

## **6 EIA PROCESS AND METHODOLOGY**

### **6.1 Introduction**

The Environmental Impact Assessment (EIA) process for the proposed new 400 kV power line is comprised of two main phases, namely the Scoping Phase and Impact Assessment Phase. This report documents the tasks which have been undertaken as part of the Impact Phase of the EIA. These tasks include the public participation process and the documentation of the issues which have been identified as a result of these activities.

### **6.2 Scoping Phase**

#### **6.2.1 Introduction**

The Scoping Phase of an EIA serves to define the scope of the detailed assessment of the potential impacts of a proposed Project. The Environmental Scoping Phase was undertaken in accordance with the requirements of sections 24 and 24D of the National Environmental Management Act (NEMA) (Act 107 of 1998), as read with Government Notices R 543 (Regulations 26-30), 544, 545 and 546 of the NEMA. The objectives of the Scoping Phase were to:

- Ensure that the process is open and transparent and involves the Authorities, proponent and stakeholders;
- Identify the important characteristics of the affected environment;
- Ensure that feasible and reasonable alternatives are identified and selected for further assessment;
- Assess and determine possible impacts of the proposed Project on the biophysical and socio-economic environment and associated mitigation measures; and
- Ensure compliance with the relevant legislation.

Lidwala undertook the Scoping Phase of the project between **March and August 2012**. The public review of the Draft Scoping Report ran for a period of **40 calendar days** from **31 May to 9 July 2012**. The responses and comments from I&APs on the draft Scoping Report were captured in the Final Environmental Scoping Report. The final Environmental Scoping Report was submitted to DEA for review and acceptance on **24 August 2011** together with the Final Plan of Study for Environmental Impact Assessment (POS for EIA). The Final Scoping Report and POS for EIA were accepted by the DEA on **2 November 2012**. This letter has been included in **Appendix A**.

### **6.3 Public Participation**

A comprehensive Public Participation Process (PPP) was implemented as part of the Scoping Phase. The Project and environmental assessment process was widely announced with an invitation to the general public to register as I&APs and to actively participate in

the PPP. The main activities undertaken as part of the PPP in the Scoping Phase were as follows:

- Print media advertisements in English and Afrikaans that were placed in the Zoutpansburger and the Limpopo Mirror newspapers on **27 April 2012** to announce the EIA Process;
- Key Stakeholders were contacted telephonically and informed of the Project and the EIA process;
- A Background Information Document (BID) and comment sheet were produced in English, Afrikaans, and Sepedi detailing the proposed Project and explaining the EIA process. The BID was emailed and posted to I&APs;
- Copies of the BID were made available to I&APs as and when requested. Public documents were also made available in public libraries and other local public venues, including:
  - Eskom Office in Polokwane
  - Polokwane City Library
  - Makhado Public Library
  - Show Hall (Makhado)
  - Civic Centre Library (Musina)
  - Eskom Website  
(<http://www.eskom.co.za/c/44/environmental-impact-assessments/>)
  - Lidwala Website ([www.lidwala.com](http://www.lidwala.com))
- General project were erected at the following locations (**Figure 6.1**):
  - Elephant Inn – Sasol Garage (Musina)
  - Bokmakierie Motors (Tshipise Road)
  - Nzhelele Sub-station Entrance
  - Patel General Dealer
  - N1 Shop
  - Witvlag Road
  - Makhado Mall
  - Total 1 Stop
- The official site notices were erected as per the NEMA EIA Regulations at the two substation sites, namely the Tabor Substation and the proposed Nzhelele Substation site.
- Public meetings were held at the Makhado Show Hall on **12 June 2012** and at the Getaway Gateway Conference Centre in Polokwane on **13 June 2012**.
- A one-on-one meeting was held on **13 June 2012** with the landowners of the Clydesdale and Vlaktefontein Farms.
- A Key Stakeholder Workshop was arranged for **25 July 2012** in Polokwane.

A 40-day commenting period (**31 May 2012 to 9 July 2012**) was allowed for I&APs to comment on the Draft Scoping Report (DSR). All comments received were captured and responded to in the Comment and Response Report.

