DRAFT ENVIRONMENTAL SCOPING REPORT FOR THE PROPOSED MONAVONI X 52

Part of the Remainder of Portion 5 and Portion 56 (A Portion of Portion 8) of the Farm Mooiplaats 355-JR

GAUT: 002/13-14/E0031 **JULY 2013**

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LIST OF ABBREVIATIONS

CBD: Central Business District

C-Plan: Conservation Plan

DEA: Department of Environmental Affairs

EAP: Environmental Assessment Practitioner

ECA: Environmental Conservation Act

EIA: Environmental Impact Assessment

IEMA: Institute of Environmental Management and Assessment

EIAR: Environmental Impacts Assessment Report

COT: City of Tshwane

DWA: Department of Water Affairs

EMP: Environmental Management Plan

GAPA: Gauteng Agricultural Potential Atlas

GDARD: Gauteng Department of Agriculture and Rural Development

GSDF: Gauteng Spatial Development Framework

I&AP: Interested and affected party

IDP : Integrated Development Plan

NSBA: National Spatial Biodiversity Assessment

NEMA : National Environmental Management Act

POS: Plan of Study

SACLAP: The South African Council of the Landscape Architects Profession

SAHRA: South African Heritage Resources Agency

SR: Scoping Report

SDF: Spatial Development framework

TIA: Traffic Impact Assessment

UNCED : United Nations Conference on Environment and Development

GLOSSARY OF TERMS

Agricultural Hub: An area identified for agricultural use by GDARD according to the Draft Policy on the Protection of Agricultural Land (2006).

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

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

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

C-Plan: The GDARD C-Plan focuses on the mapping and management of biodiversity priority areas within Gauteng. The C-Plan includes protected areas, irreplaceable and important sites due to the presence of Red Data species, endemic species and potential habitat for these species to occur. C-Plan 3, 2011.

Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983): This Act provides for control over the utilization of the natural agricultural resources of the Republic in order to promote the conservation of the soil, the water sources and the vegetation and the combating of weeds and invader plants; and for matters connected therewith.

Development Facilitation Act (DFA), 1995 (Act No. 67 of 1995): This Act formulates a set of general principles to serve as guidelines for land development.

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), interrelationship 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 which must be implemented by several responsible parties throughout the duration of the proposed project.

GDARD Draft Ridges Policy, 2001: According to the GDACE Draft Ridges Policy no development should take place on slopes steeper than 8.8%.

GDARD Draft Red Data Species Policy, 2001: A draft policy to assist with the evaluation of development applications that affected Red Data plant species.

GDARD Requirements for Biodiversity Assessments Version 2 (March 2008) (Draft): GDARD requirements for biodiversity assessments.

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

National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004): 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 incident thereto".

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.

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.

National Heritage Resource Act, 1999 (Act No. 25 of 1999): The National Heritage Resources Act legislates the necessity for cultural and heritage impact assessment in areas earmarked for development, which exceed 0.5 ha. The Act makes provision for the potential destruction to existing sites, pending the archaeologist's recommendations through permitting procedures. Permits are administered by the South African Heritage Resources Agency (SAHRA).

National Veld and Forest Fire Act, 1998 (Act No. 101 of 1998): The purpose of this Act is to prevent and combat veld, 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.

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.

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.

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

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

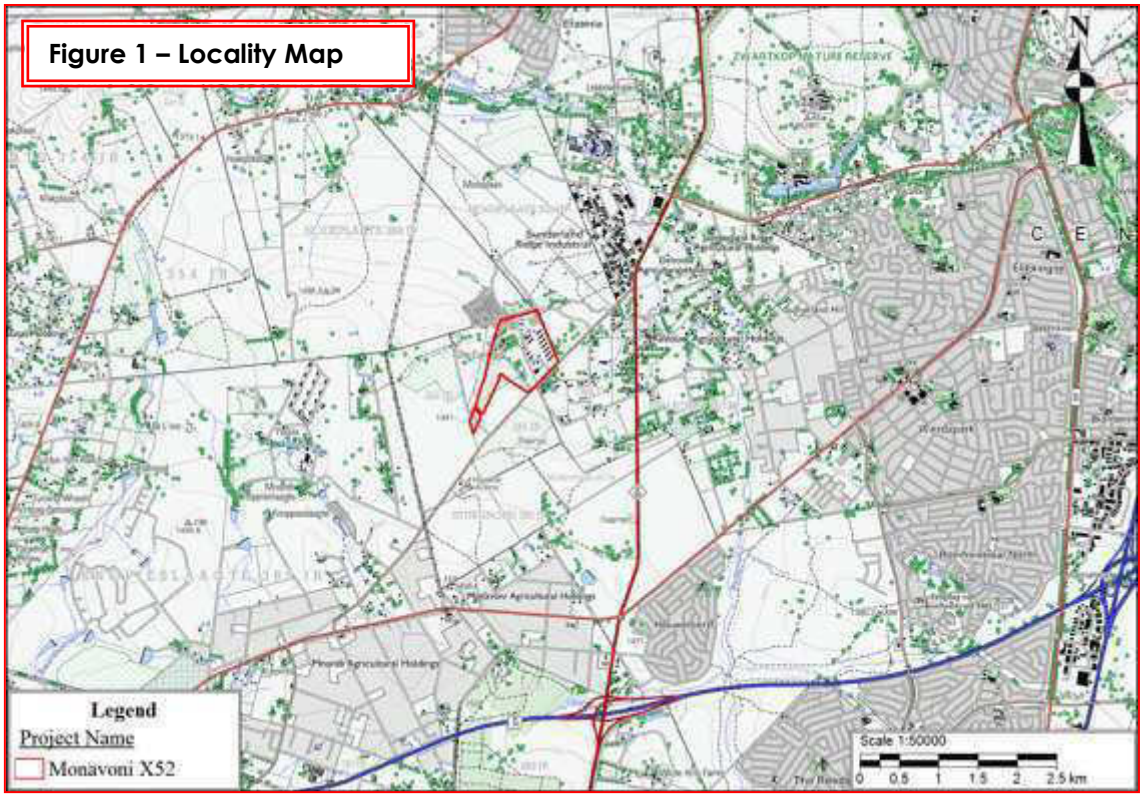
Sustainable Development: Development that has integrated social, economic and environmental factors into planning, implementation and decision making, so as to ensure that it serves present and future generations.

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.

1. INTRODUCTION

1.1 Background

M & T Development (Pty) Ltd (JR 209 Investments (Pty) Ltd) is planning a proposed township development to be known as **Monavoni Extension 52** on a **part of the Remainder of Portion 5 and Portion 56 (A Portion of Portion 8) of the Farm Mooiplaats 355-JR**. The study area is approximately **75. 2765 ha** in extent and falls within the jurisdiction of the City of Tshwane. ***(Refer to Figure 1 - Locality Map and Figure 2 - Aerial Map).***



Refer to Annexure A for enlargements of the figures.

The proposed Monavoni X 52 forms part of the larger Monavoni Development for which a Development Framework had been compiled by M & T Development ***(refer to Figure 3 and Annexure B)***.

The application is made for authorization of the establishment of a township consisting of eighty (80) erven with the following proposed land-use rights:

- 61 erven zoned "Industrial 2";
- 17 erven zoned for "Business 2";
- 1 erf zoned "Special " for access control and engineering services; and
- 1 erf zoned "Special" for access.

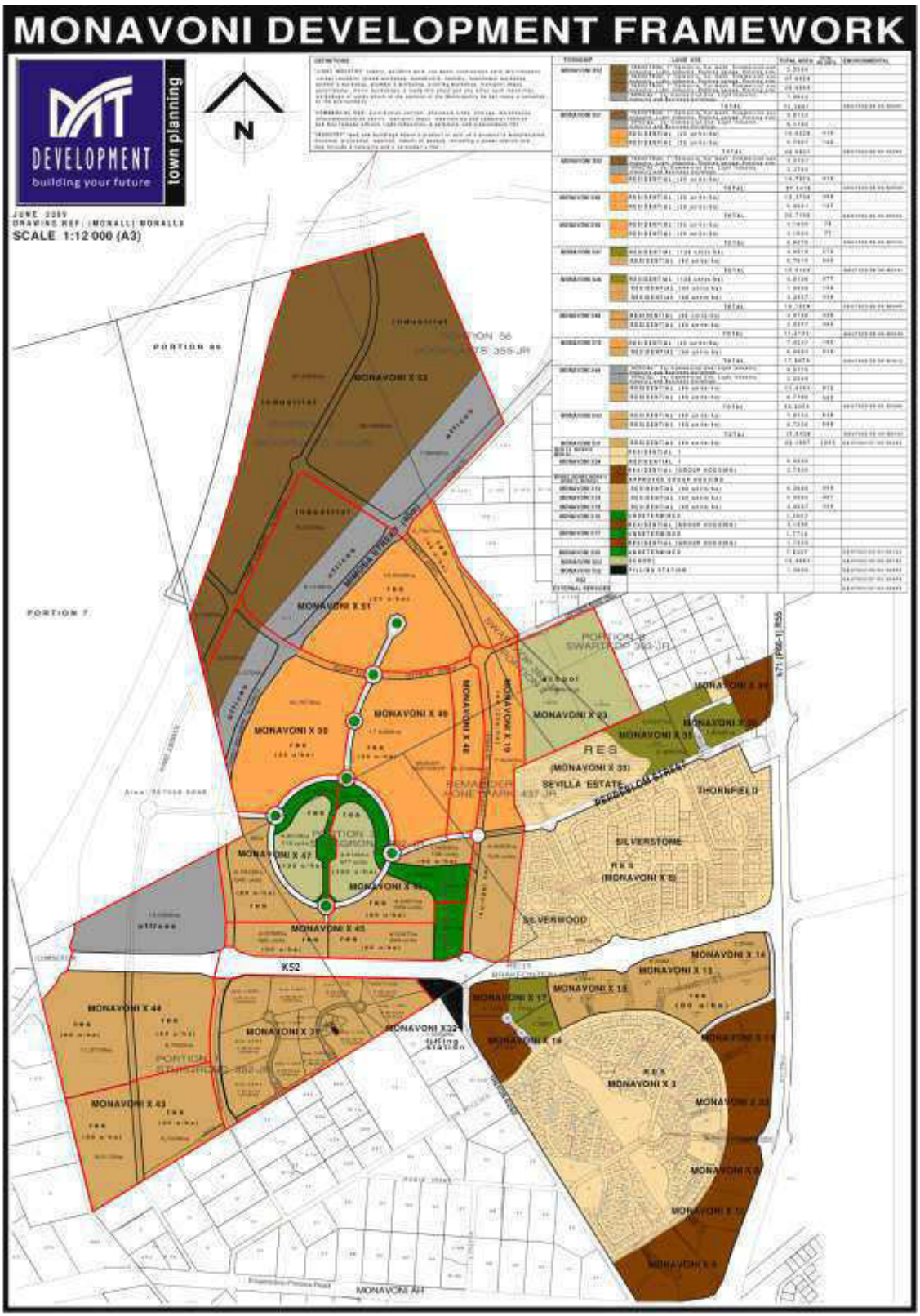


Figure 3 – Monavoni Development Framework

This report represents the Scoping Report that is prepared for the proposed development. Although no specialist report were included as part of this Scoping Report, the information contained in some specialist reports that were compiled during the Scoping 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

In April 2006 the Minister of Environmental Affairs and Tourism passed Environmental Impact Assessment Regulations[1] (the Regulations) in terms of Chapter 5 of the National Environmental Management Act, 1998[2] (NEMA). The Regulations replaced the Environmental Impact Assessment (EIA) regulations, which were promulgated in terms of the Environment Conservation Act, 1989[3] in 1997. The new regulations came into place on 3 July 2006 and, therefore, all new applications submitted after this date (and prior to June 2010) must have been made in terms of the New NEMA regulations and not in terms of the New Regulations of the ECA. The Minister of Environmental Affairs (DEA) passed in June 2010 the Amended Environmental Impact Assessment Regulations in terms of Chapter 5 of the National Environmental Management Act, 1998 (NEMA). The Amended Regulations came into effect on 2 August 2010. The purpose of this process is to determine the possible negative and positive impacts of the proposed development on the surrounding environment and to provide measures for the mitigation of negative impacts and to maximise positive impacts.

Notice R. 544, R 545, & R 546 of the Amended Regulations list activities that indicate the process to be followed. The Activities listed in Notice No. Notice R. 544 & R 546 require that a Basic Assessment process be followed and the activities listed in Notice No. R 545 requires that the Scoping and EIA process be followed.

[1] Environmental Impact Regulations, 2006
[2] Act No. 107 of 1998
[3] Act No. 73 of 1989

In the environmental application process (to be compiled in terms of NEMA) the applicant is applying for the following listed activities:

Table 1: Listed activities in terms of Notices R. 544, R. 545 & R. 546

Indicate the number and date of the relevant Government Notice:	**Activity No (s) (in terms of the relevant notice) :**	**Describe each listed activity:**
Listing No. 1 R. 544, 18 June 2010	Activity 9	The construction of facilities or infrastructures exceeding 1000 metres in length for the bulk transportation of water, sewage or storm water- (i) with an internal diameter of 0,36 metres or more; or (ii) with a peak throughput of 120 litres per second or more, excluding where: (a) such facilities or infrastructures are for bulk transportation of water, sewage or storm water or storm water drainage inside a road reserve; or where such construction will occur within urban areas but further than 32 metres from a watercourse, measured from the edge of the watercourse.
Listing No. 1 R. 544, 18 June 2010	Activity 13	The construction of facilities or infrastructure for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 but not exceeding 500 cubic metres.
Listing No. 1 R. 544, 18 June 2010	Activity 22	The construction of a road outside urban areas, (i) with a reserve wider than 13,5 meters or, (ii) where no reserve exists where the road is wider than 8 metres, or (iii) 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 Notice 545 of 2010.
Listing No. 1 R. 544, 18 June 2010	Activity 23	The transformation of undeveloped, vacant or derelict land to (i) residential, retail, commercial, recreational, industrial or institutional use, inside an urban area, and where the total area to be transformed is 5 hectares or more, but less than 20 hectares, or I (ii) residential, retail, commercial, recreational, industrial or institutional use, outside an urban area and where the total area to be transformed is bigger than 1 hectare but less than 20 hectares; except where such transformation takes place for linear activities.
Listing No. 1 R. 544, 18 June 2010	Activity 24	The transformation of land bigger than 1000 square meters in size, to residential, retail, commercial, industrial or institutional use, where, at the time of the coming into effect of this Schedule such land was zoned open space, conservation or had an equivalent zoning.
Listing No. 1 R. 544, 18 June 2010	Activity 26	Any process or activity identified in terms of section 53(1) of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004).
Listing No. 1 R. 544, 18 June 2010	Activity 37	The expansion of facilities or infrastructure for the bulk transportation of water where: a. the facility or infrastructure is expanded by more than 1000 metres in length; or b. where the throughput capacity of the facility or infrastructure will be increased by 10% or more – excluding where such expansion: i. relates to transportation of water, sewage or storm

		water within a road reserve; or where such expansion will occur within urban areas but further than 32 metres from a watercourse, measured from the edge of the watercourse.	
Listing No. 1 R. 544, 18 June 2010	Activity 47	The widening of a road by more than 6 metres, or the lengthening of a road by more than 1 kilometre – (i) where the existing reserve is wider than 13.5 metres; or (ii) where no reserve exists, where the existing road is wider than 8 metres – excluding widening or lengthening occurring inside urban areas.	
Listing No. 1 R. 544, 18 June 2010	Activity 56	Phased activities for all activities listed in this Schedule, which commenced on or after the effective date of this Schedule, where any one phase of the activity may be below a threshold but where a combination of the phases, including expansions or extensions, will exceed a specific threshold:- Excluding the following activities listed in this Schedule: 2; 11(i)-(vii); 16(i)-(iv); 17; 19; 20; 22(i) &22(iii); 25; 26; 27(iii) & (iv); 28; 39; 45(i)-(iv) & (vii)-(xv); 50; 51; 53; and 54.	
Listing No. 2 R. 545, 18 June 2010	Activity 15	Physical alteration of undeveloped land, vacant or derelict land for residential, retail, commercial, recreational, industrial or institutional use where the total area to be transformed is 20 hectares or more; Except where such physical alterations takes place for: (i) linear development activities; or agricultural or afforestation where activity 16 in this Schedule will apply.	
Listing No. 3 R. 546, 18 June	Activity 4	The construction of a road wider than 4 metres with a reserve less than 13,5 metres.	**(b) In Gauteng:** i. A protected area identified in terms of NEMPAA, excluding conservancies; ii. National Protected Area Expansion Strategy Focus areas; iii. Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act as adopted by the competent authority; iv. Sites or areas identified in terms of the Ramsar Convention; v. Sites identified as irreplaceable or important in the Gauteng Conservation plan;

			vi. Areas larger than 2 hectares zoned for use as public open space; vii. Areas zoned for conservation purpose; viii. Any declared protected area including Municipal or Provincial Nature Reserves as contemplated by the Environmental Conservation Act, 1989 (Act No. 73 of 1989) and the Nature Conservation Ordinance (Ordinance 12 of 1983); Any site identified as land with high agricultural potential located within the Agricultural Hubs or Important Agricultural Sites identified in terms of the Gauteng Agricultural Potential Atlas, 2006.
Listing No. 3 R. 546, 18 June 2010	Activity 13	The clearance of an area of 1 hectare or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation, except where such removal of vegetation is required for: (1) the undertaking of a process or activity 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 activity is regarded to be excluded from this list; (2) the undertaking of a linear activity falling below the thresholds mentioned in Listing Notice 1 in terms of GN No.544 of 2010.	**(d) In Gauteng:** i. A protected area identified in terms of NEMPAA, excluding conservancies; ii. National Protected Area Expansion Strategy Focus areas; iii. Any declared protected area including Municipal or Provincial Nature Reserves as contemplated by the Environment Conservation Act, 1989 (Act No. 73 of 1989). the Nature Conservation Ordinance (Ordinance 12 of 1983); (v) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; iv. Sites or areas identified in terms of an International Convention; Sites identified as irreplaceable or important in the Gauteng Conservation Plan.
Listing No. 3 R. 546, 18 June 2010	Activity 14	The clearance of an area of 5 hectares or more of vegetation where 75% or more of the vegetation cover constitutes indigenous vegetation, except where such removal of vegetation is required for: (1) purposes of agriculture or	**(d) In Gauteng:** i. A protected area identified in terms of NEMPAA, excluding conservancies; ii. National Protected Area Expansion Strategy Focus areas;

		afforestation inside areas identified in spatial instruments adopted by the competent authority for agriculture or afforestation purposes; (2)the undertaking of a process or activity 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 activity is regarded to be excluded from this list; (3) The undertaking of a linear activity falling below the thresholds in Notice 544 of 2010.	iii. Any declared protected area including Municipal or Provincial Nature Reserves as contemplated by the Environment Conservation Act, 1989 (Act No. 73 of 1989). the Nature Conservation Ordinance (Ordinance 12 of 1983); (v) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; iv. Sites or areas identified in terms of an International Convention; Sites identified as irreplaceable or important in the Gauteng Conservation Plan.
Listing No. 3 R. 546, 18 June 2010	Activity 19	The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre.	**(b) in Gauteng:** i. A protected area identified in terms of NEMPAA, excluding conservancies; ii. National Protected Area Expansion Strategy Focus areas; iii. Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; iv. Sites or areas identified in terms of an International Convention; v. Any site identified as land with high agricultural potential located within the Agricultural Hubs or Important Agricultural Sites identified in terms of the Gauteng Agricultural Potential Atlas, 2006; vi. All sites identified as

			irreplaceable or important in terms of the applicable Gauteng Conservation Plan; vii. Any declared protected area including Municipal or Provincial Nature Reserves as contemplated by the Environment Conservation Act, 1989 (Act No. 73 of 1989), the Nature Conservation Ordinance (Ordinance 12 of 1983) and the NEMPAA.
Listing No. 3 R. 546, 18 June 2010	Activity 26	Phased activities for all activities listed in this Schedule and as it applies to a specific geographical area, which commenced on or after the effective date of this Schedule, where any phase of the activity may be below a threshold but where a combination of the phases, including expansions or extensions, will exceed a specified threshold.	All the areas as identified for the specific activities listed in this schedule.

M & T Development (Pty) Ltd (JR 209 Investments (Pty) Ltd) therefore appointed Bokamoso Landscape Architects and Environmental Consultants, to compile an Environmental Scoping Report for the proposed township development.

1.3 The Town Planning Process

The Town Planning Application was made in terms of Section 96(1) of the Town Planning Ordinance (Ordinance 15 of 1986) and the township will be known as Monavoni Extension 52.

1.4 Environmental Assessment Practitioner (EAP)

The Environmental Regulations require that relevant details of the Environmental Assessment Practitioner as well as the expertise of the EAP to compile a Scoping Report must be included as part of the Scoping Report. Attached as ***Annexure C***, is a copy of the CV of Lizelle Gregory from Bokamoso Landscape Architects and Environmental Consultants. In summary details of the EAP are indicated here under:

- **Name:** Lizelle Gregory
- **Company:** Bokamoso Landscape Architects and Environmental Consultants.
- **Qualifications:** Registered Landscape Architect and Environmental Consultant (degree obtained at the University of Pretoria) with 18 years experience in the following fields:
- Environmental Planning and Management;
- Compilation of Environmental Impact Assessment;
- 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 of the South African Council of the Landscape Architects Profession (SACLAP), the International Association of Impact Assessments (IAIA) and the Institute of Environmental Management and Assessment (IEMA).

2. TERMS OF REFERENCE

The following terms of reference have been set:

- Determine if the proposed site is a suitable site for the proposed development from and environmental point of view.

- Prepare such an Environmental Scoping Report, taking into consideration the biophysical and socio-economic environment.
- Assess the attitude of the surrounding landowners to such a development.

3. SCOPE OF WORK AND APPROACH TO THE STUDY

3.1 Scope of work

The scope of work will include the necessary investigations, to assess the suitability of the study area for the proposed activities and alternatives. The scoping exercise will consider the environmental aspects, in keeping with the terms of reference, and identify the possible negative and positive impacts including cumulative impacts of the proposed development and alternatives on the study area and its surroundings.

Reference will be made to specialist studies that may be necessary to investigate the environmental issues and sensitivities on site, identified during the scoping process in order to identify specific impacts and to facilitate the design and construction of an environmentally acceptable facility in the Plan of Study for EIA in ***Annexure D*** of this report.

Mitigation measures to minimize the negative impacts and maximize the positive impacts will be fully discussed in the Environmental Impact Assessment Report and the Environmental Management Plan (EMP) that will be included in the EIA.

An application form for environmental authorization was submitted to GDARD and the following reference number was assigned to the application: Gaut: 002/08-09/N0591.

3.2 Approach to the study

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

Legislation and guidelines applicable to the application were considered in the preparation of the report.

All available material and literature were collected and used for the purpose of this study and it was further supplemented with discussion with provincial authorities, local authorities, other interested and affected parties, as well as by site surveys and photographic recording.

