ENVIRONMENTAL IMPACT ASSESSMENT PROCESS
DRAFT SCOPING REPORT

PROPOSED DECOMMISSIONING AND RELOCATION OF THE THREE GAS TURBINE UNITS AT ACACIA POWER STATION (NEAR GOODWOOD, WESTERN CAPE) AND ONE GAS TURBINE UNIT AT PORT REX POWER STATION (NEAR EAST LONDON, EASTERN CAPE) TO THE EXISTING ANKERLIG POWER STATION SITE, IN ATLANTIS INDUSTRIA, WESTERN CAPE

(DEAT Ref No. 12/12/20/1155)

June 2008

Prepared for

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PROJECT DETAILS

DEAT Reference No. : 12/12/20/1155

Title : Environmental Impact Assessment Process
Draft Scoping Report: Proposed Decommissioning and Relocation of the Three Gas Turbine Units at Acacia Power Station (Near Goodwood, Western Cape) and One Gas Turbine Unit at Port Rex Power Station (Near East London, Eastern Cape) to the Existing Ankerlig Power Station Site, in Atlantis Industria, Western Cape

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Client : Eskom Holdings Limited (Eskom Generation)

Report Status : Draft Scoping Report for public review

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PURPOSE OF THE DRAFT SCOPING REPORT

Whilst the additional power generated at the Ankerlig Power Station can be evacuated via the existing transmission lines being commissioned at Ankerlig, a second 400kV line would be required between Koeberg and Acacia in order to cater for N-1-1 contingency conditions as required by the Grid Code for stations with an output larger than 1 000 MW (in this case, both the Koeberg and Ankerlig power stations).

The existing power line between Acacia Power Station and Koeberg (which provides a dedicated back-up supply to Koeberg Nuclear Power Station in terms of the requirements of the National Nuclear Regulator) was constructed at 400kV but has been operated at 132kV. This power line has been identified as the preferred option to establish the second Acacia – Koeberg 400kV line. This, however, means that an alternative arrangement must be implemented for the dedicated off-site supply to Koeberg.

Eskom Holdings Limited (Eskom) is, therefore, investigating the decommissioning of the existing Acacia aero derivative gas turbine units and the relocation of these units to the existing Ankerlig Power Station site in Atlantis, to stabilise the transmission network in the area and ensure the required dedicated back-up power supply to the Koeberg Nuclear Power Station. In addition, in order to provide additional operational flexibility and to streamline the phasing of the relocation of the Acacia units to the Ankerlig Power Station, an additional aero derivative gas turbine unit is proposed to be decommissioned and relocated to the Ankerlig Power Station site from Eskom's Port Rex Power Station site in East London.

Eskom is also proposing to turn the existing Koeberg-Dassenberg 132 kV line into Ankerlig and supply the dedicate line to connect the three Acacia and one Port Rex aero derivative gas turbines to Koeberg. This 132kV power line would be connected to a new 132kV HV yard adjacent to the now-to-be extended substation (high voltage (HV) yard) at the Ankerlig Power Station. A 400/132kV transformer will be added to Ankerlig for effective network integration. This 132kV HV yard would be accommodated within the existing Ankerlig Power Station site.

Eskom has appointed Savannah Environmental as an independent environmental assessment practitioner to undertake the EIA. The EIA process has been undertaken in accordance with the requirements of the National Environmental Management Act (NEMA; Act No. 107 of 1998).

The Scoping Report consists of eight sections:

» **Chapter 1** provides background to the proposed project and the EIA process.
» **Chapter 2** describes the components of the proposed project (project scope).
» **Chapter 3** outlines the process which was followed during the Scoping Phase of the EIA process.
» **Chapter 4** describes the existing biophysical and socio-economic environment.
» **Chapter 5** presents the evaluation of environmental impacts associated with the proposed project.
» **Chapter 6** presents the conclusions of the scoping evaluation.
» **Chapter 7** describes the Plan of Study for EIA.
» **Chapter 8** provides a list of references and information sources used in undertaking the studies for this Draft Scoping Report.

In accordance with the EIA Regulations, a primary purpose of the Draft Scoping Report is to provide stakeholders with an opportunity to verify that the issues they have raised to date have been captured and adequately considered within the study, and to raise any additional key issues for consideration. The Final Scoping Report will incorporate all issues and responses prior to submission to the National Department of Environmental Affairs and Tourism (DEAT), the decision-making authority for the project.

PUBLIC REVIEW OF THE DRAFT SCOPING REPORT

The Draft Scoping Report has been made available for public review at the following public places in the project area from **2 June to 2 July 2008** at the following locations:

» Wesfleur Library
» Avondale Library
» Melkbosstrand Library
» Edgemead Library
» East London central Library

The report is also available on:
» www.eskom.co.za/eia
» www.savannahSA.com

Please submit your comments to
Shawn Johnston of Sustainable Futures ZA PO Box 749, Rondebosch, Cape Town, 7701 Tel: 083 325 9965 Fax: 086 510 2537 E-mail: swjohnston@mweb.co.za
The due date for comments on the Draft Scoping Report is **2 July 2008**

Comments can be made as written submission via fax, post or e-mail.

SUMMARY

Background and Project Overview

Whilst the additional power generated at the Ankerlig Power Station can be evacuated via the existing transmission lines being commissioned at Ankerlig, a second 400kV line would be required between Koeberg and Acacia in order to cater for N-1-1 contingency conditions as required by the Grid Code for stations with an output larger than 1000 MW (in this case, both the Koeberg and Ankerlig power stations).

The existing power line between Acacia Power Station and Koeberg (which provides a dedicated back-up supply to Koeberg Nuclear Power Station in terms of the requirements of the National Nuclear Regulator) was constructed at 400kV but has been operated at 132kV. This power line has been identified as the preferred option to establish the second Acacia – Koeberg 400kV line. This, however, means that an alternative arrangement must be implemented for the dedicated off-site supply to Koeberg.

Eskom Holdings Limited (Eskom) is, therefore, investigating the decommissioning of the existing Acacia aero derivative gas turbine units and the relocation of these units to the existing Ankerlig Power Station site in Atlantis, to stabilise the transmission network in the area and ensure the required dedicated back-up power supply to the Koeberg Nuclear Power Station. In addition, in order to provide additional operational flexibility and to streamline the phasing of the relocation of the Acacia units to the Ankerlig Power Station, an additional aero derivative gas turbine unit is proposed to be decommissioned and relocated to the Ankerlig Power Station site from Eskom's Port Rex Power Station site in East London.

Eskom is also proposing to turn the existing Koeberg-Dassenberg 132 kV line into Ankerlig and supply the dedicate line to connect the three Acacia and one Port Rex aero derivative gas turbines to Koeberg. This 132kV power line would be connected to a new 132kV HV yard adjacent to the now-to-be extended substation (high voltage (HV) yard) at the Ankerlig Power Station. A 400/132kV transformer will be added to Ankerlig for effective network integration. This 132kV HV yard would be accommodated within the existing Ankerlig Power Station site.

Environmental Impact Assessment

The proposed decommissioning and relocation of the gas units and the construction of the 132kV power line linking into the Dassenberg-Koeberg line is subject to the requirements of the Environmental Impact Assessment Regulations (EIA Regulations) published in GN 28753 of 21 April 2006, in terms of Section 24(5) of the National Environmental Management Act (NEMA, No 107 of 1998). In terms of sections 24 and 24D of NEMA, as read with GNs R385

(Regulations 27–36) and R387, a Scoping and EIA are required to be undertaken for this proposed project.

The National Department of Environmental Affairs and Tourism (DEAT) is the competent authority for this project as Eskom is a statutory body. An application for authorisation has been accepted by DEAT (under Application Reference number 12/12/20/1155). As the project falls within the Western Cape and Eastern Cape Provinces, the Western Cape Department of Environmental Affairs & Development Planning (DEA&DP) and the Eastern Cape Department of Economic Development & Environmental Affairs (DEDEA) will act as a commenting authority and will support DEAT in the decision-making process.

The Scoping Phase of the EIA process refers to the process of identifying potential issues associated with the proposed project, and defining the extent of studies required within the EIA Phase. This is achieved through an evaluation of the proposed project, involving the project proponent, specialists with experience in EIAs for similar projects, and a public consultation process with key stakeholders that includes both government authorities and interested and affected parties (I&APs).

Public consultation to date has included the following:

» **Notification of the EIA Process** in local and regional newspapers, as well as through written notification to identified stakeholders and affected landowners
» **Identification and registration** of I&APs and key stakeholders.

As agreed with the regulating authorities, public consultation meetings regarding this proposed project will be undertaken during the public review period of the Draft Scoping Report. This consultation will include Focus Group Meetings with key stakeholder groupings, as well as one-on-one meetings where required.

Evaluation of the Proposed Decommissioning of the Gas Units at the Acacia Power Station Site

The existing three gas units at the existing Acacia Power Station site near Goodwood will be decommissioned and will be relocated to the existing Ankerlig Power Station site near Atlantis.

In general, impacts associated with the decommissioning of the units are expected to be localised in the short-term. The power station currently has an existing air quality, noise and visual impact on the local area. The decommissioning of the units at the Acacia Power Station site will remove this existing impact from the area and is therefore expected to have a positive impact on the local environment. The existing transmission HV yard will not be decommissioned, and therefore the positive impact in terms of aesthetics

of the local area is expected to be limited.

Evaluation of the Proposed Decommissioning of the Gas Unit at the Port Rex Power Station Site

One of the existing gas units at the Port Rex Power Station site in the Woodbrook industrial area of East London will be decommissioned and will be relocated to the existing Ankerlig Power Station site near Atlantis.

In general, impacts associated with the decommissioning of the units are expected to be localised in the short-term. The power station currently has an existing air quality, noise and visual impact on the local area. The decommissioning of one of the units at the Port Rex Power Station site will reduce this existing impact and is therefore expected to have a limited positive impact on the local environment.

Evaluation of the relocation of the OCGT units to the Ankerlig Power Station site

The existing gas units will be decommissioned at the Acacia and Port Rex power station sites, and will be relocated to the existing Ankerlig Power Station site near Atlantis. No additional land take will be required outside of the existing power station boundaries for the establishment of these units. Potential impacts associated with the proposed relocation of the units are expected to occur during both the construction and operational phases. New impact sources associated with the relocation of these units are expected to be cumulative at a local level and would mainly include:

» **Visual impacts** as a result of the additional gas infrastructure and 132kV HV yard on the site.
» **Air quality impacts** associated with the construction phase (dust) and the operational phase (emissions from the OCGT units).
» **Noise impacts** associated with the OCGT units.
» **Impacts on the social environment** as a result of intrusion impacts associated with the construction phase, as well as traffic movements associated with the relocation of the units from the Acacia Power Station site to the Ankerlig Power Station site.

No environmental fatal flaws have been identified to be associated with the proposed relocation of the gas units at this stage of the project. Detailed specialist studies are required to be undertaken within the EIA phase of the process.

Evaluation and Comparison of the Proposed Power Line Alternatives

Three technically feasible alternative power line alignment corridors (approximately 500 m in width) have been identified for investigation within the EIA process. Potential impacts associated with the proposed power line are expected to occur during the construction and

operational phases, and have been identified through this scoping process include:

» **Impacts on flora and fauna** as a result of the disturbance of habitats within the power line servitude and at tower footprints.
» **Impacts on avifauna** as a result of collisions with the earthwire, electrocution and disturbance of habitats within the power line servitude.
» **Impacts on heritage sites** as a result of disturbance or destruction during the construction phase, as well as due to visual impacts on heritage sites. No heritage sites have, however, been identified within the study area and therefore no impacts are expected as a result of the proposed project.
» **Visual impacts** on the surrounding area.
» **Impacts on the social environment** as a result of the creation of employment opportunities, impacts on land use, and impacts on sense of place.

From the evaluation of the alternative power line alternatives identified for the Koeberg-Dassenberg power line, it is concluded that **Option 3** is **not** considered to be **preferred** from an environmental perspective.

As **Options 1 and 2** cross a disturbed, industrial area, impacts on the environment with the adoption of either of these alternatives are not expected to be significant. Therefore, these alternatives are considered to be acceptable from an environmental perspective and are nominated for further investigation in the EIA Phase of the process.

In order to assess the potential impacts on the environment associated with the construction and operation of the proposed power line project, specialist studies to address the above issues must be undertaken within the EIA phase of the project.

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ABBREVIATIONS AND ACRONYMS

DEA&DP	Western Cape Department of Environmental Affairs and Development Planning
DEDEA	Eastern Cape Department of Economic Development and Environmental Affairs
DEAT	National Department of Environmental Affairs and Tourism
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
GG	Government Gazette
GN	Government Notice
I&AP	Interested and Affected Party
kV	Kilovolt
MW	Mega Watt
NEMA	National Environmental Management Act (No 107 of 1998)
NERSA	National Energy Regulator of South Africa
NNR	National Nuclear Regulator
SAHRA	South African Heritage Resources Agency
SIA	Social Impact Assessment

DEFINITIONS AND TERMINOLOGY

Aeroderivative gas turbines: Aeroderivative gas turbines for power generation are adapted from those used in jet and turboshaft aircraft engines. These turbines are lightweight and thermally efficient, and have a capacity of up to 40 to 50 MW. Many aeroderivative gas turbines for stationary use require a high-pressure external fuel gas compressor.

Alternatives: Alternatives are different means of meeting the general purpose and need of a proposed activity. Alternatives may include location or site alternatives, activity alternatives, process or technology alternatives, temporal alternatives or the 'do nothing' alternative.

Cumulative impacts: Impacts that result from the incremental impact of the proposed activity on a common resource when added to the impacts of other past, present or reasonably foreseeable future activities (e.g. discharges of nutrients and heated water to a river that combine to cause algal bloom and subsequent loss of dissolved oxygen that is greater than the additive impacts of each pollutant). Cumulative impacts can occur from the collective impacts of individual minor actions over a period of time and can include both direct and indirect impacts.

Direct impacts: Impacts that are caused directly by the activity and generally occur at the same time and at the place of the activity (e.g. noise generated by blasting operations on the site of the activity). These impacts are usually associated with the construction, operation or maintenance of an activity and are generally obvious and quantifiable.

Do nothing alternative: The 'do nothing' alternative is the option of not undertaking the proposed activity or any of its alternatives. The 'do nothing' alternative also provides the baseline against which the impacts of other alternatives should be compared.

Environment: the surroundings within which humans exist and that are made up of:

i. the land, water and atmosphere of the earth;
ii. micro-organisms, plant and animal life;
iii. any part or combination of (i) and (ii) and the interrelationships among and between them; and
iv. the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being.

Environmental Impact: An action or series of actions that have an effect on the environment.

Environmental impact assessment: Environmental Impact Assessment (EIA), as defined in the NEMA EIA Regulations and in relation to an application to which scoping must be applied, means the process of collecting, organising, analysing, interpreting and communicating information that is relevant to the consideration of that application.

Environmental management: Ensuring that environmental concerns are included in all stages of development, so that development is sustainable and does not exceed the carrying capacity of the environment.

Environmental management plan: An operational plan that organises and co-ordinates mitigation, rehabilitation and monitoring measures in order to guide the implementation of a proposal and its ongoing maintenance after implementation.