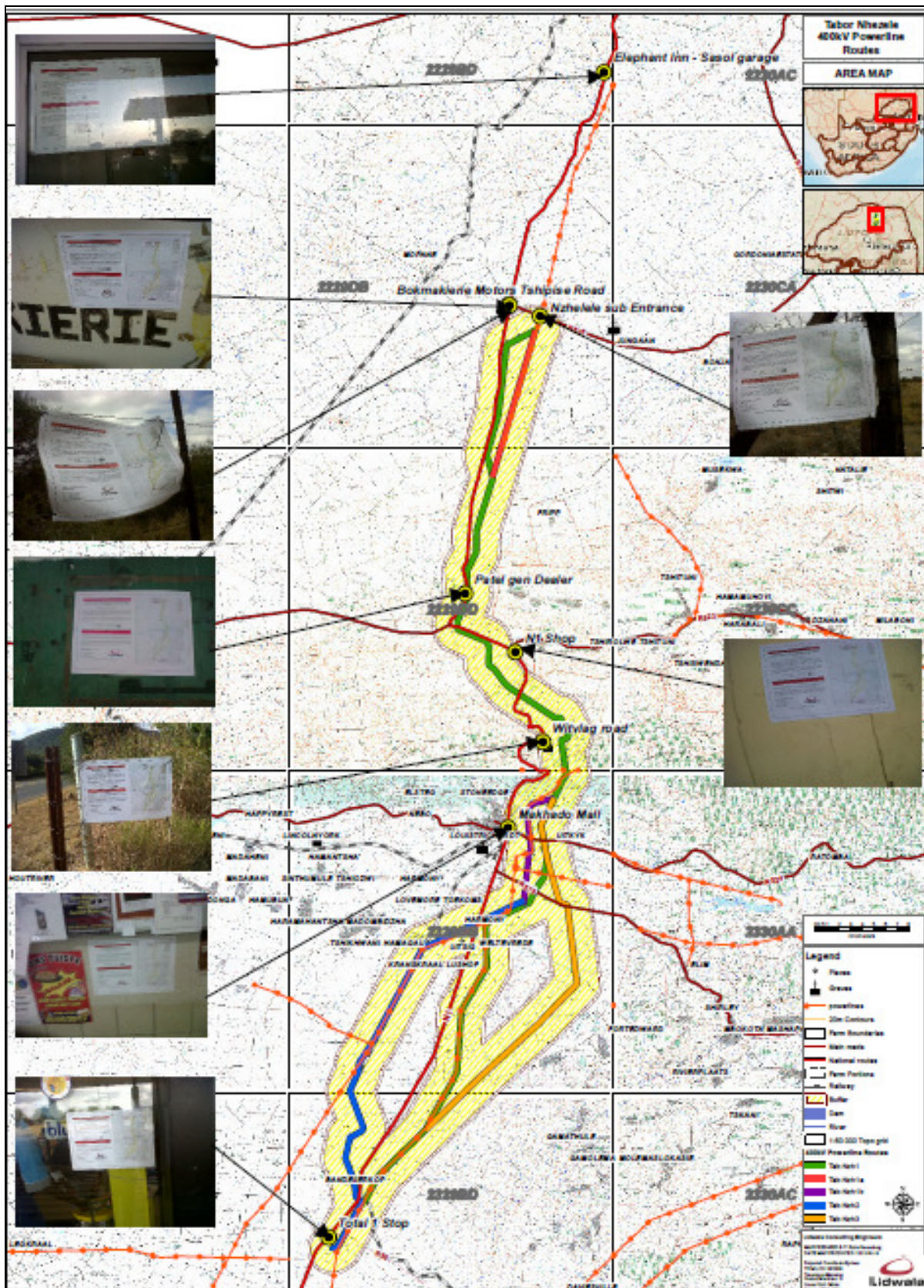


Figure 6.1: Placement of site and general project notices in the study area

## 6.4 Potential Environmental Impacts identified during Scoping

Environmental impacts identified during the scoping phase, which were considered to require further assessment, are listed in **Table 6.1**. These potential impacts have been investigated assessed during the EIA phase.

