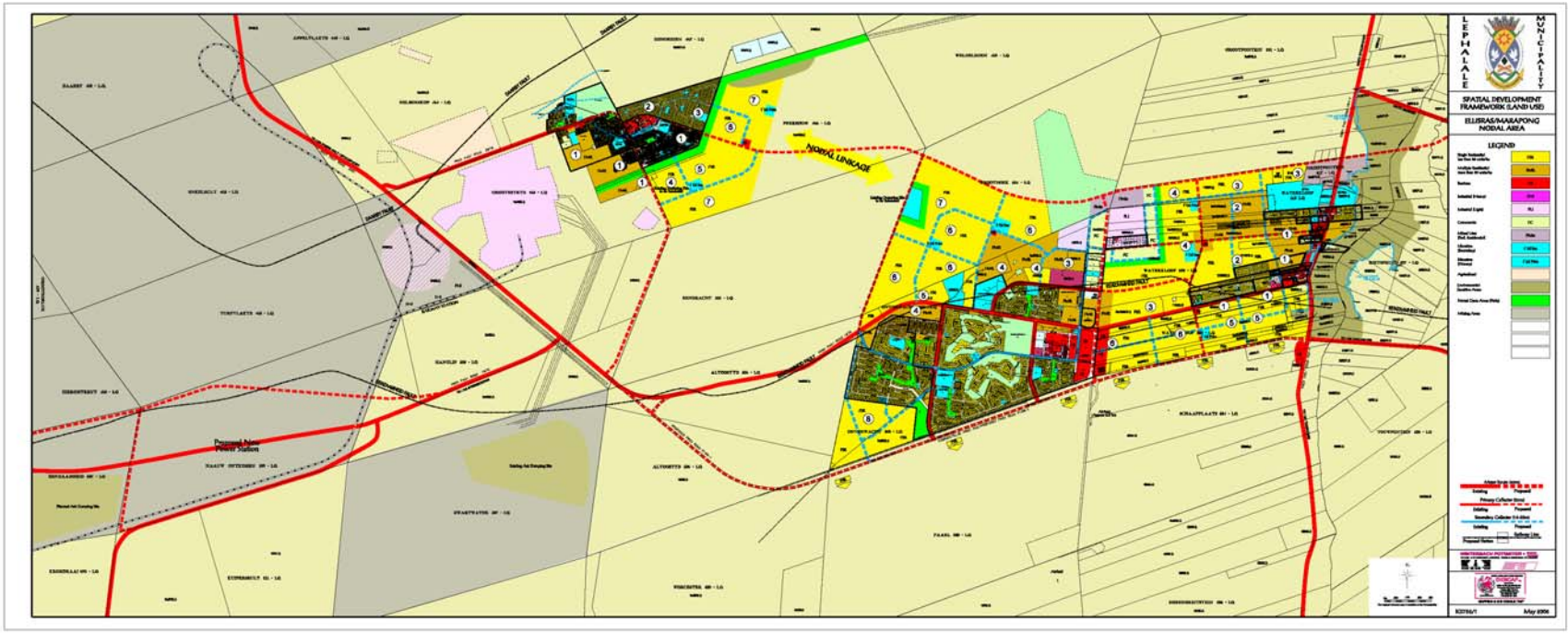
Figure 3.6: **Lephalale Spatial Development Framework**



Source: Lephalale Spatial Development Framework 2006

3.3.1 *Geographical Processes – Changes in Land use Activities*

In order to assess the potential impacts as a result of land use activities, the current and planned activities in the Corridors have to be assessed. **Figure 3.7** illustrates the land ownership and land use in the study area. Exempted game farms (**Figure 3.7**) are officially recognised and registered farms for capturing, selling and hunting of game. Exempted Game Farms in the Mogalakwena LM could not be sourced and only those in the Lephalale LM are depicted on the map.

The red arrows in **Figure 3.7** illustrate the movement corridors as identified in the Lephalale SDF. Corridors 2 and 8 are in close proximity to the main movement corridors.

In terms of **Game farms / nature reserves**

- Corridor 1 traverses the transitional, buffer and core areas of the Waterberg Biosphere, D'Nyala and Witvinger Nature Reserves. The game farm portions it transverses are approximately 40 in total.
- Corridor 2 mostly traverses the transitional area of the Waterberg Biosphere. The game farm portions Corridor 2 traverses are approximately 43 in total.
- Corridor 8 traverses the transitional, buffer and core areas of the Waterberg Biosphere. The game farm portions Corridor 8 transverses are approximately 35 in total.
- The game farm portions Corridor 4 transverses are approximately 5 (five) in total, including Percy Fyfe Nature Reserve.
- The game farm portions Corridor 5 transverses are approximately 2 (two) in total.
- The game farm portions Corridor 6 transverses are approximately 5 (five) in total.
- Corridor 7 traverses approximately 3 (three).

The intention of the Waterberg **Biosphere** is to

- Reconcile people and nature, not only have it as a protected area;
- Include a gradation of human intervention;
- Include a legally protected core area, a buffer area where non-conservation activities are prohibited, and a transition zone where approved practices are permitted.

Biosphere reserves are protected terrestrial and coastal environments of international conservation importance:

- They are unique categories of protected areas combining both conservation and sustainable use of natural resources;
- Biosphere reserves can be seen as building blocks for bio-regional planning and economic development;
- Biosphere reserves are community driven programmes assisted by government agencies.

National parks and nature reserves play a role in conserving the biodiversity, cultural landscapes, eco-systems, and species and these areas should be avoided in order to keep them as undisturbed as possible. Although game farms also play a role in conserving the biodiversity, cultural landscapes, eco-systems and species, the main activity is hunting. In light of this, Corridors 2 and 5/6 are preferred. Between Corridors 5 and 6, Corridor 5 is preferred as it follows existing lines. Corridor 7 does not traverse any national parks and nature reserves.

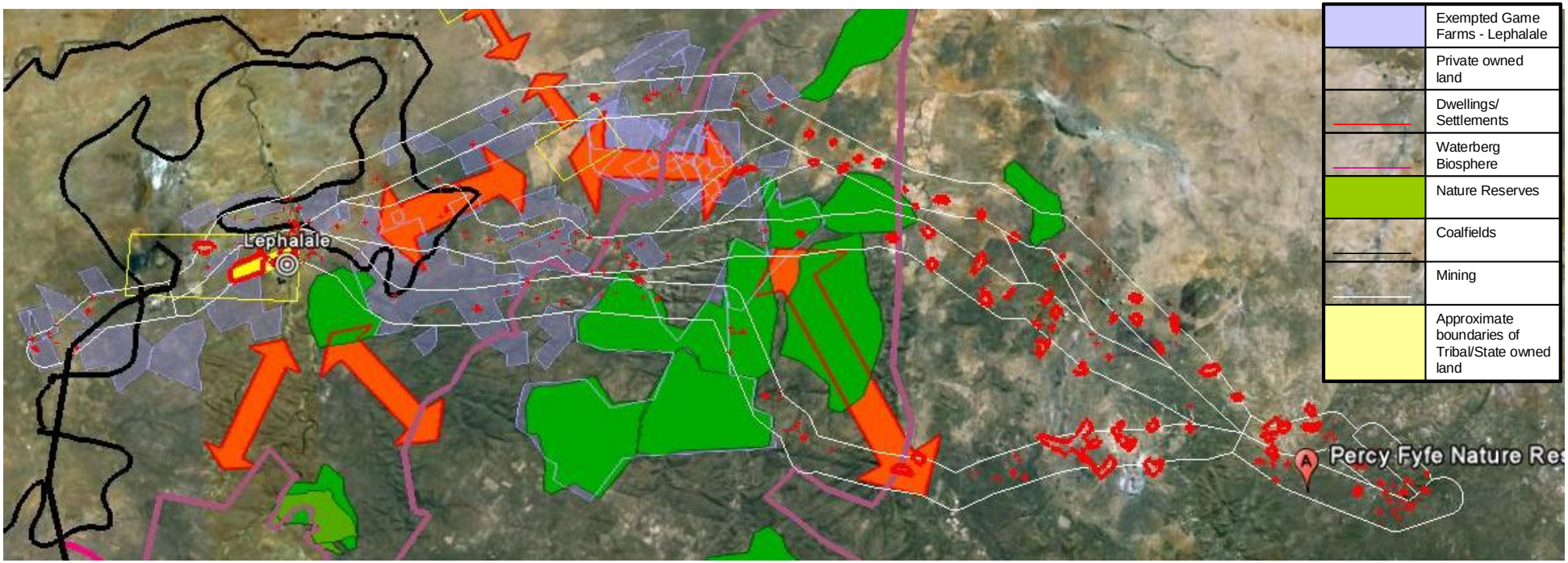
The planning of a conservancy, without hunting activities, along Corridor 1 is in an advanced stage and involves the integration of portions Norfolk, Colesberg, Adelaide, Godolpan, Mria, Woolwich, Onskuld, Duna, Adelaide, Beaufort and Branfort. The intention is to develop this area to its original natural state.

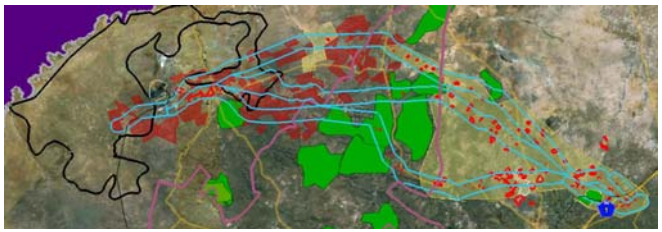
A number of private developments seem to be planned along all three Corridors, e.g. developments on Vlucht in Corridor 2. These developments, specifically regarding visual impact and impact on sense of place, should be taken into account when planning the final route and the costs of any changes necessary to accommodate the lines and mitigate the impact on sense of place and visual impacts should be carried by Eskom. For example, visual impacts on Vucht (Commiphora Huiseienaarsverenging) could be mitigated by placing the lines in Corridor 8 along the foot of the koppie on the neighbouring farm.

Figure 3.7 illustrates the coal fields in relation to the three proposed corridors and where coal mining could be expected to occur in future.

- Open cast mining is planned in Corridor 2, in the area of Weltevreden farm.
- Open cast mining is planned in Corridor 1, in the area of Ga-Pulca, where mining activities already occurs.
- Mining activities occur in the vicinity of Mokopane substation.
- Most of the coal field fall in Corridors 2 and 8.

Figure 3.7: Land Ownership, Land Use and Land Cover in the Corridors





Source: MetroGis, Lephalale SDF and Google Earth

Table 3.5: **Description of Impacts as a result of changes in Land Use Activities**

Impact Assessment Profile	
Sector/ Impact variable	Health and safety.
Change process	Land use changes as a result of the construction activities, servitude, and presence of the line and towers.
Impact Parameter	Psycho-social impact (e.g. stress, anger, frustration) on landowners as a result of activities occurring in the servitude and vicinity of the line, which could potentially impact the physical safety of people and animals.
Category	2
Sources consulted	• Comments and Responses Report. • Issues Registers of previous projects. • PHA MQR 2007. • Addendum to the Mmamabula-Delta 4x400kV Transmission power lines Scoping Report.
Areas of concern	Areas with game, commercialised agriculture and irrigated areas.
1. Status or incidence without the project (baseline) Cultivated land and natural vegetation cover a large part of the study area. Game farms and nature reserves occur in the study area. In proximity to villages, subsistence crop farming and livestock farming occur. Commercialised agriculture largely occurs in the northern part of the study area. Irrigated areas can be found along all the alternatives. Landowners have already been impacted as a result of the presence of the existing 2x400kV Matimba-Witkop transmission power lines - land use activities have to accommodate the lines and animals can be impacted as a result of the presence of the lines.	
2. Projected status or incidence with the project The responses from landowners who partook in the public participation process, the response from those who already have lines on their land, and responses from landowners affected by other projects indicate that the presence of the line would result in mental and physical health impacts. *Cultivated land* It is possible to cultivate land around power line towers, but it does complicate the process and some land for cultivation is lost. This is because the use of farming implements and equipment around/underneath power lines and anchor lines prove problematic. Cultivation activities will be more challenging during construction because of the access roads needed and occupation of additional land for construction activities. It is possible to irrigate under a 400kV Transmission power line, because of its height	

from the ground. Although it is possible for 400kV Transmission power lines to cross centre pivots, it is not possible to have a tower in an area irrigated by centre pivots. The presence of the towers will make it impossible to carry on with the activity, unless the towers can be placed in such a way that they do not impact directly on the irrigation system. In cases where it is not possible to avoid these systems, the centre pivots will have to be moved elsewhere, including the complex irrigation system that goes with it. During stringing of the lines it will not be possible to carry on with irrigation. The impact will not only be economic, but will also cause psycho-social impacts such as frustration.

Where aeroplanes are used for crop spraying the presence of power lines might have a physical and mental health impact on pilots – flying into the line may cause death. Farms with crop spraying activities were not identified by landowners, and could therefore not be considered in the assessment.

Grazing land

Towers and lines on grazing land pose fewer problems, as livestock move around towers and less land is lost. There have been reports of animals getting entangled in towers, but these occurrences seem to be minimal. During the construction and operational phase of the Matimba-Witkop No. 2 line (MQR PHS 2007), construction/maintenance teams have left gates open, didn't follow access roads, and cut through fences. The result was that less land was available for cultivation and grazing, cross breeding of cattle happened, and erosion accelerated – apart from the resultant negative economic impact, the safety of animals were impacted. The landowners would experience different levels of frustration should these activities and resultant impacts occur.

Considering the potential affect on agricultural activities, the **indication** is that:

- Damage of leaf tips occur at fairly high electric field levels at locations very close to the line. Trees growing this close to the power line have to be pruned and trimmed according to the electric utility's requirements for servitude management. At field levels outside the servitude, where tall trees are allowed and more likely to be found, the electric field levels will be low enough not to cause leaf tip damage.
- Electric and magnetic fields with levels typical of a power line environment, complying with the requirements for proper servitude management as prescribed by the electric utility, are unlikely to affect plants in terms of growth, germination and crop production.

Game farms/Nature reserves

Game capturing becomes problematic and dangerous, if not impossible, when game has to be captured in the vicinity of a power line using a helicopter/small aircraft. The helicopters fly low, and could collide with the line when herding game if these lines are not clearly marked. Should pilots fly higher to avoid the line, they may not be able to effectively herd the game. As a result of ineffective herding, game could collide with

fences, and be injured. Game farmers with power lines on their land reported that game moved into the servitudes during game capturing for protection. This made game capturing by aeroplane/helicopter more challenging.

Other than game capturing, game farm owners will experience similar potential impacts to cattle farmers during construction and operation. The difference is that the game is not domesticated and the potential impacts on animals are therefore not as easy to mitigate, prolonging the potential impact on their owners. During operation, maintenance by helicopter/small aircraft will be necessary, potentially impacting on game. Some landowners with power lines on their land have claimed that power line maintenance workers stole game in the past.

The presence of visitors and hunters during construction and maintenance might add to the stress of landowners, as they are responsible for the safety of these visitors.

Cultivated land/Grazing land

Damage to roads is often cited by landowners as a problem that develops due to construction, which could impact on safety of people and animals.

Landing strips

The CAA (Civil Aviation Association) recommends that there are no obstacles greater than 150 feet above the average runway elevation and within 2 000 metres of the runway mid-point. The impact of having to move the landing strip will not only be an economic one, but will also cause frustration. The location of landing strips are planned carefully to accommodate activities on the rest of the land and finding alternative suitable land may not be simple.

Mining

Planning a route for new power lines within areas of likely coal extraction needs to take the potential economic and safety impacts as a result of these land uses into account. For deep underground mining, potential impacts on health and safety is expected to be minimum (pbai & Margen Industrial Services 2007):

"Deep underground mining of coal, typically deeper than 500m, should have relatively little impact on power lines, but the mining of shallow coal reserves may lead to significant impacts on power lines in the near vicinity."

Blasting in open cast mines presents an environmental hazard to power lines, threatening their operation and supply reliability. A minimum 500m buffer is normally required around blast sites.

Dragline methods of excavation used in strip mining cannot be carried out in near proximity to overhead power lines for reasons of operational safety. The need for foundation stability means that an area much wider than the footprint of the towers needs to be preserved. This will vary according to the depth of the coal.

The span between towers may be 350m or more and it is theoretically possible to mine the coal between the towers. However, this presents technical complications in mine operation and, for power line operation and maintenance reasons, the entire servitude will need to be preserved for access to the towers, thereby sterilising coal reserves within along the entire servitude.

Shallow underground mining presents a different impact on power lines. Depending on the depth of the coal seam, even mining 150 to 250m below ground results in some surface settlement after mining has been complete. Settlement may only be 300mm or so, but may also be a metre or more where the coal seams are 5m or more (conditions vary depending on depth of the coal and type of overlying material). This presents a risk of collapse of the tower structures.

It is understood that towers may be designed to accommodate limited settlement - possibly 200mm depending on foundation conditions. However, settlement is difficult to predict with any accuracy and it is more common to either move the overhead lines or to leave 'pillars' of coal under the towers. The pillars will again be greater than the pylon footprint and, as with open cast methods; the process of coal extraction around the pillars is complex and more expensive."

Underground mining of platinum should have relatively little impact on power lines.

3. Cause of projected impact

The presence of power lines, their towers, and the activities of construction and maintenance workers will cause the impact (psycho-social and physical impact on people and animals).

4. Effect of projected impact

It is anticipated that the change in land use activities as a result of the presence of the power lines will potentially impact on the health and safety of animals and people.

5. Nature of impact

Negative: Although the impact will differ between landowners, the impact will be negative overall.

Cumulative: The impact might be less where existing lines occur as landowners have already adapted their activities to accommodate these existing lines.

6. Magnitude

The intensity of the impact on mental health (e.g. stress levels) is likely to be:

Grazing land: Low; Game farms, nature reserves, biosphere, national parks: Medium; Cultivated land: Low-medium.

7. Location / extent

The extent will be local as only landowners with lines crossing their land will be impacted. During construction, neighbouring farmers might be impacted, depending on access roads and proximity of the servitude to neighbouring farms.

8. Timing

The impact will be immediate, and may be experienced over a period of time.

9. Phasing

The presence of construction teams will be short-term, and the related impacts therefore short-term. The operational impacts will be long-term as once the power line is there the landowner will need to adapt his activities accordingly for the life span of the power line.

The presence of maintenance teams will intermittent during the lifetime of the power line.

10. Duration

The duration of physical health impacts depend on the nature of the impact/injury.

The duration of the psycho-social impacts depend on the frequency of occurrences, the nature of the impact (e.g. animals are negatively impacted), the personality of the landowner and the way in which the impact is addressed.

11. Likelihood

Grazing land, cultivated land, game farms, landing strips and centre pivots could be affected in the study area, and the health and safety impacts could occur as a result. This is a Category 2 impact.

12. Significance

See **Table 3.6**. Requires mitigation to ensure potential impacts are minimised.

13. Mitigation measures

See **Table 3.6**.

14. Cross cutting issues

- Participation: The negotiation process should be participatory. A grievances procedure should be in place.
- Poverty and equity: Those with cattle and crops for subsistence purposes should be considered and consulted and considered equally to commercial farmers.
- Gender: Female subsistence farmers on traditional land are vulnerable.
- Sustainability: A balance between the preservation of the environment, economic and social development should be achieved.

15. Principles

The most preferred alternative would be one that crosses grazing land for cattle, followed

by cultivated crop land where no Geographical Positioning System (GPS) equipment is used for agricultural activities. Land used for game, and where GPS equipment to cultivate land is used is least preferred. Where the line does cross areas with centre pivots; the line should preferably follow boundary lines of the pivot.

Game farm areas, more so where game is captured by helicopter/aircraft, should be avoided. It is proposed that power lines follow the borders of game farms and existing infrastructure such as roads and fences to mitigate the potential impacts of a power line going through areas where game is captured by helicopter/aircraft. Landing strips should be avoided.

Substation sites that allow for power lines to follow existing infrastructure, such as roads and power lines, should be given preference as the impacts on agricultural activities will be localised in one Corridor. However, potential cumulative impacts of a number of power lines running together should be considered.

Based on the preceding assessment, **Table 3.6** is completed.