Grid Code: The Grid Code is intended to establish the reciprocal obligations of industry participants around the use of the Transmission System (TS) and operation of the interconnected power system (IPS). The Grid Code shall ensure the following:

» That accountabilities of all parties are defined for the provision of open access to the TS
» That minimum technical requirements are defined for customers connecting to the TS
» That minimum technical requirements are defined for service providers
» That the System Operator's obligations are defined to ensure the integrity of the IPS
» That obligations of participants are defined for the safe and efficient operation of the TS
» That the relevant information is made available to and by the industry participants
» That the major technical cost drivers and pricing principles of the service providers are transparent The responsibility of the service providers under this Grid Code shall be:
    * to show no interest in whose product is being transported
    * to ensure that investments are made within the requirements of the Grid Code
    * to provide open access, on agreed standard terms, to all parties wishing to connect to or use the TS.

The Grid Code defines what is understood by non-discrimination through the definition of consistent and transparent principles, criteria and procedures.

Indirect impacts: Indirect or induced changes that may occur as a result of the activity (e.g. the reduction of water in a stream that supply water to a reservoir that supply water to the activity). These types of impacts include all the potential impacts that do not manifest immediately when the activity is undertaken or which occur at a different place as a result of the activity.

Interested and Affected Party: Individuals or groups concerned with or affected by an activity and its consequences. These include the authorities, local communities, investors, work force, consumers, environmental interest groups and the general public.

Significant impact: An impact that by its magnitude, duration, intensity or probability of occurrence may have a notable effect on one or more aspects of the environment.

INTRODUCTION CHAPTER 1

1.1. Project Overview and Purpose

Whilst the additional power generated at the Ankerlig Power Station can be evacuated via the existing transmission lines being commissioned at Ankerlig, a second 400kV line would be required between Koeberg and Acacia in order to cater for N-1-1 contingency conditions as required by the Grid Code[1] for stations with an output larger than 1000 MW (in this case, both the Koeberg and Ankerlig power stations).

The existing power line between Acacia Power Station and Koeberg (which provides a dedicated back-up supply to Koeberg Nuclear Power Station in terms of the requirements of the National Nuclear Regulator) was constructed at 400kV but has been operated at 132kV. This power line has been identified as the preferred option to establish the second Acacia – Koeberg 400kV line. This, however, means that an alternative arrangement must be implemented for the dedicated off-site supply to Koeberg.

Eskom Holdings Limited (Eskom) is, therefore, investigating the decommissioning of the existing Acacia aero derivative gas turbine units[2] and the relocation of these units to the existing Ankerlig Power Station site in Atlantis, to stabilise the transmission network in the area and ensure the required dedicated back-up power supply to the Koeberg Nuclear Power Station. In addition, in order to provide additional operational flexibility and to streamline the phasing of the relocation of the Acacia units to the Ankerlig Power Station, an additional aero derivative gas turbine unit is proposed to be decommissioned and relocated to the Ankerlig Power Station site from Eskom's Port Rex Power Station site in East London.

Eskom is also proposing to turn the existing Koeberg-Dassenberg 132 kV line into Ankerlig and supply the dedicate line to connect the three Acacia and one Port Rex aero derivative gas turbines to Koeberg. This 132kV power line would be connected to a new 132kV HV yard adjacent to the now-to-be extended substation (high voltage (HV) yard) at the Ankerlig Power Station. A 400/132kV

[1] The Grid Code is intended to establish the reciprocal obligations of industry participants around the use of the Transmission System (TS) and operation of the interconnected power system (IPS). The Grid Code shall ensure, inter alia, that accountabilities of all parties are defined for the provision of open access to the TS; and that minimum technical requirements are defined for customers connecting to the TS

[2] Aeroderivative gas turbines for power generation are adapted from those used in jet and turboshaft aircraft engines. These turbines are lightweight and thermally efficient, and have a capacity of up to 40 to 50 MW. Many aeroderivative gas turbines for stationary use require a high-pressure external fuel gas compressor.

transformer will be added to Ankerlig for effective network integration. This 132kV HV yard would be accommodated within the existing Ankerlig Power Station site.

The nature and extent of the decommissioning and relocation of the Acacia and Port Rex units, and the construction of the 132kV HV yard and power line, as well as potential environmental impacts associated with the construction and operation of a project of this nature is explored in more detail in this Draft Scoping Report.

1.2. Requirement for an Environmental Impact Assessment Process

The proposed decommissioning and relocation of the Acacia and Port Rex units and the construction of the 132kV HV yard and power line are subject to the requirements of the Environmental Impact Assessment Regulations (EIA Regulations) published in terms of Section 24(5) of the National Environmental Management Act (NEMA, No 107 of 1998). This section provides a brief overview of EIA Regulations and their application to this project.

NEMA is national legislation that provides for the authorisation of certain controlled activities known as "listed activities". In terms of Section 24(1) of NEMA, the potential impact on the environment associated with these listed activities must be considered, investigated, assessed and reported on to the competent authority (the decision-maker) charged by NEMA with granting of the relevant environmental authorisation. The National Department of Environmental Affairs and Tourism (DEAT) is the competent authority for this project as Eskom is a statutory body. An application for authorisation has been accepted by DEAT (under **Application Reference number 12/12/20/1155**). As the project falls within the Western Cape and Eastern Cape Provinces, the Western Cape Department of Environmental Affairs and Development Planning (DEA&DP) and the Eastern Cape Department of Economic Development and Environmental Affairs (DEDEA) will act as a commenting authority and will support DEAT in the decision-making process.

The need to comply with the requirements of the EIA Regulations ensures that decision-makers are provided the opportunity to consider the potential environmental impacts of a project early in the project development process, and assess if environmental impacts can be avoided, minimised or mitigated to acceptable levels. Comprehensive, independent environmental studies are required to be undertaken in accordance with the EIA Regulations to provide the competent authority with sufficient information in order for an informed decision to be taken regarding the project. Eskom appointed Savannah Environmental (Pty) Ltd to conduct the independent Environmental Impact Assessment (EIA) process for the proposed project.

An EIA is also an effective planning and decision-making tool for the project proponent. It allows the environmental consequences resulting from a technical facility during its establishment and its operation to be identified and appropriately managed. It provides the opportunity for the developer to be forewarned of potential environmental issues, and allows for resolution of the issue(s) reported on in the Scoping and EIA reports as well as dialogue with affected parties.

In terms of sections 24 and 24D of NEMA, as read with Government Notices R385 (Regulations 27–36) and R387, a Scoping and EIA are required to be undertaken for this proposed project as it includes the following activities listed in terms of GN R386 and R387 (GG No 28753 of 21 April 2006):

No & date of relevant notice	Activity No (in terms of relevant Regulation / notice)	Description of listed activity
Government Notice R387 (21 April 2006)	1(a)	The construction of facilities or infrastructure, including associated structures or infrastructure, for the generation of electricity where (i) the electricity output is 20 megawatts or more; or (ii) the elements of the facility cover a combined area in excess of 1 hectare
Government Notice R387 (21 April 2006)	1(c)	The above-ground storage of a dangerous good, including petrol, diesel, liquid petroleum gas or paraffin, in containers with a combined capacity of 1000 cubic meters or more at any one location or site including the storage of one or more dangerous goods, in a tank farm
Government Notice R387 (21 April 2006)	1(l)	The construction of facilities or infrastructure, including associated structures or infrastructure for the transmission and distribution of above ground electricity with a capacity of 120 kilovolts or more
Government Notice R386 (21 April 2006)	7	The above ground storage of a dangerous good, including petrol, diesel, liquid petroleum gas or paraffin, in containers with a combined capacity of more than 30 cubic metres but less than 1 000 cubic metres at any one location or site.
Government Notice R386 (21 April 2006)	14	The construction of masts of any material of type and of any height, including those used for telecommunications broadcasting and radio transmission, but excluding (a) masts of 15m and lower exclusively used by (i) radio amateurs; or (ii) for lightening purposes (b) flagpoles; and (c) lightening conductor poles

No & date of relevant notice	Activity No (in terms of relevant Regulation / notice)	Description of listed activity
Government Notice R386 (21 April 2006)	23 (a)	The decommissioning of existing facilities or infrastructure, other than facilities or infrastructure that commenced under an environmental authorisation issued in terms of the Environmental Impact Assessment Regulations, 2006 made under section 24(5) of the Act and published in Government Notice No. R. 385 of 2006, for electricity generation
Government Notice R386 (21 April 2006)	24 (a)	The recommissioning or use of any facility or infrastructure, excluding any facility or infrastructure that commenced under an environmental authorisation issued in terms of the Environmental Impact Assessment Regulations, 2006 made under section 24(5) of the Act and published in Government Notice No. R. 385 of 2006, after a period of two years from closure or temporary closure, for electricity generation
Government Notice R386 (21 April 2006)	25	The expansion of or changes to existing facilities for any process or activity, which requires an amendment of an existing permit or license or a new permit or license in terms of legislation governing the release of emissions, pollution, effluent.

This report documents the scoping evaluation of the potential environmental impacts of the proposed decommissioning, relocation and operational phases of the proposed project. This scoping study forms part of the EIA process and was conducted in accordance with the requirements of the EIA Regulations in terms of Section 24(5) of the National Environmental Management Act (NEMA; Act No 107 of 1998).

1.3. Objectives of the Scoping Phase

The Scoping Phase of the EIA process refers to the process of identifying potential issues associated with the proposed project, and defining the extent of studies required within the EIA Phase. This is achieved through an evaluation of the proposed project, involving the project proponent, specialists with experience in EIAs for similar projects, and a public consultation process with key stakeholders that includes both government authorities and interested and affected parties (I&APs).

In accordance with the EIA Regulations, the main purpose of the Scoping Phase is to focus the environmental assessment in order to ensure that only potentially significant issues, and reasonable and feasible alternatives are examined in the EIA Phase. The Draft Scoping Report provides stakeholders with an opportunity to verify that the issues they have raised through the process to date have been captured and adequately considered, and provides a further opportunity for additional key issues for consideration to be raised. The Final Scoping Report will incorporate all issues and responses raised during the public review of the Draft Scoping Report prior to submission to DEAT.

The Scoping Report consists of eight sections:

Chapter 1 provides background to the proposed project and the EIA process.
Chapter 2 describes the components of the proposed project (project scope).
Chapter 3 outlines the process which was followed during the Scoping Phase of the EIA process.
Chapter 4 describes the existing biophysical and socio-economic environment.
Chapter 5 presents the evaluation of environmental impacts associated with the proposed project.
Chapter 6 presents the conclusions of the scoping evaluation.
Chapter 7 describes the Plan of Study for EIA.
Chapter 8 provides a list of references and information sources used in undertaking the studies for this Draft Scoping Report.

1.4. Details of Environmental Assessment Practitioner and Expertise to conduct the Scoping and EIA

Savannah Environmental was contracted by Eskom Holdings Limited as an independent environmental assessment practitioner to undertake an Environmental Impact Assessment (EIA) for the proposed project, as required by the NEMA EIA Regulations. Neither Savannah Environmental, nor any its specialist sub-consultants on this project are subsidiaries of or affiliated to Eskom Holdings Limited. Furthermore, Savannah Environmental does not have any interests in secondary developments that may arise out of the authorisation of the proposed project.

The Savannah Environmental project team have more than ten (10) years experience in environmental assessment and environmental management, and have been actively involved in undertaking environmental studies for a wide variety of projects throughout South Africa. Strong competencies have been developed in project management of environmental EIA processes, as well as strategic environmental assessment and compliance advice, and the identification of environmental management solutions and mitigation/risk minimising measures.

Jo-Anne Thomas and Karen Jodas, the principal authors of this Draft Scoping Report, are both registered Professional Natural Scientists (in the practice of environmental science) with the South African Council for Natural Scientific Professions. They have gained extensive knowledge and experience on potential environmental impacts associated with electricity generation projects through their involvement in related EIA processes over the past ten (10) years. They have successfully managed and undertaken EIA processes for other power generation projects for Eskom Holdings Limited throughout South Africa. Curricula vitae for the Savannah Environmental project team consultants are included in Appendix A.

The proposed project involves the following activities:

» Decommissioning and relocation of the three existing aero derivative gas turbine units[3] at the Acacia Power Station (located near Goodwood) to the existing Ankerlig Power Station (located in Atlantis Industria).
» Decommissioning and relocation of one aero derivative gas turbine unit at Port Rex (located near East London) to the existing Ankerlig Power Station.
» Turning-in of the existing Koeberg – Dassenberg 132 kV line into a new 132 kV High Voltage Yard (HV Yard) to transmit the power generated by these relocated units to the Koeberg Power Station.

The aero derivative gas turbines that are the subject of this report are existing installed gas turbine units with an output of approximately 57 MW power each, and should not be confused with the approximately 150 MW Open Cycle Gas Turbine (OCGT) units installed at the Ankerlig Power Station. The Acacia aero derivative gas turbines are currently fuelled using kerosene.

This chapter provides details regarding the scope of the proposed project, including all required elements of the project and necessary steps for the project to proceed. The scope of project includes the decommissioning, relocation and operational activities associated with the proposed project at the existing Acacia Power Station site in Goodwood, the Port Rex Power Station site in East London and the Ankerlig Power Station site in Atlantis.

2.1. Decommissioning and Relocation of the Acacia OCGT Units

The transmission integration of the Ankerlig OCGT power plant at Atlantis consists of two 400kV power lines between Ankerlig and Koeberg, and two 400kV lines between Ankerlig and Aurora Substation. These lines have sufficient capacity to evacuate the power generated by the nine OCGT units at Ankerlig (i.e. the 4 existing units and the 5 units currently being constructed). An additional 400kV power line is proposed to be constructed between the Ankerlig Power Station and the Omega Substation by 2010 in order to evacuate the additional power to be generated by the converted OCGT units[4].

[3] Aeroderivative gas turbines for power generation are adapted from those used in jet and turboshaft aircraft engines. These turbines are lightweight and thermally efficient, and have a capacity of up to 40 to 50 MW. Many aeroderivative gas turbines for stationary use require a high-pressure external fuel gas compressor.

[4] The conversion of the power station and the construction of the additional 400 kV transmission power line are the subject of a separate EIA process (EIA Reference numbers: 12/12/20/1014 (power station conversion) and 12/12/20/1037 (transmission power line))

Transmission network studies concluded by Eskom have shown that an increase of the power output from the Ankerlig Power Station will result in an increase of the power flow from Koeberg to Muldersvlei Substation. This results in an overload condition on the existing 400kV Koeberg – Acacia line under certain network contingencies[5]. As such, the Koeberg Nuclear Power Station will not comply with the N-2 grid code requirement for power stations with an output larger that 1000 MW[6].

These constraints can be resolved by re-deploying a 400kV constructed line between Koeberg and Acacia that is currently operated at 132kV (which provides a dedicated back-up supply to Koeberg Nuclear Power Station in terms of the requirements of the National Nuclear Regulator) as a 400kV line. This, however, means that an alternative arrangement must be implemented for the dedicated supply to Koeberg. The following options are considered to facilitate this:

1. The gas turbines installed at Acacia Power Station can be relocated to the Ankerlig Power Station site and connected to the Koeberg Nuclear Power Station by turning the existing Koeberg–Dassenberg 132KV line into Ankerlig.
2. The construction of a new 132 kV transmission line between Koeberg and the Acacia power station. A new servitude will be required for this line.
3. A scheme whereby the new units at the Ankerlig Power Station will be tripped under predefined network contingency conditions can be implemented as a temporary measure to facilitate the development of 1 or 2 above.

The Eskom preferred option at this stage is to relocate the Acacia units to Ankerlig, however, the final decision will depend on the investigations to either move the Acacia units to the Ankerlig Power Station site or to construct a new 132kV line between Acacia and Koeberg. The final decision will depend on the economic outcome of the studies, as well as future generation, transmission and distribution requirements.