**Table 6.1.** List of environmental and socio-economic issues identified during Scoping

| <b>Potential Environmental Impacts Identified</b> |  |
|---|--|
| <b>Biophysical Impacts</b>                        |  |
| <b>Soil and Agricultural Potential</b>            |  |
|   | <ul style="list-style-type: none"> <li>○ Loss of agricultural land</li> <li>○ Disturbance by heavy construction machinery/vehicles at pylon and anchor block construction sites and connecting the conducting wires</li> <li>○ Disruption of normal agricultural practices by power lines in lands and orchards</li> <li>○ Pollution of soil due to handling, use and storage of hazardous substances during construction and operation.</li> <li>○ The loss of available top soil.</li> </ul>   |
| <b>Avifauna</b>                                   |  |
|   | <ul style="list-style-type: none"> <li>○ Electrocutions</li> <li>○ Collisions</li> <li>○ Habitat destruction</li> <li>○ Disturbance</li> </ul>   |
| <b>Flora</b>                                      |  |
|   | <ul style="list-style-type: none"> <li>○ Direct impacts: <ul style="list-style-type: none"> <li>▪ Destruction of threatened and protected flora species;</li> <li>▪ Destruction of sensitive/ pristine habitat types;</li> </ul> </li> <li>○ Indirect Impacts: <ul style="list-style-type: none"> <li>▪ Floristic species changes subsequent to development;</li> <li>▪ Impacts on surrounding habitat/ species;</li> </ul> </li> <li>○ Cumulative Impacts: <ul style="list-style-type: none"> <li>▪ Increase in local and regional fragmentation/ isolation of habitat; and</li> <li>▪ Increase in environmental degradation</li> </ul> </li> </ul>   |
| <b>Fauna</b>                                      |  |
|   | <ul style="list-style-type: none"> <li>○ Loss of faunal habitat during vegetation clearance for servitude as well as tower position and maintenance access roads (construction and operational phases);</li> <li>○ Increased access along cleared servitudes and increased levels of human activities including wood harvesting, illegal hunting and poaching activities, off-road vehicles and bikes.</li> <li>○ Disturbances to sensitive or threatened faunal species</li> <li>○ Stormwater and soil erosion management especially on sloping areas as well as areas adjacent to rivers and wetlands</li> <li>○ Alien vegetation invasion along servitude</li> <li>○ Fire risks and irregular burning regimes</li> <li>○ Potential Impacts of artificial lighting on nocturnal species</li> </ul> |
| <b>Social Impacts</b>                             |  |
| <b>Visual</b>                                     |  |
|   | <ul style="list-style-type: none"> <li>○ The clearing of vegetation to provide for a corridor for a 400 kV power line, thereby creating a scar effect in the landscape;</li> </ul>   |

|   |
|---|
| <ul style="list-style-type: none"> <li>○ Cumulative impacts with regard to expanding the corridors of existing power lines to accommodate the additional 400 kV power line;</li> <li>○ Possible effect of the construction of the power line on sensitive viewers, particularly:</li> <li>○ Places of residence, especially farmsteads;</li> <li>○ Travellers on the N1, especially tourists;</li> <li>○ Tourist areas, such as guest houses;</li> <li>○ Scenic spots.</li> </ul> |
| <b>Heritage</b>   |
| <ul style="list-style-type: none"> <li>○ identify the potential heritage sites within the study area</li> <li>○ identify any impacts (if any) that may occur on these sites as a result of the construction of the powerline.</li> </ul>  |
| <b>Socio-Economic</b>   |
| <ul style="list-style-type: none"> <li>○ Perceptions and fears associated with the proposed power line; and</li> <li>○ Local, site-specific issues (during construction and operation phases).</li> </ul>   |

## 6.5 Impact Assessment Phase

### 6.5.1 Introduction

The purpose of the Impact Assessment Phase of an EIA is as follows<sup>1</sup>:

- Ensure that the process is open and transparent and involves the Authorities, proponent and stakeholders (see **Chapter 2 and 6**);
- Address issues that have been raised during the preceding Scoping Phase (**Chapter 8 and 9**);
- Assess alternatives to the proposed activity in a comparative manner (see **Chapter 9**);
- Assess all identified impacts and determine the significance of each impact (see **Chapter 9**); and
- Formulate mitigation measures (see **EMP – Appendix E**).

