
-REPORT-

**PROPOSED CONSTRUCTION OF A NEW 2 x 400
kV POWER LINE BETWEEN THE ETNA
SUBSTATION (NEAR ENNERDALE) AND THE
GLOCKNER SUBSTATION (NEAR ROTHDENE),
GAUTENG PROVINCE**

SOCIAL IMPACT ASSESSMENT

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1. INTRODUCTION

1.1 Background to the Proposed Project

Eskom Transmission has indicated that there is an increased need for electricity in the Vaal/West Rand area and that this increased need has to be urgently addressed. The investigations done by Eskom specified that there is an increased load demand at the Taunus Substation, which supplies Soweto and the surrounding area with electricity. The increase in load build-up resulted in a significant increase in the amount of power flowing from Lethabo Power Station to the Etna Substation via the Eiger and Brenner Substations. The analysis therefore indicated that it will be feasible to construct a new 400 kV Transmission power line from which power from Lethabo Power Station could be delivered to Etna Substation and transferred to Glockner Substation¹.

The Social Impact Assessment (SIA), that forms part of the Environmental Impact Assessment, therefore focuses on the social impacts of the proposed new 400 kV double circuit Transmission power line to be constructed between Etna and Glockner Substations.

1.2 Alternative Route Alignments²

Three alternative routes/alignments or corridors were identified where the proposed double circuit Transmission power line could be built. These are:

1.2.1 Alternative Route 1

This route alignment runs from the Glockner Substation near Rothdene in a westerly direction parallel to existing lines up to Jacobskop. Here the line turns north from the existing lines. There is a vacant servitude where the route runs parallel to other existing power lines from Glockner to Jacobskop.

The route then traverses the following agricultural holdings until it reaches Etna Substation in the north:

- Steelview Agricultural Holdings;
- Dreamland Agricultural Holdings;
- Annaton;
- Vlakfontein;
- Ironside Agricultural Holdings;
- Debonair Park;
- Kanana;
- Sweetwaters;
- Hartebeesfontein; and

¹ Background Information Document: November 2006

² Final Scoping Report: March 2007

- Unaville Agricultural Holdings

1.2.2 Alternative Route 2

From Glockner Substation the route goes just north of the Ironside Agricultural Holdings where it proceeds straight between the Homestead Apple Orchards Agricultural Holdings and Althea Agricultural Holdings. The route then goes through Spioenkop, Cyferfontein up to Elandsfontein where it turns west through Sunshine Valley and Sunrise Farm up to Etna Substation. There is a vacant servitude from Cyferfontein through Sunshine Valley and Sunrise Farm.

1.2.3 Alternative Route 3

Starting from Glockner Substation, the route runs in a northerly direction parallel the existing power lines. It then pass to the east of the Vereeniging Aerodrome up to Road R551 where it turns left/west and goes through De Deur Estates, The Reeds, west of Walker's Fruit Farms Agricultural Holdings, Walkerville manor and turns left/west at Harsenbergfontein, and goes straight to join route 2 at Elandsfontein and subsequently up to Etna Substation.

1.3 Definition of a Social Impact Assessment

Burdge (1995) describes a Social Impact Assessment as the "... systematic analysis in advance of the likely impacts a development event (or project) will have on the day-to-day life (environmental) of persons and communities." A SIA therefore attempts to predict the probable impact of a development (before the development actually takes place) on individuals and communities, by:

- Appraising the social impacts resulting from the proposed project;
- Relating the assessed social impacts of the project to future changes in the socio-economic environment that are not associated with it. This would serve to place the impacts of the project into context;
- Using the measurements (rating) to determine whether the impacts would be negative, neutral or positive;
- Determining the significance of impacts; and
- Proposing mitigation measurements.

The utility of an SIA as a planning tool is immediately clear, in that it can assist the project proponent to conceptualise and implement a project in a manner which would see the identified negative social impacts addressed through avoidance or mitigation and the positive impacts realised and optimised. It would also allow the community to anticipate and plan for and deal with the social changes once they come into effect. In this sense then, the SIA is an indispensable part of the Environmental Impact Assessment, Environmental Management Plan and any participative activity (e.g. community involvement in mitigation and monitoring during planning and implementation).

1.4 Methodology

1.4.1 Secondary Data Gathering

Secondary data, which was not originally generated for the specific purpose of the study, were gathered and analysed for the purposes of the study. Such data included the Midvaal IDP, the Emfuleni IDP and the Johannesburg Spatial Development Framework.

1.4.2 Consultation

A site visit was undertaken to familiarise the consultants with the area and obtain relevant information regarding the social characteristics of the area. The input received from the public participation process undertaken as part of the Environmental Impact Assessment highlighted the perceptions of Interested and Affected Parties (I&APs) and information received through this process was therefore also used as data for this study. Interviewing of ‘key’ persons also formed part of the research process

1.5 Evaluation Framework

1.5.1 Variables

The following variables are typically assessed³ as part of the Social Impact Assessment:

- Population impacts;
- Community/institutional arrangements;
- Conflicts between local residents and newcomers;
- Individual and Family level impacts;
- Community infrastructure needs; and
- Intrusion impacts.

For the purpose of assessing the impacts associated with the proposed project, the above variables were adapted to allow for the assessment of the full range of social impacts relevant for this project. These variables would be related to the construction and operational phases of the proposed project.

1.5.2 Rating

To ensure uniformity across the various specialist studies and to facilitate comparison of impacts, the following rating approach was used as per instruction by Naledzi Environmental (lead consultant). The significance ratings are based on largely objective criteria and inform decision-making at a project level as opposed to local community level. In some instances, therefore, whilst the significance rating of

³ Burdge, R.J. A Community Guide to Social Impact Assessment

potential impacts might be “low” or “very low”, the importance of these impacts to local communities or individuals might be extremely high. The importance which I&APs attach to impacts will be taken into consideration, and recommendations will be made as to ways of avoiding or minimising these negative impacts through project design, selection of appropriate alternatives and / or management

Each potential impact was assessed in terms of the following criteria:

- **Extent:** This defines the physical extent or spatial scale of the impact. The ratings of local (extending only as far as the activity, limited to the site and its immediate surroundings), regional (Gauteng Province) and national (South Africa) were used.
- **Duration:** This refers to the time-scale of the impact, indicating whether the impact is anticipated to prevail in the short-term (0-5 years); medium-term (5-15 years), long-term (> 15 years/where the impact will cease after the operational life of the activity, either because of natural processes or by human intervention) or permanent (where mitigation either by natural processes or by human intervention will not occur in such a way or in such time span that the impact can be considered transient).
- **Intensity:** This establishes whether the impact would be destructive or benign. The ratings of low (where the impact affects the environment in such a way that natural, cultural and social functions and processes are not affected), medium (where the affected environment is altered, but natural, cultural and social functions and processes continue, albeit in a modified way) and high (where natural, cultural and social functions or processes are altered to the extent that it will temporarily or permanently cease) were used.
- **Significance:** The significance rating attempts to evaluate the importance of a particular impact, and in doing so incorporates the three above scales (i.e. extent, duration and intensity). The ratings of unknown, not applicable, very low, low, medium, high and very high were used.

Rating	Description
Unknown	In certain cases it may not be possible to determine the significance of an impact
Not applicable	Impacts with: Zero intensity with any combination of extent and duration
Very Low	Impacts could be either: of low intensity at a local level and endure in the medium term, or of low intensity at a regional level and endure in the short term; or of low to medium intensity at a a local level and endure in the short term.
Low	Impacts could be either: of low intensity at a regional level and endure in the medium term, or of low intensity at a national level and endure in the short term; or of high intensity at a local level and endure in the short

Rating	Description
	term or of medium intensity at a regional level and endure in the short term; or of low intensity at a local level in the long term; or of medium intensity at a local level and endure in the medium term.
Medium	Impacts could be either: of high intensity at a local level and endure in the medium term, or of medium intensity at a regional level and endure in the medium term; or of high intensity at a regional level and endure in the short term or of medium intensity at a national level and endure in the short term; or of medium intensity at a local level in the long term; or of low intensity at a national level in the medium term; or of low intensity at a regional level and endure in the long term.
High	Impacts could be either: of high intensity at a regional level and endure in the medium term, or of high intensity at a national level and endure in the short term; or of medium intensity at a national level and endure in the medium term or of low intensity at a national level and endure in the long term; or of high intensity at a local level in the long term; or of medium intensity at a regional level and endure in the long term.
Very High	Impacts could be either: of high intensity at a regional level and endure in the long term, or of high intensity at a national level and endure in the medium term; or of medium intensity at a national level and endure in the long term.