Studies performed to date indicate that the relocation of the Acacia gas turbines to the Ankerlig Power Station site will relieve the network congestion in and around the Acacia Power Station (located on Portion 7 of the Farm Montague Gardens in Goodwood, Cape Town) whilst facilitating the strengthening of the distribution network in the vicinity of the Ankerlig Power Station located on the Remainder of Farm 1395, Atlantis, Cape Town, needed for future growth in the area.

[5] Note that the overload condition on the existing Acacia – Koeberg 400 kV line occur as a second contingency (simultaneous outage on two lines in the Acacia/Muldersvlei/Stikland network).

[6] N-2 grid code refers to the requirement that when two lines are out of service, the full output of the power station can still be evacuated.

The Ankerlig Power Station site has been determined to be the preferred site for the relocation of the Acacia and Port Rex gas units for off-site back-up supply to Koeberg for the following reasons:

» The Ankerlig Power Station site is a brownfields site already owned and managed by Eskom. The use of this site therefore results in the consolidation of infrastructure of a similar nature on a single site.
» The relocation of the units to this site can be linked to Koeberg and integration into the grid, by turning the existing Koeberg-Dassenberg line that runs past the Ankerlig site into Ankerlig.
» The relocation of the units to this site allows for the phased relocation of units, thus ensuring that a minimum of two units will always be available for the emergency off-site supply to Koeberg.
» The Ankerlig Power Station is located relatively close to the Koeberg Power Station. The reliability of supply is therefore enhanced compared to the reliability of a longer Acacia – Koeberg 132kV line. The reliability can potentially be improved by alternative routes for the power to Koeberg that can be made available under emergency conditions if the dedicated Koeberg – Ankerlig 132kV line is not available.
» Relocating the Koeberg off site supply on the existing Koeberg land has been considered, but is not considered feasible due to land rezoning, cost of transmission integration and fuel logistics considerations.
» The relocation of the Acacia gas turbines to Ankerlig will relieve network constraints that are developing around Acacia due to load growth in the area.

In order to meet the requirements of always having a minimum of two gas turbines available to provide a back-up supply to Koeberg, it is required that the aero derivative gas turbine units be relocated in a phased approach. One unit will need to be relocated from the Port Rex site in East London in order to facilitate the establishment of the Koeberg off-site supply at Ankerlig. Alternative scenarios which are being considered to in terms of the final configuration and operation of these units include:

» Transport and commissioning of two of the Acacia units to the Ankerlig Power Station and one unit to the existing Port Rex Power Station.
» Re-erection and commissioning of three gas turbines at Ankerlig Power Station, and the return of one unit to Port Rex Power Station.
» Re-erection and commissioning of four gas turbines at the Ankerlig Power Station, namely one from Port Rex and three from Acacia.

Although a minimum of three gas turbines is required to facilitate the phasing of the Koeberg off-site supply it is recommended that the fourth unit required to be installed at Ankerlig to facilitate the relocation process should remain at Ankerlig for economic reasons and to provide additional operational flexibility. The

recommendation is therefore that four gas turbines will ultimately be installed at the Ankerlig Power Station site, namely three from Acacia and one from Port Rex.

2.1.1. Additional Fuel Storage Facilities

Relocation of the gas units to the Ankerlig Power Station site would require additional fuel storage facilities at the Ankerlig Power Station to provide a dedicated fuel supply to these units. The relocated units would be fuelled with diesel as the preferred fuel type option due to the diesel fuel infrastructure at Ankerlig, but Kerosene may be used on occasion, if unforeseen circumstances dictate. The storage of an additional 2 million litres of fuel for the aeroderivative gas turbines exclusively for the Koeberg off site supply on the power station site is required. This would result in a total storage capacity of 61,4 million litres on site. An area to the east of the power station expansion has been earmarked for additional fuel storage (refer to Figure 3.1). Provision would be required to be made for 2 x 1 000 m^3 fuel storage tanks, as well as associated off-loading and other related infrastructure.

2.1.2. Project Construction Phase

A **phased approach** whereby only one unit can be moved at a time is required to maintain a Koeberg auto-start function associated with the Koeberg off-site supply (which requires that two units be available at all times to provide a dedicated supply). This approach dictates that one gas turbine would be required to be moved from Port Rex to Ankerlig initially before the units from Acacia can be decommissioned and relocated. It is proposed that these units be transported between the sites by road.

Due to the phased approach required for the decommissioning and relocation of the gas turbine units from Acacia and Port Rex, it is expected that the total operation will take 18 – 24 months to complete.

2.1.3. Project Operation Phase

The Acacia and Port Rex units are currently being refurbished as part of an extensive maintenance/refurbishment programme, and the lifespan of these units is expected to be extended by another 20 years, with the option to extend this lifespan at the end of this period through the replacement of components, should this be required.

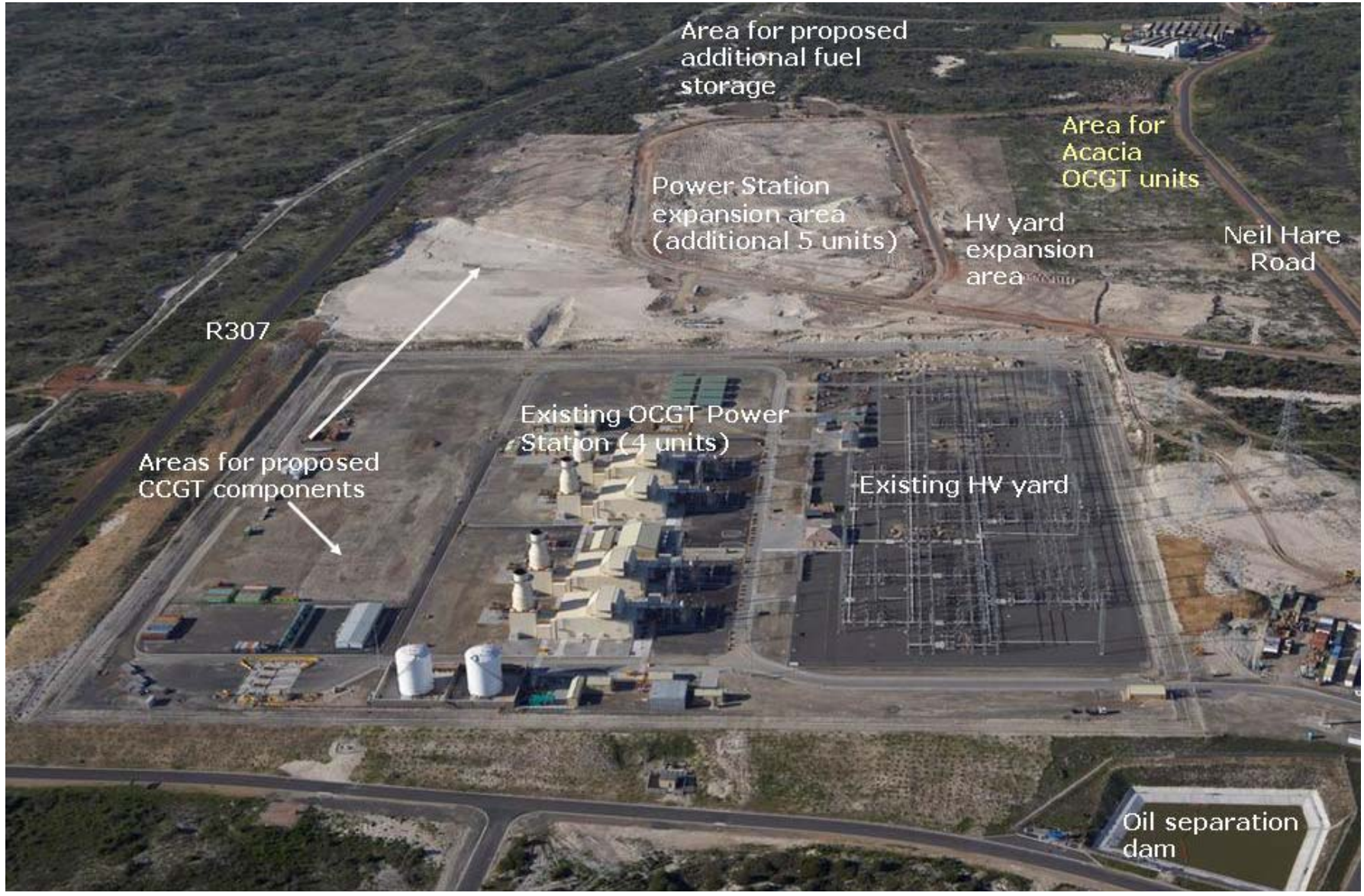

Figure 2.1: Aerial photograph showing the existing Ankerlig Power Station units, the proposed power station conversion and the area proposed for the Acacia and port Rex aero derivative gas turbine units

The creation of additional employment opportunities during the operational phase of the relocated units will be limited. The operations and maintenance of these units are quite specialised and significantly different from the Ankerlig gas turbines (industrial type turbines, vs. aero derivatives), hence it is envisaged that, initially, the current production staff complement (approximately 15 people) would be transferred to Ankerlig to specifically operate and maintain the relocated units from Acacia and Port Rex. This situation could however be reviewed in future, depending on staff requirements.

2.2. Integration of the Acacia and Port Rex gas units at Ankerlig Power Station into the National Grid

Eskom proposes to turn the existing Koeberg-Dassenberg 132 kV line into Ankerlig and supply the dedicated line to connect the aero derivative gas turbines to Koeberg. It should be noted that whilst the main function of the aero derivative gas turbines is for the Koeberg off site supply, its capacity will remain available for network generation support, as is currently the case.

This 132kV power line would be connected to a new 132kV HV yard adjacent to the now-to-be extended substation (high voltage (HV) yard) at the Ankerlig Power Station. A 400/132kV transformer will be added to Ankerlig for effective network integration. This 132kV HV yard would be accommodated within the existing Ankerlig Power Station site.

Three technically feasible alternative power line alignment corridors (approximately 500 m in width) have been identified for investigation within the EIA process (refer to Figure 2.2).

Option 1: This option runs from the Koeberg-Dassenberg 132 kV line almost due north-west, entering the 132kV HV yard from the east. This route is approximately 2.6 km in length.

Option 2: This option runs from the Koeberg-Dassenberg 132 kV line south of and parallel to the 400kV lines into the Ankerlig Power Station site from the east. This route would be required to cross under the existing 400kV lines and head north-east, and then follows the same alignment as Option 1 into the 132kV yard from the east. This route is approximately 3.8 km in length.

Option 3: This option runs from the Koeberg-Dassenberg 132 kV line south of and parallel to the 400kV lines into the Ankerlig Power Station site from the west. This proposed route may have to cross the main road from the West Coast Road into Atlantis (i.e. the R307) more than once due to possible space constraints. This route is approximately 5km in length.

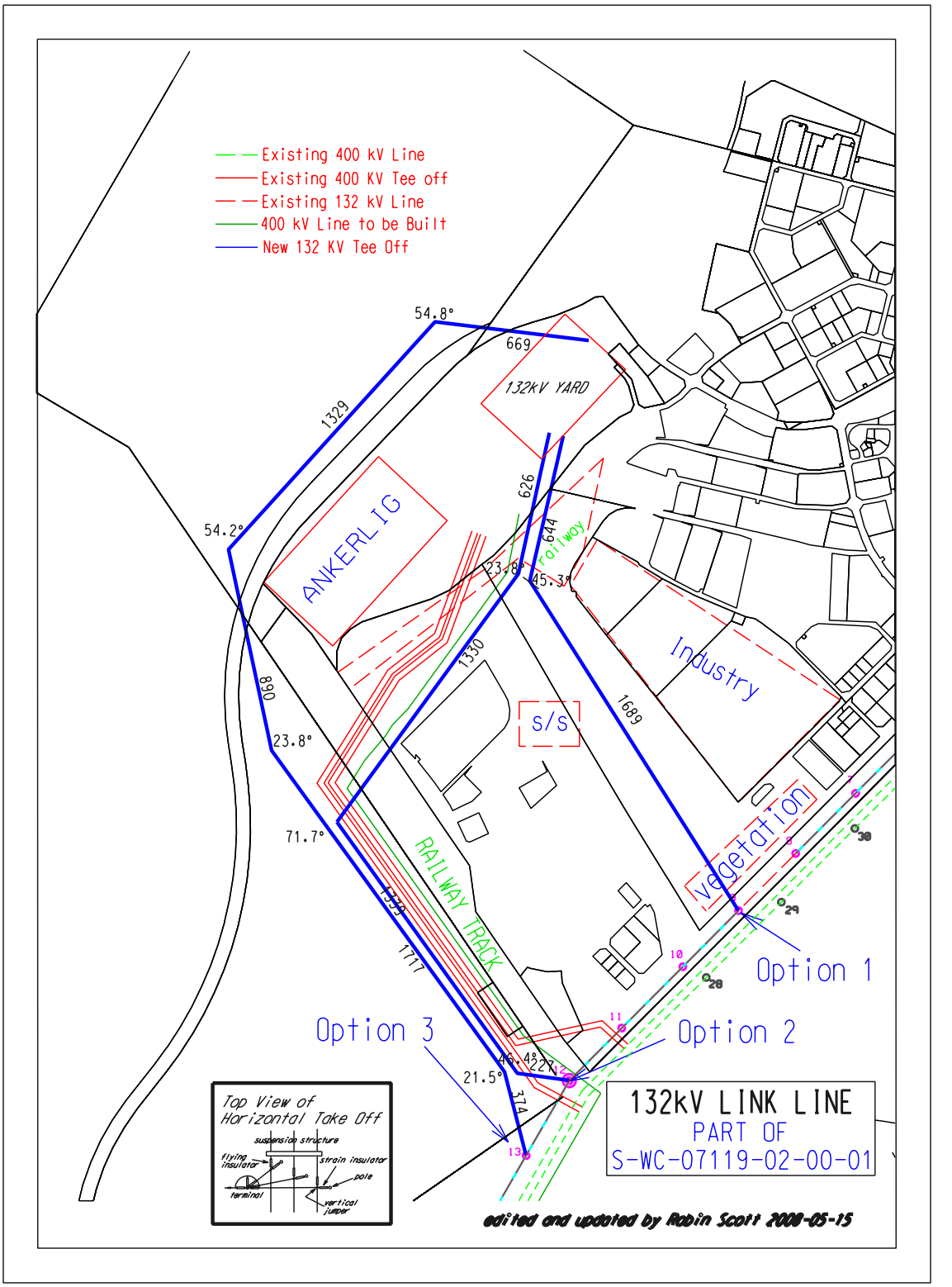

Figure 2.2: Proposed 132kV power line alternatives

It is proposed that a double-circuit single pole structure of approximately 25 m be used for the construction of the power line. A servitude width of approximately 35 m would be required to accommodate the power line. Examples of the tower type proposed for use are illustrated in Figure 2.3 below.

Figure 2.3: Examples of the proposed 132 kV monopole double circuit power line tower type.

2.2.1 Project Construction Phase

It is expected that the construction for transmission power line would commence in March 2009 and would take approximately 8 - 10 months to complete.

Construction crews will constitute mainly skilled and semi-skilled workers. No employees will reside on the construction site at any time during the construction phase.

2.2.2. Project Operation Phase

The expected lifespan of the proposed power line is between 35 and 40 years, depending on the maintenance undertaken on the power line structures. The creation of additional employment opportunities during the operational phase of the power line would be limited, and will be restricted to skilled maintenance personnel already employed by Eskom.