Numerous acceptable approaches and methodologies exist by which the above purpose can be achieved. The legislation in South Africa, including the guideline documents published in support thereof, does not provide a specific methodology for the assessment of impacts.

Rather, an assessment framework is provided within which environmental assessment practitioners are expected to structure a project-specific assessment methodology. This assessment framework recognises that there are different methodologies available for assessing the impact of a development but that the specific methodology selected must provide for the following<sup>2</sup>:

- A clear process for impact identification, prediction and evaluation;

<sup>1</sup> DEAT (2005) *Guideline 3: General Guide to the Environmental Impact Assessment Regulations, 2005, Integrated Environmental Management Guideline Series*, Department of Environmental Affairs and Tourism (DEAT), Pretoria

- Specification of impact identification techniques;
- Criteria for evaluating the significance of impacts;
- Design of mitigation measures to address impacts;
- Defining types of impacts (direct, indirect or cumulative); and
- Specification of uncertainties.

### **6.5.2 Impact Assessment Methodology**

In accordance with Regulation 31 of Government Notice R.543, promulgated in terms of section 24 of the National Environmental Management Act, 1998 (Act 107 of 1998), Lidwala were required to assess the significance of potential impacts in terms of the following criteria:

- Cumulative impacts;
- Nature of the impact;
- Extent and duration of the impact;
- Probability of the impact occurring;
- The degree to which the impact can be reversed;
- The degree to which the impact may cause irreplaceable loss of resources; and
- The degree to which the impact can be mitigated.

Issues were assessed in terms of the following criteria:

- The **nature**, a description of what causes the effect, what will be affected and how it will be affected;
- The physical **extent**, wherein it is indicated whether:
  - \* 1 - the impact will be limited to the site;
  - \* 2 - the impact will be limited to the local area;
  - \* 3 - the impact will be limited to the region;
  - \* 4 - the impact will be national; or
  - \* 5 - the impact will be international;
- The **duration**, wherein it is indicated whether the lifetime of the impact will be:
  - \* 1 - of a very short duration (0–1 years);
  - \* 2 - of a short duration (2-5 years);
  - \* 3 - medium-term (5–15 years);
  - \* 4 - long term (> 15 years); or
  - \* 5 - permanent;
- The **magnitude of impact on ecological processes**, quantified on a scale from 0-10, where a score is assigned:
  - \* 0 - small and will have no effect on the environment;
  - \* 2 - minor and will not result in an impact on processes;
  - \* 4 - low and will cause a slight impact on processes;

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<sup>2</sup> DEAT (2005) *Guideline 3: General Guide to the Environmental Impact Assessment Regulations, 2005, Integrated Environmental Management Guideline Series*, Department of Environmental Affairs and Tourism (DEAT), Pretoria

- \* 6 - moderate and will result in processes continuing but in a modified way;
- \* 8 - high (processes are altered to the extent that they temporarily cease); or
- \* 10 - very high and results in complete destruction of patterns and permanent cessation of processes;
- The **probability of occurrence**, which describes the likelihood of the impact actually occurring. Probability is estimated on a scale where:
  - \* 1 - very improbable (probably will not happen);
  - \* 2 - improbable (some possibility, but low likelihood);
  - \* 3 - probable (distinct possibility);
  - \* 4 - highly probable (most likely); or
  - \* 5 - definite (impact will occur regardless of any prevention measures);
- the **significance**, which is determined through a synthesis of the characteristics described above (refer formula below) and can be assessed as low, medium or high;
- the **status**, which is described as either positive, negative or neutral;
- the degree to which the impact can be reversed;
- the degree to which the impact may cause irreplaceable loss of resources; and
- the degree to which the impact can be mitigated.

The **significance** is determined by combining the criteria in the following formula:

$S = (E+D+M)*P$ ; where

S = Significance weighting

E = Extent

D = Duration

M = Magnitude

P = Probability

The **significance weightings** for each potential impact are as follows:

- **< 30 points:** Low (i.e. where this impact would not have a direct influence on the decision to develop in the area),
- **30 - 60 points:** Medium (i.e. where the impact could influence the decision to develop in the area unless it is effectively mitigated),
- **> 60 points:** High (i.e. where the impact must have an influence on the decision process to develop in the area).