- Additional criteria that were considered, which could “increase” the significance rating, are the following:
 - ❖ Permanent / irreversible impacts (as distinct from long-term, reversible impacts);
 - ❖ Potentially substantial cumulative effects; and
 - ❖ High level of risk or uncertainty, with potentially substantial negative consequences.
- **Status of impact:** The status of an impact is used to describe whether the impact will have a negative, positive or zero effect on the affected / receiving environment. An impact may therefore be negative, positive (or referred to as a benefit) or neutral.
- **Probability:** This describes the likelihood of the impact occurring. The ratings of *improbable* (where the possibility of the impact to materialize is very low either because of design or historic experience), *probable* (where there is a distinct possibility that the impact will occur), *highly probable* (where it is most likely that the impact will occur) and *definite* (where the impact will occur regardless of any prevention measures) were used.
- **Degree of confidence:** This indicates the degree of confidence in the impact predictions, based on the availability of information and specialist knowledge.

High refers to greater than 70% sure of impact prediction, *medium* refers to between 35% and 70% sure of impact prediction and *low* refers to less than 35% sure of impact prediction.

The core criteria for determining significance ratings are “extent”, “duration” and “intensity”.

The relationship between the significance ratings after mitigation and decision-making can be broadly defined as follows:

Significance Rating	Effect on decision-making
Very Low / Low	Will not have an influence on the decision to proceed with the proposed project, provided that recommended measures to mitigate negative impacts are implemented.
Medium	Should influence the decision to proceed with the proposed project, provided that recommended measures to mitigate negative impacts are implemented.
High / Very High	Would strongly influence the decision to proceed with the proposed project.

2. SOCIAL CHARACTERISTICS OF THE AREA

Each community is unique as it is shaped by its social networks, cultural influences, values and norms, politics and the infrastructure in the area. The report therefore provides an overview of the social characteristics of the area in order to determine its current capacity and its ability to manage change.

2.1 General description of the study area

The study area consists of various smallholdings and informal as well as formal settlements. Agricultural holdings include the bigger Walkerville area (comprising various clusters of agricultural holdings and estates), the De Deur area, as well as the Steelview, Ironside, Dreamland, and Unaville Agricultural holdings. Various settlements are scattered throughout the area, as noted under section 2.2.

Walkerville is approximately 35km south of Johannesburg in the Gauteng Province. This area was established by Mr. Arthur Walker who bought some farms in the area. He planted half a million apple trees in the area now known as the Homestead Apple Orchards and Walker’s Fruit Farms. The Southern Christian Fellowship is also now housed in the former apple cider factory built by Mr. Walker.

In the 1930’s Mr Walker also established the Ohenimuri (an apple variety) Golf and Country Club which is still a prominent feature in the area. Two prominent koppies in the area, namely Spioenkop and Perdeberg, are the focal points of the cultural and natural heritage in the Walkerville area.

The western part of the study area is characterised by more densely populated settlements such as Orange Farm, Evaton, Weilers Farm, Vlakfontein, Ennerdale and Lenasia. The establishment of these areas is typical of the historical settlement patterns where separate residential areas were set aside for different racial groups. Some of these settlements or residential areas still require considerable investment in infrastructure and environmental upgrading.

2.2 Jurisdiction

The study area falls within the jurisdiction of the Sedibeng District Municipality and the City of Johannesburg Metropolitan Municipality. The two relevant municipalities under the Sedibeng District Municipality's jurisdiction are the Midvaal Local Municipality and the Emfuleni Local Municipality. The northern sections of the study area (where Etna Substation is located) includes Ennerdale, Lenasia and Orange Farm, which falls under Region G of the City of Johannesburg Metropolitan Municipality. Other sections in the study area under this municipality's jurisdiction include Sweetwaters, Zakariya Park, Weilers Farm and Althea Agricultural Holdings, Unaville Agricultural Holdings.

The following farms, agricultural holdings, estates and suburbs in the study area fall under the jurisdiction of the Midvaal Local Municipality (mostly the eastern section of the study area):

- Walkerville Agricultural Holdings (AH) (Alternative Route 2 and 3)
- Blignautsrus AH (Alternative Route 2 and 3)
- Golf View AH (Alternative Route 2 and 3)
- Homestead Apple Orchards AH (Alternative Route 2 and 3)
- Walker's Fruit Farms AH (Alternative Route 2 and 3)
- De Balmoral Estate
- De Deur Estate (Alternative Route 1,2 and 3)
- De Deur 539 IQ (Alternative Route 1,2 and 3)
- Doornkuil 369 IQ (Alternative Route 1 and 2)
- Hartebeesfontein 312 IQ (Alternative Route 1)
- Vlakfontein 303 IQ (Alternative Route 1,2 and 3)
- Elandsfontein 334 IQ (Alternative Route 2 and 3)
- Varkensfontein 373 IQ (Alternative Route 3)
- Faroasfontein 372 IQ (Alternative Route 3)
- Hartsenbergfontein 332 IQ (Alternative Route 3)
- Ironside AH (Alternative Route 2)
- Rothdene (near Glockner Substation)

The following farms, agricultural holdings, estates and suburbs in the study area fall under the jurisdiction of the Emfuleni Local Municipality (mostly the western and most southern section of the study area):

- Dadaville
- Dreamland Agricultural Holdings (AH)
- Steelview AH
- Aeroval 637 IQ (Alternative Route 1,2 and 3)
- Driemoeg 537 IQ (Alternative Route 1 and 2)

Statistics from all three affected Municipalities will thus be included in this report, although the focus would be on information with regards to the social characteristics of the Midvaal Local Municipality as the larger part of the study area falls under its jurisdiction.

2.3 Social and Population Characteristics

2.3.1 Population Figures

The total population figures under the jurisdiction of the three municipalities are as follows:

Municipality	Total Population ⁴
City of Johannesburg Metropolitan Municipality ⁵	3 225 301
Midvaal Local Municipality ⁶	64 635
Emfuleni Local Municipality	658 412

As the greater part of the study area falls under the jurisdiction of the Midvaal Local Municipality, one could derive that the larger part of the study area is not that densely populated, especially in the areas characterised by the agricultural holdings.

The Midvaal IDP (March 2006 Revision) estimated the population in the area for 2006 at 88 999. Estimations made in the Emfuleni IDP (2007/2008) indicates the population in the municipal area for the year 2006 at approximately 726 298.

2.3.2 Age Groups and Gender⁷

41.7% of the population in the Midvaal Local Municipality is under the age of 25 and in the City of Johannesburg Municipality this age category constitutes 42.4% of the population in that area. In the Emfuleni Local Municipality these figures are even higher as 46.5 % are under the age of 25.

⁴ Census data: 2001

⁵ The actual affected areas in the northern section of the study area fall under Region G of the City of Johannesburg, but statistics for this region only were not readily available.

⁶ The majority of the study area falls under the Midvaal Local Municipality.

⁷ Census data: 2001

The above indicates a definite need for job creation and social services in the study area.

From information sourced the gender statistics in the three municipal areas are as outlined below:

Municipality	Gender ⁸	
	Males	Females
City of Johannesburg Metropolitan Municipality	50%	50%
Midvaal Local Municipality	51%	49%
Emfuleni Local Municipality	65%	35%

There is a normal ratio between males and females in the City of Johannesburg Metropolitan Municipality, as well as in the Midvaal Local Municipality.