APPROACH TO UNDERTAKING THE SCOPING PHASE

CHAPTER 3

An Environmental Impact Assessment (EIA) process refers to that process (dictated by the EIA Regulations) which involves the identification of and assessment of direct, indirect and cumulative environmental impacts associated with a proposed project. The EIA process comprises two phases: **Scoping Phase** and **EIA Phase**. The EIA process culminates in the submission of an EIA Report (including an environmental management plan (EMP)) to the competent authority for decision-making. The EIA process is illustrated below:

The Scoping Phase for the proposed project has been undertaken in accordance with the EIA Regulations published in Government Notice 28753 of 21 April 2006, in terms of Section 24(5) of the National Environmental Management Act (NEMA; Act No 107 of 1998). This Draft Scoping Report aimed to identify potential issues associated with the proposed project, and define the extent of studies required within the EIA. This was achieved through an evaluation of the proposed project involving specialists with expertise relevant to the nature of the project and the study area, the project proponent, as well as a consultation process with key stakeholders that included both relevant government authorities and interested and affected parties (I&APs). This chapter serves to outline the process which was followed during the Scoping Phase of the EIA process.

3.1. Objectives of the Scoping Phase

This Scoping Phase aimed to:

» Identify and evaluate potential environmental (biophysical and social) impacts and benefits of all phases of the proposed development (including decommissioning of the three (3) existing gas units at the Acacia site, decommissioning of one (1) of the existing gas units at the Port Rex site, and the relocation and operation of the units at the Ankerlig site) through a desk-top review of existing baseline data and desk-top studies of potential issues.

» Provide the authorities with sufficient information in order to make a decision regarding the scope of issues to be addressed in the EIA process, as well as regarding the scope and extent of specialist studies that will be required to be undertaken as part of the EIA Phase of the process.

3.2. Overview of the Scoping Phase

The Scoping Phase has been undertaken in accordance with the EIA Regulations published in Government Notice 28753 of 21 April 2006 in terms of NEMA.

The potential impacts associated decommissioning of the gas units at the Acacia and Port Rex power station sites and the relocation and commissioning of these units at the Ankerlig Power Station site, as well as the construction of the 132kV power line have been evaluated. Key tasks undertaken within the Scoping Phase included:

» Consultation with relevant decision-making and regulating authorities (at National, Provincial and Local levels).
» Submission of a completed application form for authorisation in terms of Regulation 13 and 27 of Government Notice No R385 of 2006 to the competent authority (DEAT).
» Preparation of a Draft Scoping Report and Plan of Study for EIA in accordance with the requirements of the Regulation 29 Government Notice No R385 of 2006.

Public consultation meetings regarding this proposed project will be undertaken during the public review period of the draft Scoping Report, as agreed with DEAT, DEA&DP and DEDEA.

These tasks are discussed in detail below.

3.2.1. Authority Consultation and Application for Authorisation in terms of GN No R385 of 2006

As Eskom is a state-owned enterprise (SoE), the National Department of Environmental Affairs and Tourism (DEAT) is the competent authority for this application. The Western Cape Department of Environmental Affairs and Development Planning (DEA&DP) and the Eastern Cape Department of Economic Development and Environmental Affairs (DEDEA) will act as commenting authorities for the project. Consultation with these authorities has been undertaken throughout the Scoping process. This consultation has included the following:

» Pre-application consultation with DEAT, DEA&DP and DEDEA regarding the proposed project and the EIA process to be undertaken.
» Submission of applications for authorisation for the proposed project to DEAT, with copies submitted to DEA&DP and DEDEA. This application was accepted and the reference number 12/12/20/1155 allocated (refer to Appendix A). Authorisation was therefore granted to continue with the Scoping Phase of the project.

3.2.2. I&AP Identification, Registration and the Creation of an Electronic Database

The first step in the public involvement process was to identify relevant stakeholders and interested and affected parties (I&APs). This process was undertaken by **Sustainable Futures ZA** (specialist public participation consultants) through existing contacts and databases. Stakeholder and I&AP information included on the databases from the previous EIA processes was verified and included within the database for this proposed project (refer to Appendix B).

Stakeholder groups identified include:

» Atlantis Business Sector
» Communities of Atlantis and Goodwood
» Localised Civil Society Groupings (Community Based and Non-governmental Organised groups)
» Organised Labour
» Heritage Agencies (National and Provincial)
» Environmental Groupings (Traditional & Energy Sector)
» Provincial Government Departments (departments of relevance within the Western Cape Government)
» Local Authorities (Cape Town UniCity, Blaauwberg Administration, West Coast District Municipality and Swartland Local Municipality)
» National Government Departments (Line Departments)

3.2.3. Notification of the EIA Process and Draft Scoping Report availability

In order to notify and inform the public of the proposed project and invite stakeholders to review and comment on this Draft Scoping Report, the project and EIA process, as well as the availability of this report was advertised in the following newspapers:

» Regional newspaper – *Die Burger*: 2 June 2008
» Regional/local newspaper – *Swartland and Weskus Herald*: 5 June 2008

» Regional/local newspaper – *Table talk*: 4 June 2008
» Regional newspaper – *Cape Times*: 2 June 2008
» Regional newspaper – *Daily Despatch*: 2 June 2008

In addition, site advertisements will be posted at various locations throughout the study area.

In addition to the above advertisements and notices, key stakeholders and registered I&APs were notified in writing of the commencement of the EIA process and availability of the Draft Scoping Report (notifications sent out on 2 June 2008).

Copies of the advertisements placed and notices distributed are contained in Appendix C of this report.

3.2.4. Public Involvement and Consultation

As agreed with the regulating authorities, public consultation meetings regarding this proposed project will be undertaken during the public review period of the Draft Scoping Report. This consultation will include Focus Group Meetings with key stakeholder groupings, as well as one-on-one meetings where required.

Notes from meetings held with stakeholders and reply forms returned by I&APs will be included within the Final Scoping Report to be submitted to DEAT for review and decision-making.

Networking with I&APs will continue throughout the duration of the EIA process.

No letter of consent to undertake the EIA (as required in terms Regulation 16(1) of the NEMA EIA Regulations) was required to be obtained, as the properties on which the Acacia Power Station and Port Rex Power Station are located is owned by Eskom Transmission, and Eskom is in the process of purchasing the properties on which the Ankerlig Power Station is located.

3.2.5. Evaluation of Issues Identified through the Scoping Process

Issues identified to be associated with the proposed project, which have been evaluated through this scoping process, include:

» Potential noise impacts
» Potential air quality impacts
» Potential visual impacts
» Potential traffic impacts
» Potential impacts on the social environment

In order to evaluate issues and assign an order of priority, it was necessary to identify the characteristics of each potential issue/impact:

» *the nature,* which includes a description of what causes the effect, what will be affected and how it will be affected
» *the extent,* wherein it is indicated whether the impact will be local (limited to the immediate area or site of development) or regional

These potential impacts are expected to be associated with both the decommissioning of the units at the Acacia and Port Rex power station sites and the recommissioning of the units at the Ankerlig Power Station site. Therefore, potential impacts have been evaluated at each of these sites. The evaluation of issues has resulted in a statement regarding the potential significance of the identified issues, as well as recommendations regarding detailed investigations of these issues and other specialist studies required within the EIA phase (refer to Chapter 6). Recommendations regarding the methodology to be employed in assessing potential impacts have also been made (refer to Chapter 7).

3.2.6. Assumptions and Limitations

The following assumptions and limitations are applicable to the studies undertaken within this Scoping Phase:

» All information provided by Eskom and I&APs to the Environmental Team was correct and valid at the time it was provided.
» The 132kV line corridors identified by Eskom are technically and economically viable. The final power line route will be determined after the EIA process within the nominated preferred power line corridor.
» The wealth of information already in hand from the EIA process undertaken for the initial OCGT projects, as well as the power station conversion and transmission integration project currently being undertaken provide a baseline from which this EIA process finds a point of departure.
» This report and its investigations are project-specific, and consequently the environmental team did not evaluate any other power source alternatives.
» As the relocation of the units to the Ankerlig Power Station site is considered to be the technically preferred option and is within the Ankerlig Power Station site, no site alternatives have been investigated as part of this EIA process.

3.2.7. Public Review of Draft Scoping Report and Feedback Meeting

This is the **current stage** of the Scoping Phase. The Draft Scoping Report has been made available for public review from **2 June 2008 to 2 July 2008** at the following locations:

» Wesfleur Library
» Avondale Library
» Melkbosstrand Library
» Edgemead Library
» East London central Library
» www.eskom.co.za/eia
» www.savannahSA.com

The public review process was advertised in regional and local newspapers: Die Burger, Cape Times, Table Talk, ad the Swartland and Weskus Herald, and the Daily Despatch (refer Appendix C). In addition, all registered I&APs were notified of the availability of the report and public meeting by letter.

3.2.8. Final Scoping Report

The final stage in the Scoping Phase will entail the capturing of responses from I&APs on the Draft Scoping Report in order to refine this report. It is this final report upon which the decision-making environmental Authorities provide comment, recommendations and acceptance to undertake the EIA Phase of the process.

3.3. Regulatory and Legal Context

The South African energy industry is evolving rapidly, with regular changes to legislation and industry role-players. The regulatory hierarchy for an energy generation project of this nature consists of three tiers of authority who exercise control through both statutory and non-statutory instruments – that is National, Provincial and Local levels.

3.3.1. Regulatory Hierarchy

At National Level, the main regulatory agencies are:

» *Department of Minerals and Energy (DME):* This department is responsible for policy relating to all energy forms, including renewable energy. It is the controlling authority in terms of the Electricity Act (Act No 41 of 1987).
» *National Energy Regulator (NER):* This body is responsible for regulating all aspects of the electricity sector, and will ultimately issue generating licenses for power station developments to generate electricity.
» *National Nuclear Regulator (NNR)*: This body is the national institution established by the National Nuclear Regulator Act (Act No 47 of 1999) for the protection of the public, property and environment against nuclear damage. Staff of the NNR carries out technical assessment, authorization and compliance assurance functions and provide the necessary infrastructural

support for the effective regulation of safety, including nuclear, waste, radiation and transport safety. The NNR carries out compliance assurance for various facilities (including Koeberg Nuclear Power Station) in order to provide assurance of holders' compliance with the conditions of nuclear authorisations, through the implementation of compliance inspections.

» *Department of Environmental Affairs and Tourism (DEAT):* This Department is responsible for environmental policy and is the controlling authority in terms of NEMA and the EIA Regulations. DEAT is the competent authority for this project, and charged with granting the relevant environmental authorisation.

» *Department of Transport and Public Works:* This department is responsible for roads and the granting of exemption permits for the conveyance of abnormal loads (as may be associated with the construction phase) on public roads.

At Provincial Level, the main regulatory agency is:

» *Provincial Government of the Western Cape (PGWC) – Department of Environmental Affairs and Development Planning (DEA&DP).* This is the principal authority involved in the EIA process and determines many aspects of Provincial Environmental policy. The department is a commenting authority for this project.

» *Provincial Government of the Eastern Cape – Department of Economic Development and Environmental Affairs (DEDEA).* This is the principal authority involved in the EIA process, and is a commenting authority for this project.

At Local Level the local and municipal authorities are the principal regulatory authorities responsible for planning, land use and the environment. The proposed project falls within the City of Cape Town Metropolitan Municipality. By-laws and policies have been formulated by local authorities to protect environmental resources relating to issues such as air quality, community safety, etc.

3.3.2. Legislation and Guidelines that have informed the preparation of this Scoping Report

Those Acts, standards or guidelines which have informed the project process and the scope of issues evaluated in this Scoping Study are summarised in Table 4.1.

Table 4.2: List of applicable legislation and compliance requirements required for the decommissioning and relocation of the Acacia and Port Rex gas units, Western Cape Province

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
	National Legislation		
National Environmental Management Act (Act No 107 of 1998)	EIA Regulations have been promulgated in terms of Chapter 5. Activities which may not commence without an environmental authorisation are identified within these Regulations. In terms of Section 24(1) of NEMA, the potential impact on the environment associated with these listed activities must be considered, investigated, assessed and reported on to the competent authority (the decision-maker) charged by NEMA with granting of the relevant environmental authorisation. In terms of GNR 387 of 21 April 2006, a scoping and EIA process is required to be undertaken for the proposed power station conversion and transmission integration project	National Department of Environmental Affairs and Tourism – lead authority. Western Cape Department of Environmental Affairs and Development Planning – commenting authority. Eastern Cape Department of Economic Development and Environmental Affairs – commenting authority	This EIA report is to be submitted to DEAT, DEA&DP and DEDEA in support of the **application for authorisation** submitted in March 2008.
National Environmental Management Act (Act No 107 of 1998)	In terms of the Duty of Care provision in S28(1) Eskom as the project proponent must ensure that reasonable measures are taken throughout the life cycle of this project to ensure that any pollution or degradation of the environment associated with this project is avoided, stopped or minimised. In terms of NEMA, it has become the legal duty of a project proponent to consider a project holistically, and to consider the cumulative effect of a variety of impacts.	Department of Environmental Affairs and Tourism (as regulator of NEMA).	While **no permitting or licensing requirements** arise directly by virtue of the proposed project, this section will find application during the EIA phase and will continue to apply throughout the life cycle of the project.

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
Environment Conservation Act (Act No 73 of 1989)	Section 20(1) provides that where an operation accumulates, treats, stores or disposes of waste on site for a continuous period, it must apply for a permit to be classified as a suitable waste disposal facility.	National Department of Environmental Affairs and Tourism and Department of Water Affairs and Forestry.	As no waste disposal site is to be associated with the proposed project, **no permit** is required in this regard.
Environment Conservation Act (Act No 73 of 1989)	National Noise Control Regulations (GN R154 dated 10 January 1992). Provincial noise control regulations have been promulgated for the Western Cape in Provincial Notice (PN 627/P5309/2299) dated 20 November 1998. In terms of these Regulations, industrial noise limits are 61 dBA and noise limits from any source other than an industrial source are 65 dBA. Draft regulations relating to noise control published in Provincial Gazette No 6412, PN 14 dated the 25th of January 2007. Noise limits are based on the acceptable rating levels of ambient noise contained in SANS 10103.	National Department of Environmental Affairs and Tourism Western Cape Department of Environmental Affairs and Development Planning Local authorities, i.e. City of Cape Town; Buffalo City Municipality Eastern Cape Department of Economic Development and Environmental Affairs	There is **no requirement for a noise permit** in terms of the legislation. A **Noise Impact Assessment** is required to be undertaken in accordance with SANS 10328. This will be undertaken as part of the EIA process.
National Water Act (Act No 36 of 1998)	Section 21 sets out the water uses for which a water use license is required.	Department of Water Affairs and Forestry	As no water use (as defined in terms of S21 of the NWA) will be associated with the proposed project (as water will be obtained from the existing water allocation to the Ankerlig Power Station), **no water use permits or licenses** are required to be applied for or obtained.
National Water Act (Act No 36 of 1998)	In terms of Section 19, Eskom as the project proponent must ensure that reasonable	Department of Water Affairs and Forestry (as regulator of NWA)	While **no permitting or licensing requirements** arise directly by virtue

