APPROACH TO UNDERTAKING THE ENVIRONMENTAL SCOPING STUDY CHAPTER 3

An Environmental Impact Assessment (EIA) process refers to that process (dictated by the EIA Regulations) which involves the identification of and assessment of direct, indirect and cumulative environmental impacts associated with a proposed project. The EIA process comprises two phases: **Scoping Phase** and **EIA Phase**. The EIA process culminates in the submission of an EIA Report (including an environmental management plan (EMP)) to the competent authority for decision-making. The EIA process is illustrated below:

A Scoping Study for the proposed Steelpoort Integration Project has been undertaken in accordance with the EIA Regulations published in Government Notice 28753 of 21 April 2006, in terms of Section 24(5) of the National Environmental Management Act (NEMA; No 107 of 1998). This Scoping Study aimed at identifying potential issues associated with the proposed project, and defining the extent of studies required within the EIA. This was achieved through an evaluation of the proposed project, involving the project proponent, specialists with experience in EIAs for similar projects, and a consultation process with key stakeholders that included both relevant government authorities and interested and affected parties (I&APs). This chapter serves to outline the process which was followed during the Scoping Phase of the EIA process.

3.1. Objectives of the Scoping Process

This Scoping process aims to:

» identify and evaluate potential environmental (biophysical and social) impacts and benefits of all phases of the proposed development (including design, construction and operation) through a desk-top review of existing baseline data and specialist studies, and
» to provide the authorities with sufficient information in order to make a decision regarding the scope of issues to be addressed in the EIA process, as

well as regarding the scope and extent of specialist studies that will be required to be undertaken as part of the EIA Phase of the process.

Within this context, the objectives of this Scoping process are to:

» Clarify the scope and nature of the proposed activities and the reasonable and feasible alternatives to be considered within the EIA process;
» Ensure due consideration of alternative options in regard to the proposed development, including the 'do nothing' option.
» Identify and evaluate key issues associated with the proposed project and identify issues to be addressed in the Environmental Impact Assessment Phase of the EIA, through a process of broad-based consultation with stakeholders and desk-top specialist studies;
» Conduct an open, participatory and transparent public participation process and facilitate the inclusion of stakeholders' concerns regarding the proposed project in the decision-making process;

3.2. Legislation and guidelines that have informed the preparation of this report

The scope and content of this Draft Scoping Report has primarily been informed by the following legislation and guidelines:

» National Environmental Management Act (NEMA), Act 107 of 1998;
» EIA Regulations, published under Chapter 5 of the NEMA (GN R385, GN R 386 and GN R387 in Government Gazette 28753 of 21 April 2006);
» Guidelines published in terms of the NEMA EIA Regulations, in particular:
  * Guideline 3: General Guide to Environmental Impact Assessment Regulations, 2006 (DEAT, June 2006);
  * Guideline 4: Public Participation in support of the Environmental Impact Assessment Regulations, 2006 (DEAT, May 2006);
  * Guideline 5: Assessment of alternatives and impacts in support of the Environmental Impact Assessment Regulations, 2006 (DEAT, June 2006);

Several other Acts, standards or guidelines have also informed the scope of issues to be addressed in the EIA (particularly in terms of the scope and methodology of specialist studies). An initial listing of such legislation is provided in Table 3.1. A more detailed review of legislative requirements applicable to the specialist studies and this EIA process will be undertaken in the EIA phase.

Table 3.1: Initial review of relevant policies, legislation, guidelines and standards applicable to the Steelpoort Integration Project EIA

Legislation	Applicable Sections
Constitution of the Republic of South Africa (Act No 108 of 1996)	Bill of Rights (S2) Environmental Rights (S24) – i.e. the right to an environment which is not harmful to health and well-being Rights to freedom of movement and residence (S22) Property rights (S25) Access to information (S32) Right to just administrative action (S33)
National Environmental Management Act (Act No 107 of 1998)	Strategic environmental management goals and objectives of the government applicable throughout the Republic to the actions of all organs of state that may significantly affect the environment (S2) NEMA EIA Regulations (GN R385, 386 & 387 of 21 April 2006) (Chapter 5) Duty of Care (S28) requiring that reasonable measures are taken to prevent pollution or degradation from occurring, continuing or recurring, or, where this is not possible, to minimise & rectify pollution or degradation of the environment Procedures to be followed in the event of an emergency incident which may impact on the environment (S30)
National Heritage Resources Act (Act No 25 of 1999)	Stipulates assessment criteria and categories of heritage resources according to their significance (S7) Provides for the protection of all archaeological and palaeontological sites, and meteorites (S35) Provides for the conservation and care of cemeteries and graves by SAHRA where this is not the responsibility of any other authority (S36) Requires the compilation of a Conservation Management Plan as well as a permit from SAHRA for the presentation of archaeological sites as part of tourism attraction (S44)
Conservation of Agricultural Resources Act (Act No 43 of 1983)	Prohibition of the spreading of weeds (S5) Classification of categories of weeds & invader plants (Regulation 15 of GN R1048) Requirement to implement control

Legislation	Applicable Sections
	measures for alien and invasive plant species (Regulation 15E of GN R1048)
National Water Act (Act No 36 of 1998)	Duty of Care to prevent and remedy the effects of pollution to water resources (S19) Procedures to be followed in the event of an emergency incident which may impact on a water resource (S20)

3.3. Overview of the Environmental Scoping Process undertaken for the Proposed Steelpoort Integration Project

Key tasks undertaken within the environmental scoping process included:

» Consultation with relevant decision-making and regulating authorities
» Submission of a completed application form for authorisation in terms of Government Notice No. R.385 of 2006 to the competent authority.
» Undertaking of a public participation process throughout the Scoping process in accordance with the EIA Regulations in order to identify issues and concerns associated with the proposed project.
» Preparation of an Environmental Scoping Report and Plan of Study for EIA in accordance with the requirements of the EIA Regulations.
» Preparation of an Issues and Response Trail detailing key issues raised by I&APs as part of the EIA Process.

These tasks are discussed in detail below.

3.3.1. Authority Consultation and Application for Authorisation in terms of GN No R385 of 2006

As Eskom is a Statutory body (i.e. an Organ of State), the National Department of Environmental Affairs and Tourism (DEAT) will act as the relevant competent authority for this proposed project. As the project falls within the Limpopo Province, the Limpopo Department of Economic Development, Environment and Tourism (DEDET) will act as a commenting authority for the project. Consultation with these authorities has been undertaken throughout the Scoping process. This consultation has included the following:

» Pre-application consultation regarding the proposed project and the EIA process to be undertaken
» Submission of an application for authorisation to DEAT, with a copy submitted to DEDET. This application was approved and the reference number

12/12/20/866 allocated to the project. Authorisation was thus granted to continue with the Scoping Phase of the project.

» A consultation meeting with DEAT and DEDET towards the end of the Scoping Phase in order to discuss the proposed project, alternatives identified, public consultation process undertaken and the issues identified for consideration in the EIA process.

A record of all authority consultation undertaken within the Scoping Phase is included within Appendix A.

3.3.2. Notification of the EIA Process

In order to notify and inform the public of the proposed project and invite members of the public to register as interested and affected parties (I&APs), the project and EIA process was advertised in three local and one regional newspaper, as follows:

» Polokwane Observer: Thursday, 10 May 2007
» Steelburger: Friday, 11 May 2007
» Middelburg Observer: Friday, 11 May 2007
» City Press: Sunday 3 June 2007

A5 flyers (5 000 copies) containing the EIA process advertisement on the one side and a Registration Form on the other were distributed in the study area through the following means:

» Placement of flyers at Roosenekal Primary School, Steelpoort Primary School and Burgersfort Primary School
» Placement of flyers in post boxes at Roosenekal Post Office, Steelpoort Post Office and Burgersfort Post Office

In addition, site adverts were placed at various locations throughout the study area, i.e.:

» The steel bridge to Sekhukhune (well known landmark to communities in the area)
» The entrance to Tubatse Village
» Roosenekal Police Station and Post Office
» Burgersfort Police Station and Post Office
» Steelpoort Post Office
» Burgersfort Post Office
» Merensky Substation (fence next to the road)
» Office of Inspector Maluleka (representative for the King of Sekhukhune)

In addition to the above advertisements and notices, key stakeholders were notified in writing of the commencement of the EIA process, including:

» Municipalities which have jurisdiction in the area.
» The municipal councillors of the wards which are located within the study area
» Chiefs / Representatives of the various Tribal Authorities in the study area
» Business Organisations and mining companies in the study area
» Communities and potentially affected landowners
» Any organ of state having jurisdiction in respect of any aspect of the activity (e.g. DWAF, SAHRA, LHRA, etc).