Table 3.6: Assessment of Mental and Physical Health Impacts as a result of Land use Changes (Construction) – Corridors and Substation Sites

CONSTRUCTION		
Category 2	**Before Mitigation**	**After Mitigation**
Impact	Health impact as a result of the impact of construction activities on farming.	
Extent (Scale)	Site **(1)**	Site **(1)**
Duration	Very short **(1)**	Very short **(1)**
Magnitude		
Crop farming activities	Low **(2)**	Minor **(1)**
Cattle farming activities	Moderate **(3)**	Low **(2)**
Game farming activities	High **(4)**	Moderate **(3)**
Reversibility (all)	Reversible **(3)**	Reversible **(3)**
Probability Crop Farming		
Corridors 2, 8 4, 5, 6, 7	High **(4)**	Medium **(3)**
Corridor 1	Medium **(3)**	Low **(2)**
Probability Cattle Farming		

Corridor 1, 8, 4, 5, 6	Medium **(3)**	Low **(2)**
Corridor 2, 7	High **(4)**	Medium **(3)**
Probability Game Farming		
Corridors 1, 2, 8, 4, 5, 6, 7	High **(4)**	Medium **(3)**
Probability Cattle/Crop Farming substation sites		
Sites 1-3	High **(4)**	High **(4)**
Significance		
Crop Farming 2, 8, 4, 5, 6, 7	Low **(28)**	Low **(18)**
Crop Farming 1	Low **(21)**	Low **(12)**
Cattle Farming 1, 8, 4, 5, 6	Low **(24)**	Low **(14)**
Cattle Farming 2, 7	Medium **(32)**	Low **(21)**
Game Farming 1, 2, 8, 4, 5, 6, 7	Medium **(36)**	Low **(24)**
Substation sites 1, 3, 4	Medium **(32)**	Low **(28)**
Status	Negative	Negative
Mitigation	▪ To mitigate the potential impacts of transmission power lines on the health and safety of people executing game capturing and crop spraying activities by aircraft, the transmission power lines should avoid areas where these activities take place, e.g. put them along roads. If this is not possible, they should be put along the borders of farms, and lines should be marked. ▪ Where possible, towers should be located on the border of grazing areas and crop fields. ▪ Towers should be placed in such a way as to avoid impacting on the operation of centre pivots, as far as possible. ▪ Where possible, towers should be located on the border of the game farms and away from capturing nets to lessen the potential impacts. ▪ If necessary, mitigation measures should be implemented to avoid any negative impact on animals (e.g. fencing off the construction area). ▪ Eskom or its appointed contractor(s) should assist with the temporary relocation of livestock. ▪ It is suggested that construction not take place during animal breeding months or during the main hunting seasons (winter months). ▪ Construction activities should be communicated and finalised with the affected property owners, and adhered to. Should this not be possible, the landowner should be informed and consulted about alternative arrangements.	

	▪ A grievances procedure should be implemented. ▪ Two locks on either side of one chain gate could be used to ensure that the landowner always has access to the same lock even though Eskom/construction team might change the other lock. ▪ The negotiation process should consider the mitigation of all relevant health and safety impacts on people and animals. ▪ A common, standard to compensation should be applied to all properties. ▪ Landowners should be allowed to carry out servitude maintenance where they request this. ▪ Landowners should be aware that they can refuse to sign the release form after construction until they are satisfied with the level of rehabilitation. ▪ Discussions on conditions set for construction or maintenance between landowners and Eskom should involve the relevant parties from Eskom Transmission and the Regions when the need arises as *"we know what happens on site and what could be implemented."* ▪ Consultation between Eskom Lands & Rights and the Regions is important when conditions are set that impact on maintenance of the line. ▪ The process should be conducted with the necessary respect, and the negotiator should be transparent about the process and expectations (do not engage in "empty promises"). ▪ Negotiators should record everything that is discussed with landowners. ▪ Infrastructure damage and damage to irrigation pumps should be repaired to their original or a better state. ▪ The claim process for damage done by contractors should be simple. ▪ Landowners can request trees not to be cut. If this does not jeopardise safety or the operation of the line, this can be adhered to and stringing can be done by hand. ▪ Speed limits should be adhered to and construction vehicles marked. ▪ Any contact with wild animals should be avoided as far as possible.
The avoidance of game farms should be given preference to the avoidance of cattle farms and cultivated land. However, there seems hardly a difference between the three alternative Corridors in terms of approximate number of game farm portions irrespective of the size of these portions.	

Table 3.7: **Assessment of Mental and Physical Health Impacts as a result of Land use Changes (Operation) – Corridors and Substation Sites**

OPERATION		
Category 2	**Before Mitigation**	**After Mitigation**
Impact	Health impact as a result of the impact of construction activities on farming.	
Extent (Scale)	Local **(1)**	Local **(1)**
Duration	Very short-Long**(1-4)**	Very short-Long**(1-4)**
Magnitude		
Crop farming activities	Minor **(1)**	Minor **(1)**
Cattle farming activities	Low **(2)**	Minor **(1)**
Game farming activities	Moderate **(3)**	Low **(2)**
Reversibility (All)	Reversible **(3)**	Reversible **(3)**
Probability Crop Farming		
Corridors 2, 8 4, 5, 6, 7	Medium **(3)**	Low **(2)**
Corridor 1	Low **(2)**	Improbable **(1)**
Probability Cattle Farming		
Corridor 1, 8, 4, 5, 6	Low **(2)**	Improbable **(1)**
Corridor 2, 7	Medium **(3)**	Low **(2)**
Probability Game Farming		
Corridors 1, 2, 8, 4, 5, 6, 7	Medium **(3)**	Low **(2)**
Probability Cattle Farming substation sites		
Substation sites 1-3	High **(4)**	High **(4)**
Significance		
Crop Farming 2, 8 4, 5, 6	Low **(18-27)**	Low **(12-18)**
Crop Farming 1	Low **(12-18)**	Low **(6-8)**
Cattle Farming 1, 8, 4, 5, 6	Low **(14-20)**	Low **(6-9)**

Cattle Farming 2	Low **(24-30)**	Low **(12-18)**
Game Farming 1, 2, 8, 4, 5, 6	Low **(24-33)**	Low **(14-20)**
Substation sites 1-3	Low-Medium **(28-40)**	Low-Medium **(24-36)**
Status	Negative	Negative
Mitigation	▪ To mitigate the potential impacts of lines in close proximity of landing strips and helicopter pads, landing strips should be avoided to ensure that activities can proceed without risk and lines should be marked. ▪ Maintenance activities must be carefully planned and executed to ensure the least distress to game, and to co-ordinate hunting activities. ▪ A grievances procedure should be implemented. ▪ Two locks on either side of one chain gate could be used to ensure that the landowner always have access to the same lock even though Eskom/construction team might change the other lock. ▪ The maintenance activities, timeframes and maintenance programme should be clearly stipulated during the negotiation process. ▪ Maintenance workers should not get onto the premises without the permission of the landowner – also for their own safety. ▪ Landowners should be allowed to carry out servitude maintenance. ▪ Speed limits should be adhered to and maintenance vehicles marked. ▪ Any contact with wild animals should be avoided as far as possible.	
The avoidance of game farms should be given preference to the avoidance of cattle farms and cultivated land. However, there is hardly a difference between the three alternative corridors in terms of approximate number of game farm portions irrespective of the size of these portions. Considering the potential effect of the substation sites on agricultural activities, Sites 3 and 4 are preferred. Site 1 is more likely to affect cultivation activities on land immediately surrounding the site, and is least preferred. The proposed 400kV transmission power lines will follow a longer length of the existing Matimba-Witkop transmission power lines should Site 3 be selected and may localise impacts on agricultural activities. Site 3 is therefore preferred. The lines would also follow the existing Matimba-Witkop line if site 4 was selected.		

3.3.2 *Demographic Processes – Influx of Construction and Maintenance Workers and Job seekers*

Table 3.8: Description Health Impacts as a result of Influx of Workers

Impact Assessment Profile	
Sector/ Impact variable	Health and safety.
Change process	Demographic change: Influx of construction and maintenance workers.
Impact Parameter	Impact on health status as a result of influx of construction workers: HIV/Aids and Sexually Transmitted Diseases (STDs) increase.
Category	1
Sources consulted	PHA MQR 2007.
Areas of concern	• Females who live in poverty and disempowered females. • Those who have easy access to and/or are in close proximity to the construction village. • Lephalale and fast growing communities.
1. Status or incidence without the project (baseline) The health priorities within the study area on a provincial level are minimising the occurrence of HIV/Aids, tuberculosis, pneumonia, malaria, cancer and food poisoning. The national HIV and Syphilis antenatal sero-prevalence survey estimated that one in five pregnant women in the Capricorn District Municipality (CDM) jurisdiction had HIV. The assumption is that the WDM will show a similar profile due to its proximity to CDM and similarities in the urban-rural distribution and challenges in reaching rural communities. According to the Health and Safety Department (CDM IPD 2007/2008) a considerable amount of people within the CDM are situated outside the service area of the hospitals i.e. outside the 20km radius and lack basic health care facilities. Clinics are situated distances away and have to tend to a whole community.	
2. Projected status or incidence with the project Will the number of construction workers that are expected (see **Section 2.2**) significantly add to the increasing population numbers and contribute to an increase in the HIV/Aids transmission rates and STDs? The indication is that the transmission rates are already high; that the influx of people are already high and that the expected growth in population numbers without the project is likely to be significant. According to **Section 2.2** the expected number of construction workers can be significant during construction and the construction workers are likely to contribute to the infection rates. The HIV/Aids rates are not expected to change significantly as a result of maintenance	

workers, whether locals or labour from elsewhere is used, as the number of maintenance workers will be low and their presence not permanent.

3. Cause of projected impact

The sources consulted to compile Post-hoc Assessment (PHA MQR 2007) indicated that an influx of construction workers (temporary migration) into an area contributed to HIV/Aids, more so in areas where the affected communities were vulnerable. Research also seemed to indicate that construction workers are at risk of contracting HIV from members of local communities, as opposed to be solely responsible for transmitting the infection.

Due to their unique situation, construction workers engage in behaviour that makes them vulnerable, such as risky sexual behaviour (e.g. unprotected sex) and destructive behaviour (e.g. alcohol abuse, damaging the environment), which could be explained by their migratory status. When they are separated from their homes, they are also distanced from traditional norms, prevailing cultural traditions and support systems that normally regulate behaviour within a stable community. In addition, it might also be that construction workers who are faced with dangerous working conditions and the risk of physical injury might be more preoccupied by immediate (direct) risks and therefore tend to disregard salient (more indirect) risks, such as HIV infection. Added to this the local population might be uneducated about the risk and transmission of HIV and would therefore more easily engage in risky behaviour as a result of ignorance.

According to literature and interviews with representatives from contractors and Eskom during the Post-hoc study (PHA MQR, 2007) sexual relations between construction workers and local individuals are mainly driven by the possibility of financial gain by local women from the more affluent construction workers. In the Post-hoc study (PHA MQR 2007) it became clear that these sexual relations might be different from traditional sex work where sexual services were exchanged for money. Women from poor communities seemed to engage in transactional sex with construction workers where an exchange of commodities could take place.

Women seemed to visit men at the construction village or in the local communities in which workers stayed. Representatives from the contractor interviewed (PHA MQR 2007), indicated that some women stayed in the construction villages even though they were strictly speaking not allowed to. This was said to be allowed as *"construction workers work long hours and should be allowed these freedoms."*

In both of the construction villages that were visited for the Post-hoc assessment, women were found inside, washing clothes or hanging around the barracks. In a discussion with one of the construction workers on site, he said that the girls with whom they had a 'jol' also washed and cooked for them. This was confirmed by one of the women found in the camp who said that she wasn't paid for washing and cooking as she had a relationship with the man she washed and cooked for. In interviews with community members, sexual relations between the workers and local women seemed to be seen as a natural occurrence and no-one mentioned that these relationships were based on the exchange

of money or other benefits.

4. Effect of projected impact

It is anticipated that an increase in HIV/Aids/STDs will contribute to personal health problems and even death and will reduce the productivity of the individual. This in turn will affect the rest of the household. The availability, accessibility and correct use of anti-retrovirals together with responsible personal hygiene, a balanced diet, etc. reduce the intensity of the impact, allowing people to maintain their living standard.

5. Nature of impact

Negative: The people who are most likely to be impacted are poor and vulnerable and lack knowledge, money and the means required to maintain a healthy lifestyle in the face of HIV/Aids/STDs.

Cumulative: As a result of the projects listed in **Section 2.4** it is likely that more workers from outside the study area will arrive and contribute to the impact.

6. Magnitude

The magnitude could be high during construction, which will carry on for two to five years for the construction of the two proposed transmission power lines and the new substation. The intensity of the health impact could be high as people could die from HIV/Aids/STDs. The sexual activities will be focussed on the areas where construction workers are housed/where the construction village(s) is built. During operation, the magnitude will be low, as maintenance workers move through the area in a short period of time.

7. Location / extent

The extent will be up to a national level, should the workers be recruited from other areas. Migration is a cyclical process where workers depart once construction is completed. Local people might become part of the migratory work force because they have found a job with the contractor.

8. Timing

Delayed: Infections do not transpire immediately.

9. Phasing

The construction phase pose significant HIV/Aids/STDs risk, as this will be the period when employment will peak.

10. Duration

HIV/Aids/STDs will be a continuous long-term problem for both the impacted and affected local people and the workforce.

11. Likelihood

Based on the sources consulted, an increase in HIV/Aids and STD incidence is certain in the construction phase and less certain during the operation phase.

12. Significance See **Table 3.9.** Mitigation and a high level of workforce management are required to ensure that HIV/Aids/STD rates are controlled.
13. Suggested mitigation measures See **Table 3.9.**
14. Cross cutting issues • Participation: The involvement of local communities in awareness programmes and willingness to change behaviour depends on the effectiveness of mitigation and control of HIV/Aids/STD infection rates. • Poverty and equity: Low income families are particularly affected by HIV/Aids/STDs, especially if the breadwinner of the family is affected. The situation of low income households should be considered in the development of awareness programmes. • Gender: Females should be targeted in the communities, as they are usually most vulnerable. • Sustainability: If these programmes are to be sustainable, communities must be prepared to contribute to these programmes by, for example, contributing time to do home care of HIV/Aids patients and/or money. NGOs and mines will therefore have to be consulted to link up with existing HIV/Aids awareness programmes. These programmes, and programmes on provincial level, will have to be assessed for relevance and effectiveness.

Based on the assessment in **Table 3.8**, **Table 3.9** and **Table 3.10** are completed.

Table 3.9: Assessment of Physical Health Impacts as a result of Influx of Workers (Construction) – Corridors and Substation Sites

CONSTRUCTION		
Category 1	**Before Mitigation**	**After Mitigation**
Nature	Physical health impacts as a result of the presence of construction workers (impact could be death)	
Extent (Scale)	Site-International **(1-5)**	Site-International **(1-5)**
Duration	Short-Permanent **(1-5)**	Short-Permanent **(1-5)**
Magnitude	Moderate-Very high **(3-5)**	Moderate-Very high **(3-5)**
Reversibility	Reversible **(3)**	Reversible **(3)**
Probability	High **(4)**	Medium **(3)**
Significance	Medium-High **(32-72)**	Low-Medium **(24-54)**
Status	Negative	
Mitigation	▪ Aim for 30% local employment (PHS MQR 2007). ▪ An aggressive STD and HIV/AIDS awareness campaign should be launched, which is not only directed at construction workers but also at the community as a whole. Include training with women and focus on family planning and gender relations. ▪ Access at the construction site should be controlled to prevent sex workers from either visiting and/or loitering at the	

CONSTRUCTION	
	construction village. ▪ Construction workers should be clearly identifiable. Overalls should have the logo of the construction company on it and/or construction workers should wear identification cards. ▪ Local women should be empowered. This could be achieved by employing them to work on the project, which in turn would decrease their (financial) vulnerability. ▪ Regular leave should be given to workers and workers' families should be given opportunity to visit. ▪ A clinic should be on site/close to the village and anti retro virals available. ▪ Improve conditions at the construction village by providing entertainment. ▪ Mobilise local municipalities/authorities to do a skills audit and communicate skills levels and experience required to be employed by the project. ▪ Housing construction workers in communities could have more positive economic impacts (e.g. rental of room), but the potential health impacts as a result of more regular and consistent interaction with local inhabitants could be more significant. It therefore seems better to house construction workers in a village or separate housing area.

Table 3.10: Assessment of Physical Health Impacts as a result of Influx of Workers (Operation) – Corridors and Substation Sites

OPERATION AND MAINTENANCE		
Category 1	**Before Mitigation**	**After Mitigation**
Nature	Physical health impacts as a result of the presence of maintenance workers (impact could be death)	
Extent (Scale)	Site-International **(1-5)**	Site-International **(1-5)**
Duration	Short-Permanent **(1-5)**	Short-Permanent **(1-5)**
Magnitude	Moderate-Very high **(3-5)**	Moderate-Very high **(3-5)**
Reversibility	Reversible **(3)**	Reversible **(3)**
Probability	Medium **(3)**	Low **(2)**
Significance	Medium **(24-54)**	Low-Medium **(16-36)**
Status	Negative	
Mitigation	▪ Aim for 30% local employment (PHS MQR 2007). ▪ Maintenance workers should be clearly identifiable. Overalls should have the logo of the construction company on it and/or construction workers should wear identification cards.	

Influx of job seekers

The sources consulted indicate that an influx of **job seekers** into an area contributes to HIV/Aids, more so in areas where the affected communities are vulnerable.

At the start of the construction period, surrounding communities become aware of job opportunities that might arise from the construction of the line. In response to the possibility of getting a job on site, job seekers approach the construction camp, where the site office is located. Although a small number of job seekers could be employed in this way, job seekers mostly hang around the camp for a few days in the hope of securing a job on site. Job seekers may then erect temporary houses in the area and stay on even when the project is completed.

The influx of job seekers into the environment will lead to pressure on local services and will not necessarily lead to a boost in the local economy, since these job seekers are unemployed. The influx of job seekers might further lead to conflict with local residents in respect of competition over limited job opportunities. The presence of job seekers might contribute to the spread of HIV/Aids. The potential impact is assessed in **Table 3.11**

Table 3.11: Assessment of Physical Health Impacts as a result of Influx of Job Seekers (Construction) – Corridors and Substation Sites

CONSTRUCTION		
Category 1	**Before Mitigation**	**After Mitigation**
Impact	Physical health impacts as a result of the influx of job seekers (impact could be death)	
Extent (Scale)	Site-International **(1-5)**	Site-International **(1-5)**
Duration	Short-Permanent **(1-5)**	Medium-Permanent **(3-5)**
Magnitude	Moderate-Very high **(3-5)**	Low **(2)**
Reversibility	Reversible **(3)**	Reversible **(3)**
Probability	Medium **(3)**	Medium **(3)**
Significance	Medium **(24-54)**	Low-Medium **(27-46)**
Status	Negative	
Mitigation	▪ If the construction camp is located within an established community, employment procedures are discussed with the local leaders and followed to ensure that the community reaps the benefits from employment opportunities. ▪ An Influx Management Plan should be developed and executed. ▪ Have a recruitment desk away from the construction camp and construction areas. ▪ Do not informally employ job seekers on site and at the construction village. ▪ Mobilise local municipalities/authorities to do a skills audit and communicate skills levels and experience required to be employed by the project. ▪ Aim for 30% local employment (PHS MQR 2007).	

3.3.3 *Socio-cultural Processes – Influx of Workers*

Table 3.12: **Description of Socio-cultural Changes as a result Influx of Workers**

Impact Assessment Profile	
Sector/ Impact variable	Socio-cultural.
Change process	Cultural changes as a result of different culture of construction workers, and the presence construction workers.
Impact Parameter	Psycho-social impact on community and individual level.
Category	2
Sources consulted	• Comments & Responses Report. • Issues Registers and reports from previous projects in the area. • PHA MQR 2007.
Areas of concern	• Men at public social gatherings where alcohol is consumed. • Shebeens. • Villages with lack of services and high poverty rates. • Lephalale town which is already over burdened, areas where high population increases are expected.
1. Status or incidence without the project (baseline) The study area includes the Tribal Authorities: Laka, Shongoane, Seleka, Lekalakala, Bekenburg, Mapela, MokopaneDikgale, Moletsit, Bakone, Maraba and Mashashane Traditional Councils. The majority speaks Setswana and communities live in peace together. According to feedback from the communities alcohol abuse does occur. Unemployment is high. White landowners are mostly Afrikaans speaking. The different cultural groups seem to tolerate each other.	
2. Projected status or incidence with the project The proposed project might result in conflict between workers and the local communities. Conflict might be experienced with all sectors of the society in the study area because of differences in culture, competition for services, and the unwanted presence of workers on private land. The significance of the impacts of socio-cultural changes is difficult to determine on a prospective basis and are dependent on the demographic profile of, for example, construction workers and whether or not such differences matter to local residents. For example, if construction workers were from a different cultural background than locals, conflict could be expected if such different cultural backgrounds were not respected. Conflict between members of communities could be experienced should some members accept the workers, and others not. However, the study conducted by MasterQ Research (2007) to provide an evidence based	

approach for the assessment of social impacts during the construction of high voltage transmission power lines, gave an indication of the changes that can be expected as a result of the project. The results are discussed in the next section.

3. Cause of projected impact

Alcohol abuse among construction workers might be a problem during construction, especially after workers had have received payment. The issues relate to alcohol's effect on behaviour – sometimes causing irresponsible behaviour that could escalate to violence or conflict between individuals or groups.

Communities with a **lack of services**: Villages in the area lack the capacity to accommodate additional people. Although the presence of construction workers and job seekers could lead to positive impacts such as a temporary boost in the local economy, a village/town that is unable to meet its own needs might be unable to sustain additional demands on the local services, which might lead to negative impacts such as conflict if services were depleted (e.g. the local grocery store running out of supplies due to the extra demand) or not provided adequately (e.g. sanitation).

