

DRAFT SCOPING REPORT FOR THE PROPOSED LEEUWPOORT SOUTH MIXED USE DEVELOPMENT

On Part of the Remaining Extent of the
Farm Leeuwpoort 113 IR



REFERENCE: Gaut: Awaiting reference October 2016

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LIST OF ABBREVIATIONS

DEA	Department of Environmental Affairs
DMR	Department of Mineral resources
DWS	Department of Water Affairs
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EMM	Ekurhuleni Metropolitan Municipality
EMSDF	Ekurhuleni Metropolitan Spatial Development Framework
EMP	Environmental Management Plan
ERPM	East Rand Proprietary Mines
ERWAT	East Rand Water Care Association
FLISP	Finance Linked Individual Subsidy Programme
GDARD	Gauteng Department of Agriculture and Rural Development
GDRT	Gauteng Department of Roads & Transport
I&APs	Interested and Affected Parties
IDP	Integrated Development Plan
IEM	Integrated Environmental Management
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NNR	National Nuclear Regulator
PHRAG	Provincial Heritage Resources Agency Gauteng
PoS	Plan of Study
RoD	Record of Decision
RSDF	Regional Spatial Development Framework
SAHRA	South African Heritage Resources Agency
SACLAP	South African Council of the Landscape Architects Profession
IAIA	International Association of Impact Assessment
IEMA	Institution for Environment Management and Assessment
SANRAL	South African National Roads Agency Limited

GLOSSARY OF TERMS

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

Applicant: Any person who applies for and plans to undertake an activity or to cause such activity to be undertaken as contemplated in the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2010.

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

GDARD Requirements for Biodiversity Assessments (Version 3, March 2014): Document that describes the requirements that biodiversity assessments and biodiversity specialists must comply with.

GDARD C-Plan (Version 3.3, 2011): The GDARD C-Plan (Conservation 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/Proposed development site: 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.

1. INTRODUCTION

1.1 Background

Leeuwoort Development (Pty) Ltd in collaboration with Ekurhuleni Metropolitan Municipality is proposing the development of a Township to be known as Leeuwoort South Mixed Use Development on Part of the Remaining Extent of the Farm Leeuwoort 113 IR comprising of the following land uses; Residential 1 (FLISP stands and bonded stands), Residential 3 (220m² FLISP stands and 200m² subsidized stands), Residential 4 (subsidized units, FLISP units, and bonded units), Business 2 (shops and restaurants), Business 3 (offices), Special (Clinic), Special (retirement village), Special (consent land use), Special (Security houses), Public Services (electrical substation), Community Facility (primary schools, secondary schools, and community facilities), Transportation (railway line, station, taxi rank), Public Open Space (96 erven), and Streets. The proposed development will cater for approximately 13,269 residential units and erven and supportive land uses on land 769ha in extent, situated within the area of jurisdiction of the **Ekurhuleni Metropolitan Municipality**.

Refer to Figure 1 and 2 below.

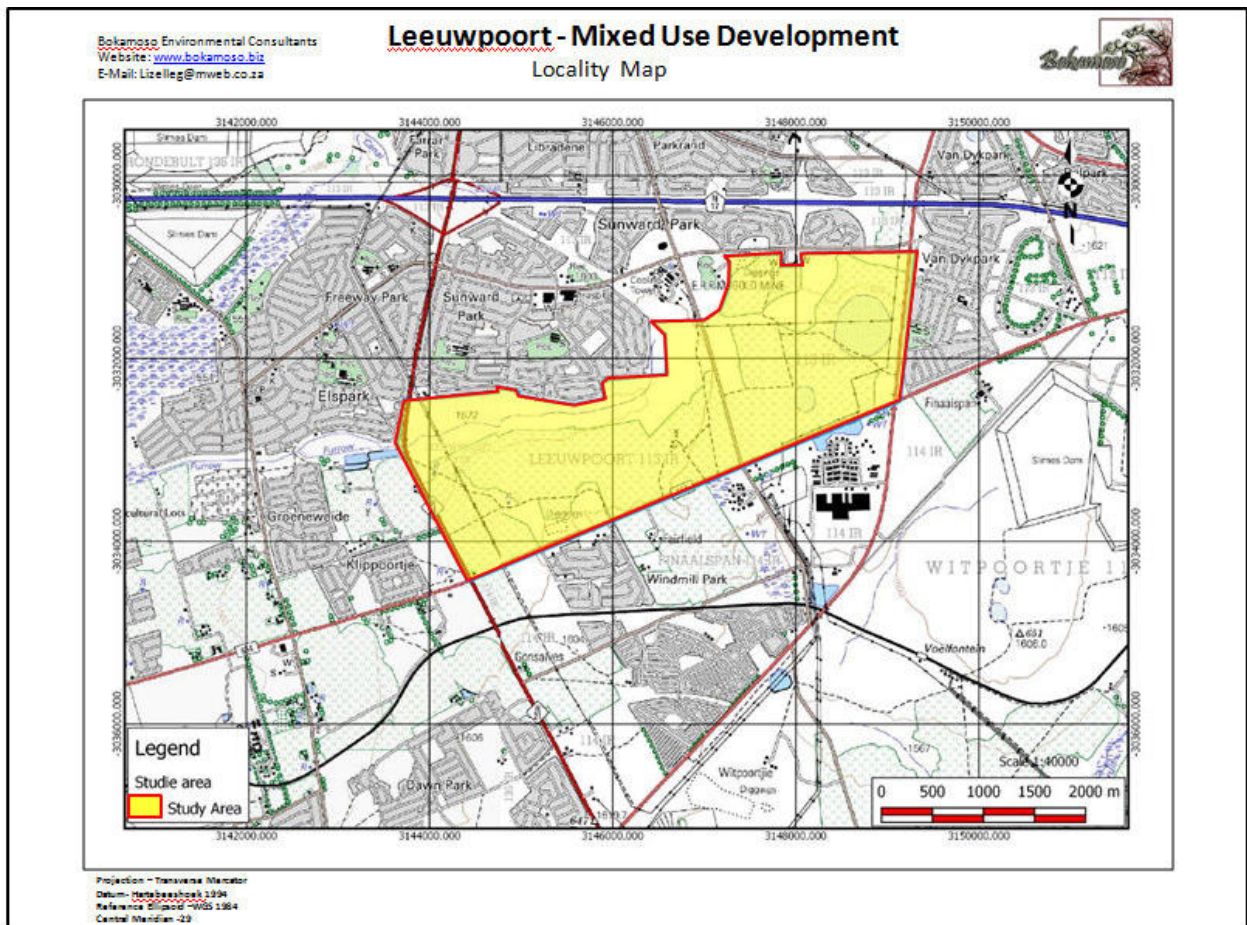


Figure 1: Locality map

ENLARGEMENTS OF FIGURES CONTAINED IN THE SCOPING REPORT ARE INCLUDED AS ANNEXURE A.

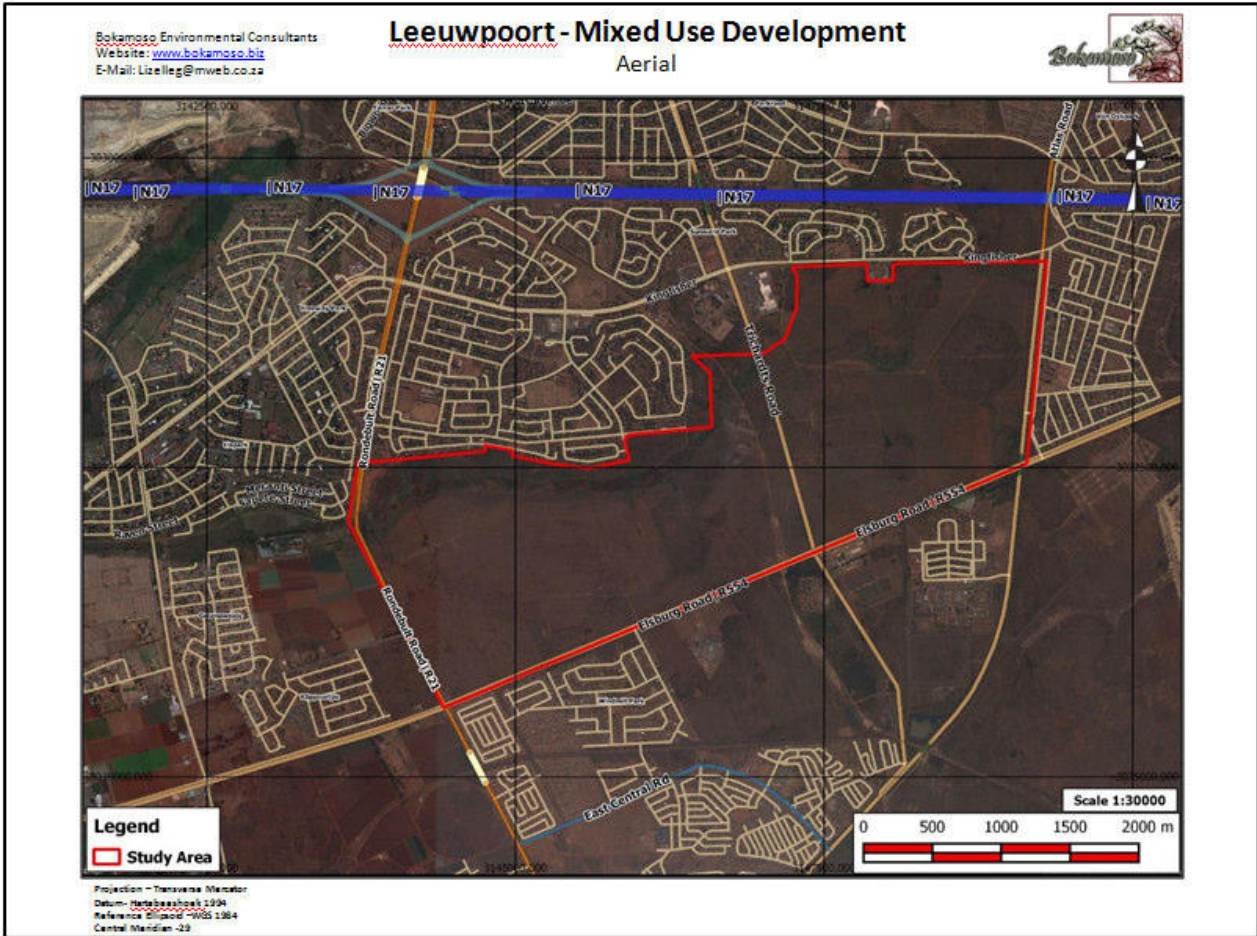


Figure 2: Aerial map

In order to give effect to the general objectives of integrated environmental management laid down in Chapter 5, the potential impact on the environment, socio-economic conditions, and the cultural heritage of activities that require authorisation or permission by law and which may significantly affect the environment, must be considered, investigated and assessed prior to their implementation and reported to the organ of state charged by law with authorizing permitting, or otherwise allowing the implementation of an activity.

The application is for the establishment of a Township consisting of:

- 170 erven zoned "Residential 1" (700m² bonded stands);
- 190 erven zoned "Residential 1" (500m² bonded stands);
- 1732 erven zoned as "Residential 1" (400m² bonded stands);
- 1988 erven zoned as "Residential 1" (300m² FLISP stands);
- 1514 erven zoned "Residential 3" (220m² FLISP stands 46u/ha);
- 1743 erven zoned "Residential 3" (200m² subsidised stands 50u/ha);
- 21 erven zoned as "Residential 4" (subsidised units/120u/ha);
- 21 erven zoned as "Residential 4" (FLISP units/160u/ha);
- 5 erven zoned as "Residential 4" (Bonded units/180u/ha);
- 10 erven zoned "Business 2" (shops and restaurants);
- 5 erven zoned "Business 3" (offices);
- 1 erf zoned "Special" for a clinic
- 1 erf zoned "Special" for a retirement village;
- 2 erven zoned "Special" for Agriculture and consent land use;
- 11 erven zoned "Special" for Security gate houses;
- 1 erf zoned "Public Services" for electrical substation;
- 5 Erven zoned "Community facility" for community facilities;
- 5 Erven zoned "Community facility" for Primary schools;
- 3 Erven zoned "Community facility" for Secondary schools;
- 7 Erven zoned "Transportation" for railway station, station, and taxi facilities;
- 96 Erven zoned "Public Open Space"; and
- Streets.

The above mentioned development application triggers a number of the activities as listed in Government Notices R. 983, R. 984, and R. 985 of the 2014 EIA Regulations in terms of NEMA. Therefore the applicant, **Leeuwpoot Development (Pty) Ltd**, appointed **Bokamoso Landscape Architects and Environmental Consultants**, as independent environmental consultant, to compile an Environmental Scoping Report and Environmental Impact Assessment Report (EIAR) for the proposed development and its associated listed activities.

This report represents the Scoping Report that is prepared for the proposed development. Although no specialist reports were included as part of this Scoping Report, the information contained in some of the specialist reports that were compiled during a former Scoping and Environmental Impact Assessment process, were used to identify the issues and additional specialist studies required to address/mitigate issues identified during the scoping phase.

1.2 Activities Applied for in Terms of NEMA

Government Notice R 983 to R 985 of the 2014 NEMA EIA Regulations list activities that indicate the assessment process to be followed. The Activities listed in Notice R 983 and R 985 requires that a Basic Assessment process be followed and the Activities listed in Notice R 984 require that the Scoping and EIA process be followed. However, the guideline document supplied by DEA states that if an activity being applied for is made up of more than one listed activity and the Scoping and EIA process is required for one or more of these activities, the Scoping, and EIA process must be followed for the whole application.

The applicant is applying for environmental authorisation of the following listed activities:

Table 1: Listed activities in terms of Government Notice R 983

Relevant Notice and Listed activity	Describe each listed activity as per project description:
GN R983 (Listing Notice 1), 4 December 2014 Activity 9	The development of infrastructure exceeding 1000 meters in length for the bulk transportation of water or stormwater – <ul style="list-style-type: none"> (i) With an internal diameter of 0,36 meters or more; or (ii) With a peak throughput of 120 litres per second or more; excluding where: <ul style="list-style-type: none"> a. Such infrastructure is for bulk transportation of water or stormwater or storm water drainage inside a road reserve; or b. Where such development will occur within an urban area.
GN R983 (Listing Notice 1), 4 December 2014 Activity 10	The development and related operation of infrastructure exceeding 1000 meters in length for the bulk transportation of sewage, effluent, process water, wastewater, return water, industrial discharge or slimes – <ul style="list-style-type: none"> (i) With an internal diameter of 0,36 meters or more; or (ii) With a peak throughput of 120 litres per second or more;

Relevant Notice and Listed activity	Describe each listed activity as per project description:
	<p>excluding where:</p> <ul style="list-style-type: none"> a. Such infrastructure is for bulk transportation of sewage, effluent, process water, wastewater, returnwater, industrial discharge or slimes inside a road reserve; or b. Where such development will occur within an urban area.
<p>GN R983 (Listing Notice 1), 4 December 2014 Activity 11</p>	<p>The development of facilities or infrastructure for transmission and distribution of electricity –</p> <ul style="list-style-type: none"> i) . . . ; or ii) Inside urban areas or industrial complexes with a capacity of 275 kilovolts or more.
<p>GN R983 (Listing Notice 1), 4 December 2014 Activity 12</p>	<p>The development of-</p> <ul style="list-style-type: none"> (i) canals exceeding 100 square metres in size; (ii) channels exceeding 100 square metres in size; (iii) bridges exceeding 100 square metres in size; (iv) dams, where the dam, including infrastructure and water surface area, exceeds 100 square metres in size; (v) weirs, where the weir, including infrastructure and water surface area, exceeds 100 square metres in size; (vi) bulk stormwater outlet structures exceeding 100 square metres in size; (vii) marinas exceeding 100 square metres in size; (viii) jetties exceeding 100 square metres in size; (ix) slipways exceeding 100 square metres in size; (x) buildings exceeding 100 square metres in size; boardwalks exceeding 100 square metres in size; or (xii) infrastructure or structures with a physical footprint of 100 square metres or more; <p>where such development occurs-</p> <ul style="list-style-type: none"> (a) within a watercourse; (b) in front of a development setback; or (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse; <p>-excluding-</p> <ul style="list-style-type: none"> (aa) the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour; (bb) where such development activities are related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies; (cc) activities listed in activity 14 in Listing Notice 2 of 2014 or activity 14 in Listing Notice 3 of 2014, in which case that activity applies; (dd) where such development occurs within an urban area; or (ee) where such development occurs within existing roads or road reserves.
<p>GN R983 (Listing Notice 1), 4</p>	<p>The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or</p>

Relevant Notice and Listed activity	Describe each listed activity as per project description:
<p>December 2014 Activity 19</p>	<p>rock of more than 5 cubic metres from-</p> <ul style="list-style-type: none"> (i) a watercourse; (ii) the seashore; or (iii) the littoral active zone, an estuary or a distance of 100 metres inland of the high-water (iv) mark of the sea or an estuary, whichever distance is the greater <p>- but excluding where such infilling, depositing , dredging, excavation, removal or moving-</p> <ul style="list-style-type: none"> (a) will occur behind a development setback; (b) is for maintenance purposes undertaken in accordance with a maintenance management plan; or (c) falls within the ambit of activity 21 in this Notice, in which case that activity applies.
<p>GN R983 (Listing Notice 1), 4 December 2014 Activity 24</p>	<p>The development of –</p> <ul style="list-style-type: none"> i) a road for which an environmental authorisation was obtained for the route determination in terms of activity 5 in Government Notice 387 of 2006 or activity 18 in Government Notice 545 of 2010; or ii) a road with a reserve wider than 13.5 meters, or where no reserve exists where the road is wider than 8 meters, <p>but excluding -</p> <ul style="list-style-type: none"> a) roads which are identified and included in activity 27 in Listing Notice 2 of 2014; or b) roads where the entire road falls within an urban area.
<p>GN R983 (Listing Notice 1), 4 December 2014 Activity 26</p>	<p>Residential, retail, recreational, tourism, commercial or institutional developments of a 1000m2 or more, on land previously used for mining or heavy industrial purposes; -</p> <p>Excluding –</p> <ul style="list-style-type: none"> i) where such land has been remediated . . . ; or ii) or where an environmental authorisation has been obtained for the decommissioning . . . ; or iii) where a closure certificate has been issued
<p>GN R983 (Listing Notice 1), 4 December 2014 Activity 27</p>	<p>The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for -</p> <ul style="list-style-type: none"> i) the undertaking of a linear activity; or ii) Maintenance purposes undertaken in accordance with a maintenance management plan.
<p>GN R983 (Listing Notice 1), 4 December 2014 Activity 28</p>	<p>Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture or afforestation on or after 01 April 1998 and where such development:</p> <ul style="list-style-type: none"> (i) will occur inside an urban area, where the total land to be developed is bigger than 5 hectares; or (ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare;

Relevant Notice and Listed activity	Describe each listed activity as per project description:
	excluding where such land has already been developed for residential, mixed, retail, commercial, industrial, or institutional purposes.

Table 2: Listed activities in terms of Government Notice R 984

Relevant Notice and Listed activity	Describe each listed activity as per project description:
GN R984 (Listing Notice 2), 4 December 2014 Activity 6	The development of facilities or infrastructure for any process or activity which requires a permit or license in terms of national or provincial legislation governing the generation or release of emissions, pollution or effluent, excluding – i) Activities which are identified and included in Listing Notice 1 of 2014; or ii) Activities which are included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case the National Environmental Management: Waste Act, 2008 applies; or iii) The development of facilities or infrastructure for treatment of effluent, wastewater, or sewage where such facilities have a daily throughput capacity of 2000 cubic meters or less.
GN R984 (Listing Notice 2), 4 December 2014 Activity 15	The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for- (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.

Table 3: Listed activities in terms of Government Notice R 985

Relevant Notice and Listed activity	Describe each listed activity as per project description:
GN R985 (Listing Notice 3), 4 December 2014 Activity 12	The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of ecosystem listed in terms of section 52 of the NEMBA or indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. (a) In Eastern Cape, Free State, Gauteng, Limpopo, North West and Western Cape provinces: (i) Within any critically endangered or ecosystem listed . . . ; (ii) Within critical biodiversity areas identified in bioregional plans; (iii) . . . ; or (iv)
GN R985 (Listing Notice 3), 4 December 2014	The development of- (i) canals exceeding 10 square metres in size; (ii) channels exceeding 10 square metres in size; (iii) bridges exceeding 10 square metres in size;

Activity 14	<ul style="list-style-type: none"> (iv) dams, where the dam, including infrastructure and water surface area, exceeds 10 square metres in size; (v) weirs, where the weir, including infrastructure and water surface area, exceeds 10 square metres in size; (vi) bulk stormwater outlet structures exceeding 10 square metres in size; (vii) marinas exceeding 10 square metres in size; (viii) jetties exceeding 10 square metres in size; (ix) slipways exceeding 10 square metres in size; (x) buildings exceeding 10 square metres in size; (xi) boardwalks exceeding 10 square metres in size; or (xii) infrastructure or structures with a physical footprint of 10 square metres or more; <p>(b) In Gauteng:</p> <ul style="list-style-type: none"> i) A protected area identified in terms of . . . ; ii) . . . ; iii) Gauteng Protected Area . . . ; iv) Sites identified as Critical Biodiversity Areas (CBA) and Ecological Support Areas (ESA) in the Gauteng Conservation Plan . . . ; v) . . . ; vi) . . . ; vii) . . . ; viii) . . . ; ix) . . . ; x) Sites zoned for conservation or public open space or equivalent zoning.
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1.3 The Town Planning Process

The application seeks to establish a township for the purpose of a mixed used development, subject to certain conditions, in terms of Section 108 of the Town-Planning and Townships Ordinance 1986 (No. 15 of 1986) on part of the remaining extent of the Farm Leeuwpoot 113 IR. The proposed township is to be known as **Leeuwpoot South**.

1.4 Environmental Assessment Practitioner (EAP)

Environmental Regulations require that relevant details of the independent Environmental Assessment Practitioner be included as part of the Scoping Report. In this regard, attached as **Annexure B**, is a copy of the CV of Lizelle Gregory as well as the company profile of Bokamoso Landscape Architects and Environmental Consultants CC. In summary details of the EAP are indicated below:

- **Name:** Lizelle Gregory
- **Company:** Bokamoso Landscape Architects and Environmental Consultants CC
- **Qualifications:** Registered Landscape Architect and Environmental Consultant (degree obtained at the University of Pretoria) with 20 years experience in the following fields:
 - Environmental Planning and Management;
 - Compilation of Environmental Impact Assessments;
 - Landscape Architecture; and
 - Landscape Contracting.

Ms L. Gregory also lectured at the Technicon of South Africa and the University of Pretoria. She is a registered member at the South African Council of the Landscape Architects Profession (SACLAP), International Association of Impact Assessments (IAIA) and with the Institution of Environmental Management and Assessment (IEMA).

It must be noted that a Scoping and EIA process was previously conducted for this development, thus specialist studies conducted for the said EIA, and EIA Report compiled for studies in the vicinity of the proposed development, were utilised to compile this Scoping Report. Where required, updated specialist reports will be compiled and will replace / support the original specialist reports conducted during the former EIA process.

1.5 Terms of Reference

The following terms of reference have been set:

- Determine if the proposed activity and proposed site location is a suitable from an environmental point of view;
- Prepare such an Environmental Scoping Report, taking into consideration the biophysical, social, economical and institutional environment;
- Assess the attitude of the surrounding landowners as well as Interest and Affected Parties to such a development;

- Identify key issues to be addressed during the Environmental Impact Assessment phase;
- Establish level of assessment and experts required to determine impacts and risks; and
- Identify measures to avoid, manage, or mitigate detrimental impacts and to capitalize on the positive impacts.

1.6 Scope of Work and Approach to the Study

1.6.1 Scope of Work

An application form for environmental authorization of the relevant NEMA listed activities triggered, will be submitted to GDARD. The scope of work includes the necessary investigations, to assess the suitability of the study area and the surrounding environment for the proposed activities. The scoping exercise describes the status quo of the bio-physical, social, economical, and institutional environment and identifies the anticipated environmental aspects associated with the proposed development in the form of a basic issues matrix. The assessment, significance and mitigation of the potential impacts as well as the assessment of the alternatives identified will be addressed in the Environmental Impact Assessment Report (EIAR) for the proposed development, which will be submitted after Bokamoso received acknowledgement of receipt and acceptance from GDARD of the Scoping Report and approval of the Plan of Study for EIA, which is also included as part of this report (**refer to Annexure C for the Plan of Study for EIA**).

All available material and literature were collected and used for the purpose of this study and it was further supplemented with discussions with provincial authorities, local authorities, other Interested and Affected Parties (I&APs), as well as by site surveys, photographic recording, and review of GIS information.

Goal and Objectives of the EIA Process

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.

Goal of the EIA process:

- To promote environmentally sustainable developments and livelihoods.

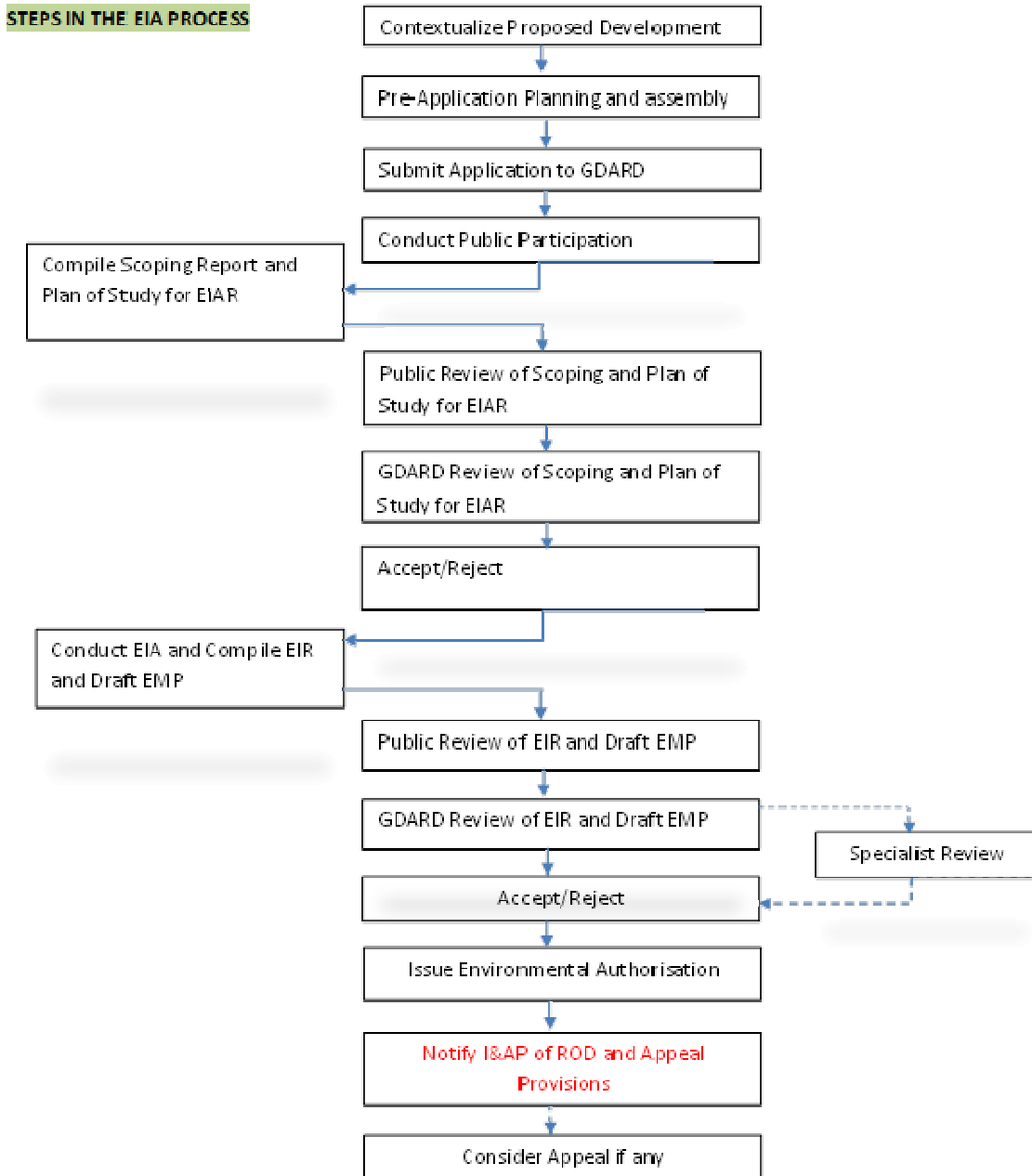
Short-term objectives of the EIA process:

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

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 development strategies to global and international initiatives.