Copies of the advertisements placed and notices distributed are contained in Appendix B of this report.

3.3.3. I&AP identification, Registration and the Creation of an Electronic Database

The first step in the public participation process was to identify key stakeholders and interested and/or affected parties (I&APs). This process was undertaken through existing contacts and databases, responses to site notices and newspaper advertisements, and networking. Stakeholder groups identified include:

» Provincial and local government departments (including DEAT, DEDET, SAHRA, DWAF, LHRA, District and Local Municipalities etc);
» Government Structures (including the Provincial Roads Authority, municipal planning departments, etc)
» Potentially affected and neighbouring landowners on all proposed alternative routes;
» Traditional authorities;
» Industry and mining;
» CBOs and other NGOs.

All I&AP information (including contact details), together with dates and details of consultations and a record of all issues raised have been recorded within a comprehensive database of affected parties (refer to Appendix C). While I&APs have been encouraged to register their interest in the project from the start of the process, following the public announcements (refer to 3.3.2), the identification and registration of I&APs will be ongoing for the duration of the EIA process. The project database will, therefore, be updated on an on-going basis throughout the project process, and will act as a record of the communication and involvement process.

3.3.4. Public Involvement and Consultation

The public involvement and consultation process during the scoping process was undertaken by **Afrosearch** in association with **Imaginative Africa**, specialist public participation consultants. This process was designed to provide sufficient and accessible information to I&APs in an objective manner to assist them to:

» raise issues of concern and suggestions for enhanced benefits and alternatives;
» assist the environmental specialist in identifying issues that needs to be assessed during the scoping phase; and
» verify that their issues have been captured

In order to provide information regarding the proposed project and the EIA process, a background information document (BID) for the project was compiled at the outset of the process (refer to Appendix D). The BID was distributed to all identified stakeholders and I&APs together with a map and a comment sheet inviting I&APs to register for the proposed project and submit details of any issues and concerns.

Through consultation with key stakeholders and I&APs, issues for inclusion within the issues-based scoping study were identified and confirmed. In order to accommodate the varying needs of stakeholders and I&APs within the study area, as well as capture their views, issues and concerns regarding the project, various opportunities were provided for I&APs to have their issues noted prior to the release of the Draft Scoping Report for public review, as follows:

» Focus group meetings
» One-on-one consultation meetings
» Telephonic consultation sessions
» Written, faxed or email correspondence

Table 3.2 below provides details of the focus group meetings held during the scoping phase of the public consultation process.

Table 3.2: Details of the focus group meetings held during the scoping phase of the public consultation process

Organisation	Date
Greater Tubatse Municipality	27 June 2007
Ndebele Traditional Authority	27 June 2007
Tribal Council Meeting	28 June 2007
Bahlakwana Ba Malekane Tribal Authority	29 June 2007
Mining Houses (Environmental Managers)	2 July 2007
Dithamaga Trust, potentially affected landowners	2 July 2007

Organisation	Date
Potentially affected landowners	2 July 2007
Mining House operating between Steelpoort and Burgersfort	3 July 2007
DWAF	4 July 2007
Mining House operating between Steelpoort and Burgersfort	9 July 2007
Phathane Tribal Authority	11 July 2007
Bahlakwana ba Rantho Tribal Authority	11 July 2007
Batlokwa Tribal Authority	11 July 2007
Tshehla Trust	11 July 2007
Roka Phasha Phokwane Tribal Authority	12 July 2007
Ba Bina Noko ba Mampuru Tribal Authority	12 July 2007

Networking with I&APs will continue through-out the duration of the EIA process. Records of all consultation undertaken are included within Appendix E.

A "landowner map" indicating the landowners identified and contacted during the public participation process for the project was compiled (refer to Appendix F). This map indicates the directly affected landowners identified and consulted on a one-to-one basis and these consulted telephonically.

3.3.5. Identification and Recording of Issues and Concerns

Issues and concerns raised by I&APs during the scoping process have been synthesised into the Issues and Response Report (refer to Appendix G). The Issues and Response Report includes responses from members of the EIA project team (and, in some cases, the project proponent) where possible. In general, the responses indicate how the issues will be addressed in the EIA process. In some cases, immediate responses and clarification are provided. Where issues are raised that the EIA team considers beyond the scope and purpose of this EIA process, clear reasoning for this view is provided.

3.3.6. Evaluation of Issues Identified through the Scoping Process

Potential direct, indirect and cumulative impacts associated with the proposed project identified within the scoping process have been evaluated through desk-top studies. In evaluating potential impacts, Savannah Environmental has been assisted by the following specialist team members:

Specialist	Area of Expertise
David Hoare of David Hoare Consulting cc	Flora, fauna and ecology
Chris van Rooyen of the Endangered Wildlife Trust	Avifauna
Garry Paterson of the Agricultural Research Council: Institute for Soil, Climate and Water	Agricultural potential

Specialist	Area of Expertise
Nonka Byker of MasterQ	Social Impact Assessment
Johnny van Schalkwyk of the National Cultural History Museum	Heritage Impact Assessment
Lourens du Plessis of MetroGIS	Visual Impact Assessment

In order to evaluate issues and assign an order of priority, it was necessary to identify the characteristics of each potential issue/impact:

» *the nature,* which includes a description of what causes the effect, what will be affected and how it will be affected;
» *the extent,* wherein it is indicated whether the impact will be local (limited to the immediate area or site of development) or regional

The evaluation of the issues resulted in a statement regarding the potential significance of the identified issues, as well as recommendations regarding further studies required within an EIA.

Specialist Scoping Reports are contained within Appendices H – M.

3.3.7. Public Review of Draft Scoping Report and Feedback Meeting

The draft Environmental Scoping Report was available for review from 10 August 2007 to 10 September 2007 at the following locations:

» Offices of Elias Motsoaledi Municipality
» Offices of Greater Tubase Municpality
» Offices of Makhuduthamaga Municipality
» SAPS Burgersfort
» SAPS Roossennekal
» Laerskool Roossennekal
» Laerskool Steelpoort
» www.savannahSA.com

In addition, copies of this report were provided to:

» Limpopo Department of Economic Development, Environment and Tourism
» Masha Mkotwane Tribal Authority
» Malekahe Tribal Council
» Phasha K.I. – Chief Councillor

Kgosi Malekane and Kgosi Phasha received the hard copy and a CD.

Comments were requested to be submitted to Afrosearch by 10 September 2007 as written submission via fax, post or e-mail. Limpopo Department of Economic Development, Environment and Tourism have indicated verbally that they have no comments on the draft Scoping Report. They have indicated that this will be confirmed in writing to DEAT.

In order to facilitate comments on the draft Environmental Scoping Report, a public meeting and key stakeholder workshop were held during the review period for the draft Scoping Report as follows:

» Key stakeholder workshop: 16 August 2007 at Pro Deo Conference Centre in Polokwane at 10:00 to 12:00
» Public feedback meeting: 18 August 2007 at the Steelpoort Primary School at 10:30 – 12:30

The availability and duration of the public review process and details of the public meeting were advertised in the City Press, Polokwane Observer, Steelburger and Middelburg Observer. In addition, all registered I&APs were notified of the availability of the report and public meeting by letter. Identified key stakeholders were personally invited to attend the key stakeholder workshop by letter (refer to Appendix B).

Minutes of the public meeting and key stakeholder meeting are contained in Appendix E.

Issues and concerns raised by I&APs during the Draft Scoping Report review period have been synthesised into an Issues and Response Report (refer to Appendix G). The Issues and Response Report includes responses from members of the EIA project team and/or the project proponent. In general, the responses indicate how the issues will be addressed in the EIA process, or clarification is provided.

3.3.8. Final Environmental Scoping Report

The final stage in the Scoping Phase has included the capturing of responses from I&APs on the Draft Scoping Report. This Final Scoping Report is the report on which the decision-making environmental Authorities provide comment, recommendations and acceptance to undertake the EIA Phase of the process.

This section of the Scoping Report provides a description of the environment that may be affected by the proposed Steelpoort Integration Project. This information is provided in order to assist the reader in understanding the possible effects of the proposed project on the environment. Aspects of the biophysical, social and economic environment that could be affected by, or could affect, the proposed development have been described. This information has been sourced largely from existing information available for the area, and aims to provide the overall context within which this EIA is being conducted. A more detailed description of each aspect of the affected environment is included within the specialist scoping reports contained within Appendices H – M.