The presence of construction workers who enter and move about on private property due to the construction of the transmission power line and substation could lead to conflict because of a **perceived lack of control**. Landowners felt that their privacy was invaded with the construction and maintenance of the Matimba-Witkop No. 2 transmission power line (PHA MQR 2007). A common emotion amongst landowners, according to one interviewee, was: *"You're on my land; I don't have any control over what happens here."* This sentiment was confirmed by a number of landowners that were interviewed for the Post-hoc study. For a landowner that valued and cared for his property, the invasion of strangers was difficult. One of the comments made on what this invasion feels like was related as follows: *"Maande lank is daar vreemdelinge wat in jou huis is"* (there are strangers in your house for months on end).

The presence of these "strangers" on their property also sparked some **safety and security concerns** amongst landowners. This was said within the context of increased violent crimes conducted against farmers in South Africa. Construction workers could be blamed for crime and violence in the area.

4. Effect of projected impact

It is anticipated that the presence of construction workers and Eskom representatives could lead to conflict between Eskom/construction team and impacted people, and amongst impacted people, which could result in mental and physical health impacts, and may result in community cohesion breakdown.

5. Nature of impact

Negative: Conflict between Eskom/construction team and impacted people, and amongst impacted people.

Cumulative: Other Eskom projects in the study area. The simultaneous influx of

appointed construction workers together with the influx of job seekers would further increase the demand on services to the detriment of the receiving environment.
6. Magnitude The intensity of the impact is expected to be limited, as this is a linear project and not a localised project such as a mine.
7. Location / extent The extent will be up to a local level.
8. Timing The impact will build up prior to construction and build up during construction after which it will reduce over time. It might flair up when maintenance workers are present.
9. Phasing The construction phase poses the highest risk. During construction employment will peak.
10. Duration Intermittent during operation, and more continuous during construction.
11. Likelihood It is difficult to determine on a prospective basis whether the impact will occur.
12. Significance See **Table 3.13**. Requires mitigation.
13. Suggested mitigation measures See **Table 3.13**.
14. Cross cutting issues • Participation: An accessible grievances mechanism should be in place to give even the impacted people the opportunity to lodge complaints. • Sustainability: Should additional services have to be provided by Eskom, the services should be available to the local communities after construction or existing services should be upgraded.

Based on the discussion in **Table 3.12**, the assessment is done in **Table 3.13**.

Table 3.13: Psycho-social Impact as a result of Influx of Workers (Construction and Operation) – Corridors and Sites

CONSTRUCTION		
Category 2 Impact	**Before mitigation**	**After mitigation**
Impact	Psychosocial impact on community level and on individuals as a result of different culture of construction workers, and the presence construction workers.	
Extent (Scale)	Site **(1)**	Site **(1)**
Duration	Very short **(1)**	Very short **(1)**
Magnitude	Moderate **(3)**	Moderate **(3)**
Reversibility	Reversible **(3)**	Reversible **(3)**
Probability	High **(4)**	Medium **(3)**
Significance	Medium **(32)**	Low **(24)**
Status	Negative	Negative
OPERATION AND MAINTENANCE		
Impact	Psychosocial impact on community level and on individuals as a result of different culture of maintenance workers, and the presence maintenance workers.	
Extent (Scale)	Site **(1)**	Site **(1)**
Duration	Very short **(1)**	Very short **(1)**
Magnitude	Moderate **(3)**	Low **(3)**
Reversibility	Reversible **(3)**	Reversible **(3)**
Probability	Medium **(3)**	Low **(2)**
Significance	Low **(24)**	Low **(14)**
Status	Negative	Negative
Mitigation	▪ To ensure support of the project and reduce the risk of social mobilisation, Eskom should at all times be seen to care about the local community. The community members need to feel that they receive some tangible benefits from the project, e.g. direct and indirect employment. The undertakings in the EMP should also be implemented effectively and with due diligence. ▪ Construction workers are to be introduced to the local leaders and landowners. ▪ Local leaders should be made aware that only limited job opportunities will be created. ▪ The local leaders should also be informed about the nature of a linear project, and that labourers will probably move along the route as construction progresses. ▪ Educate women regarding gender issues and negotiating safe sexual behaviour. ▪ No firearms should be allowed on the construction site. ▪ Security guards should be appointed. ▪ Construction and maintenance workers should be clearly identifiable by wearing overalls and/or identification cards.	

	▪ Consult with local landowners prior to maintenance work taking place on the transmission power line, to inform them of when the maintenance team will be on site, for how long, and approximately how many persons the team will consist of.

3.3.4 *Socio-cultural Processes – Nuisance Impacts*

Table 3.14: **Description of Nuisance Impacts**

Impact Assessment Profile	
Sector/Impact variable	Socio-cultural.
Change process	Change in sense of place.
Impact Parameter	Nuisance impacts.
Category	2
Sources consulted	• Comments and Responses Report. • Issues Registers and reports from previous projects. • PHA MQR 2007.
Areas of concern	Private landowners.
1. Status or incidence without the project (baseline) Currently the main causes of nuisance impacts are trucks on roads passing through Lephalale and Mokopane and the main rural roads as well as mining activities.	
2. Projected status or incidence with the project Nuisance impacts will mainly occur during construction. During operation nuisance impacts will occur during maintenance activities. It is not likely that noise as a result of the project will contribute considerably to noise levels in already noisy areas such as busy roads, mines, and towns.	
3. Cause of projected impact Noise originates from chainsaws, drill machines and bull dozers on site. Helicopters along the line during maintenance could also impact on landowners. The number of trucks on the site could increase to around 20 for one line. In addition, two bull dozers, two excavators, two big cranes and two drill rigs could be expected on site. In addition to the heavy vehicles, workers move around in light trucks (bakkies). It is estimated that a maximum of around 25 bakkies will be on site during the busiest periods of construction. Stringing activities require the most vehicles. However, noise levels are expected to be low and only people living in close proximity to a construction site will be exposed to noise generated by the construction activities taking place. Speeding of construction vehicles and dust could be an issue to landowners and affected communities surrounding the construction site.	

The construction camp could be noisy, and may contribute to nuisance impacts should it be away from villages – villages in general are noisy.
4. Effect of projected impact Landowners and inhabitants as well as visitors might experience the impacts as nuisance impacts. The effect of the impacts is difficult to determine on a prospective basis as people differ in this regard.
5. Nature of impact Negative: Noise and dust. Cumulative: Construction activities from other projects in the area.
6. Magnitude Construction will carry on for maximum three years. The intensity of the impact is expected to be limited and low, as this is a linear project and activities do not generate excessive noise and dust. Construction of the substation is likely to be more intense.
7. Location / extent Local.
8. Timing Immediate.
9. Phasing The construction phase poses highest risk, as this will be the period when activities will peak.
10. Duration Short term during construction. Intermittent during operation.
11. Likelihood Likely.
12. Significance See **Table 3.15**. Requires mitigation.
13. Suggested mitigation measures See **Table 3.15**.
14. Cross cutting issues • Participation: Eskom is to engage with local communities throughout the process. • Poverty and equity: A grievances mechanism should be accessible to the vulnerable people as well.

Based on the discussion in **Table 3.14,** the assessment is done in **Table 3.15.**

Table 3.15: Assessment of Nuisance Impacts (Construction and Operation) – Corridors and Substation Sites

CONSTRUCTION		
Category 1 Impact	**Before mitigation**	**After mitigation**
Impact	Change in sense of place as a result of nuisance impacts. Difficult to determine on a prospective basis.	
Extent (Scale)	Site **(1)**	Site **(1)**
Duration	Very short **(1)**	Very short **(1)**
Magnitude	Low **(2)**	Low **(2)**
Reversibility	Reversible **(3)**	Reversible **(3)**
Probability	Medium **(3)**	Medium **(3)**
Significance	Low **(21)**	Low **(21)**
Status	Negative	Negative
OPERATION AND MAINTENANCE		
Impact	Change in sense of place as a result of nuisance impacts.	
Extent (Scale)	Site **(1)**	Site **(1)**
Duration	Very short **(1)**	Very short **(1)**
Magnitude	Low **(2)**	Low **(2)**
Reversibility	Reversible **(3)**	Reversible **(3)**
Probability	Low **(2)**	Low **(2)**
Significance	Low **(14)**	Low **(14)**
Status	Negative	Negative
Mitigation	Construction Mitigation: ▪ Affected parties should be informed about the construction schedule. ▪ Adjacent property owners should also be consulted regarding construction activities. ▪ Construction activities should not take place between 18:00 and 06:00. ▪ Construction should not be done on Sundays or public holidays and contractors should get permission from landowners to carry on with construction activities on these days. ▪ The hunting season (winter) should be taken into account. ▪ Ensure that the owners/residents are informed about imminent noise before it starts. ▪ The negotiation process should include agreements on construction activities. Dust: ▪ Keep to speed limits. ▪ Water roads. Corona ▪ Avoid dwellings / lodges. Operation Mitigation: ▪ Affected parties should be informed about the maintenance schedule.	

	▪ Maintenance should not be done on Sundays or public holidays. It is important to have some mechanism in place that Eskom can undertake maintenance at these times if necessary. ▪ The hunting season (April to August) should be taken into account, and game farms where hunting takes place be avoided.

3.3.5 *Socio-cultural Processes – Impact on Sense of Place*

Table 3.16: **Description of Impact on Sense of Place**

Impact Assessment Profile	
Sector/Impact variable	Cultural.
Change process	Change in sense of place.
Impact Parameter	Sense of place (operation).
Category	2
Sources consulted	• Comments and Responses Report. • Issues Register and reports from previous projects. • PHA MQR 2007. • SES MQR 2007.
Areas of concern	Game farms and nature reserves

A sense of connectedness a person/community feels towards a place or places cannot be measured in monetary terms. It is because of a **sense of place** and belonging that some people loath to be moved from their dwelling place, despite the fact that they will be compensated for the inconvenience and impact on their lives.

Place attachment is a construct that is used to determine and/or explain sense of place. Kyle et al. (2003b page 250) stated that place attachment *"is the extent to which the individual values or identifies with a particular environmental setting."* It has to with meaning and value, an intimate connection with an environment.

Place attachment is generally recognised as having two components: **Place Identity** and **Place Dependence**. According to Proshansky et al. (1983) place identity refers to the way in which a person views the self in relation to the environment. It refers to the way in which a person uses a place to construct or maintain self-identity (e.g. a conservationist). In contrast, place dependence refers to the way in which the environment is able to fulfil the intentions of the user (e.g. hunt, farm, relax).

Stedman (2003b) presented research that has found that repeated experience led to strengthening of attachment, including developing emotional ties and self-identity. The familiarity with an area such as the bushveld may therefore differ between hunters and local people, leading to differences in attachment. However, research findings indicate that direct contact with a place is not necessary for place attachment to develop. Proponents of the socio-cultural perspective on sense of place support this research.

Blake (2002) argued that places could have symbolic and cultural meaning for groups of people, which leads to place attachment even though they have never been there

Research has shown that locals have a higher degree of place attachment to designated protected areas than tourists. Those who had more to lose financially also displayed stronger place attachment (Bonaiuto et al. 2002).

Stedman (2003a) uses the term **place meanings** to describe the dimension of sense of place which is more cognitive than emotional (place attachment is more emotional). It has to do with evaluative and symbolic beliefs. "The bushveld is a place favoured by hunters" is place meaning. Place attachment is communicated by: "My favourite place is the bushveld." According to him, place meaning can change over time, independently of place attachment. Levels of attachment may not change despite the presence of a power line, but the meanings that people attach to it may change. A game farm with a power line may not mean "Africa" to hunters, and hunters do not become attached to the farms.

Levels of attachment might not change because place attachment may be based on social relationships, rather than the physical appearance of a landscape. Extended families who have stayed in the "bushveld" for generations might eventually be more willing to "live with the line" than weekend farmers who bought their land for reasons such as "to break away from the city."

1. Status or incidence without the project (baseline)

The sense of place of the area is experienced differently by different groups of people: tourists, owners of tourist establishments, owners of commercial agricultural farms, family farms, owners of weekend farms and those living in traditional areas.

Tourism establishments and nature reserves in the area aim to achieve a very specific sense of place, e.g. Africa and bushveld, and the sense of connectedness is created by ensuring that the elements that make up "Africa" and "bushveld" are preserved. This is a major drawing card for both tourists and private landowners in the study area. Research by STRISA (2003) on the Lephalale area found: *"Additional research has indicated that the 'atmosphere of the bushveld' is a major reason for people to visit the area. The pace of life is slower than in the big urban areas and the opportunities to completely relax and 'switch off' make the Lephalale area a destination that contrasts quite sharply with other nature and wildlife destinations which, generally, are 'busier' and not as relaxed. The urban markets, especially in Gauteng, have a strong desire to visit 'the bush' and Mpumalanga has clearly established itself as the first choice wildlife/nature destination for the majority of Gauteng holiday makers. The fact that the 'Big 5' are more readily accessible in many parts of Mpumalanga, as well as in private reserves in the Eastern and Southern Waterberg and reserves closer to Gauteng such as Pilanesberg, contributes to the popularity of these areas compared to Lephalale."*

The owners of tourism establishments aim to achieve a cultural landscape of wildlife/nature destination to attract tourists. The main concern is therefore to preserve the landscape (and minimise the impact on sense of place) in order to mitigate potential economic impacts and to be able to carry on with the intended activities (owners specifically decided to establish game farms, and not for example resorts, because of a

connection and attachment to what it represents). The perception of the affected owners of tourist destinations, weekend farmers and tourists is that the game areas are pristine bushveld - meaning and value are therefore attached to the appearance of the landscape. This is culture. *"Culture is the medium through which people transform the phenomenon of the material world into a world of significant symbols to which they give meaning and attach value. Cultural landscape includes tangible and intangible things, and is the way in which perceptions, beliefs, stories and practices give shape, form and meaning to landscape. Sense of place is how a person thinks, feels, and behaves in a place. It is about the aesthetic appreciation of a geographical and/or cultural landscape. It is about connectedness (Burke et al 2004)."*

For those who have had family farms in the area for generations, the power lines are said to have an impact on their sense of place and therefore the cultural landscape. For owners of commercial farms, the main concern seems to be the impact of the power lines on their farming activities and not on their sense of place.

The power lines could impact on the cultural landscape. However, despite the presence of two (2) 400kV transmission power lines on tourism establishments in the study area, tourists still visit these establishments. The lack of Transmission power lines does therefore not appear to be a prerequisite for tourists to visit an area.

The people from a lower socio-economic background (e.g. those from Traditional areas) are more concerned about the potential economic benefits of the line and not the potential impact on sense of place. People seem to be willing to leave their villages should they get job opportunities elsewhere. These residents mostly focus on fulfilling very basic needs and they might fail to comprehend the associated impacts that the proposed project would bring to sense of place. Their lack of understanding has bearing on future generations that will inhabit the area.

2. Projected status or incidence with the project

A survey completed by MasterQ Research (SES MQR2007) concluded the following about the potential impact of lines on tourists' experience of the areas east and south of Lephalale:

- There might be a decrease in international and local visitors with very specific expectations, should Transmission power lines cross game farms. It seemed as if the hunting experience included a natural setting and an appreciation for a pristine natural environment for most hunters. Although research amongst visitors should be conducted to confirm this hypothesis, it is expected that some international tourists come to a game farm in Africa to experience the wilderness. A visible Transmission power line would detract from the experience, and other farms without lines might be preferred.
- Not all potential tourists would be lost. Game farms with power lines crossing their property are still in business. In fact, some of these owners reported a 100% occupation in the hunting season. Visitors included international hunters. However, results of depth interviews with game farmers indicated the presence of a power line

detracted from the sense of place of a game farm, which had financial implications. Game farmers said that they lost some of their income potential due to the visual impact of the power line on their property, and that it was not easy to mitigate the presence of the line. Game farmers interviewed indicated that it was difficult to quantify the loss in income as a result of the line going through their property. However, they had comments from tourists regarding the negative visual impact of the line.

- The decision whether to hunt on a farm with a power line depends on the hunters' expectations. Hunters might want a wilderness experience, but also a good trophy and value for money. A game farm with a power line might be given preference should it better fulfil the expectations of the visitor. This does not mean that the strategic placement of the power lines is not important. The bigger the farm, the easier it would be to manage the farm and hunting safari around the transmission power line. It will also be more difficult to strategically place lines in flat areas.
- The international definition of eco-tourism is not only experiencing nature, it includes diverse community activities and cultures of a country's inhabitants as well as its sensitive natural resources. The key here is that local communities are included in the activities of the reserve/park, and many jobs are afforded – for example Pilanesberg National Park. Most of the game farms are therefore not eco-tourism destinations in the strict sense of the word, as exposure to diverse community activities and cultures are not offered. The main focus is hunting.
- The placement of the line will be crucial to reduce potential socio-economic and socio-cultural impacts. The final recommendations in the Social Impact Assessment will have to be informed by the Visual Impact Assessment.
- Should hunters not book as a result of the line, the money already spent on marketing might prove to have been a waste of money. The game farm owner might have to change his target market once a power line is on his farm. This might involve a new marketing strategy. It will take years to build up a strong customer base in a new segment of the hunter population.
- Not only game farms with power lines might experience the possible loss of visitors, but also the neighbouring game farms. Game farmers might have to divert game routes and roads on their farms to steer hunters clear of the lines. This will have an economic impact.
- It might be difficult to find a similar property elsewhere in South Africa. Purchasing at replacement value should be considered, and depreciation of the property as a result of the power line(s). Eskom does a before and after valuation exercise.
- Loss of jobs as a result of the presence of the lines should be considered in the final assessment.
- Ideally, a study in tourism areas needs to be done to determine the loss of livelihood as a result of a line. Such a study should involve a baseline measurement of the situation prior to the construction of the power line, followed by an assessment post the construction of the power line. The assessment should be done over a period of

years, and changes in other variables such as marketing etc. should be considered in the assessment. Ideally, a control group should also be part of the study to assess whether measured changes could be as a result of what was happening in the area, e.g. a decrease in tourism figures was happening in the whole area, and not only on those properties with a power line. The control group should consist of farms with and without a transmission power line.

The acceptance of power lines in nature/game areas are strengthened by the fact that

- People still visit the Ben Alberts Nature Reserve and the Waterberg Biosphere, for example, despite the presence of power line(s).

It is important to note that

- Higher and lower sensitivity will apply to different farms depending on the size of the land, the topography, the flora and the number of existing lines on the land, the landowners' history with the land, use of the land, and attachment to the land, and the significance of impacts after mitigation will therefore be very farm specific.

3. Cause of projected impact

Research on the psychological experience of sense of place suggests that people rapidly discount a landscape as soon as the first scar occurs, rather like a stain ruining a favourite garment (Petrich 1993). Thereafter, any additional impacts on the landscape have a correspondingly smaller effect. Hence, the aesthetic impact of placing a transmission line in a landscape that already bears the marks of development would be less than that of placing it in a relatively unspoilt environment. In discussing the diverse research showing that people overwhelmingly prefer "nature scenes" to urban and built environments, Zadik (1985) explains *"people seem to respond to environments as natural if the areas are predominantly vegetation and do not contain human artefacts such as roads or buildings."*

The above is strengthened by the results of a study to determine the value of interior plants to the hotel/tourism industry, in which Evans and Malone (1992) conducted a study at Opryland. The 12 acres of indoor space has approximately 18,000 plants valued at over $1 million. The annual, horticultural budget is approximately $1.2 million. The study attributes several positive impacts to the "greatscapes" -- the unusually high occupancy rate of 85%, numerous awards and continued expansion. Most importantly, the higher rate ($30/night) for those rooms overlooking the gardens and the high occupancy rate of those rooms translate into $7 million in additional room revenue annually.

Sense of place is directly linked to the natural environment and apart from the visual impact, the impact on nature will also impact on sense of place: *"The installation of linear infrastructure in natural environments necessarily requires the disturbance of long sections of natural habitat, soil and geological structure modification and even interference with stream ecology and dynamics. These impacts have the obvious effect of killing plant and animal life in the direct path of the disturbance, but also lead to secondary impacts such as weed infestation, habitat degradation, erosion, changes in groundwater dynamics etc…..Any form of disturbance regime within a natural habitat will result in impacts that radiate outwards from the point of disturbance. The impacts are*

jointly called 'edge effects' and may include the spread of invasive species, changes in microclimate and changes in species composition due to the change in habitat and life process opportunities. Edge effects effectively extent the overall environmental impact of any infrastructure project beyond the immediate transformed servitude area, and perpetuate the impacts even after the initial disturbance has been rehabilitated (Dinokeng Environmental Management Framework 2009)." In addition, the servitude fragments the landscape, which impacts on sense of place.

4. Effect of projected impact

Dissatisfaction with their surroundings (sense of place) could lead to a reduction in visitor numbers which could have an economic and mental health impact on owners and workers. Landowners might want to sell their land and/or might have to adapt activities to accommodate the lines.

5. Nature of impact

Negative.

Cumulative: The existing lines in the area have already scarred the landscape and the cumulative impact of more lines along existing lines might not be as negative compared to putting lines through areas with no power lines. For tourists the impact on sense of place might be more pronounced where lines are constructed along existing lines.

