15. CUMMULATIVE IMPACTS

The cumulative impact of the construction of the electricity infrastructure is considered to be high, as the study area already comprises of a number of existing linear infrastructure including power lines, roads and the railway. The main cause of concern is the likely effect of additional linear infrastructure into the study area from an avifauna perspective. The Avifauna specialist has indicated that some of the typical birds expected to occur in this area do not occur, which is an indication that the existing developments have had an impact. There are various water bodies frequented by avifauna and the possible impact of the power line on the avifauna could be a possible concern, especially if appropriate mitigation measures are not implemented. In time the overall cumulative of this area is likely to increase as various mining companies have mineral rights over a significant portion of the study area and are likely to expand their mining operations in these sections. Other major developments are happening within the tourism sector. It is thus critical that major role players in the region's economy create long term strategic plans that will accommodate and enhance a wide range of economic activities.

Equally important is the need for Eskom to align all the projects that are planned for the area in order to minimise the potential negative impacts and enhance potential positive outcomes. It is therefore crucial for Eskom to liaise very closely with the various municipalities to mainstream Eskom projects into the Integrated Development Plans (IDPs) and Spatial Development Frameworks (SDFs) of the respective municipalities.

Currently the proposed substation sites and associated turn-ins are located in a fairly developed area within the residential areas, the existing substations, power lines, roads, railways and the planned 765kV power lines from Delta Substation (Figure 35). The cumulative effect for constructing the electricity infrastructure in this will be high.