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
	measures are taken throughout the life cycle of this project to prevent and remedy the effects of pollution to water resources from occurring, continuing or recurring.		of the proposed project, this section will find application during the EIA phase and will continue to apply throughout the life cycle of the project.
Atmospheric Pollution Prevention Act (Act No 45 of 1965)	Scheduled Processes: A specifications standard applies to the production of noxious or offensive gases. This means that pollution control equipment used in operating the process must conform to certain design criteria. Currently sixty nine (69) scheduled processes are listed in the Second Schedule to the Act. No person may carry on a Scheduled Process in or on any premises unless he is the holder of a current registration certificate. The granting of a permit is subject to compliance with certain minimum standard specifications. To be replaced by the National Environmental Management: Air Quality Act (Act No 39 of 2004) on promulgation of Section 22 of this Act.	National Department of Environmental Affairs and Tourism - Chief Air Pollution Control Officer (CAPCO) Western Cape Department of Environmental Affairs and Development Planning - Chief Air Pollution Control Officer (CAPCO) Eastern Cape Department of Economic Development and Environmental Affairs – CAPCO	Eskom have emissions permits for the current operations at the Acacia and Port Rex power stations. Eskom may need to **obtain an amended registration certificate** from the Chief Air Pollution Control Officer (CAPCO) at DEA&DP for the operation of the relocated units. This will be informed by the **specialist air quality study** to be undertaken as part of the EIA process.
National Heritage Resources Act (Act No 25 of 1999)	Section 38 states that Heritage Impact Assessments (HIAs) are required for certain kinds of development including » the construction of a road, power line, pipeline, canal or other similar linear development or barrier exceeding 300 m in length; The relevant Heritage Resources Authority must be notified of developments such as linear developments (including roads and power lines), etc. This notification must be provided	South African Heritage Resources Agency (SAHRA) - National Heritage Sites (grade 1 sites) as well as all historic graves and human remains Heritage Western Cape - all Provincial Heritage Sites (grade 2 sites), generally protected heritage and structures (grade 3a – 3c sites) and prehistoric human remains	The area proposed for the location of the Acacia and Port Rex gas units is within the existing Ankerlig power station site. This area has been disturbed through construction activities associated with the OCGT power station, and were investigated as part of the EIA undertaken for the Gas 1 development. No heritage sites are expected to be located within this area. Therefore, **no permits** will be

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
	in the early stages of initiating that development, and details regarding the location, nature and extent of the proposed development must be provided. Stand alone HIAs are not required where an EIA is carried out as long as the EIA contains an adequate HIA component that fulfils the provisions of Section 38. In such cases only those components not addressed by the EIA should be covered by the heritage component.		required to be obtained. An **HIA** will be required to be undertaken for the proposed power line. This will be undertaken as part of the EIA process. A **permit** may be required should identified **cultural/heritage sites** along the proposed transmission power line be required to be **disturbed or destroyed** as a result of the proposed development.
National Environmental Management: Biodiversity Act (Act No 10 of 2004)	In terms of Section 57, the Minister of Environmental Affairs and Tourism has published a list of critically endangered, endangered, vulnerable and protected species in GNR 151 in Government Gazette 29657 of 23 February 2007 and the regulations associated therewith in GNR 152 in GG29657 of 23 February 2007, which came into effect on 1 June 2007. In terms of GNR 152 of 23 February 2007: Regulations relating to listed threatened and protected species, the relevant specialists must be employed during the EIA phase of the project to incorporate the legal provisions as well as the regulations associated with listed threatened and protected species (GNR 152) into specialist reports in order to identify permitting requirements at an early stage of the EIA phase.	National Department of Environmental Affairs and Tourism	As Eskom will not carry on any restricted activity, as is defined in Section 1 of the Act, **no permit** is required to be obtained in this regard. **Specialist flora and fauna studies** are required to be undertaken as part of the EIA process. These studies have been undertaken as part of the previously EIAs undertaken for the Ankerlig power station site and are not required to be repeated within this process. Specialist flora and fauna scoping studies will be required to be undertaken for the proposed power line. As the Ankerlig power station site has been disturbed through construction activities associated with the OCGT power station, **no protected plant species** are likely to be present on the

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
			proposed development site. Therefore, **no permits** will be required to be obtained in this regard. A **permit** may be required should any **protected plant species** identified within the power line corridor be **disturbed or destroyed** as a result of the proposed development.
Conservation of Agricultural Resources Act (Act No 43 of 1983)	Regulation 15 of GNR1048 provides for the declaration of weeds and invader plants, and these are set out in Table 3 of GNR1048. Weeds are described as Category 1 plants, while invader plants are described as Category 2 and Category 3 plants. These regulations provide that Category 1, 2 and 3 plants must not occur on land and that such plants must be controlled by the methods set out in Regulation 15E.	Department of Agriculture	While **no permitting or licensing requirements** arise from this legislation, this Act will find application during the EIA phase and will continue to apply throughout the life cycle of the project. In this regard, soil erosion prevention and soil conservation strategies must be developed and implemented. In addition, the existing weed control and management plan within the EMP for the Abkerlig Power Station site must be implemented.
Minerals and Petroleum Resources Development Act (Act No 28 of 2002)	A mining permit or mining right may be required where a mineral in question is to be mined (e.g. materials from a borrow pit) in accordance with the provisions of the Act.	Department of Minerals and Energy	As no borrow pits are expected to be required for the decommissioning and relocation of the Acacia and Port Rex units, **no mining permit or mining right** is required to be obtained.
National Veld and Forest Fire Act (Act No 101 of 1998)	In terms of Section 12 Eskom would be obliged to burn firebreaks to ensure that should a veldfire occur on the property, that same does not spread to adjoining land. In terms of Section 13 Eskom must ensure that the firebreak is wide enough and long enough	Department of Water Affairs and Forestry	While **no permitting or licensing requirements** arise from this legislation, this Act will find application during the operational phase of the project.

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
	to have a reasonable chance of preventing a veldfire from spreading; not causing erosion; and is reasonably free of inflammable material. In terms of Section 17, Eskom must have such equipment, protective clothing and trained personnel for extinguishing fires as are prescribed or in the absence of prescribed requirements, reasonably required in the circumstances.		
Hazardous Substances Act (Act No 15 of 1973)	This Act regulates the control of substances that may cause injury, or ill health, or death by reason of their toxic, corrosive, irritant, strongly sensitising or inflammable nature or the generation of pressure thereby in certain instances and for the control of certain electronic products. To provide for the rating of such substances or products in relation to the degree of danger; to provide for the prohibition and control of the importation, manufacture, sale, use, operation, modification, disposal or dumping of such substances and products. Group I and II: Any substance or mixture of a substance that might by reason of its toxic, corrosive etc, nature or because it generates pressure through decomposition, heat or other means, cause extreme risk of injury etc., can be declared to be Group I or Group II hazardous substance; Group IV: any electronic product; Group V: any radioactive material.	Department of Health	It is necessary to identify and list all the Group I, II, III and IV hazardous substances that may be on the site by the activity and in what operational context they are used, stored or handled. If applicable, a **license** is required to be obtained from the Department of Health.

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
	The use, conveyance or storage of any hazardous substance (such as distillate fuel) is prohibited without an appropriate license being in force.		
National Road Traffic Act (Act No 93 of 1996)	The Technical Recommendations for Highways (TRH 11): "Draft Guidelines for Granting of Exemption Permits for the Conveyance of Abnormal Loads and for other Events on Public Roads" outline the rules and conditions which apply to the transport of abnormal loads and vehicles on public roads and the detailed procedures to be followed in applying for exemption permits are described and discussed. Legal axle load limits and the restrictions imposed on abnormally heavy loads are discussed in relation to the damaging effect on road pavements, bridges and culverts. The general conditions, limitations and escort requirements for abnormally dimensioned loads and vehicles are also discussed and reference is made to speed restrictions, power/mass ratio, mass distribution and general operating conditions for abnormal loads and vehicles. Provision is also made for the granting of permits for all other exemptions from the requirements of the National Road Traffic Act and the relevant Regulations.	Western Cape Department of Transport and Public Works (provincial roads) Eastern Cape Department of Transport South African National Roads Agency (national roads)	An abnormal load/vehicle permit will be required to transport the OCGT units from the Port Rex and Acacia sites to the Ankerlig Power Station site. These include: » Route clearances and permits will be required for vehicles carrying abnormally heavy or abnormally dimensioned loads. » Transport vehicles exceeding the dimensional limitations (length) of 22m. » Depending on the trailer configuration and height when loaded, some of the power station components may not meet specified dimensional limitations (height and width).
National Road Traffic Act (Act No 93 of 1996)	Regulation 274 (read with SABS Code 0232 which deals with transportation of dangerous goods and emergency information systems) states that the regulations are applicable where	Department of Transport Western Cape Department of Transport and Public Works	Eskom will need to ensure that **procedures** are in place **to prevent that the quantities of dangerous goods transported exceed the**

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
	dangerous goods are transported in quantities, which exceed the exempt quantities (listed in Annex E of SABS Code 0232). Dangerous goods may only be transported in accordance with the provisions in the Regulations, unless the Minister of Transport has granted an exemption.	(provincial roads) Eastern Cape Department of Transport (provincial roads) South African National Roads Agency (national roads)	**prescribed quantity** (listed in Annex E of SABS Code 0232). Apply for an exemption, if applicable.
Development Facilitation Act (Act No 67 of 1995)	Provides for the overall framework and administrative structures for planning throughout the Republic.	Western Cape Department of Environmental Affairs and Development Planning Eastern Cape Department of Economic Development and Environmental Affairs Local authorities, i.e. City of Cape Town; Buffalo City Municipality	As the Acacia and Port Rex units are to be relocated to the existing Ankerlig Power Station site, no rezoning or sub-division of land is required. Therefore, no land development application is required to be submitted. Eskom must submit a land development application for the proposed power line in the prescribed manner and form as provided for in the Act.
Land Use Planning Ordinance 15 of 1985	Details land subdivision and rezoning requirements & procedures	Western Cape Department of Environmental Affairs and Development Planning Local authorities, i.e. City of Cape Town	As the Acacia and Port Rex units are to be relocated to the existing Ankerlig Power Station site, no rezoning or sub-division of land is required. Therefore, no application in terms of LUPO is required to be submitted. Given that the power line is proposed on land that is zoned for agricultural use (depending on the preferred power line corridor nominated through the EIA process), a rezoning application in terms of Section 17 of LUPO to an alternative appropriate zone will be

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
			required. Rezoning is required to be undertaken following the issuing of an environmental Authorisation for the proposed project.
Provincial Legislation			
Nature Conservation Ordinance (Act 19 of 1974)	Article 63 prohibits the picking (defined in terms of article 2 to include, cut, chop off, take, gather, pluck, uproot, break, damage or destroying of certain flora. Schedule 3 lists endangered flora and Schedule 4 lists protected flora. Articles 26 to 47 regulates the use of wild animals	CapeNature	As the Ankerlig Power Station site has been disturbed through construction activities associated with the OCGT power station, **no endangered or protected plant species** are likely to be present on the proposed development site. Therefore, **no permits** will be required to be obtained in this regard. A **permit** may be required should any **endangered or protected plant species** within the power line corridor be **disturbed or destroyed** as a result of the proposed development.
Local Legislation			
City of Cape Town Air Pollution Control By-Law 12649- 4 February 2004- Provincial Gazette Extraordinary 5979	Section 7: No person shall install, alter, extend or replace any fuel-burning equipment on any premises without the prior written authorisation of the Council, which may only be given after consideration of the relevant plans and specifications.	City of Cape Town	Eskom will need to **obtain written authorisation** from the local council for the alteration of the fuel-burning equipment at the Ankerlig power station (i.e. addition of the 3 Acacia and 1 Port Rex gas units)
By-law relating to Community Fire Safety 11257 – 28 February 2002 – Provincial Gazette	Section 37(1): Prior to the construction of a new installation or the alteration of an existing installation, whether temporary or permanent, for the storage of a flammable substance, the	City of Cape Town	Eskom must **submit a building plan** to the Municipality, in accordance with the National Building Regulations prior to installing the additional facilities for

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
Extraordinary 5832	owner or person in charge of the installation must submit a building plan to the Municipality, in accordance with the National Building Regulations. A copy of the approved plan must be available at the site where the installation is being constructed.		fuel storage on the site. A copy of the approved plan must be available at the site where the installation is being constructed.
By-law relating to Community Fire Safety 11257 – 28 February 2002 – Provincial Gazette Extraordinary 5832	Section 37(2): Prior to the commissioning of an aboveground or underground storage tank installation, liquid petroleum gas installation or associated pipework, the owner or person in charge of the installation must ensure that it is pressure-tested in accordance with the provisions of the National Building regulations (T1), SABS 0131: Parts1 and 2, SABS 089:Part 3 and SABS 087: Parts 1,3 and 7 in the presence of the controlling authority.	City of Cape Town	Eskom must ensure that any additional fuel tanks proposed to be installed at the Ankerlig Power Station site are **pressure-tested** in accordance with the relevant provisions as stated in the by-law.
By-law relating to Community Fire Safety 11257 – 28 February 2002 – Provincial Gazette Extraordinary 5832	Section 37(6): The owner or person in charge of the premises, who requires to store a flammable gas in excess of 19 kilogram, or a flammable liquid of a danger group (i),(ii),(iii),or (iv) in excess of 200 litres must obtain a flammable substance certificate from the controlling authority.	City of Cape Town	Eskom must obtain a **flammable substance certificate** for any additional fuel storage at the power station site, as prescribed in Schedule 2 of this By-law.
By-law relating to Community Fire Safety 11257 – 28 February 2002 – Provincial Gazette Extraordinary 5832	Section 41: The handling, storage and distribution of flammable substances at bulk depots must be in accordance with the National Building regulations (T1), read in conjunction with SABS 089: Part 1.	City of Cape Town	If applicable, Eskom must ensure that handling, storage and distribution of flammable substances (such as fuel) is in accordance with National building regulations.
By-law relating to Community Fire Safety 11257 – 28 February 2002 –	Section 53: The operator of a vehicle designed for the transportation of dangerous goods may not operate such a vehicle in the jurisdiction of	City of Cape Town	Eskom must ensure that the contractor/s responsible for the transportation of fuels and other

Legislation	Applicable Requirements	Relevant Authority	Compliance requirements
Provincial Gazette Extraordinary 5832	the controlling authority, unless he has obtained a dangerous goods certificate issued by a fire brigade service in terms of the National Road Traffic Act		dangerous goods to the power station site have obtained the **dangerous goods certificates** in respect of all vehicles transporting dangerous goods and keep the certificate available in the relevant vehicle.

DESCRIPTION OF THE AFFECTED ENVIRONMENT CHAPTER 4

This chapter provides a description of the environment that may be affected by the proposed project. This information is provided in order to assist the reader in understanding the possible effects of the proposed project on the environment. Aspects of the biophysical, social and economic environment that could be affected by, or could affect the proposed development have been described. This information has been sourced largely from existing information available for the area, and aims to provide the overall context within which this environmental impact assessment process is being conducted.

4.1. Location of the Study Area and Property Description

The existing Acacia Power Station and Ankerlig Power Station are located within the City of Cape Town Metropolitan Municipality in the Western Cape Province. The existing Port Rex Power Station is located within the Buffalo City Municipality in the Eastern Cape Province.

Port Rex and Acacia are gas turbine stations owned by Eskom and are part of Eskom's Peaking Generation group of power stations. These two power stations have three gas turbine generators, each with an output of approximately 57 MW power. The stations have an installed capacity of 171 MW.

The Acacia Power Station is located on Portion 7 of the Farm Montague Gardens in Goodwood, and is owned by Eskom. This site is located in close proximity to the residential areas of Bothasig, Edgemead and Monta Vista (refer to Figures 4.1 and 4.2).

The Port Rex Power Station is located within the Woodbrook industrial area, Cape Road in East London (refer to Figure 4.3), and is owned by Eskom.

The existing Ankerlig Power Station is located within the western portion of the existing proclaimed Industrial Area of Atlantis (~40 km from the Cape Town city centre) on the Farm No 1183 and a Portion of Farm Witzand 2, Atlantis, Cape Town (refer to Figure 4.4), both of which are owned by Eskom. The existing Ankerlig OCGT Power Station consists of nine OCGT units (i.e. four existing OCGT units, plus an additional five OCGT units, currently under construction) each with a nominal capacity of ~150 MW, resulting in a total nominal capacity of 1 350 MW for the power station.