4 LOCALITY

The proposed township is located directly to the east of the proposed PWV 9, to the west of the R55, the north of the M34 (Ruimte Road) and the N14, to the south of Mimosa Road, south-west of Sunderland Ridge and to the east of Gardner Ross Golf Estate. ***Refer to Figure 1, Locality Map and Figure 2, Aerial Map.***

5. REGISTERED OWNER AND TITLE DEEDS

The properties are registered as follows:

Table 3: Registered Land Owner

Ownership	Property Description	Size (ha)	Title Deed Nr.
JR 209 Investments (Pty) Ltd.	Part of the Remainder of Portion 5 (Mooiplaats 355 JR.	46. 9944	T173587/2004
	Portion 56 (a portion of Portion 8) of the Farm Mooiplaats 355-JR.	28.2821	T96265/2004

6. ALTERNATIVES IDENTIFIED

6.1 The "No-Go" Option

The developer purchased the property for development purposes and did not consider the "No-Go" alternative due to the following:

- The study area falls within the Gauteng Provincial Urban Edge ***(refer to Figure 4);***
- The study area falls within an area earmarked for development according to the Monavoni and Western Farms Development Framework 2020;
- According to the GDARD C-Plan version 3 only small sections of the study area are regarded as ecologically sensitive ***(refer to figure 5).***
- The study area does not fall within an Agricultural Hub, an area identified for agricultural use by GDARD ***(refer to Figure 7);*** and
- The study area forms part of the larger Monavoni Development for which a Spatial Development Framework had been compiled ***(refer to Figure 3).***

Figure 4 – Provincial Urban Edge

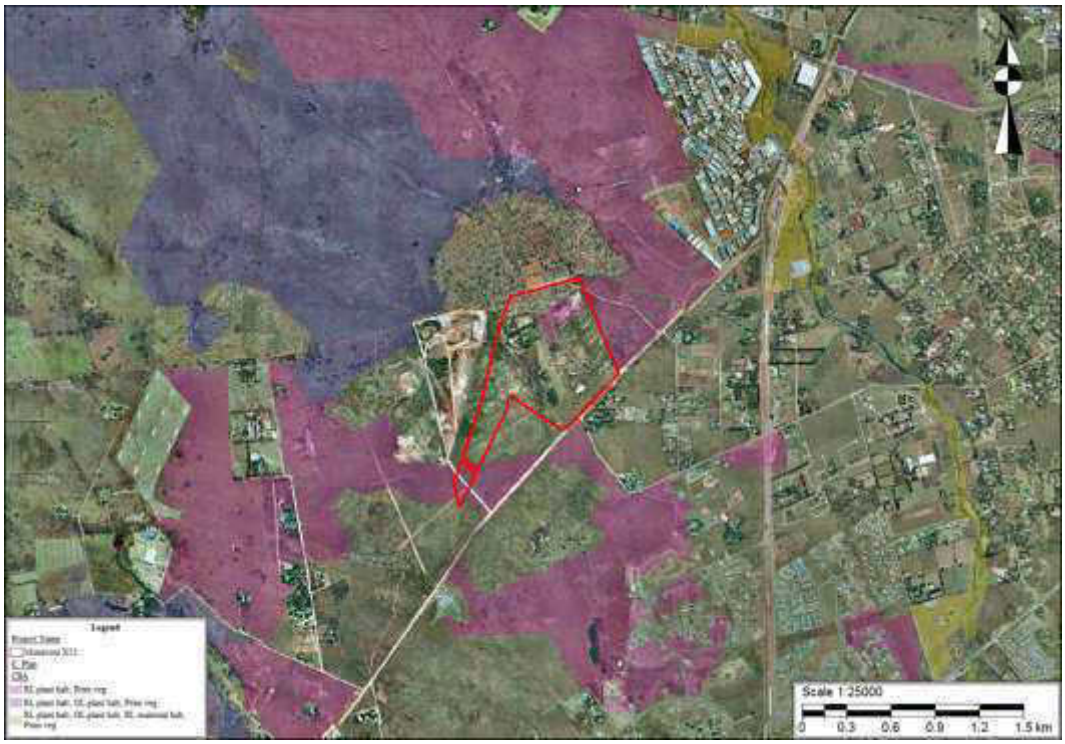
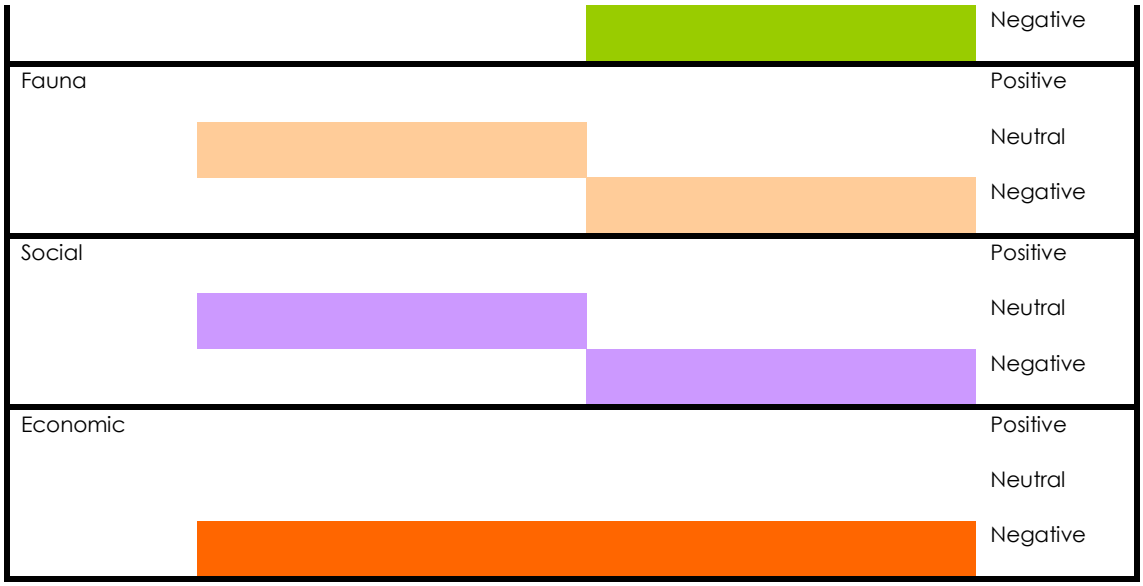


Figure 5 – GDARD C-Plan Irreplaceable Sites

To follow now are tables that represent a preliminary comparison between the "No-Go" alternative and the development alternative.

Diagram 1: Environmental Issues - "No-Go" Option

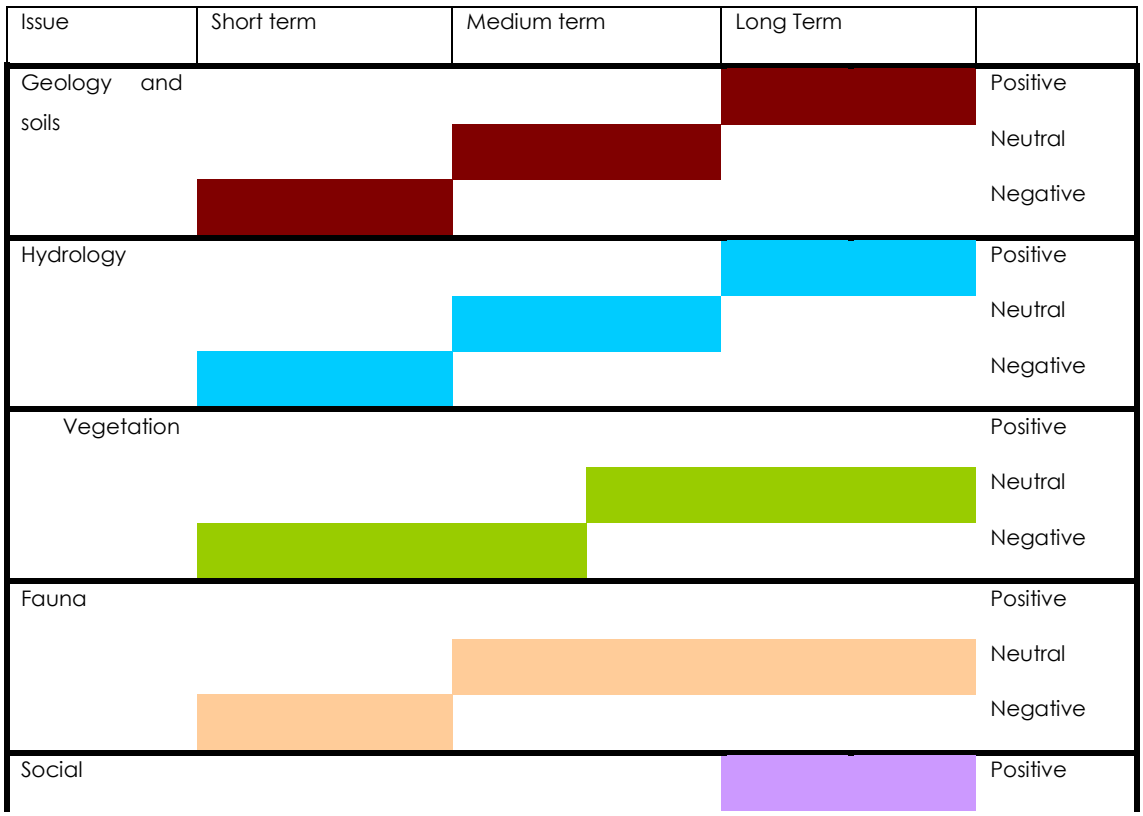
Issue	Short term	Medium term	Long Term		
Geology and soils				Positive / Neutral / Negative	No development will not have a significant impact on the geology or hydrology of the study area, especially in the short term. Indirect impacts created by the edge effects of the surrounding developments could however, in the long term, lead to a decrease in vegetative coverage and even to exposed areas. Erosion, siltation and water pollution problems could then be caused. Changes in the surface drainage patterns could also occur.
Hydrology				Positive / Neutral / Negative	
Vegetation				Positive / Neutral	If no development takes place in the area surrounding the study area, the impacts on the fauna and flora and bio-diversity will not be significant. If development takes place adjacent to the study area (i.e. Monavoni X 50, Monavoni X 51), the edge effect could, in the long term, have an impact on the ecological potential and bio-diversity of the vegetation of the study area.



The study area is currently vacant and informal settlements have already established on the northern section of the study area. If no development takes place the informal settlement could expand which could have a major impact on the safety and security of the surrounding land owners.

Note: *The "no-go" option is predominantly neutral in the short and medium term, and turns negative in the long term*

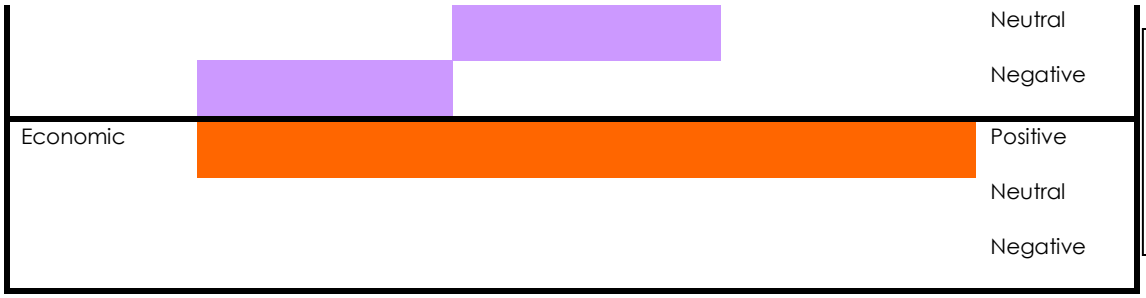
Diagram 2: Environmental Issues of the proposed development



In the short term (the construction phase), the proposed development will have a negative impact on the geology and hydrology of the study area. It is, however possible to mitigate the impacts to acceptable levels. If well planned, the long term impacts on the hydrology will be neutral or even positive.

Effective temporary and permanent storm water management and guidelines to reduce impacts on water courses and wetlands as well as a dolomite risk management plan will have to be implemented during all the development phases.

The proposed development will have a negative impact on the vegetation and fauna and bio-diversity of the study area in the short and medium term. Some of the natural grassland vegetation will be permanently lost. Weeds and exotic invaders will be removed on a continuous basis throughout the proposed development.



Note: *From the preliminary investigations that were done, it is anticipated that the proposed development option is predominantly negative in the short term, turns neutral in the medium term and then positive in the long term.*

6.2 Locality Alternatives

The study area forms part of the larger Monavoni Development by M & T Development for which a Development Framework had been compiled ***(refer to Figure 3 and Annexure B)***.

Developable properties in the South-Western section of Tshwane / South-Western section of Centurion are very costly, because The City of Tshwane Metropolitan Municipality identified the area between the R55 and the Gerhardsville Road as a future growth area.

The study area is situated within this future growth area with enormous development pressures in the area. The involved local authority compiled (with the assistance of the Centurion West Development Forum) the Monavoni and Western Farms Development Framework 2020 (November 2008). The Framework was drafted in terms of which areas were earmarked for urban expansion during the period 2008 to 2020. A Development Edge was also proposed in terms of this framework to provide a guideline for the type of land uses that can be allowed inside and outside the development Edge. The study area falls within the boundaries of the Urban Development Edge within an area earmarked for Residential and Industrial.

The proposed development is ideally situated to the east of the Lanseria airport, and in close proximity to the Oliver Tambo International Airport and Grand Central Airport. This is of utmost importance for successful industrial development as the development will be opened up to national and international markets. The study area is accessible from the economic hubs of Johannesburg, Ekurhuleni and Pretoria and the development can thus draw from a wealth of available skilled and unskilled workers. The proximity of Monavoni informal settlement to the site is advantageous in terms of available labour.

In addition, the study area is located in close proximity to two major highways, the N14 (R28) and the proposed PWV 9. The site is therefore strategically located within the region and sufficient north south and east west links could be provided to ensure adequate distribution of traffic through the area, based on the current development patterns for the area.

It is also important to note that the involved study area forms part of a larger portion of land that was purchased by the developer for development purposes. As indicated above the locality of the study area is regarded as suitable for the proposed Industrial/office development and no locality alternatives were therefore considered.

6.3 Land Use Alternatives

6.3.1 Residential (Alternative 1)

Many housing developments are planned for the Centurion West Area and the developer regarded the need for a residential development as high. Furthermore, the developer already developed some residential properties (with mixed densities) in the area and the market proved to be favourable for residential developments that are in line with the proposed development.

As already mentioned the study area falls within an area earmarked for residential development by the Monavoni and Western Farms Development Framework. However, due to the locality adjacent to the proposed PWV 9, the close proximity to the Mooiplaats Landfill Site and the current economic climate residential use was not regarded as the preferred land use.

6.3.2 Mixed use (Industrial and Business) (Alternative 2)

A mixed use development consisting of Industrial and Business land uses was considered as the preferred land use alternative.

The recent trend has emerged over the last couple of years for offices and industrial properties situated outside of the CBD. The reason for this being that business owner and their workers can live closer to work, and in close proximity to other amenities such as convenient stores. There is also unprivileged work force that can benefit from jobs.

Recent market studies have shown that mixed use industrial properties are in increasing demand especially in close proximity to mobility spines. The locality of the study area in close proximity to the N1, N14 and proposed PWV 9 is suitable for an industrial/business development.

The proposed township will form part of a mixed use industrial node as indicated on the Monavoni Spatial Development Framework ***(refer to Figure 3 and Annexure B).*** The industrial node will include uses that will contribute towards a sense of place. These uses will include industrial uses, shops, offices, municipal uses, residential dwellings, public and private open space, retail facilities etc.

Furthermore, north-east of the application site is an already developed industrial area (Sunderland Ridge Industrial area). It will promote employment opportunities for people

staying in close proximity of the site and also staying in the informal settlement north of the application site. Due to the amount of proposed and existing residential developments already occurring in the surrounding area and due to the amount of proposed commercial uses, light industry, business buildings and the landfill site north, north-west of the application site an industrial development will be suitable for the site.

A commercial township is expected to bring economic growth to the area by offering investors a globally competitive combination of geographic position, infrastructure, services and labour.

In addition the proposed mixed use development (industrial and business) complies with numerous planning policies and frameworks for the area and is regarded as the preferred land use ***(refer to Section 9.3.9).***

6.3.3 Agriculture

The GAPA (Gauteng Agricultural Potential Atlas) indicates that the study area has a **high agricultural potential *(refer to Figure 6).***

Current land use is not restricted to one specific use. Topsoil has been removed from large areas. Very few, if any of the surrounding landowners, use their properties for small-scale or other farming activities. It is clear that none of the surrounding landowners, at this stage or in the recent past have had any

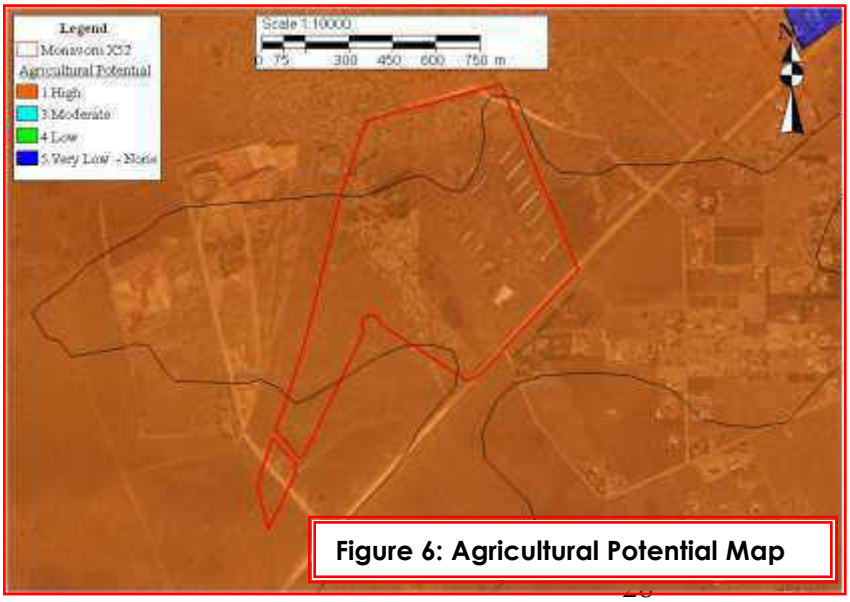


Figure 6: Agricultural Potential Map

intensions of *bone fide* intensive farming activities on their properties.

The study area is situated within an area underlain by dolomitic conditions, and extensive irrigation of such soils is not supported; and with the Geotechnical stability investigations and Comments from the CfG, this proposed site is suitable for businesses and the light Industrial.

Furthermore the study area is situated with the provincial urban edge ***(refer to Figure 4)*** and is **not** situated within any of the 7 agricultural hubs identified for Gauteng ***(refer to Figure 7).***

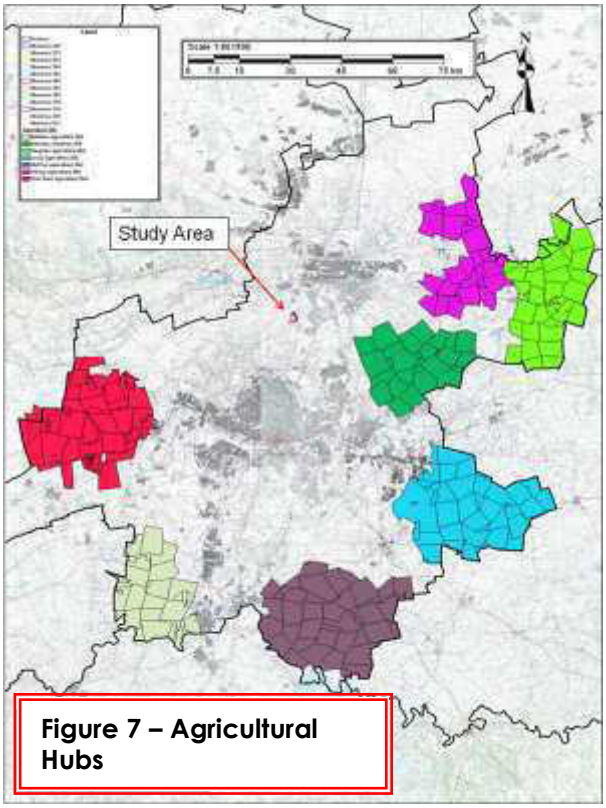


Figure 7 – Agricultural Hubs

Based on above Agricultural use is not regarded as a viable land use alternative.

6.3.4 Conservation

The study area is located within the Hennopsvallei Conservancy area ***(refer to Figure 8)***. The study area is not affected by any ridges or drainage lines that could create linkages with open space systems within the conservancy. In terms of the Tshwane Open space Framework, the study area is not affected by any green way, blue way, blue node, red node, red way, brown node or brown way. However it is affected by a green node

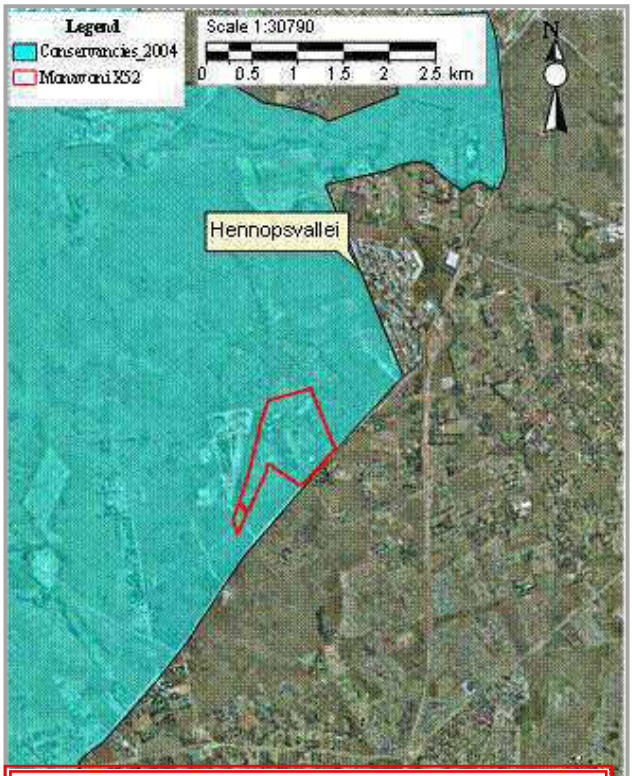


Figure 8: Conservancy Map

(Hennops Rivier Conservancy). ***Refer to Figure 9 for the TOSF Region 5 Map.***

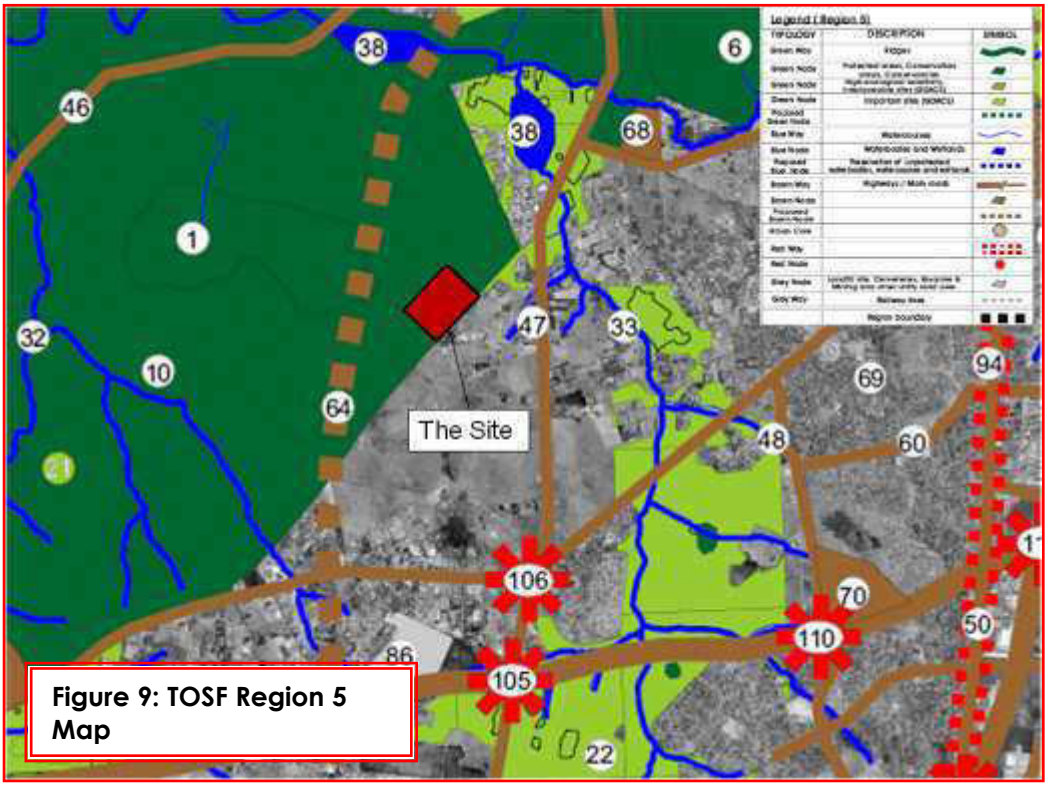


Figure 9: TOSF Region 5 Map

Furthermore, north-east of the application site is an already developed industrial area (Sunderland Ridge Industrial area) in the conservancy. Monavoni X52 and the Sunderland Ridge Industrial area can form one combined industrial area. An informal settlement, north of the site and a waste disposal site, west of the site are also located in the conservancy.

6.4 Layout Alternatives

Many alternative layouts for the development will be considered during the EIA phase of the development before the layout will be finalised. The physical constraints of the study area are considered as the main form giving elements for the layout.

The final layout will also be tested against an environmental sensitivity map that will be compiled for the study area. ***(Refer to Figure 15 for Preliminary Sensitive Issues Map)***.

The final layout will be a product of a multi-disciplinary workshop (during the EIA phase) between the appointed professionals. At the workshops each discipline (including the environmental consultant) will be afforded the opportunity to share his/ her findings with the other members of the project team. The environmental consultants will also present the environmental sensitivity map to the project team during the workshops. ***Refer to Figure 10 and Annexure E, Preliminary Layout Plan.***

Figure 10 – Layout Plan

The following disciplines will most probably take part in the workshop:

- The civil engineers;
- The electrical engineers,
- The geotechnical engineers;
- Town and Regional Planners;
- The Architects and Landscape Architects;
- The Environmental Consultants (Bokamoso); and
- The Applicant.

The comments and issues raised by the interested and affected parties will also be taken into consideration during the workshops. The proposed Monavoni Extension 52 development forms part of a range of developments in Monavoni by M&T Development for which a Monavoni development framework was designed ***(Please refer to Figure 3 and Annexure B)***

7. PLANNING APPROACH

Based on the above, the planning approach to the proposed layout will be done by a complete professional team consisting of Land Surveyors, Town Planners, Urban Planners, Traffic Engineers, Environmental Consultants, Civil Engineers, Electrical Engineers, Geotechnical Engineers and the developer.

From the specialist and other environmental information available, the project team already compiled a preliminary layout for the development. The proposed land-uses for the preliminary layout are as follows: Industrial 2, Business, Special for access roads and access control, Special for access and public road.

An effort was already made (during the preliminary layout phase) not only to make use of the opportunities, but to utilise the terrain, site features, visibility and access to the best benefit of all, including the surrounding environment.

8. EXISTING ZONING AND LAND USE AND THE PROPOSED LAND-USE

8.1 Existing Zoning and Land Use

In terms of the Tshwane Town Planning Scheme, 2008, the properties are zoned "Agriculture". The study area is mostly vacant and undeveloped with the northern section being occupied by several informal settlements.