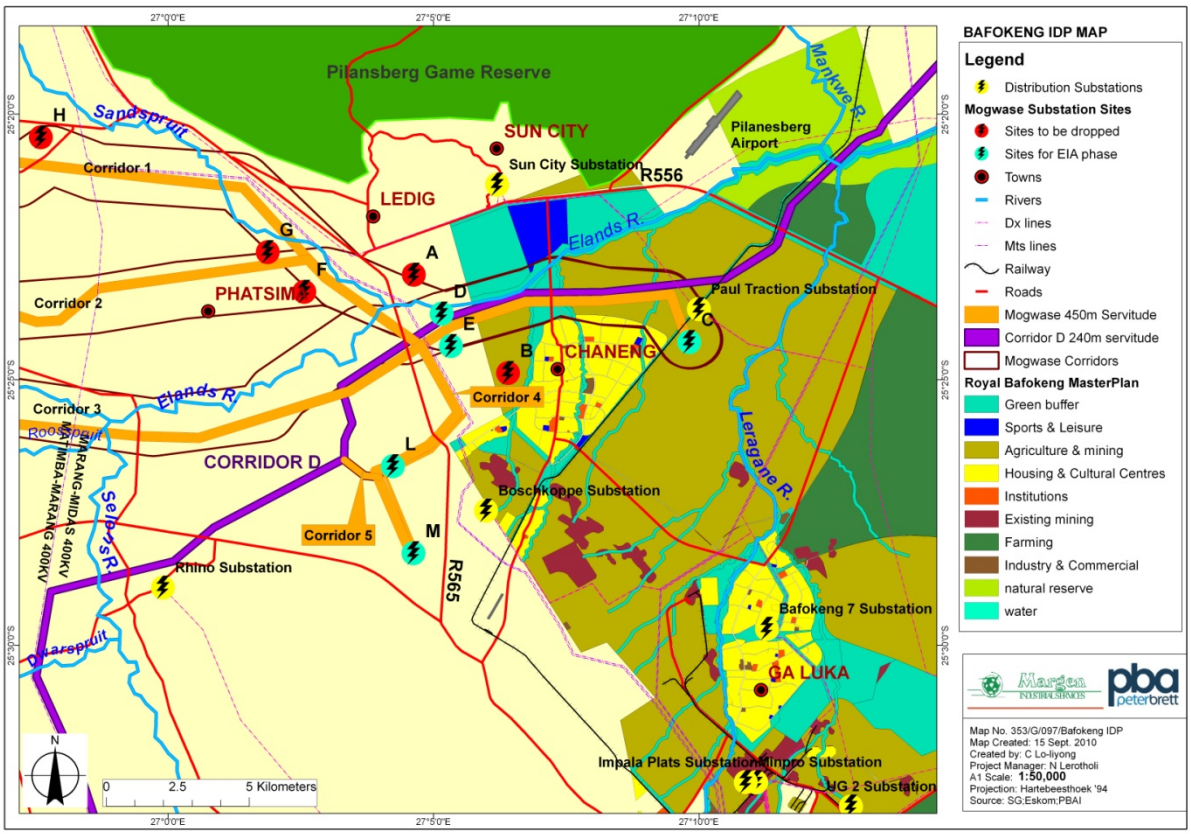

Figure 35: Bafokeng IDP Map

16. DECOMMISSIONING PHASE IMPACTS

As indicated earlier, it is generally assumed that the decommissioning process is the reverse of the construction process and as such the indicated impacts will also be relevant to decommissioning phase.

Nuisance Factors: are likely to be of most significant during the construction phase. These include noise and air pollution. The magnitude of these potential impacts will be dependent on a number of factors including proximity of construction sites to settlements, other public amenities including roads, location of the construction camp site. It is important that the EMP to be developed proposes appropriate measures to address these.

Transportation of Material and Workers: the movement of material, equipment and workers to and from the construction and campsites will have an impact on road infrastructure and on traffic. Movement will be mainly by vehicles such as trucks and bakkies will result in the usage of provincial road such as the R556 and R656, various local roads and possible some farm roads. Traffic flows are expected to be heavier during the construction phase. The EMP has to outline measures that will reduce the overall effect of impact on the normal flow of traffic.

Waste management: waste generated has to be managed accordingly which would entail correct on site storage, transportation and disposal. Waste has to be categorised between non-hazardous and hazardous waste, which will require different disposal method. These are to be articulated in the EMP. In addition, the study should also indicate appropriate disposal sites in close proximity of the study area that will receive the non – hazardous and hazardous material respectively. Waste to be generated will include domestic waste, construction rubble, unused or damaged material such as the conductor wire, insulators, etc.

Sourcing of natural materials: natural material that includes sand, crusher stones and gravel will be required for the construction of the foundations for the substation and for the pylons. The study has to determine the type of material needed, the quantities required and identify where these will be obtained. Potential impacts to these sites should also be assessed. For the project to have additional social benefits, the project should consider utilising local suppliers.

Soil Erosion: The removal of the land cover during construction will expose surface soils to erosion, of which will results in the loss of topsoil, soil nutrients, sedimentation of nearby water systems and the creation of gullies. The rate of soil erosion is generally accelerated in areas with slopes greater than 20º and along un-vegetated slopes. The study has to determine the potential for erosion based on the soil composition across the study area and possibly areas of high risk in terms of the slope.

Soil Contamination: Incidents of soil contamination due to accidental spillages of various contaminants such as fuel, lubricants and paints are likely during construction whereas during the operation has the risk is due to spillages from transformers. Such incidents have a potential to pollute surface and underground water sources through runoff and seepage. The study will outline appropriate measures and procedures to address these effects.

Residual contamination: There is usually no residual contamination that remains after the decommissioning of power lines but there may be some transformer oils remaining in a decommissioned substation. Appropriate measures that are to address this should be outlined in the EMP.

17. CONCLUSION AND RECOMMENDATIONS

The study team believes that the process followed for the EIA study fulfils the requirements of the National Environmental Management Act (No 107 of 1998). It is the opinion of the EAP, that sufficient information on the proposed development, associated impacts and analysis thereof and together with the Environmental Management Plan (EMP) which outlines in detail the mitigation measures that will address the associated impacts, will facilitate the decision – making process. The findings and recommendations of the study have been substantiated by detailed specialist investigations and input from the Public Involvement Process.