4.1. Location of the Study Area and Property Description

The study area falls within jurisdiction of the Greater Tubatse Local Municipality, the Makhuduthamaga Local Municipality, and partially within the Elias Motsoaledi Local Municipality (previously known as the Greater Groblersdal Local Municipality). All three of these local municipalities form part of the Greater Sekhukhune District Municipality (refer to Figure 4.1), which falls within the Limpopo Province.

Figure 4.1: Greater Sekhukhune District Municipality (source: www.demarcation.org.za)

A number of properties are potentially affected by the proposed alternative transmission power line alignments. In accordance with the requirements of Section 16(2) of the NEMA EIA Regulations, potentially affected landowners have been given notice of the proposed activity and have been provided with the opportunity to participate within the EIA process.

This proposed site is located on Portion 7 of farm Luipershoek 149 JS and partly in Portion 1 of farm Luipershoek 149 JS. These properties are owned by Dr Enslin, a private landowner. The required letter of consent has been obtained from Dr Enslin, as required in terms of Regulation 16(1) of the NEMA EIA Regulations (refer to Appendix N).

4.2. Social Characteristics of the Study Area

The study area is located in a predominantly natural to rural environment (especially to the south) with increased settlements and industrial and mining activities towards the north (near the town of Steelpoort). Six municipal wards are located within the study area, of which 2 are located within the Greater Tubatse Local Municipality (GTLM; i.e. wards 28 and 29), 2 within the Makhuduthamaga Local Municipality (MLM; i.e. wards 6 and 13), and 2 within the Elias Motsoaledi Local Municipality (EMLM; i.e. wards 16 and 19). The following settlements are located within the study area:

» Kokwaneng, Mbelegane, Ga-Maepa, Maphopha, Mmaphoko, Mmaphoko and parts of Kokwaneng which fall within wards 28 and 29 of the GTLM.
» Patantswana, Lehlakong, Eenzaam and Mogashoa which fall within wards 6 and 13 of the MLM.
» Hlogotlou, Magukubjane, Ga-Phetla and Maré which fall within wards 16 and 19 of the EMLM.

Most of these settlements are located within the western part of the study area. Apart from two privately owned farms, the eastern part of the study area appears to be fairly desolate, i.e. little evidence was found to suggest the presence of settlements/communities within the area. A large portion of the eastern section of the study area falls within tribal land (i.e. land belonging to a Tribal Authority). Tribal Authorities identified through the public participation process include:

» Ndebele Traditional Authority (Chief Mahlangu)
» Bahlakwana Ba Malekane Traditional Authority (Kgosi Malekane)
» Phathane Tribal Authority (Kgosi Masha)
» Bahlakwana ba Rantho Tribal Authority (Kgosana Rantho)
» Batlokwa Tribal Authority (Kgosi Magolego)
» Tshehla Trust
» Roka Phasha Phokwane Tribal Authority (Kgosi Phasha)

» Ba Bina Noko ba Mampuru Tribal Authority (Kgosi Mampuru)

Overall the study area is largely poorly developed and characterised by poverty. This is evident in the high population density, low education levels, the very high unemployment rate, the low levels of household income, and the overall lack of proper municipal services in the area.

4.1.1. Demographic Profile

Table 4.1 provides an overview of the population demographics of the study area in relation to South Africa as a whole, the province and the district. From this table it is evident that there are more females than males in the study area, which might be ascribed to the migrant labour patterns in South Africa where the male moves to a different area in search of work. If this is the case, it can be assumed that these males are employed elsewhere and would therefore not be seeking work at the proposed project, and therefore the majority of work seekers within this area may be female.

4.1.2. Educational Profile

The bulk of the adult population within the study area have had no schooling, followed by a fairly large segment of the adult population who have completed some secondary schooling (refer to Figure 4.2).

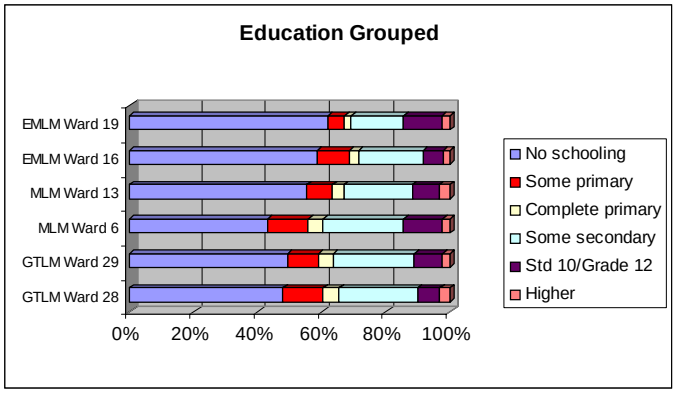

Figure 4.2: Educational profile (Grouped) for wards within the study area

The MLM Ward 6 (which includes the areas of Eenzaam, Lehlakong, and Phatantswane) appears to have the strongest educational profile in comparison with the other wards, i.e. fewer people within the adult population did not have any schooling, whilst more people have completed some secondary schooling, including Grade 12. Most people who have completed a higher education reside in ward 13 of the MLM and within ward 28 of the GTLM. However, these groups represent a very small segment of the adult population (3.4% for ward 13 and 2.3% in ward 28). These areas are therefore characterised by a predominantly unskilled female population.

Table 4.1: Summary of Population Characteristics

	South Africa	Limpopo Province	SDM	GTLM	Ward 28 GTLM	Ward 29 GTLM	MLM	Ward 6 MLM	Ward 13 MLM	EMLM	Ward 16 EMLM	Ward 19 EMLM
Area size (km²)	1 219 912	122 839 (10% of SA)	13 382 (10.9% of LP)	4 599 (34.4% of SDM)	16 (0.3% of GTLM)	72 (1.6% of GTLM)	2 097 (15.7% of SDM)	57 (2.7% of MLM)	59 (2.8%)	3 713 (27.7% of SDM)	95.5 (2.6% of EMLM)	64.2 (1.7% of EMLM)
Total population	47 390 900	4 994 326 (11% of SA)	967 144 (19.4% of LP)	270 116 (27.9% of SDM)	9 424 (3.5% of GTLM)	11 482 (4.3% of GTLM)	261 996 (27.1% of SDM)	9 163 (3.5% of MLM)	10 514 (4.0% of MLM)	221 638 (22.9% of SDM)	8 835 (4.0% of EMLM)	6 091 (2.8% of EMLM)
Population density (people per km²)	38.9	40.7	72.3	58.7	589.0	159.5	124.9	160.8	178.2	59.7	92.5	94.9
Total households	11 205 705	1 193 351	204 774	56 231	1 723	2 038	54 030	1 694	2 101	48 947	1 866	1 265
Avg. persons per household	4.0	4.2	4.7	4.8	5.5	5.6	4.9	5.4	5.0	4.5	4.7	4.8
Population group	Black African (79.5%)	Black African (97.0%)	Black African (99.1%)	Black African (99.0%)	Black African (99.9%)	Black African (99.9%)	Black African (99.9%)	Black African (99.9%)	Black African (100.0%)	Black African (98.9%)	Black African (99.9%)	Black African (99.9%)
Gender	Female (50.8%)	Female (54.3%)	Female (55.3%)	Female (55.0%)	Female (54.7%)	Female (56.3%)	Female (56.3%)	Female (56.0%)	Female (57.1%)	Female (55.1%)	Female (54.9%)	Female (55.8%)
Age Group	≤19 (42.6%)	≤19 (52.2%)	≤19 (55.0%)	≤19 (55.8%)	≤19 (56.6%)	≤19 (57.7%)	≤19 (56.0%)	≤19 (58.7%)	≤19 (56.9%)	≤19 (54.1%)	≤19 (60.7%)	≤19 (57.0%)

4.1.3. Economic Profile

The unemployment rate within the study area is estimated at an average of approximately 78% between the six affected wards. This is significantly higher than the national unemployment rate of approximately 45%.

The Municipal Demarcation Board (MDB) defines households who live in poverty as those households who have a household income of R18 000 or less per annum. The majority of households within the study can be classified as living in severe poverty, as a high proportion of households within all municipal areas have no annual income (i.e. 42.8% within the GTLM, 41.5% within the MLM and 37.9% within the EMLM; refer to Figure 4.3). The lack of education, employment and income in these areas further complicates upliftment and creates a down-spiral effect in terms of social well-being.