Diagram 1: Summary of the technical processes followed for this EIA.



1.6.2 Approach to the Study

An investigative approach was followed and the relevant biophysical, socio-economic, and environmental aspects were assessed.

This Scoping Report takes into consideration the environments that may be affected by the proposed activity. Therefore, the geographical, physical, biological, social, economical, cultural, heritage, and institutional aspects are considered. A description of the property on which the activity is to be undertaken and the location of activities on the property are described. The proposed activity and any feasible and reasonable alternatives were identified. In addition, a description of the need and desirability of the proposed activity and location, including advantages and disadvantages that the proposed activity or alternatives may have on the environment and community that may be affected by the activity, are included.

An identification of all institutional legislation, policies, and guidelines that Bokamoso is currently aware of is considered in the preparation of this Scoping Report. Furthermore, a description of environmental issues and potential impacts, including cumulative impacts, are identified and discussed. Information on the methodology that will be adopted in assessing the potential impacts is also identified, including any specialist studies that were/must still be undertaken. In addition reference will be made to the mitigation of identified impacts or to further studies that may be necessary to facilitate the design and construction of an environmentally acceptable facility.

Details of the Public Participation process to date are included: (i) the steps that were taken to notify potentially Interested and Affected Parties of the application; (ii) proof that the notice boards, advertisements and notices, notifying potentially Interested and Affected Parties of the application, have been displayed, placed or given; (iii) a list of all persons or interested parties that were identified and registered; (iv) a summary of the issues raised by the I&APs including the date of receipt of and the response of the EAP to those issues.

Lastly a Plan of Study for Environmental Impact Assessment that sets out the proposed approach to the Environmental Impact Assessment of the application (including the proposed Public Participation Process for the EIA process) is included **(refer to Annexure C)**.

2. LOCALITY

The proposed development is 769ha in extent and is situated on part of the remaining extent of the Farm Leeuwpoort 113 IR, Boksburg, Ekurhuleni Metropolitan Municipality, Gauteng Province. The proposed development is situated south of Sunward Park and Kingfisher Avenue, west of Barry Marais Road (M43), north of North Boundary Road ((R554), and east of Rondebult Road (R21).

On a regional scale the proposed development is situated approximately 6km south of the Boksburg CBD, 3km south of the Boksburg Industrial area, 8.7km northeast of the Barry Marias off ramp on the N3, 5km east of the Roodekop Industrial Area, and 3.3km south of the N17 Rondebult off ramp.

The proposed development falls within Wards 31 and 43, in the Southern Region, of the jurisdiction of Ekurhuleni Metropolitan Municipality.

Refer to Figures 1 & 2.

The subject property falls within the Urban Edge of Gauteng Province (Urban Edge 2011).

Refer to Figure 3 below.

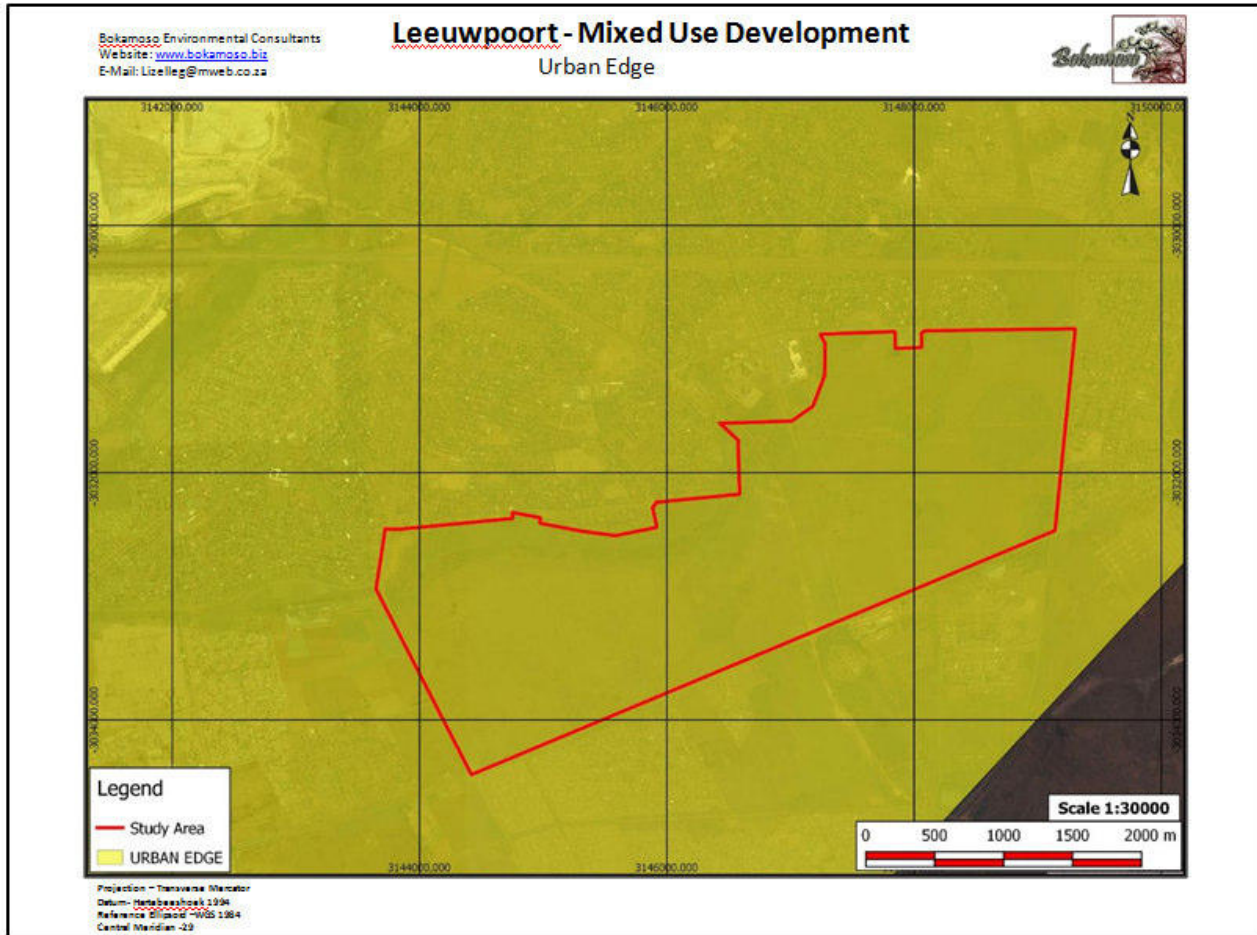


Figure 3: Gauteng Urban Edge

3. REGISTERED OWNERS AND TITLE DEEDS

As mentioned above, the property on which the proposed development is to take place, Remaining Extent of the Farm Leeuwpoot 113 IR, is 1340ha in size of which only 769ha is applicable to the proposed Leeuwpoot Mixed Use Development.

The property is registered in the name of Ekurhuleni Metropolitan Municipality in terms of Title Deed T82017/2001.

There are no restrictive title conditions prohibiting the proposed township establishment, but the property is subject to several servitudes for which no route has been determined. Routes should be determined for these servitudes or the servitudes should be cancelled.

The site is not subject to mining activities; however a sludge pipeline crosses the site within the railway reserve east of Trichardt Road.

4. ZONING AND LAND-USE

4.1 Existing Zoning and Land-Use

The property is zoned "Agricultural" in terms of the Ekurhuleni Town Planning Scheme, 2014.

The proposed site was historically utilized for agricultural purposes, and is currently not in use. Various servitudes transect the site. Trichardt Road transects the site from north to south. Evidence of illegal dumping exists next to Trichardt Road and along Boundary Road.

4.2 Surrounding Zoning and Land-Use

The majority of the surrounding properties are "Residential 1" zonings. Several businesses exist along Kingfisher Avenue, including four shopping centres, a hospital, medical consulting rooms, and a filling station. **(Refer to Figure 4 below).**

Some properties to the south and west of the proposed development site is still zoned "Agricultural".

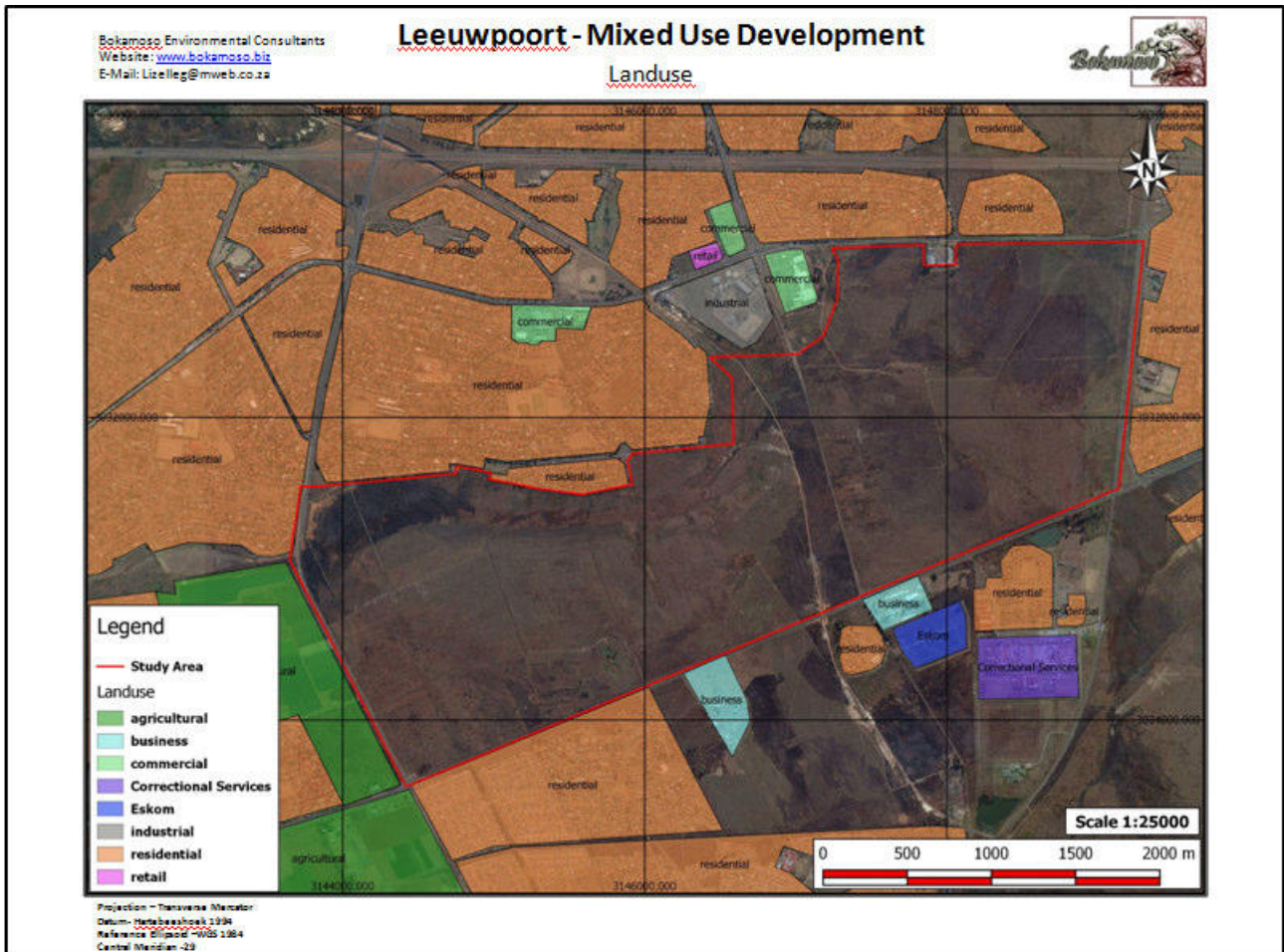


Figure 4: Surrounding land-Use

4.3 Proposed Zoning and Land-Use

The purpose of the application is for the establishment of a township for the development of approximately 13,269 residential units and even and supportive land-uses on land 769ha, to be known as Leeuwpoot South Mixed Use Development on part of the remaining extent of the Farm Leeuwpoot 113 IR comprising of the following land-uses; Residential 1 (FLISP stands and bonded stands), Residential 3 (220m² FLISP stands and 200m² subsidized stands), Residential 4 (subsidized units, FLISP units, and bonded units), Business 2 (shops and restaurants), Business 3 (offices), Special (Clinic), Special (retirement village), Special (consent land use), Special (Security houses), Public Services (electrical substation),

Community Facility (primary schools, secondary schools, and community facilities),
Transportation (railway line, station, taxi rank), Public Open Space (96 erven), and Streets.

The Township is to be known as **Leeuwpoot South**.

Refer to Annexure D for the preliminary layout of the proposed Township.

5. ALTERNATIVES IDENTIFIED

5.1 Locality Alternatives

The development is affected by a 1:100 year floodline along the northern boundary with Sunward Park. 1:100 year floodlines were also determined around the major pans on the site. The floodlines were shown and certified on the layout plan and where applicable the area affected by the floodline will be zoned "Public Open Space".

The proposed development site is vacant and has been earmarked by the Ekurhuleni Metropolitan Municipality for residential development in the form of affordable housing. The locality of the proposed Mixed Use Development provides for affordable housing in close proximity to economic opportunities in the Boksburg CBD. The proposed development will promote infill development and it will promote the optimum utilisation of services.

The proposed development site is situated just south of the Boksburg CBD which is a Mixed Use Business Area, and in between residential areas. The proposed development site is ideal for affordable housing based on integrating pockets of development into a coherent hole, and utilising existing bulk infrastructure.

It is clear that the proposed township is in line with the existing and planned land uses of the area and thus suitable for the planned Mixed Use Development. Therefore, locality alternatives were not considered.

5.2 Land Use Alternatives

5.2.1 Alternative 1 – Mixed Use Development (Preferred Alternative)

The proposed Mixed Use Development will consist of the following land use zones which will be elaborated on; Residential 1, Residential 3, Residential 4, Business 2, Business 3, Special, Public Services, Community Facilities, Transportation, Public Open Space, and Roads.

Residential

The development provides bonded, FLISP and subsidised stands and units in Leeuwoort South at a level that is affordable for people in the “gap market”. The development will cater for bonded housing for middle income groups; lower earning income groups and subsidised market making it a fully integrated development in line with the BNG principles, principles of the National Development Plan and principles of the Spatial Planning and Land Use Management Act.

A total of 7337 single residential erven and 5932 residential units will be provided and are made up of the following components:

- 170 erven zoned “Residential 1” (700m² bonded stands);
- 190 erven zoned “Residential 1” (500m² bonded stands);
- 1732 erven zoned “Residential 1” (400m² bonded stands);
- 1988 erven zoned “Residential 1” (300m² Flisp stands);
- 1514 erven zoned “Residential 3” (220m² Flisp stands / 46u/ha);
- 1743 erven zoned “Residential 3” (200m² Subsidised stands / 50u/ha);
- 21 erven zoned “Residential 4” (Subsidised units / 120u/ha);
- 21 erven zoned “Residential 4” (Flisp units / 160u/ha);
- 5 erven zoned “Residential 4” (Bonded units / 180u/ha);

The above is in line with the Ekurhuleni Metropolitan Spatial Development Framework (EMSDF), 2011 principle of promoting infill residential development. This principle states that

the EMM should promote infill residential development in strategically located vacant land areas.

In terms of the Reiger Park Local Spatial Development Framework (LSDF), 2008 part of the site may be used for low to medium density housing i.e. 40 units per hectare or less, and part of the site may be used for high density housing i.e. in excess of 60 dwelling units per hectare.

The proposed development will comprise of 50 to 180 units per hectare and is thus in line with the Reiger Park LSDF.

Business

The layout provides for 10 stands zoned "Business 2" for shops, restaurants etc to provide local shopping facilities for the community living in Leeuwpoort South. 3 stands were zoned "Business 3" for local offices.

Community Facilities

The layout provides for 5 community facilities which could be used as churches, crèches, multi-purpose centres or any other community use depending on the need in the community. 3 Secondary Schools and 5 Primary Schools have also been provided for use by the future residents. There are also two stands zoned "Special", one for a clinic and another for a retirement village.

Transportation

The layout provides for 1 stand zoned Transportation which will accommodate public transport facilities such as a taxi or bus stop. This is located in the centre of the development at an entrance from the K165 and close to the proposed station where it is easily accessible from the surrounding Provincial Road network and from the nodal development around the station. The placement of the public transport facility was done with visibility and legibility in mind.

Public open space

Large pockets of land zoned Public Open Space were provided to accommodate the areas which are affected by the most important wetlands and pans. Some parks also accommodate services and power lines but form an important part of the layout as it links the various pockets of open space to each other. Along the K110 there is also a park which will accommodate a powerline. Smaller internal parks were provided for the use of residents in each “development pocket”.

Roads

The development will gain access from the K131 Rondebult Road, K132 North Boundary Road and proposed K165 (bisecting the site). The current Trichardt Road alignment will be accommodated where practical, but will largely be realigned to accommodate the K165.

The internal street hierarchy for the development can be classified into 3 classes:

- Class 3 arterial roads 20, 25 and 30m road reserves providing access to the Provincial Roads;
- Class 4 access roads - bus/taxi routes in 16m reserves; and
- Class 5b residential access streets in 10,5m street reserves.

Community and social facilities are located at the intersections of the main arterials with other arterials (possible public transport routes) to facilitate ease of access for the community who will be using the facilities. Public Transport Facilities are located along the 25m access roads into the development. Class 4 access roads (16m road reserve) have been provided as access roads into the various development blocks and in some cases forms possible bus routes.

10,5m reserves were provided to allow access to the individual stands.

One of the principles of the Ekurhuleni Metropolitan Spatial Development Framework (EMSDF), 2011 is *Mixed Use, High-Density Development along Corridors and at Nodes*. In terms of this principle the Ekurhuleni Metropolitan Municipality should promote mixed use, high density development along public transport corridors and in the areas in

and around the activity nodes to ensure optimum utilisation of public transport in the EMM area and to support disadvantaged communities in terms of easy access to job opportunities. Another principle is *Promoting Infill Residential Development*. In terms of this principle infill residential development should be promoted in vacant areas within the Core Development Triangle [of which the “East West Development Corridor” (previous mining belt) which includes the CBDs of Germiston, Boksburg and Benoni is one] as a priority, and within the Urban Edge in general. The proposal for the establishment of a Mixed Use Development is thus in line with the principles of the EMSDF.

5.2.2 Alternative 2 – Commercial

According to the Ekurhuleni Metropolitan Spatial Development Framework (EMSDF), 2011 the study area is earmarked for residential development in the form of affordable housing. Considering the proposed development land is vacant and the EMSDF principle that the EMM should promote Infill Residential Development on strategically located vacant land, utilising the property solely for commercial purposes, would not be in line with the Metropolitan Spatial Development Framework.

5.2.3 Alternative 3 – Low density residential

Although Low Density Residential is mentioned as alternative, it is not in line with the principle of *Promoting Infill Residential Development*. In terms of this principle Infill Residential Development should be promoted in vacant areas within the Core Development Triangle [of which the “East West Development Corridor” (previous mining belt) which includes the CBDs of Germiston, Boksburg and Benoni is one] as a priority and within the Urban Edge in general. According to this principle, Infill Residential Development should take the form of strategic densification as described in the Ekurhuleni Residential Densification Strategy.

In terms of the Reiger Park Local Spatial Development Framework (LSDF), 2008 part of the site may be used for low to medium density housing i.e. 40 units per hectare or less, and

part of the site may be used for high density housing i.e. in excess of 60 dwelling units per hectare.

The option of utilising this specific portion of vacant land as low density residential development is thus not in line with the principles of Ekurhuleni Metropolitan Municipality.

5.2.4 Alternative 4 – Agriculture

Although the proposed development site is currently zoned “Agricultural”, it has, according to the Gauteng Agricultural Potential Atlas (GAPA 3), the study area has very low agricultural potential (**refer to Figure 5**), therefore agriculture is not considered a viable option for the study area.

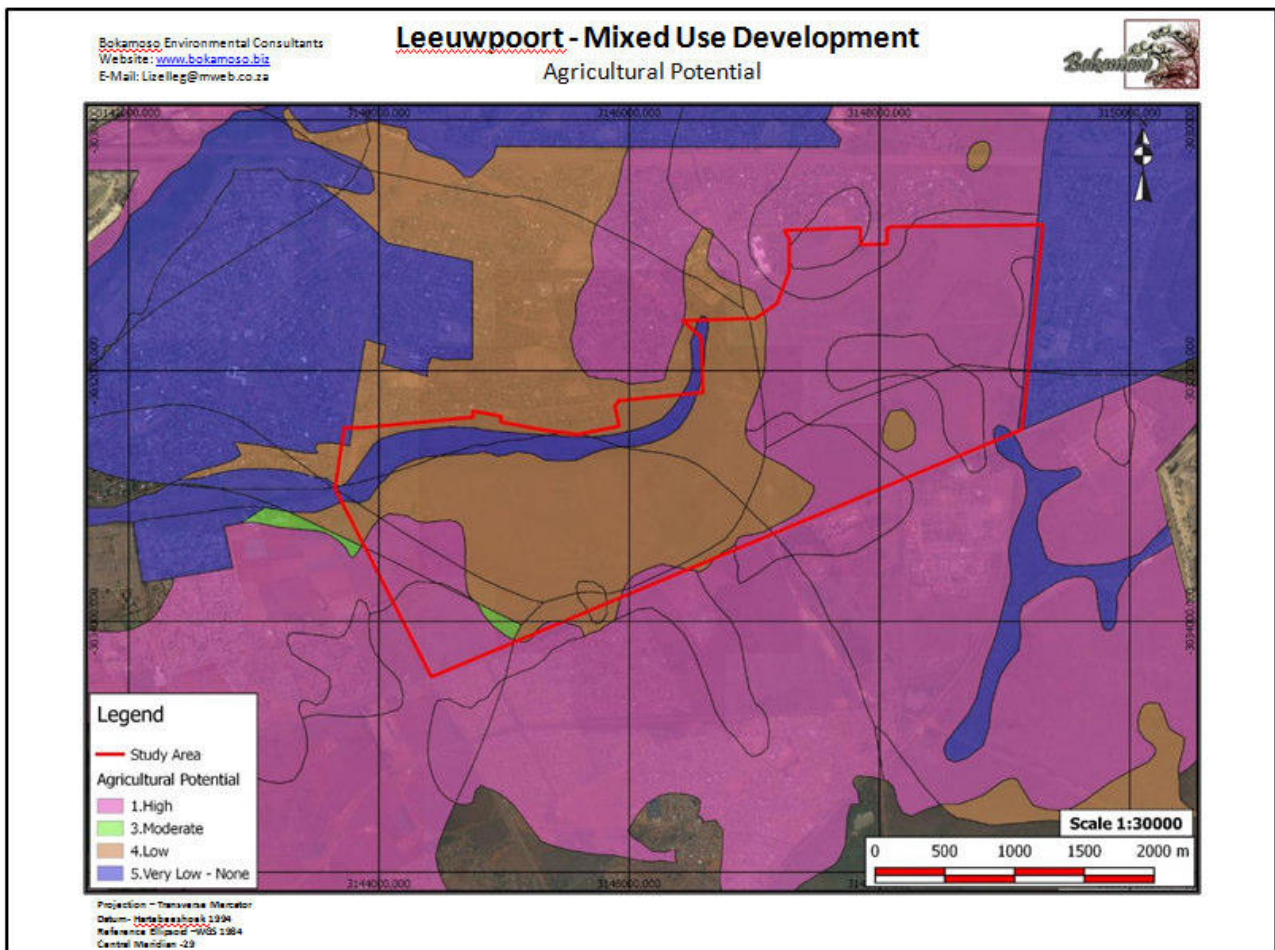


Figure 5: Agricultural potential

5.2.5 Alternative 5 – Conservation Area

According to the GDARD C-plan a portion of the proposed development site qualifies as a Critical Biodiversity Area due to consisting of irreplaceable sites as a result of the potential presence of Orange Listed plant habitat (**refer to Figure 6**).

The study site lies within the Quarter Degree Squares (QDS) 2628AC and 2628AD. The site falls partly within the Tsakane Clay Grassland vegetation unit the Klipriver Highveld Grassland. The Tsakane Clay Grassland vegetation unit is considered Endangered, while the Klipriver Highveld Grassland is listed as Critically Endangered according to the National list of threatened terrestrial ecosystems for South Africa, 2011.

The Orange Listed Species *Hypoxis hemerocallidea* was found in abundance and a rescue plan should be implemented to ensure the survival of this species.

A Fauna Assessment conducted concluded that the terrestrial habitat in general is considered suitable to support medium population densities of Fauna Species, especially small mammal and reptile species. The drainage line and pan habitat is highly suitable for several aquatic Fauna Species and should be conserved accordingly.

In terms of Avifauna it has been concluded that although 17 threatened and/or near threatened bird species have previously been recorded within the larger 2628AD QDS. The **probable occurrence of any of these threatened and/or near threatened bird species are unlikely**. However, the wetland vegetation habitat unit provides breeding and foraging habitat for both African Grass-owl and African Marsh-harrier. Thus the majority of the study area was identified with a high Avifaunal sensitivity even though the probability of both these species actually occurring within the study area was judged to be low.