6. Magnitude

The impact on sense of place will be different for different people and will also depend on the way the land is utilised.

7. Location / extent

The extent will be up to a local level or regional level should lines be spread out.

8. Timing and Phasing

The construction activities will already impact on the sense of place, and the impact will be experienced during the lifetime of the project. The lines will become part of the landscape and will have to be absorbed as part of the cultural landscape.

10. Duration

The impact on sense of place will be felt during the lifetime of the lines.

11. Likelihood

The impact on sense of place will be felt by affected people and visitors to the area. Based on the sources consulted, game farm owners seem to be most concerned about the impact of the power lines on sense of place, more so than commercial farmers who seem to be more concerned about the potential impact on their farming activities. Inhabitants with lower incomes seem more concerned about potential job opportunities.

12. Significance

See **Table 3.17**. Requires mitigation.

13. Suggested mitigation measures

See **Table 3.17**.
14. Cross cutting issues • Participation: The involvement of landowners in the EIA and negotiation processes is important to ensure that impacts are mitigated. • Poverty and equity: Low income households are mostly concerned about job opportunities and not the impact on sense of place. This does not mean that sense of place should not be considered in the assessment of their areas. • Sustainability: Smaller game farms, and those with a number of lines already on their land might become unsustainable.

Based on the discussion in **Table 3.16,** the assessment is done in **Table 3.17.**

Table 3.17: **Assessment of Impact on Sense of Place (Construction and Operation) - Corridors**

CONSTRUCTION		
Category 1 Impact	**Before mitigation**	**After mitigation**
Impact	Change in sense of place as a result of the presence of the line.	
Extent (Scale)	Site **(1)**	Site **(1)**
Duration	Very short term**(1)**	Very short term**(1)**
Magnitude	Low **(2)**	Low **(2)**
Reversibility	Reversible **(3)**	Reversible **(3)**
Probability	High **(4)**	High **(4)**
Significance	Low **(28)**	Low **(28)**
Status	Negative	Negative
OPERATION CORRIDOR 1		
Category 2 Impact	Change in sense of place as a result of the presence of the line.	
Extent (Scale)	Site **(1)**	Site **(1)**
Duration	Long **(4)**	Long **(4)**
Magnitude	High **(4)**	Moderate **(3)**
Reversibility	Reversible **(3)**	Reversible **(3)**
Probability	High **(4)**	High **(4)**
Significance	Medium **(48)**	Medium **(44)**
Status	Negative	Negative
OPERATION CORRIDOR 2		
Category 2 Impact	Change in sense of place as a result of the presence of the line.	
Extent (Scale)	Site **(1)**	Site **(1)**
Duration	Long **(4)**	Long **(4)**
Magnitude	Moderate **(3)**	Low **(2)**

Reversibility	Reversible **(3)**	Reversible **(3)**
Probability	High **(4)**	High **(4)**
Significance	Medium **(44)**	Medium **(40)**
Status	Negative	Negative
OPERATION CORRIDOR 8		
Category 2 Impact	Change in sense of place as a result of the presence of the line.	
Extent (Scale)	Site **(1)**	Site **(1)**
Duration	Long **(4)**	Long **(4)**
Magnitude	Low **(2)**	Low **(2)**
Reversibility	Reversible **(3)**	Reversible **(3)**
Probability	High **(4)**	High **(4)**
Significance	Medium **(40)**	Medium **(40)**
Status	Negative	Negative
OPERATION CORRIDOR 4		
Category 2 Impact	Change in sense of place as a result of the presence of the line.	
Extent (Scale)	Site **(1)**	Site **(1)**
Duration	Long **(4)**	Long **(4)**
Magnitude	High **(4)**	Moderate **(3)**
Reversibility	Reversible **(3)**	Reversible **(3)**
Probability	Medium **(3)**	Medium **(3)**
Significance	Medium **(36)**	Medium **(33)**
Status	Negative	Negative
OPERATION CORRIDOR 5, 6, 7		
Category 2 Impact	Change in sense of place as a result of the presence of the line.	
Extent (Scale)	Site **(1)**	Site **(1)**
Duration	Long **(4)**	Long **(4)**
Reversibility	Reversible **(3)**	Reversible **(3)**
Magnitude	Moderate **(3)**	Moderate **(3)**
Probability	Medium **(3)**	Medium **(3)**
Significance	Medium **(33)**	Medium **(33)**
Status	Negative	Negative
Mitigation	▪ Mitigation measures detailed in the Visual Impact Assessment and Ecological Assessment must be implemented. ▪ Eskom considers buying the farm should power lines take up more than 50% of the land. This guideline should be revised, as farmers might lose their livelihood where Eskom lines take up less than 50% of their land. The impact on livelihoods should be monitored and evaluated before and after the construction of the line. ▪ As far as possible, construction activities should be limited to the summer months to ensure that hunting activities are not adversely affected. ▪ As far as possible, maintenance activities should be limited to the	

	summer months to ensure that hunting activities are not adversely affected. ▪ As far as possible, the Transmission power line should follow existing infrastructure, such as roads and existing transmission power lines as this type of environment is already regarded as "stained." ▪ A pre- and post valuation should be conducted for properties during the negotiation process. ▪ Farm workers should be compensated for loss of livelihood should they lose their jobs. ▪ It is difficult to follow borders of farms, because the Corridors mostly cross them and do not follow them. This might mean that some farms might have to be bought out. The mitigation measure to ensure that these landowners are the same or better of than before should include: - Consideration of cost of and availability of similar farms; - Ensuring that those who lose jobs as a result, find other jobs; ▪ Not only land value, but expenses incurred to market and run the game farm should be considered.
The preferred corridors are Corridors 8 followed by 2 and 5/6.	

In terms of the **substation sites**, the assessment is as follows:

Table 3.18: **Assessment of Impact on Sense of Place (Construction and Operation) – Substation Sites**

CONSTRUCTION		
Category 2 Impact	**Before mitigation**	**After mitigation**
Impact	Change in sense of place as a result of the presence of the substation.	
Extent (Scale)	Site **(1)**	Site **(1)**
Duration	Very short **(1)**	Very short **(1)**
Magnitude	Low **(2)**	Low **(2)**
Reversibility	Reversible **(3)**	Reversible **(3)**
Probability	High **(4)**	High **(4)**
Significance	Low **(28)**	Low **(28)**
Status	Negative	Negative
OPERATION SUBSTATION SITES 1 and 3		
Category 2 Impact	Change in sense of place as a result of the presence of the line.	
Extent (Scale)	Site **(1)**	Site **(1)**
Duration	Long **(4)**	Long **(4)**
Magnitude	Moderate **(3)**	Moderate **(3)**
Reversibility	Reversible **(3)**	Reversible **(3)**
Probability	Low **(2)**	Low **(2)**
Significance	Medium **(24)**	Medium **(24)**
Status	Negative	Negative

OPERATION SUBSTATION SITE 4		
Impact	Change in sense of place as a result of the presence of the line.	
Extent (Scale)	Site **(1)**	Site **(1)**
Duration	Long **(4)**	Long **(4)**
Magnitude	Low **(2)**	Low **(2)**
Reversibility	Reversible **(3)**	Reversible **(3)**
Probability	Low **(2)**	Low **(2)**
Significance	Low **(20)**	Low **(20)**
Status	Negative	Negative
Mitigation	▪ Mitigation measures detailed in the Visual Impact Assessment and Ecological Assessment should be implemented.	
The preferred substation site is Site 4.		

3.3.6 *oBio-physical Processes – Impact on Health*

Table 3.19: **Description of Health Impacts as a result of Bio-physical Changes – Corridors and Sites**

Impact Assessment Profile	
Sector/ Impact variable	Health and safety.
Change process	Change in health status of people as a result of biophysical changes, which are brought on by the construction/maintenance workers and construction/maintenance activities.
Impact Parameter	Illnesses related to water contamination, soil contamination, air pollution and dust pollution.
Category	1
Sources consulted	• Comments and Responses Report. • Issues Register from previous projects completed in the area. • PHA MQR 2007.
Areas of concern	Remote areas where services are not accessible during the construction process.
1. Status or incidence without the project (baseline) No information about a direct link between health and the state of the biophysical environment in the study area could be sourced. However, the lack of services in the area (water and sanitation) indicates that health problems might transpire as a result. Poor people tend to exploit the natural environment to meet their needs, which leads to the pollution and degradation of the environment, which in turn negatively affects their health.	
2. Projected status or incidence with the project The projected status with the project cannot be estimated accurately. Animals and people	

might experience health problems as a result of the contamination of soil and water by construction workers and construction activities.

3. Cause of projected impact

The construction workers could be housed in a construction village or the surrounding communities. Their presence will impact on the environment, which in turn will impact on the surrounding communities. Littering, water pollution, air and dust pollution could be experienced during the construction phase of the project. Ground water and surface water could be polluted, for example, as a result of inadequate sanitation for construction workers. Construction workers' excretion could be infected with worms, and as a consequence spread infection amongst livestock. Overall, it is not expected that the status quo will change significantly because of the project in areas where there is a lack of services (impacts already occur) and areas where there are services (it will be easier to provide services to workers).

The construction vehicles will contribute to air and dust pollution, but it is not likely to change the status quo significantly.

4. Effect of projected impact

People and animals might become ill. Illness will affect productivity, quality of life and have economic implications.

5. Nature of impact

Negative: The people who are most likely to be impacted are poor and vulnerable and lack knowledge, money and the means required to maintain a healthy lifestyle in the face of illness and poverty.

Cumulative: The situation will be exacerbated in areas where influx of job seekers occur and as a result of the activities of teams on other power line projects which take place simultaneously in the same area.

6. Magnitude

The magnitude is expected to be higher during construction (people becoming mildly to seriously ill). The impact will be mostly limited to the areas where construction workers are housed/where the construction village is built, as well as where the line is constructed (e.g. use the field as a toilet). During operation the impact will be low as maintenance workers move through the area in a short period of time.

7. Location / extent

The extent will be on local level.

8. Timing

Immediate to delayed.

9. Phasing

The construction phase poses a more significant risk, as this will be the period when employment will peak.

10. Duration Could result in a continuous long-term problem.
11. Likelihood Based on the sources consulted, an increase is somewhat certain in the construction phase and less certain during the operation phase.
12. Significance See **Table 3.20**. Mitigation is required to ensure that the potential impact is controlled.
13. Suggested mitigation measures See **Table 3.20**.
14. Cross cutting issues • Participation: Where construction workers have better facilities than the surrounding communities, the communities might become dissatisfied. • Poverty and equity: Areas with lack of services will be more vulnerable to the potential impact. • Gender: Female companions might use rivers etc. for tasks such as washing of clothes and dishes, and might contribute to the potential impact occurring. • Sustainability: The aim should be to implement permanent services and dwellings, and these services should be accessible to local communities once construction is complete.

Based on the discussion in **Table 3.19,** the assessment is done in **Table 3.20.**

Table 3.20: Assessment of Impact on Health as a result of Bio-physical Changes (Construction and Operation) – Corridors and Substation Sites

CONSTRUCTION		
Category 1 Impact	**Before mitigation**	**After mitigation**
Impact	Impact on health as a result of pollution of the natural environment by construction/maintenance workers and construction/maintenance activities.	
Extent (Scale)	Site **(1)**	Site **(1)**
Duration	Very short-Medium **(1-3)**	Very short-Medium **(1-3)**
Magnitude	Low **(3)**	Minor **(2)**
Reversibility	Reversible **(3)**	Reversible **(3)**
Probability	Medium **(3)**	Medium **(3)**
Significance	Low-Medium **(24-30)**	Low **(21-27)**
Status	Negative	Negative
Mitigation	Sanitation ▪ Construction workers are required to be treated for worms. ▪ Adequate water facilities should be provided.	

	▪ Sufficient portable chemical toilets must be provided on site and at the construction village. ▪ Refuse on site should be discarded in sealed bins and/or in covered skips. Refuse should be removed from the site on regular intervals (at least once a week) and disposed of at an approved waste disposal site. ▪ Littering ▪ Bins should be provided on site and at the camp. ▪ Some form of punishment should be implemented for littering. ▪ Construction workers should adhere to a contract with the contractor. These rules of conduct should be stipulated in construction management plans and contracts with workers. These should include the use of sanitation, water and waste as well as informal trading, running of shebeens, and interfering in community affairs. ▪ The construction management plan should indicate how its water sanitation and waste facilities are in line with legislation. ▪ Emergency health facilities should be available at the camp.

OPERATION AND MAINTENANCE		
Impact	Change in sense of place as a result of nuisance impacts.	
Extent (Scale)	Site **(1)**	Site **(1)**
Duration	Very short **(1)**	Very short **(1)**
Magnitude	Minor **(2)**	Minor **(2)**
Reversibility	Reversible **(3)**	Reversible **(3)**
Probability	Low **(2)**	Low **(2)**
Significance	Low **(14)**	Low **(14)**
Status	Negative	Negative
Mitigation	▪ Maintenance workers are required to be treated for worms. ▪ Sufficient portable chemical toilets during servitude maintenance.	

3.3.7 *Economic Processes – Impact on Hunting and Tourism Industry*

Table 3.21: **Description of Impact on Hunting and Tourism Industry Output as a result of Project Activities**

Impact Assessment Profile	
Sector/Impact variable	Economic
Change process	Land use changes as a result of the construction activities, servitude, and presence of the line and towers.
Impact Parameter	Economic impact as a result of the presence of the power line
Category	2
Sources consulted	• Comments and Responses Report. • Issues Register of previous projects.

	• PHA MQR 2007. • SES MQR 2007.
Areas of concern	Areas with game.

1. Status or incidence without the project (baseline)

In 1997 a Mara Research Station (Mogalakwena IDP 2008/09) study found that there were approximately 2 400 game farms in LP, totalling an area of 4.1 million hectare. Of these game farms, close on 40% were owned by people who resided outside of the province. There are indications from owners interviewed recently that the percentage of outside owners may have increased substantially.

An interview was conducted with the then manager of the tourism department of Lephalale Local Municipality (Bron and Erasmus, 2006 and 2007) to determine the contribution of tourism to the local economy. The following points were raised:

- Tourism contributed approximately R44.1 million to the local economy. This local economic investment was largely due to foreign tourists visiting and hunting in the area.
- Eco-tourism was the strongest aspect of their tourism offering in terms of the natural beauty of the area and the wide variety of mountain ranges in the Limpopo Valley.
- The tourism market had developed to a large extend during the past 15 years, which was ascribed to an effective and market oriented marketing strategy.
- As part of the Lephalale tourism plan, the vision was to establish one large area where the Big 5 can be accommodated.
- Approximately 5% of the farms in the area belonged to foreigners, whilst approximately 30% belonged to locals from other provinces.
- The LED (Local Economic Development) Strategy had identified a number of actions that needed to be taken to ensure the optimal utilization of tourism resources that would stimulate the local economy.
- The most popular tourist attractions were mostly located towards the south of Lephalale; to the north of Lephalale lay the coal fields.

According to Nel and Erasmus (2004) the contribution of tourism to the tertiary sector of the Lephalale economy was estimated at 30.2% compared to the 5.5% of the province. This sector was estimated to accommodate 662 workers and through the backward and forward linkages another 1105 jobs in other sectors is linked to the tourism industry. A conclusion was that relative huge opportunities for the retail and service sector existed as a result of leakages of money spent by tourism operators in Gauteng. It was proposed that the reasons for the huge leakages of money to Gauteng be investigated and a strategy be determined to address this matter.

A study conducted by MasterQ Research (2007) amongst 50 landowners who registered as Interested and Affected parties for the Medupi-Dinaledi, Medupi-Marang, and Mmamabula-Delta Projects as per December 2006 revealed the following:

- The average tariff for catered accommodation was R916.88 per person per night and

for self-catering accommodation R281.30 per person per night.

- Landowners were investing money to develop their farms. The capital investment in the past three years (prior to 2007) was estimated at R184.58 million with an average of R5.13 million per landowner and a standard deviation of R32.83 million.
- To hunt an impala cost between R600 and R3 000 with an average of R1 088.89 and a standard deviation of R760.00.
- There were more game farms and international visitors in the 1000ha+ category and higher occupation rates occurred in the 1000ha- category. The occupation in the 1000ha+ category was on the increase. The bigger farms generated higher incomes.
- It seemed cost intensive to run these establishments, as 0.3 jobs per hectare were created, or three jobs per visitor.
- The average years that an establishment was in operation was estimated at 11 years, with a standard deviation of 8.6 years. These results indicate that the number of game farms in the LP have increased since 1997.

Interviews conducted in the Marken area for this study indicated a similar importance of the area in terms of game farming/hunting and eco-tourism, four respondents in the area indicated that they derive 100% of their income from tourist and hunting activities and employ between three and 32 individuals per farm in doing so. The interviews also indicated a high percentage of outsider owned farms with two respondents estimating that the level of outsider ownership exceeding 40% in that area.

2. Projected status or incidence with the project

Research conducted previously by MasterQ Research (2007 and 2009) specifically around the impacts of power transmission lines indicates that property that derives its primary value from having a pristine or natural character may suffer some reduction in value when developments of an industrial nature (specifically transmission power lines) occur. This would most often mean that a transmission power line is constructed on or near a property, within relatively close visual range. However, this is dependent on a multitude of factors such as typography and size of the property, and does not include all types of agricultural properties.

If the assumption is made that the majority of properties along all routes are in fact prized for their pristine character it is likely that placing the Transmission power lines along existing lines would have the least impact across all routes.

3. Cause of projected impact

The presence of power lines, their towers, and the activities of construction and maintenance workers could impact on the hunting and tourism industry.

4. Effect of projected impact

The economic impact could also have a mental and physical health impact.

5. Nature of impact

Negative: Although the impact will differ between landowners because of different levels

of involvement in the industry, the location of the lines, visual impact, etc., the impact will be negative overall. Cumulative: The impact might be less where existing lines occur as landowners have already adapted their activities to accommodate the existing lines.
6. Magnitude
The level of hunting and eco-tourism being conducted along all routes is similar with numerous establishments undertaking these activities. The magnitude of the impact will differ between farms because of different levels of involvement in the industry, etc.
7. Location / extent
The economic impact could be regional.
8. Timing
The impact will be immediate, and may be experienced over a period of time.
9. Phasing
The presence of construction teams will be short-term, and the related impacts therefore short-term. The presence of maintenance teams will be intermittent. The lines will be present for approximately 25 years and for visitors who see them for the first time the impact will not be reduced.
10. Duration
The impact will be experienced for the lifetime of the Transmission power lines.
11. Likelihood
Tourism and hunting farms with lines crossing their property are still in business, although extensive mitigation measures have to be implemented. For example a game farm owner along Corridor 8 is fencing the area where the line crosses his property to keep the game away from the area along the servitude where they go to escape hunters.
12. Significance
See **Table 3.22**.
13. Mitigation measures
See **Table 3.22**.
14. Cross cutting issues
• Participation: Extensive negotiation to mitigate potential negative impacts is important, throughout the lifetime of the project. • Poverty and equity: Landowners with sufficient money might be able to divert the line off their property to the property of those who cannot afford it. Negotiation might not occur on equitable terms. • Sustainability: The environmental and visual impact has to be considered in selecting a preferred Corridor from an economic perspective.

Based on the discussion in **Table 3.21,** the assessment is done in **Table 3.22.**

Table 3.22: Hunting and Tourism Industry Impact Assessment (Construction and Operation) – Corridors

CONSTRUCTION AND OPERATION PHASE		
Category 1 Impact	**Before Mitigation**	**After Mitigation**
Impact	Reduction in industry output and earnings due to the construction of the power transmission line.	
Extent	Local **(2)**	Site **(1)**
Duration	Long **(4)**	Long **(4)**
Magnitude	Minor **(1)**	Minor **(1)**
Reversibility	Reversible **(3)**	Reversible **(3)**
Probability	High **(4)**	High **(4)**
Significance	Medium **(44)**	Medium **(36)**
Status	Negative	Negative
Mitigation	▪ Determine route with minimum visual impact. ▪ Avoid passing close to residences and lodges, especially if the lines would be visible at the main frontage. ▪ Maintenance of the servitude should be done regularly and efficiently. ▪ Construction should occur outside the winter months (main hunting season). ▪ Implement Visual and Ecological Impact Assessment mitigation measures diligently. ▪ Corridor 8: existing lines should be followed as diversion from the existing lines will affect the magnitude and significance of the impact.	

3.3.8 *Economic Processes – Impact on Hunting and Tourism Industry Employment*

Table 3.23: Description of Impact on Hunting and Tourism Industry Employment

Impact Assessment Profile	
Sector/Impact variable	Economic
Change process	Land use changes as a result of the construction activities, servitude, and presence of the line and pylons.
Impact Parameter	Economic impact as a result of the presence of the power line.
Category	2
Sources consulted	• Comments and Responses Report.

	• Issues Register of previous projects. • SES MQR 2007.
Areas of concern	Areas where tourism activities take place.