2.3.3 Population Stability

The Midvaal Local Municipality area is characterised by an influx of people⁹ from other areas. This could impact on the stability of the population in the area which could make it more vulnerable to change. The same situation appears in the Emfuleni Local Municipal area, probably due to new housing developments which attract more people to the area¹⁰.

2.3.4 Education Levels¹¹

From the statistical information gathered it is apparent that 7.2% of the total adult population in the City of Johannesburg Metropolitan Municipality report not having had any schooling. In the Emfuleni Local Municipality this figure is 9.5% and in the Midvaal Local Municipality it reaches 11.6%. The overall figures for education in the three municipal areas are as follows:

City of Johannesburg Metropolitan Municipality				
Some primary	Complete primary	Some secondary	Std 10 / Gr 12	Higher
10%	5%	35%	29%	14%
Midvaal Local Municipality				
Some primary	Complete primary	Some secondary	Std 10 / Gr 12	Higher
16%	5%	33%	25%	9%

⁸ Census data: 2001

⁹ Midvaal IDP: March 2006 Revision

¹⁰ Emfuleni IDP 2007/2008

¹¹ Census data: 2001

Emfuleni Local Municipality				
Some primary	Complete primary	Some secondary	Std 10 / Gr 12	Higher
14%	6%	38%	24%	8%

From the above it is clear that the percentages of the total adult population who have completed school are low. The need for education and training in the study area therefore remains a key priority and should be attended to as a matter of urgency.

2.3.5 Employment¹²

In the City of Johannesburg Metropolitan Municipality 27.3% of the total adult population is unemployed. The unemployment rate in the Emfuleni Local Municipality reaches 29.5%, and in the Midvaal Local Municipality it is estimated at 15.8%.¹³ The Midvaal IDP (March 2006 Revision) estimates the unemployment in the area at 23%. However, the unemployment rate in Midvaal Local Municipality is still below the national average, which is according to the 2001 Census Data estimated at 24%.

Based on the household income levels of the people residing in the study area, a large part of the population is poor as they have very low income levels or no income. The City of Johannesburg Regional Spatial Development Framework for Region G (2007/2008) also emphasised the low levels of education and skills development in the area resulting in high unemployment rates and poverty levels in this region. Unemployment rates for the Orange Farm area have been estimated as high as 60%.¹⁴

Of those employed, in both the Midvaal and Emfuleni Local Municipalities, the major industries supplying employment are the Community Services and Manufacturing sectors, followed by the Wholesale/Retail sector. The Community Services sector is also the major employment creator in the City of Johannesburg Metropolitan Municipality, closely followed by the Wholesale/Retail and Business Services sectors.

The need for employment in all three these municipal areas therefore remains high. The influx of more unemployed individuals into the study area results in further challenges in this regard.

2.3.6 Crime

Crime rates in the De Deur, Ennerdale and Orange Farm areas are high especially with regards to violent crimes¹⁵. The Midvaal IDP also states that although there are various civic initiatives at combating crime in the area, the securing of smallholdings and farm areas remains problematic.

¹² Census data: 2001

¹³ These figures provided do not include those that are not economically active.

¹⁴ City of Johannesburg Regional Spatial Development Framework for Region G (2007/2008)

¹⁵ Source: SAPS Crime Statistics 2007

According to the Emfuleni IDP crime rates in the area are at “alarming rates”. This is attributed to lack of adequate policing services and capacity, lack of recreational activities for the youth, the rapid growth of informal settlements and dysfunctional high mast lights. In addition, abandoned buildings are occupied by criminals.

2.4 Community Resources

2.4.1 Land Use

The Midvaal area is characterised by rural and urban settlements with various open spaces and agricultural activities. The main town is Meyerton. Residential densities become less further from the town, spreading out into agricultural holdings and farms. Erven throughout the study area is therefore quite large.

2.4.2 Housing and Basic Services

There is approximately 20 760 households in the Midvaal Local Municipality area and the average household size is 3.6.¹⁶ In addition, it has been stated that 20% of the dwellings are of an informal nature. There is a housing backlog of approximately 14% (between 2 500 to 3 000 houses) in the Midvaal area. According to the Emfuleni IDP 81% of their residents live in formal housing structures.

The City of Johannesburg Regional Spatial Development Framework for Region G (2007/2008) indicates that the high number of informal settlements in the region implies a definite shortage of housing in the area.

In terms of basic services the following should be noted:

Access to services	Percentage of population ¹⁷		
	City of Johannesburg Metropolitan Municipality	Midvaal Local Municipality	Emfuleni Local Municipality
Electricity for lighting purposes	85%	63%	90%
Refuse removal once a week	91%	50% ¹⁸	47%
Flushed toilet sewer system	82%	49%	85%
Regional local water scheme	48%	33% ¹⁹	48%

¹⁶ Midvaal IDP: March 2006 Revision

¹⁷ Census data: 2001

¹⁸ It should be noted that a large number of residents in the area make use of their own refuse dump. This relative low percentage, compared to the other two municipal areas, could be attributed to the large number of people in the area living on smallholdings.

¹⁹ 14% of the residents in the area also make use of boreholes for water. Again, this relative low percentage, compared to the other two municipal areas, could be attributed to the large number of people in the area living on smallholdings

According to the Midvaal IDP (March 2006 Revision) there has been an improvement in all of the above services and that approximately 60% of households in the Midvaal area have access to clean water inside their dwellings, 70% are served by waterborne sewer and 74% receive electricity from either the local municipality, Eskom or other sources. In most cases the backlogs appear in the rural areas and informal settlements.

The Emfuleni IDP (2007/2008) states that 46% of their residents receive refuse removal once a week. These figures differ from the previously stated 47%²⁰.

2.4.3 Community Services²¹

There are various schools in the Midvaal area, but a large number of the schools lack basic infrastructure, exceed the desirable teacher pupil ratio and are in poor condition. The largest number of other community facilities such as libraries, community halls, sports clubs and so forth, is located in the Meyerton area, with fewer services and facilities in the rural areas.

2.4.4 Health and Safety Services²²

There are four municipal clinics, one private hospital (maternity clinic) and six clinics provided by the Provincial Department of Health in the Midvaal area. Delivering primary health care to low-density rural areas remains problematic. A similar situation exists in the Emfuleni Local Municipal area.

The De Deur, Meyerton, Klip River and the Vaal Marina Police Stations are situated in the Midvaal area. The provision of emergency services is challenged by the rural character of the area.

2.4.5 Infrastructure

The major routes throughout the study area are the R59 (a north south route), the R551 (an east-west route), the R82 (a secondary north-south route), the R557, R553 and the N1. Various minor roads intersect the rest of the study area.

The main railway line in a section of the study area runs in a north-south direction adjacent the R59.

The Aeroval Airport is situated on the border of the Midvaal and Emfuleni Local Municipal area.

²⁰ Census data: 2001

²¹ Midvaal IDP: March 2006 Revision

²² Midvaal IDP: March 2006 Revision

3. SOCIAL IMPACT ASSESSMENT

3.1 Population Impacts

3.1.1 Population Change

a) Discussion – Population Change

Population change refers to any changes in the size and density of the local population as a result of the proposed project.

The building of a transmission line is not expected to create a high number of temporary or permanent jobs during the construction and operational phases given the specialist nature of the construction of a transmission line. No immediate changes are thus anticipated during the construction or operational phases in terms of the overall demographic profile of the population. This would therefore not result in an increase in the size and density of the population, even if outsiders were to be sourced for these jobs.