Please take note that none of the bird species were spotted on or in close proximity of the study area during recent site surveys and it was suggested by the Avifauna specialists that a follow-up survey be conducted during the summer months in order to confirm the possible occurrence of such species in the area. The Avifauna specialists of Bokamoso had

regular discussions with the GDARD conservation department regarding the possible occurrence of such species in the area and the general feeling was that such species will not be found in the identified areas. It was however decided that it will be better to follow the cautious approach and to eliminate (where possible) all doubt. The pollution

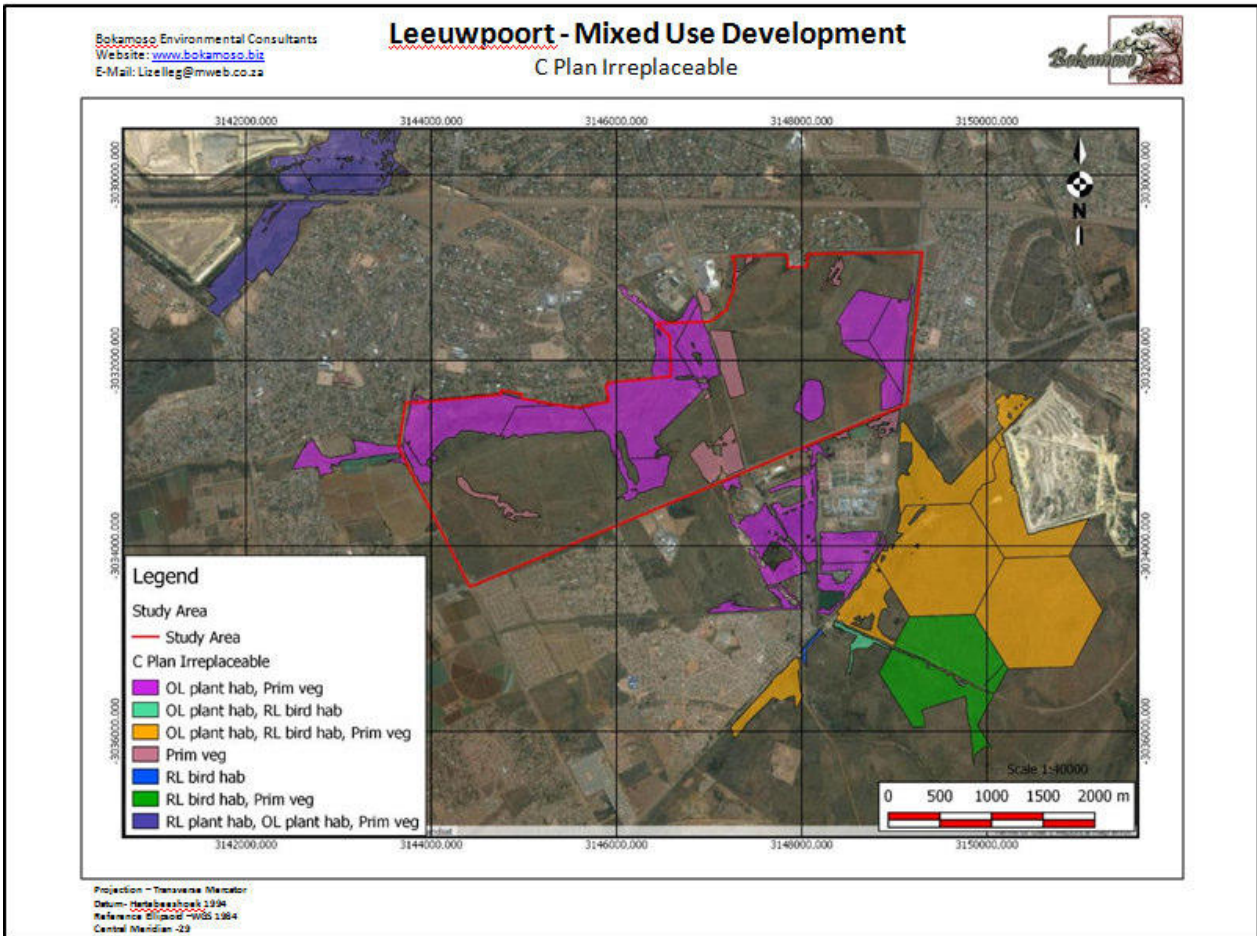


Figure 6: Gauteng Conservation Plan CBA – Irreplaceable Areas

The wetland and wetland buffers are considered highly sensitive and have been mostly excluded from the preliminary layout. However parts of the proposed development site are covered by highly sensitive wetlands and moderately sensitive grasslands, which have been catered for in the preliminary layout plan as Public Open Space.

It must however be highlighted that the proposed development site has been transformed by human activities in the form of farming, and is thus not in a pristine state.

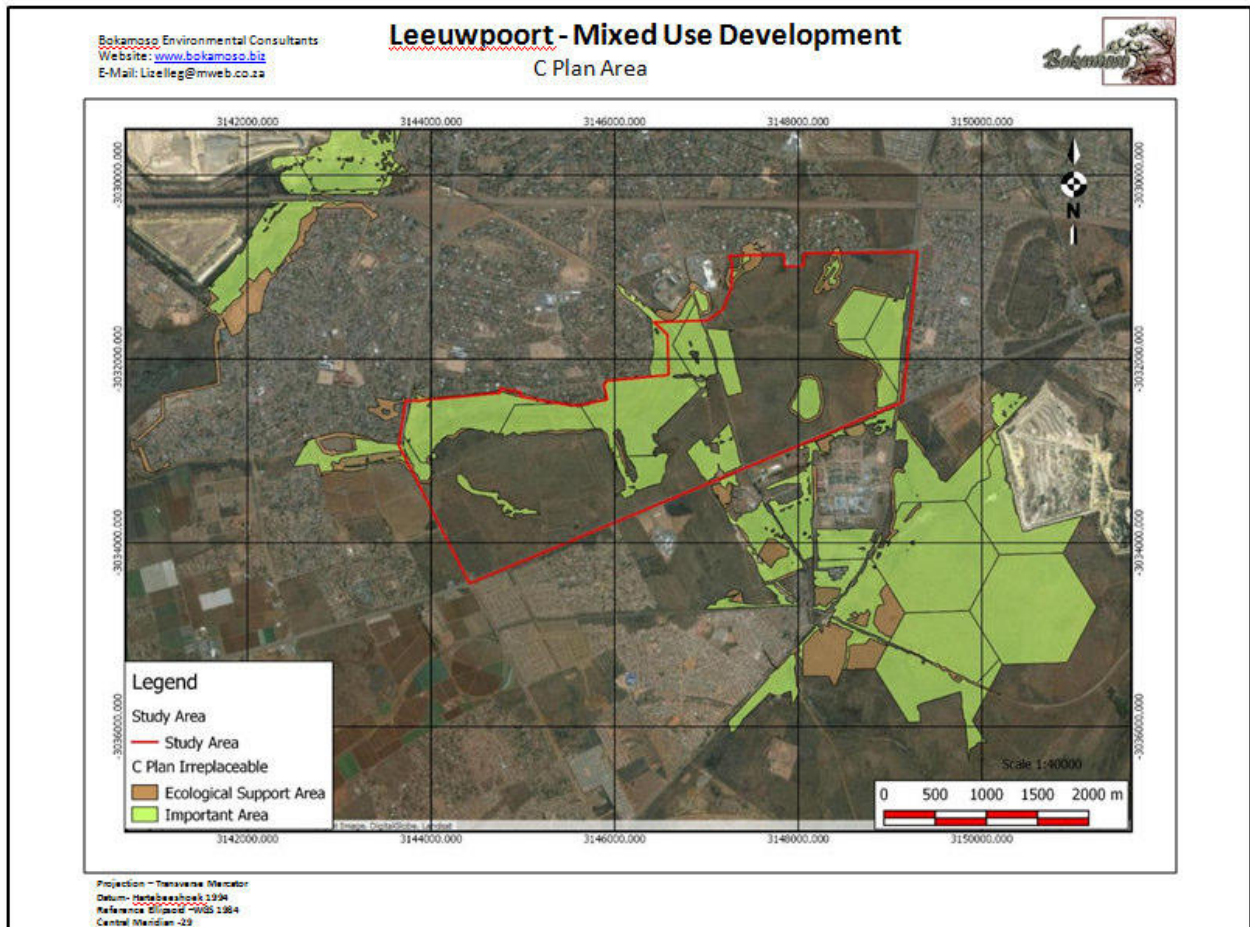


Figure 7: Gauteng Conservation Plan – C-Plan Area

5.3 Layout Alternatives

Various layouts have been considered, but the environmental aspects of the site acted as the main form giving effect to the preliminary layout included as part of the Scoping Report (**Refer to Annexure D**). The proposed layout must however still be tested and confirmed by specialist inputs during the EIA Phase of the assessment process.

5.4 The “No-Go” Alternative

The proposed development site is vacant and has been earmarked by the Ekurhuleni Metropolitan Municipality for residential development in the form of affordable housing. The locality of the Proposed Mixed Use Development provides for affordable housing in close proximity to economic opportunities in the Boksburg CBD. The proposed development shall provide affordable housing which is in line with the **Ekurhuleni Metropolitan Spatial Development Framework (MSDF)**, 2011 principle of promoting Infill Residential Development. This principle states that the EMM should promote Infill Residential Development in strategically located vacant land areas.

In terms of the **Reiger Park Local Spatial Development Framework (LSDF)**, 2008 part of the site may be used for low to medium density housing i.e. 40 units per hectare or less , and part of the site may be used for high density housing i.e. in excess of 60 dwelling units per hectare. The proposed development will comprise of 50 to 180 units per hectare and is thus in line with the Reiger Park LSDF.

The proposed development can thus be motivated in terms of the institutional framework documents relevant to the locality of the application site, is desirable and is supported in terms of the following:

- The proposed development complies with the objectives set out in the Spatial Planning and Land Use Management Act (SPLUMA), Act No.16 of 2013;
- The proposed development is in line with the principles of the Ekurhuleni MSDF;
- The Proposed development is in line with housing densities specified in the Reiger Park LSDF;
- Bulk services already border the proposed development site;
- The proposed development is considered desirable and necessary from a town planning point of view;
- The proposed development will provide in the current need for affordable housing and will contribute to economic growth.

The most significant environmental preliminary issues that were identified during the scoping process for the proposed Leeuwpoot South Development are:

- According to the GDARD C-plan a portion of the proposed development site qualifies as is a Critical Biodiversity Area due to consisting of irreplaceable sites as a result of the potential presence of Orange Listed plant habitat (**refer to Figure 6**).
- The site falls within the Tsakane Clay Grassland vegetation unit and the Klipriver Highveld Grassland. Tsakane Clay Grassland vegetation unit is considered Vulnerable, while the Klipriver Highveld Grassland is listed as Critically Endangered according to the National list of threatened terrestrial ecosystems for South Africa, 2011. Sensitive areas have been designated as Public Open Space in the proposed development layout plan.
- In terms of Avifauna the wetland vegetation habitat unit provides optimal breeding and foraging habitat for both African Grass-owl and African Marsh-harrier.
- The wetland vegetation habitat unit is situated along the north-western section of the study area with one small artificial wetland (due to a sewerage leak) to the east. The total surface area of the wetland vegetation study unit is approximately 100ha. The proximity of the wetlands to the proposed development site triggers a Water Use License Application.
- Some of the bulk services to be provided to the proposed development will stretch across the watercourses present within the proposed development area requiring Environmental Authorisation and triggering a Water-Use License Application.
- Trichardt Road transects the site from north to south. Evidence of illegal dumping exists next to Trichardt Road and along Boundary Road.
- Several Surface Right Permits (SRPs) in favour of several organisations are registered against the property. DMR will be requested to confirm if any SRPs are still valid.

No “Fatal Flaws” were identified during the Scoping phase which would trigger the “No-Go” option.

The following Diagrams represent a preliminary comparison between the “No-Go” alternative and the proposed development alternative.

Diagram 2: Environmental issues - “No-Go” Option

Issue	Short term	Medium term	Long Term	Impact	Reasons
Geology and soils				Positive Neutral Negative	The site is undermined and vacant. The potential for erosion exists considering the site is vacant and slopes towards the watercourse.
Hydrology				Positive Neutral Negative	With potential for erosion, siltation will become an increasing problem in the adjacent watercourse and water pollution will occur when stormwater runoff is not managed. The wetland might degrade as a result of the aforementioned.
Vegetation				Positive Neutral Negative	Exotic invaders could invest the vacant property and easily spread via the watercourse. Protected vegetation and habitat occurring on site might be destroyed as a result of no development.
Fauna				Positive Neutral Negative	Protected fauna potentially occurring on site might be hunted, their habitat might be destroyed, or habitat might be negatively affected by siltation of the wetland.
Social				Positive Neutral Negative	Sites of historical importance occur on site, some of which have already been destroyed. If the site is not developed and these sites are not recorded and incorporated as community facilities, it might disappear from historic record. The need for affordable housing will not be addressed if the “No-Go” option is affected.
Economic				Positive Neutral Negative	Currently the study area does not have any economical benefits for the local community and without development the status quo will prevail.

Note: The “No-Go” option is predominantly neutral in the short term but turns negative in the medium to long term.

Diagram 3: Environmental issues of the proposed development

Issue	Short term	Medium term	Long Term	Impact	Reasons
Geology and soils				Positive Neutral Negative	The site is undermined and vacant. The potential for erosion could be addressed by means of developing the land.
Hydrology				Positive Neutral Negative	Siltation of the watercourse will be prevented with the installation of attenuation ponds as part of the development layout.
Vegetation				Positive Neutral Negative	Protected vegetation occurring on site will be protected by incorporating it into Public Open Space areas.
Fauna				Positive Neutral Negative	When habitat of protected Fauna potentially occurring on site, such as the wetland and buffer boundaries, is incorporated into Public Open Space areas, Fauna will automatically benefit.
Social				Positive Neutral Negative	Sites of historical importance will be preserved as community facilities as part of the proposed development. The need for affordable housing within close proximity to economic opportunities will be addressed by the proposed development.
Economic				Positive Neutral Negative	The Proposed Mixed Use Developments will produce economic benefits, not only for the residents of the proposed township, but for the local community as well.

Note: From the preliminary investigations that were done, it is anticipated that the proposed development option is either negative, neutral, or positive in the short term, and turns neutral or positive in the medium term, and has a positive impact in the long term.

6. THE DESCRIPTION OF THE BIOPHYSICAL ENVIRONMENT

This section briefly describes the biophysical environment of the proposed development site.

6.1 The Physical Environment

6.1.1 Geology and Soils

6.1.1.1 Geology

According to the 1:250 000 geological sheet 2628 East Rand, rock formations dip to the south and south west. The site is underlain by quartzites and conglomerates of the Turffontein Subgroup of the Witwatersrand Super group. Problematic soils cover the bedrock requiring specific foundation design for structures.

Preliminary geotechnical evaluation

- Problematic soils
There are potential problematic soils within the development footprint requiring specific foundation design for structures. Potentially active and collapsible soils and potential for difficult excavation conditions near surface.
- Ground vibrations
Due to the site having been historically undermined, the potential for ground vibrations exist.
- Dolomite
Due to the site having been historically undermined, the potential for ground vibrations exist due to presence of Dolomite.

6.1.1.2 Agricultural Potential

According to the Gauteng Agricultural Potential Atlas (**GAPA 3**) the proposed development area has **low** agricultural potential (**refer to Figures 5**).

6.1.1.3 Preliminary Issues Identified

- Problematic soil with potential for collapse;
- No residential development should be allowed below the 1:100 year flood line or inside wetland buffer zones on the study area; and
- Dolomitic conditions.

6.1.1.4 Additional Information or Studies Required for the EIA Phase

- A Phase 1 Engineering Geological Study has been conducted and will be included as part of the EIA Report; and
- A comprehensive Geotechnical Phase II Report has to be prepared and must address the geotechnical aspects in sufficient detail to enable the Town Planners and Civil Engineers to address problems such as foundation design for buildings, construction of roads, stormwater structures, etc. The Geotechnical data must also be of sufficient detail to conform to NHBRC requirements and standards; and
- Copies of the Geotechnical reports must be submitted to the Council of Geoscience. Comments from Council of Geoscience to be obtained.
- Comments of the Department of Mineral Resources (DMR) should be obtained during the Public Participation Process and addressed and included in the final EIA Report.
- An Air Quality Impact Assessment is recommended in terms of potential nuisance dust pollution from slimes dams and potential health effect.

6.1.2 Hydrology

6.1.2.1 Surface Hydrology

The study area is situated in Quaternary Sub-catchment C22B as well as Quaternary Sub-catchment C22C of drainage region C, in the Vaal River catchment area, which ultimately drains into the Vaal River. The non-perennial stream flows from east to west along the northern boundary of the proposed development site and forms the western boundary (Refer to Figure 8).

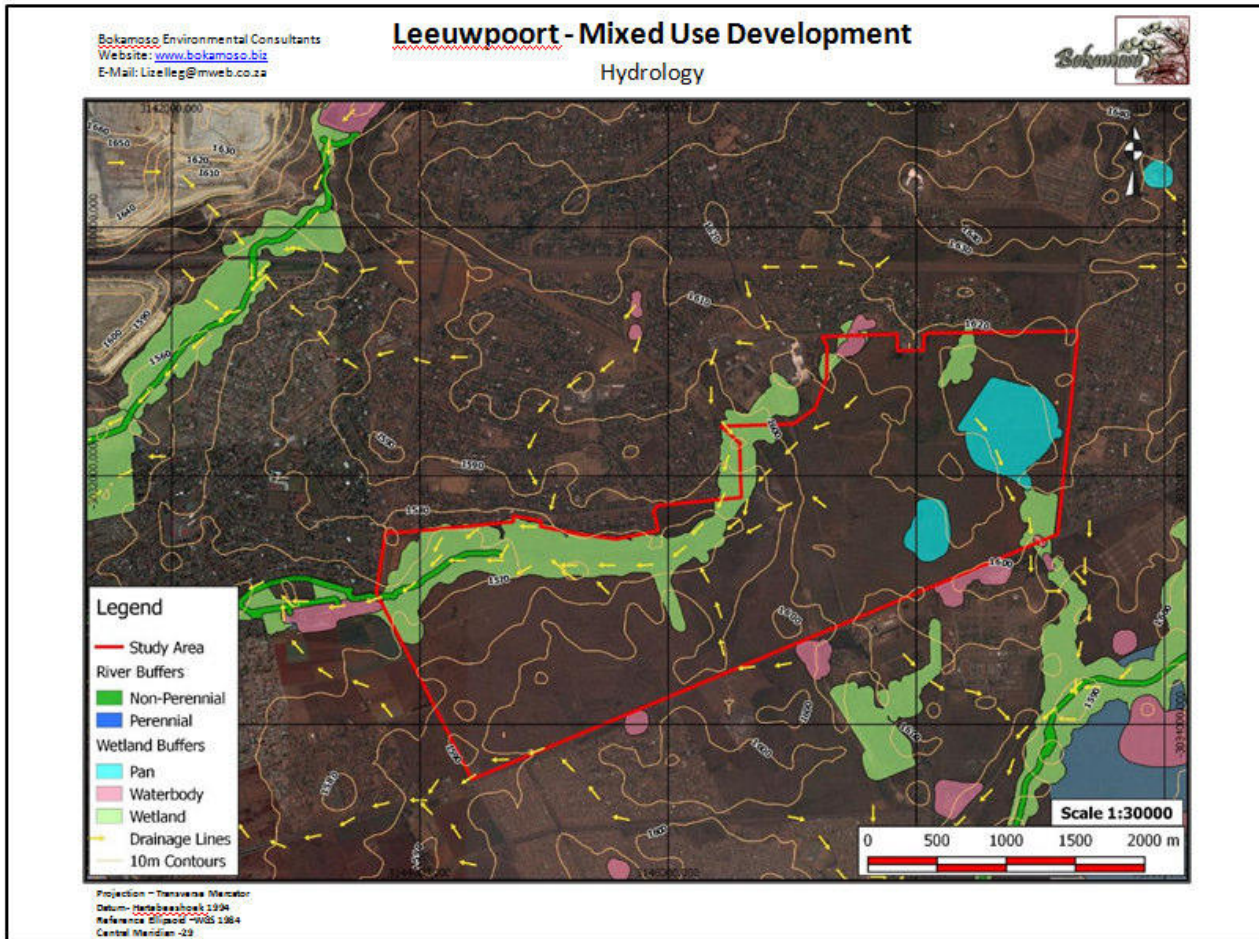


Figure 8: River Buffers

6.1.2.2 Wetland Delineation

Wetlands delineated within the proposed development footprint are; a pan, a seepage wetland, stormwater wetland, and a valley bottom wetland associated with the non-perennial stream flowing from east to west along the northern boundary of the site.

6.1.2.3 Flood lines

The study area is affected by 1:100 year flood line of a non-perennial stream. Therefore a flood line determination was carried out for the site and the flood lines were indicated on the layout plan of the proposed development. The involved engineers also certified the flood lines (**Refer to Annexure D for the preliminary layout**).

6.1.2.4 Subsurface Hydrology - Groundwater

Due to the gradient of the site sloping towards the non-perennial stream, percolating groundwater will flow downwards through the upper permeable horizons and follow the gradient to the drainage channel. Wet surface conditions are therefore expected along most of the lower slopes along the edge of the riparian zone.

Perched groundwater tables might occur along the non-perennial stream and stormwater drainage channel occurring on site.

6.1.2.5 Preliminary Issues Identified

- A channelled valley bottom wetland occurs within the development site which should remain undeveloped and be managed as private or public open space;
- The development is affected by the 1:100 year flood line of the non-perennial stream;
- No development will be allowed within the wetland buffer zones or below the 1:100 year flood lines except for the installation of services and pedestrian bridges or other

light structures associated with open space areas, with the necessary water use authorisation;

- In order to minimise the impacts on the wetlands and drainage areas the services alignments and pedestrian bridges across the wetland and drainage areas have to coincide;
- A Section 21 Water Use License Application is triggered for work below the flood line and inside buffer zones of wetland areas;
- Possible damage to wetland areas and drainage lines during construction due to work within the boundaries of and buffer zones of the wetland and within drainage lines;
- Surface and groundwater pollution, siltation and erosion problems;
- More impermeable surfaces will lead to an increase in the speed and quantity of the surface water and it could lead to decrease in the quality of surface water;
- Possible erosion caused at discharge points of stormwater; and
- Lack of sufficient stormwater management measures, could cause erosion.

6.1.2.6 Additional Information or Studies Required for the EIA Phase

- A Wetland Delineation has already been conducted and will be included as part of the EIA Report;
- The 1:100 year flood line has been determined and the flood line certification will be included as part of the EIA Report;
- Proof of Section 21 Water-Use License applications (WULA) should be provided with the EIA Report;
- Detail of drainage line crossings and alternatives investigated by the engineers must be supplied and alternatives investigated and this information must be supplied within a Services report from the engineers and included in the EIA Report;
- Detailed Stormwater Management Plan will be required for assessment and inclusion in the EIA Report. The Stormwater Management Plan must be designed to:
 - Reduce and/or prevent siltation, erosion, and water pollution. If erosion, siltation and water pollution is not addressed, the long-term sustainability of

the wetlands and the open space systems lower down in the catchment area cannot be guaranteed;

- Attenuate stormwater captured on the proposed development site prior to release into the watercourse.
- An Integrated Water Quality and Quantity Management and Monitoring Plan addressing both surface and groundwater must be incorporated as part of the EIA Report.

6.1.3 Topography

The site is fairly level, with elevation varying between 1 614m above mean sea level in the south east corner of the proposed development site to 1 584m in the north west corner, sloping towards the watercourse running along the northern boundary. The general slope angle is approximately 1.7%.

6.1.3.1 Preliminary Issues Identified

- The proposed development will be visible from the R21 (Rondebult Road) running past the northern and eastern boundary of the proposed development.

6.1.3.2 Additional Information or Studies Required for the EIA Phase

- Detailed visual input must be supplied in the EIA Report;
- Where possible, suitable mitigation measures must be supplied for the anticipated visual impacts in the EIA Report; and
- Architectural and Landscaping guidelines must be based on the mitigation measures supplied in the EIA Report.

6.1.4 Climate

Boksburg receives about 588mm of rain per year, with most rainfall occurring during summer. It receives the lowest rainfall (0mm) in July and the highest (110mm) in January.

The average midday temperatures for Boksburg range from 16.6°C in June to 26.2°C in January. The region is the coldest during July when the mercury drops to 0.2°C on average during the night.

6.1.4.1 Preliminary Issues Identified

- Should the construction phase be scheduled for the summer months, frequent rain could cause very wet conditions, which makes construction and environmental rehabilitation works extremely difficult;
- Such wet conditions often cause delays to building projects and the draining of water away from the construction works (in the case of high water tables) into the nearby water bodies, could if not planned and managed correctly have an impact on the water quality of these water bodies; and
- If dry and windy conditions occur during the construction phase, dust pollution could become a problem to surrounding land users.

6.1.4.2 Additional Information or Studies Required for the EIA Phase

- Recommendations to mitigate dust pollution caused by construction activities must be made in the Environmental Management Plan (EMP); and
- Engineering guidelines for construction (especially services constructed within the drainage lines and below the 1:100 year flood lines and in wetland areas) must be supplied during the EIA phase.

6.2 The Biological Environment

Specialist biodiversity assessments are required by GDARD to investigate the following:

- Plants;
- Vegetation;
- Wetlands; and
- Rivers.

6.2.1 Flora Survey

The study site lies within the Quarter Degree Squares (QDS) 2628AC and 2628AD. The site falls partly within the Tsakane Clay Grassland vegetation unit (Mucina and Rutherford, 2006) and the Klipriver Highveld Grassland (SANBI, 2011). The Tsakane Clay Grassland vegetation unit is considered Endangered, while the Klipriver Highveld Grassland (SANBI, 2011) is listed as Critically Endangered according to the National list of threatened terrestrial ecosystems for South Africa, 2011 (Government Gazette no. 34809, 2011).

6.2.1.1 Vegetation Type

Detail pertaining to the vegetation types occurring on site shall be included in the EIA Report following completion of a Flora Assessment.

6.2.1.2 Red Data Flora Species

It is not yet known whether any Red Data Floral Species occur on site. Results of a Flora Assessment conducted shall be incorporated into the EIA Report.

6.2.1.3 Preliminary Issues Identified

- Alien vegetation removal from the property is required;
- The wetland areas and associated buffers identified on the study area should remain as open or private space and should be considered as a sensitive area;
- Introduction of alien vegetation in gardens could possibly invade the open space areas;
- Eradication of the existing vegetation (with and without conservation value) in and around the proposed development area could occur;
- Potential for Orange Listed Species occurring on site; and
- The site is characterised by vulnerable to critically endangered grassland.

6.2.1.4 Additional Information or Studies Required for the EIA Phase

- A Flora Assessment was conducted and results of the assessment shall be included in the EIA Report;
- If any Red or Orange Listed Plant Species are found outside the planned open or private space areas, then a Biodiversity permit for relocation to open space areas situated on site or a destruction permit must be obtained from DAFF; and
- Suitable mitigation measures must be incorporated into an EMP as part of the final EIA Report.

6.2.2 Fauna

6.2.2.1 Avifauna

Three potential Avifauna habitats are present on site; Wetland, Grassland and Degraded Pans.

The grassland area was deemed moderately sensitive as a result of the numerous common species occurring and breeding within the area. This habitat is also to a lesser extent suitable foraging habitat for African Marsh Harrier and African Grass-owl. The occurrence of these species is highly unlikely because all of them need an area larger than 100ha to proliferate. The study area is therefore not a suitable habitat. The Wetland area is deemed sensitive as a result of the fact that it is a wetland and therefore plays an important ecological role. A number of other Red Data Species have been recorded in the 2610_2810 pentad in the past, but most of these sightings were recorded 9 to 10 years ago and the probability of these species recurring are very low due to the continuing urban expansion in the surrounding area.

6.2.2.2 Mammals, Invertebrates, and amphibians

Detail pertaining to mammal, invertebrate, and amphibian species present on site shall be included in the EIA Report following completion of a Fauna Assessment.

6.2.2.4 Preliminary Issues Identified

- The wetland areas and associated buffers that occur on the property should remain as open or private space and should be considered as sensitive areas;
- Development might impact Fauna Species potentially occurring on site;
- If the areas earmarked for exclusion from development are not fenced off during the construction phase, they can be damaged or be covered with soil, builders' rubble or waste and ruin existing habitat for fauna;
- Three potential Avifauna habitats were identified on site which could potentially be negatively affected by the proposed development;
- If the entire site is cleared at once, smaller birds, mammals and reptiles will not be afforded the chance to weather the disturbance in an undisturbed zone close to their natural territories;
- Noise of construction machinery could have a negative impact on the Avifaunal Species during the construction phase;
- During the construction and operational phases, if not managed correctly, Fauna could be disturbed, trapped, hunted or killed;
- Loss of ecosystem functioning due to development;
- Loss of Avifaunal and Fauna habitat; and
- Loss of threatened or protected Avifauna and Fauna potentially occurring on site.