1. Status or incidence without the project (baseline)

In 2007 (StatsSA, 2007), the unemployment rate within the WDM was estimated at around 29.0%, which was much lower than that of the province. Furthermore, approximately a third (33.0%) of the district's population was under the age of 14 years, which would make any job opportunities vital to the future development of the district.

The WDM is characterised by discrepancies in wealth and skills. The majority of households earned an annual income below R18 001 in 2001 (WDM IDP 2008/09). Households' production levels are declining leading to a situation where the majority of the population are financially dependent on state pension and social welfare grants as their primary source of income and subsistence. This is linked to the low educational levels and lack of skills.

Employment in the formal sector within the Capricorn District Municipality (CDM) continues to decline causing the overall unemployment rate to rise. The traditionally labour intensive industries namely mining and agriculture, which employed unskilled and semi-skilled labour, have had little or no growth over the past decade. According to the CDM IDP (2005), for the district to become internationally competitive many businesses require skilled labour, which further marginalised or over exploited the rural communities.

Some information regarding employment by hunting and eco-tourism operations along the Corridors suggests that employment on these properties may be higher when compared to other farming types, and depends on the size of the property.

However, Dr Herman Els , Manager of Conservation Coordination of the South African Hunters and Game Conservation Association, in 2008 concluded that

- Very few African game rangers operate in the industry and few communal communities benefit from hunting as an income generator in tribal areas;
- The economic and financial contribution of labourers, trackers, guides or skinners to the industry are not quantified or addressed, nor training and skills transfer. Formal kills transfer and training are not initiated and the opportunity to initiate equity and benefit sharing are therefore not exploited.
- Hunting is probably exclusively white; is for the privileged elite (70% of hunters earn above R12 500 per month) ; has relevance in less than 10% of South African households; is actively participated in by less than 1% of the country's population.

As explained in Table 3.21 above, the location of properties on which the proposed substations sites are found are not likely to be applicable for this impact.

2. Projected status or incidence with the project

Loss in output and revenues for these sectors suggests possible loss of employment opportunities however the link is not clear due to the ability to use the land for other

purposes that may require employment. Therefore, industry output loss does not necessarily translate into employment loss as clearly.
3. Cause of projected impact The presence of power lines and pylons.
4. Effect of projected impact Loss of employment will impact on dependent family members and could negatively affect the mental and physical health of the impacted person.
5. Nature of impact Negative: Although other employment opportunities might exist, jobs are scarce. Cumulative: The impact might be more intense where four lines are in one Corridor.
6. Magnitude
The intensity will be low. Based on research conducted by MasterQ Research (SES MQR 2007), landowners will be able to carry on with their activities, albeit in a modified manner.
7. Location/extent
The extent will be local; employees of landowners with lines crossing their land could be impacted.
8. Timing
The impact will be immediate, and may be experienced over a period of time.
9. Phasing
The presence of construction teams will be the initial introduction to the line, which will be final once construction is completed.
10. Duration
During the lifetime of the project.
11. Likelihood
Based on research conducted by MasterQ Research (SES MQR 2007), landowners will be able to carry on with their activities, albeit in a modified manner.
12. Significance
See Table 3.24.
13. Mitigation measures
See Table 3.24.
14. Cross cutting issues
• Participation: Farm workers should be included in the public participation process. • Poverty and equity: Farm workers should be made aware of their rights should they have to be retrenched.

Based on the discussion in **Table 3.23,** the assessment is done in **Table 3.24.**

Table 3.24: Hunting and Tourism Industry Employment Impact Assessment (Construction and Operation) - Corridors

CONSTRUCTION AND OPERATION PHASE		
Category 1 Impact	**Before Mitigation**	**After Mitigation**
Impact	Reduction in industry employment.	
Extent	Local **(2)**	Local **(2)**
Duration	Medium **(3)**	Medium **(3)**
Reversibility	Reversible **(3)**	Reversible **(3)**
Magnitude	Low **(2)**	Low **(2)**
Probability	Low **(2)**	Improbable **(1)**
Significance	Low **(20)**	Low **(10)**
Status	Negative	Negative
Mitigation	▪ The local people have the skills to do unskilled/semiskilled work during construction, decommissioning and maintenance. Local people should be given equal opportunity to apply for jobs, where possible. Local steering committees/the municipality and Traditional Authorities could be used to identify local people for employment. A local person could be identified in the local community – this could happen through the Department of Labour – and this person could assist in the establishment of a steering committee. The contractors could then communicate their labour needs to the steering committee that would compile a list of people that are available for employment. Alternatively, the Unions or the Local Economic Development Forum could be asked for assistance. ▪ Equal opportunities for employment should be created to ensure that the local female population also have access to these opportunities. Females should be encouraged to apply for positions. ▪ Individuals with the potential to develop their skills should be afforded training opportunities. Eskom should be involved in this process. ▪ Mechanisms should be developed to provide alternative solutions for creating job security upon completion of the project. This could include formal and/or informal training on how to look for alternative employment, information on career progression, etc. to ensure that people are equipped to seek other jobs with the skills that they have gained. ▪ Develop a procurement policy that is easy to understand and ensure that local subcontractors also comply with the procurement policy and any other applicable policies. ▪ Ensure that local subcontractors receive the necessary support in terms of resources. ▪ Agree on specific performance criteria prior to appointment. ▪ Identify the segment that might benefit from informal indirect opportunities, and assist them with skills development and subsidise initiatives that are sustainable.	

	▪ Encourage maintenance workers to make use of local services if and where such services exist. ▪ Employment opportunities should first be offered to the local community if the skills are available within the community. A significant visual impact could lead to a reduction in tourism numbers and impact on jobs. Therefore ▪ Determine route with minimum visual impact. ▪ Avoid passing close to residences and lodges, especially if the lines would be visible at the main frontage.

3.3.9 *Economic Processes – Employment as a result of Project Activities*

Table 3.25: Description of Employment Impact

Impact Assessment Profile	
Sector/Impact variable	Economic
Change process	Construction activities and maintenance activities.
Impact Parameter	Economic impact as a result of the construction and maintenance workers.
Category	1
Sources consulted	PHA MQR 2007 Eskom
Areas of concern	
1. Status or incidence without the project (baseline) See **Table 3.23.**	
2. Projected status or incidence with the project Construction detail sheets obtained from pba international regarding the construction of power transmission line indicate that is a moderate creator of employment, with approximately 30 to 80 unskilled workers and 5 to 10 semiskilled workers that can be sourced other than skilled teams utilised by the contractor. The moving nature of transmission power line construction means that this employment will probably be temporary in nature for any person residing in a specific area. During operation employment creation will be minimal and maintenance will utilise existing manpower.	
3. Cause of projected impact The need for a Transmission power line necessitates construction and maintenance workers.	
4. Effect of projected impact Economic benefits to a worker will benefit dependents and might have a mental and	

physical health impact on the worker and dependents.
5. Nature of impact Positive: Jobs are created. Cumulative: Mining activities and other Eskom activities will result in more job creation.
6. Magnitude Although the economic benefit might not be huge and only experienced during construction, the intensity could be significant for the impacted person.
7. Location / extent The extent will be local, meaning the people living in the area, and national.
8. Timing The impact will mostly be experienced during construction.
9. Phasing The presence of construction teams will be short term, and the related impacts therefore short term. The presence of maintenance teams will intermittent.
10. Duration The presence of construction teams will be short-term, and the related impacts therefore short-term. The presence of maintenance teams will be intermittent.
11. Likelihood With training is possible to employ 30% locals.
12. Significance See **Table 3.26**.
13. Mitigation measures See **Table 3.26**.
14. Cross cutting issues • Gender: Males are mostly employed and females should be encouraged and considered. • Sustainability: Of concern is the fact that maintenance will be done by teams already active in the area. It does not seem as if the capacity is sufficient to take on additional maintenance activities. This concern is based on the state of the current servitude in Corridor 8, which is not maintained satisfactorily.

Based on the discussion in **Table 3.25,** the assessment is done in **Table 3.26.**

Table 3.26: Project Related Employment Impact Assessment (Construction) – Corridors and Substation Sites

CONSTRUCTION PHASE		
Category 1 Impact	**Before Enhancement**	**After Enhancement**
Impact	Increase in employment opportunities due to the construction of the power transmission line.	
Extent	Local **(2)**	Local **(2)**
Duration	Very short **(1)**	Very short **(1)**
Magnitude	Minor **(1)**	Low **(2)**
Reversibility	Reversible **(3)**	Reversible **(3)**
Probability	High **(4)**	Definite **(5)**
Significance	Low **(36)**	Medium **(50)**
Status	Positive	Positive
Enhancement	▪ Require contractors to employ contractor staff and temporary labourers are sourced from areas that the power transmission line crosses or from the region whenever possible.	

3.3.10 *Economic Processes – Impact on Property Values*

Table 3.27: Description of Potential Impact on Property Values (Construction and Operation) - Corridors

Impact Assessment Profile	
Sector/Impact variable	Economic.
Change process	Land use changes as a result of the construction activities, servitude, and presence of the line and pylons.
Impact Parameter	Economic impact as a result of the presence of the power line
Category	2
Sources consulted	• Comments and Responses Report. • Issues Register of previous projects. • PHA MQR 2007. • Addendum to the Mmamabula Scoping Report.
Areas of concern	Tourism areas
1. Status or incidence without the project (baseline) Property values in the area range from R10 000 to R25 000 per hectare.	
2. Projected status or incidence with the project Property values can reduce as a result of the presence of a Transmission power line.	

3. Cause of projected impact

Research conducted previously by MasterQ Research (2007 and 2009) specifically around the impacts of power transmission lines indicates that property that derives its primary value from having a pristine or natural character may suffer some reduction in value when developments of an industrial nature (specifically transmission power lines) occur. This would most often mean that a transmission power line is constructed on or near a property (within relatively close visual range). However, this is dependent on a multitude of factors such as typography and size of the property, and does not include all agricultural properties.

If the assumption is made that the majority of properties along all routes are in fact prized for their pristine character it is likely that placing the power transmission lines along existing lines would have the least impact on property values across all routes. However, the property value loss along Corridor 8 may be exacerbated due to the presence of additional lines.

Properties on which substation sites are to be located are found in more densely populated and more developed areas close to Mokopane and Polokwane. All substations sites also currently contain power transmission infrastructure. These properties probably do not derive their value largely from a pristine character but rather from an ability to enable economic activity in a context with more development. Any impact on property values due to the location of additional power transmission infrastructure (the substations) is thus unlikely. An impact table for substation sites is therefore not specified.

International studies indicate some evidence of a relationship between the presence of high voltage transmission power lines and property values. Sims and Dent (2005) studied both qualitative information in terms of a survey of the opinion of chartered surveyors and estate agents in Britain, as well as looking at actual sale values in Scotland.

- The valuation survey estimated the loss in value due to the proximity of a power line to be between 10% and 17.7% for semi-detached properties and between 6% and 13.3% for free standing houses. They did, however, find cases where a reduction of more that 50% was experienced when compared with similar properties more than 250m from a transmission power line.
- The perception survey of valuators and estate agents indicated a discount range of between 5% and 15%. Again, a portion (about 20% of the sample survey) indicated that the loss would be at least 10%.

An American survey conducted by Delaney and Timmons (1990) indicated property value loss due to transmission power lines to be an average of 10.1% based on the opinions of property appraisers. They also indicated that there was a general belief amongst appraisers that the impact of transmission power lines in proximity to a property would

be to detract from property value.

Bolton and Sick (1999) conducted a legal review of American property value compensation issues caused by the presence of transmission power lines. In the review they sited a range of sources and studies conducted between 1990 and 1997. The range of property value impacts stated across studies was wide. Some indicated only slight value reductions of 6% average, while a California, USA based study displayed possible value reductions of between 18% and 55.8%.

It appears that international studies are inconclusive and vary significantly based on location. Comparison between countries is also difficult as laws governing construction near a transmission power lines differ, with some using servitudes and others not. In the UK, for example, cleared servitudes are not used and the government allows construction directly under a transmission power line in some cases, as long as applicable building regulations are met.

Indications from local property specialists

Penny Brothers (2008) conducted an evaluation in property value reduction as a result of the proposed project route option 3 on a new estate located on portions 156 and 157 of Diepsloot Farm No. 338 JR which has two existing transmission power lines. The property value in the estate was compared using similar values for Waterfall Equestrian estate. The study found that reductions of between 80% and 20% were applicable depending on location and proximity to the line.

Based on interviews with two other valuations experts, this range seems to be applicable, depending on several factors:

- General uses of property in the area;
- The location of the line through the middle, along one side or cutting a corner of the property;
- Whether a supporting pylon is situated on the property;
- Whether the line is located on a slope, and the line runs higher up or lower down relative to the rest of the property;
- The orientation of the main structures facing away from or onto the transmission power lines;
- Whether any main structures lie directly in the path of the proposed line;
- The current level of improvements to the property.

4. Effect of projected impact

The economic loss as a result of reduction in property values could also have mental and physical health impacts.

5. Nature of impact Negative: Although the impact will differ between landowners, the impact will be negative overall. Cumulative: The impact might be exacerbated where more than two lines are in one Corridor.
6. Magnitude The intensity will differ between farms, depending on land use, size of land, visibility of the line and ecological impacts.
7. Location / extent The extent will be local; landowners with lines crossing their land will be impacted. Neighbouring farms could also be impacted, depending on the visibility of the lines.
8. Timing The impact will be immediate, and may be experienced over a period of time – even after decommissioning, depending on the visual and ecological impact after decommissioning (i.e. satisfactory rehabilitation of land)..
9. Phasing The impact will start with the presence of construction teams.
10. Duration Could occur up to and after decommissioning.
11. Likelihood Research shows that the impact will take place.
12. Significance See **Table 3.28, 3.29**.
13. Mitigation measures See **Table 3.28. 3.29**.
14. Cross cutting issues • Participation: Landowners must be involved in planning for construction and maintenance. • Sustainability: Proper maintenance of the servitude is of paramount importance.

Based on the discussion in **Table 3.27,** the assessment is done in **Tables 3.28** and **3.29.**

Table 3.28: Impact Assessment on Property Values: Corridors 1, 2, 4 (Construction and Operation)

CONSTRUCTION AND OPERATION PHASE		
Category 2 Impact	**Before Mitigation**	**After Mitigation**
Impact	Reduction in property values due to the construction and operation of the power transmission line.	
Extent	Site **(1)**	Site **(1)**
Duration	Long **(4)**	Long **(4)**
Magnitude	Low **(2)**	Minor **(1)**
Reversibility	Reversible **(3)**	Reversible **(3)**
Probability	Definite **(5)**	High **(4)**
Significance	Medium **(50)**	Medium **(36)**
Status	Negative	Negative
Mitigation	▪ Determine route with minimum visual impact. ▪ Avoid passing close to residences and lodges, especially if the lines would be visible at the main frontage if Corridors 1 and 2 are chosen.	

Table 3.29: Impact Assessment on Property Values: Corridor 8, 5, 6, 7 (Construction and Operation)

CONSTRUCTION AND OPERATION PHASE		
Category 2 Impact	**Before Mitigation**	**After Mitigation**
Impact	Reduction in property values due to the construction and operation of the power transmission line.	
Extent	Site **(1)**	Site **(1)**
Duration	Long **(4)**	Long **(4)**
Magnitude	Minor **(1)**	Minor **(1)**
Reversibility	Reversible **(3)**	Reversible **(3)**
Probability	Medium **(3)**	Medium **(3)**
Significance	Low **(27)**	Low **(27)**
Status	Negative	Negative
Mitigation	▪ Should Corridor 8 be selected the proposed transmission power lines must follow existing lines.	

3.3.11 *National Economic Security or Dependency Due to Project Activities*

Although the WDM is one of the biggest contributors towards provincial agricultural activities with proportionally the largest grazing field, the agricultural sector is considered to be an under developed sector. This sector only contributed approximately 3.6% towards the economy of the district (year not mentioned, WDM IDP 2008/09). Field crop commodities include tobacco, cotton, sunflower, sorghum, and maize (WDM IDP 2008/09). A large portion of CDM depends on agricultural development and economically on potatoes as the most important crop (CDM IDP 2005).

Currently there are a vast amount of manufacturers in the Capricorn District, of which the majority are situated in the Polokwane municipal area. The processing of raw materials from mining and secondary activities emanating from processing of agriculture products in Capricorn will contribute significantly in expanding the manufacturing sector within Capricorn District Municipality (CDM IDP 2005). Investment in construction has increased in the years immediately preceding 2007. However while there are many manufacturers, few employ more than 100 people and as a result many engage in hawking and informal household shops, which sustain their basic needs but unfortunately do not contribute to economic growth within the CDM.

One of the most economic implications of the project and the larger distribution network is to ensure electricity security for the country as a whole. As was demonstrated at the beginning of 2008 electricity is a strategic economic issue, and the project will contribute to a more stable energy supply situation. There are several aspects to this:

- Lack of electricity supply is an inhibitor that hampers economic growth;
- A surplus of electricity capacity presents an opportunity for revenue in the short term and further economic growth in the future;
- Fully utilised electricity capacity represents a dependency, meaning that its removal will create a reduction in the economic activity for which is an enabler.

This impact is difficult to rate using the standardised rating scale due to its nationwide implications and the fact that it does not represent a manageable impact or one that can be enhanced.

4. CONCLUSIONS

4.1. Summary

This section summarises the significance ratings of the social impacts assessed in the previous section. The tables show that the impacts that are of medium to high significance even after mitigation are those that could occur during construction. These are the potential health impacts (HIV/Aids, STDs) as a result of the influx of construction workers. The health impacts can be such that they become a permanent condition, affecting not only the physical health but also potentially the quality of life, productivity, economic independence and psychosocial condition of the impacted persons and their dependents. This is also the reason why the potential health impacts as a result of bio-physical changes have a somewhat high rating of nearly medium significance after mitigation. Potential health impacts will not differ between the proposed corridors and the nomination of a preferred Corridor is not based on the potential health impacts.

The impact of involuntary resettlement could be high and should be avoided. Should Corridor 1 be selected the likelihood of the servitude following the proposed road south of Lephalale (P138-1) is high. This will result in the involuntary settlement of people. On the other hand, this option will be in line with the Spatial Development Framework of the municipality and therefore not completely undesirable.

Corridor 8 could also lead to involuntary resettlement. It is likely that at least one household will have to be resettled and maybe more, should it be necessary to deviate from the existing lines as a result of technical challenges. It seems possible to avoid involuntary resettlement of households in Corridor 2, and this Corridor is therefore preferred in this regard.

When considering the potential for development into the Corridors, it seems a possibility that development will take place into the servitude for all Corridors. Although the preference is that settlements are avoided to mitigate the potential health and safety impacts as a result, all the corridors cross settlements. Corridor 1 crosses the lowest number of settlements and is therefore the preferred option in this regard, followed by Corridor 8. Corridor 2 shows rapid developments between villages closer to Lephahale, but it is more likely that these developments would occur along the main roads. The settlements in Corridors 2 and 8 should already be sensitive to the fact that development should not occur towards the servitude. Nevertheless, power lines close to settlements remain a health and safety concern and villages in this Corridor also show a tendency to develop towards each other.

The other Category 2 impacts that could occur during both construction and operation are the potential psychosocial and physical health impacts as a result of changes that occur in land use activities to accommodate the construction and maintenance activities of the 2x400kV transmission power lines. However, the significance of these impacts is low and very similar for different land uses after mitigation - during construction and operation.

The selection of a preferred Corridor should therefore not be based on the differences in the occurrence in crop and cattle farming activities between Corridors because it is possible to manage these potential impacts and reduce the significance to a very low level. The Corridor selection should also not be made on the basis of the game farming activities between Corridors because the occurrence of game farms between the Corridors are very similar for Corridors 1, 2 and 8. Should land use be regarded as the primary selection criteria, a detailed study should be done regarding the hectares of different land uses within the different Corridors.

Rather, the impact on sense of place should be regarded as a primary Corridor selection criterion, which is closely linked to economic impacts. However, it should be kept in mind that it is difficult to determine the economic impacts of a power line on tourism activities because the indication is that people still visit nature reserves and game farms despite the presence of power lines. It is therefore more than the visual impact of the power line that could detract people from visiting a place or the mere lack of a power line that detract people from a place.

The impact on sense of place can be reversed after decommissioning, providing that rehabilitation is done to a satisfactory level (as opposed to involuntary resettlement, which is irreversible). The impact on sense of place should be considered in the context of the study area as a whole, as the impact on sense of place per farm portion will depend on a number of variables, such as the visual impact, the biodiversity impact, the placement of the line in relation to dwellings and lodges, the activities on the land, the attachment of the landowner to the land, etc.

Although a gradation of human intervention is acceptable in the biosphere, conservation and sustainable use of the natural environment should be promoted. Because a transmission line is linear in nature, traversing the core areas of the biosphere along Corridors 1 and 8, the power line will impact on conservation and sustainable use of the environment. The Biosphere should therefore preferably be avoided.