8.2 Proposed Zoning And Land Use

The proposed land use rights and relevant town planning controls are indicated in Table 4.

TABLE 4: PROPOSED LAND USES

Zoning	**Erf numbers**	**Number of erven**	**Area (Ha)**
Industrial 2	1-49, 67-78	61	48,2758
Business 2	50-66	17	14,5030
Special for Access Contro		1	
Special for Access		1	
Public Road			
Total		**79**	**75.2765**

9. DESCRIPTION OF THE BIOPHYSICAL AND SOCIAL ENVIRONMENT

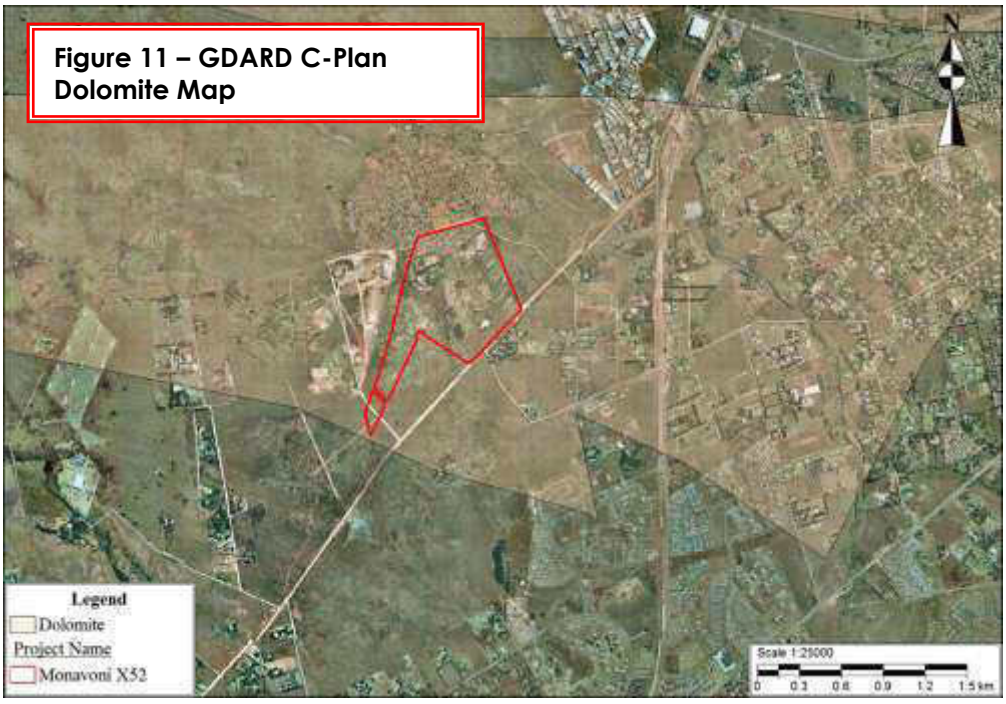
This section briefly describes the environment directly and indirectly associated with the study area. All the environmental (social, ecological, economical and institutional) will be taken into considerations and the potential implications for the development will be listed for each aspect.

9.1 THE PHYSICAL ENVIRONMENT

9.1.1 Geology

According to the GDARD C–Plan the entire site is underlain by dolomite ***(Refer to Figure 11, Dolomite Map)***. A dolomite stability investigation had already been conducted on the study area. According to the investigation the study area is underlain by dolomite of the Oaktree Formation, Chuniespoort Group, Transvaal Supergroup and its weathered soil derivatives. Residual dolomite (wad) and colluvial deposits overlie the dolomite bedrock. Syenite has intruded the dolomitic profile in some places.

Figure 11 – GDARD C-Plan
Dolomite Map



Preliminary Issues Identified

- Risk of sinkhole and doline formation;
- Risk of lowering of groundwater levels;
- Stability of structures due to dolomite;
- Blasting may be required due to rock outcrops; and
- The loss of topsoil.

Additional Information Or Studies Required For the EIA Phase

- A detailed Dolomite Stability investigation must be conducted and comments must be obtained from the Council of Geoscience.
- The Dolomite Stability report and comments from the Council for Geoscience on the report will be included as part of the EIA.

The objectives of the study are as follows:

- Determine and/confirm the dolomite stability zonation of the study area.
- Present appropriate foundation recommendations and water precautionary measures in accordance with the Council of Geoscience, National Home Builders Registration Council's and the Department of Public Works guidelines.
- Present a Dolomite Risk Management Plan/Strategy.
- Present a pro-active maintenance strategy for water bearing services and other infrastructure to reduce the probability of the occurrence of ground movement events.

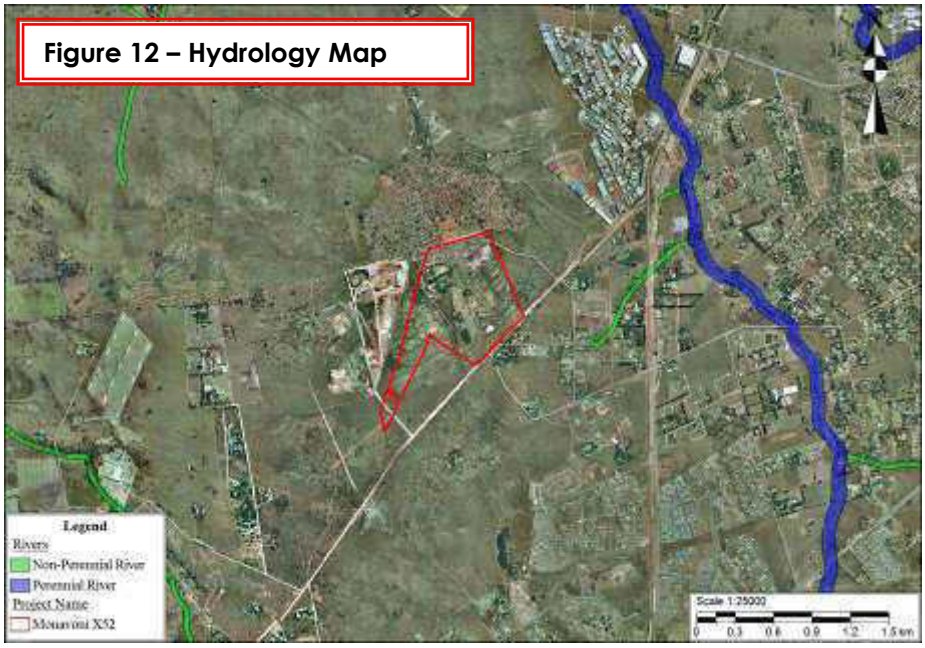
9.1.2 Hydrology

9.1.2.1 Surface Water

The property has a gentle downwards slope in a western direction. It is expected that the slope will be sufficient to allow for natural storm water drainage as well as for the installation of essential services. The topographical characteristics will have no detrimental effect on the development potential of the site.

No rivers or drainage lines traverse the study area and therefore the study area is not affected by any floodlines ***(refer to figure 12, Hydrology Map).***

Figure 12 – Hydrology Map



9.1.2.2 Sub-surface Water

The groundwater situation of the study area was investigated during the Geotechnical study in order to determine the specific impacts on the proposed development on groundwater and the implications this will have for the proposed development. It was concluded that the dolomitic groundwater rest level in the vicinity of the site has not experienced a natural fluctuation of more than 8m in the past two decades. These circumstances can be expected to continue for as long as no "new" large scale groundwater abstraction (e.g. for irrigation purposes) is developed in proximity to the subject area. Thus groundwater use in the subject area and surrounds is probably limited to domestic water supply, garden irrigation

and limited stock watering applications associated with land use activities that are characteristic of small holdings.

9.1.2.3 Flood Lines:

The study area is **not** affected by any rivers, drainage lines or wetlands and therefore is not affected by a flood line with an expected frequency of 1:50 years or 1:100 years. ***Refer to Figure 12, Hydrology Map***

Preliminary Issues Identified

- Ground water pollution, siltation and erosion problems;
- Pollution and siltation of water bodies lower down the catchment;
- More impermeable surfaces will lead to an increase in the speed, quantity and quality of the storm water;
- Erosion caused at discharge points of storm water (especially if less and larger storm water pipes are used); and
- Lowering of groundwater levels.

Additional Information or Studies Required for the EIA Phase

- A detailed storm water management plan will be required for assessment and inclusion during the EIA phase. The storm water design for the proposed development must be designed to:
  - Reduce and/ or prevent siltation, erosion and water pollution. If erosion, siltation and water pollution is not addressed, the sustainability of the drainage and the open space systems lower down in the catchment area can be negatively impacted by the development.
  - Storm water runoff should not be concentrated as far as possible and sheet flow should be implemented.

9.1.3 Topography

The property has a gentle downwards slope in a western direction. The slope is sufficient to allow for natural storm water drainage as well as for the installation of essential services. ***Refer to Figure 13, 3 Dimensional Map.***

Figure 13: 3-D Map

Preliminary Issues Identified

- According to the consulting engineers the slope is sufficient to allow for natural stormwater drainage as well as for the cost-effective installation of essential engineering services.
- The topographical characteristics will have no detrimental effect on the development potential of the site.

Additional Information Or Studies Required For The EIA Phase

A detailed storm water management plan will be required for assessment and inclusion during the EIA phase.

9.1.4 Climate

The climate is typical of the Transvaal Highveld. The summers are mild to hot and the winters are mild. The study area falls into a summer rainfall region. The moisture index is between 0-20, indicating a sub-humid area. The Weinert N value is approximately 2.4, which indicates that chemical decomposition is the predominant form of weathering of rock.

Climatic data for the site was taken from the weather station Irene.

Wind

Summer prevailing winds northwest, winter winds southeast.

Temperature °C

Maximum 26, 7 °C, minimum 14, 4 °C in summer. Winter temperature maximum 18, 2 °C, minimum 2, 7 °C.

Rain

Maximum rainfall 960 mm, minimum 559, with an average of 717 mm.

Lighting

87 Days

Hail

4 Days

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;
- If dry and windy conditions occur during the construction phase, dust pollution could become a problem. During the summer months dust pollution could be carried over other proposed Monavoni developments surrounding it.

Additional Information or Studies Required for the EIA Phase

- Recommendations to mitigate dust pollution will be included in the Environmental Management Plan EMP.

9.2 THE BIOLOGICAL ENVIRONMENT

The study area lies in the quarter degree grid square 2528CC (Centurion) and the vegetation is classified as Carltonville Dolomite Grassland according to Mucina and Rutherford (2006). The grassland is species-rich with shallow soil and slightly undulating plains on dolomite dissected by prominent rocky chert ridges.

According to the GDARD C-Plan 3 two small sections of the study area are situated on irreplaceable sites ***(refer to Figure 5).***

Preliminary Issues Identified

- Possible presence of red data fauna and flora species on the study area;
- The southern section of the study area is covered by grassland;
- The study area is located on dolomite and caves could be present;
- Loss of habitat;

- Creation of new habitats;
- Snaring and hunting of fauna species on the property and on adjacent properties during the construction phase;
- Loss of movement corridors and the lack of open spaces links (i.e. through the erection of solid walls around the development);

Additional Information Or Studies Required For The EIA Phase

- A detailed fauna and flora survey must be conducted and be included as part of the EIA; and
- The presence of caves on the study area must be investigated and if present a cave biodiversity study must be included as part of the EIA.

9.3 SOCIO-ECONOMIC ENVIRONMENT

9.3.1 Existing Land Use

9.3.1.1 The Surrounding Area

The property is situated in an area which is currently characterised by the following land uses:

- To the west is a rural residential area with many small farming and business operations spread through the area.
- To the south and east are various residential estate developments.

9.3.1.2 The Study Area

In terms of the Tshwane Town-planning Scheme, 2008, the study area is zoned "Agricultural". It is mostly vacant and undeveloped, with the northern part being occupied by several informal settlements.

9.3.2 Proposed Land Use

The proposed Monavoni X 52 mixed use development will consist of the following land uses:

- **61** erven zoned "**Industrial 2**";
- **17** erven zoned for **"Business 2";**
- **1** erf zoned **"Special"** for access control and engineering services
- **1** erf zoned **"Special"** for access

Need and Desirability for the proposed land use:

Note: M & T Development Town Planning Division supplied the following information:

Need

Recent market studies have shown that mixed use industrial properties are in increasing demand especially in close proximity to mobility spines. Already established industrial areas such as Waltloo in Pretoria were once a booming industrial node. At present Waltloo is deteriorating, signs of this are, evident since more of the industrial tenants are moving to the south of Pretoria between Pretoria and Johannesburg, the reason being that this area is centrally located and easily accessible, and the area is becoming a well -known sought after industrial node.

Industries prefer to be situated next to a national highway such as the popular N1, and in our applications sites case the proposed PWV-9, the reason being that industries can advertise their product, to motorists on the highway, and the freeway give easy accessibility to the industries. There is however a limited space available next to highways especially in the area between Johannesburg Pretoria, because most of the property next to the N1 has already been used for this purpose.

The proposed township will form part of a mixed use industrial node. In addition to the proposed township, one other township applications will be handed in that is situated next to the application site, to the south. The developer has in future developed several townships in the area to the south. Therefore the proposed township will form part of an extension of a larger mixed use node. The industrial node will include uses that will contribute towards a sense of place. These uses will include industrial uses, shops, offices, municipal uses, residential dwellings, public and private open space, retail facilities etc.

Security has become the number one priority for all developments in South Africa. Throughout South Africa there has been a general move towards safer and secure environments to work and live in. This has also been proven by the amount of street closures for security purposes in traditional neighbourhoods and the fact that most of the new industrial and office developments throughout South Africa provide safety security as a number one priority.

This proposed mixed use industrial development will provide in a need for secure development where a work place with peace of mind will be established. The properties within the development will have 24 hour interactive security, an electric perimeter fence around the developments, and manned access control points will be provided at the entrances to the various erven within the township.

The Developer's objective is to develop separate industrial nodes within the development, with separate access points which will be able to function on its own, but will all form part of one integral development. The separate industrial nodes will vary in size, but will each have a separate identity and can be developed separately if required.

In recent years the industrial market has grown significantly to provide for a growing number of businesses purchasing industrial property. The growth in the industrial market can be contributed to a few factors, which include favourable interest rates, a larger amount of investors in South Africa. Cost of industrial property have increased continuously for the last

five years and even though the market has slowed down some in the last 2 years, in line with a decline in the global economy, indications are that the industrial market is recovering and industrial properties are again starting to increase as banks are approving more loans.

The proposed development will cater for a variety of erf sizes with different zonings. This will give the prospective purchaser the opportunity to decide what will best suite his needs. It is important to provide in a diversity of land uses within the development. Different development zones will be situated across the development with different characters due to proximity within the development, and the type of use.

There is a need for some smaller office developments in any industrial node to provide for small professional suites, medical suites and other offices that are required to be situated in close proximity to the mixed use industrial node, but also with good access from the region.

It has therefore been shown that there is a great need for this development.

Desirability

Several factors will contribute towards the desirability of the proposed development and these aspects will be discussed in more detail. As will compliance with regards to the Development Facilitation Act. The quality and desirability of the working environment which is proposed will also be addressed.

Desirability of land uses

The proposed development is desirable for the reason that it will meet the needs of the lacking industrial precincts centrally located in the Gauteng region. The development will be in line with development frameworks for the area and must therefore be favourably considered and will be in line with policies governing the area on which the proposed development is situated. The proposed Monavoni light industrial development is ideally

located in close proximity to complimentary land uses, mobility spines, available labour, available infrastructure capacity. The Sunderland Ridge industrial node situated to the north - east of the proposed development is regarded as highly functional and successful, this node is however spatially "boxed in" and further expansion resulting from the need for industrial premises is thus not possible. In response to this constraint, M&T Development is therefore initiating the Monavoni Industrial Park which is situated to the south - west of the existing industrial node in Sunderland Ridge.

This development will when fully developed cater for a niche market of large multinational industries and manufacturing businesses. In order to satisfy the demand for industrial space, development will have to expand to the south – east of the existing Sunderland Ridge nodes, hence the proposed Monavoni Industrial Park development. This development will be complementary to the Sunderland Ridge Industrial node as it will cater for smaller industries, manufacturing uses and warehousing, it can be argued that the proposed development will subservient and supporting to the Sunderland Ridge Industrial node.

The success of industrial developments is dependent on spatial factors such as visibility, transport opportunities, access to ports and economic activity, access to utilities, and the availability of a labour force, security and a choice of development options. The proposed Monavoni light industrial development conforms to these locational features. The application site is ideally situated on the western side of the poposed PWV-9, and the existing Mimosa Street. These roads and especially the intersection create an opportunity to intensity land uses as visibility and mobility is greatly improved by these features. M&T is currently involved in negotiations with the relevant authorities in order to iron out details for the joint funding of these proposed roads.

The proposed development is ideally situated to the east of the Lanseria airport, and in close proximity to the Oliver Tambo International Airport and Grand Central Airport. This is of utmost importance for successful industrial development as the development will opened up to national and international markets.

The application site is accessible from the economic hubs of Johannesburg, Ekurhuleni and Pretoria, the development can thus draw from a wealth of available skilled and unskilled workers. The proximity of Monavoni informal settlement to the site is advantageous in terms of available labour. In conclusion, the institutional and locations factors reported in the forgoing sections sketches a favourable picture for the proposed Monavoni light industrial development, it is supported from a regional and local perspective and will ultimately form part of the urban fabric of Pretoria thus fulfilling its role in the promotion of job creation, economic growth and direct and indirect social development of the area.

Preliminary Issues Identified

- Impacts of the proposed development on the infrastructure of the area;
- Rates and taxes payable to the authorities;
- Impacts on the values of the surrounding properties;
- Job creation;
- Compatibility of the proposed land-use with the surrounding land-uses;
- Geotechnical conditions;
- Need and desirability of the proposed land-use; and
- Economical viability of the proposed land-use.

Additional Information Or Studies Required For The EIA Phase

Identified impacts to be discussed in detail as part of the EIA.

9.3.3 Visual

The following preliminary visual assessment criteria have been used to determine the impact of the proposed Monavoni X 52 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 5: VISUAL IMPACT

		IMPACT	
CRITERIA	**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 accept 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	If uninterrupted view distances to the site	If uninterrupted view distances to

	are > 5km	are < 5Km but > 1Km	the site are > 500m and < 1000m
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

As illustrated on the preliminary visual assessment below the study area is highly visible from the surrounding view sheds due to the topography ***(refer to Figure 14).***

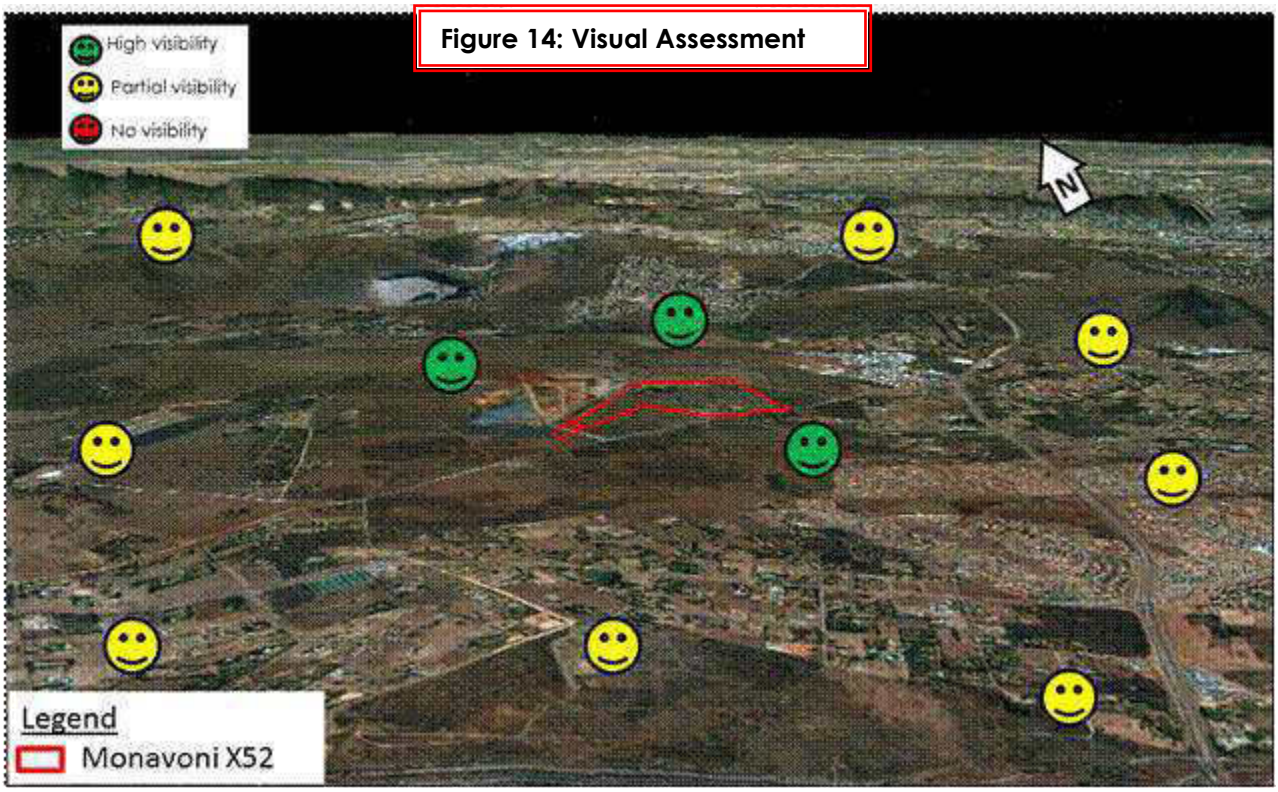


Figure 14: Visual Assessment

The site is regarded as homogeneous to the surrounding environment and the construction of a new township might cause a visual impact. However, as already mentioned in this report a global development framework was developed for the ±500 ha of land purchased by M & T Development. Industrial and Offices development will have a visual impact, but will act as a visual barrier, blocking the view of the residential areas from view the waste disposal site and the informal settlement. The visual impact can however be mitigated to some extent by following certain guidelines that will give the proposed development an aesthetic value.

Some of the guidelines that are suggested:

- Rooftops should be designed to blend in with the natural colours of the surrounding environment instead of standing out and creating a high visual impact.
- Existing trees should be retained at all costs in order to prevent the high visual impact of removed trees. The proposed development will also have an added aesthetical value if the trees are retained, which will in turn add to the market value of the development.
- Landscaping should be of a high standard. As many trees as possible should be planted at early stages of the development in order to ensure a mature look in the near future.

Preliminary Issues Identified

The proposed development could have a significant visual impact if it is not planned correctly. It could however also have a positive impact if the development is planned well and integrated with the natural surroundings.

Additional Information Or Studies Required For The EIA Phase

- A more detailed visual impact assessment must be done during the EIA stage;

- Mitigation measures must be supplied for the visual impacts during the EIA Process; and
- Architectural guidelines must be based on the mitigation measures supplied in the EIA report.

9.3.4 "Sense of Place" and "Place Structure"

The concept of "a Sense of Place" does not equate simply to the creation of picturesque landscapes or pretty buildings, but to recognize the importance of a sense of belonging. Embracing uniqueness as opposed to standardization attains quality of place. In terms of the natural environment it requires the identification, a response to and the emphasis of the distinguishing features and characteristics of landscapes. Different natural landscapes suggest different responses. Accordingly, settlement design should respond to nature.

In terms of the human made environment, quality of place recognizes that there are points where elements of settlement structure, particularly the movement system, come together to create places of high accessibility and these places are recognized in that they become the focus of the public investment, aimed at making them attractive, user-friendly and comfortable to experience. The landscape is usually experienced in a sensory, psychological and sequential sense, in order to provide a feel and image of place ("genius loci").

A landscape is an integrated set of expressions, which responds to different influences. Each has its unique spirit of place, or "genius loci". Each landscape has a distinct character, which makes an impression in the mind, an image that endures long after the eye has moved to other settings.

If planned correctly the proposed development could enhance the genius loci of the broader area by establishing a residential township and open spaces.

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 a property/ area within the boundaries of a city is one of the major contributors to the "Image of a City /City Image".

City Image consists of two main components, namely **place structure** and **sense of place.** Place structure refers to the arrangement of physical place making elements within a space, whereas sense place refers to the spirit of a place. It could be defined as follows:

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

The Sense of Place of the study area is influenced by the informal settlement on the northern section and the landfill site situated to the west.

Preliminary Issues Identified

The impact on the "Sense of Place" of the study area and its surroundings.

Additional Information Or Studies Required For The EIA Phase

- A more detailed visual impact assessment must be done during the EIA stage;
- Mitigation measures must be supplied for the visual impacts during the EIA Process; and
- Architectural guidelines must be based on the mitigation measures supplied in the EIA report.

9.3.5 Demography

The study area is situated in a section of Centurion, which is earmarked for residential and commercial land use. The demographics of the area comprises of middle to high income residential. Centurion is one of the areas with the highest growing population and also the highest increase in housing and residential areas. What makes Centurion such a sought after location, is the fact that it is situated between Midrand /Johannesburg and Pretoria. With regards to transportation the Gautrain has increased the accessibility of Centurion to Pretoria and Johannesburg. It is also well facilitated with schools, hospitals, shopping centers and churches.