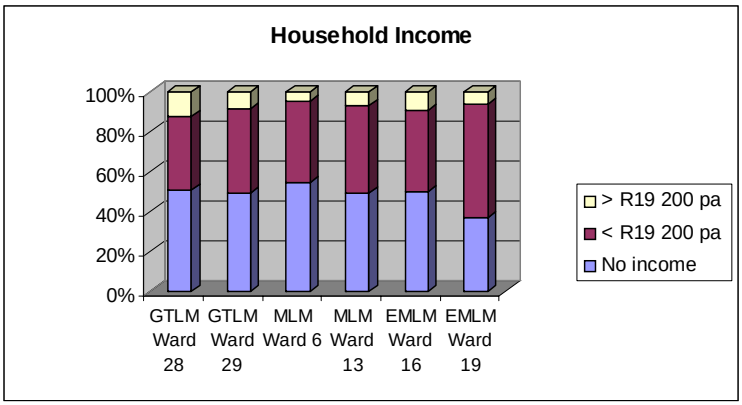

Figure 4.3: Overview of annual household income within the study area

The main land uses within the study area include residential, mining, communal and commercial agriculture, game farming (on a limited scale), local commercial enterprises, education; and sport and recreation. The main employment sectors within the are include agriculture, mining and commercial.

There are 18 proposed new mines within the GTLM, of which 11 are platinum mines, 6 are chrome mines and 1 a magnetite mine. These mines are all at various stages of planning and construction, which in turn leads to the prospect of residential expansion and growth for the existing residential townships in the area, of which Steelpoort and Burgersfort have been identified as the key areas for such development.

Tourism as an economic sector has not been fully exploited within the study area and lacks co-ordination. However, the SDM has developed a Tourism Strategy with the aim to unlocking the potential economic opportunities that tourism has to offer. Part of this strategy is the opportunities posed by the De Hoop Dam and the raising of the Flag Boshielo dam walls, which the SDM believes would boost

tourism opportunities in the area. The potential to develop tourism within the area is also identified within the GTLM IDP. It is, however, believed that tourism would not develop on its own, but that it should be developed through training and management.

4.1.4. Municipal Services and Infrastructure

The majority of households in the study area lack efficient municipal services infrastructure and delivery, which further impacts on the already poor living conditions and quality of life for most households in these areas.

Legislative Standards require that communities should have access to at least 20-30 litres per person per day of clean safe water, within a distance of 200 m from all households. This is not the case within the study area where up to 50% of households obtain their water from natural sources such as rivers, streams, groundwater and rainfall. Limited numbers of households have access to water from a public tap. In terms of sanitation, more than half of households make use of a pit latrine without ventilation, while approximately 25% of households have no access to any form of sanitation service. The latter raises the concern for general surface and groundwater pollution, especially in the areas where the majority of households are reliant on these water sources as their only means of water. Less than half of the households have access to electricity and use it mostly for lighting. Most households within the GTLM and MLM make use of wood for cooking and heating. Within the EMLM, coal is the dominant energy source for most households for cooking and heating. Close on two thirds of all households make use of their own refuse dump for waste removal, which further intensifies the concern for surface and groundwater pollution.

The R555 provincial road affords primary access to the area. This road extends the entire length of the valley (together with the Steelpoort River) and has formed a corridor or spine for linear development within the region. The R555 is currently being re-aligned to accommodate the construction of the proposed De Hoop Dam that will inundate a large section of the valley. Local villages are accessed mainly by means of gravel roads, most of which are considered to be poorly maintained.

4.1.5. Socio-Cultural Profile

From the various IDPs it could be deducted that a number of Tribal Authorities are still active in the area. Tribal Authorities within the study area identified through the public participation process include:

» Ndebele Traditional Authority (Chief Mahlangu)
» Bahlakwana Ba Malekane Traditional Authority (Kgosi Malekane)

- A portion of Tigerhoek 140JS
- A portion of Steelpoort Park 366KT
- A land claim on De Hoop 886KS
- Uitvlucht 887KS
- A portion of Steelpoortdrift 365KT

» Phathane Tribal Authority (Kgosi Masha)
- A portion of Aapjesboom 884KS
- A land claim on Belvedere 362KT

» Bahlakwana ba Rantho Tribal Authority (Kgosana Rantho)
- A land claim on Kennedy's Vale 361KT
- A portion of Steelpoort Park 336KT
- A land claim against De Hoop 886KS

» Batlokwa Tribal Authority (Kgosi Magolego)
- A portion of Steelpoort Park 366KT
- A portion of Aapjesboom 884KS

» Tshehla Trust
- A portion of Steelpoort Park 366KT

» Roka Phasha Phokwane Tribal Authority (Kgosi Phasha)
- De Goedverwachting 332KT
- Eerste Geluk 322KT

» Ba Bina Noko ba Mampuru Tribal Authority (Kgosi Mampuru)
- Mooimeisjesfontein 363KT
- Boschkloof 331 KT
- A land claim on De Goedeverwachting 332KT

The implication is that the area will have a rich cultural landscape with a strong sense of place present amongst communities.

The study area is known to be rich in cultural heritage and archaeological resources. Sites identified within the study area (refer to Figure 4.4) include those from the Stone Age[5], the Iron Age[6], and the historic period[7].

That Stone Age people occupied the Steelpoort valley is confirmed by the occurrence of stone tools dating to the Early, Middle and Late Stone Age. The majority of finds are classified as isolated surface occurrences, and mostly date to the Middle Stone Age. As these objects are open finds and not in their original position anymore, they are viewed as having a low significance.

[5] Early Stone Age 2 000 000 - 150 000 Before Present (BP); Middle Stone Age 150 000 - 30 000 BP; Late Stone Age 30 000 - until c. AD 200

[6] Period covering the last 1800 years. Early Iron Age AD 200 - AD 1000; Late Iron Age AD 1000 - AD 1830

[7] Since the arrival of the white settlers in this part of the country, i.e. c. AD 1840

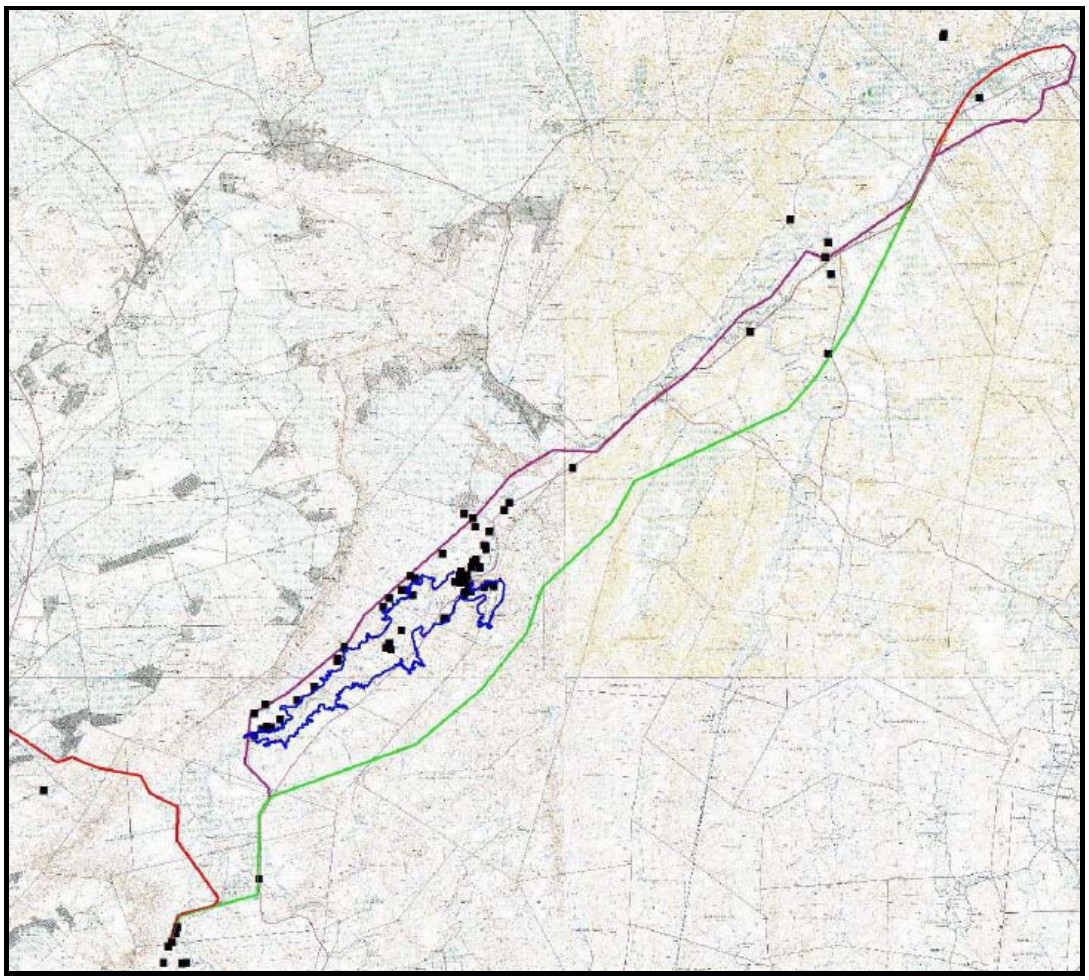

Figure 4.4: Distribution of known sites of heritage significance identified within the study area, in relation to the transmission power line route alternatives (n = 89) (Map courtesy of the Government Printer).