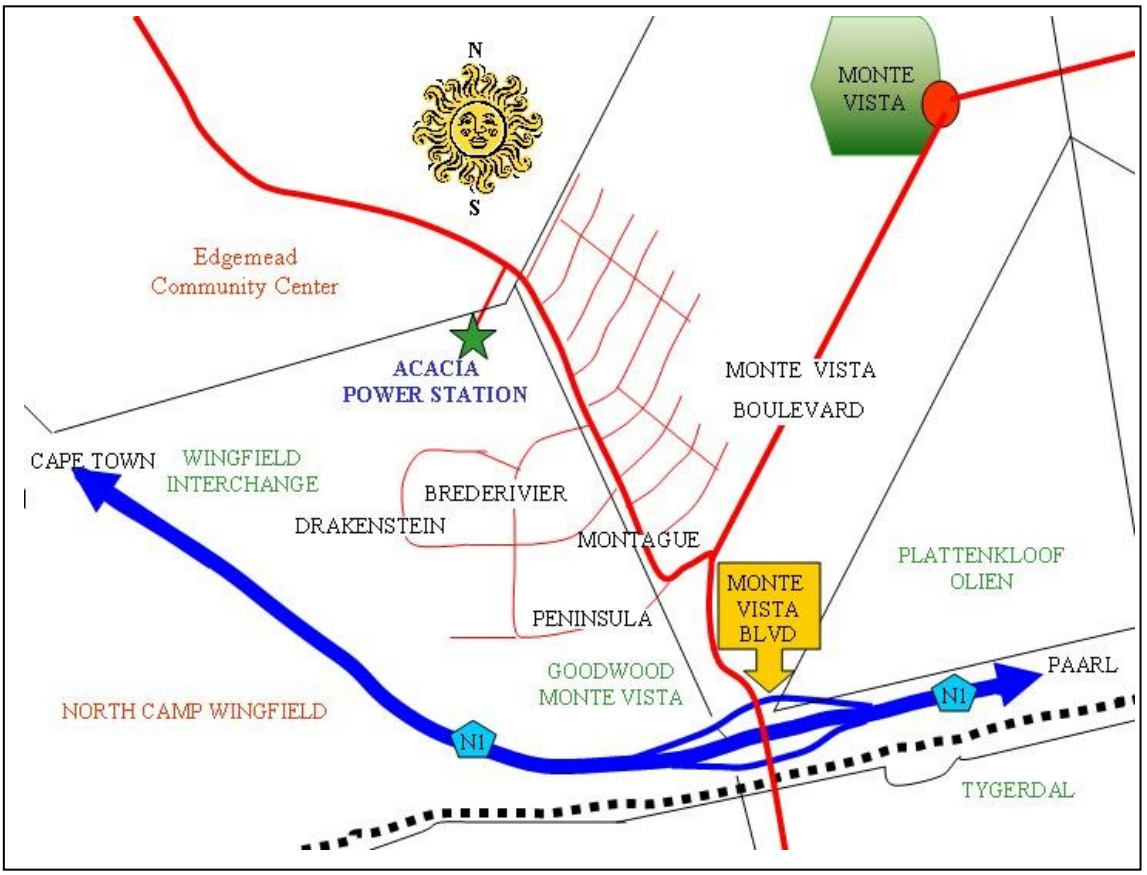

Figure 4.1: Location of Acacia Power Station in Goodwood, Western Cape Province

Figure 4.2: Aerial view of the Acacia Power Station in relation to the surrounding residential areas (indicated by blue arrow)

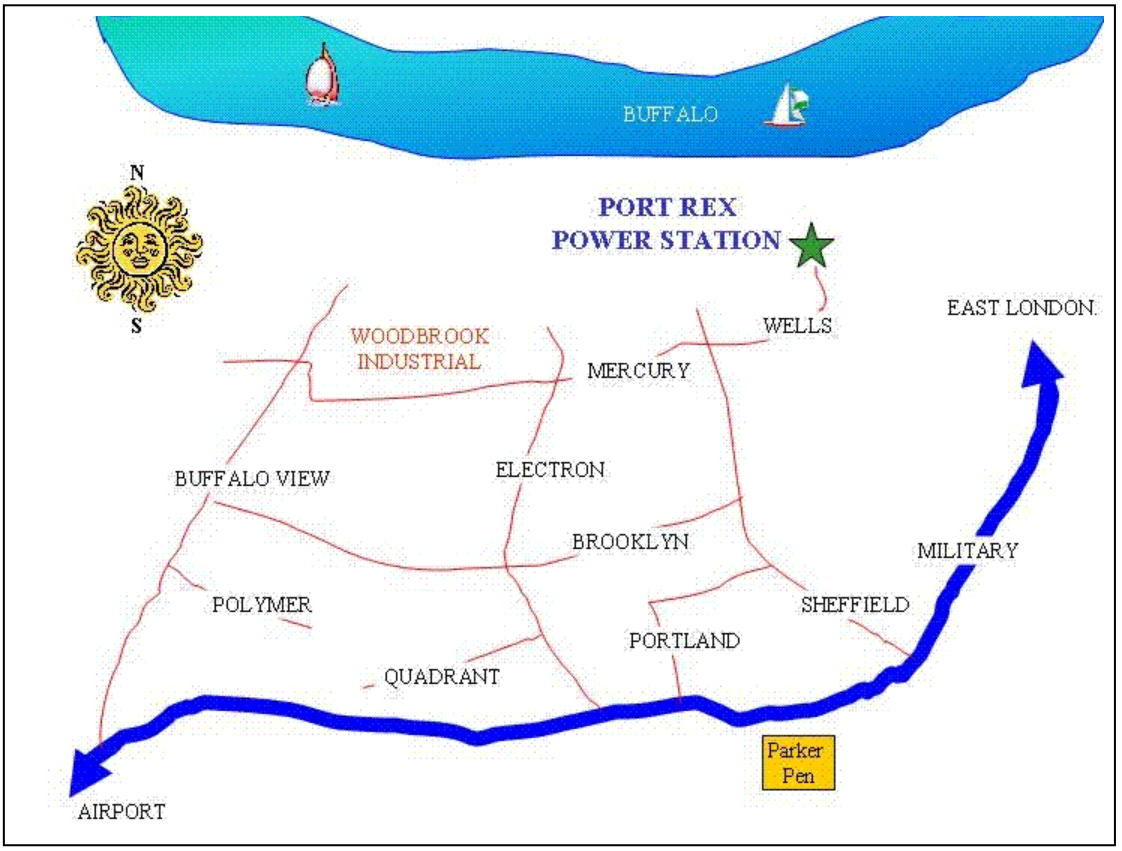

Figure 4.3: Location of Port Rex Power Station in East London, Eastern Cape Province

The Ankerlig Power Station site is far removed from major centres, major tourist attractions and major roads. It is located next to the R307 (Dassenberg Road) that functions as the primary access route to Atlantis and Mamre (north of Atlantis) from Cape Town. The closest major road is the R27 (about 5 km from the site). The R27 functions as the primary connector between Cape Town, Saldanha and the West Coast National Park.

The relocated gas units from the Acacia and Port Rex sites will be developed on the site of the existing Ankerlig Power Station, and will not require any additional land take outside of the existing power station boundaries.

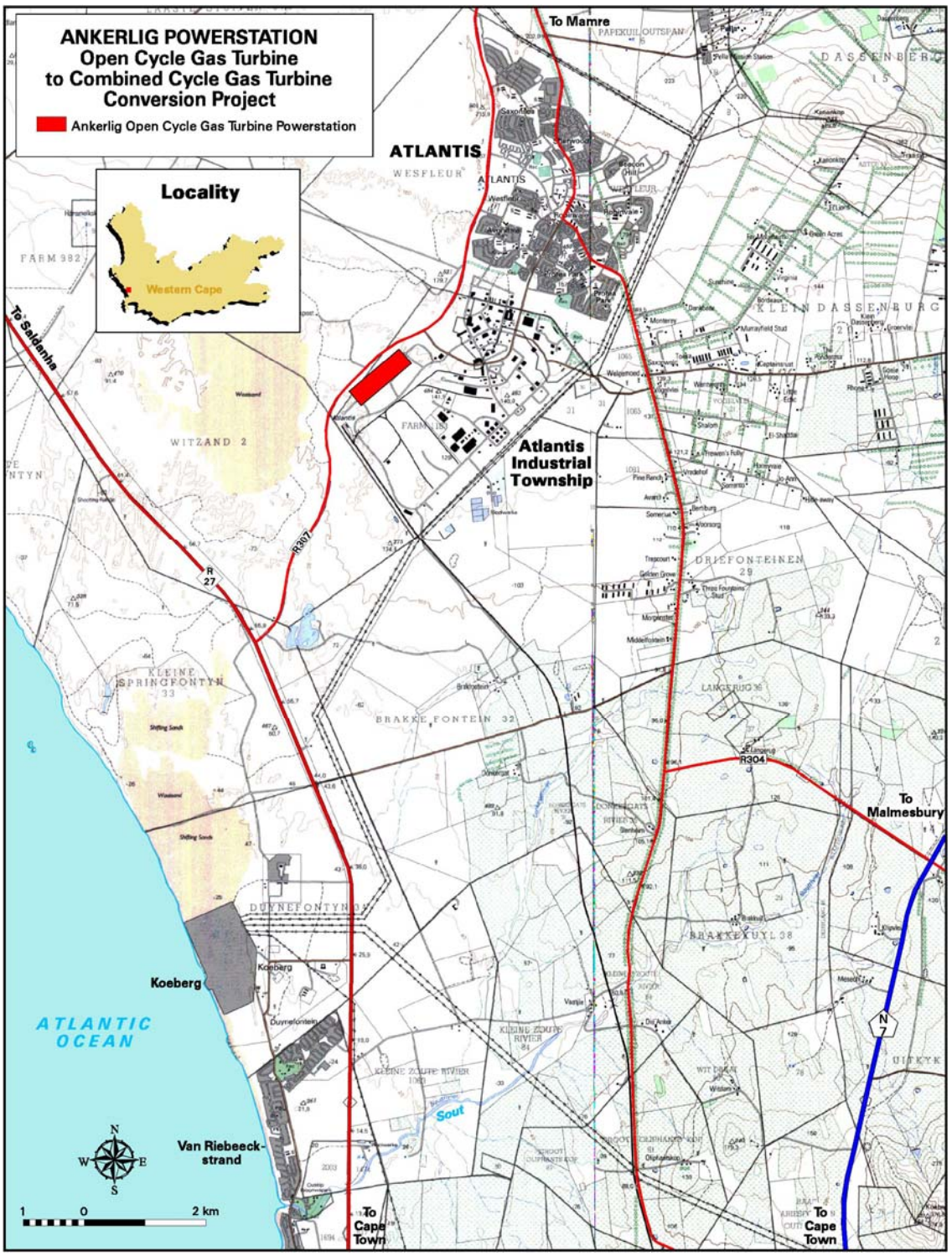

Figure 4.4: Location of Ankerlig Power Station in Atlantis, Western Cape Province

4.2. Social Characteristics of the Area Surrounding the Ankerlig Power Station

Atlantis Industria and its adjoining residential suburb Wesfleur are located ~7 km inland on the Cape West Coast, some 40 km north of Cape Town. Significant landmarks in the wider area are the existing Ankerlig Power Station, Koeberg

Nuclear Power Station located ~9 km to the south-west, and the town of Mamre located ~3 km to the north. Arterial access to the area is provided by the West Coast road (R27) and the N7 national road, and locally by the R307.

The Atlantis Industrial Zone was established as an industrial growth point in the mid-1970s and set up with adequate infrastructure and services to support future growth in the area. The Atlantis industrial area is already served by a tarred industrial road network and essential services (including stormwater, municipal sewer and water supply services and street lighting) which support most of the industrial area. A railway spur is located south of the Ankerlig Power Station site. This railway line is currently not in use.

The residential townships of Atlantis and the informal settlement of Witzand are located between 3-6 km to the north-east and approximately 1 km south of the Ankerlig Power Station site respectively (refer to Figure 4.2). Open farmlands are present to the north, south and east of the site. The area surrounding the power station site is visually dominated by the presence of various types of industrial stacks and buildings located within the surrounding industrial area, and the existing transmission power lines associated with the Ankerlig and Koeberg power stations. The power station site is zoned for industrial use.

The existing noise environment in the Atlantis communities is typical of a suburban residential area next to an industrial zone. The noise environment is affected by localised vehicular traffic, human activities and the industrial activities in the Atlantis Industrial Zone. There is, however, an adequate buffer zone between the industries and the Atlantis communities in order to maintain the noise levels within the recommended guidelines for suburban residential areas.

4.3. Biophysical Characteristics of the Area Surrounding the Ankerlig Power Station

The topography of the Atlantis study area is gently rolling, but generally sloping towards the south. The vegetation of the area is Cape Flats Dune Strandveld in the north-western section, Atlantis Sand Fynbos on the sandy sections and Swartland Shale Renosterveld on the clayey sections (Mucina & Rutherford 2006). Alien plant infestation is considerable and large sections have been transformed.

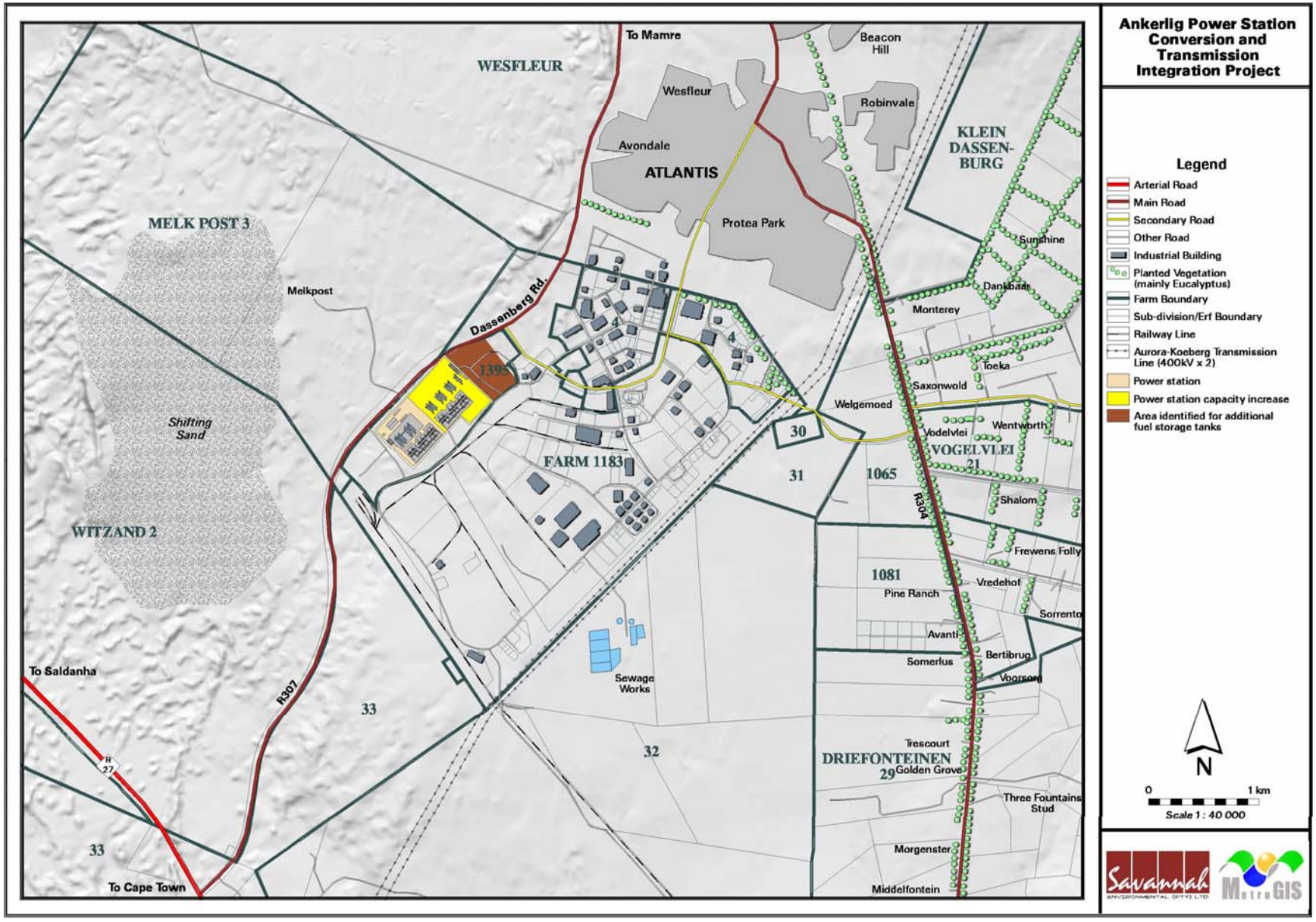

Figure 4.2: Map showing Ankerlig Power Station and surrounding areas

The climate of Atlantis and the Cape West Coast is similar to Mediterranean countries and is influenced by the effects of the nearby Atlantic Ocean, resulting in warm to hot summers and cool winters. The average daily maximum and minimum temperatures in summer are 27°C and 13°C respectively. In winter, the daily temperatures range between an average maximum of 18°C and an average minimum of 6°C.