This EIA Report has assessed the significance of impacts for all phases of the project i.e. construction, operation and decommissioning. The results of the above have been summarised in a tabular format (see **Chapter 9**). An example is provided below.

| Potential Impact   | Mitigation                                   | Extent   | Duration | Magnitude | Probability | Significance  | Status       | Confidence |      |
|--|--|--|----------|-----------|-------------|---------------|--------------|------------|------|
|  |  | (E)  | (D)      | (M)       | (P)         | (S=(E+D+M)*P) | (+ve or -ve) |            |      |
| <b>CONSTRUCTION PHASE</b>                                    |  |  |          |           |             |               |              |            |      |
| <b>BIODIVERSITY</b>  |  |  |          |           |             |               |              |            |      |
| Impact 1:<br>Loss or degradation of natural/pristine habitat | nature of impact:                            | Adverse Impact due to loss or degradation of natural habitat |          |           |             |               |              |            |      |
|  | with mitigation                              | 1  | 4        | 2         | 3           | 21            | Low          | -          | high |
|  | without mitigation                           | 2  | 5        | 2         | 4           | 36            | Medium       | -          | high |
|  | degree to which impact can be reversed:      | None   |          |           |             |               |              |            | high |
|  | degree of impact on irreplaceable resources: | Low  |          |           |             |               |              |            | high |

### 6.5.3 Specialist Studies

**Table 6.2** provides a list of the Specialists that are involved in this study and their areas of expertise.

**Table 6.2:** List of Specialist Studies

| Specialist Study                          | Organisation Responsible for the Study |
|---|--|
| Impacts on terrestrial fauna              | Clayton Cook                           |
| Impacts on vegetation                     | Lidwala Consulting Engineers (SA)      |
| Impacts on soils & agricultural potential | Agricultural Research Council          |
| Impacts on heritage resources             | Johnny van Schalkwyk                   |
| Impacts on the social environment         | Lidwala Consulting Engineers (SA)      |
| Impacts on avifauna                       | Endangered Wildlife Trust              |
| Visual impact assessment                  | MetroGIS                               |
| GIS                                       | Lidwala Consulting Engineers (SA)      |

### 6.5.4 Public Participation Process

The main objectives of the PPP in the Impact Assessment Phase are to:

- Inform Interested and Affected Parties (IAPs) about the proposed project and the EIA process;
- Establish lines of communication between IAPs and the project team;
- Provide an opportunity to all parties to exchange information and express their views and concerns;
- Obtain contributions of IAPs and ensure that all issues, concerns and queries raised are fully documented; and
- Identify all the significant issues that need to be addressed in the EIA, if warranted.



a) *Public and Landowner Consultation*

Additional Landowner one-on-one meetings were held during the Environmental Scoping Report Authority Review period. These meetings were held from **13 to 17 November 2012**. This effort endeavoured to ensure that all affected landowners along each of the alternative routes were identified and informed of the project and provided an opportunity to comment. Those landowners not visited in person were contact telephonically.

The I&AP register was used to capture all I&AP details and interactions which were updated as and when information was distributed to or received from I&APs. This ongoing and up-to-date record of communication is an important record-keeping requirement of the EIA legislation and was undertaken for the duration of the Impact Assessment. The full I&AP register is included in **Appendix F**. A comments and response report, documenting all comments and concerns raised by I&APs throughout the process has also been included in **Appendix G**.

b) *Public review of Draft EIR*

PPP during the impact assessment phase revolves around the review and findings of the EIA, which are altogether presented in this Draft Environmental Impact Report (EIR). All I&APs have been notified of the progress to date and availability of the Draft EIR, via mail, email and advertisements in local newspapers (**Appendix H**) as detailed in **Table 6.3** below.

