fundamental functional or structural change. The environmental impacts of a number of individual projects can effectively 'nibble' away at an ecosystem's ability to function and to sustain viable wildlife populations. Beyond a certain threshold level of impact, one or more important ecosystem functions may cease. Further exceedances of an ecosystem's disturbance threshold may lead to a near-collapse of that ecosystem. In short, individually minor actions that are insignificant on their own can collectively result in significant impacts over a period of time.

Possible cumulative impacts of the project, due to the establishment of a new overhead power line, will be evaluated in the EIA Report. In addition, various other cumulative impacts e.g. other external impacts that could arise from the project can be further investigated in the EIA phase of the project.

The assessment of cumulative impacts on a study area is complex. It is often difficult to determine at which point the accumulation of many small impacts reaches the point of an undesired or unintended cumulative impact that should be avoided or mitigated. There are often factors which are uncertain when potential cumulative impacts are identified.
Authorities, including the competent authority, may often have information which can assist in the assessment of cumulative impacts. This information may include:

- Spatial information;

- Statistics on other similar applications or applications that could have impacts on the same type of environmental resources;
- Time series monitoring results; and
- Legal or policy thresholds and limits.

Steps in Assessing Cumulative impacts

The assessment of cumulative impacts will not be done separately from the assessment of other impacts. Cumulative impacts however tend to have different time and space dimensions and therefore require specific steps which may even mean that some of the actions in the assessment process that preceded general impact identification may have to be revisited after potential cumulative impacts have been identified to ensure that the scope of the EIA process is adequate to deal with the identified cumulative impacts. Four general steps, which are discussed below, will be recommended to ensure the proper assessment of cumulative impacts.

Determining the extent of the cumulative impacts

To initiate the process of assessing cumulative impacts, it is necessary to determine what the *extent* of potential cumulative impacts will be. This can be done by adopting the following approach:

- Identify potentially significant cumulative impacts associated with the proposed activity;
- Establish the scope of the assessment;
- Identify other activities affecting the environmental resources of the area; and
- Define the goals of the assessment.

Describe the Affected Environment

- The identified external environmental resources must be characterised in terms of their response to change;
- Characterise the stresses affecting these environmental resources and their relation to regulatory thresholds; and

- Define a baseline condition that provides a measuring point for the environmental resources that will be impacted on.

Assess the cumulative impacts

The general methodology which is used for the assessment of cumulative impacts should comprise of the following:

- An identification of the important cause-and-impact relationships between proposed activity and the environmental resources;
- A determination of the magnitude and significance of cumulative impacts; and
- The modification, or addition, of alternatives to avoid, minimize or mitigate significant cumulative impacts.

F – 4.2.4 INVESTIGATING ALTERNATIVES

The identification of alternatives is an important component of the EIA process. Alternatives should provide the applicant and project team with a number of different avenues to achieve a desired goal.

Whilst assessing alternatives for the current application, the following internationally accepted criteria will be adhered to:

- ✓ an acceptable evaluation method;
- ✓ a definition of environmental factors;
- ✓ a comprehensive listing of environmental factors considered;
- ✓ an acceptable range of alternatives;
- ✓ a correctly applied method;
- ✓ explicitly stated assumptions; and
- ✓ uncertainty considered

ALTERNATIVES COMPARISON

The IEM procedure stipulates that an environmental investigation needs to consider *feasible* alternatives for any proposed development. Therefore, DEAT requires that a number of possible proposals or alternatives for accomplishing the same objectives should be considered. The methodology for the assessment of alternatives during the EIA phase will include an alternatives comparison table, encompassing different environmental factors and affected parties. See Table 5:

Table 5: Alternatives Comparison

Environmental factor	Affected party	Alternative A (Original proposal)	Alternative B	Alternative C
Increased traffic along Nellmapius drive	Irene, Pierre Van Ryneveld, and Cornwall Communities	Access from R21 Freeway	Access from Olifantsfontein road	Access from Nellmapius road

Preferred Alternative

IDENTIFIED ALTERNATIVES

The following alternatives will be evaluated in detail in the EIA report. The alternatives identified for the development, have been updated to address the IAP's objections.

- Alternative land use;

Alternative land use includes residential development. The site could be utilized for residential purposes as it is located adjacent to existing residential areas and would thus constitute residential infill development or an extension of an existing residential area. There are examples of residential townships situated adjacent to the freeways within Gauteng, and although this interface of use of land is not recommended, examples thereof have been implemented with varying degrees of success.

- Alternative architectural styles and development design;

Within both architecture and industrial design, there is a long tradition of professionals re-using design elements of existing buildings and products. Such existing building examples will be used to illustrate the proposed architectural style for the commercial/light industrial development on Portion 300 of the Farm Doornkloof 390 JR. An Architect has not yet been appointed for this development, and therefore, such examples have not been discussed with the applicant. Hence, such examples are not available at the Scoping Phase.

Environmental design values such as sustainable and/or environmentally friendly building approaches will be addressed in the architectural discussion as well. Energy conservation, resource management, recycling, and toxic free materials will be discussed as part of the alternative design measures of the buildings comprising the commercial and light industrial park.