A few 'sealed' sites, i.e. in a cave or rock shelter are known in the region, some of them containing rock art. All the known Stone Age sites in the study area are currently viewed as being of *Grade III* significance[8]. As yet, no primary site occupied during Stone Age times have been identified within the study area.

Iron Age occupation of the study area seems to have taken place on a significant scale and at least three different phases of occupation have been identified. A large number of sites dating to the Early Iron Age are known to exist in the study area. Sites which have been identified and include pottery (thought to be dated around AD 600 – 900 and produced by the same group of people that produced the clay masks found near Lydenburg in the 1960s). Almost all the early sites occur on the alluvial soils close to the river, with the later ones at the foot of the

[8] Heritage resources worthy of conservation, and which must be assigned an appropriate level of grading by a heritage resources authority or a local authority in terms of the NHRA.

mountains, where stone was freely available to build structures with. All the Early and Late Iron Age sites currently known in the area are viewed to be of *Grade III* significance. As these sites are the only sources of evidence for the occupation of the area by early farming communities, they are considered to be important and are viewed to have a medium significance from a heritage perspective.

The last period of pre-colonial occupation consisted of Pedi-related and Swazi-speaking and Ndebele-speaking people that settled on stone-walled terraced sites at the foot on the mountains. Judged on the pottery found, such sites identified within the study area may date to early historic times. These sites are viewed to have medium significance from a heritage perspective due to the evidence they provide regarding population movement, conflict and change.

During the historic period, negotiations between the trekkers and the Pedi resulted in the Steelpoort River becoming the border between the two groups. Later, tension developed between the two groups, giving rise to armed conflict. One of the better known incidents is the so-called Sekhukhune Wars (1876, 1879). Sites dating to the historic period can be related to early farming, mining and missionary activities. Included with these are also a number of sites of "ethno-historical" significance, such as the tribal capitals of the different groups of Sotho- and Ndebele speakers living in the area. All the sites dating to historic times currently known in the area are viewed to be of *Grade III* significance.

The presence of such cultural and heritage sites within the study area accentuates the possibility of a strong sense of place, given the cultural landscape and the number of land claims in the area (refer to Appendix E). Land claims form part of South Africa's land restitution process, whereby individuals (or their descendants) and/or communities who were dispossessed of their land rights under the previous regime, now have the right to claim restitution against the State. However, as far as could be determined through the public participation process, it would appear as if land claims in the area are being made by one Traditional Authority against another Traditional Authority's land. In some instances more than one land claim has been lodged by two different Traditional Authorities or families against the same piece of land (De Hoop 886KS being a case in point).

4.3. Biophysical Characteristics of the Study Area

4.3.1. Geographical Profile

The study area comprises part of the valley of the Steelpoort River system, which varies in width from approximately 1 km to 8 km. The Steelpoort River passes through a largely modified environment, although there are some natural (unmodified) areas, particularly within the elevated and mountainous areas. To

the north, the vegetation is almost totally modified as a result of mining, agricultural and urbanisation activities, with few natural areas remaining (refer to Figure 4.5).

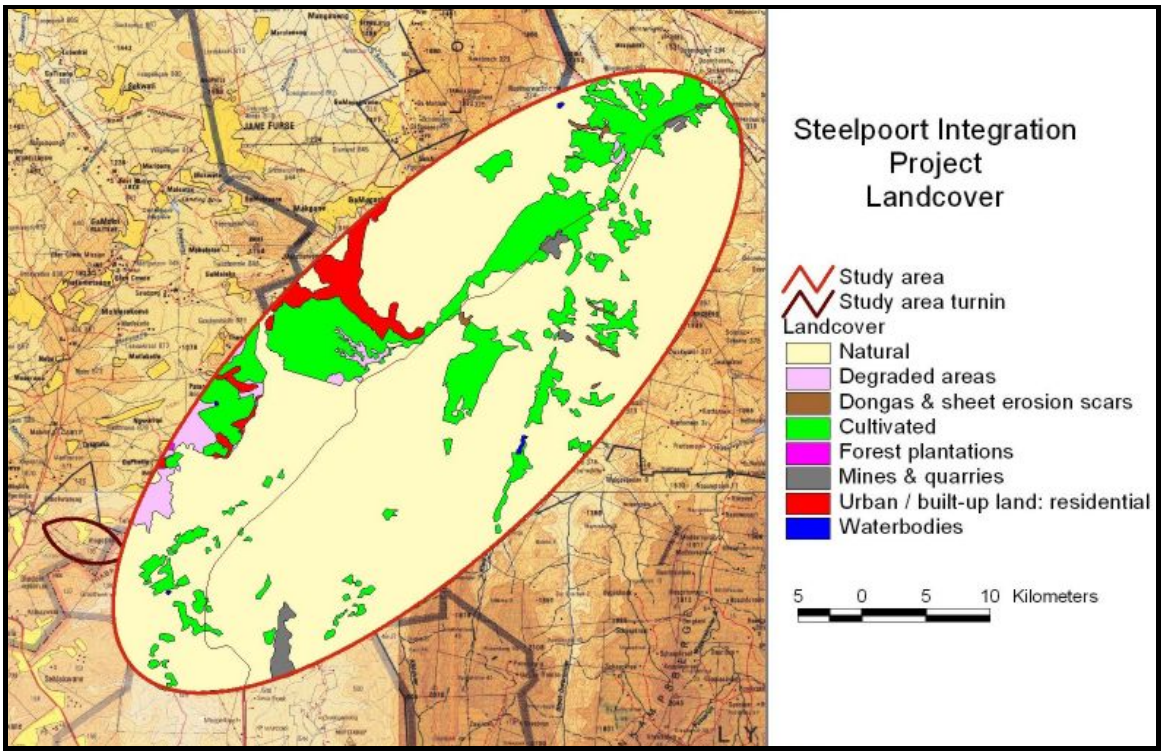

Figure 4.5: Landcover of the study area showing natural and transformed areas

The topography of the study area can be divided into three broad units, namely the Steelpoort River valley/floodplain as a central unit, the Nebo/Sekhukhune Mountains/Escarpment north of the valley and the mountains and hills south of the valley, ranging from 1 600 m above sea level within the higher areas to below 850 m in the lower lying areas. The Nebo/Sekhukhuneland plateau is characterised by a circular mountain range on its southern, eastern, and northern side.

The area falls within the rainfall shadow of the Drakensberg Escarpment, and is relatively more arid than the areas to the east, with annual rainfall in the region of 525 mm in the valley and up to 700 mm on the escarpment. The climate of the area can be regarded as typical of the Highveld, with cool to cold, dry winters and warm, moist summers (Koch, 1987). Average daily temperatures in the Steelpoort sub-catchment fluctuate between 19°C and 22°C in summer, and 13°C and 19°C in winter. Early morning frost generally occurs in low-lying areas. Prevailing winds blow in a north-westerly and south-easterly direction, with the strongest winds recorded during the summer months.

The Steelpoort River passes through the centre of the study area and is a major feature within the area. Tributaries of this river include the Klip, Dwars, Waterval and Spekboom Rivers.

The Steelpoort sub-catchment is characterised by predominantly basic rocks of the Bushveld Igneous Complex, with hornblende- and biotite-granite of the Lebowa Granite Suite in the south-west, and gabbro, norite, diorite, pyroxenite and anorthosite of the Rustenburg Layered Suite in the rest of the area (Geological Survey, 1984). Extensive mining reserves of the platinum group metals and ferrochrome reserves are present within the study area, which have given rise to extensive mining activities. The Steelpoort River valley is a relatively flat-bottomed and steep-sided valley, orientated in a predominantly north-easterly direction as a result of the Steelpoort Fault. Slopes in the river valley areas vary from 1% to around 5%, while the surrounding hills are much steeper, with cliffs that approach vertical in places, and general slopes of 30% to 100%.

The soils of the study area are covered by a total of eleven land types (refer to Figure 4.6). Soils vary from moderate to deep, to shallow, and have limited agricultural potential for the most part. As a result, irrigation agriculture is practiced in the study area, mainly along the Steelpoort River.