This variable is thus rated as neutral for all three Alternative route alignments.

b) Mitigation Measures – Population Change

No mitigation measures are proposed due to the neutral status of the impact.

c) Assessment Table – Population Change

Activity	Nature of impact	Extent of impact	Duration of impact	Intensity of impact	Probability of impact	Significance without mitigation	Significance with mitigation	Level of confidence
Construction Phase								
Alternative 1	Neutral impact on the size and density of the population	Local	Short term	Low	Improbable	Very Low	Very Low	High
Alternative 2								
Alternative 3								
Operational Phase								
Alternative 1	Neutral impact on the size and density of the population	Local	Long term	Low	Improbable	Very Low	Very Low	High
Alternative 2								
Alternative 3								

3.1.2 Introduction of people dissimilar in demographic profile

a) Discussion – Introduction of people dissimilar in demographic profile

At this stage there is no information readily available to determine the age, race, gender or ethnic composition of the outside workers during the construction and operational phases, as well as the number of construction workers and contractors that could be hired from within the communities situated along the three proposed alternative routes. Given the scope of the project such as the specialised nature of the construction activities, the relative short and intermittent construction period, and the frequency of maintenance, it is anticipated that the construction of the transmission line would not introduce large numbers of “outsiders” into the area and would therefore not impact on the social status and networks of the communities along the alternative routes.

It should, however, be noted that the likelihood of this variable manifesting depends on the following:

- The number of local labour that could be used, specifically during the construction phase of the project;
- Whether there would be a large influx of jobseekers to the areas and if illegal immigrants would form part of the process;
- Whether a construction camp(s) would be erected and the location thereof.

Care should thus be taken to avoid a process whereby people dissimilar in demographic profile are introduced into the local communities.

b) Mitigation measures - Introduction of people dissimilar in demographic profile

- The main mitigating strategy would be to limit an influx of people dissimilar in demographics to that of the local populations through maximising the local workforce component as far as possible.
- If construction camps are introduced, ensure effective construction camp management and implement a system to avoid misconduct of workers living at the construction camp.

c) Assessment Table – Introduction of people dissimilar in demographic profile

Activity	Nature of impact	Extent of impact	Duration of impact	Intensity of impact	Probability of impact	Significance without mitigation	Significance with mitigation	Level of confidence
Construction Phase								
Alternative 1	Possible negative-impact on the social status of the communities along the routes	Local	Short term	Medium	Probable	Very low	Very low	Medium
Alternative 2								
Alternative 3								
Operational Phase								
Alternative 1	Possible negative-impact on the social status of the communities along the routes	Local	Short term	Low	Probable	Very low	Very low	High
Alternative 2								
Alternative 3								

3.1.3 Inflow and outflow of workers

a) Discussion – Inflow and outflow of workers

This variable refers to the inflow of temporary workers during the construction phase of the project as well as potential social conflict between locals and outsiders mainly due to:

- Possible perceptions that outsiders are favoured above locals for employment opportunities;
- Social tension between immigrants and locals with regards to the availability of services and infrastructure;
- Misconduct of workers housed in temporary accommodation facilities and construction camp mismanagement.

Whilst the expected inflow and outflow of workers cannot be quantified at this point, this variable is expected to manifest predominantly during the construction phase. It is also anticipated that the employment of workers from outside the project area would give rise to discontentment and possibly anger amongst local residents especially in the study area characterised by high unemployment levels.

Given the scope of the project, the number of external job-seekers coming into the area would most probably be small or possibly non-existent even though such outsiders are likely to seek accommodation in surrounding settlements. The presence of construction camps to accommodate the workers could also result in social conflict and associated environmental impacts. The likelihood of this impact negatively impacting on the local residents and environment would depend on whether a construction camp would be erected, the location thereof, as well as on the standard of construction camp maintenance.

Maintenance of the servitudes would have to be undertaken, for the life of the line, resulting in an inflow and outflow of workers, although it is not anticipated that there would be any change in the population or social conflict during the operational phases of the proposed project.

b) Mitigation Measures - Inflow and outflow of workers

The construction process would have to be carefully managed with emphasis on the following:

- all construction activities would have to be restricted to working areas (if possible, the construction camp should not be located in close vicinity to residential areas or settlements);
- construction workers would be expected to wear name tags and clothing to ensure that they can be readily identified as belonging to the construction workforce;

- meetings would have to be arranged with affected residents and community policing structures to clarify the contractor's plans, procedures, schedules and possible difficulties and risks.
- It is further suggested that Eskom should, where practicable, make the appointment of local labour a key requirement in its tender documentation. In so doing, the successful contractors would be obliged to, as far as possible, use local labour during the construction phase.

c) Assessment Table – Inflow and outflow of workers

Activity	Nature of impact	Extent of impact	Duration of impact	Intensity of impact	Probability of impact	Significance without mitigation	Significance with mitigation	Level of confidence
Construction Phase								
Alternative 1	Negative impact due to the inflow of outsiders to the area and possible erection of construction camps	Local	Short term	Medium	Probable	Very low	Very low	Medium
Alternative 2								
Alternative 3								
Operational Phase								
Alternative 1	Neutral status due to limited impact of inflow of workers during maintenance of the power line	Local	Short term (due to intermittent nature of maintenance)	Low	Improbable	Very low	Very low	High
Alternative 2								
Alternative 3								

3.1.4 Residential proximity and/or relocation

a) Discussion – Residential proximity and/or relocation

Power line alignments that pass through residential areas and in close proximity to dwellings are intrusive. Alternatives that pass through areas of medium social or cultural attachment (sensitive areas) are considered to be moderately intrusive, unless there is an existing intrusion that is similar. Route alternatives proposed to be in parallel to existing power lines and other infrastructure such as roads and railway lines are reduced to a low impact due to the existing intrusion. Sections of Alternative 1, 2 and 3 where the routes run parallel to roads (R551 and R82), next to existing power lines or within vacant servitudes are thus preferred, due to the lessened impact.

At this stage no known relocation of residents are expected to take place. One should, however, note that the City of Johannesburg Regional Spatial Development Framework for Region G (2007/2008) indicates that in certain areas there are dwellings located underneath existing power lines. Should the route alignment thus be adjacent these lines, relocation of these individuals might be necessary. In areas where land has genealogical, cultural and economic meaning, relocation becomes more difficult. Loss of land to transmission lines could therefore threaten the social networks and livelihood of the affected area. Eskom, however, aims to avoid built up areas thereby limiting negative impacts to a minimum.

All three routes that were proposed therefore generally avoid or pass built up residential areas or dense settlements. However, once the final route alignment and tower positions have been decided, some residences (farm dwellings and subsidiary dwellings where labourers are staying) or informal housing structures could be negatively affected. With regards to residential proximity and/or relocation the following areas are thus of concern:

- Walkers Fruit Farm Agricultural Holdings (Alternative 2 and 3)
- De Deur Estates (Alternative 1, 2 and 3)
- Walkerville Manor (Alternative 2 and 3)
- Homestead Apple Orchards (Alternative 1)
- Dreamland Agricultural Holdings (Alternative 1)
- Unaville Agricultural Holdings (Alternative 1)
- Weilers Farm (Alternative 1)
- Informal settlement to the east of the Etna Substation on the farm Vlakfontein (Vlakfontein Extensions) (Alternative 2 and 3)

During the construction phase of the project construction activities could have negative intrusion impacts (dust and noise pollution) on dwellings and settlements, depending on the proximity of these to the actual construction site(s).

In terms of residential proximity and relocation, the anticipated impacts during the construction and operational phase of the proposed project are rated similar (based on the information available at this stage) as the intensity of these impacts would depend on the final route alignment and tower positions.

b) Mitigation Measures - Residential proximity and/or relocation

Mitigation measures proposed are:

- Routes should preferably run parallel to existing infrastructure. With regards to Alternative 2 and 3 it is therefore suggested that the route alignment is as close to the R551 and R82 and other infrastructure (such as existing lines) as possible to avoid further intrusion into residential areas as mentioned above.
- If any relocation would be necessary, proper land valuations should be undertaken and fair compensation should be negotiated with the affected property owners.
- Eskom to negotiate with local and provincial authorities regarding any possible relocation of individuals and the relocation destination to ensure the minimum social disruption and housing of people closer to opportunities and services.
- Eskom should ensure that the period of uncertainty regarding possible relocations should be kept as short as possible. Lengthy cumbersome procedures should thus be avoided, although such a process should be undertaken in a sensitive and transparent manner.

c) Assessment Table – Residential proximity and/or relocation

Activity	Nature of impact	Extent of impact	Duration of impact	Intensity of impact	Probability of impact	Significance without mitigation	Significance with mitigation	Level of confidence
Construction Phase								
Alternative 1	Negative impact dwellings, settlements and possible relocation	Local	Short term	Medium	Probable	Very Low	Low	High
Alternative 2								
Alternative 3								
Operational Phase								
Alternative 1	Negative impact dwellings, settlements and possible relocation	Local	Permanent	Medium	Probable (Relocation) Highly probable (residential proximity)	High	Medium	Medium
Alternative 2								
Alternative 3								

3.2 Community and Institutional Impacts

3.2.1 Formation of Attitudes against the Project

a) Discussion – Formation of Attitudes against the Project

Although attitude formation is not an impact per se, it serves an important indication of community sentiments toward the project. It could provide important information regarding the feelings and potential actions of I&APs that could become evident during the construction and operational phases of the proposed project and even the negotiation phases.