Rain occurs predominantly in the winter, and the summer months are generally dry. The average annual rainfall is 466 mm. The month with the highest rainfall is July (with a high of 77 mm), and the driest month is February (with a monthly total of 10 mm).

The predominant wind directions in the area are south-westerly to south-easterly during the spring and summer months, and north-westerly to north-north-westerly during the winter months. The strength of the wind is generally greater during the summer months.

The study area is situated on a coastal plain that comprises unconsolidated Cenozoic sediments (mainly quartz sand) associated with the Sandveld Group. These have been deposited on shale bedrock of the Malmesbury Group. The sand deposits average 25 m in thickness, although a maximum of some 80 m is attained in the southwest. Bedrock outcrops of shale occur sporadically along the coast and inland to the north and south of Atlantis. Granite intrusions associated with the Cape Granite Suite are exposed in the vicinity of Mamre. These reach a maximum elevation of some 418 m above sea level in the form of Kanonkop located about 9 km to the northeast.

The western portion of Atlantis Industria occupies a surface elevation of around 125 m above sea level. The land surface slopes gently from northeast to southwest. A variety of other sandy soil types are also found across the area. The landscape can be loosely divided into residential, agricultural, industrial and Fynbos shrub land.

The site occurs within quaternary catchment G21B (304 km^2 in extent) of the Berg Water Management Area. The area is largely devoid of rivers and streams. The most significant surface water drainage feature is the south-westerly draining Donkergat River located some 6 km to the southeast of the site (Figure 4.3). The Donkergat River itself is a major tributary of the Sout River, which enters the Atlantic Ocean at Melkbosstrand. A much smaller drainage, the Buffels River, occurs in the Silwerstroom area to the northwest (Figure 4.3). All streams in the study area have an ephemeral character.

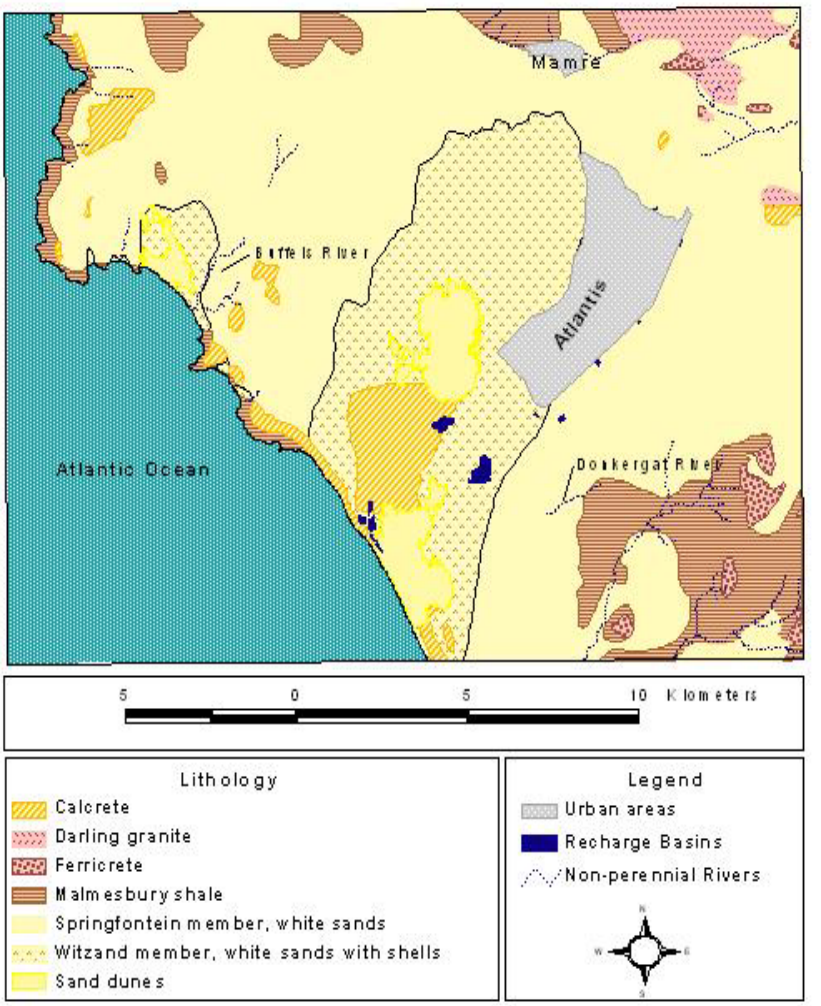

Figure 4.3: Geographical map for Atlantis and its surrounds

A high-yielding spring (approximately 30 L/s) is located at Silwerstroom on the coast, and another at Mamre. Both of these features serve as sources of potable water. Silwerstroom is utilised by the City of Cape Town, and the spring at Mamre represents the original source of water for the Mission Station established there in 1808.

The study area is part of the Cape Floristic Region, a renowned botanical hotspot with a very high percentage of endemic plant species (species restricted to that area) and threatened plant species. Almost 85% of the threatened plants found in South Africa are restricted to the Cape Floristic Region. The vegetation of the area is Cape Flats Dune Strandveld in the north-western section, Atlantis Sand Fynbos on the sandy sections and Swartland Shale Renosterveld on the clayey sections (Mucina & Rutherford 2006). Alien plant infestation is considerable and large sections have been transformed.

The ecology of the Ankerlig Power Station site has been largely transformed through the construction of the existing Ankerlig Power Station. Small portions of vegetation do, however, still exist in areas not directly impacted by construction. Previous investigations of the vegetation of the power station site (Bohlweki Environmental 2005; 2007) have indicated that the vegetation for a large portion of the site has been substantially modified or disturbed by a variety of factors or combinations thereof. In terms of vegetation integrity, the site was described as fragmented with severely disturbed natural drainage patterns. The vegetation on the site was severely degraded and transformed due to human disturbance, e.g. road building, original site clearance and installation of stormwater drainage systems, change of drainage patterns, illegal quarrying of sand, illegal dumping of waste, frequent fires at the wrong time etc. As a result, large areas were totally dominated by alien invader species such as Port Jackson (Acacia saligna) and Rooikrans (A. cyclops). The site is separated from the natural vegetation of the Melk Post and Witsand areas to the north and west by the Dassenberg road (R307).

The proposed transmission power line routes traverse the Atlantis industrial area. Both alternatives identified traverse areas which are already transformed as a result of development in the area, and have been re-colonised by alien invaders (such as Port Jackson (*Acacia saligna*) and Rooikrans (*A. cyclops*)), and fynbos pioneer species.

Given the general nature of the area that is semi-industrialised with an adjacent residential area, the likelihood of occurrence of medium to large sized mammals, as well as sensitive faunal species is considered to be limited. The presence of small mammals, in particular terrestrial rodents and subterranean rodents are more likely to occur in the study area.

Avifaunal diversity in the area is considered to be relatively low, as Fynbos is regarded as relatively poor in avifaunal diversity compared to other southern African biomes. The endemic Fynbos avifauna consists of the Cape Rockjumper, Victorin's Warbler, Cape Sugarbird, Orangebreasted Sunbird, Protea Canary and Cape Siskin. The Black Harrier, a southern African endemic, also uses the Fynbos biome extensively for breeding.

The Cape West Coast Biosphere Reserve is situated in the coastal zone north of Cape Town. Core areas consist of the West Coast National Park, and Dassen and Vondeling Islands. There is also a buffer zone and transition zones. The Atlantis study area is located within the transition zone of the Cape West Coast Biosphere Reserve[7] (refer to www.capebiosphere.co.za/CONSERVATION.55.0.html).

[7] Transition zones are areas of co-operation that contain a variety of land uses, including settlements, where the area's natural resources are sustainably developed for the benefit of those who live there.

Other conservation areas in the region surrounding the power station site include the Koeberg Private Nature Reserve, the Blouberg Nature Reserve and the Blaauw Mountain Private Nature Reserve.

SCOPING OF ISSUES ASSOCIATED WITH THE PROPOSED RELOCATION OF THE ACACIA AND PORT REX GAS UNITS AND THE POWER LINE INTEGRATION CHAPTER 5

This section of the Scoping Report serves to evaluate the identified potential environmental (social and biophysical) impacts associated with the proposed decommissioning of the three (3) gas units at the Acacia and one (1) gas unit at the Port Rex power station sites and the relocation of these units to the Ankerlig Power Station site in Atlantis, as well as the construction of the associated 132kV HV yard and 132kV power line from Ankerlig Power Station to the Koeberg-Dassenberg 132kV line. Potential direct and indirect impacts of the proposed project are identified and evaluated, and recommendations are made regarding further studies required within the EIA phase of the process.

The cumulative impacts associated with the proposed relocation of the units to the Ankerlig Power Station site are expected to be associated with the addition of infrastructure onto the existing power station footprint and are largely associated with visual impacts of the facility on the surrounding environment, as well as impacts associated with air quality and noise impacts. Cumulative effects can only be assessed once the detailed design information becomes available, and will be considered in the detailed specialist studies to be undertaken in the EIA phase.

5.1. Potential Impacts on Air Quality

5.1.1. Nature and Extent of Impacts associated with the decommissioning of the gas units at the Acacia site

The Acacia Power Station is located in close proximity to the residential areas of Bothasig, Edgemead and Monta Vista. The power station currently has an existing impact on the air quality of the local area. The decommissioning of the units at the Acacia Power Station site will remove this existing impact from these areas and is therefore expected to have a positive impact on the air quality at a local level.

5.1.2. Nature and Extent of Impacts associated with the decommissioning of the gas units at the Port Rex site

The Port Rex Power Station is located within the Woodbrook industrial area near East London. The power station currently has an existing impact on the air quality of the local area. The decommissioning of one unit at the Port Rex Power Station site will reduce this existing impact, and is therefore expected to have a positive impact on the air quality at a local level. However, due to the industrial

nature of this area, and the fact that only one unit will be decommissioned, this impact is expected to be of low significance.

5.1.3. Nature and Extent of Impacts associated with the relocation of the gas units to the Ankerlig Power Station site

The Ankerlig Power Station is situated on the western side of the Atlantis Industrial Zone. This area is located approximately 7 km inland from the Cape West Coast, approximately 40 km north of Cape Town. The existing Ankerlig Power Station is approximately 10 km northeast of Eskom's Koeberg Nuclear Power Station. The existing air quality in the area is relatively good. There are several air pollution sources in the Atlantis Industrial area that could potentially have a negative impact on the ambient air quality. Apart from industrial activities in the area and the existing Ankerlig Power Station, other potential air pollution sources include vehicular traffic, domestic fires, ploughed fields and non-vegetated land.

Potentially sensitive receptors surrounding the power station site include (refer to Figure 5.1):

» The residential township of Atlantis
» The informal settlement of Witzand
» Open farmlands in the vicinity of the power station site

Potential impacts are associated with both the construction and operational phases of the proposed relocation project. The main air pollution sources identified to be associated with the proposed power station conversion include (DDA, 2008):

» The various construction activities during the construction phase.
» The turbine combustion emissions during the normal operation phase.
» The turbine combustion emissions during start-up and upset conditions.

» *Potential Impacts during the Construction Phase:*
Dust will be generated through the various construction activities of the relocation of the gas units to the Ankerlig Power Station site. The greatest impact of the dust will be limited to the immediate vicinity of the proposed site. With appropriate mitigation, such as dust suppression, this impact is expected to be of low significance (DDA, 2008). Air pollution impacts arising from exhaust emissions during construction are expected to be of short duration and local extent. The air pollution impacts associated with these activities are anticipated to be small and localised (DDA, 2008) and, therefore, do not require any further investigation.

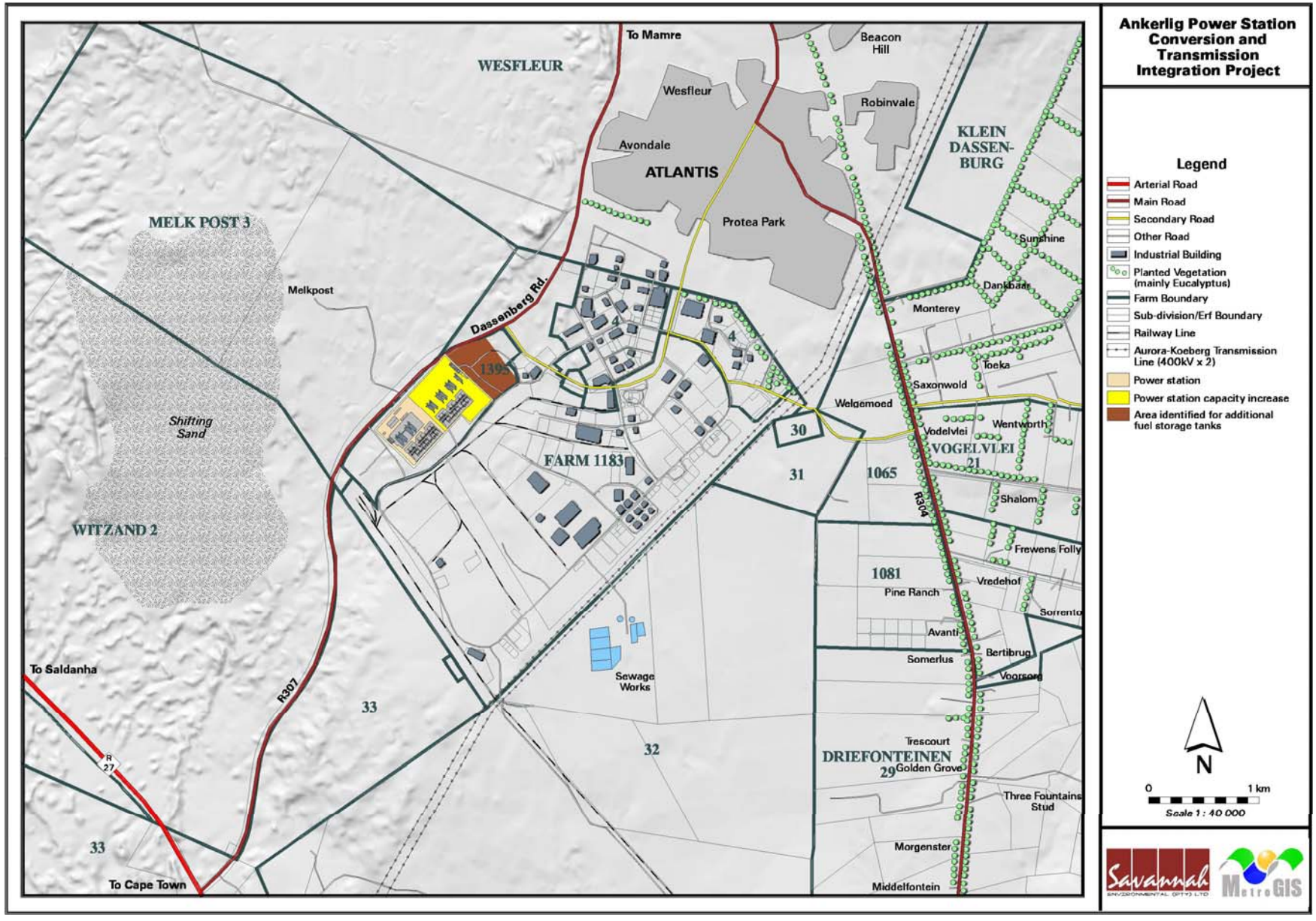

Figure 5.1: Locality map showing the power station site in relation to surrounding areas

» *Potential Impacts during the Operational Phase*
The exhaust emissions during normal operation, start-up and upset conditions can have a negative impact on the air quality of residential townships in close proximity to the power station. Potential impacts are expected to be cumulative at a local level. The extent of the potential impacts associated with all emissions from the Ankerlig Power Station site will need to be quantified and assessed in the EIA.