4.3.2. Ecological Profile

The study area falls entirely within the Steelpoort Subcentre of the Sekhukhuneland Centre of Plant Endemism (SCPE; van Wyk & Smith, 2001) (refer to Figure 4.67). The SCPE is considered important in terms of the wide variety and unique features of its flora and fauna. There are 58 endemic and approximately another 70 near-endemic plant taxa in Sekhukhuneland.

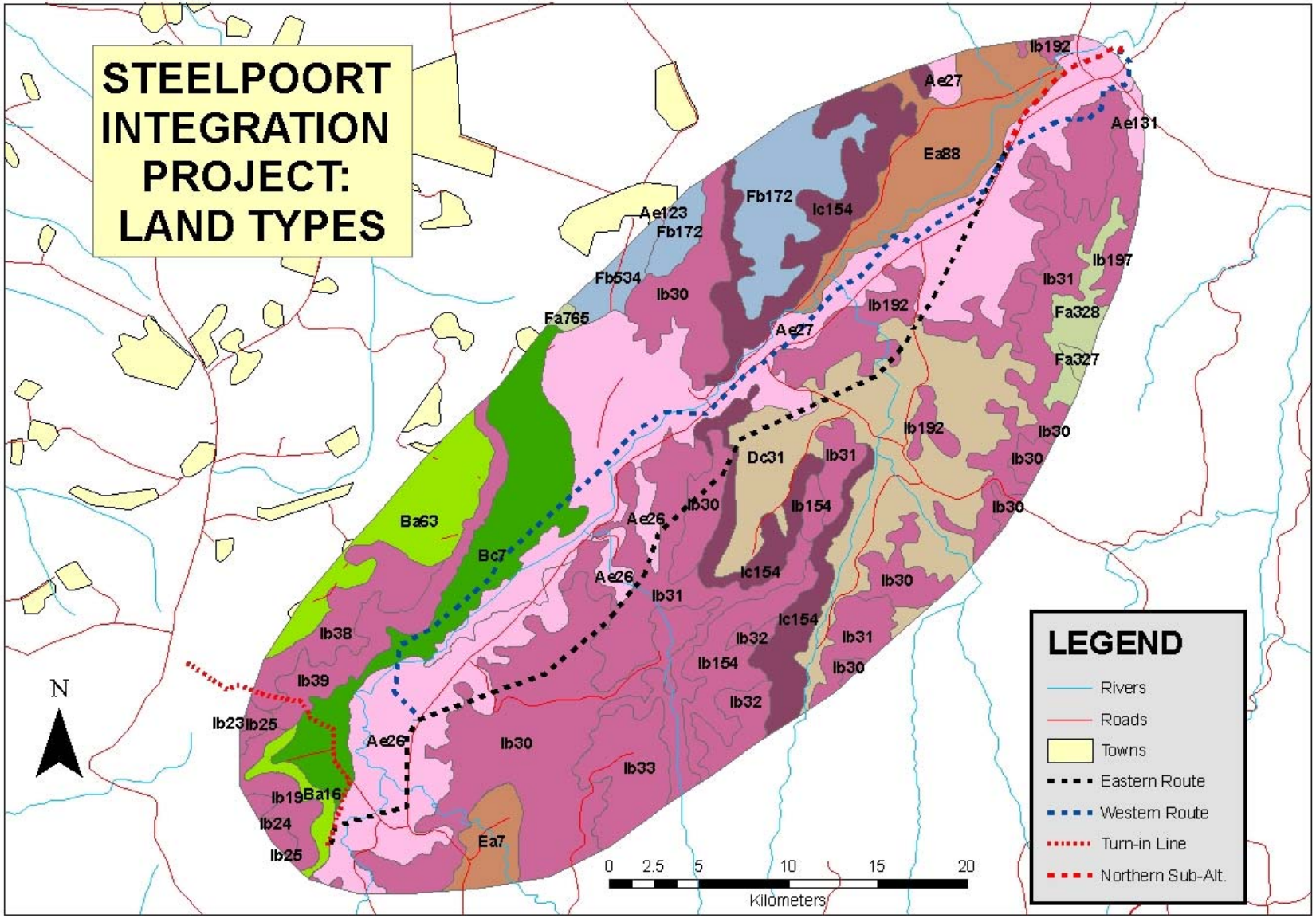

Figure 4.6: Land types identified within the study area (Ae26, Ae27 (red, high base status soils, usually deep); Bc7 (red, high base status soils with plinthic subsoils, usually deep); Dc31 (varied duplex and clay soils); Ea88 (structured, swelling clay soils); Ib30, Ib31, Ib38, Ib39, Ib192 (shallow soils with rock); Ic154 (rocky areas with little soil)

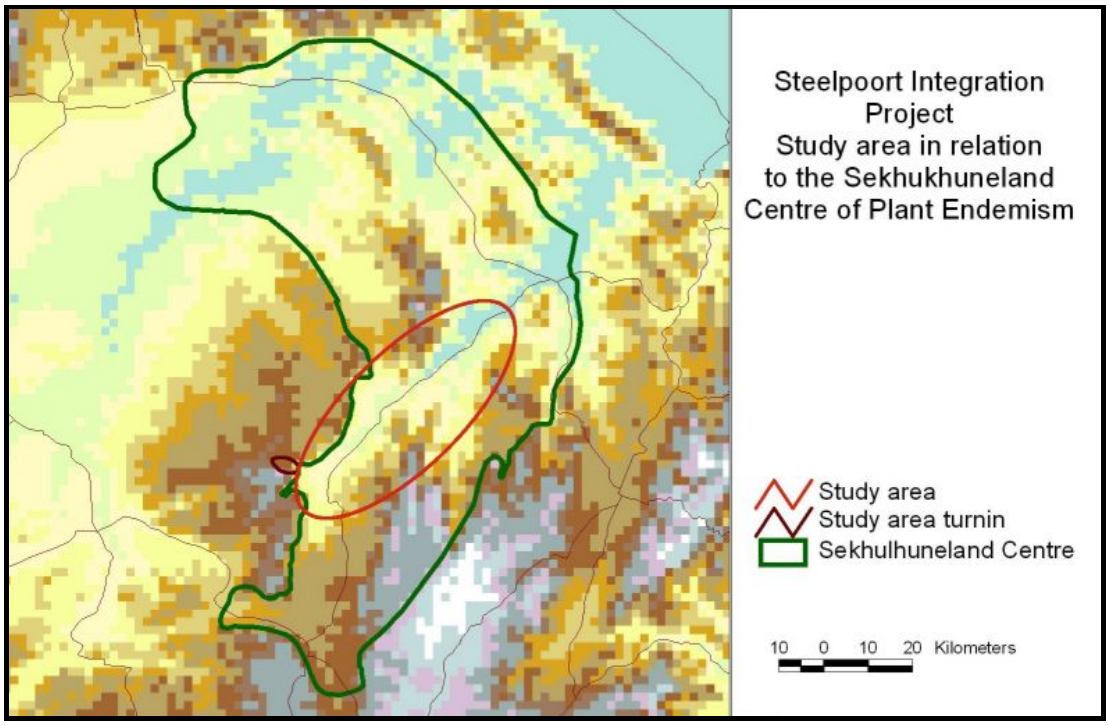

Figure 4.7: Relationship of the Sekhukhuneland Centre of Plant Endemism (SCPE) to the study area

The Steelpoort subcentre is the core region of the SCPE, extends over an area of approximately 2 600 km^2, and is a unique *Kirkia wilmsii*-dominated mountain bushveld. There are 86 SCPE endemics/near-endemics and 16 newly assessed Red Data List taxa in this subcentre. Twenty taxa are endemic to this centre and occur nowhere else.

The study area falls within parts of both the Savanna and Grassland Biomes (Rutherford & Westfall 1986). A number of vegetation types occur in the study area and immediate surroundings (refer to Figure 4.8), including Sekhukhune Mountain Bushveld, Sekhukhune Plains Bushveld, Sekhukhune Montane Grassland, Rand Highveld Grassland and Central Sandy Bushveld. Table 4.2 below provides a summary of the conservation status of the vegetation types which occur within the study area (Driver *et al*., 2005 and Mucina *et al*., 2005).