From the results of the public participation process and particularly the comments received from I&APs, there is, at this stage, no attitude formation or social mobilisation against the proposed development.

Attitude formation could however manifest in future due to the perceived impact of transmission lines on the property values, construction related intrusion impacts associated with the proximity of the proposed line to dwellings or settlements, I&APs perception with regard to safety and health risks, as well as expectations created with regards to employment opportunities. Comments have also been received regarding poor and interrupted electricity supply in the study area. I&APs, that are not familiar with the functioning of the electricity network and chain of supply could be under the incorrect impression that the proposed project would lead to the upgrading of the power supply to the area which in turn could result in direct economic benefits to the communities in the study area. If accurate facts are not communicated to these I&APs, they could be left under the impression that they would receive direct benefits in terms of electricity supply from the proposed project.

Experience has also shown that in cases where property owners experience problems with the conduct of maintenance workers (e.g. where owners are not notified when personnel would be entering the property, damage to fences, problems with locking of gates, stock theft and so forth) it could lead to possible individual cases of social mobilisation against Eskom and its employees.

b) Mitigation Measures - Formation of Attitudes against the Project

The following mitigation measures are proposed:

- Construction activities should not negatively impact on any farming activities. If damages occur (e.g. if crops are damaged / animals are harmed), compensation should be provided to the affected farm owners at market related prices.
- In the case of general maintenance, Eskom workers or contractors should inform property owners well in advance when they would access the property and for what reasons. Should they not manage to get in touch with the property owner, they should report to the property owner or farm manager when entering the property if this person is staying on site.

- Community representatives should also be notified well in advance of maintenance schedules to enable the representatives to relay the information to the wider community.
- In the case of emergencies, maintenance and emergency personnel from Eskom should as far as possible aim to contact the affected property owners or community representatives to inform them of the emergency.

c) Assessment Table – Formation of Attitudes against the Project

Activity	Nature of impact	Extent of impact	Duration of impact	Intensity of impact	Probability of impact	Significance without mitigation	Significance with mitigation	Level of confidence
Construction Phase								
Alternative 1	Neutral at this stage but could change to negative if not mitigated	Local	Short term	Medium	Probable	Very low	Very low	High
Alternative 2								
Alternative 3								
Operational Phase								
Alternative 1	Neutral at this stage but could change to negative if not mitigated	Local	Medium term	Medium	Probable	Very low	Very low	High
Alternative 2								
Alternative 3								

3.2.2 Employment Opportunities

a) Discussion – Employment Opportunities

In terms of employment opportunities, the following aspects should be considered:

- The number of jobs that would be created during the construction and operational phase of the project;
- The extent to which the local skills match the requirements of the project proponent (economic inequity); and
- The extent to which certain groups such as the unemployed, disadvantaged and minority groups (e.g. women, youth) could be employed (employment equity).

Typical of a project of this nature, where highly specialised personnel are required for the construction of transmission lines, no long term employment opportunities would be created for the local labour force. Temporary job opportunities for unskilled or low-skilled labour could occur during the construction phase, although limited.

Maintenance and operation of the proposed transmission line is not expected to result in employment opportunities for the locals as the maintenance of these lines is usually undertaken by Eskom employees. This is unfortunate, as the area is characterised by increasingly high unemployment levels.

As far as employment-related impacts are concerned, it is also important to consider that jobs are a scarce commodity in the study area and could create competition among the local jobless resulting in social conflict.

In terms of creating local employment, this impact is therefore rated as “negative” as it is not expected that it would lead to sustainable job creation. The rating “potentially positive” is introduced as there might be limited short term job opportunities for low-skilled or unskilled local labourers. This rating is also based on the fact that numerous individuals in the study area are unemployed and even limited employment opportunities should be seen as positive.

b) Mitigation Measures - Employment Opportunities

The following mitigation measures are proposed:

- Eskom should, where practicable, make the appointment of local labour a key requirement in its tender documentation. In so doing, the successful contractors would be obliged to, as far as possible, use local labour during the construction phase.
- Eskom or the contractors should source skills required for the construction phase of the project from the local communities as far as possible.
- The skills required should be communicated to the local community leaders and community based organisations.

- Local recruitment agencies should be contacted to obtain a list of potential jobseekers.
- An equitable process should be ensured whereby minority groups and previously disadvantaged individuals are taken into account.
- Skills training should be undertaken aimed at developing portable skills among the local labourers.

c) Assessment Table – Employment Opportunities

Activity	Nature of impact	Extent of impact	Duration of impact	Intensity of impact	Probability of impact	Significance without mitigation	Significance with mitigation	Level of confidence
Construction Phase								
Alternative 1	Negative / Potentially positive	Local	Short term	Low	Probable	Very low	High (positive)	High
Alternative 2								
Alternative 3								
Operational Phase								
Alternative 1	Negative	Local	Short term	Low	Probable	Very low	Very low	High
Alternative 2								
Alternative 3								

3.2.3 Economic benefits

a) Discussion – Economic benefits

It is not expected that the project would have any major direct or indirect economic benefits to the communities through which the line would be traversing, as job creation of a project of this nature is limited and temporary. The increased income levels of those locals that would be able to secure jobs would also not have a lasting economic impact on local families and/or the community.

If the proposed project is implemented, the growing electricity requirements in the greater Vaal/West Rand area would be met and indirect benefits could accrue to the bigger area due to new economic benefits and opportunities. The local tax base of the local Municipalities in these areas could thus be increased as a result of the economic development in the area.

The Gauteng Province would, therefore, ultimately benefit from the proposed project although it is not anticipated that there would be any industrial diversification (e.g. utilisation of local equipment and supplies) during the construction or operational phases of the proposed project.

b) Mitigation Measures – Economic benefits

It is proposed that locals be employed during the construction phase. Even if the job opportunities would be temporary and would not have a lasting impact, these limited job opportunities should still be seen as a positive economic injection due to the high unemployment levels in the area.

c) Assessment Table – Economic benefits

Activity	Nature of impact	Extent of impact	Duration of impact	Intensity of impact	Probability of impact	Significance without mitigation	Significance with mitigation	Level of confidence
Construction Phase								
Alternative 1	Neutral economic impact on local communities	Local	Short term	Low	Probable	Very Low	Low (positive)	High
Alternative 2								
Alternative 3								
Operational Phase								
Alternative 1	Positive economic impact on region	Regional	Long term	Medium	Probable	High (positive)	High (positive)	High
Alternative 2								
Alternative 3								

3.2.4 Disruption in daily living and movement patterns

a) Discussion – Disruption in daily living and movement patterns

The construction phase of the proposed project is expected to impact on the daily living and movement patterns of residents in the following manner:

- Construction vehicle movement on the local roads such as the R82, R551, R553, R557 and roads intersecting the agricultural holdings, could affect daily movement patterns, irrespective of the alternative route alignment chosen. This is especially a source of concern in areas where the local roads are already congested during peak traffic hours, as well as in those areas with high pedestrian volumes (e.g. near schools and in the vicinity of commercial and transport nodes).
- Unwanted social activities (e.g. unruliness, drunkenness, unsustainable sexual relationships with the locals and unwanted after hours socialising) of construction workers living in construction camps could impact on the living patterns of residents, especially if these were located near existing settlements and farm or smallholding dwellings.