The Cornwall Hill Homeowners Association has requested that their input forms a critical part of the compilation of the Architectural Guidelines for any development on Portion 330 of the Farm Doornkloof 390 JR. The objective of this input is the assurance of the continued high

quality lifestyle for the Cornwall residents. The alternative architectural styles for the commercial / light industrial development must ensure that the lifestyle and character of the area is not compromised. This must be achieved by adhering to specific architectural standards and conserving as much of the natural environment as possible.

The Specialist Visual Impact Assessment recommendations will form an important discussion when considering the alternative architectural styles for commercial and Light Industrial development on Portion 330 Doornkloof 390 JR.

- Alternative Localities

Alternative properties owned by M&T development will be considered and discussed for the establishment of a commercial/light industrial development.

- The no-go option

The no-go option implies the consequences of not constructing the proposed township development. The advantages and disadvantages of leaving the site in its current state will be discussed in terms of continued ecological processes and functions (N1/R21 EMF), and socio-economic impacts (Urban Densification Principles).

F-4.2.5 Environmental Management Plan

Based on the findings of the specialist studies, the assessment of alternatives and the assessment of impacts, a draft Environmental Management Plan (EMP) will be compiled in accordance with Regulation 34 of Government Notice R. 385. The draft EMP will form an appendix to the draft EIR and will provide practical management measures to be introduced in order to ensure that impacts as a result of the Residential development are minimised and prevented where possible.

The draft documents will be made available to the IAP's. Following public review, the EIR including the EMP will be submitted to the approving authorities for authorization. The EMP will be finalized upon receipt of authorization, so as to ensure that any specific conditions of approval are addressed in the EMP.

SECTION G: CONCLUSION

JR 209 Investments (Pty) Ltd has appointed Seedcracker Environmental Consulting CC, an independent Environmental Assessment Practitioner, to conduct the Scoping and Environmental Impact Assessment, including the Public Participation Process, for the proposed commercial / light industrial development.

The purpose of this scoping report is to provide the relevant authority with sufficient information to make an informed decision regarding the *scope* of the EIA to follow. The construction of the proposed development has the potential to negatively impact on the biophysical and social environments. Thus environmental authorisation is required in terms of the relevant legislation.

SEC has reviewed the development proposal, and has identified those key issues which will have an impact on the environment. A number of specialist assessments will be conducted for the EIA phase of the project. The specialist studies will not only dictate many elements of the project (ie. layout), but they will also assist with impact identification.

A comprehensive, open and transparent public participation process has been conducted thus far for the application, to ensure the active involvement of the surrounding land owners, NGO's and approving authorities, as well as to assist with impact identification. Following the Scoping Phase of Public Participation, a formal objection was received from Cameron Cross Incorporated, on behalf of the Cornwall Hill Homeowners Association. This objection has been included in the Final Scoping Report.

In addition, a letter received from Kgabo V. – Sacotso Mia Trust dated 30/4/2009, brought to the applicant's attention, that a valid *land claim* for the said property has been lodged with the South African Land Claim Court. M&T have been in contact with the Kgabo V. – Sacotso Mia Trust. The conclusion of this matter will be reported upon in the EIA report, however, at this stage, M&T have confirmed that this land claim is erroneous.

The EIA report shall contain a description of each of the individually identified impact. These impacts will be subjected to a significance assessment rating according to the methodology explained in section E of this report. The source of the impact will be identified, the impact will be described, the significance of the impact will be investigated, beneficial and adverse impacts will be assessed for each impact, and recommended mitigation measures will be provided for each identified impact. A detailed EIA Report and EMP will be undertaken in order to determine the impacts and recommend specific mitigation measures in the event that the approving authority authorises the proposed activities.

SEC recommends that this report is accepted by the competent authority, and that authorisation is granted to proceed with the tasks recommended in the attached Plan of Study for EIA.

SECTION G REFERENCES

- Acocks J.P.H. 1975. Veld types of South Africa. Memoirs of the botanical survey of South Africa. No 40.
- BGAP 2005. C-Plan version 2.
- GDACE Ridges Policy
- GDACE. 2006. GDACE requirements for biodiversity assessments. Directorate Nature Conservation.
- Mucina, L. & Rutherford, M.C. 2005. Vegetation map of South Africa, Lesotho and Swaziland. Strelitzia, 2006.
- SEF 2004. N1/R21 Quadrant study
- SEF 2005. N1/R21 Environmental Management Policy

SECTION H APPENDICES

Appendix 1: Correspondence with relevant authority

Appendix 2: Public Participation Report

Appendix 3: Wetland Assessment

Appendix 4: Geotech Report for greater Irene Area

Appendix 1: Correspondence with GDACE

1.1 Application Documentation to GDACE

1.2 GDACE Biodiversity Comments

Appendix 2: Public Participation Report

Appendix 3: Wetland Assessment

Appendix 4: Geotech Report for Greater Irene Area