Extensive consultation with the Local Municipalities, Farmers Associations and landowners within the study area were carried out. The stakeholders understand the need for the proposed project. They have provided sufficient input with respect to the planning of the project. The construction of the proposed development will have both negative and positive impacts on the biophysical and social environment irrespective of which alternative will be used. However, some alternatives will have lower impacts of which will be further minimised or enhanced by the recommended measures. This is based on the assumption that good practices will be adopted during the construction and operation of the project and that the Environmental Management Plan (EMP) will be implemented accordingly. In light of the above, the EAP recommends that DEA issues an environmental authorisation for proposed development subject to the conditions indicated above.

The EAP recommends Corridor 1 and substation Site E, based on the following:

- Corridor 1 follows an existing transmission line (Matimba – Marang 400kV) for some of the route, as well as occurring near the road (Bapong to Ledig Road), which will limit the amount of habitat destruction and would also localise the impact of the visual intrusion. Existing access road will be utilised and the construction of a new one will not be required. However, there is a presence of Late Iron Age sites and large settlements within both Corridor 1 and Corridor. These can be mitigated by constructing towers so to avoid these sites.
- The study further recommends that Delta-Epsilon Corridor D should be utilised, instead of corridor CB_3 for connection to Ngwedi Substation because the proposed Site E is within Delta-Epsilon Corridor D. According to the EIA Study for the Delta – Epsilon 6 X 765kV power lines project, Corridor D took into consideration the location of the Ngwedi load centre and was thus placed in close proximity of this load centre.
- Site E is also located close to Matimba-Marang turn-in.
- Most of the specialists have indicated that sensitivity within the proposed Site E is regarded relative low in, rendering this site the most preferred option.
- Overall, Corridors 1 and 2 offer the least impact on agricultural land, in particular Corridor 1 where there are fewer cultivated lands.
- Considering the planned load distribution within the study area, Site E presents the best position for connection to between four and six planned 132 Kv distribution power lines which will connect Ngwedi substation to several distribution substations in the vicinity.

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APPENDIX 1: APPLICATION FOR ENVIRONMENTAL AUTHORISATION

APPENDIX 2: ACKNOWLEDGEMENT OF APPLICATION FOR ENVIRONMENTAL AUTHORISATION

APPENDIX 3: CVS OF PROJECT TEAM

A: M. MAHLANGU

B: S. MOHLALA

C: T. LEPONO

D: N. SALESHANDO

E: J. BEATER

F: C. LO-LIYONG

APPENDIX 4: AVIFAUNA REPORT

A: CVs OF SPECIALIST

B: TORs

APPENDIX 5: BIODIVERSITY REPORT

A: CVs OF SPECIALIST

B: TORs

APPENDIX 6: HERITAGE REPORT

A: CVs OF SPECIALIST

B: TORs

APPENDIX 7: SOCIAL REPORT

A: CVs OF SPECIALIST

B: TORs

APPENDIX 8: VISUAL REPORT

A: CVs OF SPECIALISTS

B: TORs

APPENDIX 9: FLOODLINES

APPENDIX 10: PUBLIC PARTICIPATION REPORT

APPENDIX 11: SITE SELECTION SCREENING REPORTS

A: SITES A, B, C

B: SITES D, E

C: SITES G, H, I, J, K

D: SITE M

APPENDIX 12: MAPS OF STUDY AREA

MAP 1: SUBSTATION & CORRIDOR MAP

MAP 2: GEOLOGY MAP

MAP 3: TOPOGRAPHY MAP

MAP 4: MUNICIPAL MAP

MAP 5: LANDUSE MAP

MAP 3: MINING MAP

MAP 4: VEGETATION MAP

MAP 5: HYDROLOGY MAP

MAP 6: PIP STAKEHOLDER CONSULTATION MAP

APPENDIX 13: LIST OF AFFECTED FARMS

A: CORRIDOR 1

B: CORRIDOR 2

C: CORRIDOR 3

D: CORRIDOR 4

E: CORRIDOR 5

APPENDIX 14: TECHNICAL NOTES

A: CONSTRUCTION PROCESS AND CONSTRUCTION CAMPS

B: FIRE MANAGEMENT

C: UNDERGROUND POWER LINES