Implications for the Proposed Development

Not significant. The study area is located within an area that is well facilitated with social facilities and is highly accessible.

9.3.6 Services

CES Engineers have been appointed to compile a Water and Sewer Master Plan for City of Tshwane. The larger Monavoni development was taken into consideration in the Master Plan.

The services of the proposed development must comply with the Water Services Act, 1997 (Act No 108 of 1997) and the basic sanitation and water supply must be according to national standards.

Preliminary Issues Identified

- The availability of services must be confirmed;
- The upgrading of existing services in the area;
- The upgrading of existing infrastructure;

- Temporary disruptions to services in surrounding area during the installation and upgrading of services.

Additional Information Or Studies Required For The EIA Phase

Storm water

- A detailed storm water management plan will be required for assessment and inclusion during the EIA phase;
- All external storm water pipes and channels to be indicated on plans for purpose of the EIA process;
- Details regarding properties that will be affected by the storm water management measures to be implemented to be supplied during the EIA process. Must also include information regarding servitudes to be registered.

Sewer

- Confirmation of the capacity of the municipal sewer system is required for the purpose of the EIA and external upgrades need to be investigated in order to ensure available capacity for this development.

Domestic Water

- Details of proposed reservoir(s) / confirmation of capacity of existing reservoir and associated infrastructure to be supplied during the EIA process.

Electricity

- Details of the capacity of the existing substation to be supplied during the EIA process.
- Details regarding properties that will be affected by the proposed electricity upgradings to be supplied during the EIA process. Must also include information regarding servitudes to be registered.

Waste Management

- Confirmation of party (local authority or waste removal contractor) for both domestic waste and industrial waste to be supplied during the EIA process;
- Confirmation that the local registered landfill site has the capacity to receive the waste generated by the construction and operational phases of the project.

All services reports must be included and evaluated as part of the EIA.

9.3.6 Traffic

ITS Transport Engineers compiled a Traffic Impact Study in the form of a Master Plan for the entire Monavoni area. The study is not a detailed traffic impact study, but rather a guideline to determine macro level road upgrades that will be required to accommodate the development.

Preliminary Issues Identified

- The upgrading of existing roads;
- Additional traffic; and
- Access

Additional Information Or Studies Required For The EIA Phase

- The Traffic Master Plan to be included as part of the EIA document;
- Detail drawing of all required road upgradings to be supplied for the EIA process;
- Details regarding properties that will be affected by the proposed road upgradings to be supplied during the EIA process. Must also include information regarding servitudes to be registered.

9.3.8 Archaeological, Cultural and Historical Aspects

It terms of the legislation, it is necessary to identify and list the specific legislation and permit requirements which potentially could be infringed upon by the proposed project. The necessity and possibilities for the implementation of mitigation measures should also be identified.

It should be noted that in terms of the South African Resources Act (Act 25 of 1999) Section 35(4) no person may, without a permit issued by the responsible heritage resources authority destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or material.

Also important is that Section 34(1) of this act states that no person may alter or demolish any structure or part of a structure, which is older than 60 years without a permit, issued by the relevant provincial heritage resources authority.

An Archaeological survey had already been conducted during the planning phases of the development.

The aim of the survey was to:

- Identify possible archaeological, cultural and historic sites within the proposed development areas;
- Evaluate the potential impacts of construction, operation and maintenance of the proposed development on archaeological, cultural and historical resources; and
- Recommend mitigation measures to ameliorate any negative impacts on areas of archaeological, cultural or historical importance.

Preliminary Issues Identified

- Possible presence of artefacts exposed during construction.

Additional Information Or Studies Required For The EIA Phase

- The cultural and historical report must be included as part of the EIA.
- The comments from SAHRA on the cultural and historical report must be included as part of the EIA.

9.3.9 Institutional Framework

The proposed development of Monavoni Extension 52 can be motivated in terms of the institutional framework documents relevant to the study area.

9.3.9.1 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);
- **Agenda 21** adopted at the United Nations Conference on Environment and Development (UNCED) in 1992.

(An action plan and blueprint for sustainable development).

9.3.9.2 On a National Level

The Development Facilitation Act, 1995 (Act 67 of 1995)
Information supplied by M & T Development Town Planning

The proposed development will ensure a coordinated development of the larger area by creating a mixed use enclave in harmony with the surounding area. The density for the development will ensure that as many industrial and business erven can be accommodated on this are being developed, without compromising the surrounding environment. Therefore existing resources will be optimally utilised for this development.

The proposed development will therefore comply in broad terms with the principles of the Development Facilitation Act, 1995 in that it will balance the economic and social needs of the developer with that of surrounding property owners and developments to create a development which will benefit the larger area.

The development will optimise the utilisation of existing resources, including resources relating to agriculture, land, minerals, bulk infrastructure, roads, transportation, and social facilities. This development was planned taking full cognisance of the physical aspects of the property and all aspects relating to existing resources of bulk infrastructure, roads, and transportation were investigated in detail. All existing resources will be fully optimised and the provision of additional service infrastructure will be to the benefit of the larger area.

From the above mentioned it is evident that this proposed development takes cognisance of the development principals as set out in the Development Facilitation Act and will aim at compliance with the principles in broad terms.

Principles contained in NEMA and the DFA

Principles of NEMA and the DFA, which give effect to sustainable development, were followed:

- development must be socially, environmentally and economically sustainable;
- promotion of integrated land development in rural and urban areas in support of each other;

The National Environmental Management Act; 1998 (Act 107 of 1998)

In terms of Government Notices no. R544, no. R545 and no. R546 published in the Government Gazette no. 33306 of 18 June 2010 of the National Environment Management Act, 1998 (Act No. 107 of 1998) an Environmental Impact Assessment Process is required for the proposed development. This act addresses issues relating to environmental administration and it promotes sustainable development.

If the involved authorities do not take the principles of NEMA into consideration when evaluating an environmental report/ document, the involved authority can be held responsible for any damage to the environmental (social, ecological and economical).

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 take 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.

The study area is **not** affected by 1:50 and 1: 100 year flood lines.

Water use licenses in terms of the Section 21 of the National Water Act are required for any activity within floodlines.

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.

Basic sanitation and water supply for the proposed development must be according to national standards.

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.

Specialist ecological assessment studies had been conducted for the study area.

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.

Specialist ecological and wetland assessment studies are currently being conducted for the study area. These assessments will determine the biodiversity of the study area and identify those faunal and fauna species worthy of protection.

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.

Specialist ecological assessment studies had been conducted for the study area.

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

This act replaced the Atmospheric Pollution Prevention Act (Act No. 45 of 1965), however Part 2 of the act is still applicable. Part 2 deals with the control of noxious or offensive gases and has relevance to the proposed development.

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 incident thereto".

It is not foreseen that the proposed development would contribute significantly in terms of pollution by smoke as it is a mixed use development consisting of residential, commercial, light industry and business uses. Dust pollution could be a concern primarily during the construction phase of the proposed project. Dust control would be adequately minimised during this phase by way of water spraying and possible dust-nets, when working close to existing residential dwellings.

National Heritages Resources Act, 1999 (Act No 25 of 1999)

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

Dr. Johnny van Schalkwyk has been appointed to conduct the heritage Impact Assessment for the project. This report will form part of the EIA report and the findings of the specialist input will be reported on in detail.

National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)

The purpose of the act is to reform the law regulating waste management in order to protect health and the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development; to provide for institutional arrangements and planning matters; to provide for national norms and standards for regulating the management of waste by all spheres of government; to provide for specific waste management measures; to provide for the licensing and control of waste management activities; to provide for the remediation of contaminated land; to provide for the national waste information system; to provide for compliance and enforcement; and to provide for matters connected therewith.

The proposed development does not trigger any listed activities in terms of the Waste Act.

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

This Act provides for control over the utilization of the natural agricultural resources of the Republic in order to promote the conservation of the soil, the water sources and the vegetation and the combating of weeds and invader plants; and for matters connected therewith.

According to the GAPA 3 the agricultural potential of the study area ranges from very low to high. However, the study area does not fall within an agricultural hub. In addition, the results of the agricultural potential study revealed that only a small portion of the study area is

covered with high agricultural potential soils. The agricultural potential survey will be discussed in detail and be included in the EIA report.

9.3.9.3 Provincial Level

Gauteng Transport Infrastructure Act, 2001 (Act No 8, 2001)

The purpose of this Act is to consolidate the laws relating to roads and other types of transport infrastructure in Gauteng. It provides for the planning, design, development, construction, financing, management, control, maintenance, protection and rehabilitation of provincial roads, railway lines and other transport infrastructure in Gauteng.

This Act is relevant to the access road of the proposed development.

GDARD Draft Ridges Policy, 2007

The study area is not affected by a ridge according to the GDARD C-Plan 3 and the Draft Ridges Policy is therefore not applicable.

The 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 required that red data species remain in situ and it gives priority ratings (based on where they occur) to the different red data species.

The Draft Red Data Policy will be applicable if any red data species are identified on site.

Draft Policy on the Protection of Agricultural Land

GDARD identified areas to be protected for agricultural production i.e. spatial plan for agriculture development. 7 Agricultural hubs have been identified in Gauteng (3 in Sedibeng, 2 in Metsweding, 1 in West Rand and 1 in Ekurhuleni) which occupy 37% of the total surface of Gauteng.

The objectives of the agricultural hubs are:

- Optimizing agriculture output and input in Gauteng GDP
- Fulfil the mandate of natural resources protection
- Achieve sustainable development through balanced land use
- Integrating agri-tourism as an outcome of the development of the agriculture hubs (e.g. flower routes)

The study area does **not** fall within an agricultural hub identified by GDARD.

Gauteng Urban Edge

The study area falls within the Gauteng Urban Edge and therefore falls within an area earmarked for development. ***Refer to Figure 4.***

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 matter connected therewith.

All developments in Gauteng must take the Gauteng Road network as published into consideration and no development may be planned across any provincial or K-route.

Gauteng Spatial Development Framework (GSDF)

This document published by the Gauteng Department of Development Planning and Local Government provides a spatial development framework for the whole of the Gauteng Province, and focuses on growth and development on a broad level. This Document identifies several spatial development components, of which the following is relevant to the proposed development:

- Centurion is identified as a Growth Area.
- The GSDF also lists so-called interventions of which the following is applicable to the proposed Monavoni Extension 52:

    - Containing and Compacting the City: The infill of vacant land contributes towards the optimizing of municipal infrastructure
    - Economic Growth: Proposed mixed land use development should be encouraged.
    - Access and Mobility: The easy access to the study area in close proximity of the National Freeway, as well as the densification of the city, also encourages the optimizing of municipal resources.

The proposed development should be supported from a provincial development framework point of view, as the development can be motivated in terms of the strategies and interventions of the GSDF.

9.3.9.4 Local

Municipal Systems Act – 2000

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

Integrated Development Plan (LIDP)

The integrated Development Plan (LIDP) for the City of Tshwane Metropolitan Municipality was approved by the MEC: Gauteng Department of Planning and Local Government in May 2002. In terms of development, the LIDP provides broad strategies and visions for a city, and is done in conjunction with the community through a public participation process.

The LIDP perceives the vacant land and vast areas of holdings/ farmland as a prominent character of Centurion. This can be recognized as a weakness due to the security threat that vacant land imposes, as well as the negative influence it has on the image of a neighborhood, specifically, a residential area. The vacant land, which implies lower residential densities, makes the provision of essential municipal services less viable and more expensive to provide. By developing the existing land within the municipal boundaries and within existing residential developments with higher densities, the phenomenon of urban sprawl can be curbed and the development of urban fiber can be stimulated.

The LIDP identifies certain objectives, and compliance with these objectives is self – explanatory and can be summarized as follows:

- Compact the city and promotes infill development;
- Strengthen and develop nodes of mixed land use patterns;

- The optimal use of the existing road network, as well as other existing infrastructure;
- The integration, infill and densification of land to ensure the viability of services; and
- The management of development in an environmentally sustainable manner.

It is important to see the proposed development in the context of the gross future development area. The urban designer, Mr. Gawie Greeff, has developed a global development framework for the ± 500ha of land that M& T Development has purchased. Monavoni Extension 23, which is situated to the east of the study area, has already been approved with a positive ROD *(Reference number: Gaut 002/08-09/N0160)*. South of the study area is an approved residential development Monavoni Extension 31*(Gaut 002/06-07/N0239)*. Further south of the proposed township, is a mixed land use development with a positive ROD, Monavoni Extension 39 *(Gaut 002/07-08/N1065)* consisting of shops, banks, showrooms, restaurants, medical suites, bakeries and etc… The global development framework has been preliminary discussed with the Planning Division of City of Tshwane Metropolitan Municipality (CTMM). The division was in principal in agreement with the proposals of the framework.

The study area can be connected to municipal services and according to the involved Town and Regional Planner it is in line with the objectives of the LIDP for the area.

This type of development is supported in this area and the development is in line with the policies and planning frameworks.

The Tshwane Open Space Framework

According to the Tshwane Open Space Framework the study area is not affected by any green way, blue way, blue node, red node, red way, grey node, grey way or brown node.

Though the proposed development Monavoni Ext 52 is situated on a green node **Hennopsvallei Conservancy** and is in close proximity to a brown Way the **proposed PWV 9**. ***Refer to Figure 9.***

Monavoni and Western Farms Development Framework 2020 (November 2008)
Information supplied by M & T Development Town Planning Division

A development framework was drafted in terms of which areas were earmarked for urban expansion during the period 2008 to 2020. A Development Edge was also proposed in terms of this framework to provide a guideline for the type of land uses that can be allowed inside and outside the Development Edge.

The properties that form part of this application fall within the boundaries of the Development Edge. This area was further divided into a number of Land use Management zones. The aim of these zones is to promote the development of a specific land use character through the application of land use mix and density.

The portion of the proposed township has been earmarked for **Residential Estate**, which aim to provide areas for low-density residential estate development. Residential densities will be subject to the geotechnical conditions and environmental sensitivities with a maximum density of **10 units per hectare.** Land uses proposed should be residential supporting and can include schools, religious facilities and other social facilities.

To the north-east as an **Industrial zone** with the aim to maintain and enhance the residential character of typical residential neighbourhoods. A minimum residential density of 10 Units per hectare is supported by Zone 2 with a maximum density of 25 units per hectare. Medium-density types such as cluster housing will be supported within this zone.

The proposed development must comply with all the relevant legislation and it must strive to comply with the development frameworks, policies and guidelines for the area. The finalized layout must also take cognizance of the applicable institutional framework.

9.3.10. PUBLIC PARTICIPATION

Refer to Annexure F

Public Participation is a cornerstone of any environmental impact assessment. The principles of the National Environment Management Act, 1998 (Act No. 107 of 1998) govern many aspects of environmental impact assessments, including public participation. These include provision of sufficient and transparent information on an ongoing basis to the stakeholders to allow them to comment and ensuring the participation of previously disadvantaged people, women and youth.

Effective public involvement is an essential component of many decision–making structures, and effective community involvement is the only way in which the power given to communities can be used efficiently. The public participation process is designed to provide sufficient and accessible information to interested and affected parties (I&AP's) in an objective manner to assist them to:

- Raise issues of concern and suggestions for enhanced benefits.
- Verify that their issues have been captured.
- Verify that their issues have been considered by the technical investigations.
- Comment on the findings of the EIA.

Key Stakeholders and affected parties

Interested and affected parties (I & AP's) representing the following sectors of the society were identified during the first public participation process ***(refer to Annexure F(ii) for a complete I & AP distribution list):***

- National, provincial and local government
- Local landowners
- Tshwane Ward Councillor
- DWA
- SANRAL
- SAHRA

In terms of Government Notice no. R385 published in the Government Gazette No. 28753 of 21 April 2006 of the National Environment Management Act, 1998 (Act No. 107 of 1998) stakeholders (I&AP's) were notified of the Environmental Evaluation Process through:

1) A site notice that was erected (at a prominent point on the study area) on 16 May 2013 ***(Refer to Annexure F i for proof of notice).***
2) Notices were distributed to the surrounding land-owners and interested and affected parties by means of faxes, hand delivery and e-mail ***(Refer to Annexure F ii for proof of public notice)***;
3) An advertisement was placed in the Beeld newspaper on 16 May 2013 ***(Refer to Annexure F iii for proof of advertisement)***;
4) No parties registered as I & AP for the proposed development.
5) Comments were received by SAHRA ***(refer to Annexure F iv)***

Photograph of Site Notice

10. 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.

10.1 Preliminary Environmental Issues and Sensitivity Map

From the preliminary information available, the following environmental issues were identified ***(refer to Figure 15, Preliminary Sensitive Issues Map).***

- Geology: Risk for the formation of sinkholes and dolines due to underlying Dolomite.
- Fauna and Flora: Possible sensitive fauna and flora species due to presence of irreplaceable sites.
- Loss of Agricultural Land: Some high potential agricultural land will be lost due to the proposed development.
- Visual Impact: The proposed development will have a high visual impact.
- Informal Settlement: An informal settlement is situated on the northern section of the study area.
- Landfill Site: Impact of existing landfill site on proposed Monavoni X 52 development.

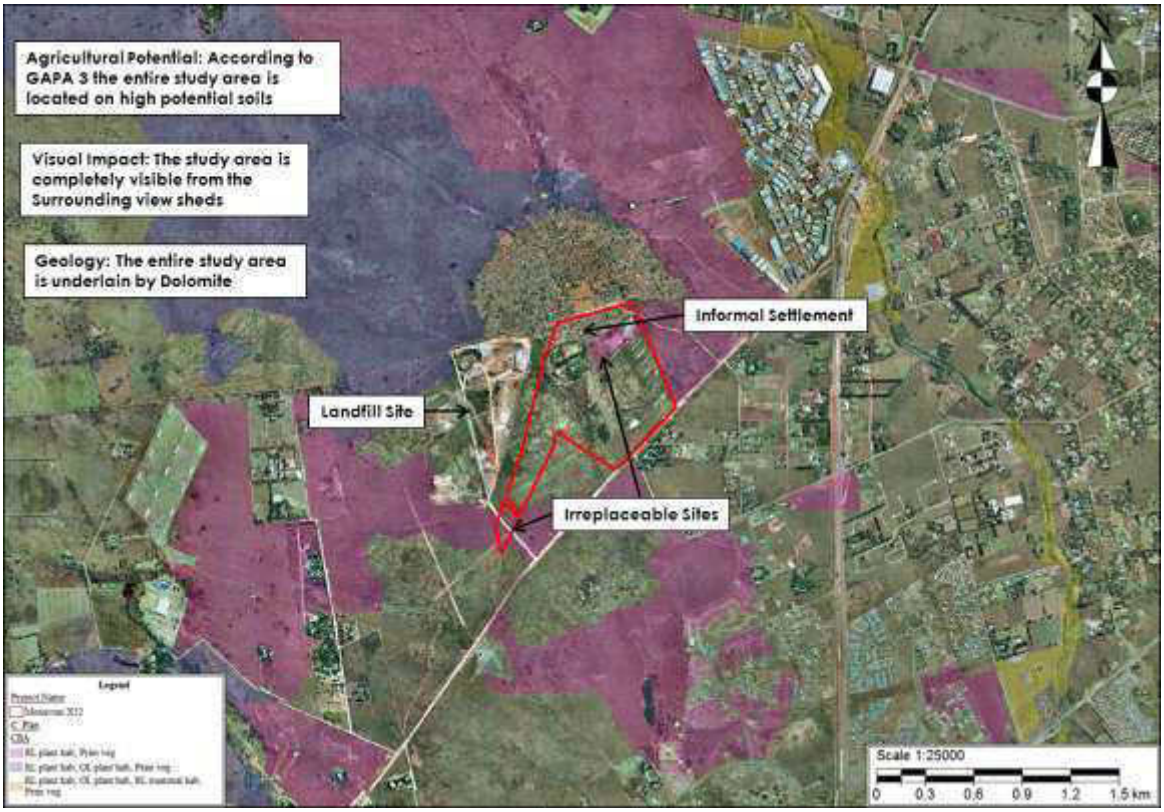


Figure 15: Sensitive Issues Map

10.2 Anticipated impacts, including cumulative impacts

The impacts/ aspects (beneficial and adverse) of the proposed mixed use township development (Industrial and Business)) on the receiving environment were identified.

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 create 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 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/ 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 Alternative 1 and Alternative 2 are indicated in Table 6 below. In order to identify "fatal flaws" at in early stage, the mitigation possibilities are also indicated in Table 6.

TABLE 6: PRELIMINARY ENVIRONMENTAL IMPACT MATRIX OF PROPOSED MONAVONI EXTENSION 52 MIXED USE DEVELOPMENT: ALTERNATIVE 1 - (RESIDENTIAL) LAND-USE (LISTED AS (1) IN TABLE BELOW) AND ALTERNATIVE 2 – MIXED LAND USE (INDUSTRIAL AND BUSINESS) (LISTED AS (2) IN TABLE BELOW) ■ ADVERSE IMPACTS ♦ BENEFICIAL IMPACTS

Environmental Aspects	Soil and Soil Stability	Topography	Water Quality	Flora & Fauna	Existing Land-use of Study area and its surroundings	Visual Quality & Sense of Place	Qualitative Environment (Air Quality & Acoustical Environment)	Socio-Economic (I.e. Services, Economical Impacts, Cultural & Historical)	Mitigation Possibilities High ☻ Medium ☺ Low ○ Positive Impact not necessary to mitigate ☼
CONSTRUCTION PHASE									
Construction works could cause disturbance and eradication of the sensitive ecosystems and habitats on site.	■ 1&2		■ 1&2	■ 1&2	■ 1&2	■ 1&2		■ 1&2	☻ **1&2**
Erosion may take place on site if storm water is not	■ 1&2	■ 1&2	■ 1&2	■ 1&2		■ 1&2			☻ **1&2**

Environmental Aspects	**Soil and Soil Stability**	**Topography**	**Water Quality**	**Flora & Fauna**	**Existing Land-use of Study area and its surroundings**	**Visual Quality & Sense of Place**	**Qualitative Environment (Air Quality & Acoustical Environment)**	**Socio-Economic (I.e. Services, Economical Impacts, Cultural & Historical)**	**Mitigation Possibilities** **High ☻** **Medium ☺** **Low ○** **Positive Impact not necessary to mitigate ☼**
managed sufficiently during the construction phase.									
Erosion, siltation and pollution of the water bodies if storm water is not managed sufficiently during the construction phase.	■ 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	■ 1&2			■ 1&2					**☻ 1&2**

Environmental Aspects	**Soil and Soil Stability**	**Topography**	**Water Quality**	**Flora & Fauna**	**Existing Land-use of Study area and its surroundings**	**Visual Quality & Sense of Place**	**Qualitative Environment (Air Quality & Acoustical Environment)**	**Socio-Economic (I.e. Services, Economical Impacts, Cultural & Historical)**	**Mitigation Possibilities** **High ☻** **Medium ☺** **Low ○** **Positive Impact not necessary to mitigate ☼**
activities.									
Surface water flows will be altered during the construction phase.	■ 1&2		■ 1&2						☺ **1&2**
Construction during the dry and windy season could cause some impacts and dust pollution.	■ 1&2					■ 1&2	■ 1&2	■ 1&2	☺ **1&2**
Traffic congestion caused by heavy slow construction vehicles on the					■ 1&2	■ 1&2		■ 1&2	☺ **1&2**

Environmental Aspects	**Soil and Soil Stability**	**Topography**	**Water Quality**	**Flora & Fauna**	**Existing Land-use of Study area and its surroundings**	**Visual Quality & Sense of Place**	**Qualitative Environment (Air Quality & Acoustical Environment)**	**Socio-Economic (I.e. Services, Economical Impacts, Cultural & Historical)**	**Mitigation Possibilities** **High ☻** **Medium ☺** **Low ○** **Positive Impact not necessary to mitigate ☼**
local roads.									
Localized vibration							■ 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**
The clearing of the site and the construction of the proposed structures and infrastructure can result in the	■ 1&2		■ 1&2	■ 1&2		■ 1&2		■ 1&2	☺ **1&2**

Environmental Aspects	**Soil and Soil Stability**	**Topography**	**Water Quality**	**Flora & Fauna**	**Existing Land-use of Study area and its surroundings**	**Visual Quality & Sense of Place**	**Qualitative Environment (Air Quality & Acoustical Environment)**	**Socio-Economic (I.e. Services, Economical Impacts, Cultural & Historical)**	**Mitigation Possibilities High ☻ Medium ☺ Low ○ Positive Impact not necessary to mitigate ☼**
eradication of the existing vegetation (with and without conservation value) in and around the study area									
During the construction phase some safety and security problems (especially for the surrounding residents) are likely to occur.								■ 1&2	☺ **1&2**

Environmental Aspects	**Soil and Soil Stability**	**Topography**	**Water Quality**	**Flora & Fauna**	**Existing Land-use of Study area and its surroundings**	**Visual Quality & Sense of Place**	**Qualitative Environment (Air Quality & Acoustical Environment)**	**Socio-Economic (I.e. Services, Economical Impacts, Cultural & Historical)**	**Mitigation Possibilities** **High ☻** **Medium ☺** **Low ○** **Positive Impact not necessary to mitigate ☼**
Creation of Job opportunities								◆ 1&2	☼ **1&2**
Soil might be lost from the site due to heavy vehicles tracking the soils from the site onto adjacent areas and roads.	■ 1&2	■ 1&2	■ 1&2	■ 1&2					☻ **1&2**
Site office and camp, and associated waste.	■ 1&2		■ 1&2	■ 1&2	■ 1&2	■ 1&2	■ 1&2	■ 1&2	☻ **1&2**
Vehicle maintenance may cause pollution.	■ 1&2		■ 1&2	■ 1&2		■ 1&2			☻ **1&2**