During the operational phase the following impacts on the daily living and movement patterns are anticipated:

- Unauthorised entry of maintenance personnel on private properties; and
- Possible misconduct of maintenance personnel (e.g. stock theft, inadequate bush clearings).
- Possible impact on operations at the Vereeniging Aerodrome due to the location of the proposed power line.

b) Mitigation Measures - Disruption in daily living and movement patterns

Mitigation measures to be implemented are:

- Eskom should not create new access routes during construction activity but should utilise existing paths and roads for the movement of material.
- The location of the construction camps should be placed in areas that would result in the minimum impact on the local residents. Aspects that need to be considered are availability of water and sanitation facilities, shops and recreational facilities. The movement of pedestrians across the main roads to access these facilities must be avoided.
- If possible, construction vehicle movement should be limited. Main roads should only be used during off-peak traffic hours. Vehicular movement should be directed away from areas with a high level of pedestrian movement, notably during peak hour periods.

- Eskom contractors should communicate their work schedules to property owners and the public at large via large, reflective signs posted along routes that would be affected by construction activity.
- Eskom should enter into detailed discussions with the Vereeniging Aerodrome with regards to the exact alignment of the line to limit any negative impacts on the facilities operations.

c) Assessment Table – Disruption in daily living and movement patterns

Activity	Nature of impact	Extent of impact	Duration of impact	Intensity of impact	Probability of impact	Significance without mitigation	Significance with mitigation	Level of confidence
Construction Phase								
Alternative 1	Negative intrusion impacts on daily living and movement patterns	Local	Short term	Medium	Probable	Very low	Very low	High
Alternative 2								
Alternative 3								
Operational Phase								
Alternative 1	Negative intrusion impacts on daily living and movement patterns	Local	Short term	Low	Probable	Very low	Very low	High
Alternative 2								
Alternative 3								

3.2.5 Impact on infrastructure, services and farming activities

a) Discussion – Impact on infrastructure, services and farming activities

During the construction phase, construction camps with related infrastructure and facilities would have to be set-up and the construction of access roads to specific sites could lead to erosion. Eskom, however, keeps the construction of access roads to a minimum and rather use the existing infrastructure, as the construction and maintenance of these roads is very costly and creates another potential for erosion.

Furthermore, national, secondary and local roads would have to be crossed with the stringing of the line. This impact will, however, be of a short duration.

The servitude areas will alter the access to the affected sections of land and restrict certain uses such as the erection of buildings/dwellings in the servitude. Once the transmission line has been established, however, it is not expected to impact on the farming activities of the property owners residing on the smallholdings throughout the study area, as normal farming activities such as crop production and grazing can take place within the servitude²³. Services would also not be interrupted. It should, however, be noted that the size of the property plays an important role in this regard as activities on smaller properties cannot be focused away from the power lines. If the power lines would thus be situated along the boundaries it could have a lessened impact on the properties and activities undertaken on the properties.

It is anticipated that the proposed power line could negatively impact on the operations at the Vereeniging Aerodrome due to the location of the proposed power line.

b) Mitigation Measures - Impact on infrastructure, services and farming activities

Mitigation measures include:

- It is recommended that the alignment of the final route be undertaken in consultation with the affected property owners and local authorities to ensure that the impact on infrastructure and services are limited.
- Should a power line negatively impact on any farming activities resulting in negative economic impacts for the property owner, Eskom should take this into account when compensation amounts are calculated.
- Bodies responsible for the infrastructure along the routes should be communicated with such as Telkom, MTN, Vodacom, Department of Public Works, Department of Transport and so forth.
- Eskom should enter into detailed discussions with representatives of the Vereeniging Aerodrome facility to determine the negative impacts on their operations due to the location of the proposed power line. The final route

²³ Some I&APs, however, are of the opinion that it would have a negative economic impact on farming activities, especially in the Walker's Fruit Farms area.

alignment in that section of the study area should thus be finalised in consultation with representatives of this facility.

c) Assessment Table – Impact on infrastructure, services and farming activities

Activity	Nature of impact	Extent of impact	Duration of impact	Intensity of impact	Probability of impact	Significance without mitigation	Significance with mitigation	Level of confidence
Construction Phase								
Alternative 1	Negative impact on infrastructure	Local	Short term	Low	Probable	Very low	Very low	High
Alternative 2								
Alternative 3								
Operational Phase								
Alternative 1	Negative impact on infrastructure	Local	Short term	Medium	Probable	Very low	Very low	Medium
Alternative 2								
Alternative 3								

3.2.6 Township developments

a) Discussion – Township developments

As mentioned previously, the study area traverses the jurisdiction of three local municipalities namely the Midvaal Local Municipality, the Emfuleni Local Municipality and the City of Johannesburg Metropolitan Municipality. Various comments regarding township developments in these areas have been made during the public participation process undertaken for this study.

Indications are that new townships are planned in the following areas that are located within or close to the study area:

- North Evaton: Emfuleni Local Municipality (2000 stands)²⁴
- Evaton Small Farms: Emfuleni Local Municipality (500 stands on privately owned land)²⁵;
- Kanana: Emfuleni Local Municipality (800 stands – currently in progress)²⁶;
- Evaton Estates: Emfuleni Local Municipality (600 houses – currently in progress)²⁷;
- Lakeside Estate Ext 1: Midvaal Local Municipality (Portion 103 – a portion of Portion 97 - of the farm Wildebeesfontein 536 IQ – in close proximity to De Deur – 1 245 erven)²⁸
- Sweetwaters²⁹.

Representatives from Emfuleni Local Municipality, however, indicated that the route alignments will not affect the above mentioned developments³⁰.

The City of Johannesburg's Regional Spatial Development Framework 2007/2008 for Region G indicates that the following areas were identified as key focus areas for development (not necessarily housing development) with the aim of attracting private and public investment:

- Stretford Station District Node.
- Lenasia South District Node.
- Lenasia District Node.
- Agricultural Development.
- Informal Settlements.

²⁴ Emfuleni IDP (2007/2008)

²⁵ Ditto

²⁶ Ditto

²⁷ Ditto

²⁸ Midvaal IDP: March 2006 Revision

²⁹ Comments received during public participation process

³⁰ Feedback received via e-mail from Ms. L. Kalman of the Emfuleni Local Municipality on 21 September 2007

- Greater Orange Farm Consolidation Development Programme.
- Ennerdale District Node.

Township developments pose severe challenges for the establishment of any type of linear infrastructure, and not only for transmission lines. From the information available at the time of compiling the report, it is not expected that any of the alternative routes investigated would negatively impact on the above mentioned township developments. However, these developments should be noted and care should thus be taken with the alignment of the proposed routes and discussions with the relevant councils should be undertaken to determine the extent of these developments.

From the above limited information gathered, it is anticipated that the above could thus be more of an issue of concern along the “northern” sections of Alternative 2 and 3 where the proposed line would enter/exit the Etna Substation.

b) Mitigation Measures - Township developments

Mitigation measures in this regard could include the following:

- Once the project has been approved, and during the negotiation phase, Eskom should discuss the final route alignment and tower positions with representatives of the town planning departments of the Midvaal Local Municipality, the Emfuleni Local Municipality and the City of Johannesburg Metropolitan Municipality in order to either avoid these new townships or to allow for a servitude to be included in the planning processes before township establishment.
- Eskom should take note of the RDP planning processes and houses that will be built in the next financial year.
- If technically and economically feasible, route alignment from the Etna Substation could follow the existing line from Etna Substation to the Eiger Substation for a section of the route (approximately to where the line crosses the road from Weilers Farm to the Elandsfontein area).

c) Assessment Table – Township developments

Activity	Nature of impact	Extent of impact	Duration of impact	Intensity of impact	Probability of impact	Significance without mitigation	Significance with mitigation	Level of confidence
Construction Phase								
Alternative 1	Negative impact on proposed township developments	Local	Short term	Low	Improbable	Very low	Very low	High
Alternative 2		Local		Low	Improbable	Very low	Very low	High
Alternative 3		Local		Low	Improbable	Very low	Very low	High
Operational Phase								
Alternative 1	Negative impact on proposed township developments	Local	Long term	Medium	Probable	Medium	Low	Medium
Alternative 2		Local		Medium	Probable	Medium	Low	Medium
Alternative 3		Local		Medium	Probable	Medium	Low	Medium

3.3 Perceptions regarding public health and safety

3.3.1 Health

a) Discussion – Health

The social impact regarding health refers to the perception of risks associated with the proposed project.