6.2.2.5 Additional Information or Studies Required for the EIA Phase

- A specialist Avifaunal Assessment has been conducted and results will be included as part of the EIA Report;
- A Fauna Assessment has been conducted and results will be included as part of the EIA Report;
- Suitable measures to curb soil erosion during the pre-development and construction phases of the proposed development to ensure the protection of the wetland habitat within the property portion must be provided; and

- Suitable mitigation measures and an EMP to reduce the impact of the proposed development on Fauna must be provided during the EIA phase.

6.2.3 Aquatic Biodiversity

Considering historic agricultural activities which occurred on the proposed development site as well as anthropogenic impacts associated with urbanisation, it is not deemed necessary to conduct an aquatic biodiversity assessment of the stretch of the watercourse bordering the proposed residential development.

6.2.3.1 Preliminary Issues Identified

- Increased velocities and volumes of stormwater runoff, due to an increase in impermeable surfaces associated with development might occur;
- Erosion of stream banks, riparian zone and flood plains and sedimentation of the stream, due to movement of workforce, construction vehicles and incorrect construction methods as well as vehicles and movement of residents during the operational phase;
- Potential Floral disturbance in the riparian zone and flood plains due to movement of construction vehicles and workforce and construction activities as well as vehicles, movement of residents and the presence of services (e.g. power lines, sewage and water lines) during the operational phase;
- Potential surface water pollution due to oil and fuel spills from construction vehicles, construction material (e.g. concrete, solvents, paints etc.), workforce activities, the application of herbicides during the operational phase, and the increase in stormwater due to an increase in impermeable surfaces associated with development;
- Change in hydrological regime on a micro scale due to the presence of roads, bridges in close proximity to the stream and stream crossings;
- The wetland areas and associated buffers identified on the property should remain as open or private space and should be considered as a sensitive areas that form

an integral part of the larger continuous regional and provincial open space system;
and

- If the areas earmarked for exclusion from development are not fenced off during the construction phase, they can be damaged or be covered with soil, builders' rubble or waste and will pollute aquatic and other sensitive habitats.

6.2.3.2 Additional Information or Studies Required for the EIA Phase

- Measures to curb soil erosion during the pre-construction and construction phases and attenuate stormwater run-off during construction and operational phases of the proposed development must be incorporated into a Stormwater Management Plan, to ensure the protection of the wetland habitat within the property portion must be provided; and
- Mitigation measures and an EMP to reduce the impact of the proposed development on the fauna must be provided during the EIA phase.

7. THE DESCRIPTION OF THE EXISTING SOCIAL ENVIRONMENT

7.1 Archaeology/Cultural History

A Phase 1 Heritage Impact Assessment (HIA) as provided for in the National Heritage Resources Act (Act 25 of 1999) will be conducted for the proposed Leeuwpoot South Mixed Use Development.

7.1.1 Preliminary Issues Identified

- Sites of cultural/historical importance might be present on site.

7.1.2 Additional Information or Studies Required for the EIA Phase

- A Phase 1 Heritage Impact Assessment (HIA) to be conducted.

7.2 Social Aspects of the Proposed Development Area

7.2.1 Existing Land Use

The property is zoned “Agricultural” in terms of the Ekurhuleni Town Planning Scheme, 2014.

The proposed site was historically utilized for ag Road transects the site from north to south. Evidence of illegal dumping exists next to Trichardt Road and along Boundary Road.

7.2.2 Surrounding Zoning and Land Use

The majority of the surrounding properties are “Residential 1” zonings. Several businesses exist along Kingfisher Avenue, including four shopping centres, a hospital, medical consulting rooms, and a filling station. **(Refer to Figure 4 below).**

Some properties to the south and west of the proposed development site is still zoned "Agricultural".

7.2.3 Proposed Zoning and Land Use

The purpose of the application is for the establishment of a township for the development of approximately 13,269 residential units and erven and supportive land uses on land 769ha, to be known as Leeuwpoot South Mixed Use Development on part of the remaining extent of the Farm Leeuwpoot 113 IR comprising of the following land-uses; Residential 1 (FLISP stands and bonded stands), Residential 3 (220m² FLISP stands and 200m² subsidized stands), Residential 4 (Subsidized units, FLISP units, and bonded units), Business 2 (Shops and Restaurants), Business 3 (offices), Special (Clinic), Special (Retirement Village), Special (Consent Land-use), Special (Security houses), Public Services (Electrical Substation), Community Facility (primary schools, secondary schools, and community facilities), Transportation (railway line, station, taxi rank), Public Open Space (96 erven), and Streets.

The Township is to be known as **Leeuwpoot South**.

Refer to Annexure D for the preliminary layout of the proposed Township.

7.2.4 Social Facilities

The following social facilities are situated in close proximity to the study area:

- Leeuwpoot Street Musallah north of the R21;
- Tambo Memorial Hospital to the north in Boksburg;
- House of Nations Church situated west;
- St Michael and All Angels Church to the north;
- House & Home bordering the development to the north east;
- Checkers Hyper in Boksburg;
- Fire Station Boksburg Central situated north-east on opposite side of R21;
- Reiger Park Pharmacy due west; and
- Reiger Park Mosque due west;

7.2.5 Preliminary Issues Identified

- Affordability of the residential units to the lower income brackets;
- Impacts of the proposed development on the infrastructure of the area;
- Not optimal utilization of infrastructure and expensive infrastructure for services and roads due to low density;
- The availability of sufficient social facilities;
- Rates and taxes payable to the authorities;
- Job creation;
- Impacts on surrounding property values;
- Compatibility of the proposed land use with the surrounding land uses;
- Need and desirability of the proposed land use;
- Economical viability of the proposed land use;
- Sub-standard roads and lack of municipal services;
- Possible objections from neighbours who prefer rural area;
- Additional burden on services, traffic and damage to external roads;
- Security problems; and
- Noise impact of R21 bordering the residential development.

7.2.6 Additional Information or Studies Required for the EIA Phase

- More input on social facilities to be supplied in the EIA report;
- Viability motivation from the Town and Regional Planners to be included as part of the EIA Report;
- Market study to be undertaken;
- Socio-Economic Impact Study to be undertaken; and
- The layout must take potential noise impacts into consideration from the start.

7.2.7 Need and Desirability

The following motivation with regards to Need for Leeuwpoot South was provided by Town Planning Consultants **Urban Dynamics**:

“Need

It is the view of the applicant that the proposed township establishment of Leeuwpoot South will enhance the value of the land in the area due to the stabilizing effect that formal development of the Remaining Extent of the Farm Leeuwpoot No 113 IR will have and that it will contribute to much needed economic growth and supply of affordable residential opportunities in this part of Ekurhuleni.

Housing Need

It is hereby stated that there is a qualified need to address regional housing issues in the sub-region. The site is located close to areas such as Windmill Park and Dawn Park in need of more affordable housing opportunities which is conveniently located close to the Boksburg Node. Most of Ekurhuleni's affordable suburbs are poorly located in terms of access to amenities and centres of employment and this makes the development of Leeuwpoot South in this location unique.

The growing gap between income and the cost of housing don't only affect lower income households but also households with middle-range incomes whom struggle to find affordable accommodation. There are a growing number of South African households that are willing and able to buy or rent a non-subsidized house. However, many of these families simply have nowhere to go as there is little suitable housing stock made available to them in good localities. Many of these families resort to subsidised housing as an alternative residential option thereby creating a shortage of subsidised housing supply. A need exists to create affordable housing for middle income households who are willing to purchase or rent non-subsidised housing and thereby participate in financed and bonded housing.

The proposed Leeuwpoot South development proposes to address the need to initiate an upward mobility trend through the provision of “Gap Housing”. “Gap Housing” addresses the gap between what middle income families earn and the

affordability of housing. "Gap Housing" is therefore aimed at widening the availability of housing stock for the lower income families. This proposed development commits itself to providing "gap housing". This will be achieved by bridging the gap between the high and low income housing types.

Economic Empowerment – Bridging the Gap

In the process of bridging the gap between high and low income areas, it is essential to ensure that employment opportunities are available to all income levels in order for them to be able to improve their economic status and partake in financial growth. These employment opportunities should be located in close proximity to communities. In this case Leeuwpoot South is situated close to the Boksburg CBD and various industrial areas in and around Boksburg. The relatively short driving distances to these areas of economic opportunity make this location suitable for a residential development. The proximity of employment opportunities to this development can benefit the residents of this proposed development. The development will also link the existing developments such as Sunward Park, Windmill Park, Van Dyk Park and Klippoortjie to make a more compact and coherent urban form. The development will close the locational gap between these areas. Economically, this development will also bring new business opportunities in the area (stands zoned "Business 2" and "Business 3" will allow the establishment of local businesses and some local employment. The linkages created between the areas will enhance the value of the development economically and provide mobility to its residents to economic opportunities.

Strategic Location

The site is located along Rondebult Road which links the N17 in the south with the N12 in the north and provides access to various commercial and residential areas situated along the route. The Leeuwpoot development is situated next to Rondebult Road which is part of Phase 1 of the BRT network. The BRT comprises of grid-based corridors along mobility spines linking main residential and economic nodes in line with the Metropolitan Special Development Framework. Very few greenfield developments are so well located within the urban core. The site falls in an area

which is earmarked as “preferred urban growth area” in the Ekurhuleni MSDF (2015). In order to create the preferred urban form (According to the MSDF (2015) the following criteria were used to identify the preferred urban development areas:

- Support a compact city.
- Avoid ‘leap frog’ development.
- Availability of engineering services.

The MSDF (2015) continues: The emphasis in this case is to overcome the fragmented nature of the city and to develop a continuous urban structure in support of engineering, social and business services. It is important that the longer-term expansion of engineering services be planned in such a manner that urban growth will be incremental with the proposed priority area as base. Future urban growth should aim at linking presently active areas instead of ‘leap frog’ development in isolated greenfield nodes.

Upgrading of Infrastructure

With the proposed infrastructure upgrades the development of the Leeuwpoort South will ensure the most optimal use of the existing infrastructure while providing the necessary infrastructure upgrades to support the proposed development. This will enhance the sub-area in terms of infrastructure availability and will provide the needed housing development and associated supportive land uses and amenities further enhancing and benefiting the area.

Infill Development

The site represents an infill site which needs to be developed in order to integrate the various pockets of development to form a cohesive urban environment. In this context, the site will connect the areas of Sunward Park, Windmill Park, Van Dyk Park and Klippoortjie to create a continuous and coherent urban form. As available land for development is used up and the pressures on the current urban edge increase, it is sensible to start developing the previously overlooked parcels of infill land situated inside the urban edge. The site is situated inside the urban edge and close to the

economic core and should thus be optimised to decrease pressure on the urban edge.

According to the Ekurhuleni Growth and Development Strategy, 2025, infill development and densification will be promoted at all times. In this regard developable vacant land in and around the urban core, especially land parcels owned by government, will be identified and prioritised for public sector development initiatives, like human settlement development with housing subsidy funding. Such development will contribute much to the more cost-effective utilisation of existing bulk services infrastructure. The maximum and most cost-effective utilisation of existing bulk services capacity will be sought by promoting infilling and densification in selected areas of the Metro, notably the core urban areas in and around the mining belt – this will tie in with the strategies to ensure a compact, integrated and equitable city.

Densification, intensification and infill development are elements which are fundamental to the restructuring of the South African 'Apartheid City' and to the concept of a compact city that optimally utilises all existing resources within the area (MSDF, 2015).

Variety of Housing Typologies

The proposed development will consist of a mixture of bonded stands, subsidised stands and FLISP (Finance Linked Individual Subsidy Programme) units. This will create a Mixed Use Development, with various densities and with various housing options and typologies and will make it a sustainable and integrated development. Within the township layout provision was made for various housing typologies and densities to provide for interest and variety.

Leeuwpoot South is a development that aims to promote a high quality, residential and mixed-use environment supported with private and public amenities. As such it could be argued that the proposed development will act as a key structuring feature in the sub-region because it will encourage a range of housing options to

meet different and changing needs of households in the area. The proposed development promotes mixed-uses by allowing appropriate services, supportive uses and social amenities to be intermingled with residential development.

Better Utilization of Land

The application is made to ensure the optimum utilization of the site without defeating any of the primary considerations in respect of environmental issues, compatibility, health, safety, orderliness, economics and the wellbeing of all persons and instances. The proposed development introduces an alternative investment opportunity within the urban core of Boksburg. It is the intention to realise the development potential of the property by establishing mixed income and mixed land use in Leeuwpoot South, which is strategically located close to the Boksburg Primary Node. The proposed development will consist of an integrated, multifunctional neighbourhood offering residential, business, community and recreational facilities. The land is currently underutilised, and the proposed development will clean up the site and provide considerable investment.

Impact on Surrounding Properties

The impact of this proposed development on the surrounding developments will be mostly positive as the development will clean up the site which are used for illegal dumping. The proposed development will be a high quality development which will not detract property values in the area. The provision of new tenure options and housing typologies would generally enhance the area and accommodate a wide range of residents and income groups. The proposed development will protect the area from land invasion thus having a lesser potential impact. The development will complement and be compatible with the uses in the Sunward Park to the north and would be compatible with the development in Windmill Park since the proposed development provides for a mixed income development and is sensitive in placing land uses and housing typologies adjacent to the surrounding developments. The development will have a minimal impact on Sunward Park as it is separated from Sunward Park by a wetland system and Kingfisher Avenue.”

Desirability

The proposed Mixed Use Developments is desirable due to complying with principles of the Spatial Planning Land-Use Management (SPLUMA) Act No. 16 of 2013, Ekurhuleni Metropolitan Spatial Development Framework, 2011, the National Development Plan, and the Gauteng Spatial Development Framework (GSDF) 2011.

SPLUMA

Principle of spatial justice

“Ekurhuleni has identified this strategically located, inactive land parcel to develop an inclusionary mixed land use development, which will cater for a variety of income groups. The proposed development will offer bonded housing typologies and inclusionary housing addressing the distorted spatial space in Ekurhuleni and bridging the gap between areas such as Sunward Park, Windmill Park, Van Dyk Park and Klippoortjie developments. The development will improve ownership for previously disadvantaged individuals.

The proposal of a Mixed Use Development will provide for a cohesive social and economic environment, meeting basic needs of residents as well as addressing past spatial imbalance. The proposed development will improve access to housing (close to the Boksburg CBD) and employment opportunities, ensuring a development that is integrated, socially just, functional and environmentally sustainable.

Inclusion of previously excluded

The proposed development will promote inclusivity by providing inclusionary or gap housing to people who are unable own property in the competitive residential market. Inclusionary housing is considered the central theme of the development and the proposed development will promote the above principle by making provision for the lower-middle income to participate in the property market. The development is in line with the Ekurhuleni MSDF, 2015 as it is an infill development located within the urban edge and within the preferred urban growth area.

Spatial sustainability

The proposed development is aimed at providing inclusionary housing with a mixed use component. The proposed development will deliver formal housing with supportive facilities attracting investors and financial investment into the area. Ekurhuleni promotes development along public transport corridors where it has already focused considerable investment in infrastructure and social amenities and where it plan to do further investment. The proposed development within close proximity to the node and in the preferred urban growth area could be promoted as it will not place additional strain on the fiscal, institutional and administrative means of the City and the Republic, but will optimise on the investments already made in the area.

Ekurhuleni Metropolitan Spatial Development Framework, 2011

"In terms of local policy, the proposed development of Leeuwpoort South is located in the jurisdiction of Ekurhuleni Metropolitan Municipality and falls within the Southern Region and more specifically in Wards 31 and 43.

The Ekurhuleni Metropolitan Spatial Development Framework, 2015 sets out its vision to be The Smart, Creative and Developmental City. Based on the vision, the mission statement developed for the EMM reads as follows: Ekurhuleni provides sustainable and people centred development services that are affordable, appropriate and of a high quality. We are focussed on social, environmental, and economic regeneration of our city and communities, as guided by the principles of Batho Pele and through the commitment of a motivated and dedicated team."

□ Specialised Activity Nodes within the Core Development Triangle

The City wants to promote the Core Development Triangle, but there are a number of core areas within the Ekurhuleni Core Development Triangle of which the "East West Development Corridor" (previous mining belt) which includes the CBDs of Germiston, Boksburg and Benoni is one. This site is situated within the previous mining belt along the East West

Development Corridor where infill development and densification is promoted.

□ **Optimise Linkages within the Core Area**

The site is situated adjacent and near to the two major desire lines (linkages of primary nodes to the core area) which is the area between N17 and N12 as well as the north south linkage between Tembisa and the Alberton area.

□ **Link Disadvantaged Communities to the Core Area**

It is then essential to link the communities from the four disadvantaged areas to this Core Development Triangle which is achieved by designing the EMM public transport system in such a way that it feeds into the Core Development Triangle.

□ **Mixed Use, High-Density Development along Corridors and at Nodes**

Ekurhuleni Metropolitan Municipality promotes Mixed Use, High Density Development along these public transport corridors and in the areas in and around the activity nodes. This will ensure the optimum utilisation (and rationalisation) of public transport in the EMM area and it will support the disadvantaged communities in terms of easy access to job opportunities.

□ **Structure the IRPTN to Support Development Corridors**

The Integrated Rapid Public Transport System (IRPTN) should be designed around the main strategic linkages within the EMM area. In this regard that it is essential to promote Transit Orientated Development around the railway network within the EMM. The railway network links all the major activity nodes to one another and it runs through large portions of strategically located vacant land in the EMM.

□ **Promote Infill Residential Development**

Apart from the strategic linkages mentioned above, the EMM should then as a priority also promote infill residential development in all the strategically located vacant areas that are suitable for development. In this regard it is essential to properly utilise the opportunity provided by publicly owned

vacant land in the area to set the trend of infill development in motion. Infill Residential Development should be promoted in vacant areas within the Core Development Triangle as a priority, and within the Urban Edge in general. This should take the form of strategic densification as described in the Ekurhuleni Residential Densification Strategy. Public housing is one of the strongest instruments available to a local authority to set a certain trend of development in an area, be it a corridor initiative, or the principle of infill development or a specific typology of housing to be provided. Essentially, the infill development will then evolve around the reclamation of strategically located mining land in the area. It should be noted that infill development should not take place to the detriment of the environment. Infill development should also not take place in areas that are detrimental to the health of future inhabitants."

National Development Plan

"The National Development Plan (NDP) offers a long-term perspective for the development of South Africa aimed at eliminating poverty and reducing inequality by 2030. The importance of creating sustainable human settlements is emphasized by the NDP. The key target for human settlements as described by the plan includes:

- More people living closer to their places of work.*
- Better quality public transport.*
- More jobs in or close to dense urban townships.*
- Clear strategy for densification of cities through land use planning and focused strategy on the housing gap.*

Due to the location of the site close to the Boksburg CBD, the proposed development will offer affordable residential opportunities in close proximity to places of work. The development itself also offers a small commercial component which could lead to long term job creation. The road network within the development provides for public transport stops as

well as possible public transport routes and is linked to the adjacent to Rondebult Road which is one of Ekurhuleni's strategic public transport networks and part of the IRPTN Phase 1. The location of the site as well as the site layout will contribute to an efficient public transport system benefiting local and surrounding residents. The development will also address the issue of providing densification along major IRPTN routes in a growing region as well as meeting the ever increasing "gap housing" market. It can be interpreted that the proposed development will assist in realizing the vision of the National Development Plan by creating a development that is compact offering some employment opportunities and access to quality public transport."

Gauteng Spatial development framework

"Gauteng Spatial Development Framework (GSDF) aims to achieve an equitable and sustainable urban system and structure the urban form. The GSDF does not replace municipal SDF's but enables the creation of a coherent framework, which forms the basis for future development and decision-making processes (e.g. Policy, resources and socio-economic profiles). The framework aims to achieve the following for the province:

- Functional efficiency (so that individual elements work together as a whole);*
- Environmental harmony (creating development processes and forms that are environmentally sustainable);*
- A sense of place (creating a place that is recognisably distinct, strengthens local identity, and simultaneously plays its role within the wider urban system); and*
- Socio-economic sustainability (is viable, enabling economic growth and expansion and supports all social activities and the development of its communities).*

The proposed development will encourage the above mentioned principles as it will take a holistic approach towards delivering a township establishment that is efficient and socio-economic sustainability."

7.3 Visual Aspects

The following visual assessment criteria (**see Table 4 below**) has been used to determine the impact of the proposed development on the state of the environment – the significance is indicated by the respective colour coding for each of the impacts, being high, medium and low:

Table 4: Visual Impact Criteria

CRITERIA	IMPACT		
	HIGH	MEDIUM	LOW
Visibility	A prominent place with an almost tangible theme or ambience.	A place with a loosely defined theme or ambience.	A place having little or no ambience with which it can be associated.
Visual quality	A very attractive setting with great variation and interest – no clutter.	A setting with some visual and aesthetic merit.	A setting with no or little aesthetic value.
Compatibility with the surrounding landscape	Cannot accommodate proposed development without the development appearing totally out of place – not compatible with the existing theme.	Can accommodate the proposed development without it looking completely out of place.	The surrounding environment will ideally suit or match the proposed development.
Character	The site or surrounding area has a definite character/ sense of place.	The site or surrounding environment has some character.	The site or surrounding environment exhibits little or no character/ sense of place.
Visual Absorption Capacity	The ability of the landscape not to accept a proposed development because of a uniform texture, flat slope and limited vegetation cover.	The ability of the landscape to less easily accepts visually a particular type of development because of less diverse landform, vegetation, and texture.	The ability of the landscape to easily accept visually a particular type of development because of its diverse landform, vegetation and texture.
View distance	If uninterrupted view distances to the site are > 5 km.	If uninterrupted view distances to the site are < 5 km but > 1 km.	If uninterrupted view distances to the site are > 500 m and < 1000 m.
Critical Views	Views of the site seen by people from sensitive view sheds i.e. farms, nature areas, hiking trails etc.	Some views of the site from sensitive view sheds.	Limited or partial views of the site from sensitive view sheds.
Scale	A landscape with horizontal and vertical elements in high contrast to human scale.	A landscape with some horizontal and vertical elements in some contrast to human scale.	Where vertical variation is limited and most elements are related to the human and horizontal scale.

7.3.1 Preliminary Issues Identified

- The Proposed Mixed Use Development complies with principles of the Spatial Planning Land-Use Management (SPLUMA) Act No. 16 of 2013, Ekurhuleni Metropolitan Spatial Development Framework, 2011, the National Development Plan, and the Gauteng Spatial Development Framework (GSDF) 2011;
- The R21 borders the proposed development to the north i.e. the development will be visible from the R21 which is situated at a higher elevation than the proposed development; and
- The surrounding area has however been earmarked for urban development and the proposed development is in line with the surrounding development.

7.3.2 Additional Information or Studies Required for the EIA Phase

- A more detailed visual input must be incorporated as part of the EIA Report;
- Mitigation measures must be supplied for the visual impacts during the EIA phase; and
- Suitable architectural and Landscaping guidelines must be compiled for the development and must be incorporated as part of the EIA Report.

7.4 Noise Impacts

The following are the main existing and future noise sources affecting / that will affect the study area:

- The traffic on the main roads including Rondebult Road (R21) passing the development site to the north east and bordering the development site to the east.
- Tailings dam situated south east of the development site, if reclaimed could cause potential nuisance noise generated by mobile plant; and
- Oliver Tambo International Airport situated 6 km north from the development site could pose a noise impact.

The main noise sensitive sites within close proximity to the proposed development area are:

- The residential areas surrounding the study area;
- Leeuwpoot Street Musallah north of the R21;
- Tambo Memorial Hospital to the north in Boksburg;
- House of Nations Church situated west;
- St Michael and All Angels Church to the north; and
- Reiger Park Mosque due west

It is recommended that a noise study be done during the EIA phase to establish the significance of these impacts as well as provide suitable mitigation measures and recommendations that will help to mitigate the impacts to more acceptable levels.

7.4.1 Preliminary Issues Identified

- The study area in general has a degraded noise climate which is mainly caused by traffic noise associated with an urban environment and
- Certain sections of the development site will most probably be affected by noise from the external environment e.g. traffic on the R 21.

7.4.2 Additional Information or Studies Required for the EIA Phase

- A Noise Impact Assessment required to establish impact of external noise on the proposed development;
- Buffer zone delineation conducted due to development site location in relation to old mine tailings dams, might have to be repeated for this project.

7.5 Sense of Place

Sense of Place is the subjective feeling a person gets about a place by experiencing the place visually, physically, socially and emotionally. The "Sense of Place" of an area is one of the major contributors to the "Image of the area".

The image of an area consists of two main components, namely "Place Structure" and "Sense of Place". These could be defined as the following:

- "Place Structure" refers to the arrangement of physical place making elements within a unique structure that can be easily legible and remembered; and
- The "Sense of Place" is the subjective meaning attached to a certain area by individuals or groups and is linked to its history, culture, activities, ambience, and the emotions the place creates.

The tailings dams to the south west of the proposed development site is regarded as the main place making structures in the vicinity of the study area.

The "Sense of Place" of the study area is mainly created by some attractive views from the higher lying areas and by the watercourse and pan occurring on site.

The aesthetic value of the area is considered to be medium.

The proposed development could improve the "spirit of place" or genius loci to some extent by combining the human social network and the genius loci by establishing a development which incorporates large integrated open spaces that are true to the surrounding character and "Sense of Place".

7.5.1 Preliminary Issues Identified

- The proposed development could have some impact on the “Sense of Place” of the study area and its surroundings and, therefore, it must be planned and managed correctly.

7.5.2 Additional Information or Studies Required for the EIA Phase

- A more detailed visual impact assessment must be incorporated as part of the EIA Report;
- Suitable architectural and landscaping guidelines must be based on the mitigation measures supplied in the EIA Report; and
- Suitable mitigation measures to mitigate the anticipated visual impacts must be supplied during the EIA phase.

7.6 Services

7.6.1 Existing Services

7.6.1.1 Water

Ekurhuleni Metropolitan Municipality is the responsible Water Service Authority in terms of the Water Services Act (Act No. 108 of 1997).

The Leeuwpoort South development can be incorporated into the Vogelfontein booster zone which as a sub-zone of the Vogelfontein Reservoir. The proposed development can be accommodated without any major upgrades to the system.

7.6.1.2 Sewer

Ekurhuleni Metropolitan Municipality is the Water Service Authority in terms of the Water Services Act (Act No. 108 of 1997).

The Boksburg area falls within the Rietspruit Drainage District. ERWAT is responsible for the treatment of sewage at the Vlakplaats Water Care Works (WCW) in Vosloorus and the Waterval Water Care Works (WCW) near Rand Vaal. The bulk of sewage discharges into the Boksburg North Outfall sewer and is treated at Vlakplaats WCW. The remaining volumes are discharged into the Klippoortjie outfall sewer and are treated at either Vlakplaats WCW or Waterval WCW.

The Vlakplaats Waste Water Treatment Plant (WWTP) has a capacity of 83 MI/day, the dry weather inflow amounts to 113MI/day, of which excess flow is diverted to Waterval WWTP. Waterval WWTP has the capacity to of 155MI/day, the dry weather inflow amounts to 195MI/day and wet weather inflow 242MI/day, of which excess flow is diverted to Waterval WWTP. ERWAT will have to upgrade the Waterval WWTP.