Table 4.2: Conservation status of different vegetation types occurring in the study area

Vegetation Type	Target (%)	Conserved (%)	Transformed (%)	Conservation status
Rand Highveld Grassland	24	1	49	Endangered
Sekhukhune Mountain Bushveld	24	0.4	15	Least Threatened
Sekhukhune Plains Bushveld	19	2	25	Vulnerable
Sekhukhune Montane Grassland	24	0	30	Vulnerable
Central Sandy Bushveld	19	<3	24	Vulnerable

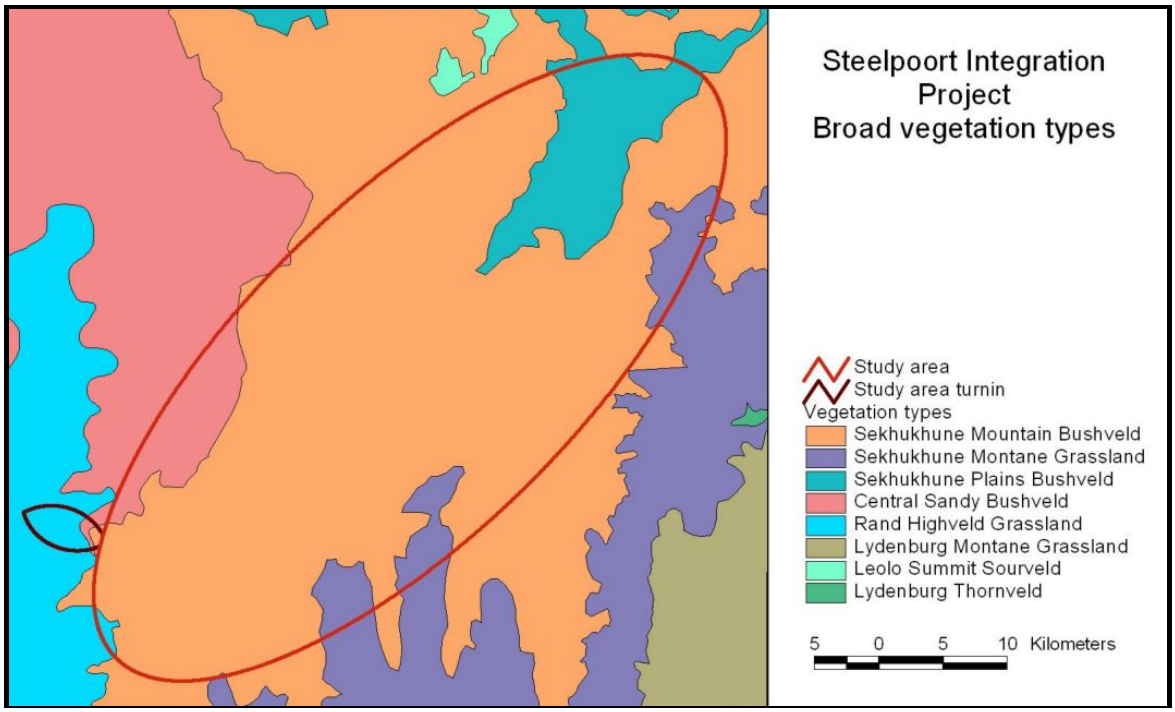

Figure 4.8: Vegetation types of the study area and immediate surroundings showing the study area

The plant communities of the Sekhukhune region have been studied and described in detail by Stefan Siebert (Siebert 2001, Siebert *et al*., 2001, 2002, 2003). The objectives of these studies were to identify, classify and describe the various plant communities in Sekhukhuneland in order to obtain a better knowledge of the plant diversity of the region (Siebert *et al*., 2003). The vegetation of the SCPE can be broadly described as mountain bushveld that forms a mosaic with moist grassland in the south and semi-arid bushveld in the north. A characteristic feature of the entire region is the scattered rocky outcrops within this region of undulating hills and mountains. Siebert *et al*. (2002) describe six major vegetation formations in the SCPE as follows:

1. *Acacia tortilis-Dichrostachys cinerea* Northern Dry Mixed Bushveld
2. *Kirkia wilmsii-Terminalia prunelliodes* Closed Mountain Bushveld
3. *Combretum hereorense-Grewia vernicosa* Open Mountain Bushveld
4. *Hippobromus pauciflorus-Rhoicissus tridentata* Rock Outcrop Vegetation
5. *Themeda triandra-Senecio microglossus* Cool Moist Grasslands
6. *Fuirena pubescens-Schoenoplectus corymbosus* Wetland Vegetation

Four of these vegetation types are found within the study area (refer to Figure 4.9).

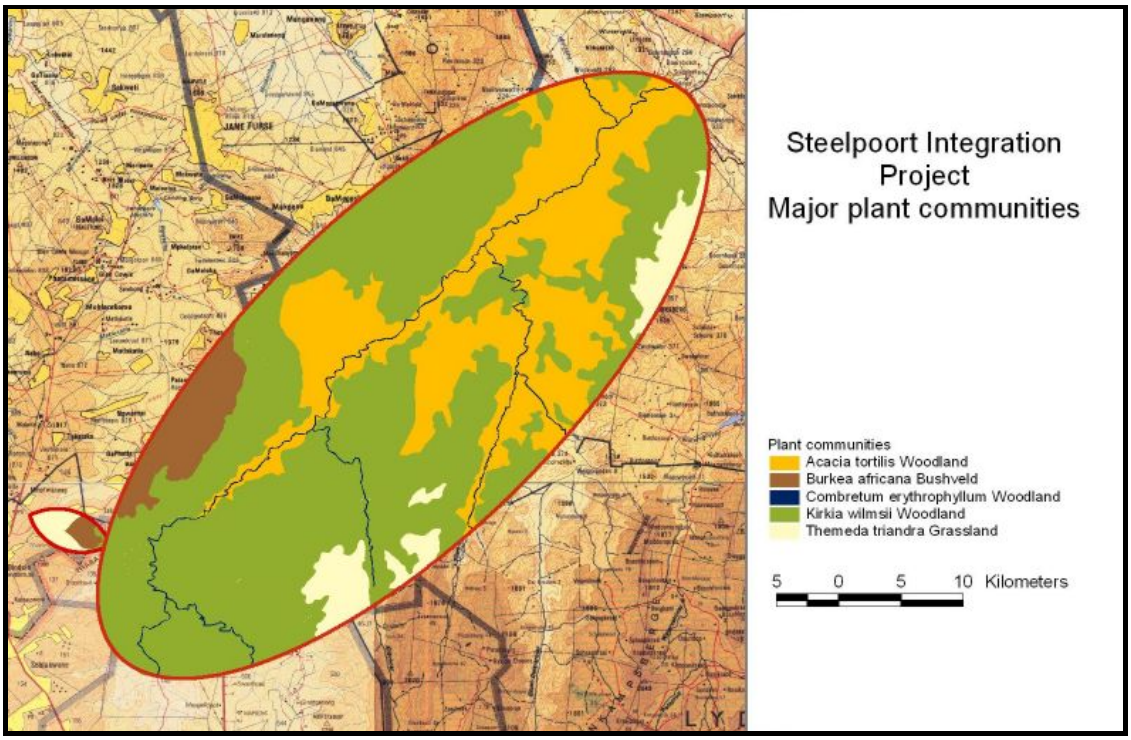

Figure 4.9: Major plant communities of the study area and immediate surroundings

According to the South African National Biodiversity Institute and other literature sources, 36 species of special concern occur within the SCPE. Of these, three are listed as Critically Endangered, three as Endangered, twelve as Vulnerable, six as Near Threatened and five as Data Deficient. There were also seven species listed as Least Concern, but either Rare or Declining. Some of these species are also endemic to the SCPE. There are an additional ten species that are not considered to be threatened, but are endemic to the SCPE. Numbers of species of special concern which, as a result of habitat preferences, are most likely to be found in the study area are listed within Table 4.3.

Table 4.3: Number of plant species of special concern that are likely to occur in the different plant communities found in the study area

Plant community	No of threatened plant species
Acacia tortilis-Dichrostachys cinerea Northern Dry Mixed Bushveld	4 species (1 EN)
Kirkia wilmsii-Acacia caffra Mountain Bushveld	23 species (2 CR, 2 EN, 6 VU)
Themeda triandra-Senecio microglossus Cool Moist Grasslands	12 species (1 CR, 2 VU)
Burkea africana-Combretum apiculatum Open Mountain Bushveld	6 species
Combretum eryhtrophyllum-Celtis africanus Riparian Woodland	2 species (1 VU)

According to existing literature sources, there are a number of faunal species of special concern which may occur within the study area, including 13 Red List mammal species, 3 Red List reptile species, 1 Red List amphibian species and one Red List freshwater fish species. Numbers of species of special concern which, as a result of habitat preferences, are most likely to be found in the study area are listed within Table 4.4.