During the construction phase of the proposed project an influx of outsiders to an area is usually associated with increased health risks due to the spread of sexually transmitted diseases. As the construction activities of a linear type of project, such as transmission lines, are not concentrated in one area for an extended time, it is anticipated that there would not be recurrent contact between the locals and outsiders. This aspect could limit the spread of sexually transmitted diseases.

Public concerns have been raised with regard to the exposure to Electromagnetic Fields (EMFs). The World Health Organisation (WHO) launched various research initiatives in this regard. At this stage some of the conclusions drawn are: “Electric field levels underneath power lines can be as high as 10 kV/m. However, the fields (both electric and magnetic) drop off with distance from the lines. At 50m to 100m distance the fields are normally at levels that are found in areas away from high voltage power lines. In addition, house walls substantially reduce the electric field levels from those found at similar locations outside the house.” One could thus conclude that the 95 m servitude area (for one 400 kV transmission line) limits exposure to EMFs. In addition, it should be noted that Eskom does not allow anyone to live within the servitude.

Concerns with regards to the outbreak of fires during the construction and operational phase of the proposed project were raised. The emergency services of the local municipalities are not that effective at the moment due to shortages of staff and equipment. The rural character of area and the density of informal settlements, also hamper or delay the response times and effectiveness of fire fighting efforts.

b) Mitigation Measures - Health

Mitigation measures proposed are:

- The proposed routes should not, where possible, be located within close vicinity to sensitive establishments such as schools, playgrounds and old age homes, or through high-density settlements.
- Eskom should protect public health by complying to international guidelines and national safety standards for electromagnetic fields.
- During the construction phase of the proposed project, HIV/Aids awareness campaigns should be highlighted among the communities along the routes, but should be more focused on the contract/construction workers.
- Eskom should ensure that fire hazards are non-existent by adopting high safety standards.

c) Assessment Table – Health

Activity	Nature of impact	Extent of impact	Duration of impact	Intensity of impact	Probability of impact	Significance without mitigation	Significance with mitigation	Level of confidence
Construction Phase								
Alternative 1	Negative impact on health	Local	Short-term	Medium	Probable	Very low	Very low	High
Alternative 2								
Alternative 3								
Operational Phase								
Alternative 1	Negative impact on health	Local	Long term	Medium	Probable	Medium	Low	Medium
Alternative 2								
Alternative 3								

3.3.2 Safety and Security

a) Discussion – Safety and Security

Concerns have been raised with regards to the safety and security of property owners and communities. This relate to the perceived loss of security during the construction phase of the proposed project due to the influx of an outsider workforce to the area. Although the numbers of these “outsiders” will be limited, the fears of property owners with regards to an increase in crime should not be disregarded. Additional safety risks include the increased risk of veld fires and the movement of heavy vehicles or machinery through the study area during the construction phase.

Should the power line be in close proximity to dense settlements, the general safety risks associated with construction sites would be applicable.

During the operational phase of the proposed project unauthorised entry of maintenance personnel on private properties should be avoided as this could pose some security risks for both the owners and the personnel. Due to the high crime rates in the area, these issues should be sensitively dealt with.

Power lines are also associated with an increased fire risk due to sparking, which could negatively impact on cultivated land, threaten the safety of people and animals and pose a risk to infrastructure and dwellings.

b) Mitigation Measures - Safety and Security

Mitigation measures include:

- In cases where the transmission line crosses residential areas, or is located within the urban edge, the lives and safety of the residents (especially children) should be protected, during the construction phase.
- Local labour should be employed during the construction phase where possible.
- The location of construction camps should be dealt with in consultation with the local community representatives and local municipalities.
- Unauthorised practices taking place at construction camps or illegal activities undertaken by contract workers should immediately be reported. A monitoring system should be developed in consultation with the contract workers and affected parties.
- Construction schedules should be communicated to the affected property owners and communities.
- The proposed routes should not, where possible, be located within close vicinity to sensitive establishments such as schools, playgrounds, old age homes and so forth.
- Eskom should ensure that fire hazards are non-existent by adopting high safety standards.

- Construction vehicles should be equipped with adequate fire fighting equipment and no open fires should be allowed on the construction site.
- In terms of attenuating fire-related risks and impacts, it would be vital to develop a fire/emergency management plan in conjunction with the various local municipalities prior to construction.
- General safety measures in terms of construction work should be implemented and relevant regulations be adhered to (Occupational Health and Safety Act).
- Eskom workers should inform property owners and representatives of the various communities of their general maintenance tasks prior to undertaking them.

c) Assessment Table – Safety and Security

Activity	Nature of impact	Extent of impact	Duration of impact	Intensity of impact	Probability of impact	Significance without mitigation	Significance with mitigation	Level of confidence
Construction Phase								
Alternative 1	Negative impact on safety and security	Local	Short term	Medium	Probable	Very low	Very low	High
Alternative 2								
Alternative 3								
Operational Phase								
Alternative 1	Negative impact on safety and security	Local	Long term	Medium	Probable	Medium	Low	High
Alternative 2								
Alternative 3								

3.4 General disturbances

3.4.1 Noise Impact

a) Discussion – Noise Impact

General noise disturbances associated with construction activities (heavy machinery and vehicles) are expected to be minor given that the activities are short term in any one area. Additional noise impacts could emanate from the construction camp especially after hours and over weekends.

b) Mitigation Measures – Noise Impact

Mitigation measures proposed include:

- Property owners should be notified of the construction schedule well in advance.
- Construction activities should be limited to construction working hours only.
- An Environmental Control officer should ensure that all construction activities are subject to all relevant legislation and regulations.
- The contact details of the Environmental Control officer should be provided to the affected property owners.

c) Assessment Table – Noise Impact

Activity	Nature of impact	Extent of impact	Duration of impact	Intensity of impact	Probability of impact	Significance without mitigation	Significance with mitigation	Level of confidence
Construction Phase								
Alternative 1	Negative noise intrusion	Local	Short term	Low	Probable	Very low	Very low	High
Alternative 2								
Alternative 3								
Operational Phase								
Alternative 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Alternative 2								
Alternative 3								

3.4.2 Visual Impact

a) Discussion – Visual Impact

The general disturbances in this regard refer to the permanent visual impact that the transmission lines and associated towers could have on the environment as these are usually perceived as visually “unsightly”, thereby impacting on the individual’s sense of place. Sense of place refers to an individual’s environmental cognition and serves to provide a framework for organising a personal identity and belonging to a certain group or community. It also refers to the meaning that individuals attach to objects and/or places, the way in which a person interacts with the environment and the way in which the environment is perceived.