It is proposed that Leeuwpoort South will drain via 200/315ND bulk line around the eastern side of Cinderella Dam through Parkdene X6 draining into the existing Boksburg North outfall sewer south of the Cinderella Dam.

7.6.1.3 Stormwater

Natural run-off from Boksburg and north of the proposed development drains into the Cinderella Dam.

7.6.2 Design Guidelines

The design of the Township's services will be based on the design principles in the "Guidelines for the Provision of Engineering Services and Amenities in Residential Township Development" published by the Department of Community Development. Local Authorities specific requirements and guidelines will also be adhered to.

A competent contractor through acceptable tender process will install all services. The General Conditions for the works of Civil Engineering Construction, standard specification SANS 1200 and relevant particular specifications will pertain to the contract.

7.6.3 Proposed Services

7.6.3.1 Water

7.6.3.1.1 Water distribution zone

Certain changes in water distribution zone boundaries are recommended between the current and the future demand scenario.

7.6.3.1.2 Reservoir capacity

The Vogelfontein reservoir does not have spare capacity available to accommodate any additional demand. It is recommended that planning commences for the implementation and construction of a new 31 ML reservoir at the existing Vogelfontein reservoir site in accordance with the Boksburg Water Master Plan.

7.6.3.1.3 Booster pump station

The Vogelfontein booster pump station consists of four pumps operating in parallel. The current pumping capacity is unknown and we hereby recommend that a set of flow measurements are to be taken to confirm pumping capacity. The required

pumping rate for the Vogelfontein booster pump station to supply the current demand is calculated to be approximately 670l/s. The additional demand from the Leeuwpoot South development will increase the pumping requirement to approximately 740 l/s.

7.6.3.1.3 Bulk pipes

A services report compiled confirmed that all affected bulk pipes have sufficient spare capacity available to accommodate the additional demand.

7.6.3.2 Sewage

7.6.3.2.1 Waste Water Treatment Plant (WWTP) Capacity

The Leeuwpoot South development can be accommodated by the Vlakplaats WWTP.

7.6.3.2.2 Sewage Pump Stations

Existing sewage pump stations are not affected by the proposed development.

7.6.3.2.3 Sewerage infrastructure

A survey of the existing 600 diameter Boksburg North sewer is required to establish whether upgrading is required. A new pipe bridge crossing the Natalspruit might be required to drain a section of Leeuwpoot South sewage.

7.6.3.3 Stormwater

Bitumen surfaced streets within the proposed township will act as stormwater collectors and conveyors. Stormwater will be conveyed to the Watercourse bordering the proposed development. Attenuation dams will be utilised for settling pollutants and retaining stormwater prior to discharging it into the Watercourse.

7.6.3.4 Solid Waste

The solid waste generated by the proposed development will probably be removed by the local authority. More details regarding this will be supplied during the EIA phase.

No gaseous emissions will be generated by the proposed development.

7.6.3.5 Roads and Traffic

7.6.3.5.1 Access

The site will have 9 access points from Provincial Roads, 3 access points onto Kingfisher Avenue and 4 access points to Sunward Park. One access will be on the Rondebult Road, at the intersection with Agulhas Road, 4 accesses will be on North Boundary Road at the intersections of Hewitt Drive, Aucamp Drive and Trichardts Road. 4 new access points are proposed on proposed K165. The access points to Sunward Park are proposed at Cresta Road, Leo Road, Aquarius Road and Bert Lacey Drive. Accesses on Kingfisher Drive are proposed at the intersections with Sonneblom Road and Matthews Drive.

The TIA is underway and results of the study shall be incorporated into the EIA Report.

7.6.3.6 Electrical

Eskom confirmed that there is spare capacity available in their 88kV line which could cater for the proposed development. The South East Vertical Eskom substation will have to be upgraded to cater for the proposed development.

7.6.4 Preliminary Issues Identified

- Bulk water and sewage services are available within close proximity to the proposed development, however some infrastructure upgrades are required to cater for the proposed development;

- Temporary disruptions to services in surrounding area during the installation and upgrading of services;
- Possible surface and groundwater pollution due to leakage of sewage;
- Increased traffic volume;
- Responsibility for waste management post construction to be clarified;
- Stormwater attenuation measures are required;
- Increased impermeable surfaces could cause and increase in erosion of watercourses due to increase in velocity and volume of stormwater runoff;
- Possible erosion caused at stormwater discharge points;
- Gully formation during the construction phase;
- Upgrading of municipal services and infrastructure required; and
- Upgrading of roads and critical intersections might be required.

7.6.5 Additional Information or Studies Required for the EIA Phase

- All services reports must be included and evaluated as part of the EIA process; and
- Written confirmation of capacity of services from suppliers need to be included in the EIA report.
- Proof that municipal water will be available for domestic purposes to be supplied during the EIA process;
- A Water Quality and Quantity Monitoring and Management Plan to be compiled as part of WULA for the EIA process; and
- Details regarding properties that will be affected by the proposed water supply upgrading to be supplied during the EIA process. The EIA must also include information regarding any servitudes to be registered.
- A Stormwater Management Plan with stormwater attenuation details and the outlet positions must be supplied for assessment during the EIA process;
- Proof of negotiations with DWS regarding the Stormwater Management and the required WULA to be supplied during the EIA process;
- All external stormwater pipes and channels to be indicated on plans for purpose of the EIA process; and

- Details regarding properties that will be affected by the stormwater management measures to be implemented must be supplied during the EIA process.
- Letter from local authority or other supplier confirming availability of electricity for the project to be supplied for inclusion as part of the EIA report;
- Details regarding properties that will be affected by the proposed electricity upgrading to be supplied during the EIA process. The EIA must also include information regarding servitudes to be registered.
- On approval of this study (for the EIA process) detailed design plans for proposed road upgrades, if any, must be submitted to the Local Municipality, and the Gauteng Provincial Government, Department of Public Transport Roads and Works. These road upgrades must be in place when the development is fully developed and occupied;
- The developer should enter into negotiations with the relevant property owners to ensure that access can be obtained;
- Details regarding properties that will be affected by the proposed road upgrading to be supplied during the EIA process. The EIA must also include information regarding servitudes to be registered; and
- The Traffic Impact Assessment for the proposed development must be finalised once the development concept has been finalised and the extent of the development is fixed.
- Written confirmation of party (local authority or private contractor) responsible for waste removal must be supplied during the EIA phase; and
- Written confirmation that the local registered landfill site has the capacity to receive the waste generated by the construction and operational phases of the project.

7.7 Economy

The development will provide job opportunities and this will result in more people being economic active. More rates and taxes will also be payable to the Local Authority.

7.7.1 Preliminary Issues Identified

- Creation of temporary and permanent jobs;
- Increase in adjacent property values; and
- Rates and taxes payable to the local authority after the development took place.

7.7.2 Additional Information or Studies Required for the EIA Phase

- Market Study is underway and results shall be incorporate in the EIA Report;
- A Socio-economic impact study is underway and results shall be incorporate in the EIA Report.

7.8 Public Participation

Refer to Annexure F for Public Participation information

Public Participation is one of the most important aspects of Environmental Authorization Processes. People have the right to be informed about potential decisions that may affect them and that they must be afforded an opportunity to influence those decisions. Effective Public Participation also improves the ability of the competent authority to make informed decisions and result in improved decision making as the views of all parties are considered.

The Public Participation Process provides the following:

- An opportunity for Interested and Affected Parties (I&APs) to obtain clear accurate and comprehensible information about the proposed activity, its alternatives or the decision and the environmental impacts thereof;
- The opportunity for I&APs to indicate their viewpoints, issues and concerns regarding the activity, alternatives and/or decision;
- The opportunity for I&APs for suggesting ways of avoiding, reducing or mitigation negative impacts of an activity and for enhancing positive impacts;

- Enabling an applicant to incorporate the needs, preferences and values of affected parties into the activity;
- Opportunities to avoid and resolve disputes and reconcile conflicting interests; and
- Enhancing transparency and accountability in decision making.

In terms of the Environmental Impact Assessment (EIA) Regulations promulgated in terms of the National Environmental Management Act, 1998 (Act No 107 of 1998) Stakeholders (I&APs) were notified of the Environmental Impact Assessment Process through:

- A site notice was erected (at prominent points on and around the study area) on 1 September 2016;
- On 1 September 2016 public notices/flyers were distributed to the neighbouring properties and estates/developments that may be affected by the proposed development;
- Notices regarding the project were further e-mailed and faxed to a list of I&APs and the councillors in the area that registered for other projects in the area;
- An advertisement was placed in **Boksburg Advertiser** newspaper on 9 September 2016;
- The following institutions were also identified as I&APs by the consultant and notified.
 - Council of Geoscience;
 - Department of Mineral Resources;
 - Department of Energy;
 - National Nuclear Regulator;
 - Department of Human Settlements;
 - Department of Health;
 - Ekurhuleni Metropolitan Municipality;
 - ERWAT;
 - Local Ward Councillor;
 - East Rand Proprietary Mines;
 - Boksburg Stone Crushers (Proprietary);
 - The Africa Evangelistic Mission;
 - Eskom;

- GDRT;
- SANRAL;
- PHRAG;
- Dept. of Land Claims;
- DWS; and
- GDARD.

A Draft Scoping Report will be delivered to all registered I&APs as well as institutions listed above.

7.8.1 Preliminary Issues Identified

- None yet.

7.8.2 Additional Information or Studies Required for the EIA Phase

- The Scoping Report must also be made available for public comment prior to submitting it to GDARD; and
- The Scoping Report must be made available to the Ekurhuleni Metropolitan Municipality, PHRAG, DWS, ERWAT, DMR, NNR and any other relevant department for comment. These comments must be addressed and included in the Final Scoping Report to be submitted to GDARD.

8. INSTITUTIONAL ENVIRONMENT

The study area falls within the Jurisdiction of the Ekurhuleni Metropolitan Municipality, Gauteng Province.

The goal of **Leeuwpoot Development (Pty) Ltd** is to develop **Leeuwpoot South Mixed Use Development** as a residential township comprising of affordable residential units and supportive land-uses.

Therefore the following institutional framework documents are relevant to the proposed development on part of the remaining extent of the Farm Leeuwoort 113 IR.

8.1 On an International Level

Relevant International Conventions to which South Africa is party

- **Convention relative to the Preservation of Fauna and Flora** in their natural state, 8 November 1993 (London);
- **Convention on Biological Diversity**, 1995
Provided and added stimulus for a re-examining and harmonization of its activities relating to biodiversity conservation. This convention also allows for the in-situ and ex-situ propagation of gene material); and
- **Agenda 21** adopted at the United Nations Conference on Environment and Development (UNCED) in 1992, an action plan and blueprint for sustainable development.

8.2 On a National Level

8.2.1 National Environmental Management Act, 1998 (Act No 107 of 1998) (NEMA)

NEMA provides for co-operative, environmental governance by establishing principles for decision-making on matters affecting the environment, institutions that will promote co-operative governance and procedures for co-ordinating environmental functions exercised by organs of state, and to provide for matters connected therewith.

Integrated Environmental Management

- Integrated Environmental Management (IEM) is a philosophy, which prescribes a code of practice for ensuring that environmental considerations are fully integrated into all stages of the development process. This philosophy aims to achieve a desirable balance between conservation and development.

In terms of the 2014 Environmental Impact Assessment (EIA) Regulations of the National Environment Management Act, 1998 (Act No. 107 of 1998) published 4 December 2014 a Basic Assessment Report is required for activities listed in Notices R983 and R 985, and a Scoping and Environmental Impact Assessment is required for activities listed in Notice R 984.

The proposed development triggers listed activities in Notice 984 and therefore a Scoping and Environmental Impact Assessment process is followed.

8.2.2 The National Water Act, 1998 (Act No: 36 of 1998)

The purpose of this Act is to ensure that the nation's water resources are protected, used, developed, conserved, managed, and controlled in ways that takes into account, amongst other factors, the following:

- ❑ Meeting the basic human needs of present and future generations;
- ❑ Promoting equitable access to water;
- ❑ Promoting the efficient, sustainable and beneficial use of water in the public interest;
- ❑ Reducing and preventing pollution and degradation of water resources;
- ❑ Facilitating social and economic development; and
- ❑ Providing for the growing demand for water- use.

In terms of the Section 21 of the National Water Act, the developer will have to apply for a Water Use License for construction of services within the watercourse, as well as any other water -uses triggered. The National water Act also requires that (where applicable) the 1:50 and 1: 100 year flood line be indicated on all development drawings (even the drawings for the external services) that are being submitted for approval.

8.2.3 Water Services Act, 1997 (Act No 108 of 1997)

The purpose of this Act is to ensure the regulation of national standards and measures to conserve water taking into account, amongst other factors, the following:

- ❑ Basic sanitation;
- ❑ Basic water supply;
- ❑ Interruption in provision of water services;
- ❑ Quality of potable water;
- ❑ Control of objectionable substances;
- ❑ Disposal of grey water;
- ❑ Use of effluent; and
- ❑ Quantity and quality of industrial effluent discharged into a sewerage system.

Any interruption in provision of water services during the construction phase of the proposed development must be according to national standards.

A water and sewage services report was compiled for the purpose of the proposed development. Ekurhuleni Metropolitan Municipality is the responsible Water Service Authority.

8.2.4 National Environmental Management: Air Quality Act (Act No. 39 of 2004)

This act replaced the Atmospheric Pollution Prevention Act (Act No. 45 of 1965).

The purpose of the Act is "To reform the law regulating air quality in order to protect the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development while promoting justifiable economic and social development; to provide for national norms and standards regulating air quality monitoring, management and control by all spheres of government; for specific air quality measures; and for matters incidental thereto."

The Act describes various regulatory tools that should be developed to ensure the implementation and enforcement of air quality management plans. These include:

- Priority Areas, which are air pollution 'hot spots';
- Listed Activities, which are 'problem' processes that require an Atmospheric Emission Licence;
- Controlled Emitters, which includes the setting of emission standards for 'classes' of emitters, such as motor vehicles, incinerators, etc.;
- Control of noise; and
- Control of odours.

The proposed development does not trigger any regulatory tools in terms of the Act, however during the construction phase, generation of dust and noise could become a factor to residence living adjacent to the proposed development phase.

Dust from adjacent mine tailings dumps could become a nuisance to residence of the proposed Mixed Use Development. A buffer zone delineation conducted shall be included as part of the EIA Report.

8.2.5 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.

The development site is known for the occurrence of Orange Listed Plant Species. Results of ecological and wetland assessments conducted shall be included in the EIA Report.

8.2.6 National Spatial Biodiversity Assessment

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

The development site is known for the occurrence of Orange Listed plant species. Results of ecological and wetland assessments conducted shall be included in the EIA Report.

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

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

The proposed development does not occur within an area declared as protected in terms of the Act.

8.2.8 The National Heritage Resources Act, 1999 (Act 25 of 1999) (NHRA)

The NHRA requires heritage resources impact assessments for various categories of development stipulated in section 38 of the Act. It also provides for the grading of heritage resources and the implementation of a three-tier level of responsibilities and functions for heritage resources to be undertaken by the State, Provincial authorities, depending on the grade of the heritage resource. The Act defines cultural significance, archaeological and paleontological sites and materials (section 35), historical sites and structures (section 34), and graves and burial sites (section 36) that fall under its jurisdiction. Archaeological sites and material are generally those resources older than a hundred years, including gravestones and grave dressing. Procedures for managing graves and burial grounds are set out in section 36 of the NHRA. Graves older than 100 years are legislated as archaeological sites and must be dealt with accordingly.

Section 38 of the NHRA makes provision for application by developers for permits before any heritage resource may be damaged or destroyed.

The National Heritage Resources Act legislates the necessity and heritage impact assessment in areas earmarked for development, which exceed 0.5ha and linear development exceeding 300m in length. 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 Impact Assessment will be conducted for the proposed development.

8.2.9 National Veldt and Forest Fire Act, 1998 (Act No. 101, 1998)

The purpose of this Act is to prevent and combat veldt, forest, and mountain fires throughout the Republic. Furthermore the Act provides for a variety of institutions, methods and practices for achieving the prevention of fires.

Mitigation measures for the prevention of fires during construction phase of the proposed development and during operational phase within areas to be zoned as private open space must be implemented.

8.2.10 Conservation of Agricultural Resources Act (Act No. 43 of 1983)

This act provides for control over the utilization of natural agricultural resources of South Africa in order to promote the conservation of soil, water sources and the vegetation as well as the combating of weeds and invader plants; and for matters connecting therewith.

According to the Gauteng Agricultural Potential Atlas (GAPA 3) the proposed development traverses soils with very-low agricultural potential and will not have a significant impact on agricultural resources. An agricultural potential study is thus not deemed necessary for the proposed development site.

8.2.11 National Road Traffic Act, 1996 (Act No. 93 of 1996)

This Act provides for all road traffic matters which shall apply uniformly throughout the Republic and for matters connected therewith.

A TIA is underway and results shall be incorporated into the EIA Report.

Three access points are proposed for the development, which requires approval from SANRAL, GDRT, and Ekurhuleni Metropolitan Municipality Roads Department, together with any road upgrades required as part of the development.

8.2.12 The Town planning & Townships Ordinance, 1986 (Act No. 15 of 1986)

The purpose of the ordinance is to consolidate and amend laws relating to town-planning and the establishment of townships.

The proposed development triggers a Township establishment application which has been submitted to Ekurhuleni Metropolitan Municipality.

8.2.13 National Environmental Management: Waste Act, 2003 (Act No 59 of 2009)

The Act aims to consolidate waste management in South Africa, and contains a number of commendable provisions, including:

- The establishment of a national waste management strategy, and national and provincial norms and standards, for amongst other, the classification of waste, waste service delivery, and tariffs for such waste services;
- Addressing reduction, re-use, recycling and recovery of waste;
- The requirements for industry and local government to prepare integrated waste management plans;
- The establishment of control over contaminated land;

- Identifying waste management activities that requires a license, which currently include facilities for the storage, transfer, recycling, recovery, treatment and disposal of waste on land;
- Co-operative governance in issuing licenses for waste management facilities, by means of which a licensing authority can issue an integrated or consolidated license jointly with other organs of state that has legislative control over the activity; and
- The establishment of a national waste information system.

A Waste License Application is not triggered by the proposed development, however waste generated during construction as well as operational phase of the development will have to be managed responsibly.

8.2.14 Occupational Health & Safety Act (OHSA), 1993 (Act No 85 of 1993)

The Act was created to provide for the health and safety of persons at work and for the health and safety of persons in connection with the use of plant and machinery; the protection of persons other than persons at work against hazards to health and safety arising out of or in connection with the activities of persons at work; to establish an advisory council for occupational health and safety; and to provide for matters connected therewith.

Regulations of the Act will apply during the construction phase of the proposed development.

8.3 On a Provincial Level

8.3.1 Gauteng Spatial Development Framework (GSDF), 2011

- **Resourced Based Economic Development**

Resource based economic development should result in identification of the economic core. Development should be encouraged in close proximity to existing resources, which includes infrastructure such as roads, water, and electricity.

- **Contained Urban Growth**

To contain urban growth an urban edge was identified to curb urban sprawl. The idea behind the urban edge is to encourage development within certain areas of a city. Only certain types of developments are allowed on the outside of the urban edge. The goal is to curb urban sprawl and thereby protecting the natural environment. The way to do this is to increase the densities of the built environment within the urban edge.

- **Re-direction of Urban Growth**

Developments in economically non-viable areas should be limited and thereby achieving growth within the economic growth sphere.

- **Protection of Rural Areas and Enhancement of Tourism and Agricultural Related Activities**

Only certain types of developments (i.e. lodges, game reserves, sport and recreational activities, etc.) should be allowed on the outside of the urban edge, thereby protecting rural areas and agricultural land and enhancing tourism related facilities.

It is evident that the proposed Township Establishment and accompanying increase in residential density, comply with most of the mentioned development directives; being undeveloped land which is centrally located with regard to built-up areas, established

infrastructure, services and facilities as well as being easy accessible to the targeted residents and workforce, thereby limiting the impact on the natural environment.

8.3.2 The Gauteng Densification Strategy 2005

The development complies with this strategy which requires densities of between 20 and 25 units per hectare. The proposed density of the development is be 50 to 180 units per hectare, and therefore contributes to densification.

8.3.3 The Gauteng Transport Infrastructure Act, 2001

The act was created to consolidate the laws relating to roads and other types of transport infrastructure in Gauteng; and to provide for the planning, design, development, construction, financing, management, control, maintenance, protection and rehabilitation of provincial roads, railway lines and other transport infrastructure in Gauteng; and to provide for matters connected therewith.

8.3.4 Gauteng Transport Infrastructure Amendment Act, 2003

To amend the Gauteng Transport Infrastructure Act, 2001 so as to amend and insert certain definitions; to provide for the necessary land use rights with respect to stations and for the necessary powers of the MEC to enter into contracts for road and rail projects; to amend the procedure in relation to route determination; to make a second environmental investigation at the stage of preliminary design of a road or railway line unnecessary where the competent environmental authority decides that the environmental investigation at the stage of route determination is adequate; and to provide for incidental matters.

Both these Acts (8.3.3 and 8.3.4) might be applicable to the proposed development and an assessment should be made during the EIA phase to determine whether the development will be in line with these acts.

8.3.5 The Gauteng New Infrastructure Act

According to this provincial act, planned roads such as the K110 must be honoured by planners, if applicable to proposed developments.

8.3.6 The Gauteng Draft Red Data Policy

The main purpose of the draft Red Data Policy is to protect Red Data Plant Species in Gauteng Province. This policy requires that Red Data Species remain *in-situ* and it gives priority ratings (based on where they occur) to the different Red Data Species.

Results of ecological assessments conducted shall be included in the EIA Report.

8.3.7 The Gauteng Draft Ridges Policy

This policy is provided for the protection, conservation and maintenance of ridges within the Gauteng Province. According to the GDARD Draft Ridges Policy no development should take place on slopes steeper than 8.8%.

This policy does not apply to the application as the study area does not fall within an area classified as a ridge.

8.3.8 The Gauteng Conservation Plan, Version 3.3, 2011

Gauteng Nature Conservation (hereafter Conservation), a component of the Gauteng Department of Agriculture and Rural Development (GDARD) produced the Gauteng Conservation Plan Version 3 (C-Plan 3) in December 2010. The conservation plan was edited on three occasions since then: C-Plan 3.1 was released in July 2011 after it became apparent that some areas were not desirable in Critical Biodiversity Areas (CBAs hereafter). Not all areas were addressed in the first round of editing, so this was done during September 2011 resulting in C-Plan Version 3.2. It was soon released however, that some CBAs became separated by the removal of undesirable areas causing some attributes not to be

completely reflective of that CBAs any longer. C-Plan 3.3 became available in October 2011 after this issue was addressed.

The main purposes of C-Plan 3.3 are:

- to serve as the primary decision support tool for the biodiversity component of the Environmental Impact Assessment (EIA) process;
- to inform protected area expansion and biodiversity stewardship programmes in the province;
- to serve as a basis for development of Bioregional Plans in municipalities within the province.

According to Gauteng C-Plan version 3.3 Irreplaceable sites regarded as Important Areas, occur within the proposed development site.

8.3.9 Draft Policy on the Protection of Agricultural Land (2006)

According to GAPA 3 the study area has very-low agricultural potential and is not situated on an important agricultural site. Therefore this policy is not applicable to this application.

8.3.10 Gauteng Urban Edge, 2011

The Gauteng urban edge is delineated on a yearly basis denoting areas earmarked for development.

The subject property falls inside the Gauteng urban edge.

8.3.11 Gauteng Noise Control Regulations, 1999

The regulations control noise pollution. Acceptable noise levels within a residential area situated within an urban area is 55dBA and the maximum acceptable noise levels in a rural area is 45dBA.

A specialist noise study should be conducted during the EIA phase to ascertain whether the noise generated by surrounding land uses is acceptable for the development of a Mixed Use Development which includes residential areas, at the proposed site.

8.4 On a Local Level

Planning Responsibilities of the Involved Local Authority

The prerogative to plan a development within its jurisdictional area has always constitutionally, in terms of the Development Facilitation Act, 1995, the Local Government Transitional Act, 1993 and recently the Municipal Systems Act, 2000, vested in the local authority involved.

In order to ensure that the proposed development complies with the standards and requirements of the involved local authority, Ekurhuleni Metropolitan Municipality, the relevant officials were involved in the planning of the project from the start.

8.4.1 Ekurhuleni Metropolitan Spatial Development Framework (MSDF), 2011

According to the MSDF of the area, the principle of promoting infill residential development states that the EMM should promote infill residential development in strategically located vacant land areas.

The proposed development complies with this principle.

8.4.2 Reiger Park Local Spatial Development Framework (LSDF), 2008

In terms of the Reiger Park Local Spatial Development Framework (LSDF), 2008 part of the site may be used for low to medium density housing i.e. 40 units per hectare or less, and part of the site may be used for high density housing i.e. in excess of 60 dwelling units per hectare. The proposed development will comprise of 50 to 180 units per hectare and is thus in line with the Reiger Park LSDF.

8.4.3 Local Government Municipal Systems Act, 2000 (Act No. 32 of 2000)

This Act clearly establishes the Integrated Development Plan and Integrated Spatial Development Framework as guidelines to inform development and processes in this regard.

8.4.4 Ekurhuleni Metropolitan Municipal By-laws

The following Ekurhuleni Metropolitan Municipality by-laws potentially apply to the proposed development, and details to applicability shall be incorporated into the EIA report:

- Arts, Culture & Heritage Facilities By-law;
- Electricity By-law;
- Emergency Services By-law;
- Public Health By-law;
- Rates By-law;
- Regulation of Parks & Open spaces By-law;
- Solid waste By-law;
- Waste water By-law; and
- Water supply By-law.

8.5 Preliminary Issues Identified

- Section 21 Water- Use activities are triggered by the proposed development;
- Interruption in service supply to neighbouring properties might occur as a result of the development during the construction phase;
- Dust and noise generated during construction phase of the proposed development could be a nuisance to surrounding residents;
- Potential for Orange Listed Plant Species occurring on site;
- Sites of historical significance occur within the development footprint;
- The development triggers Township Establishment;

- Regulations of the Occupation Health and Safety Act will apply during the construction phase of the proposed development;
- The proposed development is in line with the principles of Ekurhuleni Metropolitan Spatial Development Framework;
- The proposed development is in line with the residential densities of Reiger Park Local spatial Development Framework;
- Proposed provincial roads that are listed in terms of the Gauteng New Infrastructure Act must be taken into consideration during development planning;
- The proposed development occurs within an area classified as Irreplaceable;
- The proposed development falls within the boundaries of the Gauteng Urban Edge;
- Specialist study required to establish whether development site is suitable for residential development in terms of ambient noise levels generated by adjacent land uses;
- The proposed development site is earmarked for residential development in terms of Ekurhuleni Metropolitan Spatial Development Framework;
- The proposed development supports the principles of the Ekurhuleni Metropolitan Spatial Development Framework;
- The developer must enter into a 'consumers' agreement with the Ekurhuleni Metropolitan Municipality for the use of electricity; and
- The developer will have to submit an application to the Ekurhuleni Metropolitan Municipality for bulk water supply and sewerage services.