Table 4.4: Number of animal species of special concern that are likely to occur in the different plant communities found in the study area

Plant community	No of threatened animal species
Acacia tortilis-Dichrostachys cinerea Northern Dry Mixed Bushveld	8 species (8 mammals)
Kirkia wilmsii-Acacia caffra Mountain Bushveld	12 species (9 mammals, 3 reptiles)
Themeda triandra-Senecio microglossus Cool Moist Grasslands	6 species (6 mammals)
Burkea africana-Combretum apiculatum Open Mountain Bushveld	7 species (7 mammals)
Combretum eryhtrophyllum-Celtis africanus Riparian Woodland	8 species (6 mammals, 1 amphibian, 1 fish)

The number of threatened plants and animals which may occur in the study area, and their particular habitat preference has been used to in the classification of the study area into different sensitivity classes (refer to Appendix H for a detailed description of this sensitivity analysis). A map of the sensitivity and conservation value of the different parts of the study area is shown in Figure 4.10, which shows the distribution of areas in different sensitivity classes (very low, low, medium, high, very high) relative to the proposed infrastructure.

Ten power line sensitive bird species of special concern could potentially occur within the study area on the basis of the habitats which are available. Of these, 4 are listed as 'vulnerable', 4 are listed as 'near threatened' and 2 are listed as 'endangered'. Potential bird habitats observed within the study area include wetlands and river systems, arable lands, woodland, mountains and escarpment and urban developments. A future potentially significant habitat within the study area is the De Hoop Dam, which is currently under construction.

An offsite mitigation area for the Olifants River Water Resources Development Project, Phase 2A (which includes the construction of the De Hoop Dam) has recently been proclaimed within the study area (refer to Figure 4.11) as a controlled forest area in terms of the National Forests Act (No 84 of 1998) (Refer to GN 619 of 11 July 2007, attached within Appendix O). This area is 5 370 ha in extent, and consists largely of mixed modified and unmodified (natural) Bushveld. In terms of this Notice, any activities which may cause deforestation are prohibited.

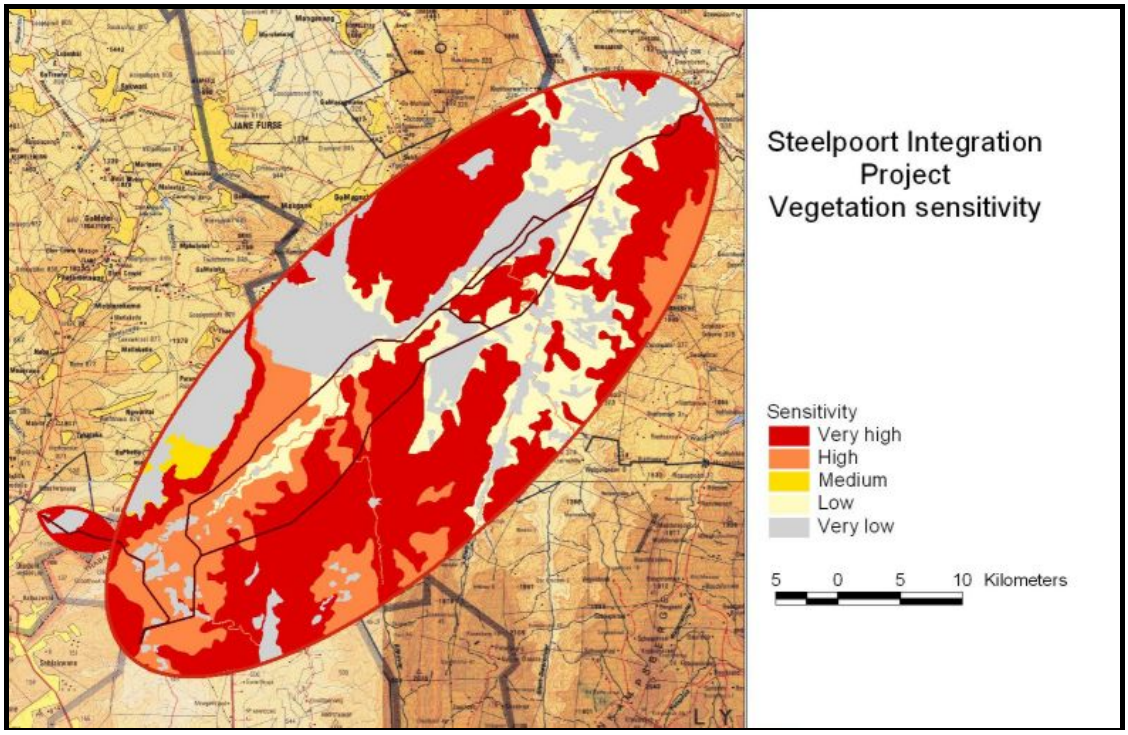

Figure 4.10: Habitat sensitivity / conservation value of the study area

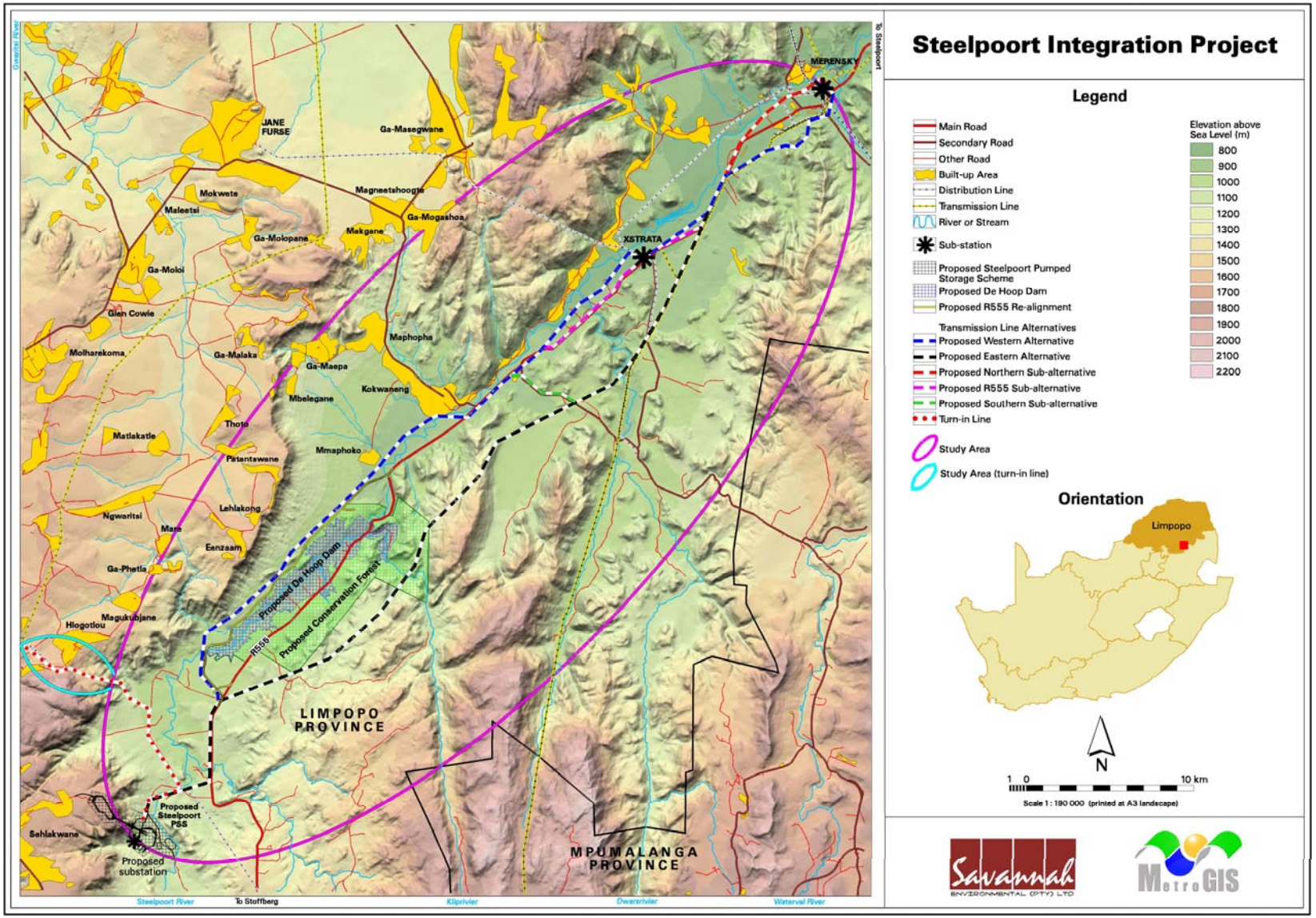

Figure 4.11: Proclaimed offsite mitigation area for the Olifants River Water Resources Development Project, Phase 2A