

Four sites have been identified as potential locations for the construction of the Mokopane transmission line substation. The four options are situated north of Mokopane and include the farms Doornfontein 721 LS (Option 1), Aronsfontein 722 LS (Option 2), Zuidholland 773 LS (Option 3) and Noord Braband 774 LS (Option 4). These properties are all State-owned and are currently administered by the Department of Land Affairs.

The proposed substation options are situated within landform types ranging from lowlands with mountains in the west to low mountains in the east. None of the substation sites are situated within areas of known botanical or faunal importance; several such sites are however present in close vicinity to the sites and are therefore likely to be affected by the turn-in lines.

4.2. Social Characteristics of the Study Area

The Waterberg District Municipality (WDM) is made up of six (6) separate local municipalities, including the Mogalakwena and Lephalale Local Municipalities (see Figure 4.1). The WDM is the largest of the six districts and lies to the west of the LP. The district is mostly rural in nature and, according to the Community Survey 2007, has a total population of approximately 596 092 people living in 160 720 households (at an average of 12 people per km², much lower than the average provincial density of 40 people per km²).

In a 2007 Community Survey, the unemployment rate within the district 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. 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.

4.2.1. Demographic Profile

Figure 4.2 provides an overview of the formal settlements in the study area. At the time of the study, information was not available on the planned future development of these settlements.

- » *Option 1*: The closest human settlement to this site is Segoahteng, which is located some 3km east of the proposed site. Other human settlement in fairly

close proximity to the proposed site includes Ga-Matlapa (approximately 4.7 km southeast), Glen Roy (approximately 4.3 km north), and Ga-Mangou (approximately 4.1 km north-northeast).

- » *Option 2:* The closest human settlements are Segoaahlang (approximately 3.8 km east), Ga-Mangou (approximately 4.8 km north), Glen Roy (approximately 5.2km north-northeast), and Ga-Matlapa (approximately 4.9 km southeast).

- » *Option 3:* The closest human settlements to this option is Dorsland, which is located approximately 2.8 km southeast and Suid-Holland, which is located approximately 3.3 km southwest of the proposed site. Other human settlement in the vicinity of the proposed site includes Sakuruwa (approximately 6 km south), Ga-Maloka (approximately 7 km west-southwest), Ga-Malebana (approximately 7.5 km southwest), and Ga-Mabusela (approximately 9.1 km west).

- » *Option 4:* The closest human settlement is Sukuruwe, which is located approximately 4.9 km southwest of the proposed site. Other formal settlements in fairly close proximity to this option include Jupiter (approximately 5.4 km northeast), Suid-Holland (approximately 6.2 km west), Ga-Mangou (approximately 8.8km east) and Phetole (approximately 8.9 km north).

4.2.2. Economic Profile

The Waterberg District Municipality Integrated Development Plan (2008/09) states that the key economic sectors within the WDM are mining, electricity/water, services, trade/catering and agriculture, with mining making the biggest contribution to the Gross Geographical Product (GGP). The land use pattern is fairly natural within the district, with most of the mining operations concentrated on the periphery, whereas the central area is mostly characterised by the tourism and game industry. The tourism industry is also a significant contributor to the Gross Domestic Product. Similar to the province as a whole, a trend in the area is the conversion of agricultural land into game farms resulting in a rapid expansion of game farming and tourism in the area. The WDM is malaria free and has a rather mild climate that adds to the district's appeal as a tourist destination. The area is also in fairly close proximity to the Gauteng Province which makes it not only an appealing destination, but also a prime location to develop game farms.

Figure 4.2: Formal settlements within the study area

Figure 4.3 Land cover/land use map.

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). Field crop commodities include tobacco, cotton, sunflower, sorghum, and maize (WDM IDP 2008/09).

Evidence could be found of a cultivated piece of land in close proximity to site Option 1. It would appear as if all the proposed sites are currently used for grazing. As these farms are not privately owned, it is assumed that the area is used for grazing by community members from the surrounding settlements.

4.2.3. Socio-Cultural Profile

The study area includes the Tribal Authorities: Laka, Shongoane, Seleka, Lekalakala, Bekenburg, Mapela, Mokopane, Dikgale, Moletsit, Bakone, Maraba and Mashashane Traditional Councils. There was a lack of information about the culture of these parties and the cultural value of the landscape.