Environmental Aspects	**Soil and Soil Stability**	**Topography**	**Water Quality**	**Flora & Fauna**	**Existing Land-use of Study area and its surroundings**	**Visual Quality & Sense of Place**	**Qualitative Environment (Air Quality & Acoustical Environment)**	**Socio-Economic (I.e. Services, Economical Impacts, Cultural & Historical)**	**Mitigation Possibilities** **High ☻** **Medium ☺** **Low ○** **Positive Impact not necessary to mitigate ☼**
Disposal of building waste & liquids.	■ 1&2		■ 1&2	■ 1&2		■ 1&2		■ 1&2	**☻ 1&2**
The construction vehicles and facilities will have a negative impact on the study area and surrounding views.						■ 1&2		■ 1&2	**☺ 1&2**
No temporary erosion protection at release points of water (especially during the rainy season)	■ 1&2	■ 1&2	■ 1&2	■ 1&2				■ 1&2	**☻ 1&2**

Environmental Aspects	**Soil and Soil Stability**	**Topography**	**Water Quality**	**Flora & Fauna**	**Existing Land-use of Study area and its surroundings**	**Visual Quality & Sense of Place**	**Qualitative Environment (Air Quality & Acoustical Environment)**	**Socio-Economic (I.e. Services, Economical Impacts, Cultural & Historical)**	**Mitigation Possibilities** **High ☻** **Medium ☺** **Low ○** **Positive Impact not necessary to mitigate ☼**
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**
Construction activities could disturb neighbours in terms of noise, visual and dust pollution					■ 1&2	■ 1&2	■ 1&2	■ 1&2	**☺ 1&2**
Uncontrolled veld fires may cause damage to infrastructure, cause loss of vegetation and				■ 1&2	■ 1&2	■ 1&2	■ 1&2	■ 1&2	**☻ 1&2**

Environmental Aspects	**Soil and Soil Stability**	**Topography**	**Water Quality**	**Flora & Fauna**	**Existing Land-use of Study area and its surroundings**	**Visual Quality & Sense of Place**	**Qualitative Environment (Air Quality & Acoustical Environment)**	**Socio-Economic (I.e. Services, Economical Impacts, Cultural & Historical)**	**Mitigation Possibilities High ☻ Medium ☺ Low ○ Positive Impact not necessary to mitigate ☼**
fauna									
Eradication of invasive and exotic species from the site.			◆ 1&2	◆ 1&2		◆ 1&2			☺ **1&2**
Causing damage to fauna habitats				■ 1&2		■ 1&2			☻ **1&2**
Temporary disruption of services due to relocation and installation of					■ 1&2			■ 1&2	☺ **1&2**

Environmental Aspects	**Soil and Soil Stability**	**Topography**	**Water Quality**	**Flora & Fauna**	**Existing Land-use of Study area and its surroundings**	**Visual Quality & Sense of Place**	**Qualitative Environment (Air Quality & Acoustical Environment)**	**Socio-Economic (I.e. Services, Economical Impacts, Cultural & Historical)**	**Mitigation Possibilities** **High ☻** **Medium ☺** **Low ○** **Positive Impact not necessary to mitigate ☼**
services									
The visual impact of the construction works on the surrounding communities.						■ 1&2			☺ **1&2**
Precautionary measures for construction on dolomite are not followed.	■ 1&2							■ 1&2	☻**1&2**
Heavy buildings are erected without detailed Geotechnical investigation to	■ 1& 2							■ 1& 2	☻ **1 &2**

Environmental Aspects	**Soil and Soil Stability**	**Topography**	**Water Quality**	**Flora & Fauna**	**Existing Land-use of Study area and its surroundings**	**Visual Quality & Sense of Place**	**Qualitative Environment (Air Quality & Acoustical Environment)**	**Socio-Economic (I.e. Services, Economical Impacts, Cultural & Historical)**	**Mitigation Possibilities** **High ☻** **Medium ☺** **Low ○** **Positive Impact not necessary to mitigate ☼**
determine the underlying geological conditions and foundation requirements									
Some blasting exercises may be required	■ 1& 2	■ 1& 2		■ 1& 2		■ 1& 2	■ 1& 2		☺ **1&2**
OPERATIONAL PHASE									
Eradication of invasive species	◆ 1&2		◆ 1&2	◆ 1&2	◆ 1&2	◆ 1&2			☼ **1&2**

Environmental Aspects	**Soil and Soil Stability**	**Topography**	**Water Quality**	**Flora & Fauna**	**Existing Land-use of Study area and its surroundings**	**Visual Quality & Sense of Place**	**Qualitative Environment (Air Quality & Acoustical Environment)**	**Socio-Economic (I.e. Services, Economical Impacts, Cultural & Historical)**	**Mitigation Possibilities** **High ☻** **Medium ☺** **Low ○** **Positive Impact not necessary to mitigate ☼**
Increased surface water runoff to storm water management system from hard surfaces may impact on surface and ground water.			■ 1&2	■ 1&2					☺ **1&2**
Erosion, siltation and pollution of the water bodies if storm water is not managed sufficiently during the operational phase.	■ 1&2	■ 1&2	■ 1&2	■ 1&2		■ 1&2			☻ **1&2**

Environmental Aspects	**Soil and Soil Stability**	**Topography**	**Water Quality**	**Flora & Fauna**	**Existing Land-use of Study area and its surroundings**	**Visual Quality & Sense of Place**	**Qualitative Environment (Air Quality & Acoustical Environment)**	**Socio-Economic (I.e. Services, Economical Impacts, Cultural & Historical)**	**Mitigation Possibilities** **High ☻** **Medium ☺** **Low ○** **Positive Impact not necessary to mitigate ☼**
Compatibility with surrounding land uses					■ 1 ◆ 2	◆ 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**
Optimal use of infrastructure								◆ 1&2	☼ **1&2**
Contribution to the upgrading of infrastructure and services									
Creation of temporary and permanent jobs					◆ 1&2			◆ 1&2	☺ **1&2**

Environmental Aspects	**Soil and Soil Stability**	**Topography**	**Water Quality**	**Flora & Fauna**	**Existing Land-use of Study area and its surroundings**	**Visual Quality & Sense of Place**	**Qualitative Environment (Air Quality & Acoustical Environment)**	**Socio-Economic (I.e. Services, Economical Impacts, Cultural & Historical)**	**Mitigation Possibilities** **High ☻** **Medium ☺** **Low ○** **Positive Impact not necessary to mitigate ☼**
Creating a major contribution to rates and taxes to the local municipality.								◆ 1&2	**☻ 1&2**
Impact of additional vehicle traffic on already busy roads due to traffic associated with development						■ 1&2	■ 1&2	■ 1&2	**☺ 1&2**
Light pollution during the night						■ 1&2	■ 1&2		**☺ 1&2**
Risk of sinkhole formation due to ineffective dolomite risk	■ 1&2							■ 1&2	**☻ 1&2**

Environmental Aspects	**Soil and Soil Stability**	**Topography**	**Water Quality**	**Flora & Fauna**	**Existing Land-use of Study area and its surroundings**	**Visual Quality & Sense of Place**	**Qualitative Environment (Air Quality & Acoustical Environment)**	**Socio-Economic (I.e. Services, Economical Impacts, Cultural & Historical)**	**Mitigation Possibilities High ☻ Medium ☺ Low ○ Positive Impact not necessary to mitigate ☼**
management									
Loss of grassland				■ 1&2		■ 1&2			○ **1&2**
Loss of agricultural land					■ 1&2				○ **1&2**

■ Adverse Impact ◆ Beneficial Impact 1 Alternative 1 2 Alternative 2

10.3 Comparative Assessment between Alternative 1 and Alternative 2

Tables 7 and 8 below are preliminary comparative assessments based on the issues identified in table 6 above. The issues identified in Tables 6 are based on the status quo information that was available for the Scoping Phase and the scoping report already 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. The environmental issues and the results of the comparative assessment are however only preliminary results that must be still 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/ place restrictions (i.e. buffers around red data species identified) that could have a significant impact on the preliminary layout and alternatives identified.

Due to the fact that many of the high impact issues identified in the above mentioned tables can be mitigated to more acceptable levels, the issues ratings before and after mitigation 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 8 below)*** will therefore give a more accurate indication of the preliminary preferred alternative for the project.

Table 7: Comparative Assessment between impacts of Alternative 1 and 2 before Mitigation

Environmental Aspects **Key to impacts:** ☺ l– Lower positive ☺ m– Medium positive ☺ h– Higher positive ☹ l– Lower negative ☹ m–Medium negative ☹ h– Higher negative 😐 - Neutral	**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&AP's	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 Residential	☹ h	☹ m	😐	☹ l	☹ m	☹ m	☹ m	☹ m	☹ l	☹ m	😐	☹ m	☺ h	😐	😐	☺ h	☺ h	☺ h	☺ h	☺ h x 5 😐 x 4 ☹ l x 2 ☹ m x 7 ☹ h x 1
Alternative 2 Mixed Use	☹ h	☹ m	😐	☹ l	☹ m	☹ m	☹ m	☹ m	☹ l	☹ m	😐	☹ m	☺ h	😐	😐	☺ h	☺ h	☺ h	☺ h	☺ h x 5 😐 x 4 ☹ l x 2

																			☹ m x 7 ☹ h x 1
OPERATIONAL PHASE **Preliminary Issues and Impacts**																			
	Geology/ soils	**Hydrology**	**Topography**	**Climate**	**Fauna**	**Flora**	**Qualitative Env**	**Land-Use**	**Municipal Serv**	**Upgrading of Mun Serv**	**Econ Impact LA**	**Econ Impact I & AP's**	**Econ Impact Priv Sector**	**Cult & Hist**	**Agric Potential**	**IDP**	**SDF, Open Space Plan**	**Policies/ Guidelines**	**Acts other legislation**	
Alternative 1 Residential	☹ h	☹ m	😐	☹ l	☹ m	☹ m	☺ m	☺ m	☺ h	☺ h	☺ m	☺ l	☺ h	😐	😐	☺ h	☺ h	☺ h	☺ h	☺ h x 6 ☺ m x 3 ☺ l x 1 😐 x 3 ☹ l x 1 ☹ m x 3 ☹ h x 1
Alternative 2 Mixed Use	☹ m	☹ m l	😐	☹ l	☹ m	☹ m	☺ l	☺ h	☺ h	☺ h	☺ h	☺ l	☺ h	😐	😐	☺ h	☺ h	☺ h	☺ h	☺ h x 8 ☺ l x 2 😐 x 3 ☹ l x 1 ☹ m x 4

Table 8: Comparative Assessment between impacts of Alternative 1 and 2 after Mitigation

Environmental Aspects **Key to impacts:** ☺ l– Lower positive ☺ m– Medium positive ☺ h– Higher positive ☹ l– Lower negative ☹ m–Medium negative ☹ h– Higher negative 😐 - Neutral	**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&AP's	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 Residential	☹ m	☹ l	😐	☹ l	☹ m	☹ m	☹ l	☹ m	😐	☹ l	☹ l	☹ l	☺ h	😐	😐	☺ h	☺ h	☺ h	☺ h	☺ h x 5 😐 x 4 ☹ l x 6 ☹ m x 4
Alternative 2 Mixed Use	☹ m	☹ l	😐	☹ l	☹ m	☹ m	☹ l	☹ l	😐	☹ l	☹ l	☹ l	☺ h	😐	😐	☺ h	☺ h	☺ h	☺ h	☺ h x 5 😐 x 4 ☹ l x 7 ☹ m x 3

OPERATIONAL PHASE Preliminary Issues and Impacts																			
	Geology/ soils	**Hydrology**	**Topography**	**Climate**	**Fauna**	**Flora**	**Qualitative Env**	**Land-Use**	**Municipal Serv**	**Upgrading of Mun Serv**	**Econ Impact LA**	**Econ Impact I & AP's**	**Econ Impact Priv Sector**	**Cult & Hist**	**Agric Potential**	**IDP**	**SDF, Open Space Plan**	**Policies/ Guidelines**	**Acts other legislation**	
Alternative 1 Residential	☹ m	☹ m	😐	😐	☹ l	☹ l	☺ m	☺ m	☺ h	☺ h	☺ m	☺ l	☺ l	😐	😐	☺ h	☺ h	☺ h	☺ h	☺ h x 6 ☺ m x 3 ☺ l x 1 😐 x 4 ☹ m x 2 ☹ l x 2
Alternative 2 Mixed Use	☹ l	☹ m	😐	😐	☹ l	☹ l	☺ m	☺ h	☺ h	☺ h	☺ h	☺ h	☺ h	😐	😐	☺ h	☺ h	☺ h	☺ h	☺ h x 9 ☺ m x 1 ☺ l x 0 😐 x 4 ☹ l x 3 ☹ m x 1
Preferred Alternative	Based on the comparative impact assessment ***Alternative 2*** is regarded as the preferred alternative.																			

Summary

From **Table 8** above it can be concluded that Alternative 2 (the development proposal) is the preferred alternative.

From the available information the biological impacts for both alternatives are more or less equal for the two alternatives, and after mitigation are not regarded as significant.

From a physical point of view the preferred alternative will only be identified when detailed geotechnical investigations have been conducted to confirm the dolomite stability and zonation of the study area.

Alternative 2 is the preferred alternative from a socio-economic point of view. A mixed use development satisfies the need and desirability over a broad spectrum and is aimed at a mixed market, which is desirable in the current economical situation. In addition, a mixed use development will also supply employment opportunities in close proximity to residential areas and will contribute to the economy in the Centurion area.

Based on the preliminary investigations Alternative 2 (the development proposal) is regarded as the preferred alternative from an environmental point of view (biological, physical, socio-economical and institutional environments).

10.4. Methodology of Assessing Impacts that have been identified

10.4.1 Specialized processes and specialist studies

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

10.4.2 Significance Description Methodology

The significance of Environmental Impacts will be assessed in the EIA process 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:

Improbable - Low possibility of impact to occur either because of design or historic experience.
Rating = 2

Probable - Distinct possibility that impact will occur.
Rating = 3

Highly probable - Most likely that impact will occur.
Rating = 4

Definite - Impact will occur, in the case of adverse impacts regardless of any prevention measures.
Rating = 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:

- Low intensity - natural and man made functions not affected – Factor 1

- Medium intensity - environment affected but natural and man made functions and processes continue -Factor 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 - Factor 4

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

- Short term - <1 to 5 years - Factor 2

- Medium term - 5 to 15 years - Factor 3

- Long term - impact will only cease after the operational life of the activity, either because of natural process or by human intervention - Factor 4.

- Permanent - mitigation, either by natural process or by human intervention, will not occur in such a way or in such a time span that the impact can be considered transient - Factor 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:

The Severity factor = Intensity factor X Duration factor
= 2 x 3
= 6

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

TABLE 9: SEVERITY RATINGS

RATING	FACTOR
Low Severity (Rating 2)	Calculated values 2 to 4
Medium Severity (Rating 3)	Calculated values 5 to 8
High Severity (Rating 4)	Calculated values 9 to 12
Very High severity (Rating 5)	Calculated values 13 to 16
Severity factors below 3 indicate no impact	

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

The ***significance rating*** should influence the development project as described below:

- Low significance (calculated Significance Rating 4 to 6)
  - Positive impact and negative impacts of low significance should have no influence on the proposed development project.

- Medium significance (calculated 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 (calculated 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 FOR ENVIRONMENTAL IMPACT ASSESSMENT

Refer to Annexure D for the Plan of Study for Environmental Impact Assessment which 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 specialized 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;
- Particulars of the public participation 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 were used in producing a preliminary 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.

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

that evaluate the scoping report (GDARD and the involved local authority) examine the issues listed under each environment and where possible add issues to/remove issues from the issues lists in ***Section 10*** of this report. The mitigation possibilities of the issues listed were also identified in this scoping report and we (Bokamoso) are of the opinion that it will be possible to mitigate all the detrimental issues completely or to more acceptable levels.

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 preconstruction, construction and/or operational phases of the project.

It can be concluded from the scoping process that Alternative 2 (the development proposal) is regarded as the preferred alternative, due to having higher significant positive impacts than Alternative 1. Other alternatives including locality, other land uses and layout alternatives as well as the no-go option were investigated and it was concluded that they would not be feasible or less feasible than the proposed two alternatives.

13. RECOMMENDATIONS

It is believed that the both beneficial and adverse impacts were thoroughly assessed, the needs and the benefits for this project has been assessed so as to give it a go ahead. 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 project.