To not further cut up the cultural landscape in this area, areas with relatively little infrastructure should be avoided. Corridor 2 is then preferred because it goes through a transitional area of the biosphere. However, because Corridor 8 (with deviations) mostly follows existing infrastructure this option is preferred. By following this option, the rest of

the biosphere will not be impacted by power lines and the landscape in the rest of the biosphere will be kept intact. Also, existing access routes can be used, minimising further potential impacts on the biosphere, private farms and villages.

Corridor 1 cuts through a substantial section of the biosphere and does not follow existing lines and is therefore not preferred. Corridor 2 also follows the fault line and mining is more likely to occur in this area and therefore likely to become more industrialised. The lines will better fit this industrialised sense of place which is likely to be created and is second preferred.

In light of the guiding principles of the Waterberg Biosphere, the compatibility of the transmission power lines with development plans and existing activities in the area, potential mining activities in the area, consolidation of impact on sense of place and numbers of households in the Corridors, **Corridor 8** followed by Corridor 2 is preferred, as well as Corridor 5 followed by 6. **Corridor 8 should follow the existing line without deviation, except for the alternative around Tafelkop and the proposed deviations to follow Corridor 2 for some distance before joining Corridor 8 again**. The transmission power lines should follow the existing lines in Corridor 7.

All **three substation sites** are relatively close to existing local roads. The assumption is therefore that existing roads (be these local gravel roads or power line maintenance roads) will be used to access the preferred site. Considering the potential effect on settlement patterns and development (current and future), the following emerges:

- In terms of access roads, there is no preferred site.
- Due to its distance from existing settlements, Site 4 is preferred. It is also possible to avoid settlements and not affect their development should the lines come from Corridors 1, 2 and 8.
- Transmission power line Corridors not following the existing Matimba-Witkop transmission power lines and entering and exiting Sites 1 and 3 will potentially affect more settlements.

Table 4.1: Category 1 Construction Impacts

Category 1 Impact	**Significance**	
	Before Mitigation	**After Mitigation**
Corridors		
Physical health impacts as a result of presence of	32-72	25-45

construction workers.	Moderate- High	Low- Medium
Physical health impacts as a result of the influx of job seekers.	25-54 Medium	27-46 Low-Medium
Impact on health as a result of pollution of natural environment by construction workers and construction activities.	24-30 Low-Medium	21-27 Low
Psycho-social impact as a result of socio-cultural changes.	32 Medium	24 Low
Socio-cultural changes as a result of nuisance impacts.	21 Low	21 Low
Increase in employment opportunities.	36 Medium Positive	50 Medium Positive
Loss of employment.	20 Low	10 Low
Economic impact on hunting and tourism.	44 Medium	36 Medium
Substation Sites		
Impact on mental and/or physical health as a result of changes in land use activities.	32 Medium	28 Low
Impact on sense of place	28 Low	28 Low

Table 4.2: Category 2 Construction Impacts

Category 2 Impact	Significance	
	Before Mitigation	**After Mitigation**
Psycho-social impact as a result involuntary re-settlement (Corridor 1).	36-56 Medium	27-42 Low-Medium
Psycho-social impact as a result involuntary re-settlement (Corridor 7, 2, 8, 4-6).	27-42 Low-Medium	18-28 Low
Impact on mental and/or physical health as a result of changes in land use activities (Corridor 1).	Crop: 21-Low Cattle: 24-Low Game: 36-Medium	Crop: 12-Low Cattle: 14-Low Game: 24-Low
Impact on mental and/or physical health as a result of changes in land use activities (Corridor 2, 7).	Crop: 28-Low Cattle: 32-Medium Game: 36-Medium	Crop: 18-Low Cattle: 21-Low Game: 24-Low
Impact on mental and/or physical health as a result of changes in land use activities (Corridors 8,4,5,6)	Crop: 28-Low Cattle: 24-Medium Game: 36-Medium	Crop: 18-Low Cattle: 14-Low Game: 24-Low

Table 4.3: Category 1 Operation Impacts

Category 1 Impact	Significance	
	Before Mitigation	**After Mitigation**
Corridors		
Physical health impacts as a result of presence of maintenance workers.	24-54 Low-Medium	16-36 Low- Moderate
Impact on health as a result of pollution of natural	14	14

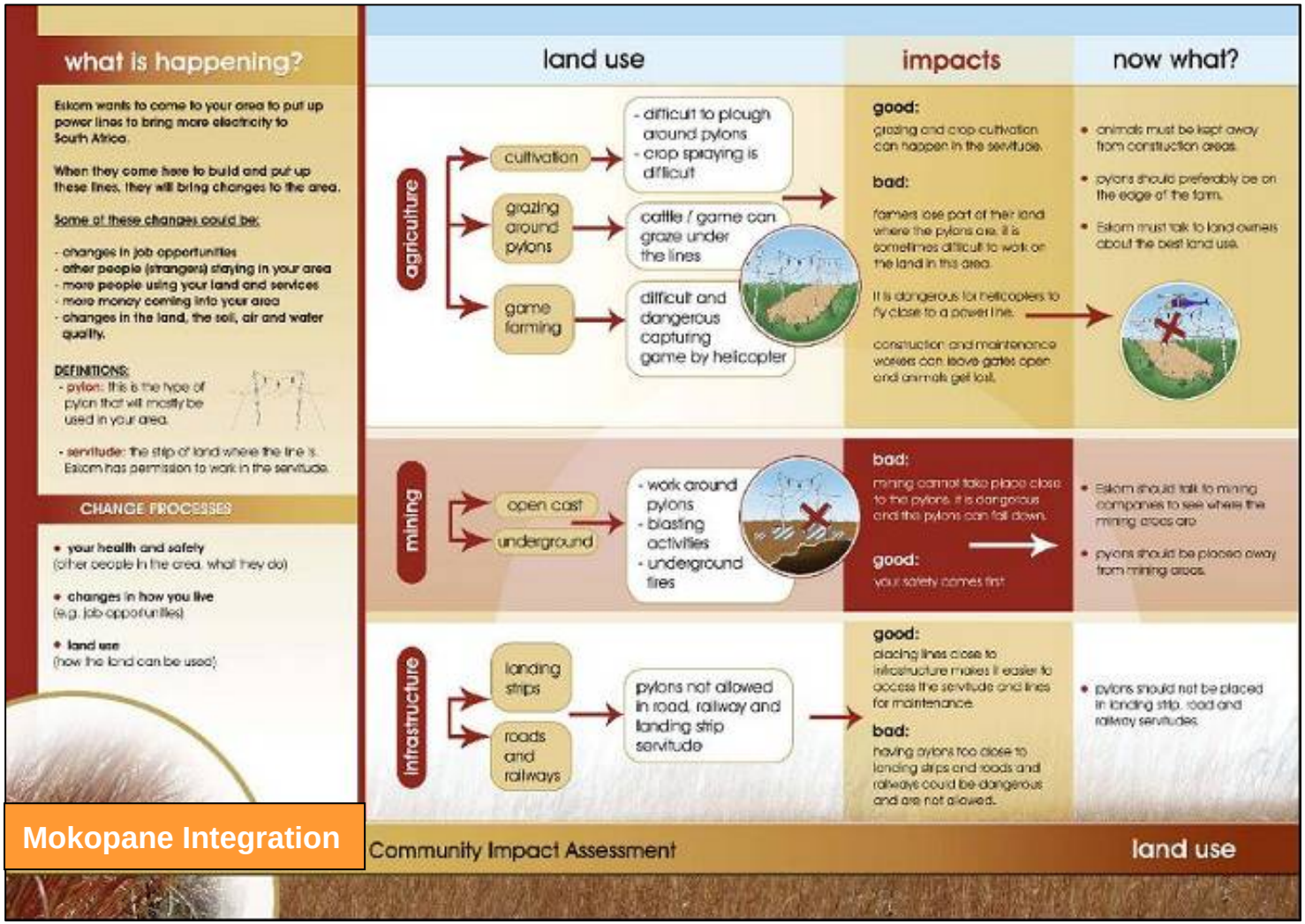
environment by maintenance workers and maintenance activities.	Low	Low
Changes in community cohesion as a result of socio-cultural changes.	24 Low	14 Low
Socio-cultural changes as a result of nuisance impacts.	14 Low	14 Low
Loss of employment.	20 Low	10 Low
Economic impact on hunting and tourism.	44 Medium	36 Medium
Substation Sites		
Impact on mental and/or physical health as a result of changes in land use activities	28-40 Low-Medium	24-36 Low-Medium

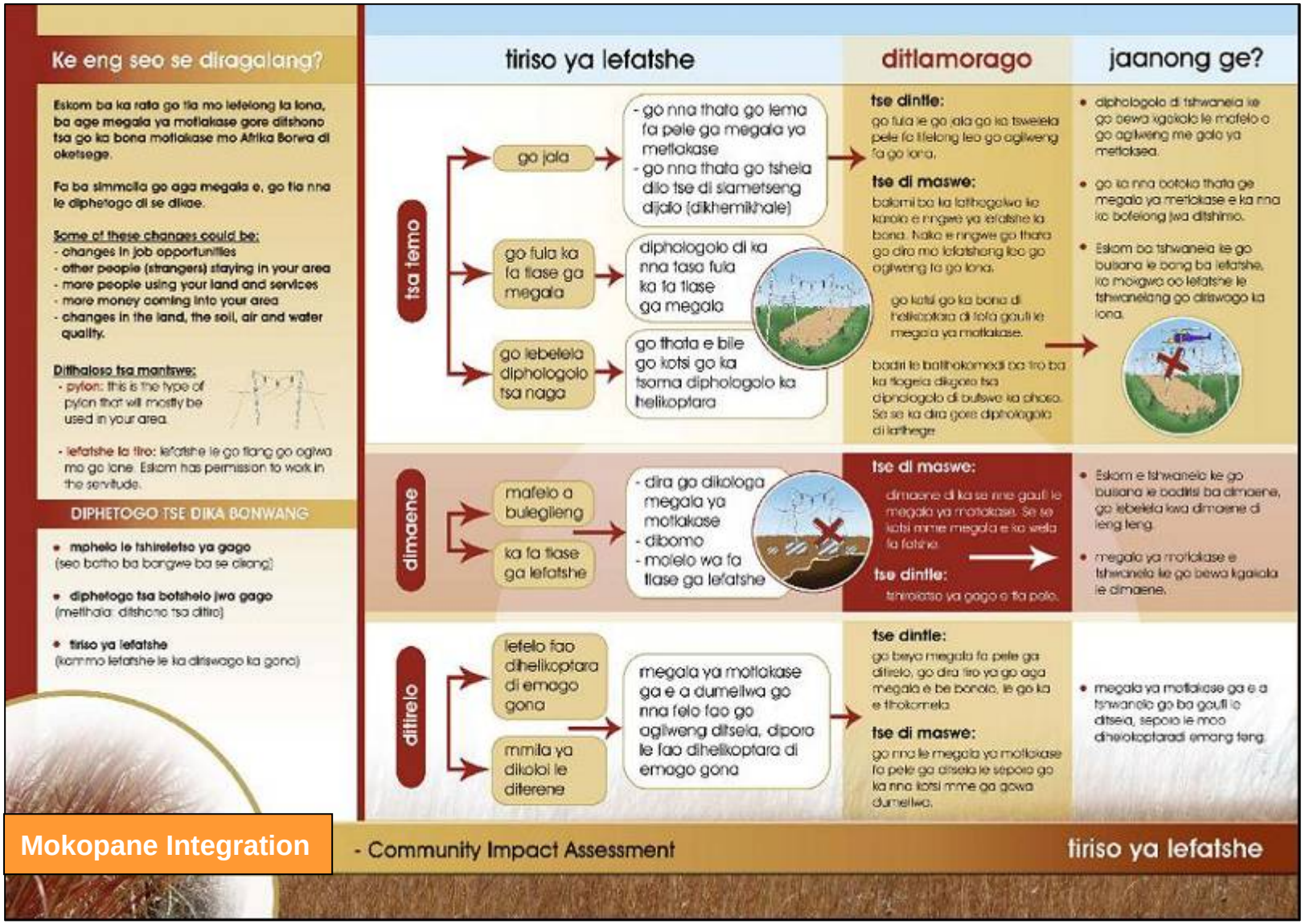
Table 4.4: Category 2 Operation Impacts

Category 2 Impact	**Significance**	
	Before Mitigation	**After Mitigation**
Corridors		
Impact on mental and/or physical health as a result of changes in land use activities (Corridor 1).	Crop: 21-Low Cattle: 24-Low Game: 24-33-Low-Medium	Crop: 12-Low Cattle: 14-Low Game: 14-20-Low
Impact on mental and/or physical health as a result of changes in land use activities (Corridor 2, 7).	Crop: 18-27-Low Cattle: 24-30--Low Game: 24-33-Low-Medium	Crop: 12-18-Low Cattle: 12-18-Low Game: 14-20-Low

Impact on mental and/or physical health as a result of changes in land use activities (Corridors 8,4,5,6)	Crop: 18-27-Low Cattle: 14-20-Low Game: 24-33-Low-Medium	Crop: 12-18-Low Cattle: 6-9-Low Game: 14-20-Low
Impact on sense of place Corridor 1	48 Medium	44 Medium
Impact on sense of place Corridor 2	44 Medium	40 Medium
Impact on sense of place Corridor 3	40 Medium	40 Medium
Impact on sense of place Corridor 4	56 Medium	33 Medium
Impact on sense of place Corridor 7, 8. 5. 6	33 Medium	33 Medium
Property Values Corridors 1, 2, 5, 6	27 Low	27 Low
Property Values Corridors 8, 4	50 Medium	36 Medium
Substation Sites		
Substation Sites 1 and 3	24 Low	24 Low
Substation Site 4	20 Low	20 Low

For the semi-literate, the change processes and potential impacts of power lines and a substation are **tabled** and **visually** presented in this section.




Ke eng seo se diragalang?
Eskom ba ka rata go tla mo lefelong la lona, ba age megala ya motlakase gore ditshono tsa go ka bona motlakase mo Afrika Borwa di oketsege.
Fa ba simmolla go aga megala e, go tla nna le diphetogo di se dikae.
Some of these changes could be:
- changes in job opportunities
- other people (strangers) staying in your area
- more people using your land and services
- more money coming into your area
- changes in the land, the soil, air and water quality.
Ditlhaloso tsa mantswe:
- pylon: this is the type of pylon that will mostly be used in your area.
- lefatshe la tiro: lefatshe le go tlang go agiwa mo go lone. Eskom has permission to work in the servitude.
DIPHETOGO TSE DIKA BONWANG
• mphelo le tshireletso ya gago (seo botho ba bangwe ba se dirang)
• diphetogo tsa botsheio jwa gago (mefihala: ditshono tsa ditiro)
• tiriso ya lefatshe (kammo lefatshe le ka diriswago ka gona)
tiriso ya lefatshe
ditlamorago
jaanong ge?
tsa temo
go jala
- go nna thata go lema fa pele ga megala ya motlakase
- go nna thata go tsheia dilo tse di siametseng dijalo (dikhemikhale)
go fula ka fa tlase ga megala
diphologolo di ka nna tasa fula ka fa tlase ga megala
go lebelela diphologolo tsa naga
go thata e bile go kotsi go ka tsoma diphologolo ka helikoptara
tse dintle:
go fula le go jala go ka tsweiela pele fa tlelong leo go agiweng fa go lona.
tse di maswe:
bakami ba ka lathegelwa ke karolo e ringwe ya lefatshe la bona. Naka e ringwe go thata go dira mo lefatshong leo go agiweng fa go lona.
go kotsi go ka bona di helikoptara di fofa gaufi le megala ya motlakase.
badiri le batlhokomedi ba tiro ba ka tlogela dikgoro tsa diphologolo di butswe ka dhoso. Se se ka dira gore diphologolo di lathege
• diphologolo di tshwanela ke go bewa kgakala le mafelo a go agiweng me gala ya motlakasea.
• go ka nna botoka thata ge megala ya motlakase e ka nna ke bofelong jwa ditshimo.
• Eskom ba tshwanela ke go busana le bong ba lefatshe, ke mokgwa oo lefatshe le tshwanelang go diriswago ka lona.
dimaene
mafelo a bulegileng
ka fa tlase ga lefatshe
- dira go dikologa megala ya motlakase
- dibomo
- molelo wa fa tlase ga lefatshe
tse di maswe:
dimaene di ka se nne gaufi le megala ya motlakase. Se se kotsi ennie megala e ka wela fa fatshe
tse dintle:
tshireletso ya gago e tla pele.
• Eskom e tshwanela ke go busana le baditsi ba dimaene, go lebelela kwa dimaene di leng teng.
• megala ya motlakase e tshwanela ke go bewa kgakala le dimaene.
ditirelo
lefelo fao dihelikoptara di emago gona
mmila ya dikoloi le diterene
megala ya motlakase ga e a dumelwa go nna felo fao go agilweng ditsela, diporo le fao dihelikoptara di emago gona
tse dintle:
go beya megala fa pele ga ditirelo, go dira tiro ya go aga megala e be bonolo, le go ka e tlhokomela
tse di maswe:
go nna le megala ya motlakase fa pele ga ditsela le seporo go ka nna kotsi mme ga gowa dumelwa.
• megala ya motlakase ga e a tshwanelo go ba gaufi le ditsela, seporo le moo dihelikoptaradi emang teng.
Mokopane Integration
- Community Impact Assessment
tiriso ya lefatshe

what is happening?

Eskom wants to come to your area to put up power lines to bring more electricity to South Africa.

When they come here to build and put up these lines, they will bring changes to the area.

DEFINITIONS:

- pylon:

- **servitude:** the strip of land where the line is. Eskom has permission to work in the servitude.
- **construction worker:** cleans the strip under the power line, put up the pylon and string the power lines.
- **maintenance person:** keeps the strip under the power line clean to prevent fire and make sure the power lines are safe.

CHANGE PROCESSES

- **your health and safety**
  (other people in the area, what they do)
- **changes in how you live**
  (e.g. job opportunities)
- **land use**
  (how the land can be used)

your health and safety	impacts	now what?
what construction and maintenance workers do → mixing with local people 	**good:** workers might teach local people new skills. **bad:** workers are far from home and could maybe sleep around. This may spread things like HIV/AIDS, sexually transmitted diseases, pregnancies, and other social problems can result. sometimes crime may increase because of job seekers who did not find jobs. not enough water and bad hygiene can have a negative impact on health.	• outsiders will be in your area. • changes will come - be careful what you do for money. • people should come and teach you more about HIV / AIDS - you need to know how to avoid being infected. • complain to your municipality if not up to standard: for example if the litter is not properly taken away, if the veld is used for a toilet, if there is not water for cleaning and washing.
 resources used at the moment → more people using the same resources 		
what the construction workers do → in the construction village and when building the line 	**bad:** people living close to a construction site may hear lots of noise for a long time because of the work being done.	• people must come to warn you when there will be noise • workers will try to finish before night-time so there should be less noise at night. • workers will try not to work during hunting season.
the power line itself → power lines have electric - and magnetic fields 	**bad:** power lines are dangerous: a) it is not safe to climb on the pylons. b) it is not safe to live in the servitude. DANGER	• people should come to tell you about the dangers of the line. • you should not live too close to the lines (in the servitude). • do not climb a pylon.

Ke eng seo se diragalang?

Eskom ba ka rata go tla mo lefelong la lona, ba age megala ya motlakase gore ditshono tsa go ka bona motlakase mo Afrika Borwa di oketsege.

Fa ba simmolla go aga megala e, go tla nna le diphetogo di se dikae.

Ditlhaloso tsa mantswe:

- pylon:

- **lefatshe la tiro:** lefatshe le go tlang go agiwa mo go lone.
- **modiri wa kontraka:** ke motho yo a phepafatsago lefelo leo go tla go agiwang mo go lone, o tsentsha megala le go ka e kgomogantsa.
- **motlhokomedi wa tiro:** ke motho yo a dirago bonnete ba gore lefatshe leo le diriswago le phepafetse gore dikotsi tsa molo di se bonwe. O dira bonnete gape, gore megala e sireleditswe sentle.

DIPHETOGO TSE DIKA BONWANG

- **mphelo le tshireletso ya gago**
(seo batho ba bangwe ba se dirang)
- **diphetogo tsa botshelo jwa gago**
(methala: ditshono tsa ditiro)
- **tiriso ya lefatshe**
(kammo lefatshe le ka ditswago ka gona)

maphelo le tshireletso ya gago

seo se dirwago ke badiri ba kontraka le batlhokomedi ba tiro → go kopana le batho ba bangwe

diciriswe tsa maspala tse di diriswang jaanong

batho ba ba dirsang ditielo tsa maspala ba a setsegile

ditlamorago

tse di nle:
badiri ba ka ruta badiri ba bangwe bokgoni

tse di maswe:
badiri ba kgakala le magae a bona mme go bonolo gore ba ka amega mo thobalanong. Ses se ka oketsa ditshono tsa malwetse a joalo HIV/AIDS, malwetse a thobalano mo go bona le mogo lona. Se sengwe gape e kanna ga ima go go sa batlegeng le mothata mo serjhaoeng.

nako e nngwe bogodu bo ka ara ka ntlha ya gore batho gob alka ba bona ditiro botlhe.

go senne le metsi a mantsi le go se ithokomele sentle go ka tlisa ditlamorago tse di maswe go tsa mapheio a rona.

jaanong ge?