At least one archaeological (heritage) zone can be distinguished in the Mokopane Integration Project study area considered from an ecological, historical and pre-historical perspective. This cultural landscape comprises the plains to the west of Polokwane which are dotted with scattered mountains, kopjes and knolls across a vast plain.

The plains towards the west of Polokwane and Mokopane are characterised by a number of large mountains and smaller kopjes and knolls. Some of these mountains, further towards the west, near the Potgietersrust Platinum Mine, bear historical names such as Mapela, Masenya, Tshaba and the historically well-known Fonthane. These mountains serve as historical beacons outlining the spheres of influence of the Langa-Ndebele, a Nguni group who settled in this area during the sixteenth and seventeenth centuries.

The Ledwaba/Maune Ndebele clans, who are related to the Langa-Ndebele, live in the Bergzicht-Kalkspruit and Mašašane townships near the proposed new Mokopane Substation. The proposed substation sites and the turn-in lines for the are situated in this historical Ndebele sphere of influence.

Mokopane and Polokwane near the Mokopane Integration Project study area represent two of the oldest colonial (Voortrekker/Boer) towns in the former Transvaal Province.

4.3. Biophysical Characteristics of the Study Area

4.3.1. Geographical Profile

Situated on a plateau 1 312 m above sea level, the Limpopo Province has warm to hot summers with moderate winters. It has an average annual rainfall of between 577 and 1 000 mm. Average summer temperatures rise to 28.1°C and drop to 17°C. Average winter temperatures range from 19°C to 4.7°C. There is also a lowveld area with a higher average rainfall and warmer temperatures.

The proposed substation options are situated within landform types ranging from lowlands with mountains in the west to low mountains in the east (Figure 4.4). The proposed substation sites will be situated within areas described as woodland, regardless of the alternative selected. The proposed turn-in lines will traverse degraded woodland and cultivated areas that are generally regarded to have a moderate to low sensitivity.

Figure 4.4: Topography & Slope analysis of the study area, highlighting areas with slopes exceeding 9%

4.3.2. Ecological Profile

The dominant vegetation type found within the study area is woodland of one type or another, i.e. Arid or Moist woodland. The majority of this study area is, however, in a state of transformation, with a number of settlements dotted throughout the immediate surrounds intermingled with mining areas and both commercial and subsistence forms of cultivation. As a result, a great deal of the vegetation within the study area has and is being transformed. The habitat in the area has been subjected to severe pressure from the neighbouring communities and the various land use types.

The following VEGMAP vegetation units are present within the study area:

- » Makhado Sweet Bushveld;
- » Mamabolo Mountain Bushveld;
- » Polokwane Plateau Bushveld;

The conservation status of the different vegetation types occurring in the study area is listed below in table 4.1.

Table 4.1: Vegetation Conservation Status

VEGMAP Unit	% Conserved	% Transformed	Target	Status
Makhado Sweet Bushveld	1%	27%	19%	Vulnerable
Mamabolo Mountain Bushveld	8%	6%	24%	Least Threatened
Polokwane Plateau Bushveld	2%	17%	19%	Least Threatened

Although none of the substation sites are situated within areas of known botanical importance, several such sites are present in close vicinity to the sites and are likely to be affected by the turn-in lines. These areas frequently exhibit characteristics of a pristine nature, the presence of Red Data flora species, a high diversity or atypical or threatened vegetation types (Figure 4.5).

Wit Vinger Nature Reserve is situated approximately 2km to the south-west of the Substation Option 2. Biodiversity attributes within these areas are not likely to be influenced by the turn-in lines.

No biospheres are present within the immediate vicinity of the proposed development. Biodiversity attributes within these areas are not likely to be influenced by the turn-in lines.

Figure 4.5: Areas of Botanical Importance in the study area

Figure 4.6: Landcover units in the study area

The four substation sites that ~~were~~are earmarked for the proposed substation development consist predominantly of degraded woodland with some pockets of riparian vegetation still remaining, particularly near Options 3 and 4. The Southern African Bird Atlas Project (Harrison et al, 1997) recorded a total of 194 and 206 bird species in the respective quarter degree squares during the atlas development period. Four of these species are classified as 'vulnerable' and six as 'near threatened'. In addition, the White Stork and Abdim's Stork (Protected internationally under the Bonn Convention on Migratory Species) are considered as threatened species for the purpose of this study.