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

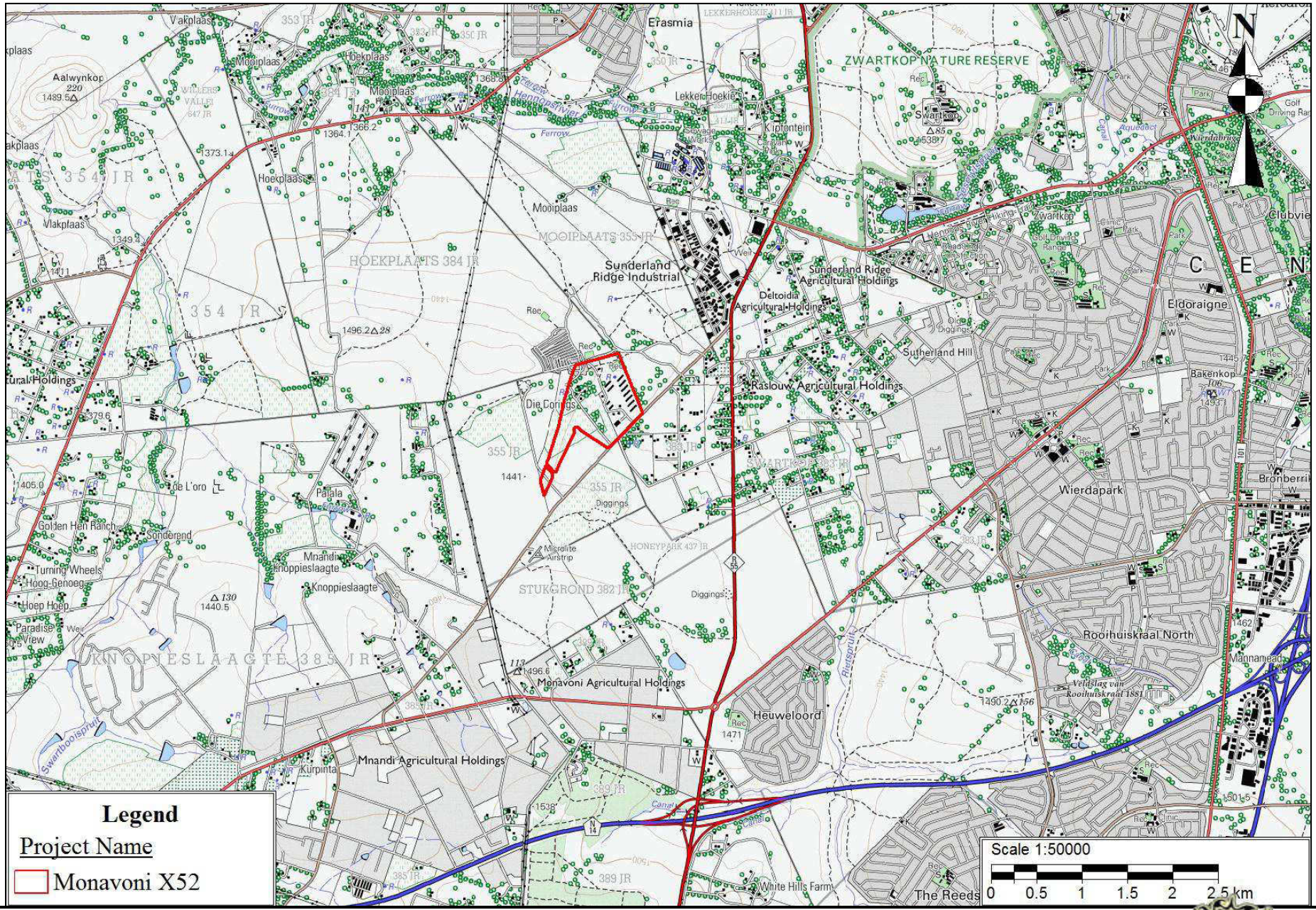


Fig 1: Locality Map

Monavoni X 52

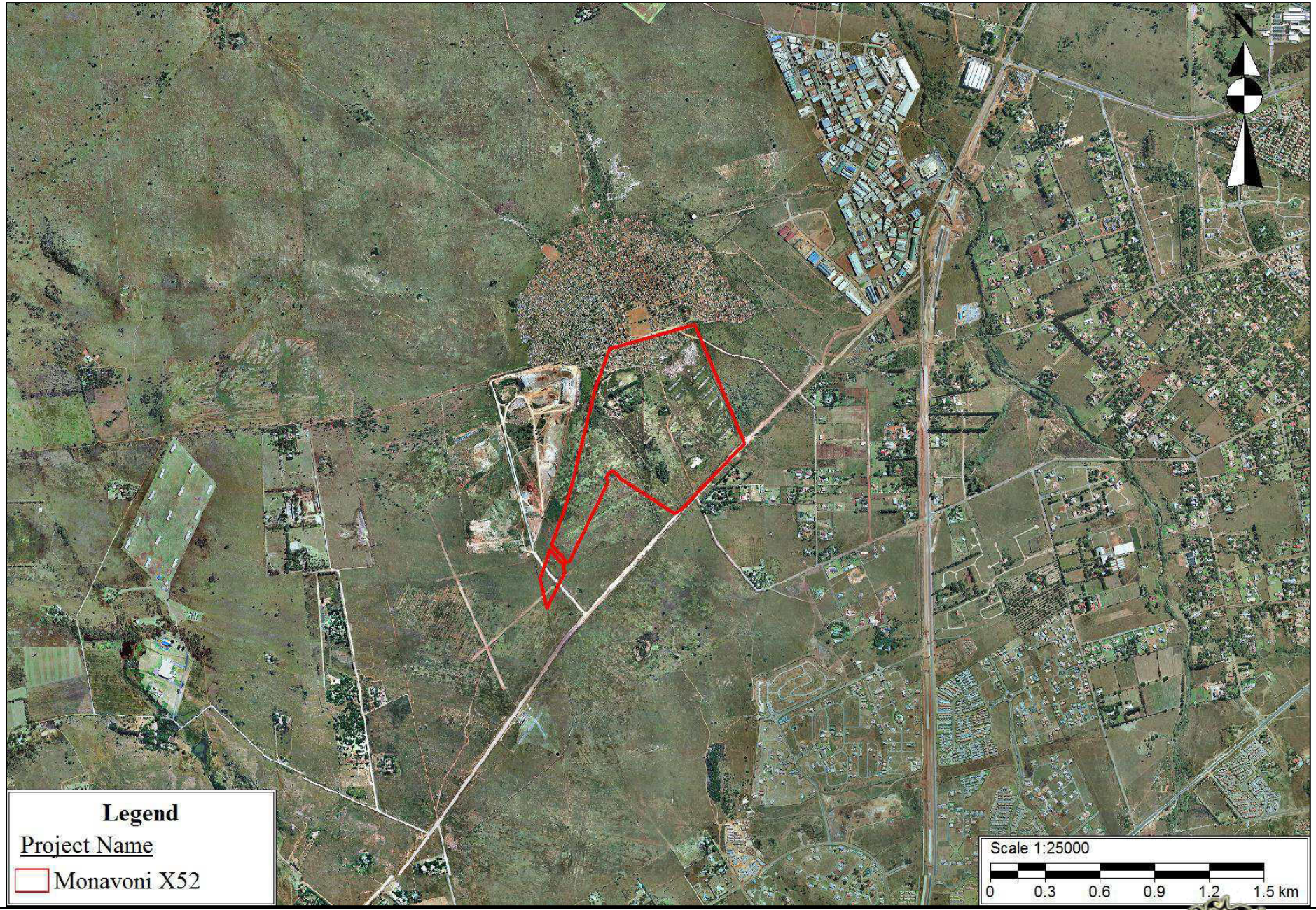


Fig 2: Aerial Map

Monavoni X 52

Bokamoso Environmental

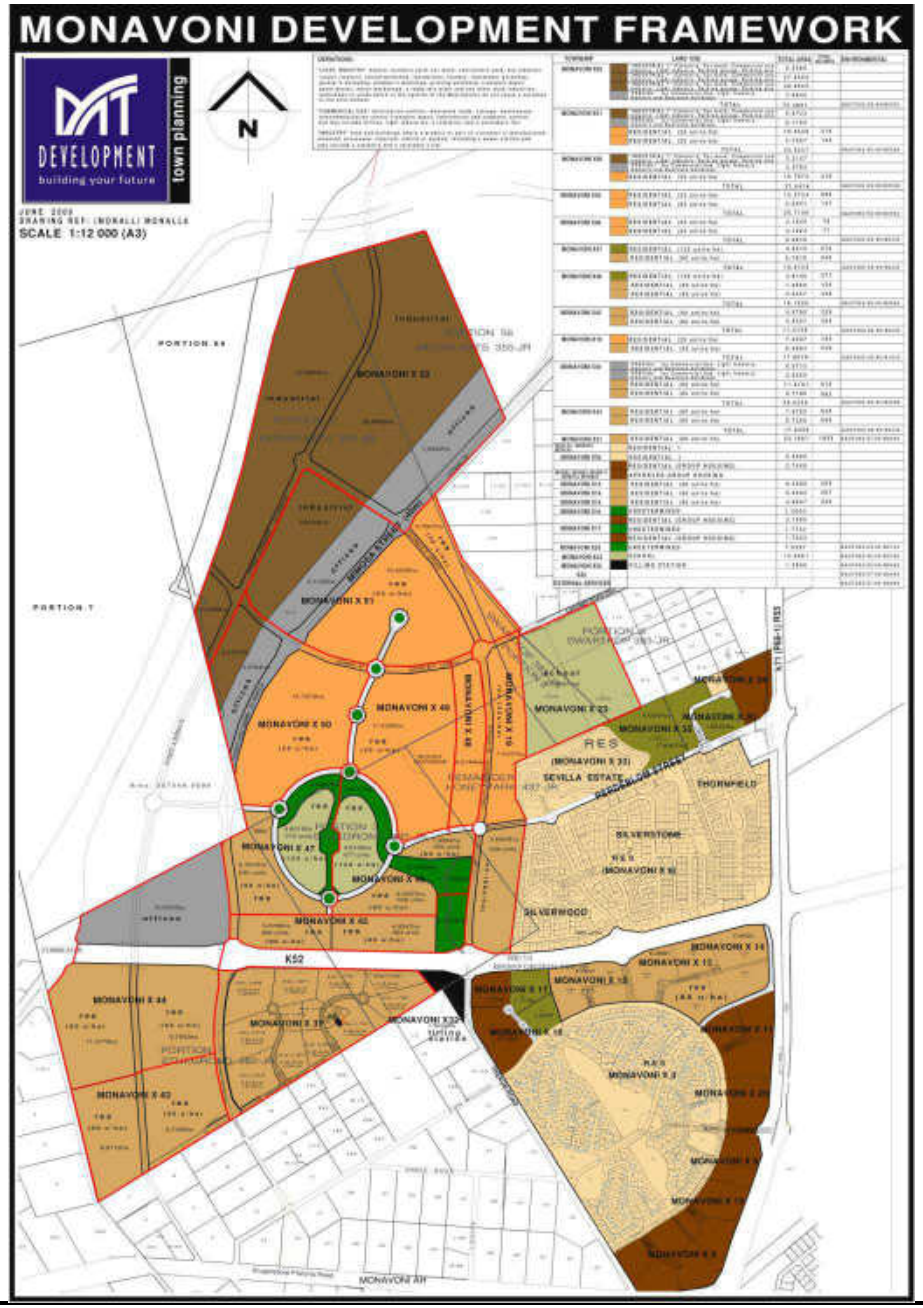


Fig 3: Monavoni Development Framework

Monavoni X 52

Bokamoso Environmental

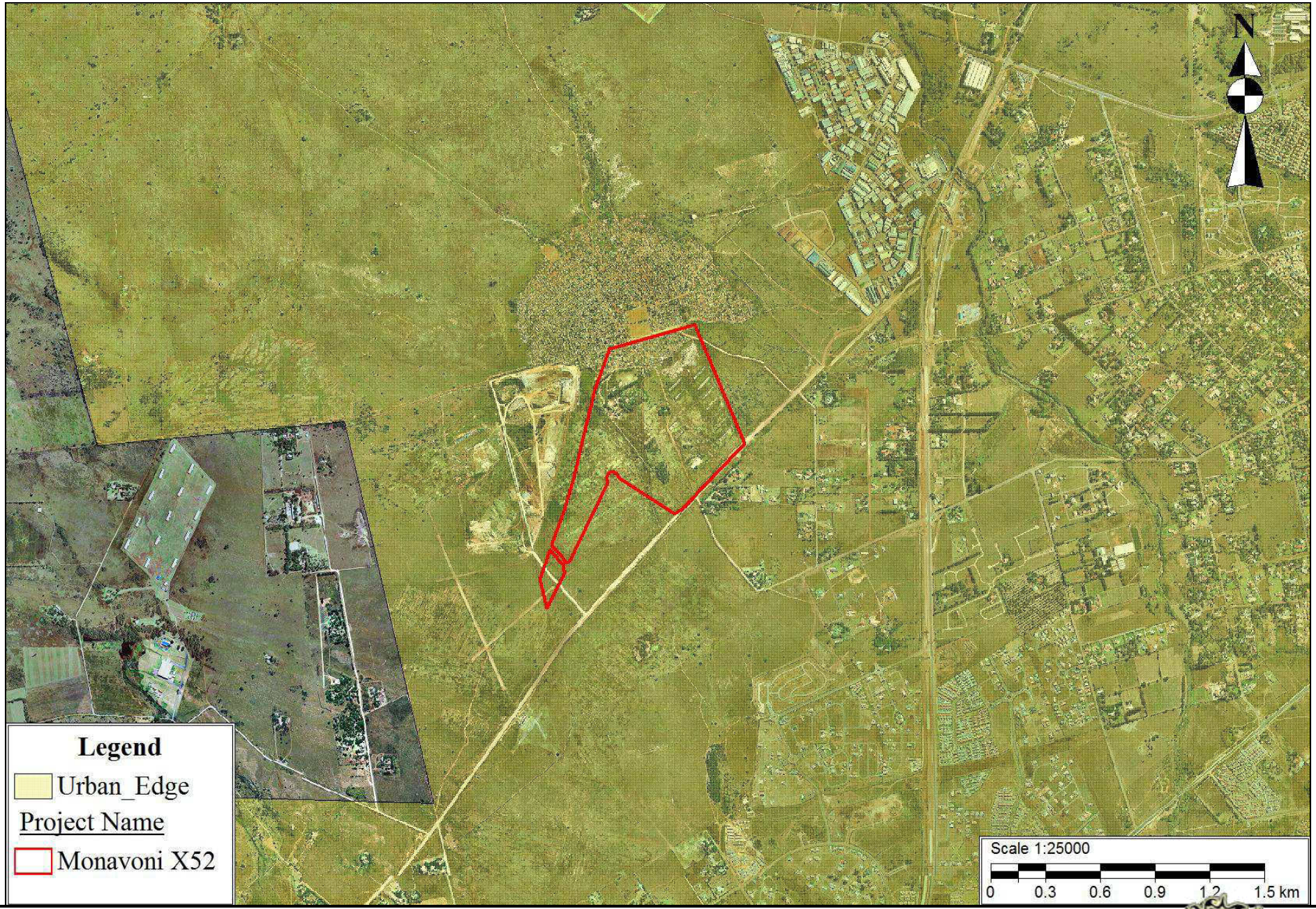


Fig 4: Urban Edge Map

Monavoni X 52

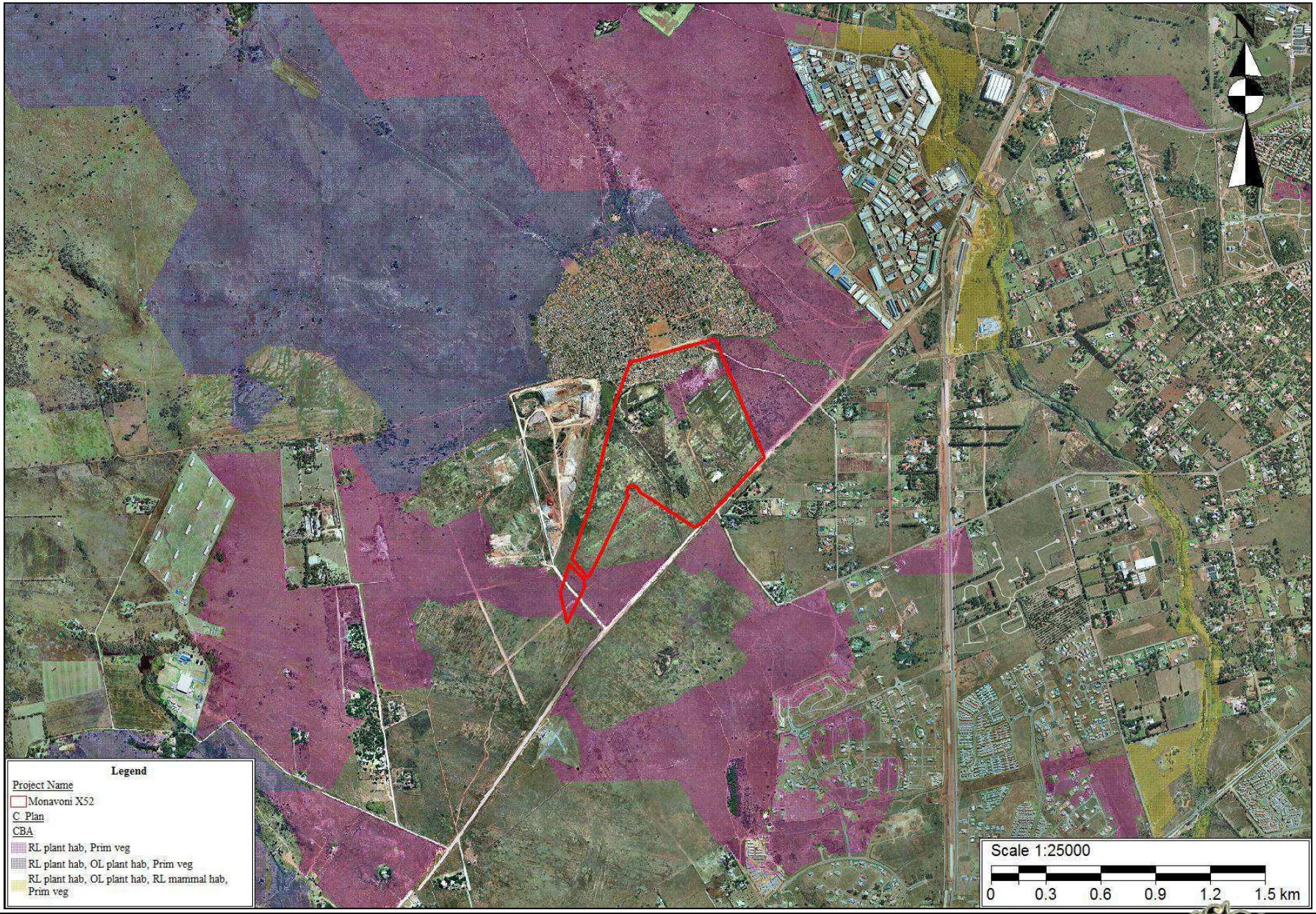


Fig 5: Irreplaceable Sites Map

Monavoni X 52

Bokamoso Environmental

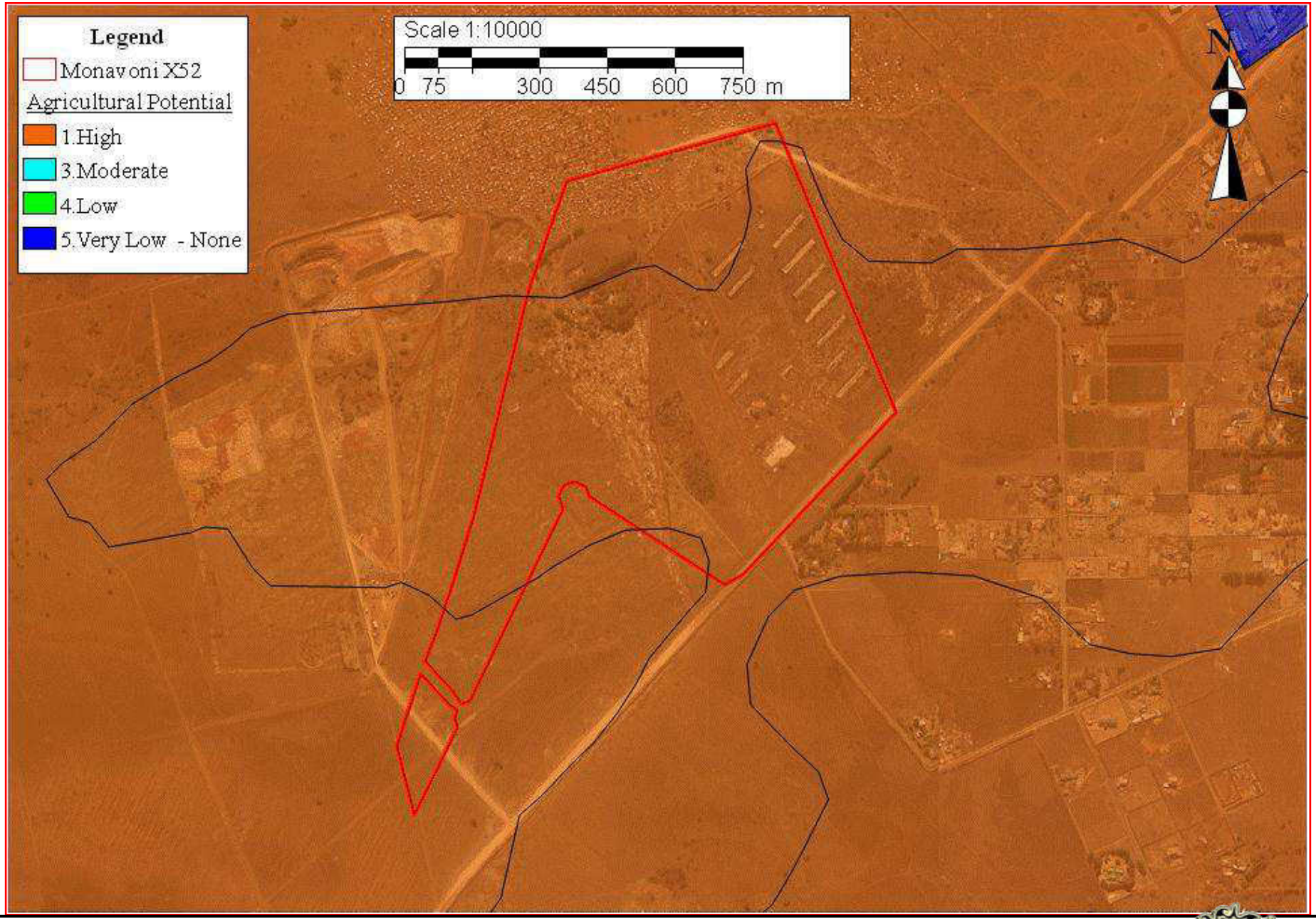


Fig 6: Agricultural Potential Map (GAPA 3)

Monavoni X 52

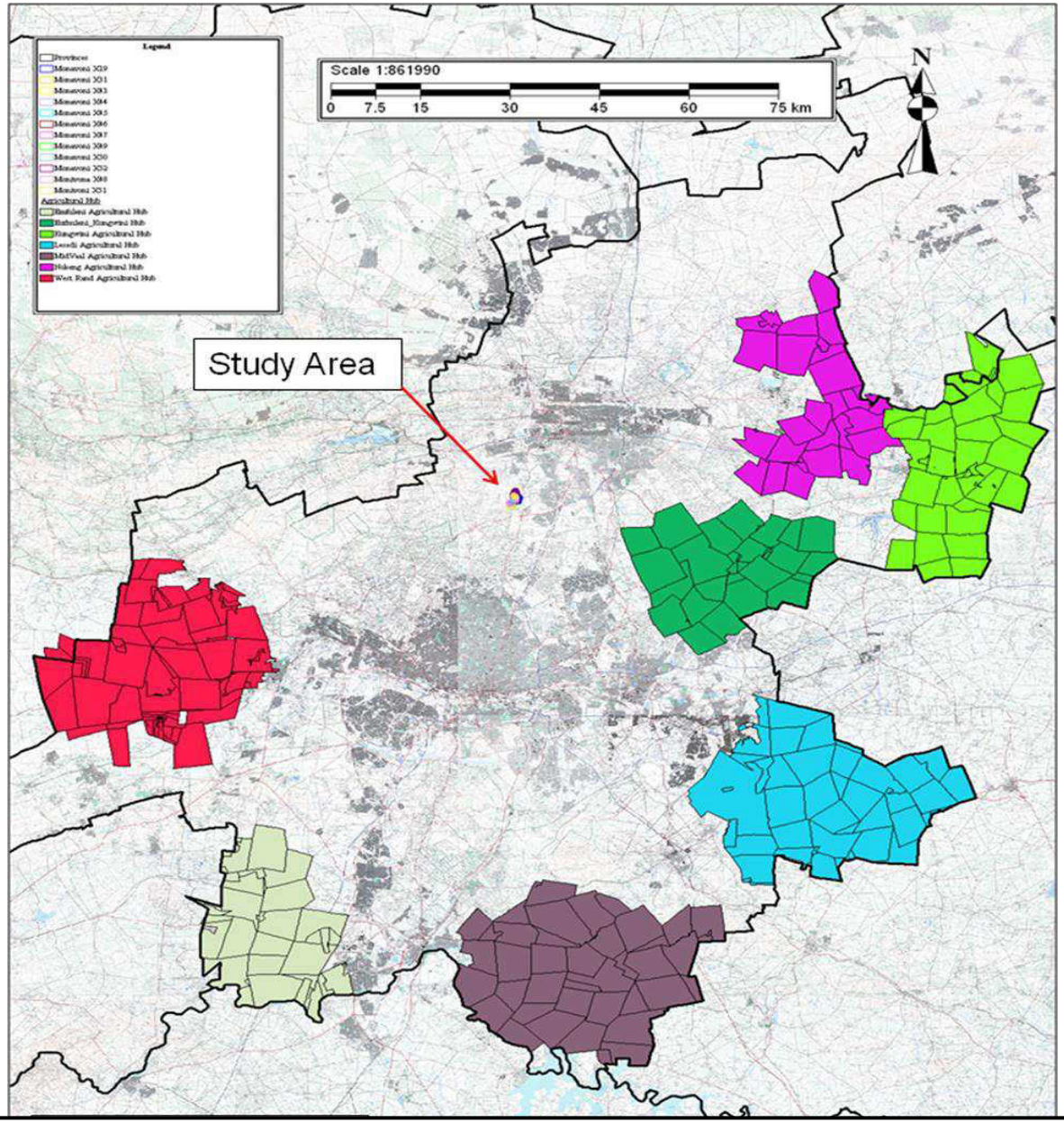


Fig 7: Agricultural Hub Map

Monavoni X 52

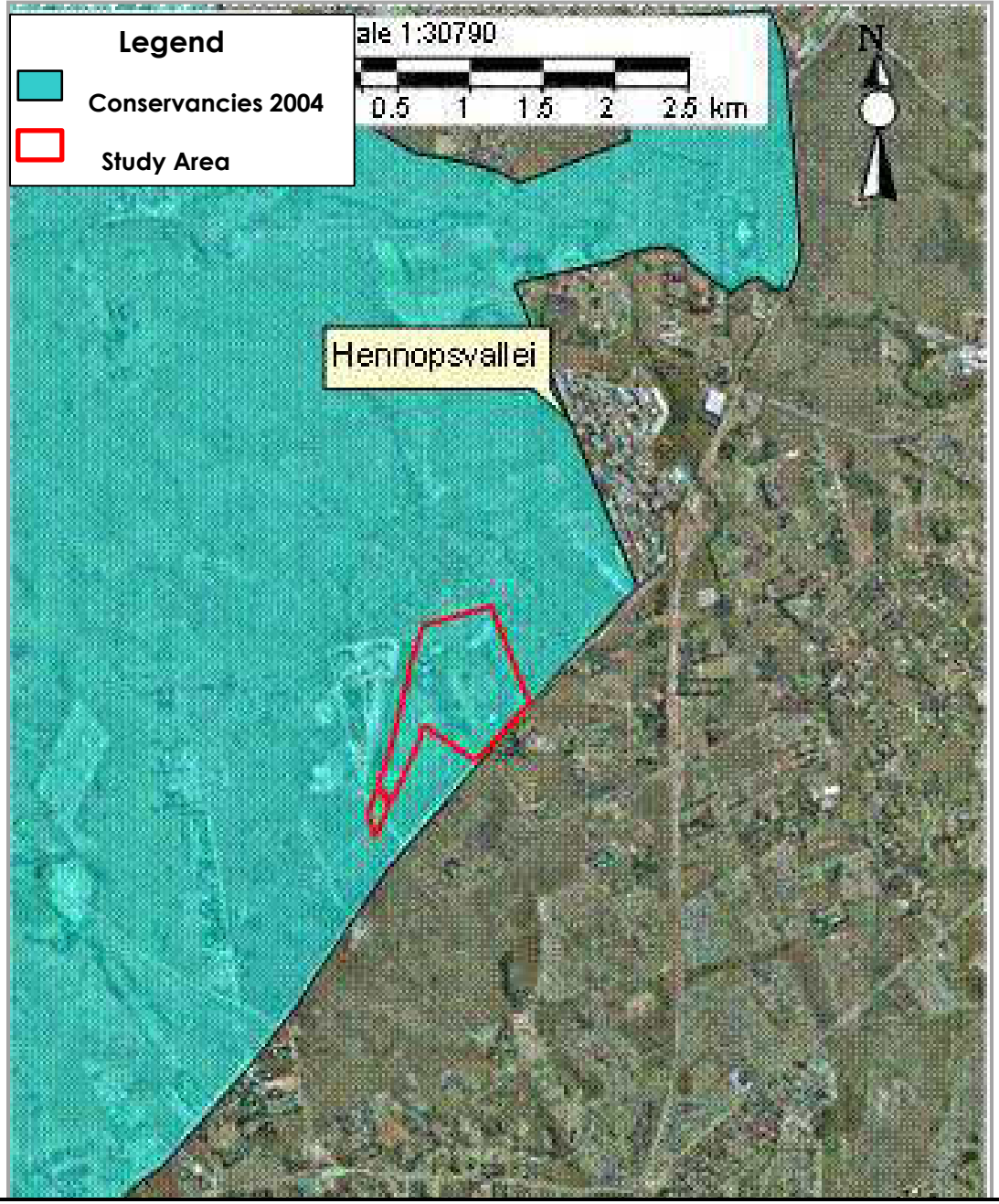


Fig 8: Conservancies Map

Monavoni X 52

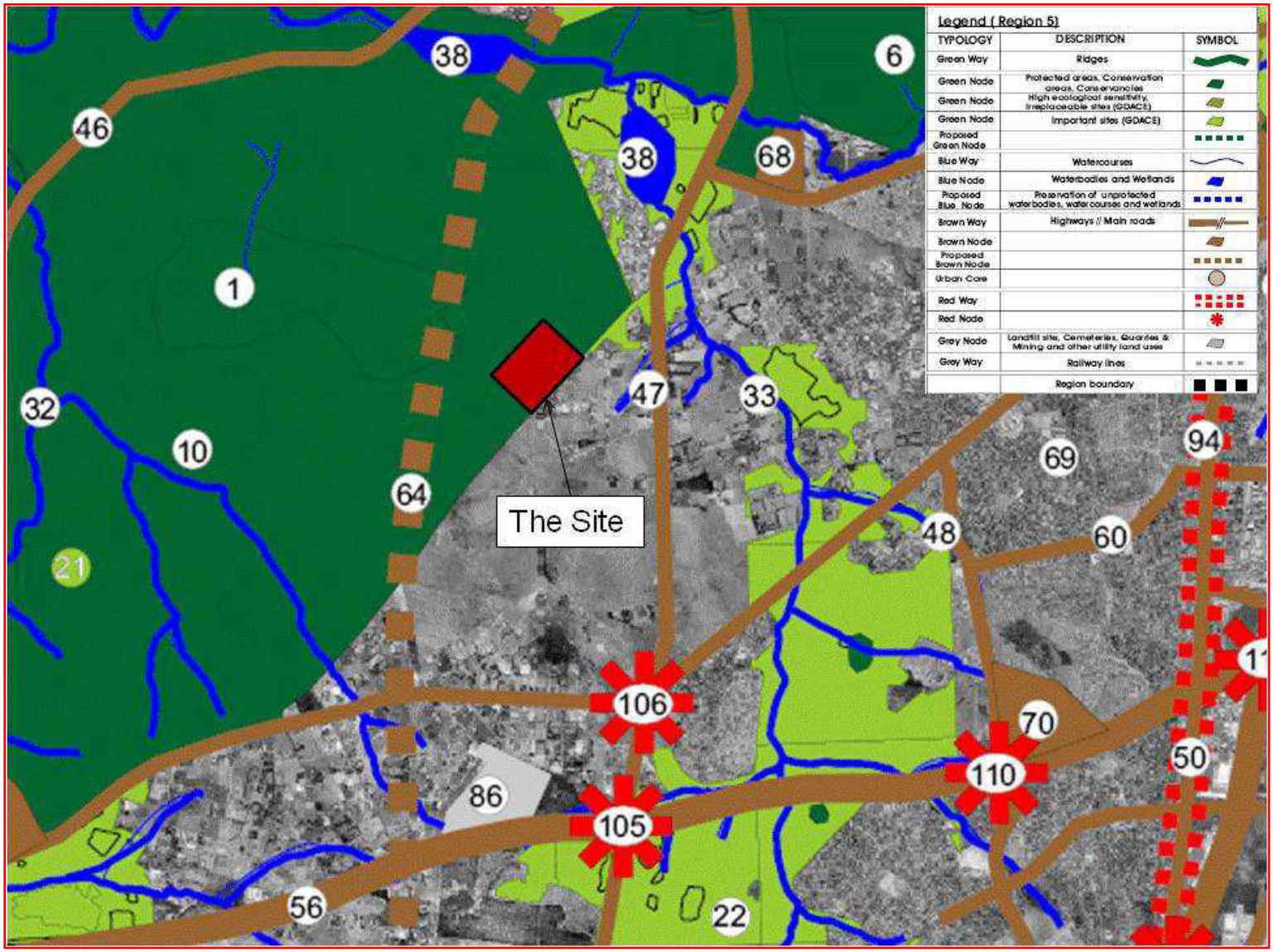


Fig 9: Tshwane Open Space Framework

Monavoni X 52

PROPOSED TOWNSHIP: MONAVONI EXTENSION 52

DEVELOPMENT CONTROLS

ZONING	ERF No.	Q	AREA Ha	AVERAGE	%
INDUSTRIAL 2	1 - 49, 67 - 78	61	48,2758		
BUSINESS 2	50 - 66	17	14,5030		
SPECIAL FOR ACCESS CONTROL	79	1			
SPECIAL FOR ACCESS	80	1			
PUBLIC ROAD					
	TOTAL	80	75,2765Ha	n.a.	100,0