- batswa ntle batla se ba le teng fa lefatsheng la lona.
- diphetogo di tla bat eng-ithokomela gore o dir o eng gore o bone madi.
- batho ba tshwanna go tla go le ruta ka tsa botwetse ba HIV/AIDS gore le kgone go ithokomela kgathanong le botwetse bo.
- itsise masepala wa gago ga dilo di so tsamaye ka tshwanno. O ka itsise masepala wag ago kamatlakala ge a so phutlwa sentle, ge naga e diriswa jaako ntwana ya batlhuso kgotsa ge metsi a sa lekane go ka phepafatsa le go tlhatswa ka bake la koketso ya batho bao bawa dirisang.

seo badiri ba se dirang → mo lefelong la kago, le ge ba aga megala

tse di maswe:
batho bao ba ninang gaufi le lefatshe leo go direlwang fa go lone ba ka rasetswa thato ka baka la tlela e e tswellang pele.

- batho ba tla tla go le lemosa ka nako eo lerata le tla nnang teng.
- badi bat la leka go fetsa ka nako, gore ka nako ya bosigo le seke la rasetswa.
- badiri botla leka go se dir ka setlho kgotsa nako ya tsomo.

megala ya metlakase ka bo yone → megala e, ena le dilo tse dikotsi ka fa teng ga yone

tse di maswe:
megala ya metlakase e kotsi thata.
a) ga go a babalesega go namela kwa godimo.
b) ga o a tshwanela go nna mo lefelong le go agilweng fa go lone.

- batho botla fa go lo itsise ka g dikotsi tsa megala.
- ga o a tshwanela go nna gaufi le megala ya metlakase (foo megala e agilweng teng).
- o se ke wa palama megala ya metlakase.

what is happening?

Eskom wants to come to your area to put up power lines to bring more electricity to South Africa.

When they come here to build and put up these lines, they will bring changes to the area.

DEFINITIONS:

- pylon:

- **servitude:** the strip of land where the line is. Eskom has permission to work in the servitude.
- **construction worker:** clears the strip under the power line, put up the pylon and string the power lines.
- **maintenance person:** keeps the strip under the power line clean to prevent fire and make sure the power lines are safe.

CHANGE PROCESSES

- **your health and safety**
(other people in the area, what they do)
- **changes in how you live**
(e.g. job opportunities)
- **land use**
(how the land can be used)

changes in how you live

impacts

now what?

jobs

construction

contractors

contractors may give some jobs like cleaning, security or construction.

good:
you might make money from the job and build a better life.

you might better your skills and you could be happy.

bad:
the job is finished when construction in your area ends, could make you unhappy.

only some people may get jobs.

- only some people may get jobs, there may be no jobs.
- if you don't have the right skills, you will struggle to get a job.
- remember that if you get a job, this work will not last very long.

you

you might provide services like food, accommodation and cleaning.

operation

Eskom must maintain the line and the servitude.

highly skilled people maintain the line.

- look out where you can apply for jobs - speak to your municipality.
- go through the right process.

compensation

given to people who's land falls in the *servitude* - (strip of land where the line is)

good:
some form of payment is given to the person who owns the land.

bad:
if your house is in the servitude, you must move. Children might have to change schools because of relocation.

- if the line crosses your land, somebody from Eskom must come and negotiate with you. Negotiations happens once only.

more electricity

good:
more people in the country will get electricity - good for everyone.

- you may not get electricity soon because they still have to build the small lines after the big ones are finished.

Mokopane Integration - Community Impact Assessment — changes in how you live

Ke eng seo se diragalang?

Eskom ba ka rata go tla mo lefelong la lona, ba age megala ya motlakase gore ditshono tsa go ka bona motlakase mo Afrika Borwa di oketsege.

Fa ba simolla go aga megala e, go tla nna le diphetogo di se dikae.

Ditlhaloso tsa mantswe:

- pylon:

- **lefatshe la tiro:** lefatshe le go tlang go agiwa mo go lone.
- **modiri wa kontraka:** ke motho yo a phepafatsago lefelo leo go tla go agiwang mo go lone, o tsentsha megala le go ka e kgomagantsa
- **motlhokomedi wa tiro:** ke motho yo a dirago bonnete ba gore lefatshe leo le diriswago le phepafetse gore dikatsi tsa molilo di se bonnwe. O dira bonnete gape, gore megala e sireletswe sentle.

DIPHETOGO TSE DIKA BONWANG

- **mphelo le tshireletso ya gago**
  [seo botho ba bangwe ba se dirang]
- **diphetogo tsa botshelo jwa gago**
  [methala: ditshono tsa ditiro]
- **tiriso ya lefatshe**
  [kammo lefatshe le ka diriswago ka gona]

Diphetogo tsa botshelo jwa gago

ditiro

tiro

badiri ba kontraka

badiri baka fana ka ditiro tsa go ka phepafatsa, go nna mosireletsi kgotsa go thusa ka tiro ya megala

wena

wena o ka fana ka ditirelo tsa thekiso ya dijo, marobalo le go ka phepafatsa

tsamaiso

Eskom le tswanela ke go tlhokomela megala le lefatshe leo go agiwang fa go lona

tse dintle:

o ka bona madi gotswa mo tirong eo kae fwang, mme wa nna le botshelo jo botoka.

o kanna le bokgoni ba go ka dira ditiro tse dingwe mme wa itumela.

tse di maswe:

tiro e o e fiweng ea fela ge tiro ya tshentsho ya megala e fitlhile bokgutlang. Se ge se e itumedise.

gase botho bothe batla fiwang ditiro.

ke botho baba nang le bokgoni bo bo kwa godimo feela baba tlhokomelang tsamaiso ya tiro yotlhe.

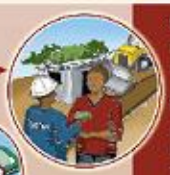
jaanong ge?

- ke bao le bao fela ba tlang go bona ditiro, nako eringwe ditiro di ka senne leng.
- ga o sena bokgoni bo bo tlhokegang, otla nna le matlhata ago ka iponna tiro.
- gapola gore tiro eo ka e fiwang gase ya goya go ile.

- lebelela la o ka bonang tiro gone,ka bokgoni bo o nang le bone- buwa le masepala wa gago
- dirisa ditsela tse di siameng.

tuelo

yona e bonwa ke batho bao lefatshe la bona le tlang go diriswa



tse dintle:

madi a fiwa motho eo lefatshe e leng la gagwe.

tse di maswe:

ga nfilo ya gago ele fa lefatsheng leo go direlwago fa go lona, o tla tswanna ke go tloga o lo nna go gongwe. Bona le bone ba ka tshwanna ke go fetola dikolo ka baka la phuduga e.

- ta megala e tshelela kwa lefatsheng la gago, mongwe gotswa lefapheng la Eskom o tlaela go buisana le wena ka ditsela. Dipuisano tse di dirogala gangwe fela.

motlakase o montsi tota

tse dintle:

botho ba bantsi mo Afrika Borwa ba batla bona motlakase, mme seo e tlaba bofumelo go bothe.

- o ka nna wa se bone motlakase ka tshoganyetso gonne go tlhokega gore ba age megala e e mennye morago ga e metona e agilwe.

4.2. Recommendations

Involuntary resettlement is irreversible and the involuntary resettlement of people should be avoided and kept to a minimum as far as possible. Corridor selection is therefore mainly based on avoiding involuntary resettlement. Only if avoidance of involuntary resettlement would lead to unsustainable practices in the area should the involuntary resettlement of large numbers of people be deemed acceptable. The effective and participatory execution of the negotiation and compensation process is crucial to ensure that the impact is kept to a minimum.

A decommissioning and closure plan should be in place to ensure that social impacts are reversed. The impact on sense of place during operation could impact the sustainability of game farms. Knock-on effects of unsustainable farms would be loss of jobs, impacts on neighbouring farms and loss of livelihood. The impact on sense of place should be kept to a minimum and the mitigation measures for the reduction of the Visual Impact Assessment and Ecological Impact Assessment should be implemented, monitored and evaluated. The proper maintenance of the servitude is one of these.

It is highly recommended that Eskom investigates the general use of wide service Corridors between all major power generation areas that can accommodate further development in the future in order to avoid the “spider web” effect often associated with short term focused planning of economic development. This study therefore places a strong emphasis on long-range economic planning.

Corridor 7, from Masa (Delta) substation, should follow the existing lines in the corridor to consolidate the impact on sense of place. Corridor 8 (with deviations) followed by 2 and 5 and 6 are the most preferable for the minimisation of negative impacts.

The proposed 2x400kV Transmission power lines would follow a longer length of the existing Matimba-Witkop Transmission power lines should Site 4 be selected, and it would be possible to avoid settlements and not affect their development. Site 4 is therefore preferred.

Finally, to ensure that social impacts are mitigated during construction and operation it is recommended that the following be implemented and monitored by a Social Engagement Officer:

- A Social Management Plan during construction and operation;
- An ex post facto Social Impact Assessment during construction and operation;
- A Local Labour and Workforce Plan;
- An Influx Management Plan;
- A Decommissioning Plan;
- A Grievances Mechanism for the construction and operational phases;

- A Stakeholder Engagement and Education plan for construction and operation.

5. ENVIRONMENTAL MANAGEMENT PLAN INPUT

5.1. Purpose

Construction activities have the potential to impact on the social environment to a fairly large extent. The Environmental Management Plan (EMP), of which the Social Management Plan (SMP) forms part, provides guidelines to the contractor regarding the environment and supplements Eskom's specification on Transmission Power line towers and line construction. The objective of the EMP is to ensure that[2]:

- Environmental management, including social management, considerations are implemented from the start of the project;
- Precautions against damage and claims arising from damage are taken timeously;
- The completion date of the contract is not delayed due to problems with landowners arising during the course of construction.

To ensure the effective implementation of the EMP requirements, an Environmental Control Officer (ECO) is appointed on site. The ECO is usually an environmental specialist, and not a social specialist. It is recommended that a Social Engagement Officer (SEO) be employed to ensure that the following reporting systems on site:

- A complaints register should be kept;
- A weekly report including feedback from stakeholders should be submitted to the environmental manager;
- A monthly report including feedback from stakeholders should be submitted to the project manager.
- All non performances (i.t.o. the SMP) should be recorded;
- The SEO should ensure that agreements between landowners, the contractor and Eskom are formalised and filed;
- The SEO should assess documentation containing information for each tower outlining design, property names, owners and contact details, special conditions, landscape and land use, vegetation control / conservation, activity (farming), houses on servitude, gate positions, bird guards, flappers and aircraft warning spheres, line crossings and access roads to towers and servitude.

In addition to ensuring that social impact mitigation measures are implemented on the construction site, the SEO is responsible for communicating construction related issues with landowners, land users and surrounding communities. The SEO is responsible to ensure that issues are addressed and that communication is effective. If the SEO cannot sort out problems with landowners, the assistance of the environmental manager or negotiator is called in to address the problem.

[2] Framework EMP for the proposed Majuba-Umfolozi 765kV Transmission Power line, March 2006, prepared by BKS

In managing communication, it is important for the SEO to follow up immediately on problems and indicate how long it will take to sort out the problem reported. Their responsibilities regarding communication include the following:

- To inform landowners of the construction programme and when any changes occur in the programme;
- To explain the construction process to landowners;
- To address any complaints from landowners or land users;
- To ensure that landowners' contract conditions are honoured;
- To ensure contractors implement the EMP;
- To inform land users and affected communities on the construction process;
- To ensure landowners have the SEO contact details;

From a social perspective, it is recommended that the following mitigation measures be included in the EMP, and that the following is done to ensure impacts are mitigated[3]:

- A Social Management Plan is compiled;
- A Social Engagement Officer monitors social impacts;
- A local labour and workforce plan is developed;
- An influx management plan is developed;
- A decommissioning plan is developed;
- A grievances mechanism is implemented;
- A stakeholder engagement and education plan is developed;
- Local steering committees can be used to identify local people for employment. A local person can be identified in the local community – this could happen through the Department of Labour – and this person establishes a steering committee. The contractors communicate their needs to the steering committee that compile a list of people that are available for employment. Alternatively, the Unions can be asked for assistance, or the Local Economic Development Forum.

5.2. Project Components

The following components have been addressed in this Management plan:

- Involuntary resettlement;
- Health and safety;
- Direct and Indirect job opportunities;
- Land use impacts;
- Integration with local communities;
- Nuisance impacts.

[3] This section informed by this report, the Comparative Post-hoc Assessment completed by MasterQ Research, March 2007 and the Framework EMP for the proposed Majuba-Umfolozi 765kV Transmission Power line, March 2006, prepared by BKS

a. Involuntary resettlement

Objective	To avoid involuntary resettlement. If involuntary settlement is unavoidable, to ensure ▪ the least disruption possible to those households and/or population segments that have to be relocated; ▪ fair compensation for impacted people; ▪ ensure all impacted people are compensated.
Project Component/s	Involuntary resettlement
Potential Impact	Psycho-social impacts, knock-on effects: economic impacts.
Activity/Risk Source	No dwellings are allowed in the servitude and the servitude has to be negotiated prior to construction.
Mitigation: Target/Objective	▪ Provide households with the same or better standard of housing and quality of life that they have grown accustomed to. ▪ Written records of all discussions with impacted farmers. ▪ Provide assistance (financial and physical) to households that have to be relocated as a result of the project. ▪ Signed agreements between Eskom and the impacted farmers. ▪ No complaints received/litigation. ▪ Have a grievances mechanism and grievances register in place. ▪ Monitoring of impacted farmers.
Performance Indicator	▪ Grievances register. ▪ The Compensation Assessment and Action plan in accordance with IFC Performance Standards. ▪ Implementation of signed agreements.
Monitoring	▪ The Compensation Assessment and Action plan needs to be regularly checked by the SEO to ensure compliance and transparency. ▪ Grievance register must be made available to monitor process. ▪ Monitor impacted landowners.
Responsibility	Eskom land rights and negotiation representative.
Timeframe	1 year

Mitigation Action/Control
The relocation of households and/or population segments results in a negative social impact which is further intensified depending on the number of years and attachment a household and/or individuals have to a certain place. The resettlement and/or displacement of households and/or population segments should therefore be avoided as far as possible. Failing that, the following mitigation measures should be implemented: ▪ Impacted owner should be sufficiently compensated and assisted with the relocation process. ▪ A formal grievance procedure should be implemented and communicated to landowners to ensure a fair and transparent process. ▪ The site for relocation should be chosen to ensure that the minimum disruption to current farming activities and to families is caused. ▪ A land acquisition process should be developed and adhered to. A Compensation Assessment and Action Plan should be developed. ▪ Landowners will have the choice to either move their buildings themselves but get no compensation for it, or leave it for Eskom to remove and auction for which compensation will be given. ▪ Those with lack of negotiation skills and lack of knowledge about the negotiation process should be educated and assisted. ▪ Impacted people should be informed about the timeframes for the project – not knowing when involuntary resettlement will take place will add to the stress. ▪ Poverty and equity: A form of compensation should also be granted to individuals who are residing in informal settlements within the servitude and assistance with relocation should be given. This issue should be approached with caution as this might set a precedent for future projects (people might deliberately move onto a servitude for the purpose of receiving compensation). ▪ Compensation should not focus on monetary compensation only. Where necessary, impacted people should be assisted to move, and should receive counselling. Monetary compensation should preferably not be given to the poor because of lack of experience to work with huger amounts of money. Compensation should rather be in the form of material goods and assistance, or financial guidance should be given. ▪ A common standard of compensation should be applied to all properties. ▪ The purchasing of farms offers a solution in many cases, but not all. E.g. in some cases farms have been in the family for generations and relocation will be highly emotional. ▪ Landowners should be made aware that a pre- and post evaluation of their land value is possible. ▪ Labour tenants who do not move with their employers to their new destination (e.g. where farms are bought out) should be assisted to find alternative long term jobs. ▪ The IFC Performance Standards for involuntary resettlement should be followed. ▪ Clear roles and responsibilities of Eskom and the impacted people should be formalised and adhered to. ▪ Local customs should be acknowledged. E.g the necessary ceremonies should be performed during the relocation and reburial of graves and Eskom should

compensate affected families.

- Photos of the servitude should be taken prior to the negotiation process to monitor opportunistic settlement in the servitude for the purpose of being compensated.
- The land valuator should be experienced in valuating the land in question.
- The process should be conducted with the necessary respect, and the negotiator should be transparent about the process and expectations (do not engage in “empty promises”).
- Contracts should be reviewed by an independent body.
- In the case of tribal authorities, the project proponent and/or appointed contractor should consider establishing a trust fund in consultation with the tribal authority (as a form of compensation) for the community that is jointly administrated by Eskom and the tribal authority. Community development projects can then be funded from the trust fund, which would aid sustainable development in the area.
- The local residents should play an active participatory role in the planning process, especially landowners of neighbouring properties. This could be achieved by means of establishing a community forum that meet quarterly or once a month to discuss issues and progress surrounding the project.
- An approved interpreter should be present during the negotiation process to ensure that there are no misunderstandings as a result of language barriers.
- A SEO should be appointed to ensure that social mitigation measures are implemented.

To prevent future involuntary resettlement:

- Educate surrounding communities about the dangers of living in the servitude and the potential dangers of a transmission power line.
- The awareness campaign should also focus on standard operating procedures when there is a breakdown in the line, e.g. people should steer clear of the area, who to contact, etc.
- A form of signage on the towers should also indicate that it is dangerous.
- In some way a barrier (psychological and/or physical) should indicate that no structures should be built in the servitude.
- Eskom together with municipalities should make decisions about whose responsibility it is to move people illegally settling in the servitude.

b. Influx of construction workers

Objective	To not increase the occurrence of HIV/Aids and STDs and illnesses as a result of biophysical pollution.
Project Component/s	Influx of construction workers, which could result in sexual relations between them and the local people and contamination of the biophysical environment.
Potential Impact	Physical health impacts which could lead to economic impacts, impacts on quality of life and mental well-being of the impacted person and dependents.
Activity/Risk Source	Construction workers have to live in the project area in a construction village, possibly in areas where unemployment and poverty is high.
Mitigation: Target/Objective	▪ Create awareness, knowledge and appropriate behaviour not to spread STDs and HIV/Aids. ▪ Local direct employment is 30%, of which at least 10% is women. ▪ A social and environmental management plan for the construction village is in place. ▪ A baseline of clinic patients is developed. ▪ Local Steering Committee is in place.
Performance Indicator	▪ A HIV/Aids policy is in place. ▪ A relevant campaign is in place and executed in collaboration with relevant local NGOs, the municipality, etc. ▪ No significant change in baseline of clinic patients. ▪ No disciplinary actions against construction workers as a result of trespassing construction village rules (e.g. local partners are not allowed in the camp, littering) are necessary. ▪ Number of absences due to illness for longer than two days. ▪ Measure anonymous HIV/Aids test results prior to the start of construction and after construction.
Monitoring	▪ HIV/Aids awareness campaign. ▪ Regular visits to the construction village to determine whether outsiders live in the village and whether workers are identifiable. ▪ Audit construction camps for adherence to the OHS Act. ▪ Audit construction sites for adherence to the OHS Act. ▪ Weekly Steering Committee meetings. ▪ Monitor clinic visitor numbers and reasons for visits.

	▪ Monitor condom distribution.
Responsibility	Social Engagement Officer and Environmental Control Officer.
Timeframe	Duration of construction.

Mitigation Action/Control

- Raise awareness amongst construction workers about local traditions and practices.
- Ensure that the local community communicate their expectations of construction workers' behaviour with them.
- An aggressive STD and HIV/AIDS awareness campaign should be launched, which is not only directed at construction workers but also at the community as a whole. Include training with women and focus on family planning and gender relations.
- Access at the construction site should be controlled to prevent sex workers/women seeking partners from either visiting and/or loitering at the construction village.
- Construction workers should be clearly identifiable. Overalls should have the logo of the construction company on it and/or construction workers should wear identification cards.
- Local women should be empowered. This could be achieved by employing them to work on the project, which in turn would decrease their (financial) vulnerability.
- Regular leave should be given to workers and workers' families should be given opportunity to visit.
- A clinic should be on site/close to the village and anti retro virals available.
- Improve conditions at the construction village by providing entertainment.
- Inform local businesses that construction workers will move into the area to enable local businesses to plan for the extra demand.
- Refuse on site should be discarded in sealed bins and/or covered skips. Refuse should be removed from the site on regular intervals (at least once a week) and disposed of at an approved waste disposal site.
- Contractors are liable for the costs involved with connecting to the electricity network and the water services network.
- Sufficient portable chemical toilets on site. (1 for every 30 workers)
- Supply adequate sanitation services (e.g. showers) at the construction village with effective drainage facilities to ensure that used water is carried away from the site.
- A demobilisation plan should be developed and implemented to ensure that construction workers move out of the area upon completion of the construction phase.

c. Influx of job seekers

Objective	To discourage influx of job seekers during the construction period.
Project Component/s	Pre-construction and during construction of the line news spread about the project and people flock to the area in the hope of securing a job.
Potential Impact	Physical health impacts (HIV/Aids) and biophysical health impacts (because of lack of services), which could lead to economic impacts, impacts on quality of life and mental well-being of the impacted person and dependents. It can also put strain on community resources.
Activity/Risk Source	Word about the project has probably already spread during the EIA. Construction workers have to live in the project area, which signals job opportunities to the surrounding communities.
Mitigation: Target/Objective	• Have an Influx Management Plan in place and apply it. • Local Procurement Policy is in place. • Local Employment Register is in place. • Local Steering Committee is in place. • Ongoing public consultation. • Baseline of clinic patients.
Performance Indicator	• No evident growth of informal settlements around the construction village. • Implementation of the Influx Management Plan. • Achieved 30% local employment. • No significant change in baseline of clinic patients.
Monitoring	• Weekly Steering Committee meetings. • Monitor clinic visitor numbers and reasons for visits. • Photographic history.
Responsibility	Social Engagement Officer, Steering Committee.
Timeframe	Construction period.