8.6 Additional Information or Studies Required for the EIA Phase

- The Town Planning Memorandum must be included as part of the EIA Report;
- A Water-Use License Application has to be submitted to DWS and proof of submission must be included in the EIA Report;
- A Phase 1 Heritage Impact Assessment (HIA) is required;
- Ambient Air Quality study is required in terms of noise and dust generated by surrounding land uses (including mine tailings dams) and its impact on the proposed Mixed Use Development;

- The developer must enter into a consumers' agreement with EMM for the use of electricity;
- The developer will have to submit an application to the EMM for bulk water supply and sewerage services; and
- A Biodiversity Permit application might be required for relocation of potential Orange Data Plant Species occurring within the proposed development footprint.

9. ENVIRONMENTAL ISSUES AND POTENTIAL IMPACT IDENTIFICATION

The overall aim of ecologically sound urban development is to minimize the negative impact of development on the environment, thus, limiting the ecological footprint of development while moving towards greater sustainability over the longer term.

9.1 Preliminary Environmental Issues and Sensitivity Map

From the preliminary information available the following environmental issues are identified:

9.1.1 Geology and soils

Due to the site having been historically undermined, ground vibrations is a possibility.

There are potential problematic soils within the development footprint requiring specific foundation design for structures. Potentially active and collapsible soils, and potential for difficult excavation conditions near surface. Old borrow pit areas occurring within the proposed development footprint require rehabilitation prior to development. Portions of the development site are affected by the 1:100 year flood line of the watercourse and should be excluded from development. Due to historic storage of gold mine tailings in slime dams on portions of the proposed development site, the site has the potential for radiation contamination.

9.1.2 Hydrological impact

A channelled valley bottom wetland occurs within the development site which should remain undeveloped and be managed as private or public open space. The development is affected by the 1:100 year flood line of the watercourse, and no development will be allowed within the wetland buffer zones or below the 1:100 year flood lines except for the installation of services and pedestrian bridges or other light structures associated with open space areas, with the necessary water use authorisation.

A Section 21 Water Use License Application is triggered for work below the flood line and inside buffer zones of wetland areas. Possible damage to wetland areas and drainage lines during construction due to work within the boundaries of and buffer zones of the wetland and within drainage lines. In order to minimise the impacts on the wetlands and drainage areas the services alignments and pedestrian bridges across the wetland and drainage areas have to coincide.

More impermeable surfaces will lead to an increase in the speed and quantity of the surface water and it could lead to decrease in the quality of surface water, as a result of erosion and siltation and erosion. Stormwater attenuation will be required prior to discharging stormwater into the watercourse.

A Soil and water contamination assessment is required to confirm whether the adjacent watercourse has been contaminated by run-off from gold mine tailings dams, and whether it will have a health impact of residence coming into contact with the watercourse, for which the proposed zoning is public open space.

9.1.3 Topographical impact

The proposed development will be visible from the R21 (Rondebult Road) running past the northern and eastern boundary of the proposed development.

9.1.4 Ecological impact

The wetland areas and associated buffers identified on the study area should remain as open or private space and should be considered as sensitive areas. Introduction of alien vegetation in gardens could possibly invade the open space areas. Alien vegetation removal from the property is required.

The site is characterised by vulnerable to critically endangered grassland and there is potential for Orange Listed species occurring on site. Eradication of the existing vegetation of conservation value in and around the proposed development area could occur.

The proposed development might impact on protected Avi-fauna species potentially occurring on site.

9.1.5 Archaeological/Historical impact

Authorisation is required from PHRAG for the re-use, memorialisation, and or destruction of the sites of historical significance occurring within the development footprint.

9.1.6 Social impact

The proposed development will provide for affordability residential units to the lower income brackets and provide for social facilities as part of the Mixed Use Development. Additional income will be generated for Ekurhuleni Metropolitan by means of rates and taxes payable to the authorities. The proposed land- use is compatible with the surrounding land use. Noise generated by traffic on the R21 bordering the residential development, might have a nuisance impact on residents.

9.1.7 Visual impact

The R21 borders the proposed development to the north i.e. the development will be visible from the R21 which is situated at a higher elevation than the proposed

development. The surrounding area has however been earmarked for urban development and the proposed development is in line with the surrounding development.

9.1.8 Air quality impact (noise and dust)

The study area in general has a degraded noise climate which is mainly caused by traffic noise associated with an urban environment. Certain sections of the development site will most probably be affected by noise from the external environment e.g. traffic on the R 21.

9.1.9 Impact on services

Bulk water and sewage services are available within close proximity to the proposed development; however some infrastructure upgrades are required to cater for the proposed development. The upgrade of services might result in temporary disruption of services in surrounding area during the installation and upgrading of services;

Stormwater attenuation measures are required as an increased impermeable surface could cause erosion of watercourses due to increase in velocity and volume of stormwater runoff.

9.1.10 Economical impact

During construction as well as operational phase of the proposed Mixed Use Development temporary and permanent job opportunities will arise. The proposed development will result in an increase in adjacent property values. The Local authority will benefit economically by rates and taxes payable by the developer for the proposed development.

9.1.11 Institutional environment

A Section 21 Water Use License is triggered by the proposed development due to proximity to a wetland and services crossing a watercourse. Interruption in service supply to

neighbouring properties might occur as a result of the development during the construction phase. Dust and noise generated during construction phase of the proposed development could be a nuisance to surrounding residents.

The proposed development occurs within an area classified as Irreplaceable and there is potential for Orange Listed Plant Species occurring on site. Sites of historical significance occur within the development footprint. The development triggers Township Establishment. Regulations of the Occupation Health and Safety Act will apply during the construction phase of the proposed development.

The proposed development site is earmarked for residential development and the development is in line with the principles of Ekurhuleni Metropolitan Spatial Development Framework, as well as residential densities stipulated in the Reiger Park Local Spatial Development Framework. Proposed provincial roads that are listed in terms of the Gauteng New Infrastructure Act must be taken into consideration during development planning.

The proposed development falls within the boundaries of the Gauteng Urban Edge. A specialist study required to establish whether development site is suitable for residential development in terms of ambient noise levels generated by adjacent land uses.

The developer will have to submit an application to the Ekurhuleni Metropolitan Municipality for supply of bulk services, and enter into a consumers' agreement with the Ekurhuleni Metropolitan Municipality for provision of services.

9.2 Anticipated Environmental Impacts (Including Cumulative Impacts)

The impacts/aspects, both beneficial and adverse, of the proposed Mixed Use Development on the receiving biophysical, social, cultural, and regulatory environment were identified. The specific preliminary impacts associated with the proposed development on the study area and general construction and operational phase related impacts associated with development are listed in **Table 5** below.

Most development activities have environmental impacts during the construction and operational phases. Construction phase impacts are similar in nature for most development activities, because most development activities creates temporary jobs, cause temporary security problems, include the removal of topsoil, excavations, the removal of vegetation, temporary/permanent gradient changes, siltation, erosion and water pollution risks etc. In most cases the construction phase impacts are predominantly negative, more short-term in nature and mitigation possibilities are usually higher than mitigation possibilities of operational phase related impacts that are generally more medium and long term in nature. If no "Fatal Flaws" are identified during the construction phase i.e. if it is possible to mitigate the construction related impacts to more acceptable levels, the long term impacts of the operational phases of different development alternatives will eventually identify the preferred development alternative for the application.

The above impacts, as well as the affected environmental characteristics associated with the proposed residential development are indicated in **Table 5** below. In order to identify "FatalFlaws" at in early stage, the mitigation possibilities are also indicated.

Table 5: Preliminary environmental impact matrix of Proposed Township: Alternative 1 versus Alternative 2

Alternative 1 = Mixed use (listed as **(1)** in table below)

Alternative 2 = Commercial (listed as **(2)** in table below)

■ Adverse Impacts ◆ Beneficial Impacts

Environmental Aspects	Geology and Soils	Topography	Hydrology	Ecology	Agricultural Potential	Visual Quality & Sense of Place	Air quality (noise and dust)	Social Impact	Economic Impact	Services	Institutional
Dust generated during construction activities.	■ 1&2	■ 1&2	■ 1&2	■ 1&2	■ 1&2	■ 1&2					
If not planned and managed correctly, topsoil will be lost due to construction activities.	■ 1&2		■ 1&2	■ 1&2	■ 1&2	■ 1&2					
No stormwater attenuation structures at release points.	■ 1&2		■ 1&2	■ 1&2							■ 1&2
Heavy buildings are erected without detailed Geotechnical investigation to determine the underlying geological conditions and foundation requirements.	■ 1&2							■ 1&2	■ 1&2	■ 1&2	■ 1&2
Construction vehicles may cause dust entrainment.						■ 1&2	■ 1&2	■ 1&2			
Surface water pollution due to oil and fuel spills from construction vehicles, construction material (e.g. concrete, solvents, paints etc.), workforce activities, the application of herbicides during the operational phase.	■ 1&2		■ 1&2	■ 1&2	■ 1&2	■ 1&2		■ 1&2	■ 1&2		■ 1&2
Impermeable surfaces created by development could result in increased	■ 1&2	■ 1&2	■ 1&2	■ 1&2	■ 1&2	■ 1&2					

Environmental Aspects	Geology and Soils	Topography	Hydrology	Ecology	Agricultural Potential	Visual Quality & Sense of Place	Air quality (noise and dust)	Social Impact	Economic Impact	Services	Institutional
surface runoff causing erosion and siltation.											
Construction works within watercourses could cause water pollution, erosion, siltation, soil compaction, and damage to sensitive species and systems.	■ 1&2		■ 1&2	■ 1&2		■ 1&2					■ 1&2
Excavated materials that are stockpiled incorrectly could cause siltation and water pollution.	■ 1&2	■ 1&2	■ 1&2	■ 1&2		■ 1&2					
Surface water flows will be altered during the construction phase.			■ 1&2	■ 1&2							
Perched water conditions may be present on site and may pose a problem with respect to the excavation for services and foundations which will most probably be flooded, creating unstable trench sidewalls.	■ 1&2							■ 1&2	■ 1&2	■ 1&2	■ 1&2
Management of waste generated during construction phase.			■ 1&2	■ 1&2		■ 1&2		■ 1&2	■ 1&2	■ 1&2	■ 1&2
The slope is sufficient to allow for natural stormwater drainage as well as for the cost-effective installation of essential engineering		◆ 1&2						◆ 1&2	◆ 1&2	◆ 1&2	◆ 1&2

Environmental Aspects	Geology and Soils	Topography	Hydrology	Ecology	Agricultural Potential	Visual Quality & Sense of Place	Air quality (noise and dust)	Social Impact	Economic Impact	Services	Institutional
services.											
The visual impact of the construction works on the surrounding communities.						■ 1&2		■ 1&2			
Construction during the rainy season can cause unnecessary delays and damage to the environment.	■ 1&2	■ 1&2	■ 1&2	■ 1&2	■ 1&2			■ 1&2	■ 1&2	■ 1&2	■ 1&2
Construction works could cause disturbance and eradication of the sensitive species and habitats on site.	■ 1&2	■ 1&2	■ 1&2	■ 1&2		■ 1&2		■ 1&2	■ 1&2		■ 1&2
Damage to wetland areas during construction works	■ 1&2		■ 1&2	■ 1&2		■ 1&2		■ 1&2			■ 1&2
Eradication of Invasive Species.	◆ 1&2		◆ 1&2	◆ 1&2	◆ 1&2	◆ 1&2					◆ 1&2
Protection of wetland and aquatic habitat.	◆ 1&2		◆ 1&2	◆ 1&2	◆ 1&2	◆ 1&2					◆ 1&2
If the entire site is cleared at once, smaller birds, mammals and reptiles will not be afforded the chance to weather the disturbance in an undisturbed zone close to their natural territories.				■ 1&2		■ 1&2					
Noise of construction machinery could have a negative impact on the Avifaunal and Invertebrate species during the construction phase.				■ 1&2			■ 1&2				

Environmental Aspects	Geology and Soils	Topography	Hydrology	Ecology	Agricultural Potential	Visual Quality & Sense of Place	Air quality (noise and dust)	Social Impact	Economic Impact	Services	Institutional
During the construction and operational phases Fauna could be disturbed, trapped, hunted or killed.				■ 1&2			■ 1&2				■ 1&2
The clearing of the site and the construction of the proposed structures, infrastructure will result in the eradication of the existing vegetation (with and without conservation value) in and around the study area.	■ 1&2		■ 1&2	■ 1&2		■ 1&2		■ 1&2	■ 1&2	■ 1&2	■ 1&2
Uncontrolled veldt fires may cause damage to infrastructure, cause loss of vegetation and Fauna.	■ 1&2	■ 1&2		■ 1&2	■ 1&2	■ 1&2	■ 1&2	■ 1&2	■ 1&2	■ 1&2	■ 1&2
Dumping of rubble in sensitive areas and on the surrounding properties.	■ 1&2		■ 1&2	■ 1&2	■ 1&2	■ 1&2		■ 1&2	■ 1&2	■ 1&2	■ 1&2
Disturbance of the ecosystem functioning of the stream, due to movement of workforce, construction vehicles and incorrect construction methods as well as vehicles and movement of residents during the operational phase.			■ 1&2	■ 1&2				■ 1&2	■ 1&2	■ 1&2	■ 1&2
Floral disturbance in the riparian zone and flood plains due to movement of			■ 1&2	■ 1&2							■ 1&2

Environmental Aspects	Geology and Soils	Topography	Hydrology	Ecology	Agricultural Potential	Visual Quality & Sense of Place	Air quality (noise and dust)	Social Impact	Economic Impact	Services	Institutional
construction vehicles and workforce and construction activities as well as vehicles, movement of residents and the presence of services (e.g. power lines, sewage and water lines) during the operational phase.											
Erosion of stream banks, riparian zone and flood plains and sedimentation.	■ 1& 2	■ 1& 2	■ 1& 2	■ 1& 2		■ 1& 2		■ 1& 2			■ 1& 2
Change in hydrological regime on a micro scale due to the presence of roads, bridges in close proximity to the stream and stream crossings.			■ 1& 2	■ 1& 2							■ 1& 2
Creation of job opportunities during construction phase.								◆ 1&2	◆ 1&2	◆ 1&2	◆ 1&2
No on- site sanitation system or drinking water on the study area during construction phase.			■ 1& 2	■ 1& 2		■ 1& 2		■ 1& 2	■ 1& 2	■ 1& 2	■ 1& 2
Restrictions of access to surrounding properties and the study area during construction phases.					■ 1& 2			■ 1& 2	■ 1& 2	■ 1& 2	■ 1& 2
Localised noise and vibration due to construction activities.				■ 1& 2			■ 1& 2	■ 1& 2	■ 1& 2		■ 1& 2
During the construction phase some safety and								■ 1& 2	■ 1& 2	■ 1& 2	■ 1& 2

Environmental Aspects	Geology and Soils	Topography	Hydrology	Ecology	Agricultural Potential	Visual Quality & Sense of Place	Air quality (noise and dust)	Social Impact	Economic Impact	Services	Institutional
security problems (especially for the surrounding residents) are likely to occur.											
Construction during the dry and windy season could cause dust pollution.	■ 1&2					■ 1&2	■ 1&2	■ 1&2	■ 1&2	■ 1&2	■ 1&2
Construction activities could disturb neighbours in terms of noise pollution.						■ 1&2	■ 1&2	■ 1&2	■ 1&2		■ 1&2
The R21 running past the proposed development could result in noise disturbance to residents.						■ 1&2	■ 1&2	■ 1&2			
The construction vehicles and activities will have a negative impact from surrounding viewpoints.						■ 1&2		■ 1&2			
Construction activities might impact on local traffic.								■ 1&2	■ 1&2	■ 1&2	■ 1&2
Potential for unplanned informal settlement (squatting) before construction commences or after construction.	■ 1&2		■ 1&2	■ 1&2	■ 1&2	■ 1&2	■ 1&2	■ 1&2	■ 1&2	■ 1&2	■ 1&2
Dumping of builders' rubble in sensitive areas such as the wetland and grassland as well as on the surrounding properties.			■ 1&2	■ 1&2	■ 1&2	■ 1&2	■ 1&2	■ 1&2	■ 1&2	■ 1&2	■ 1&2

Environmental Aspects	Geology and Soils	Topography	Hydrology	Ecology	Agricultural Potential	Visual Quality & Sense of Place	Air quality (noise and dust)	Social Impact	Economic Impact	Services	Institutional
Uncontrolled veldt fires may cause damage to infrastructure, cause loss of vegetation and fauna				■ 1&2	■ 1&2	■ 1&2	■ 1&2	■ 1&2	■ 1&2	■ 1&2	■ 1&2
Temporary disruption of services due to relocation and installation of services.								■ 1&2	■ 1&2	■ 1&2	■ 1&2
Construction activities could cause danger to public.								■ 1&2	■ 1&2	■ 1&2	■ 1&2
Prevention of siltation and erosion.	◆ 1&2	◆ 1&2	◆ 1&2	◆ 1&2	◆ 1&2	◆ 1&2					
Rehabilitation of disturbed areas.	◆ 1&2	◆ 1&2	◆ 1&2	◆ 1&2	◆ 1&2	◆ 1&2		◆ 1&2			◆ 1&2
Leaking sewerage pipes could cause surface and ground water pollution.	■ 1&2		■ 1&2	■ 1&2		■ 1&2		■ 1&2	■ 1&2	■ 1&2	■ 1&2
Conservation and protection of sensitive areas and linkage of natural open spaces with the larger regional open space system.	◆ 1&2	◆ 1&2	◆ 1&2	◆ 1&2		◆ 1&2		◆ 1&2			◆ 1&2
Eradication of invasive species.	◆ 1&2		◆ 1&2	◆ 1&2	◆ 1&2	◆ 1&2		◆ 1&2			◆ 1&2
Effective environmental management of open spaces (according to approved EMP).	◆ 1&2	◆ 1&2	◆ 1&2	◆ 1&2		◆ 1&2	◆ 1&2	◆ 1&2			◆ 1&2
Loss of grassland and habitat of potential species of conservation concern.	■ 1&2		■ 1&2	■ 1&2		■ 1&2		■ 1&2			■ 1&2
Development could have a						◆ 1&2		◆ 1&2			

Environmental Aspects	Geology and Soils	Topography	Hydrology	Ecology	Agricultural Potential	Visual Quality & Sense of Place	Air quality (noise and dust)	Social Impact	Economic Impact	Services	Institutional
positive impact on the "Sense of Place" of the study area and its surroundings.											
Impact on property values.								◆ 1&2	◆ 1&2		◆ 1&2
The creation of affordable residential development with open spaces.				◆ 1		◆ 1		◆ 1	◆ 1		◆ 1
Contribution to the upgrading of infrastructure and services.								◆ 1&2	◆ 1&2	◆ 1&2	◆ 1&2
Creation of job opportunities during the operational phase.								◆ 1&2	◆ 1&2	◆ 1&2	◆ 1&2
Increase in adjacent Land-values.								◆ 1&2	◆ 1&2	◆ 1&2	◆ 1&2
Creating a major contribution to rates and taxes to the local municipality.								◆ 1&2	◆ 1&2	◆ 1&2	◆ 1&2
Accessibility of study area.								◆ 1&2	◆ 1&2	◆ 1&2	◆ 1&2
Reduction of areas that have potential for informal settlements.								◆ 1&2	◆ 1&2		◆ 1&2
Increased security in the area and on the study area.				◆ 1&2		◆ 1&2		◆ 1&2	◆ 1&2		◆ 1&2
Increased traffic volume associated with development.						■ 1&2	■ 1&2	■ 1&2	■ 1&2	■ 1&2	■ 1&2
Compatibility with surrounding land uses.						◆ 1/ ■ 2	■ 1&2	◆ 1&2	◆ 1&2	◆ 1&2	◆ 1&2
Visual impact of the Township.		■ 1&2				■ 1&2					

Environmental Aspects	Geology and Soils	Topography	Hydrology	Ecology	Agricultural Potential	Visual Quality & Sense of Place	Air quality (noise and dust)	Social Impact	Economic Impact	Services	Institutional
Roofs may reflect the sun into oncoming vehicles on the existing and proposed roads.						■ 1&2		■ 1&2			
Provision of residential units/erven in close proximity to employment opportunities.								◆ 1	◆ 1	◆ 1	◆ 1
Cultural/Archaeological sites might be destroyed during construction phase.								■ 1&2			■ 1&2
Development aligned with local authority strategies, policies and plans.								◆ 1	◆ 1	◆ 1	◆ 1

9.3 Comparative Assessment between Alternative 1 and Alternative 2

Tables 6 and 7 below are preliminary comparative assessments based on the issues identified in **Table 5** above. The issues identified in **Table 5** are based on the status quo information that was available for the Scoping Phase, and the Scoping Report identified the aspects that must be investigated in more detail during the EIA phase.

The purpose of the preliminary issues identification and comparative assessment process is (1) to identify “Fatal Flaws” that could prevent the project from happening at an early stage, (2) to identify specialist studies and plans to be done for the EIA phase of the application, (3) to identify the mitigation possibilities of the preliminary issues identified and (4) to compare (already at an early stage) the workable alternatives identified with each other before and after mitigation. The comparative assessment will assist the EAP with the identification of the preferred alternative. However, the environmental issues and the results of the comparative assessment are only preliminary results that must still be confirmed during the EIA phase. Some of the specialist studies done during the EIA phase could identify additional issues to be addressed and it could even identify “Fatal Flaws” that could prevent the project from happening or place restrictions (i.e. buffers zones) that could have a significant impact on the preliminary layout and alternatives identified.

Due to the fact that many of the potential high impact issues identified in the above mentioned table can be mitigated to more acceptable levels, the issues ratings before and after mitigation in the tables below could differ considerably. In many cases, high impact issues (mostly related to the construction phase of a development) can be mitigated completely. The comparative assessment after mitigation (**refer to Table 7 below**) will, therefore, give a more accurate indication of the preliminary preferred alternative for the project.

Table 6: Comparative assessment between Alternative 1 and 2 before Mitigation

Environmental Aspects	Physical				Biological		Socio-Economical								Institutional				Total of Impacts	
	Geology and Soils	Hydrology	Topography	Climate	Fauna	Flora	Qualitative Environment Visual, Noise, Pollution, Security	Compatibility of Land-Use	Availability of municipal services	Upgrading of Municipal Services	Economical Impact Local Authority	Economical Impact I&APs	Economical Impact Private Sector	Cultural and Historical	Impact on high agricultural potential land	In line with IDP	In line with SDF or other frameworks and open space plans	In line with policies and guidelines		In line with legislation
Key to impacts: ☺ L – Low Positive ☺ M – Medium Positive ☺ H – High Positive ☹ L – Low Negative ☹ M – Medium Negative ☹ H – High Negative 😐 N – Neutral																				
CONSTRUCTION PHASE																				
Preliminary Issues and Impacts																				
Alternative 1 "Mixed use"	☹ H	☹ M	☹ L	😐 N	☹ M	☹ M	☹ M	☺ H	☺ M	☺ H	☺ H	😐 N	☺ H	☹ M	😐 N	☺ H	☺ H	☺ H	☺ M	☺ H x 7 ☺ M x 2 😐 N x 3 ☹ L x 1 ☹ M x 5 ☹ H x 1
Alternative 2 "Commercial"	☹ H	☹ M	☹ L	😐 N	☹ M	☹ M	☹ L	☹ L	☺ M	☺ H	☺ M	😐 N	☺ H	☹ L	😐 N	☹ L	☹ L	☹ L	☹ L	☺ H x 2 ☺ M x 2 😐 N x 3 ☹ L x 8 ☹ M x 3 ☹ H x 1

Environmental Aspects	Physical				Biological		Socio-Economical								Institutional				Total of Impacts	
	Geology and Soils	Hydrology	Topography	Climate	Fauna	Flora	Qualitative Environment Visual, Noise, Pollution, Security	Compatibility of Land-Use	Availability of municipal services	Upgrading of Municipal Services	Economical Impact Local Authority	Economical Impact I&APs	Economical Impact Private Sector	Cultural and Historical	Impact on high agricultural potential land	In line with IDP	In line with SDF or other frameworks and open space plans	In line with policies and guidelines		In line with legislation
Key to impacts: ☺ L – Low Positive ☺ M – Medium Positive ☺ H – High Positive ☹ L – Low Negative ☹ M – Medium Negative ☹ H – High Negative ☺ N – Neutral																				
OPERATIONAL PHASE																				
Preliminary Issues and Impacts																				
Alternative 1 "Mixed use"	☺ N	☺ N	☺ N	☺ N	☹ M	☹ M	☹ M	☺ H	☺ N	☺ N	☺ M	☺ N	☺ H	☺ N	☺ N	☺ H	☺ H	☺ H	☺ M	☺ H x 5 ☺ M x 2 ☺ N x 9 ☹ M x 3
Alternative 2 "Commercial"	☺ N	☺ N	☺ N	☺ N	☹ M	☹ M	☹ L	☹ L	☺ N	☺ N	☺ L	☺ N	☺ H	☺ N	☺ N	☹ L	☹ L	☹ L	☹ L	☺ H x 1 ☺ L x 1 ☺ N x 9 ☹ L x 6 ☹ M x 2

Table 7: Comparative assessment between Alternative 1 and 2 after Mitigation

Environmental Aspects	Physical				Biological		Socio-Economical								Institutional				Total of Impacts	
	Geology and Soils	Hydrology	Topography	Climate	Fauna	Flora	Qualitative Environment Visual, Noise, Pollution, Security	Compatibility of Land-Use	Availability of municipal services	Upgrading of Municipal Services	Economical Impact Local Authority	Economical Impact I&APs	Economical Impact Private Sector	Cultural and Historical	Impact on high agricultural potential land	In line with IDP	In line with SDF or other frameworks and open space plans	In line with policies and guidelines		In line with Water Act and other legislation
CONSTRUCTION PHASE Preliminary Issues and Impacts																				
Alternative 1 "Mixed use"	⊖ L	⊖ L	⊖ L	⊕ N	⊖ L	⊖ L	⊖ L	⊕ H	⊕ H	⊕ H	⊕ H	⊕ N	⊕ H	⊖ L	⊕ N	⊕ H	⊕ H	⊕ H	⊕ M	⊕ H x 8 ⊕ M x 1 ⊕ N x 3 ⊖ L x 7
Alternative 2 "Commercial"	⊖ L	⊖ L	⊖ L	⊕ N	⊖ L	⊖ L	⊖ L	⊖ L	⊕ M	⊕ L	⊕ M	⊕ N	⊕ H	⊖ L	⊕ N	⊖ L	⊖ L	⊖ L	⊖ L	⊕ H x 1 ⊕ M x 2 ⊕ L x 1 ⊕ N x 3 ⊖ L x 12

Environmental Aspects	Physical				Biological		Socio-Economical								Institutional				Total of Impacts	
	Geology and Soils	Hydrology	Topography	Climate	Fauna	Flora	Qualitative Environment Visual, Noise, Pollution, Security	Compatibility of Land-Use	Availability of municipal services	Upgrading of Municipal Services	Economical Impact Local Authority	Economical Impact I&APs	Economical Impact Private Sector	Cultural and Historical	Impact on high agricultural potential land	In line with IDP	In line with SDF or other frameworks and open space plans	In line with policies and guidelines		In line with Water Act and other legislation
<p>Key to impacts:</p> <p>😊 L – Low Positive 😊 M – Medium Positive 😊 H – High Positive</p> <p>😞 L – Low Negative 😞 M – Medium Negative 😞 H – High Negative</p> <p>😐 N – Neutral</p>																				
OPERATIONAL PHASE																				
Preliminary Issues and Impacts																				
Alternative 1 "Mixed use"	😊 N	😊 N	😊 N	😊 N	😊 L	😊 L	😊 L	😊 H	😊 H	😊 H	😊 H	😊 N	😊 H	😊 N	😊 N	😊 H	😊 H	😊 H	😊 H	😊 H x 9 😊 L x 3 😊 N x 7
Alternative 2 "Commercial"	😊 N	😊 N	😊 N	😊 N	😊 L	😊 L	😊 L	😞 L	😊 M	😊 M	😊 M	😊 N	😊 M	😊 N	😊 N	😊 L	😊 L	😊 L	😊 L	😊 M x 4 😊 L x 7 😊 N x 7 😞 L x 1

Although the impacts of the alternatives are very similar, **Alternative 1** is regarded as the preferred alternative, because it is in line with local authority planning for the area.