GENERAL NOTES:
1) ALL DIMENSIONS ARE APPROXIMATE AND SUBJECT TO FINAL SURVEY
2) CONTOURS CONFORM TO THE STANDARDS LAID DOWN IN REGULATION 1911 OF THE TOWN PLANNING AND TOWNSHIPS REGULATIONS

SERVITUDE NOTES:
PROPOSED SERVITUDES
0
EXISTING SERVITUDE
1) ERF ___ IS AFFECTED BY A RIGHT OF WAY SERVITUDE. (S.G. No. 1751/2001)

IT IS HEREBY CERTIFIED THAT THE PROPERTY SHOWN ON THIS DRAWING IS NOT AFFECTED BY FLOODWATER TO THE 100 YEAR RECURRENCE INTERVAL EVENT, DETERMINED IN ACCORDANCE WITH SECTION 144 OF THE NATIONAL WATER ACT (ACT 36 OF 1998)

SIGNATURE DATE PEGNG NUMBER

Bokamoso Environmental

Monavoni X 52

Fig 10: Layout Plan (Preliminary)

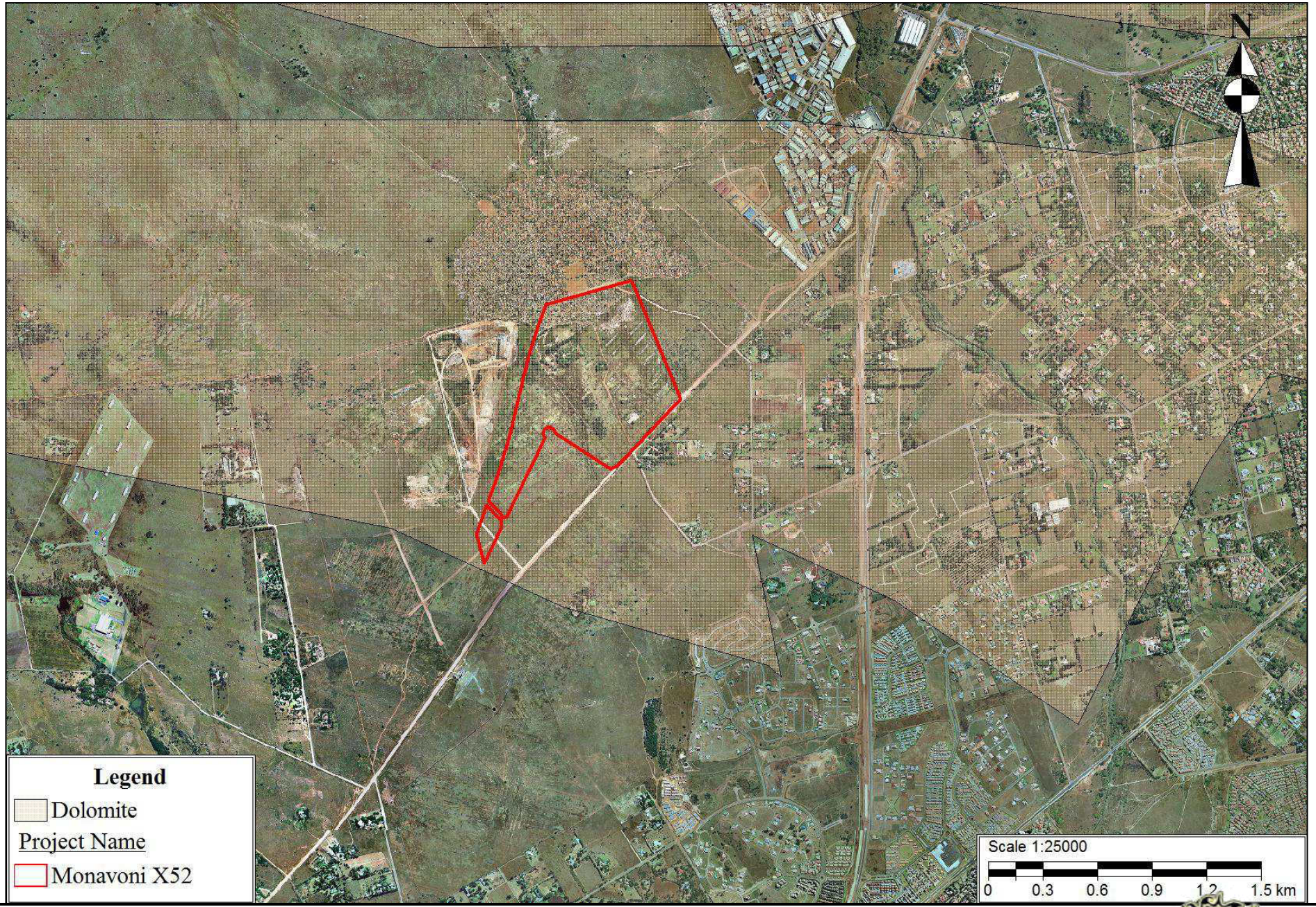


Fig 11: Dolomite Map

Monavoni X 52

Bokamoso Environmental

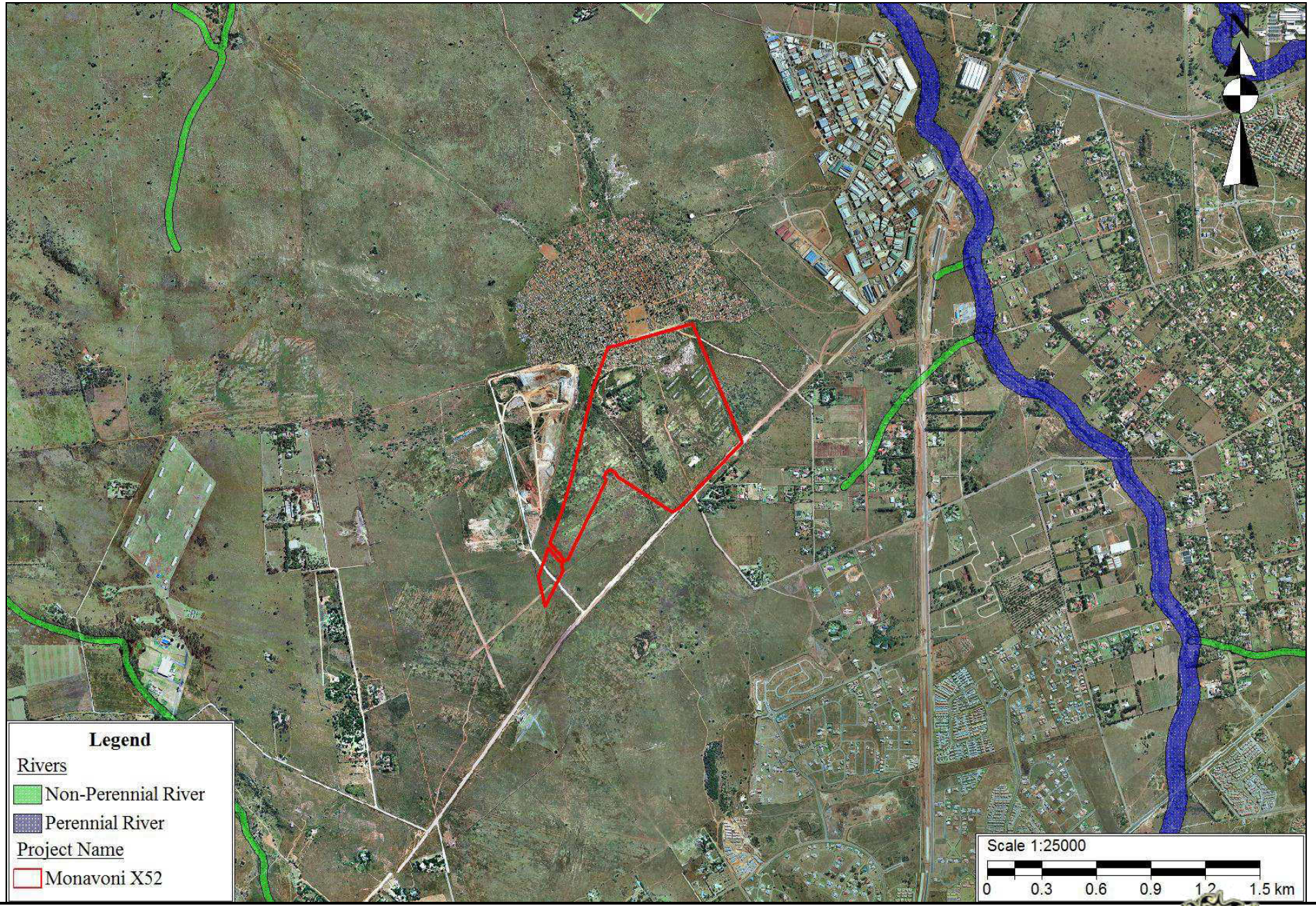


Fig 12: Hydrology Map

Monavoni X 52

Bokamoso Environmental

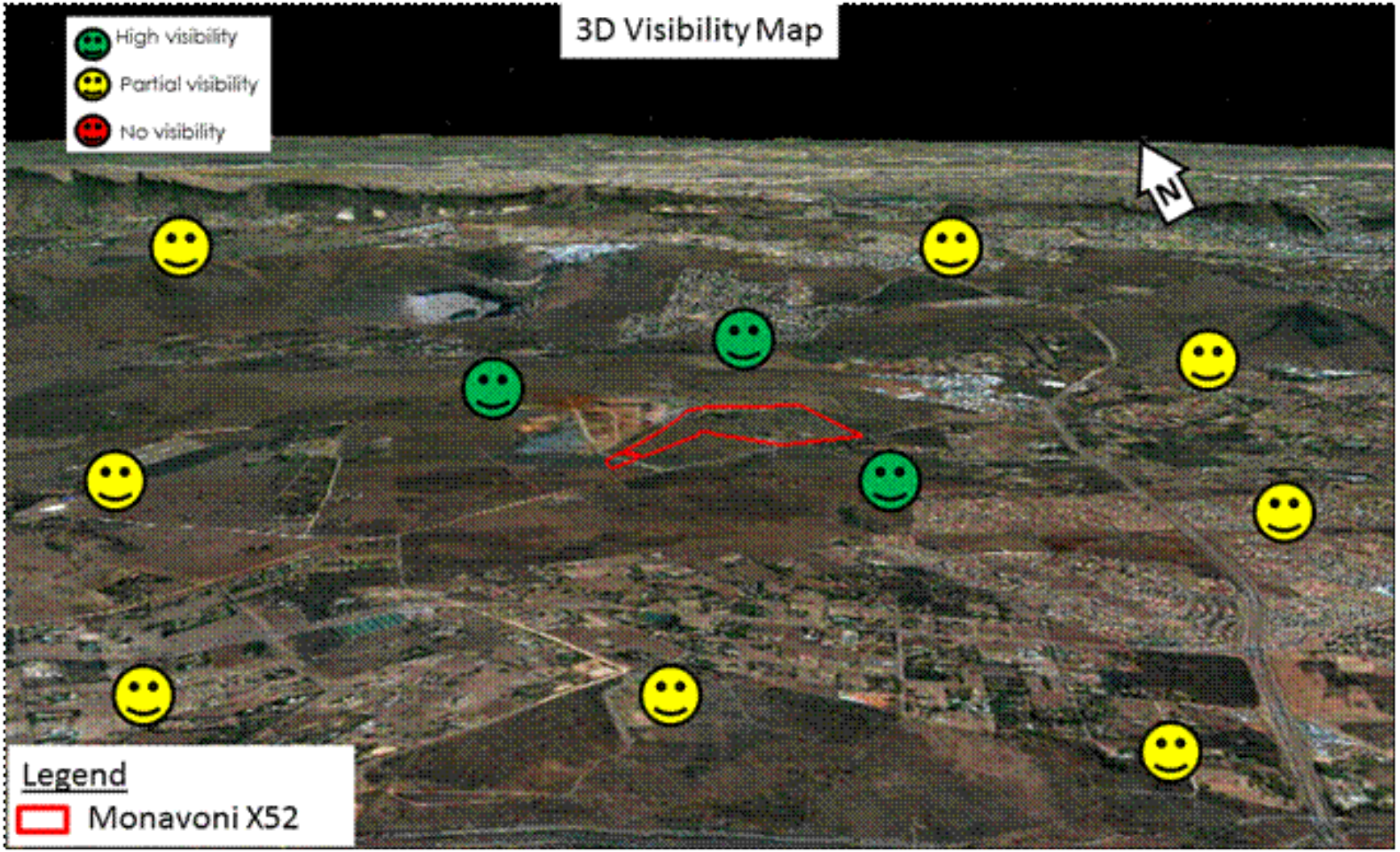


Fig 13: Visual Assessment Map

Monavoni X 52

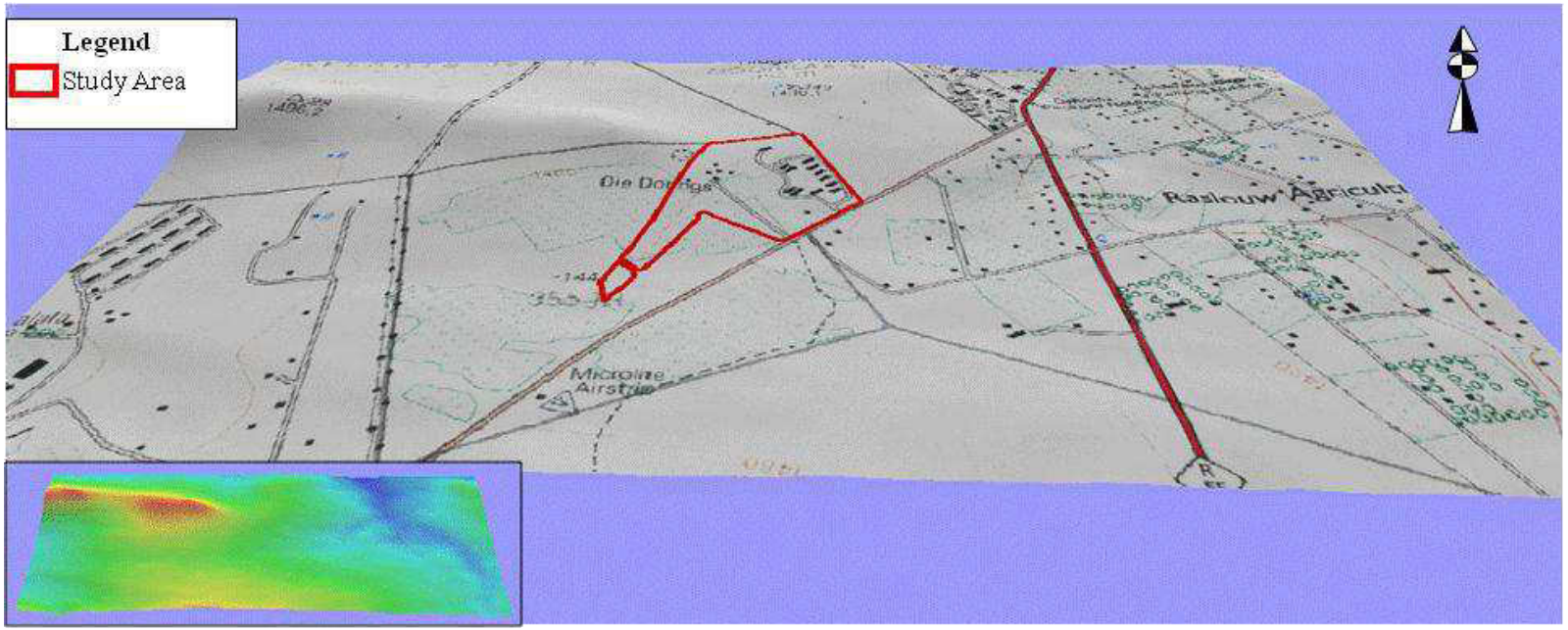


Fig 14: 3 – Dimensional Map

Monavoni X 52

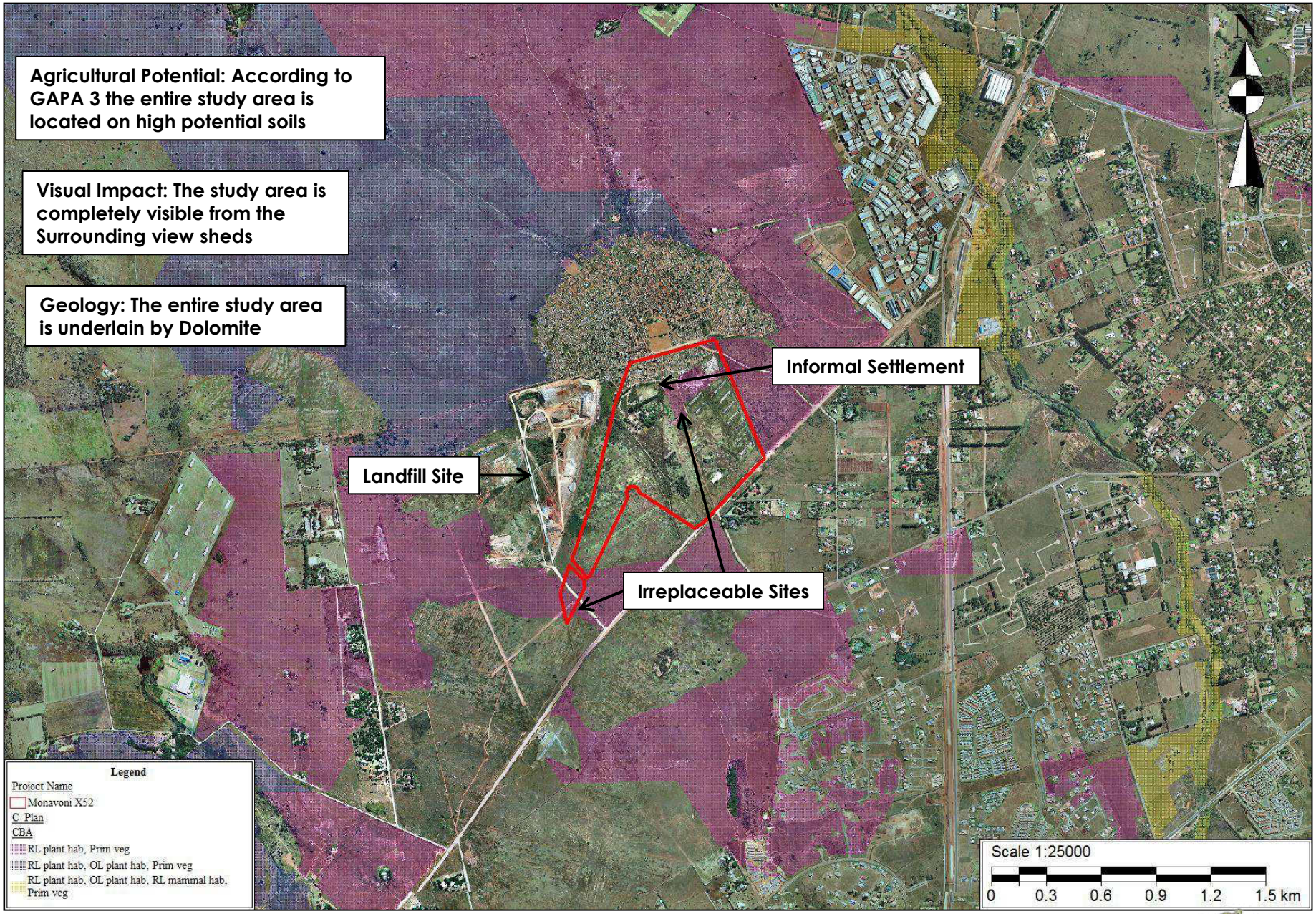
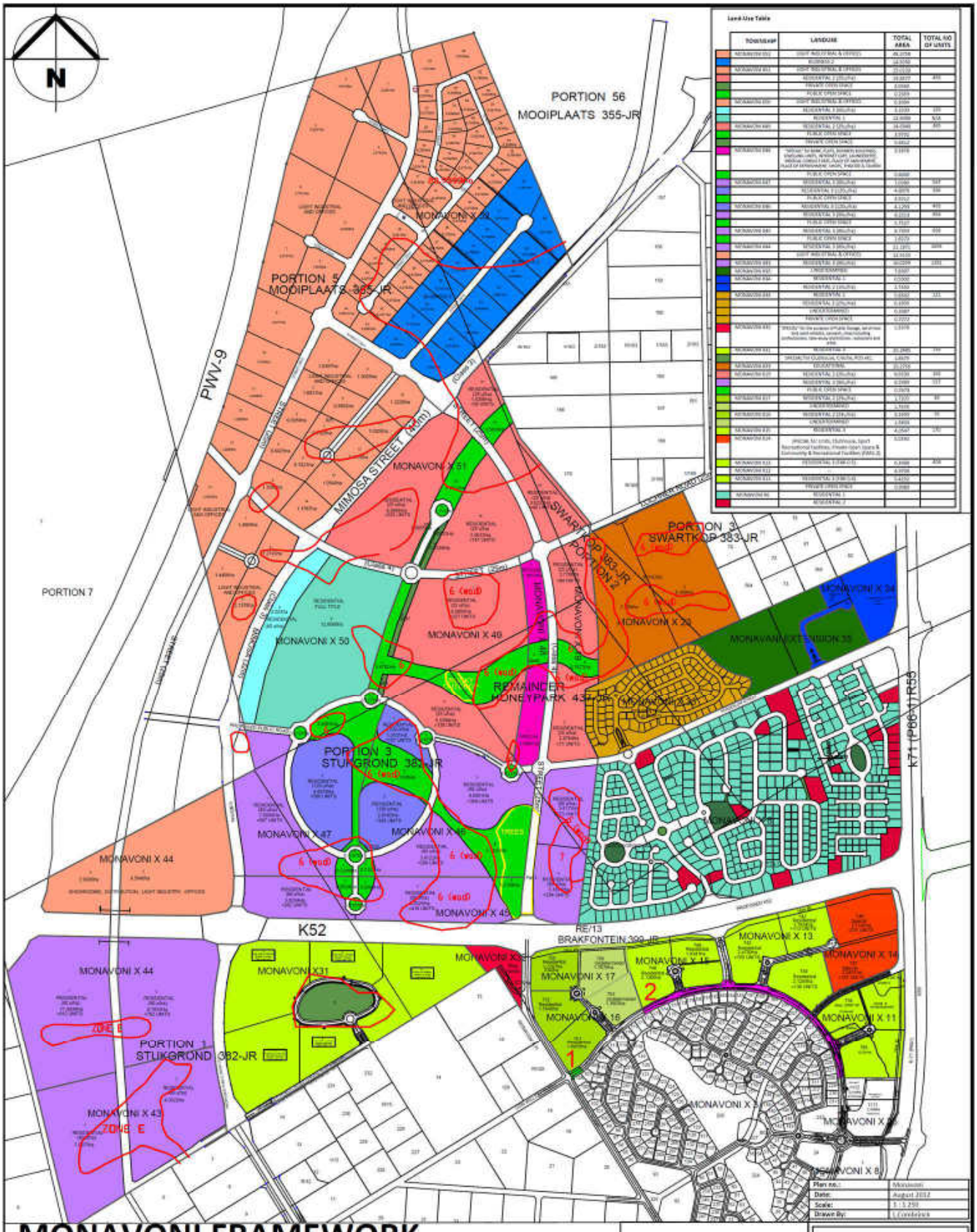


Fig 15: Preliminary Sensitive Issues Map

Monavoni X 52

Bokamoso Environmental

Annexure B



MONAVONI FRAMEWORK

1. Building lines are in accordance with the approved Site Development Plan;
2. All areas and dimensions are approximate and subject to final survey.