Mitigation Action/Control
▪ A recruitment policy and process should be finalised in consultation with the Steering Committee or the municipalities and Traditional Authorities. Ensure that employment procedures/policy is communicated to local stakeholders, especially community representative organisations and ward councillors. ▪ Have clear rules and regulations for access to the construction village/site office to control loitering. Consult with the local SAPS to establish standard operating procedures for the control and/or removal of loiterers at the construction site.

▪ Construction workers should be clearly identifiable by wearing proper construction uniforms displaying the logo of the construction company. Construction workers could also be issued with identification tags. ▪ The SCO should monitor areas where people gather in the field on a regular basis as this is normally the first indication that (informal) settlement might take place in the area. These people should be removed in co-operation with the local Traditional Authorities/ SAPS to prevent the formation and/or expansion of informal settlements in such an area, especially if it encroaches upon the dam basin. ▪ The construction site should be fenced and access should be controlled by means of a security access point.

d. Direct formal and informal employment opportunities to local individuals

Objective	Provide local economic benefits to the local people.
Project Component/s	Semi-skilled people are needed to assist with construction.
Potential Impact	Economic benefit which could in turn lead to could lead to an increase in quality of life and mental well-being of the impacted person and dependents.
Activity/Risk Source	Timeframes available to build the line.
Mitigation: Target/Objective	▪ Local Procurement Policy is in place. ▪ Local Employment Register is in place. ▪ Offer training opportunities to ensure sustainable skills development within the community. ▪ Provide for alternative employment opportunities through the development of portable and other skills. ▪ At least 30% of local people are employed by the project. ▪ Maximum use of local sub-contractors.
Performance Indicator	▪ At least 30% of local people are employed by the project. ▪ Outflow of money to local sub-contractors. ▪ Number of people who did training, age, gender.
Monitoring	Monitor Local Employment Register. Monitor Local Procurement Policy, Human Resources Plan. Monitor interview records, and employee register. Monitor local-sub-contractor documentation. Monitor training plan and implementation.
Responsibility	Eskom Labour Department, Main contractor.

Timeframe	Construction period.

Mitigation Action/Control
▪ Semi-skilled job opportunities should be afforded to local residents. Local trade unions could assist with the recruitment process to counteract the potential for social mobilisation. ▪ Equal opportunities for employment should be created to ensure that the local female population also have access to these opportunities. Females should be encouraged to apply for positions. ▪ Individuals with the potential to develop their skills should be afforded training opportunities. Eskom or its appointed contractors should be involved in this process. ▪ Mechanisms should be developed to provide alternative solutions for creating job security upon completion of the project. This could include formal and/or informal training on how to look for alternative employment, information on career progression, etc. to ensure that people are equipped to seek other jobs with the skills that they have gained. ▪ Payment should comply with applicable Labour Law legislation in terms of minimum wages. ▪ Where local labourers are employed on a more permanent basis, cognisance should be taken of the Labour Law in terms of registering the worker with the Unemployment Insurance Fund (UIF), Pay as You Earn (PAYE), workman's compensation and all other official bodies as required by law. This would enable the worker to claim UIF as a means of continuous financial support when the worker's position on the construction team has either become redundant or once the construction phase comes to an end. ▪ Develop a procurement policy that is easy to understand and ensure that local sub-contractors also comply with the procurement policy and any other applicable policies. ▪ Ensure that local sub-contractors receive the necessary support in terms of resources. ▪ Agree on specific performance criteria prior to appointment. ▪ Identify the segment that might benefit from informal indirect opportunities, and assist them with skills development and subsidise initiatives that are sustainable. ▪ Encourage construction workers to use local services. ▪ Do not employ job seekers through informal channels. Have a formal procedure in place and adhere to it.

e. Temporary loss of land

Objective	To rehabilitate land damaged during construction to its original state outside the servitude and the agreed to state in the servitude..
Project Component/s	Construction activities will result in a change in the physical landscape and land use activities.
Potential Impact	Psycho-social and economic impacts.
Activity/Risk Source	Timeframes available to build the line.
Mitigation: Target/Objective	▪ The rehabilitation of grazing land and/or the nutrition of livestock to its original standard after the conclusion of the construction phase. ▪ Curbing economic losses on cultivated land as a result of the physical space required for the construction process. ▪ Attending to and concluding to all grievances lodged in this regard.
Performance Indicator	▪ Land outside the servitude is in the same condition than prior to construction. ▪ Grievances mechanism is in place. ▪ Grievances in grievances register is signed off. ▪ Discussions with landowners.
Monitoring	▪ Interviews with landowners. ▪ Photographic evidence. ▪ Grievances register. ▪ Weekly Steering Committee meetings.
Responsibility	Eskom Land rights and negotiation department Contractor.
Timeframe	Construction period.

Mitigation Action/ Control
▪ Negotiation agreements should detail such aspects as the exact location and extent of the servitude, access arrangements and maintenance responsibilities. ▪ Consult with Regions on bush clearance requirements before negotiations with landowners start. Ensure that Regions' requirements from landowners are addressed either by incorporating it in negotiations or raising the issue with landowners during negotiations.

- Ensure that negotiators record everything that is discussed with landowners.
- Should landowners negotiate to conduct certain construction activities such as bush clearance on their property, specifications on how these activities should be conducted, should be clearly stipulated in the contract with the landowner.
- Mitigation measures should be implemented to avoid any negative impact on animals (e.g. fencing off the construction area).
- Eskom or its appointed contractor(s) should assist with the temporary relocation of livestock, as well as relocating cattle and game back to their original grazing area.
- Grazing areas should be rehabilitated to its original grazing conditions to ensure that cattle and game can continue to graze in the area once they are returned to the area.
- Where the area cannot be rehabilitated to its original condition within a short space of time, Eskom or its appointed contractor(s) should provide alternative food sources to the farmer for the time period required for natural rehabilitation to occur within the grazing area.
- Rehabilitation of roads should happen after construction.
- Roads should be upgraded before construction should the condition of the roads be unable to handle the traffic load.
- Existing road infrastructure should be used as far as possible.
- All anticipated crop damage should be noted while access negotiations are underway.
- Any damage to commercial crops should be recorded immediately.
- The contractor is liable for all unnecessary damage to the environment and crops.
- All claims and complaints should be handled immediately through a formal grievances mechanism and grievances register.
- All agreements should be confirmed in writing.
- Boreholes should be located and avoided during negotiation of the final route.
- Where possible, towers should be located on the border of the farmland, and along roads to lessen the loss of cultivated/grazing.
- If necessary, mitigation measures should be implemented to avoid any negative impact on animals (e.g. fencing off the construction area).
- Where possible, towers should be located on the border of the game farms and away from capturing nets to lessen the potential impacts.
- It is suggested that construction, decommissioning and maintenance not take place during animal breeding months or during the main hunting seasons. Should this not be possible, the landowner should be compensated for any losses as a result of construction, deconstruction or maintenance during these times.
- Construction, decommissioning and maintenance activities should be communicated and finalised with the affected property owners, and adhered to. Should this not be possible, the landowner should be informed and consulted about alternative arrangements through formal communication channels.
- An attempt should be made to avoid game grazing/browsing areas altogether because of the loss of trees and grass for grazing, and potential safety problems for game and people (tourists) during maintenance, operation and decommissioning.

▪ The area should be rehabilitated upon completion of the construction activities to ensure that the land is returned in the same condition as prior to the construction activities. This, however, might not be possible depending on the height of the trees and the fire management precautions. ▪ A fire management plan should be in place. ▪ Towers should be placed on the border of centre pivots. ▪ Where possible, towers should be located on the border of the game farms and away from capturing nets to lessen the potential impacts. ▪ To mitigate the potential impacts of lines in close proximity of landing strips and helicopter pads, landing strips should be avoided to ensure that activities can proceed without risk. ▪ To mitigate the potential impacts of Transmission Power lines on the health and safety of people executing game capturing and crop spraying activities by aircraft, the Transmission Power lines should avoid areas where these activities take place, e.g. put them along roads. If this is not possible, they should be put along the borders of farms, and lines should be marked.

f. Integration with local communities

Objective	No conflict reported as a result of the presence of construction workers.
Project Component/s	Construction workers who do not live in the area will have to be accommodated in a construction village.
Potential Impact	Impact on social cohesion as a result of influx of workers with different cultural backgrounds to the local communities.
Activity/Risk Source	Origin of construction workers. Local employment process.
Mitigation: Target/Objective	▪ Local Employment of 30%, at least 10% females. ▪ Cultural sensitization of the construction workers. ▪ Access conditions to land negotiated. ▪ Formal grievances procedure in place. ▪ Formal introduction between workers and communities.
Performance Indicator	▪ Grievances registered and resolved in 24 hours. ▪ Cultural sensitization training, number of sessions, number of attendees.
Monitoring	▪ Assess grievances register – grievances related to cultural differences. ▪ Weekly Steering Committee meetings
Responsibility	Contractor.

Timeframe	Construction period.

Mitigation Action/Control
▪ Raise awareness amongst workers about local traditions and practices. ▪ Ensure that the local community communicate their expectations of construction workers' behaviour with them. ▪ To ensure that the local traditions and cultures are respected, local residents should play an active participatory role in the planning process. This could be achieved by means of establishing a Steering Committee that meet once a week to discuss issues and progress surrounding the project. ▪ Signage must be used to indicate where and which construction activities are taking place. ▪ All gates should be locked and clearly marked. The landowner as well as the contractor should have a key to the gate. Locks should not be removed and/or replaced by the contractor without the consent of the landowner. ▪ Construction and decommissioning activities should be communicated and finalised with the affected property owners, and adhered to. Should this not be possible, the landowner should be informed and consulted about alternative arrangements. ▪ Loitering of outsiders at the either the construction site or at the construction village should not be allowed. Loiterers at the site should be removed in cooperation with the local South African Police Service (SAPS).

g. Sense of place and nuisance impacts

Objective	Minimise nuisance impacts.
Project Component/s	Construction activities.
Potential Impact	Impact on sense of place as a result of dust and noise pollution.
Activity/Risk Source	Construction during the hunting season.
Mitigation: Target/Objective	▪ No grievances regarding nuisance issues registered on the grievances register.
Performance Indicator	▪ Grievances registered. ▪ Construction activities carried out according to the EMP.
Monitoring	▪ Meetings with landowners. ▪ Local Steering Committee.
Responsibility	Contractor.
Timeframe	Construction period.

Mitigation Action / Control
▪ Construction traffic should only make use of approved routes. ▪ The number of trucks that pass through communities should be kept to a minimum and should be restricted to certain times of the day, i.e. avoid peak hours when community members are on their way to or from school and work. ▪ Dust pollution could be restricted by the tarring of the access roads. ▪ If access roads are not tarred, it should be watered down regularly to compact the soil and restrict dust pollution to an extent. ▪ Residents should be consulted prior to activities that could cause large amounts of dust pollution. ▪ Construction activities should be restricted to daytime hours between 07:00 and 19:00. ▪ Adjacent property owners should be consulted and notified of any activities that could lead to excessive noise levels. ▪ Adjacent property owners should also be consulted beforehand if any night time construction activities were to take place. ▪ Noise levels of construction villages should not affect the local community during the night time. ▪ Construction activities should not take place during the hunting season. Should this not be possible, landowners should be compensated for economic losses.

6. SOURCES CONSULTED

Stakeholders at Social Assessment meetings

21 July 2009 Lephalale	
Jannie Pretorius	Vlucht 426
W Lewis	Wynberg en Durban
M J Nel	Posini, Blokwater, De Hoop, Uitvliet, (could not decipher last farm name)
Lee-ann Rudd	Sasol
Jaco Swanepoel	Sweswebe
Karel Botha	Daggakraal
Jorrie Ellis	Rondebosje, Melkboskraal
Charles Swart	Trompettersfontein
Apologies	
M.P. van Staden	Wellington
M Nortje	Garibaldi
H.L Pretorius	Uitkyk

27 July 2009 Marken	
M J van Staden	Sterkfontein
G P Lamprecht	Murchison
G Spanio	Turflaagte
S Du Plessis	Murchison
E Du Plooy	Turflaagte
R van Aswegen	Nyabi Wildsplaas
G Erasmus	EBB
Willie Esterhuizen	Rooibokpan
Rone Hennop	Gouda en Sandnek
Johan Fourie	Mogalakwena Municipality
Johan Kloppers	Daggakraal

J B Kloppers	Daggakraal
A H Walker	Lapala Wilderness
Apologies	
Karel Botha	Daggakraal
C F Ackermann	Welgevonden
CFJ Hennop	Gouda
Buks v d Walt	Kirstenbosch

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We’d like to thank the I&APs who willingly gave us their time and input to assist us in this study.

APPENDIX A

1 Julie 2009

Dear Affected Party

MOKOPANE INTEGRATION PROJECT

MasterQ Research has been appointed to conduct the Social Impact Assessment for the Mokopane Integration Project as part of the Environmental Impact Assessment (EIA). The Scoping Phase has been completed and we are currently in the Impact Assessment Phase. As part of the Social Impact Assessment we aim to conduct three workshops with landowners who are directly affected by the proposed three corridors for the proposed two 400kV Transmission Power lines between Medupi and Witkop substations. These workshops will take place independent of the public participation process that will take place in the week of 27 July.

The aim of the workshops will be to determine the best corridor for the power lines by determining what socio-economic principles can't be sacrificed. The outcome of the workshops will be to have a defendable preferred corridor on the table that are supported by participants of the workshops.

The workshops will take place in the following order:

- Determine principles;
- Prioritise principles;
- Small groups determine the best corridor in light of these principles and give feedback to the whole group; and
- Participants come to an agreement.

The workshops are scheduled for Tuesday 21 July and Wednesday 29 July. We prefer that landowners who are affected by different corridors attend workshops together. The dates and times for the three workshops are as follows and you are invited to attend one of these workshops:

	Datum	**Tyd**	**Plek**
Workshop 1	Tuesday 21 July 2009	10:30- 13:00	Vaalwater Farmers Hall
Workshop 2	Tuesday 21 July 2009	14:30- 17:00	Mogol Club
Workshop 3	Wednesday 28 July 2009	10:00-13:00	Marken Farmers Hall

Your participation is very improtant and is appreciated. Please give feedback to Melissa Naidoo of MasterQ Research at 079 668 2632 (melissa@masterq.co.za) before 17 July 2009 regarding the workshop you plan to attend.

You will also have the opportunity to meet the social team on your farm, should you request it, between 22-24 July. You are also welcome to invite them to speak to the hunters visiting your farm at that time. Should you wish such a visit, please contact Melissa of Master Q Research so that she can co-ordinate these visits.

We look forward to meeting you!

Melissa Naidoo

APPENDIX B

Transmission power lines are constructed and operated within a servitude (55m wide for 400kV lines) that is established along its entire length. The servitude gives Eskom Transmission right of way for that piece of land. Right of way should not be confused with a rental agreement. Right of way gives Eskom certain rights and controls that support the safe and effective operation of the line.

The process of achieving the servitude agreement is referred to as the Servitude Negotiation Process, or just the negotiation process. This process is undertaken directly by Eskom Transmission. Important points relating to the EIA process are as follows:

- Servitude negotiation is a private matter between Eskom Transmission and the landowner concerned.
- The standard agreement can be expanded on depending on specific requests from the landowner.
- The negotiation process involves a number of stages (see text box below), and culminates in the 'signing' of a servitude. Here Eskom Transmission enters into a legal agreement with the landowner.
- The agreements will detail such aspects as the exact location and extent of the servitude, and access arrangements and maintenance responsibilities.
- Compensation measures are agreed in each case.
- It may take place at any time in the planning of a new line.
- It must be completed (i.e. the agreement must be signed) before construction starts on that property.
- It is independent of the EIA process.

The EIA process has become important in the initial planning and route selection of a new Transmission power line. For this reason, it would normally be preferable that the negotiation process begins after the EIA has been completed. At this stage there is greater confidence in the route to be adopted, and it would be supported by environmental authorisation.

However, it may be required that the negotiation process needs to start earlier, and may begin before or run in parallel to the EIA process. This may be due to tight timeframes, knowledge of local conditions and constraints, etc. Eskom Transmission has a right to engage with any landowner at any time, though they do so at risk if environmental authorisation has not been awarded.

The following process represents the steps that are followed in registering the servitude:

- The route is usually finalised before negotiation can start.
- Negotiators determine which properties are affected by the final route.

- The Survey-General is contacted to verify and confirm the properties to be affected.
- The Deeds Office provides the names of the legal owners of the properties.
- The services of an external property valuator are procured. Properties are valued by doing a strip valuation for which price ranges for the different properties are submitted.
- Maps are drafted for each property indicating the proposed route for the Transmission power line to be constructed on private or tribal land. The route is between 200 and 500m in width.
- Eskom draws up an option to secure the servitude. The option indicates that the owner will accept that the line will cross his property, subject to conditions to be finalised in the negotiation of the servitude agreement. An option is valid for one year. Eskom offers 100% of the value of the land for the first line to be constructed on one owner's property, 110% for the second and 120% for the third line. The value of the land to be negotiated is calculated by multiplying the area of the servitude required from the landowner with the valuator's unit price.
- Negotiators visit the landowners to start negotiations. The documentation, including the map of the affected area and the option are used to start negotiations. If landowners are not aware of the proposed line to be constructed on their property, the negotiator explains the procedures and conditions to them. *In the case of tribal land, a government representative has to attend a public meeting with the tribal leaders when negotiations start.*
- The landowner signs the option. Special conditions are negotiated and added to the standard option form. *In the case of tribal land before an option is signed, a tribal resolution has to be made regarding Eskom's intention to reach a servitude agreement on the proposed tribal land. If a tribal resolution is reached to grant Eskom the servitude, the Provincial Department of Land Affairs have to certify the decision. The National Department of Land Affairs register the servitude of tribal land.*
- Once the route is confirmed (i.e. options signed with the upstream and downstream landowners) the servitude agreement will be finalised with the landowners. This agreement will set out the compensation amount, and conditions for the establishment and operation of the servitude, and will be site specific (different landowners may have different requirements). Compensation payments are made when the servitude is registered at the Deeds office.
- Once the construction is complete and the land rehabilitated to the landowners' satisfaction, the landowner signs a 'Final Release' certificate.
- Once the clearance certificate is signed, the responsibility for the line and servitude is handed over to the regional Eskom Transmission office. Prior to this the Eskom national office is responsible for the process.
- If the landowner is not satisfied with the construction process, conditions cannot be renegotiated. However, the landowner can refuse to sign the 'Final Release"

certificate should the rehabilitation of the land and the anti-climb around the pylons not have been done to a satisfactory level.

- If no agreement can be reached between Eskom and the landowner and all other avenues to resolve the issues has been investigated and failed, Eskom applies for expropriation of the land. A full EIA has to be completed before an application of expropriation can be logged. This is not a preferred option for Eskom. For expropriation NERSA (National Energy Regulator of South Africa) is called in. The landowner has a chance to state his case. NERSA makes an independent decision whether the land should be expropriated. Expropriation could be refused.

Expropriation will only take place once the negotiation process has reached a deadlock and/or after a maximum period of 90 days have lapsed after the commencement of the negotiation process. However, Eskom aims to avoid expropriation as this process is time consuming and tedious. In the interests of minimising the impact of expropriation, Eskom will be flexible towards unique circumstances as it is believed that such an approach would mitigate the risk of landowners refusing the registration of the servitude on their respective properties.

Expropriation will take place in accordance with the Expropriation Act (Act 63 of 1975) where the basis for compensation is outlined as follows:

(1) The amount of compensation to be paid in terms of this Act to an owner in respect of property expropriated in terms of this Act, or in respect of the taking, in terms of this Act, of a right to use property, shall not, subject to the provisions of subsection (2), exceed—

a. *in the case of any property other than a right, excepting a registered right to minerals, the aggregate of—*
    i. ***the amount which the property would have realized if sold on the date of notice in the open market by a willing seller to a willing buyer; and***
    ii. ***an amount to make good any actual financial loss caused by the expropriation.***
b. *in the case of a right, excepting a registered right to minerals, an amount to make good any actual financial loss caused by the expropriation or the taking of the right.*