As all three alternatives for most of the route traverse build up areas dissected by local roads and other infrastructure (even the areas where the smallholdings are) it seems reasonable to conclude that the visual impact in these areas would be moderate compared to areas where no infrastructure exist. A section of Alternative 1 (from Glockner Substation to the farm Driemoeg 537IQ) runs parallel to existing lines. Sections of Alternative 2 and 3 (Walkerville Manor, Ohenimuri, Blignautsrus and Harsenbergfontein areas) are also proposed in close proximity to existing lines which already have a visual impact on the environment. However, care should be taken in determining the final route and the following areas should be avoided or the route alignment should be of such a nature that it has the least negative impact on the following areas:

- Spioenkop and Perdeberg in the Walkerville area (Alternative 2 and 30)
- Ridges in the Elandsfontein area (Alternative 2 and 3)
- The Thorntree Conservancy to the east of the R82 in the Walkerville area (Alternative 2 and 3)
- The Johanna Jacob Nature Reserve (Alternative 1)

b) Mitigation Measures – Visual Impact

Mitigation measures proposed are:

- Structure placement and routing should be undertaken to assist in minimising potential negative visual impacts in sensitive areas.
- Eskom should, if technically feasible, align the route as near to existing roads and infrastructure as possible e.g. next to R551 and R82 (Alternative 2 and 3).
- Eskom should make use of the best possible tower designs to avoid unaesthetic intrusions on the landscape.

c) Assessment Table – Visual Impact

Activity	Nature of impact	Extent of impact	Duration of impact	Intensity of impact	Probability of impact	Significance without mitigation	Significance with mitigation	Level of confidence
Construction Phase								
Alternative 1	Negative visual impact and impact on sense of place	Local	Short term	Low	Probable	Very low	Very low	High
Alternative 2								
Alternative 3								
Operational Phase								
Alternative 1	Negative visual impact and impact on sense of place	Local	Long term	Medium	Highly Probable	Medium	Medium	Medium
Alternative 2								
Alternative 3								

3.4.3 Air / Dust Pollution

a) Discussion – Air/Dust Pollution

Air and dust pollution would be experienced during the construction phase of the project, especially if construction takes place during the dry winter months. Construction vehicles could increase the dust pollution on the gravel access roads. The intensity of this impact would depend on the residential proximity and population densities in the vicinity of the servitude.

Vehicles used for maintenance activities could also create some dust pollution, although this will be very localised and of a short duration

b) Mitigation Measures – Air/Dust Pollution

The following mitigation measures are proposed:

- Gravel roads frequently used by vehicles should be sprayed with water.
- Areas where vegetation has been removed should also be sprayed.

c) Assessment Table – Air/Dust Pollution

Activity	Nature of impact	Extent of impact	Duration of impact	Intensity of impact	Probability of impact	Significance without mitigation	Significance with mitigation	Level of confidence
Construction Phase								
Alternative 1	Negative dust pollution	Local	Short term	Low	Probable	Very low	Very low	High
Alternative 2								
Alternative 3								
Operational Phase								
Alternative 1	Negative dust pollution	Local	Short term	Low	Probable	Very low	Very low	High
Alternative 2								
Alternative 3								

3.4.4 Water Pollution

a) Discussion – Water Pollution

Water pollution in areas surrounding the construction camps is a source of concern. As water is a scarce resource and due to the fact that some property owners make use of borehole water for household purposes, any form of water pollution should be avoided as far as possible

b) Mitigation Measures – Water Pollution

Mitigation measures include:

- Construction camps should be provided with adequate water facilities for cooking and washing purposes.
- Construction camps should have proper and adequate sanitation facilities.

c) Assessment Table – Water Pollution

Activity	Nature of impact	Extent of impact	Duration of impact	Intensity of impact	Probability of impact	Significance without mitigation	Significance with mitigation	Level of confidence
Construction Phase								
Alternative 1	Negative water pollution	Local	Short term	Low	Probable	Very low	Very low	High
Alternative 2								
Alternative 3								
Operational Phase								
Alternative 1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Alternative 2								
Alternative 3								

4. CONCLUSIONS

In respect of the above discussions, the following conclusions can be drawn:

- Irrespective of the alternative route alignment pursued, the negative social impacts resulting from the construction and operation of a transmission line can in most instances be successfully mitigated. The assessment of the key issues indicates that there are no negative impacts that can be classified as fatal flaws.
- The negative social impacts resulting from the proposed development are not perceived to be a threat to the quality of life of the residents of the area, but rather as nuisance factors. The significance of the majority of impacts is rated as low or very low. Mitigation measures therefore reduce the impacts to very low or maintain it to a very low level.
- The proposed transmission line, irrespective of the alternative route alignment, is not expected to have long term negative impacts on the social networks and the lifestyle of the residents in the affected areas.
- The proposed project would not bring about significant nor sustainable direct benefits for the local communities, but would improve the Gauteng region's electricity supply network.
- Disruptive social impacts are associated with the construction activities and social behaviour of contract workers at construction camps (e.g. noise impacts, safety and security issues, health impacts etc.). These impacts would, however, only manifest for the duration of the construction period.
- Township developments have been noted as concern. Proper integrated planning processes, however, could limit any negative impacts in this regard.
- It should be noted that "sense of place" issues do not readily lend itself to mitigation. Since sense of place is non-economic and non-transferable, it cannot be mitigated through reimbursement or relocation of individuals.
- From a social perspective it is concluded that the project should continue, but that mitigation measures should be implemented and adhered to.

5. RECOMMENDATIONS

From a social perspective, the following general recommendations are made:

- Negotiations with individual property owners should be undertaken in a considerate and constructive manner. Sensitive issues such as safety and security should be taken into account.
- Impacts associated with the construction period should be carefully mitigated to minimise any disruption in the living and movement patterns of the affected parties.
- Anticipated noise and health impacts relating to the construction camp and construction activity should be pro-actively dealt with.

- Local labour should be used wherever possible. Eskom should enter into discussions with the local representative structures and local authorities on employment matters. A skills audit should assist in determining the availability of applicable skills in the local communities.
- An Environmental Control Officer could be assisted by a locally formed Management and Monitoring Committee consisting of local representatives and key stakeholders.
- Attention should be given to possible disruption of agricultural farming activities, although this impact is anticipated to be negligible.
- Eskom should aim to avoid any possible relocation, especially in terms of the informal settlements situated in the northern section of the study area (in the vicinity of the Etna Substation).
- Tower positions should preferably not be in close proximity to dwellings.
- Despite there presently being no attitude formation against the project, it is nevertheless proposed that I&APs and surrounding residents be kept informed of the project progress.

In terms of the route alignment the following should be noted:

- All three route alignments would, in most cases, have similar negative impacts on properties and settlements, but if the proposed power line would follow existing lines or other linear developments (e.g. roads or boundaries), the impact will be of a lower significance. No alternative is thus preferred based on the assessment of the range of social impact categories.
- With regards to all three route alignments, sensitive areas along these routes should be avoided.
- Route alignment should be such to avoid traversing the centre of properties or run through dense settlements. Where technically, environmentally and economically feasible the route alignment should follow boundaries of properties and settlements.
- Should Alternative 2 or 3 be pursued, these alternative alignments should be as close to existing infrastructure (roads R551 and R82 and/or existing power lines) as possible.
- Alternative 2 and 3 should, where possible, be placed in the existing servitudes in the Ohenimuri, Golfview AH, Blignautsrus AH and Hartzenbergfontein areas.
- Alternative 2 and 3 would, however, have negative impacts on the fairly undisturbed character of the Elandsfontein area. It is, however, anticipated that careful consideration of the route alignment and tower positions could limit negative impacts in this regard.

6. SOURCES CONSULTED

The following websites were consulted:

- <http://www.demarcation.org.za>
- <http://www.emfuleni.gov.za>
- <http://www.en.wikipedia.org>
- <http://www.joburg.org.za>
- <http://www.midvaal.gov.za>
- <http://www.saps.gov.za>
- <http://www.statssa.gov.za>
- <http://www.walkervillesa.co.za>
- <http://www.who.int>

The following documents were consulted:

- City of Johannesburg Regional Spatial Development Framework for Region G (2007/2008)
- Emfuleni IDP: 2007/2008
- Naledzi Environmental. Final Scoping Report for the construction of a proposed new 2 x 400 kV power line from Glockner Substation to Etna Substation. March 2007
- Naledzi Environmental. Background Information Document. November 2006
- Midvaal IDP: Revision March 2006

Interviews with the following key I&APs were undertaken³¹

- Mr. Ivan Parks – Thorntree Conservancy
- Mr. Harold Liederer – Walkerville Fruit Farms
- Ms. Bianca Sifia – Ward Committee Ward 7
- Mr. Rob Jones - Councillor

³¹ Various other I&APs were contacted but were unavailable. Due to the timeframe allowed for undertaking the study no comments were received from these I&APs.