9.4 Summary

From the Tables above it can be concluded that **Alternative 1, the Mixed Use Development Proposal**, is the preferred alternative.

The physical and biological impacts for both alternatives are more or less equal for the two alternatives, and after mitigation the identified negative impacts will have low significance and the identified positive impacts will have neutral to low significance.

From a socio-economic point of view Alternative 1 is regarded as the preferred alternative, because it is in line with local authority planning for infill development of affordable residential units and is compatible with surrounding land -use, as opposed to **Alternative 2 - commercial development**. Alternative 1 is also in line with the Reiger Park Local Spatial Development Framework as erven will have a density of approximately 50 to 180 units per hectare for Residential 1 land- use. Both alternatives will increase traffic in the area.

Alternative 1 would contribute to the upgrading of services and infrastructure in the area as well as the generation of employment opportunities. The infrastructure upgrading for Alternative 2 will not be as extensive as the required infrastructure upgrading for Alternative 1. Alternative 2 will provide more employment opportunities during the operational phase of the development. Both Alternative 1 and Alternative 2 will have a negative impact on the bio-physical environment, however, mitigation measures will be implemented to reduce the impact on potential protected Flora and Fauna occurring on site.

From an Institutional point of view, **Alternative 1, the Mixed Use Development Proposal** is regarded as the preferred alternative due to complying with principles of the Spatial Planning Land Use Management (SPLUMA) Act No. 16 of 2013, Ekurhuleni Metropolitan Spatial Development Framework, 2011, the National Development Plan, and the Gauteng Spatial Development Framework (GSDF) 2011.

10. METHODOLOGY OF ASSESSING IMPACTS THAT HAVE BEEN IDENTIFIED

10.1 Specialised processes and Specialist Studies

Please refer to the Plan of Study for EIA (**Annexure C**) for specialist studies and additional processes and information needed to further investigate the environmental issues.

10.2 Significance Description Methodology

The significance of Environmental Impacts will be assessed in accordance with the following method:

Significance is the product of probability and severity. Probability describes the likelihood of the impact actually occurring, and is rated as follows:

Likelihood	Description	Rating
Improbable	Low possibility of impact to occur either because of design or historic experience	2
Probable	Distinct possibility that impact will occur	3
Highly probable	Most likely that impact will occur	4
Definite	Impact will occur, in the case of adverse impacts regardless of any prevention measures	5

The severity factor is calculated from the factors given to “intensity” and “duration”. Intensity and duration factors are awarded to each impact, as described below.

The Intensity factor is awarded to each impact according to the following method:

Intensity	Description	Rating
Low intensity	Natural and man-made functions not affected.	1
Medium intensity	Environment affected but natural and man-made functions and processes continue.	2
High intensity	Environment affected to the extent that natural or man-made functions are altered to the extent that it will temporarily or permanently cease or become dysfunctional.	4

Duration is assessed and a factor awarded in accordance with the following:

Duration	Description	Rating
Short term	<1 to 5 years - Factor 2	2
Medium term	5 to 15 years - Factor 3	3
Long term	Impact will only cease after the operational life of the activity, either because of natural process or by human intervention.	4
Permanent	Mitigation, either by natural process or by human intervention, will not way or in such a time span that the impact can be considered transient.	4

The severity rating is obtained from calculating a severity factor, and comparing the severity factor to the rating in the table below. For example:

$$\begin{aligned}
 \text{The Severity factor} &= \text{Intensity factor X Duration factor} \\
 &= 2 \times 3 \\
 &= 6
 \end{aligned}$$

A Severity factor of six (6) equals a Severity Rating of Medium severity (Rating 3) as per table below:

Severity Factor	Severity	Rating
Calculated values 2 to 4	Low Severity	2
Calculated values 5 to 8	Medium Severity	3
Calculated values 9 to 12	High Severity	4
Calculated values 13 to 16	Very High severity	5

A Significance Rating is calculated by multiplying the Severity Rating with the Probability Rating.

Significance	Rating	Influence
Low significance	Rating 4 to 6	Positive impact and negative impacts of low significance should have no influence on the proposed development project.
Medium significance	Rating >6 to 15	Positive impact: Should weigh towards a decision to continue Negative impact: Should be mitigated to a level where the impact would be of medium significance before project can be approved.
High significance	Rating 16 and more	Positive impact: Should weigh towards a decision to continue, should be enhanced in final design. Negative impact: Should weigh towards a decision to terminate proposal, or mitigation should be performed to reduce significance to at least medium significance rating.

11. PLAN OF STUDY

Refer to Annexure C for the plan of study for Environmental Impact Assessment.

The plan of study sets out the proposed approach to the Environment Impact Assessment of the application that includes:

- A description of the tasks that will be undertaken as part of the environmental Impact Assessment Process, including any specialised processes, and the manner in which such tasks will be undertaken;
- An indication of the stages at which the competent authority will be consulted;
- A description of the proposed method of assessing the environmental issues and alternatives, including the option of not proceeding with the activity; and
- Particulars of the Public Participation Process that will be conducted during the Environmental Impact Assessment process.

12. CONCLUSION

The purpose of the scoping process was to do a status quo analysis of the study area, to investigate the alternatives considered for the project, to identify the most significant environmental issues associated with the proposed project, to determine the impact of the proposed development on the social environment and to identify (already at an early stage) possible “Fatal Flaws” that could prevent the project from happening.

The results of the preliminary investigation of possible issues that might affect the proposed development and alternatives will be used in producing a final conceptual layout for the proposed township establishment. This concept layout will be assessed (mainly through the overlay method) during the EIA process.

It is also important to note that the scoping process identified other crucial issues that must be addressed in more detail during the EIA process and it is requested that the authorities evaluate the Scoping Report and examine the issues listed under each environment and where possible add/remove issues from the issues lists of this report. The mitigation possibilities of the issues listed were also identified in this scoping report and Bokamoso is of the opinion that it will be possible to mitigate all the detrimental issues to have no impact or to have a low level impact. However, the issues listed will be assessed in more detail during the EIA phase and detailed mitigation measures to reduce or prevent the issues/impacts will be supplied and incorporated as part of an Environmental Management Plan (EMP) for the pre-construction, construction, decommissioning, and operational phases of the project.

It can be concluded from the scoping process that **Alternative 1, the Mixed Use Development Proposal** is regarded as the preferred alternative, due to having higher significant positive impacts especially from an institutional point of view, than Alternative 2. Other alternatives including locality, other land-uses, layout alternatives, as well as the “No-Go” option will be investigated in detail during the EIA process.

13. RECOMMENDATION

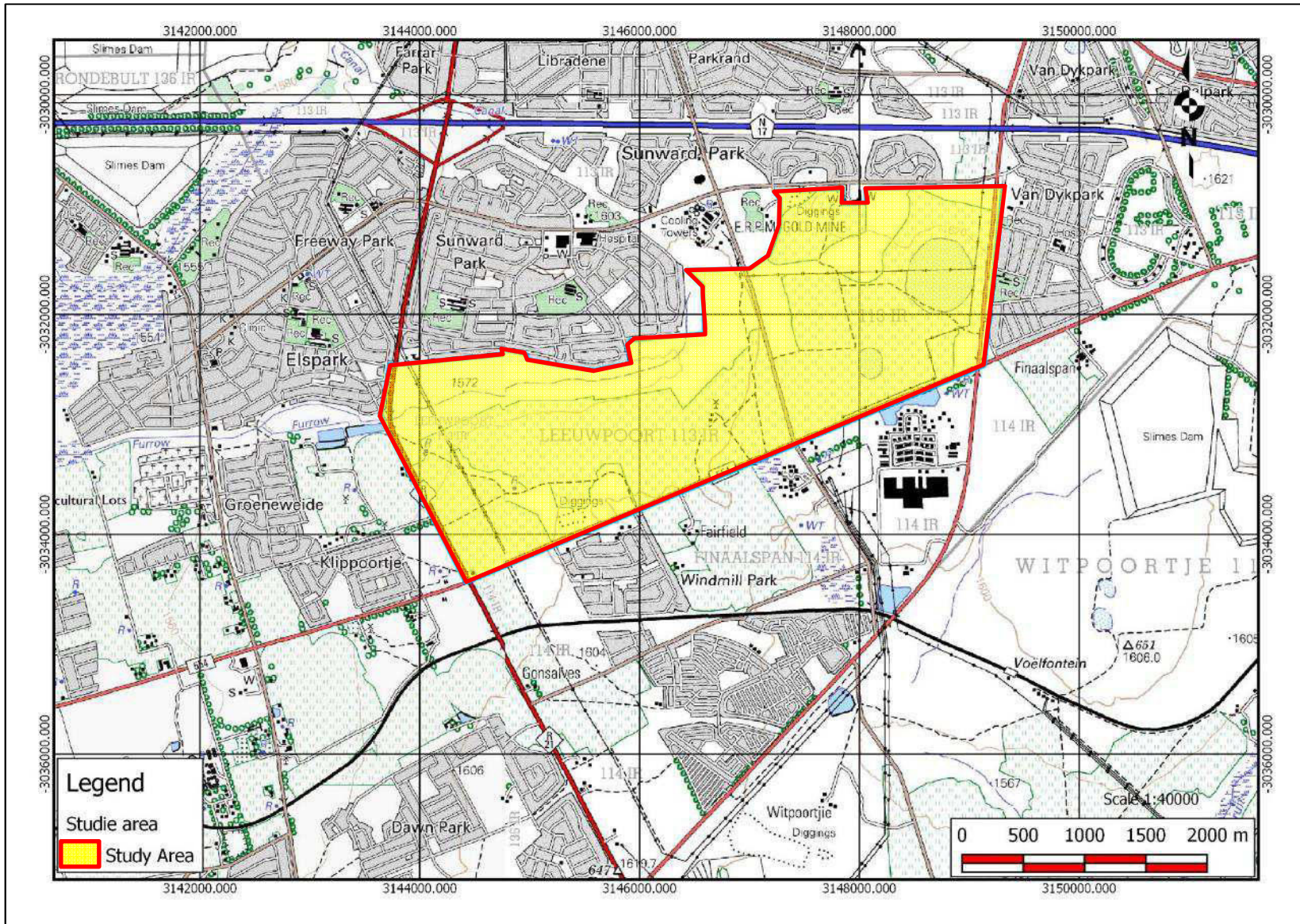
Based on the above-mentioned information supplied and the conclusions that were made, it is suggested that the Scoping Report be accepted, that the Plan of Study for EIA be approved, and that the applicant be allowed to commence with the EIA for the proposed **Mixed Use Development**.

The completed EIA must, amongst others, include the following information/comply with the following documents:

- The approved Plan of Study for EIA;
- The specialist reports listed by Bokamoso in this Scoping Report;
- The specialist inputs as listed in the Plan of Study for EIA; and
- Additional specialist inputs and other relevant information listed by the relevant authorities.

ANNEXURE A:
ENLARGEMENTS OF FIGURES

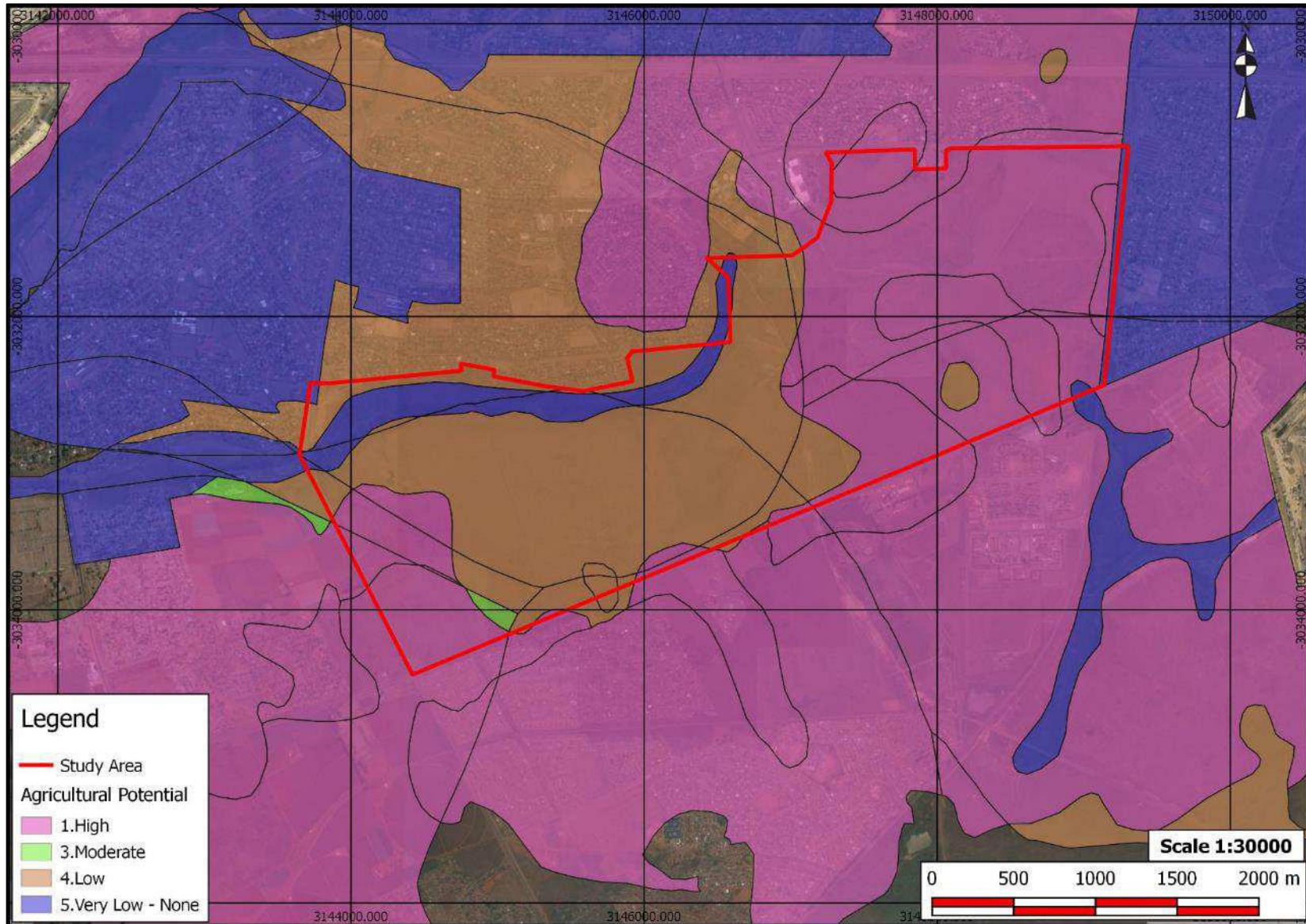
Leeuwpoot - Mixed Use Development Locality Map



Projection - Transverse Mercator
Datum - Hartebeeshoek 1994
Reference Ellipsoid - WGS 1984
Central Meridian -29

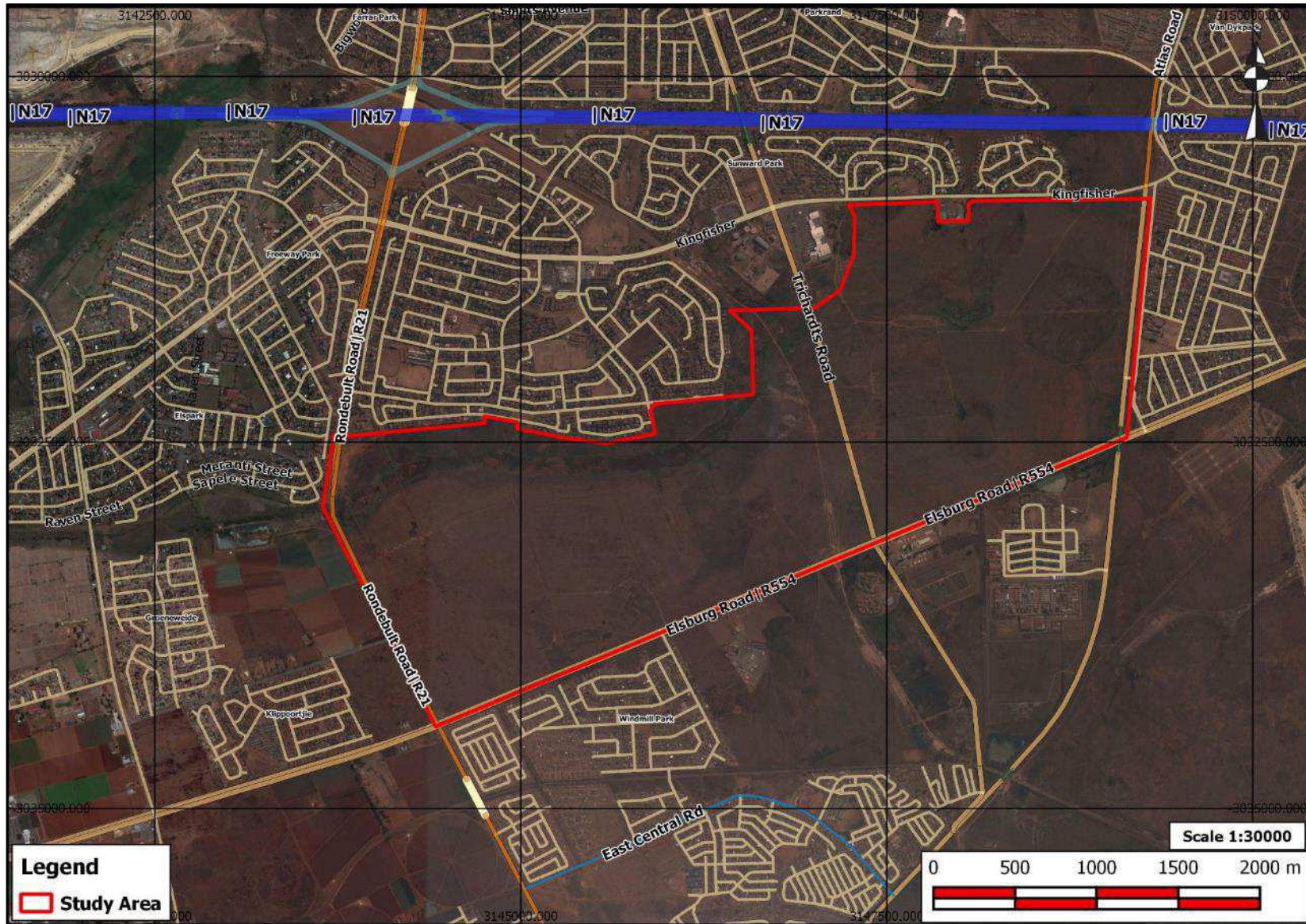
Leeuwpoot - Mixed Use Development

Agricultural Potential



Leeuwpoort - Mixed Use Development

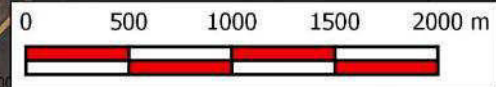
Aerial



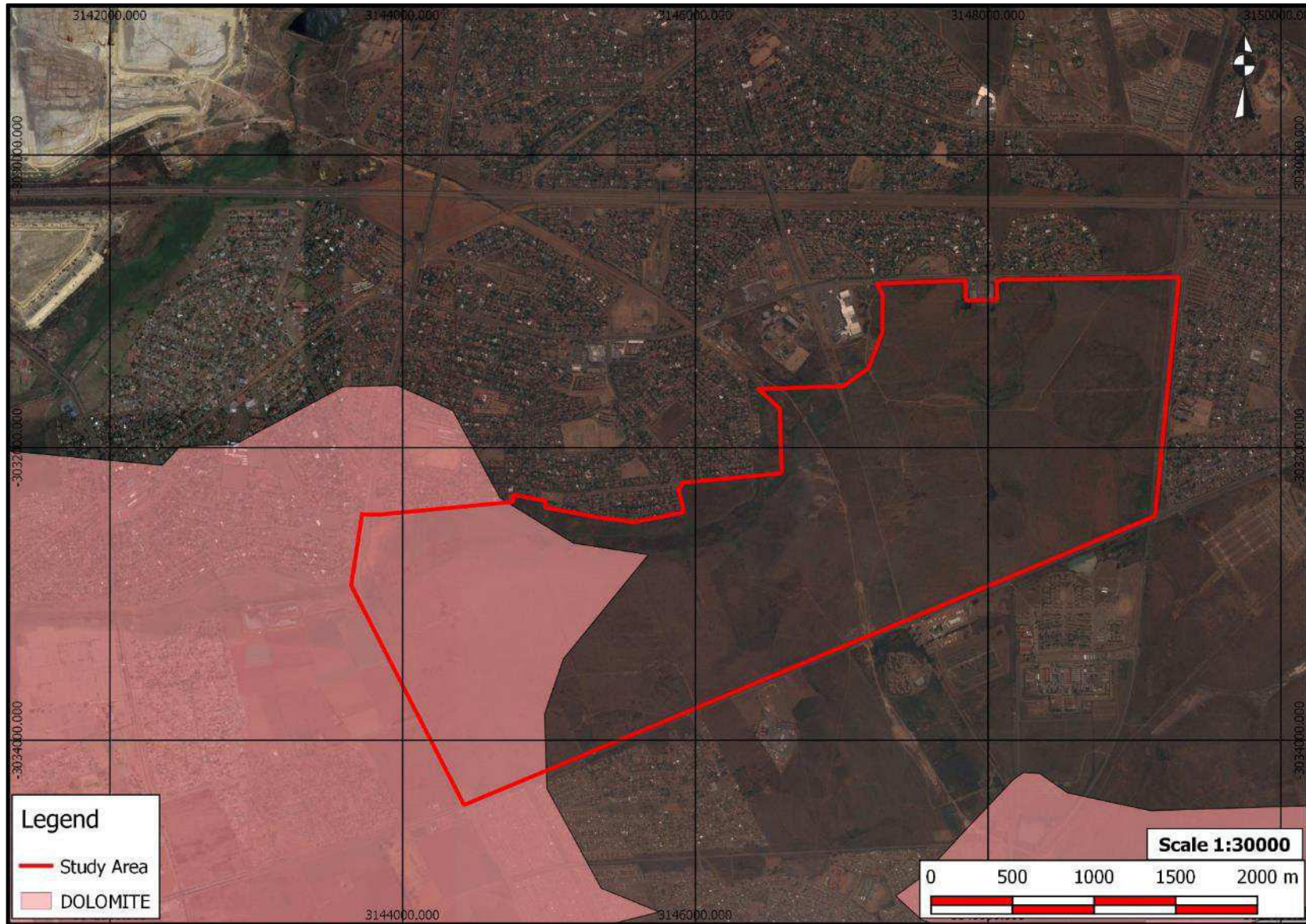
Legend
Study Area

Projection - Transverse Mercator
Datum - Hartbeeshoek 1994
Reference Ellipsoid - WGS 1984
Central Meridian -29

Scale 1:30000



Leeuwpoort - Mixed Use Development Dolomite



Legend

- Study Area
- DOLOMITE

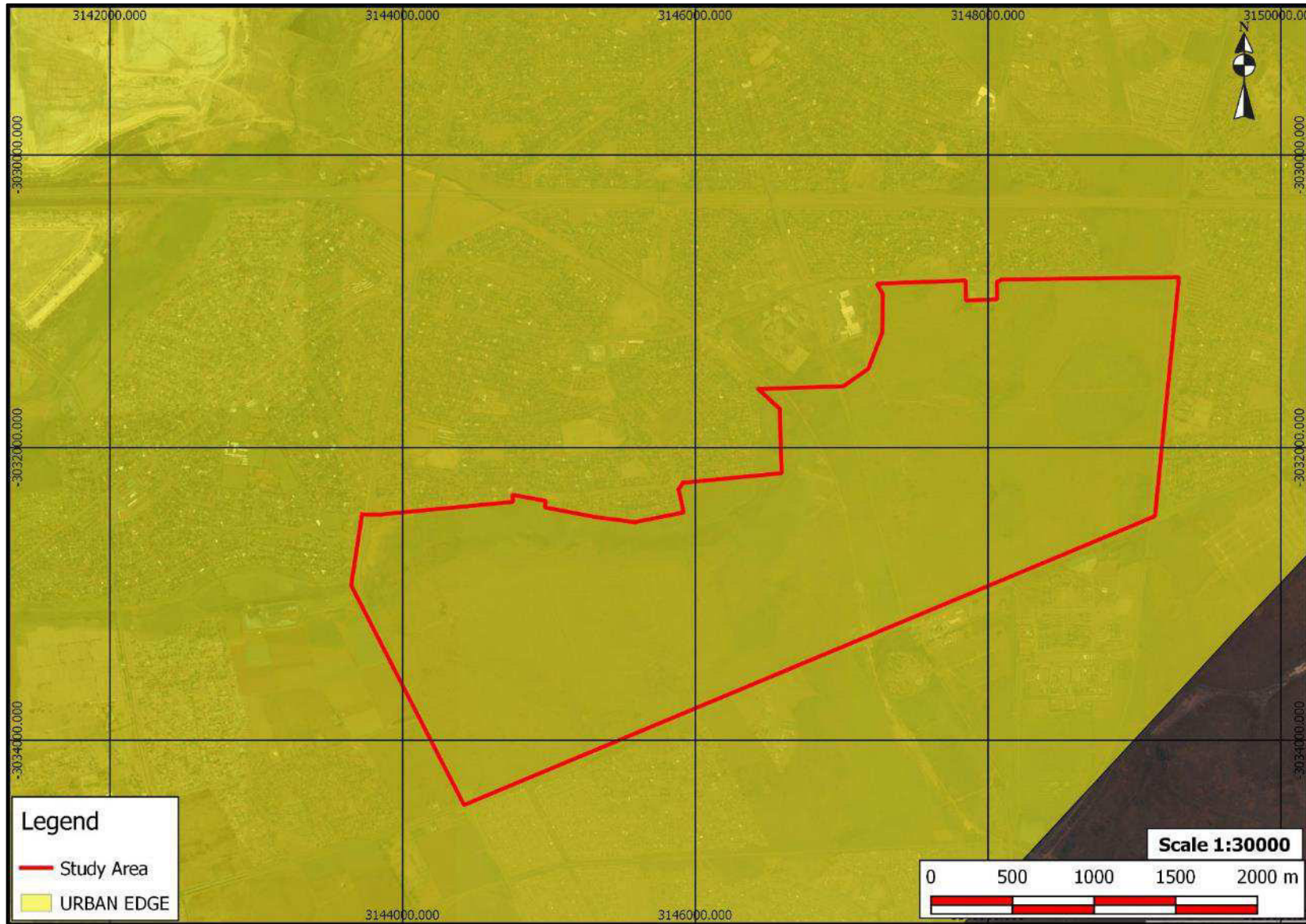
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Reference Ellipsoid –WGS 1984
Central Meridian -29