**Table 6.3:** Date on which the adverts were published for the review of the Draft EIR

| <b>Newspaper</b>   | <b>Publication Date</b> | <b>Language</b> |
|--------------------|-------------------------|-----------------|
| Zoutpansburger     | 7 March 2013            | Afrikaans       |
| The Limpopo Mirror | 7 March 2013            | English         |

A legislated period of **40** consecutive days has been allowed for public comment. Reports have been made available in the following ways:

- Distribution for comment at central public places.
- The document has been made available to download from the Lidwala ([www.lidwala.com](http://www.lidwala.com)) and Eskom (<http://www.eskom.co.za/c/44/environmental-impact-assessments/>) websites; and
- Copies of the report on CD will be made available on request.

Two public meetings will to be held during this phase (as shown in **Table 6.4**). The purpose of the public meeting will be to present the findings of the impact assessment where I&APs are given the opportunity to debate and discuss key issues and concerns.

**Table 6.4:** Public Meeting / Open days

| Province         | Area                      | Venue               | Date         |
|------------------|---------------------------|---------------------|--------------|
| Limpopo Province | Louis Trichardt (Makhado) | Show Hall (Makhado) | 3 April 2013 |
|                  | Musina                    | Bokmakierie Motors  | 4 April 2013 |

The draft Environmental Impact Report has been made available for review for a period of **40 days** from **7 March 2013** to **18 April 2013** at the following public locations within the study area, which are readily accessible to I&APs:

- Banderlierskop – Viva Garage
- Makhado Public Library
- Civic Centre Library (Musina)
- Lidwala and Eskom Websites

All registered Interested and Affected Parties (I&APs) were notified, in writing, of the availability of the draft Environmental Impact Report in the week of **7 March 2013** (**Appendix I**). In addition, site notices (**Appendix H**) advertising the public review period and public meeting have been erected at the following locations:

- Elephant Inn – Sasol Garage (Musina)
- Bokmakierie Motors (Tshipise Road)
- Nzhelele Sub-station Entrance
- Patel General Dealer
- N1 Shop
- Witvlag Road
- Makhado Mall
- Total 1 Stop

The final EIR will incorporate public comments received on the Draft EIR and will be made available for public review with hard copies distributed to the authorities.

All I&APs will receive a letter at the end of the process notifying them of the authority's decision, thanking them for their contributions, and explaining the appeals procedure.

To date, tasks that have been completed include the:

- Continued identification of stakeholders or I&APs;
- Notifications and advertisements;
- EIA Newsletter;
- Notification of the availability of the Draft EIR for public comment; and
- Distribution of the invitation to the public meetings.

Tasks that are still to be completed during this phase include:

- Hold Public meetings;
- Review of the Draft EIR by the public and relevant authorities;
- Capturing of responses and comments raised by I&APs on the Draft EIR;
- Submission of the Final EIR to the authorities for decision-making with simultaneous release for final public input (envisaged 14 calendar days); and
- Ongoing consultation and engagement.

## **6.6 Authority Consultation**

The relevant authorities required to review the proposed Project and provide an Environmental Authorisation were consulted from the outset of this study, and have been engaged throughout the project process. The competent authority for this project is the National Department of Environmental Affairs (DEA). The Limpopo Department of Economic Development, Environment and Tourism (LDEDET) are noted as the key commenting authority.

Background information regarding the proposed Project was provided to the other relevant authorities, together with a registration and comment form formally requesting their input into the EIA process. The authorities include *inter alia*:

- Limpopo Department of Economic Development, Environment and Tourism (LDEDET);
- Department of Water Affairs;
- Nkangala District Municipality;
- Steve Tshwete Local Municipality; and
- South African Heritage Resources Agency (SAHRA) – head office.

## **6.7 Conclusion**

This chapter discussed the various tasks that have been undertaken as part of the EIA phase of the process. The main components include the Public Participation Process and assessment of identified impacts and alternatives that have been undertaken as part of the EIA.

The Draft EIR has been made available for public comment. The availability of this report was announced to all registered I&APs via site notices, email, letters and telephonic notification of key stakeholders. The Draft EIR has been distributed to suitable public venues. Comments on the Draft EIR will be captured and responded to in the updated Comment and Response Report. Thereafter, the Draft EIR will be finalised into a Final EIR which will be submitted to DEA for their review. All registered I&APs will be informed by of the availability of the Final EIR, and of the Environmental Authorisation and associated conditions.