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Highveld, 0169
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Fax: (012) 676 8585
Website: www.m-t.co.za

Annexure D

LEBOMBO GARDENS BUILDING
36 LEBOMBO ROAD
ASHLEA GARDENS
0081

P.O. BOX 11375
MAROELANA
0161

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Bokamoso ENVIRONMENTAL
Landscape Architects, Environmental Consultants,
Environmental Auditing, Water License Applications

July 2013

PLAN OF STUDY FOR EIA: PROPOSED MONAVONI X 51

1. INTRODUCTION

Bokamoso Landscape Architects and Environmental Consultants CC was appointed by **M & T Development Pty Ltd (JR 209 Investments (Pty) Ltd)** to submit a Scoping Report for the above mentioned project. The Scoping Report has been prepared to comply with provision of Regulations 29 of NEMA, 1998 (Act 107 of 1998), as amended, and the Environmental Impact Assessment Regulations, 2010 as well as Regulation 21 of the DFA, 1995 (Act 67 of 1995). The compilation of this Scoping Report has also taken cognisance of Guidelines issued by the National Department of Environmental Affairs (DEA). In addition the report has been prepared to appropriately inform registered Interested and Affected parties and the relevant decision making authorities of the potential environmental impacts to inform a comprehensive Environmental Impact Assessment (EIA) Process. The EIA process will be prepared according to Regulations 32 of NEMA, 1998 (Act 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2010 and Regulation 21 of the DFA, 1995 (Act 67 of 1995).

Please find below the Plan of Study for the EIA process for the above mentioned project.

2. PROJECT DESCRIPTION

Project Title: Monavoni Extension 52

Property Description: Part of the Remainder of Portion 5 and Portion 56 (A Portion of Portion 8) of the Farm Mooiplaats 355-JR

Name and Address of the applicant:

JR 209 Investments (Pty) Ltd
Witch Hazel Avenue
Eco Court Building, Highveld
Centurion
0046
Contact person: Mr. Barry Hertzog

Tel: (012) 676 8500
Fax: (012) 676 8585

Name and Address of Consultants:

Bokamoso Landscape Architects and Environmental Consultants
P.O. Box 11375
Maroelana, 0161
Contact Person: Lizelle Gregory
Tel: (012) 346 3810
Fax: 086 570 5659
Cell: 083 255 8384
E-mail: lizelleg@mweb. co.za

Nature of Activity: The proposed township establishment Monavoni X 52 and associated infrastructure.

Activity Location: The proposed township is located directly to the east of the proposed PWV 9, to the west of the R55, the north of the M34 (Ruimte Road) and the N14, to the south of Mimosa Road, south-west of Sunderland Ridge and to the east of Gardner Ross Golf Estate.

Relevant Phases of the Development:

Preparation Phase:

- Geological, fauna & flora and other
- Environmental process including public participation
- Planning and Environmental Approvals

Construction Phase:

- Installation and construction of the proposed activity

Operational Phase:

- Operation of the activity

3. DESCRIPTION OF TASKS TO BE PERFORMED DURING THE EIA PROCESS:

Methodology:

An investigative approach will be followed and the relevant physical, biological, social and economic and cultural aspects of the environmental aspects will be assessed in the EIA. A description of all environmental issues that were identified during the environmental impact assessment will be made, an assessment of the significance of each issue and an indication of the extent to which the issue could be addressed by the adoption of mitigation measures will be made.

The information must include an overview of the receiving environment likely to be affected by the **Monavoni X 52 development.**

An assessment of each identified potentially significant impact will be made including:

i) Cumulative impacts;
ii) The Nature of the impact;
iii) The Extent and duration of the impact;
iv) The Probability of the impact occurring;
v) The Degree to which the impact can be reversed;
vi) The Degree to which the impact may cause irreplaceable loss of resources; and
vii) The Degree to which the impact can be mitigated

Furthermore a description of any assumptions, uncertainties and gaps in knowledge must be made.

Information that would provide the reader with an objective view of the proposed development will be gathered in the following manner:

- The EIA will be prepared in terms of the principles as set out in the EIA Regulations Guideline Document and the Environment Conservation Act, 1989 (Act 73 of 1989) and according to the new National Environment Management Act, 1998 (Act No. 107 of 1998) as amended, in April 2006.

- The applicant must appoint several specialists in order to finalize the services design and geo-technical report. It is therefore safe to assume that plentiful information is and will be available for the evaluation of the project.

- The written comments (if any) submitted by the I & APs always proves to be most helpful in order to identify the key issues to be mitigated.

- The socio-economic and biophysical environment will be investigated.

- Dolomite Stability studies will be conducted only on areas where development is planned.
  The Dolomite Stability report will be included as part of the EIA.

- A detailed fauna and flora survey will be conducted and will be included in the EIA report.

- A Heritage survey had already been conducted and will be included in the EIA report. Comments from SAHRA will also be included in the EIA Report.

- A visual assessment will be done as part of the EIA document.

- An Environmental Issues map will be included in the EIA report.

- A sensitivity map, providing a clear indication of areas of high, medium and low sensitivity will be included in the EIA report.

Bokamoso CC's impact identification methods include:

- Listing all possible issues under the headings of Biophysical, Biological, Cultural and Socio-economic.
- Besides professional experience in identifying impacts, the inputs given by the I & APs will be assessed and an explanation will be provided in the EIA as to why certain issues raised by I & APs were deemed as insignificant and others as significant. The key issues will be evaluated and prioritized with the help of the Project Team.

Alternatives Identified

The No-Go Option

A comparative assessment between the no-go option and the environmental costs of the proposed activity will be included as part of the EIA.

Locality Alternatives

Locality alternatives for the proposed Monavoni X 52 will be addressed in the EIA Report.

Layout Alternatives

Layout Alternatives for the proposed Monavoni X 52 will be addressed in the EIA Report.

Landuse Alternatives

Landuse alternatives for the proposed Monavoni X 52 will be addressed in the EIA Report.

Priority Issues identified

From the preliminary site visits, by attending some of the project meetings and by analyzing the available data on the study area, it was possible to identify certain issues that will have to be investigated in more detail. These issues are:

1) Natural Environment

- Geology and soils
- Fauna and Flora

- Hydrology
- Topography
- Climate

2) Social Environment

- Cultural & Historical
- Services
- Traffic
- Safety and security
- Public Participation
- Possible noise, visual, air pollution
- Existing land use
- Surrounding land uses
- Availability of Services
- Treatment of existing services and servitudes on the study area

3) Economical Environment

- Viability of the proposed project
- Impact of the proposed Monavoni X 52 on the adjacent land-values and activities / businesses.

Methods of Assessing the Significance of Impacts

- **Geotechnical**

- Dolomite Stability investigations;
- Identification of most significant geological issues;
- Mitigation measures and recommendations.

This information should be included as part of the EIA document for the Monavoni X 52 development.

- **Hydrology/ Storm water**

- Geohydrological study;
- Identification of most significant hydrological issues;
- Impact identification of proposed development on hydrology of study area and its surroundings; and
- Mitigation measures and recommendations.

- **Fauna Survey**

- Specialist biodiversity fauna studies will be conducted
- Identification of possible issues
- Impact identification of proposed development on fauna species of the study area
- Recommendations and mitigation measures

- **Flora Survey**

- Specialist biodiversity flora studies will be conducted:
- Identification of possible issues
- Impact identification of proposed development on the flora species of the study area
- Recommendations and mitigation measures

- **Cultural & Historical**

- A Cultural Heritage Survey has been conducted for the study area and will be included as part of the EIA document;
- Comments from SAHRA will be included.

4. TIME SCHEDULE FOR TASKS AND ADVERTISING:

Compilation of Report

- Assessment of physical, biological, social, cultural and economic environmental aspects: 4 weeks
- Discussion with provincial authorities, local authorities, other interested and affected parties: 2 weeks
- Site survey and photographic recording: 1 week
- Completion of report: 6-8 weeks

5. PUBLIC PARTICIPATION PROCESS

A complete public participation process will be conducted during the EIA phase.

When Will Authorities Be Consulted?

National:

The relevant authority (GDARD) will be consulted during the following stages:
Once the Department has received the Scoping report for revision and they have given us permission to proceed with the EIA process.

- Accepting the Plan of Study for the EIA;
- Review compliance of EIA; and
- Consideration of application.

City of Tshwane

They will be provided with a copy of the draft SR and the Final SR. Comments received on the Draft SR will be addressed in the Final SR.

They will be provided with the draft EIAR and comments will be addressed in the final EIA Report.

Department of Water Affairs

They will be provided with a copy of the draft SR and the Final SR. Comments received on the Draft SR will be addressed in the Final SR.

They will be provided with the draft EIAR and comments will be addressed in the final EIA Report.

6. PROPOSED METHOD OF IDENTIFYING ENVIRONMENTAL ISSUES AND ALTERNATIVES:

The environmental issues and alternatives will be described and assessed in terms of criteria that have been defined as follows:

Status:

Whether the impact is positive (a benefit), negative (a cost) or neutral.

Duration:

Whether the lifespan of the impact will be short term, 0-5 years, medium term, 5-15 years or long term, greater than 15 years, with the impact ceasing after the operational life of the construction, or considered permanent.

Intensity:

Whether the intensity (magnitude/size) of the impact is high, medium, low or negligible (no impact).

Importance:

The importance of the identified impacts on components of the affected environment shall be described as:

Low Where the impact will not have an influence on or require significant accommodation in the project design.

Medium - Where it could have an influence on the environment which will require modification of the project design or alternative mitigation.

High - Where it could have a "no-go" implication on the project regardless of any possible mitigation.

Probability of Occurrence:

The probability of the impact actually occurring, as improbable (low likelihood); probable (distinct possibility); highly probable (most likely); or definite (impact will occur regardless of prevention measures).

Extent:

The scale on which the impact will occur i.e. whether it will be confined to the immediate areas of the proposed activity, limited to within 5 km of the activity, will it affect the region as a whole, or will it occur on a national or international scale.

The significance methodology used by Bokamoso was prescribed to environmental consultants in courses in impact assessments. No methodology can be accurate to a numerical value where the environment is concerned, because it can not be measured. Numerical values are only an indication of the significance or severance of impacts. If we do not agree with the outcome of the assessment, we will adjust the numerical value to reflect a more realistic

significance. The methodology only acts as an aid to the environmental consultant and the consultant need to use his/her experience in the field together with the methods in order to reach a realistic significance of impacts. Bokamoso, in particular Ms. Lizelle Gregory, has extensive experience in the field of impact assessments.

Please confirm whether the current significance methodology is acceptable or whether an alternative methodology should be used in the EIAR.

7. MAPS THAT WILL MOST PROBABLY BE INCLUDED AS FIGURES:

Figure 1: Locality map of site
Figure 2: Aerial map of site
Figure 3: Geotechnical Map
Figure 4: Hydrology Map
Figure 5: Fauna and Flora Habitat Map
Figure 6: Surrounding Land Use Map
Figure 7: Surrounding Road Network
Figure 8: Cultural Map
Figure 9: Sensitive Issues Map
Figure 10: Sensitivity Map

8. ANNEXURES THAT WILL MOST PROBABLY BE INCLUDED:

Annexure A: Lizelle Gregory's CV
Annexure B: Final Layout Map
Annexure C: Soil, Geological and Stability Investigation
Annexure D: Flora and Fauna Survey Report
Annexure E: Cultural Heritage Report
Annexure F: Services Report

Annexure G:	Traffic Impact Study
Annexure H:	Visual Assessment
Annexure I:	Public Participation
Annexure J:	Environmental Management Plan
Annexure K:	Amended Plan of Study (if necessary)
Annexure L:	Photos taken on and around the site

We trust that you would find this Plan of Study for Environmental Impact Assessment in order. Please do not hesitate to contact us if there are any queries on this subject.

Thank You.

Yours Sincerely,

LIZELLE GREGORY

Annexure E

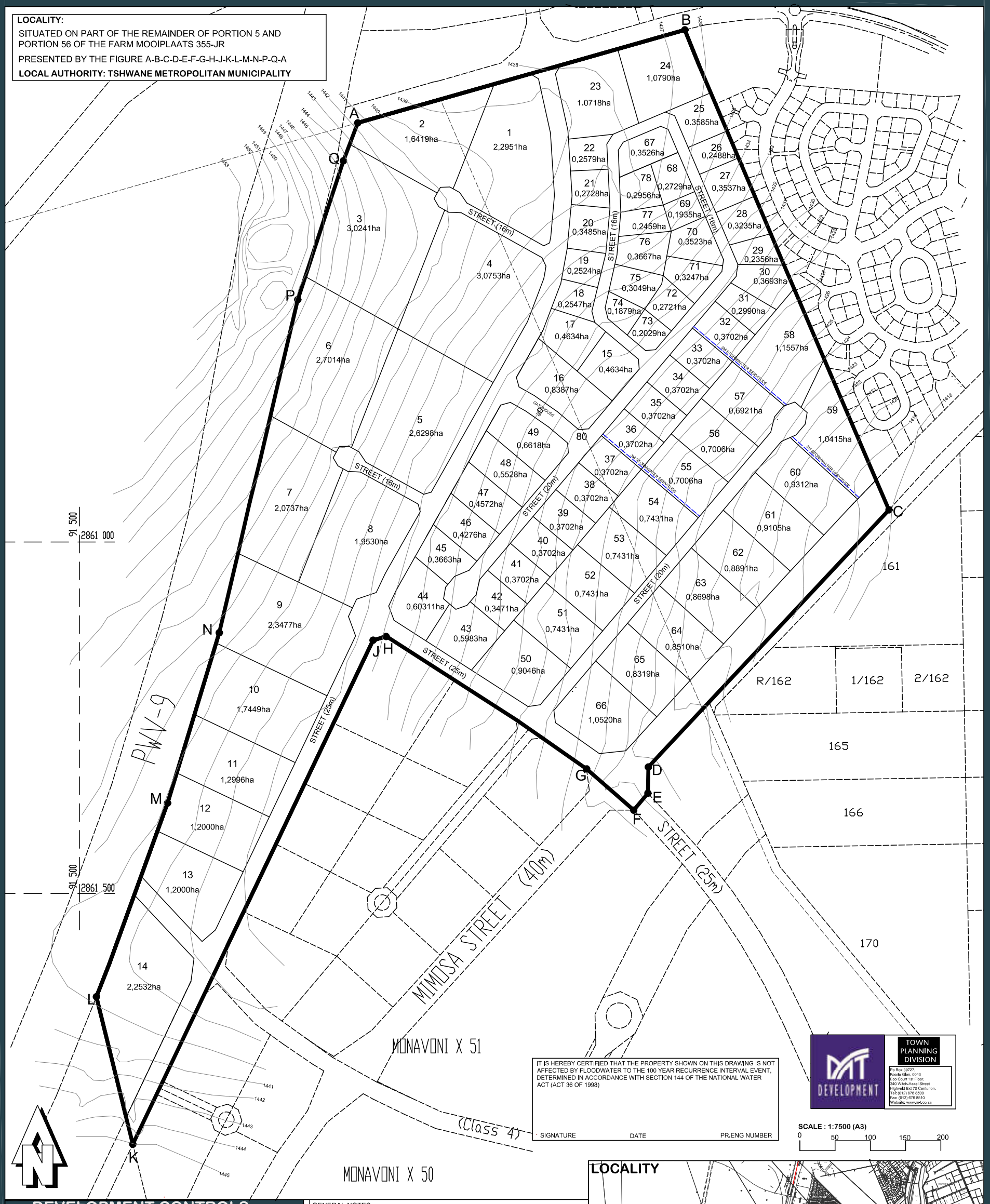
PROPOSED TOWNSHIP: MONAVONI EXTENSION 52

LOCALITY:

SITUATED ON PART OF THE REMAINDER OF PORTION 5 AND PORTION 56 OF THE FARM MOOIPLAATS 355-JR

PRESENTED BY THE FIGURE A-B-C-D-E-F-G-H-J-K-L-M-N-P-Q-A

LOCAL AUTHORITY: TSHWANE METROPOLITAN MUNICIPALITY



IT IS HEREBY CERTIFIED THAT THE PROPERTY SHOWN ON THIS DRAWING IS NOT AFFECTED BY FLOODWATER TO THE 100 YEAR RECURRENCE INTERVAL EVENT, DETERMINED IN ACCORDANCE WITH SECTION 144 OF THE NATIONAL WATER ACT (ACT 36 OF 1998)

SIGNATURE DATE PR.ENG NUMBER

DEVELOPMENT

TOWN PLANNING DIVISION

Po Box 39727,
Faerie Glen, 0043
Eco Court 1st Floor,
340 Witch-Hazel Street
Highveld Ext 70 Centurion.
Tel: (012) 676 8500
Fax: (012) 676 8510
Website: www.mt-t.co.za

SCALE : 1:7500 (A3)

0 50 100 150 200

DEVELOPMENT CONTROLS

ZONING	ERF No.	Q	AREA Ha	AVERAGE	%
INDUSTRIAL 2	1 - 49, 67 - 78	61	48.2758		
BUSINESS 2	50 - 66	17	14.5030		
SPECIAL FOR ACCESS CONTROL	79	1			
SPECIAL FOR ACCESS	80	1			
PUBLIC ROAD					
TOTAL		80	75.2765ha	n.a.	100,0

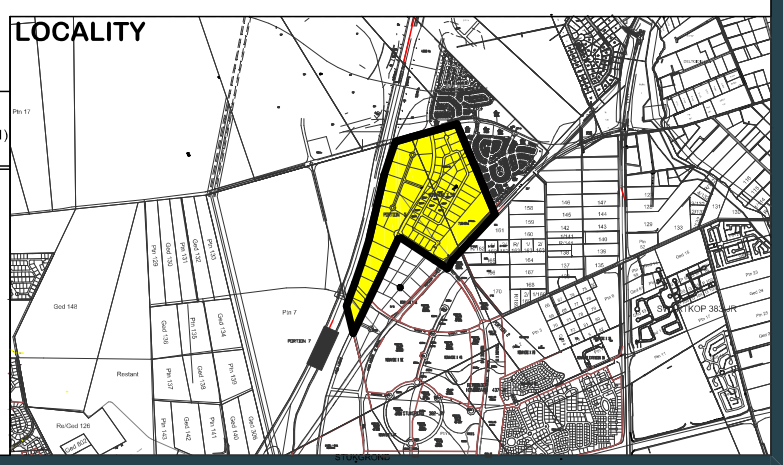
GENERAL NOTES

1) ALL DIMENSIONS ARE APPROXIMATE AND SUBJECT TO FINAL SURVEY
2) CONTOURS CONFORM TO THE STANDARDS LAID DOWN IN REGULATION 18(1) OF THE TOWN PLANNING AND TOWNSHIPS REGULATIONS

SERVITUDE NOTES:

PROPOSED SERVITUDES
1)
EXISTING SERVITUDE
1) ERF ___ IS AFFECTED BY A RIGHT OF WAY SERVITUDE (S.G. No. 1751/2001)

LOCALITY



Annexure F

NOTICE OF SCOPING EVIRONMENTAL IMPACT ASSESSMENT PROCESS

Notice is given of an application for a **Scoping Environmental Impact Assessment Process** that was submitted to the Gauteng Department of Agriculture and Rural Development, in terms of Regulation No. R543 published in the Government Notice No. 33306 of 18 June 2010 of the National Environment Management Act, 1998 (Act No. 107 of 1998) governing **Environmental Impact Assessment Procedures (Listing Notice: 1, 2 and 3 – Governing Notice R544, R545 & R546)** for the following activity:

Reference No: Gaut: 002/13-14/E0031

Project Name: Monavoni X 52

Property Description: Part of the Remainder of Portion 5 and Portion 56 (A Portion of Portion 8) of the farm Mooiplaats 355 JR.

Proposed Zoning Information: The proposed activity will entail the construction of a mixed use township and associated infrastructure with the following proposed land uses: "**Industrial 2"; "Business 2"; "Special" for access control and engineering services and "Special" for access.**

Listing Activities Applied for:

GNR 544 (Listing Notice 1), 18 June 2010	Activity 9, 13, 22, 23, 24, 26, 37, 47 & 56
GNR 545 (Listing Notice 2), 18 June 2010	Activity 15
GNR 546 (Listing Notice 3), 18 June 2010	Activity 4, 13, 14, 19 & 26

Proponent Name: R 209 Investments (Pty) Ltd

Location: The proposed township is located directly to the east of the proposed PWV9, to the west of the R55, the north of the M34 (Ruimte Road) and the N14, to the south of Mimosa Road, south west of Sunderland Ridge and to the east of Gardener Ross Golf Estate.

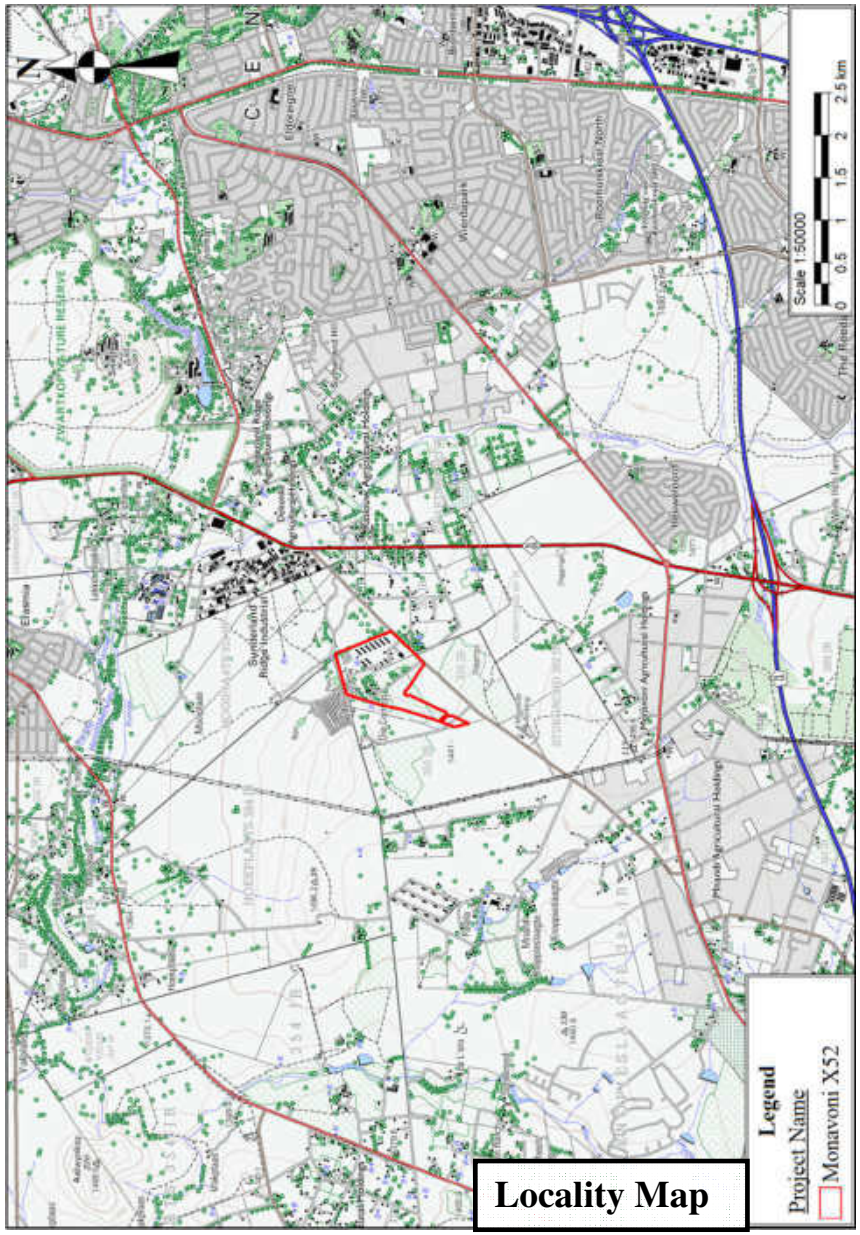
Date of Notice: 16 May – 25 June 2013

Queries regarding this matter should be referred to:

Bokamoso Landscape Architects and Environmental Consultants
Public Participation registration and inquiries: **Juanita De Beer**
Project inquiries: **Mientjie Coetzee**
P.O. Box 11375
Maroelana 0161
www.bokamoso.net
Tel: (012) 346 3810
Fax: (086) 570 5659
E-mail: lizelleg@mweb.co.za

In order to ensure that you are identified as an Interested and/or Affected Party (I&AP) please submit your name, contact information and interest in the matter, in writing, to the contact person given above **within 40 days of this Notice.**

Monavoni X 52



Locality Map

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Proponent Name: JR 209 Investments (Pty) Ltd

Listing Activities Applied: GNR 544 (Listing Notice 1), 18 June 2010 – Activity 9, 13, 22, 23, 24, 26, 37, 47 & 56. GNR 545 (Listing Notice 2), 18 June 2010 – Activity 15. GNR 546 (Listing Notice 3), 18 June 2010 – Activity 4, 13, 14, 19 & 26.

Location: The proposed township is located directly to the east of the proposed PWV9, to the west of the R55, the north of the M34 (Ruimte Road) and the N14, to the south of Mimosa Road, south west of Sunderland Ridge and to the east of Gardener Ross Golf Estate.

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Fax: (086) 570 5659
E-mail: lizelleg@mweb.co.za

In order to ensure that you are identified as an Interested and/or Affected Party (I&AP) please submit your name, contact information and interest in the matter, in writing, to the contact person given above **within 40 days of this Notice.**