Leeuwpoot - Mixed Use Development

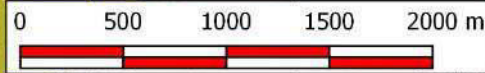
Urban Edge



Legend

- Study Area
- URBAN EDGE

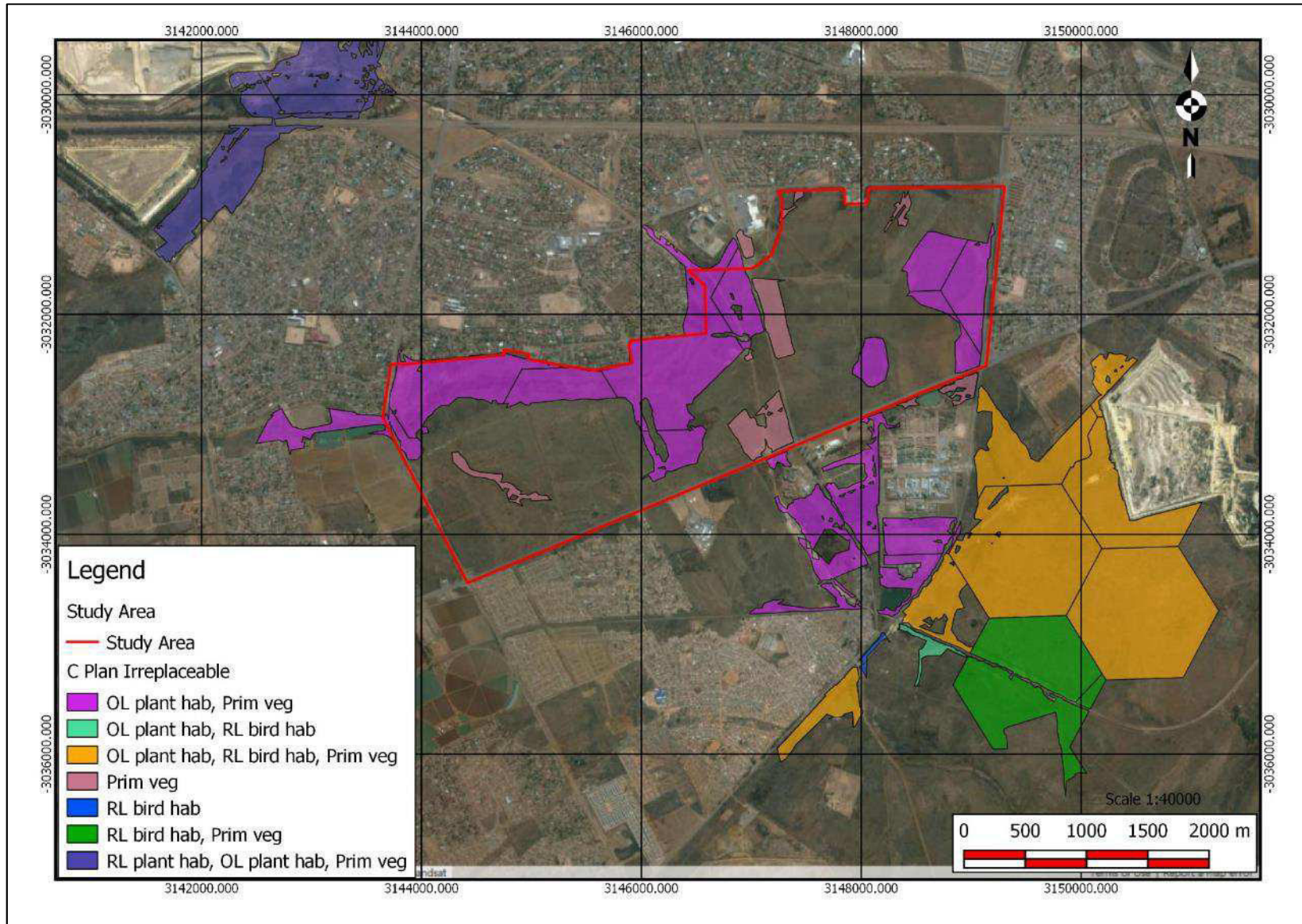
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Projection – Transverse Mercator
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Reference Ellipsoid –WGS 1984
Central Meridian -29

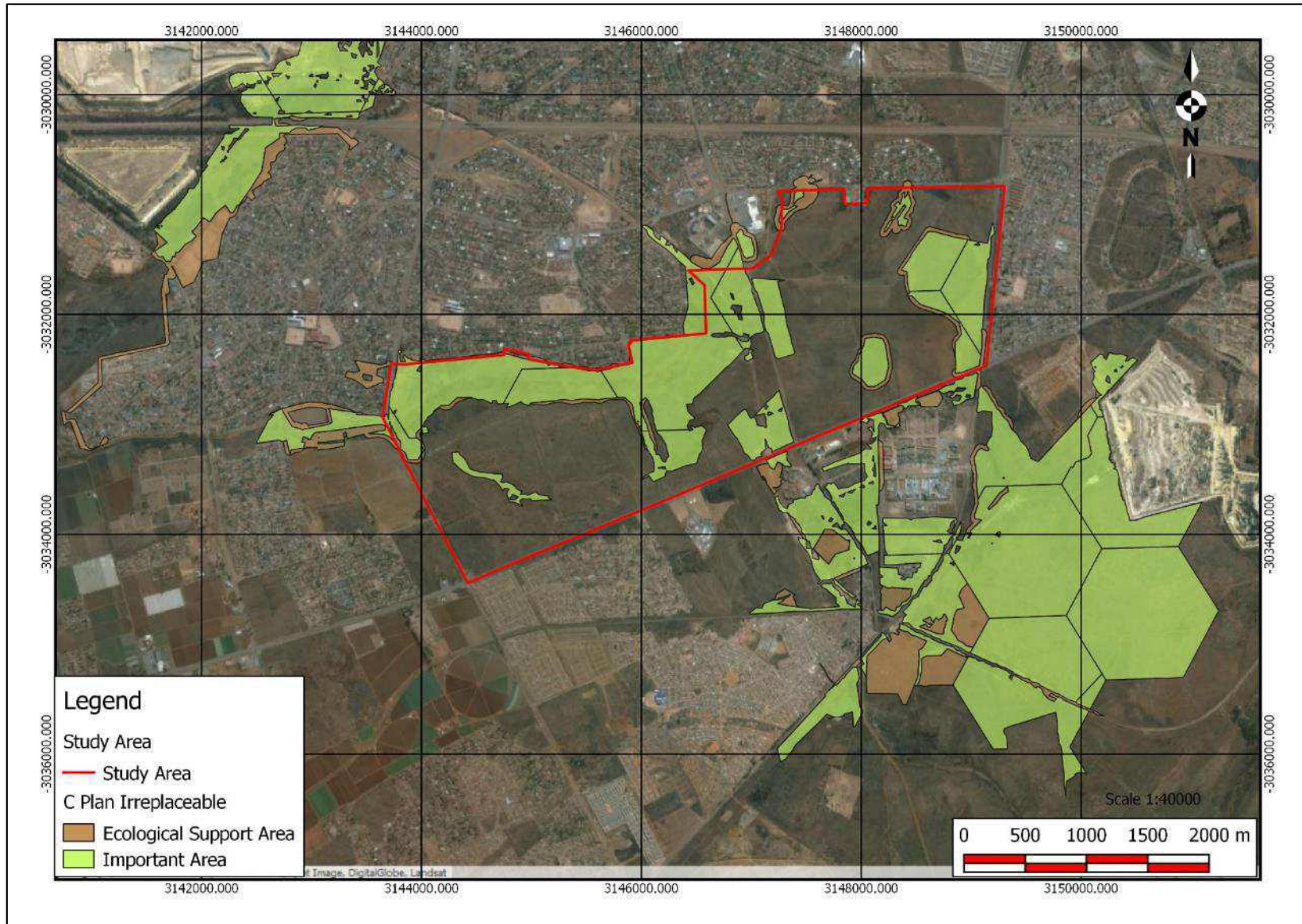
Leeuwpoort - Mixed Use Development

C Plan Irreplaceable



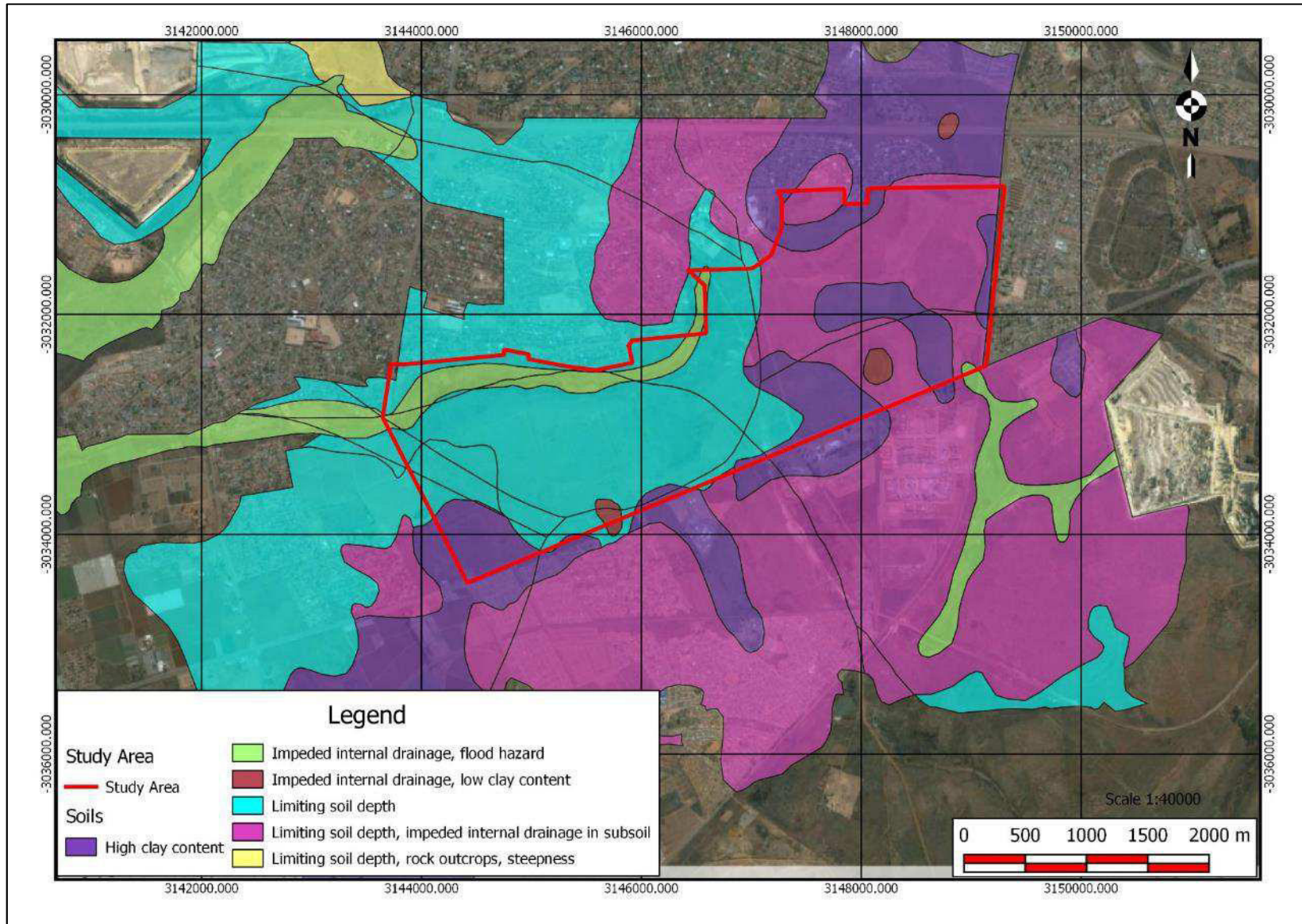
Leeuwpoot - Mixed Use Development

C Plan Area



Leeuwpoort - Mixed Use Development

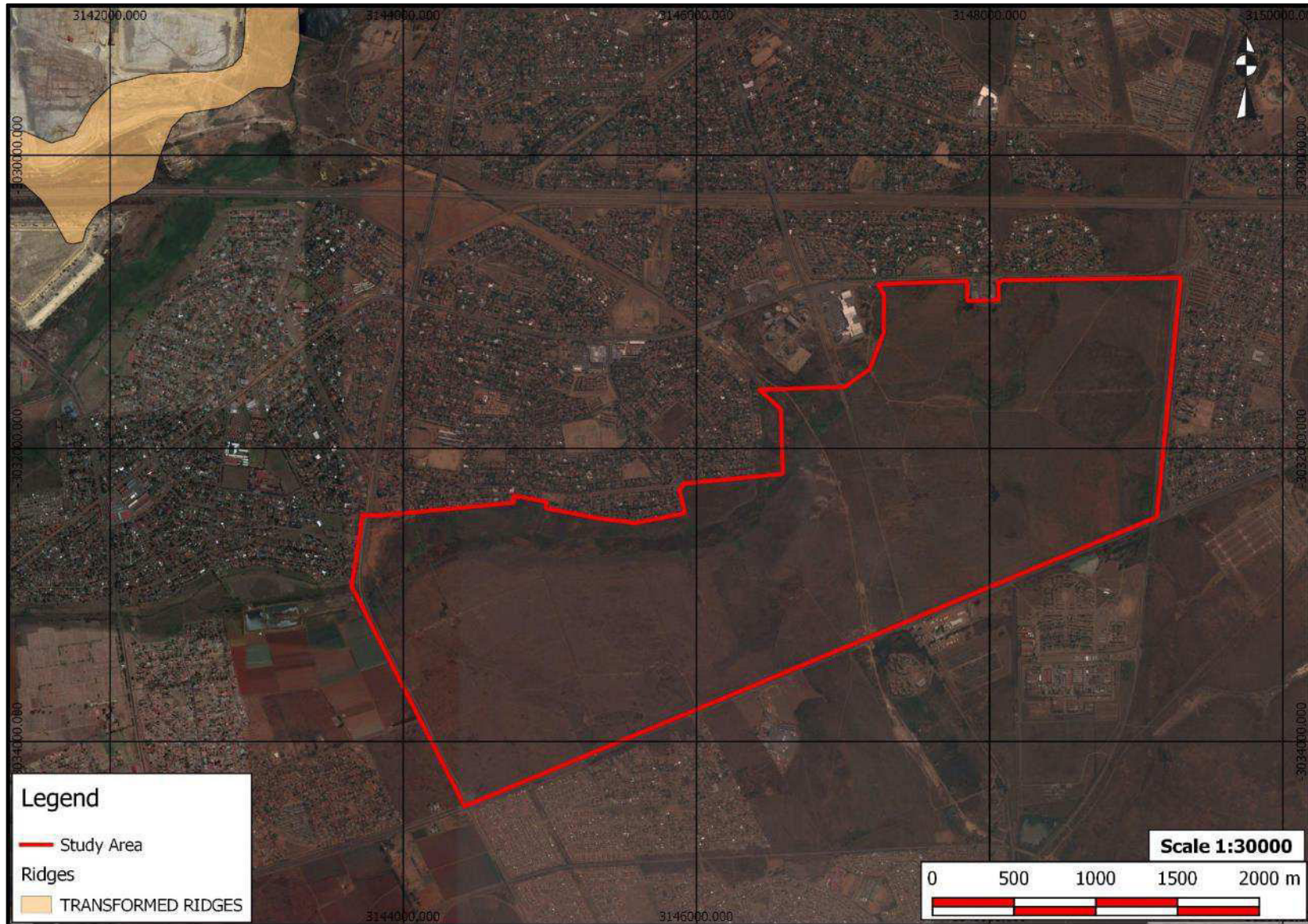
Soils



Projection - Transverse Mercator
Datum - Hartebeeshoek 1994
Reference Ellipsoid - WGS 1984
Central Meridian -29

Leeuwpoot - Mixed Use Development

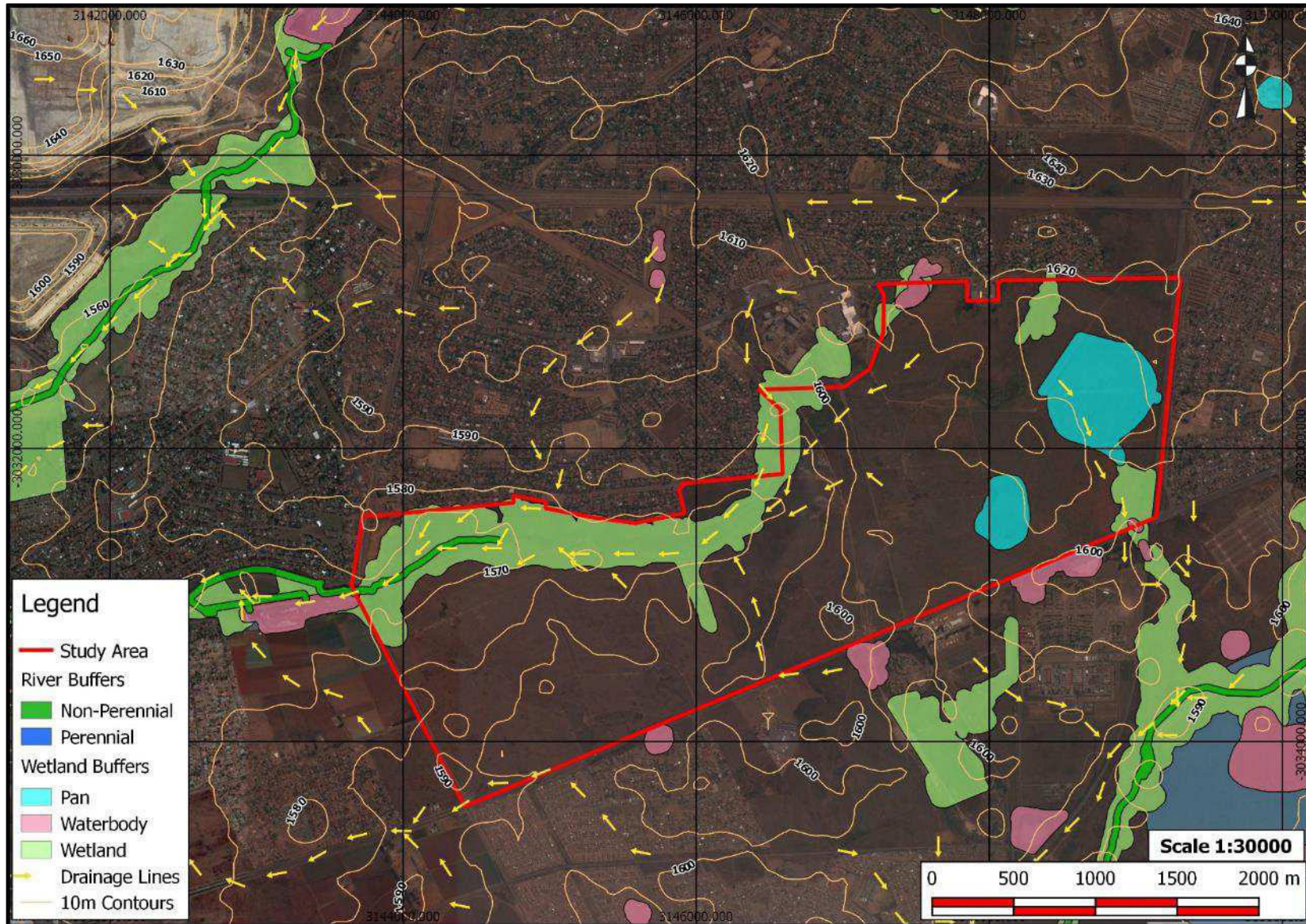
Ridges



Projection - Transverse Mercator
Datum - Hartebeeshoek 1994
Reference Ellipsoid - WGS 1984
Central Meridian -29

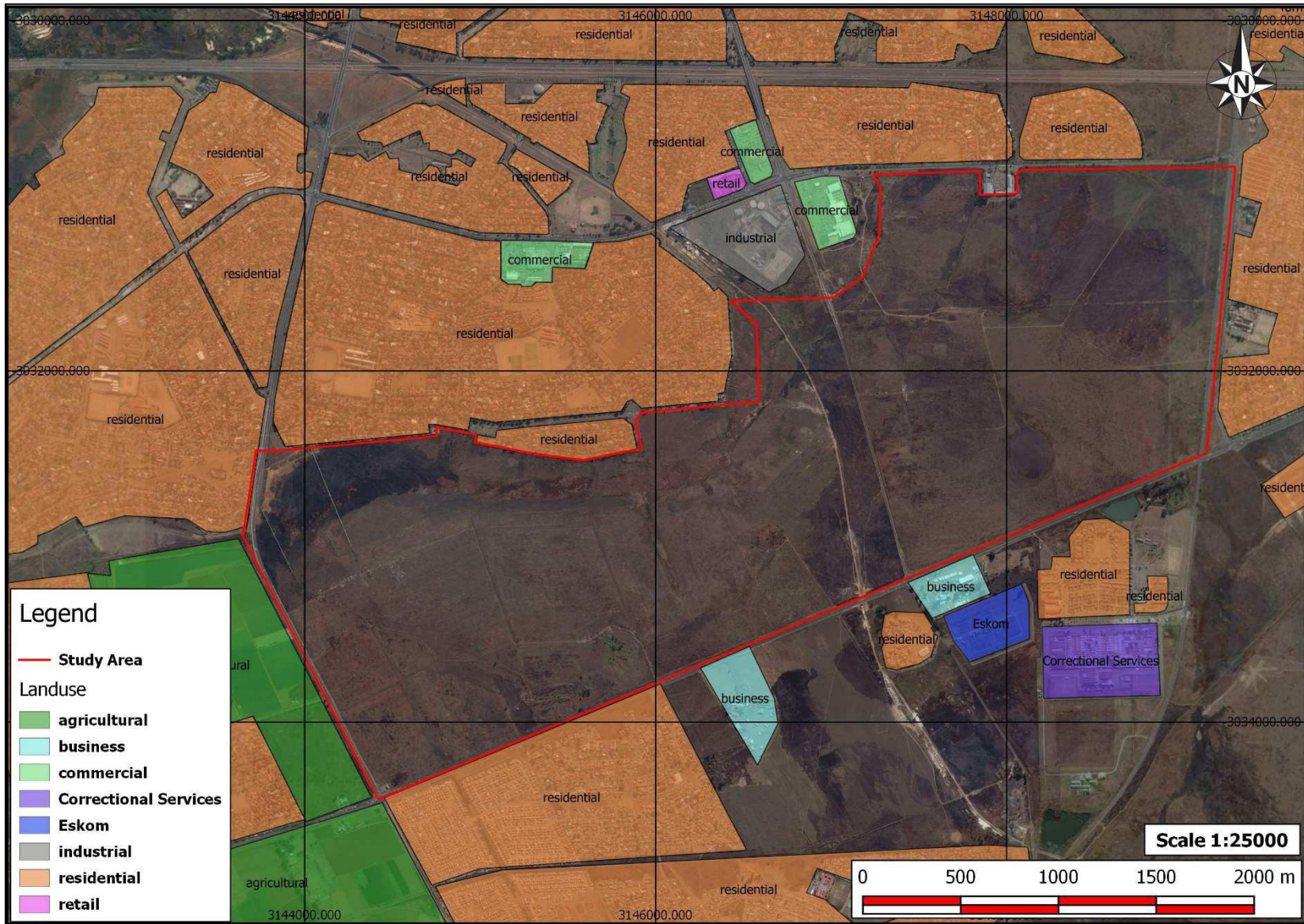
Leeuwpoort - Mixed Use Development

Hydrology



Leeuwpoort - Mixed Use Development

Landuse



Projection - Transverse Mercator
Datum - Hartebeeshoek 1994
Reference Ellipsoid - WGS 1984
Central Meridian -29

ANNEXURE B:
CV OF EAP AND COMPANY
PROFILE

Qualifications And Experience In The Field Of Environmental Planning And Management (Lizelle Gregory (Member Bokamoso)):

Qualifications:

- Qualified as **Landscape Architect** at UP 1991;
- Qualified as **Professional Landscape Architect in 1997**;
- A Registered Member at The **South African Council for the Landscape Architect Profession (SACLAP)** with Practise Number: **PrLArch97078**;
- A Registered Member at the **International Association for Impact Assessment Practitioners (IAIA)**;
- Qualified as an **Environmental Auditor in July 2008** and also became a Member of the International Environmental Management Association (IEMAS) in 2008.

Working Experience:

- Worked part time at Eco-Consult – 1988-1990;
- Worked part time at **Plan Associates as Landscape Architect in training** – 1990-1991;
- Worked as Landscape Architect at **Environmental Design Partnership (EDP)** from 1992 - 1994
- Practised under **Lizelle Gregory Landscape Architects** from 1994 until 1999;
- Lectured** at Part-Time at **UP** (1999) – Landscape Architecture and **TUT** (1998- 1999)- Environmental Planning and Plant Material Studies;
- Worked as **part time Landscape Architect and Environmental Consultant at Plan Associates** and **managed their environmental division for more than 10 years** – 1993 – 2008 (assisted the **PWV Consortium** with various road planning matters which amongst others included environmental Scans, EIA's, Scoping reports etc.)
- Renamed business as **Bokamoso in 2000** and is the only member of Bokamoso Landscape Architects and Environmental Consultants CC;
- More than 20 years experience in the compilation of Environmental Reports**, which amongst others included the compilation of various **DFA Regulation 31 Scoping Reports**, EIA's for EIA applications in terms of the applicable environmental legislation, Environmental Management Plans, Inputs for Spatial Development Frameworks, DP's, EMF's etc. Also included EIA Application on and adjacent to mining land and slimes dams (i.e. Brahm Fisherville, Doornkop)

Qualifications And Experience In The Field Of Landscape Architecture (Lizelle Gregory (Member Bokamoso)):

Landscape Architecture:

-Compiled landscape and rehabilitation plans for more than 22 years.

The most significant landscaping projects are as follows:

-Designed the Gardens of the Witbank Technicon (a branch of TUT). Also supervised the implementation of the campus gardens (2004);

-Lizelle Gregory was the Landscape Architect responsible for the paving and landscape design at the UNISA Sunnyside Campus and received a Corobrick Golden Award for the paving design at the campus (1998-2004);

-Bokamoso assisted with the design and implementation of a park for the City of Johannesburg in Tembisa (2010);

-The design and implementation of the landscape gardens (indigenous garden) at the new Coca-Cola Valpre Plant (2012-2013);

-Responsible for the rehabilitation and landscaping of Juksei River area at the Norwood Shopping Mall (Johannesburg) (2012-2013);

-Designed and implemented a garden of more than 3,5ha in Randburg (Mc Arthurpark). Bokamoso also seeded the lawn for the project (more than 2,5 ha of lawn successfully seeded) (1999);

-Bokamoso designed and implemented more than 800 townhouse complex gardens and submitted more than 500 Landscape Development Plans to CTMM for approval (1995 – 2013);

-Assisted with Landscape Designs and the Masterplan at Eco-Park (M&T Developments) (2005-2011);

-Bokamoso designed and implemented an indigenous garden at an office park adjacent to the Bronberg. In this garden it was also necessary to establish a special garden for the Juliana Golden Mole. During a recent site visit it was established that the moles are thriving in this garden. Special sandy soils had to be imported and special indigenous plants had to be established in the natural section of the garden.

-Lizelle Gregory also owns her own landscape contracting business. **For the past 20 years she trained more than 40 PDI jobless people (sourced from a church in Mamelodi)** to become landscape contracting workers. All the workers are (on a continuous basis) placed out to work at nurseries and other associated industries;

-Over the past 20 years the Bokamoso team compiled more than 800 landscape development plans and also implemented most of the gardens. Bokamoso also designed and implemented the irrigation for the gardens (in cases where irrigation was required). Lizelle regarded it as important to also obtain practical experience in the field of landscape implementation.