5.1.4. Nature and Extent of Impacts associated with the 132kV power line between the Ankerlig Power Station and the Koeberg-Dassenberg line and HV Yard

Potential impacts on air quality as a result of the proposed power line and HV yard are expected to be associated with the construction phase. Dust will be generated through the various construction activities, and will be limited to the immediate vicinity of the proposed site. With appropriate mitigation, such as dust suppression, this impact is expected to be of low significance (DDA, 2008). Air pollution impacts arising from exhaust emissions during construction are expected to be of short duration and local extent. The air pollution impacts associated with these activities are anticipated to be small and localised and, therefore, do not require any further investigation.

5.1.5. Conclusions and Recommendations

In order to determine existing air quality and potential air pollution impacts as a result of the proposed decommissioning and relocation of the gas units at Acacia and Port Rex, and to make recommendations with regards to mitigation measures, as well as air quality monitoring (if deemed necessary), a specialist air quality impact assessment must be undertaken in the EIA Phase. This study must consider the following conditions:

» Normal operations
» Start-up and upset conditions

Potential cumulative air quality impacts associated with the addition of the gas units at the Ankerlig Power Station site must be assessed within the EIA phase of the study.

5.2. Potential Noise Impacts

5.2.1. Nature and Extent of Impacts associated with the decommissioning of the gas units at the Acacia site

The Acacia Power Station is located in close proximity to the residential areas of Bothasig, Edgemead and Monta Vista. The power station currently has an existing noise impact on the ambient noise levels of the local area. The decommissioning of the units at the Acacia Power Station site will remove this existing impact from the area and is therefore expected to have a positive impact on the noise levels at a local level.

Noise associated with decommissioning activities is expected to be of local extent and short duration. The decommissioning operations are not expected to have any significant impact on the nearest communities in Bothasig, Edgemead and Monta Vista. The noise impact is therefore expected to be localised and of low significance and, therefore, does not require any further investigation.

5.2.2. Nature and Extent of Impacts associated with the decommissioning of the gas units at the Acacia site

The Port Rex Power Station is located within the Woodbrook industrial area near East London. The power station currently has an existing noise impact on the ambient noise levels of the local area. The decommissioning of one unit at the Port Rex Power Station site will reduce this existing impact, and is therefore expected to have a positive impact on the noise levels at a local level. However, due to the industrial nature of this area, and the fact that only one unit will be decommissioned, this impact is expected to be of low significance.

Noise associated with decommissioning activities is expected to be of local extent and short duration. The decommissioning operations are not expected to have any significant impact on the surrounding area due to the industrial nature of this area. The noise impact is expected to be of low significance and, therefore, does not require any further investigation.

5.2.3. Nature and Extent of Impacts associated with the relocation of the gas units to the Ankerlig Power Station site

The existing noise environment in the residential areas surrounding the Ankerlig Power station is typical of a suburban residential area next to an industrial zone. The noise environment is affected by localised vehicular traffic from the R27 and R307, human activities and the industrial activities in the Atlantis Industrial area.

The acceptable daytime and night time rating levels in a residential district with little road traffic are, respectively, 50 dBA and 40 dBA. For a rural residential district the acceptable levels are, respectively, 45 dBA and 35 dBA. Noise levels measured in the Avondale area (within the Atlantis residential area) as part of the previous EIA processes (Jongens, 2005) were found to be between 35 dBA and 39 dBA, with an average of 38 dBA. The measured ambient noise levels within Atlantis Industria were significantly less than the acceptable daytime rating levels of noise for both a suburban residential district and a rural residential district.

Noise impacts associated with the existing OCGT units at the Ankerlig Power Station on the Atlantis residential area and surrounding farm areas is considered to be limited, and would decrease with increased distance from the power station (DDA, 2007).

» *Potential Impacts during the Construction Phase:*
Noise associated with construction activities is generally of local extent and short duration. The construction operations are not expected to have any significant impact on the nearest communities in Atlantis. The noise impact therefore is expected to be localised and of low significance (DDA, 2008) and, therefore, do not require any further investigation.

» *Potential Impacts during the Operational Phase:*
The relocation of the gas units from Acacia and Port Rex will introduce additional noise sources associated with these units. The type of noise is not expected to differ significantly from that currently generated by the existing OCGT units operating on the site (DDA, 2008). Potential impacts are expected to be cumulative at a local level. The extent of the potential impacts associated with all noise sources from the Ankerlig Power Station site will need to be quantified and assessed in the EIA.

5.2.4. Nature and Extent of Impacts associated with the 132kV power line between the Ankerlig Power Station and the Koeberg-Dassenberg line and HV Yard

Potential noise impacts as a result of the proposed power line and HV yard are expected to be associated with the construction phase. Noise associated with construction activities is generally of local extent and short duration. The construction operations are not expected to have any significant impact on the nearest communities in Atlantis. The noise impact is therefore expected to be localised and of low significance and, therefore, does not require any further investigation.

5.2.5. Conclusions and Recommendations

In order to determine potential noise impacts as a result of the proposed decommissioning and relocation of the gas units at Acacia and Port Rex and to make recommendations with regards to mitigation measures, as well as noise monitoring (if deemed necessary), a specialist noise impact assessment must be undertaken in the EIA Phase. In particular, potential cumulative noise impacts associated with the addition of the gas units at the Ankerlig Power Station site must be assessed.

5.3. Potential Visual Impacts

5.3.1. Nature and Extent of Impacts associated with the decommissioning of the gas units at the Acacia site

The Acacia Power Station is located in close proximity to the residential areas of Bothasig, Edgemead and Monta Vista. The power station currently has an existing visual impact on the local area. The decommissioning of the units at the Acacia Power Station site will reduce this existing impact from the area and is therefore expected to have a positive impact on the visual quality at a local level. The existing transmission HV yard will not be decommissioned, and therefore this positive impact is expected to be limited.

5.3.2. Nature and Extent of Impacts associated with the decommissioning of the gas units at the Port Rex site

The Port Rex Power Station is located within the Woodbrook industrial area near East London. The power station currently has an existing visual impact on the local area. The decommissioning of one unit at the Port Rex Power Station site will reduce this existing impact and is therefore expected to have a positive impact on the visual quality at a local level. However, due to the industrial nature of this area, and the fact that only one unit will be decommissioned, this impact is expected to be of low significance.

5.3.2. Nature and Extent of Impacts associated with the relocation of the gas units to the Ankerlig Power Station site

The Ankerlig Power Station site is removed from major centres, tourist attractions and major roads. It is located next to the R307 (Dassenberg Road) that functions as the primary access route to Atlantis and Mamre (north of Atlantis) from Cape Town. The closest major road is the R27 (about 5 km from the site). The R27 functions as the primary connector between Cape Town, Saldanha and the West Coast National Park. Significant landmarks in the wider area are the existing

Ankerlig Power Station, Koeberg nuclear power station located some 9 km to the south-west, and the town of Mamre located some 3 km to the north.

The relocation of the gas units from the Acacia and Port Rex power station sites, as a visual concern, primarily entails the addition of infrastructure to the existing power station site (MetroGIS, 2008). The OCGT units will be similar in nature to the existing units on the Ankerlig Power Station site. Impacts are expected to largely be cumulative at a local level. The placement of the relocated units alongside Neil Hare will assist in reducing the cumulative visual impact from the R307.

5.3.3. Nature and Extent of Impacts associated with the 132kV power line between the Ankerlig Power Station and the Koeberg-Dassenberg line and HV Yard

The visibility of the transmission power line and HV yard from the surrounding areas is considered to be the major impact associated with a development of this nature. The visual impact associated with the proposed 132kV power line between the Ankerlig Power Station and the Koeberg-Dassenberg line is expected to largely be cumulative at a local level.

The 132kV HV yard is proposed to be constructed alongside the existing transmission HV yard within the Ankerlig Power Station site. This existing HV yard has a visual impact on the surrounding area. The addition of the 132kV HV yard is not expected to add significantly to this existing impact.

5.3.4. Comparison of the power line alternative corridors identified for the 132kV power line between the Ankerlig Power Station and the Koeberg-Dassenberg line

Option 3 would have a high visual impact on users of the R307, as well as on recreational users of the dunes to the north-west of the power station. This option is therefore not preferred from a visual perspective.

Adoption of Option 2 (i.e. following the existing lines from the Ankerlig power station to the Koeberg-Aurora lines) will result in the consolidation of power line infrastructure, thereby minimising the visual impact of the new line to some extent. Option 1 passes through the Atlantis Industrial area. As the visual quality of the area is already impacted by industrial activities, visual impacts associated with the proposed power line along this route are not expected to be of high significance. Therefore, **Options 1 and 2** are both considered to be acceptable from a visual perspective.

5.3.5. Conclusions and Recommendations

Further investigation is necessary in order to determine the specific visual impact associated with the relocation of the Acacia and Port Rex gas units, and the construction of the 132kV power line and HV yard (i.e. the potential occurrence of sensitive visual receptors). The visual impact assessment within the EIA will address issues related to the visibility of the relocated units and the 132kV power line, as well as potential cumulative visual impact of the power station conversion project. These issues or criteria will aim to quantify the actual visual impact and to identify areas of perceived visual impact.

5.4. Potential Impacts on Vegetation and Ecology

The study area falls within the Cape Floristic Region, a renowned botanical hotspot with a very high percentage of endemic plant species (species restricted to that area) and threatened plant species. Almost 85% of the threatened plants found in South Africa are restricted to the Cape Floristic Region. Cape Flats Dune Strandveld is the main vegetation type within the area surrounding the Ankerlig Power Station site. This vegetation type is regarded as an Endangered vegetation type in terms of the NSBA (Rouget et al., 2004), and is restricted to the Atlantis area, the Cape Flats, and the south Peninsula.

5.4.1. Nature and Extent of Impacts associated with the decommissioning of the gas units at the Acacia and Port Rex sites

The Acacia and Port Rex power station are located on already disturbed sites. The decommissioning of the gas units at these power station sites will therefore not impact on vegetation and ecology.

5.4.2. Nature and Extent of Impacts associated with the relocation of the gas units to the Ankerlig Power Station site

The ecology of the power station site has been largely transformed through the construction of the existing Ankerlig Power Station. Therefore, the relocation of the gas units from the Acacia and port Rex power station sites to the Ankerlig Power Station site is not expected to impact on vegetation and ecology of the proposed site.

5.4.3. Nature and Extent of Impacts associated with the 132kV power line between the Ankerlig Power Station and the Koeberg-Dassenberg line and HV Yard

Impacts on natural vegetation during construction and operation of the power line will include permanent direct loss of vegetation in the footprints of the towers, temporary damage to vegetation in the areas around the towers and along the cable stringing route (construction phase), and damage to natural vegetation within the servitude as a result of repeated bushcutting for stringing (construction phase) as well as line maintenance (operational phase) and the construction of an access road for construction and maintenance purposes (where access is not already provided) (Helme, 2008).

The ecology of the power station site has been largely transformed through the construction of the existing Ankerlig Power Station. Therefore, the construction of the 132kV HV yard adjacent to the existing transmission HV yard is not expected to have any impacts on vegetation and ecology.

5.4.4. Comparison of the power line alternative corridors identified for the 132kV power line between the Ankerlig Power Station and the Koeberg-Dassenberg line

The study area falls within the Cape Flats Dune Strandveld. This vegetation type is regarded as an Endangered vegetation type in terms of the NSBA (Rouget et al 2004), and is restricted to the Atlantis area, the Cape Flats, and the south Peninsula (Helme, 2008). Vegetation to the north of the R307 is expected to be relatively undisturbed and could provide habitat to sensitive or Red Data species. Impacts on vegetation as a result of the construction of the power line along this alignment could therefore be significant within this section of the route. Option 3 is therefore not preferred from a botanical or ecological perspective.

Very little natural vegetation remains within the area which could potentially be impacted by power line alternative options 2 and 3. The presence of rare and/or threatened species is unlikely due to the disturbed nature of the area (Bohlweki Environmental, 2005). Impacts on vegetation and ecology as a result of the construction of the proposed 132kV power line are expected to be localised and of low significance with the adoption of **Options 1 or 2**. Therefore these alternatives are considered to be acceptable from a vegetation and ecology perspective.

5.4.5. Conclusions and Recommendations

It is recommended that a botanical specialist study of the nominated preferred alternative power line route/s be undertaken as part of the EIA Phase in order to confirm the status of the vegetation and the likelihood of occurrence of rare and/or threatened flora species. As far as possible, this survey should be undertaken during the period June – August.

5.5. Potential Impacts on Avifauna

The study area falls within the Cape Floristic Region. This biome is characterised by a high diversity in plant species composition and endemism. This diversity is not paralleled in its avifaunal composition, and Fynbos is regarded as relatively poor in avifaunal diversity compared to other southern African biomes. Red data species which are likely to occur in the broader area surrounding the Ankerlig Power Station site include Black Harrier, Lanner Falcon, Karoo Lark, and Blackrumped Buttonquail (Hottentot Buttonquail) (Bohlweki Environmental, 2005).

5.5.1. Nature and Extent of Impacts associated with the decommissioning of the gas units at the Acacia and Port Rex sites

The Acacia and Port Rex power stations are located on already disturbed sites. The decommissioning of the gas units at these power station sites will therefore not impact on avifauna.

5.5.2. Nature and Extent of Impacts associated with the relocation of the gas units to the Ankerlig Power Station site

The ecology of the power station site has been largely transformed through the construction of the existing Ankerlig Power Station. Therefore, the relocation of the gas units from the Acacia Power Station site to the Ankerlig Power Station site is not expected to impact on avifauna or habitats likely to be available to avifauna in the area.

5.5.3. Nature and Extent of Impacts associated with the 132kV power line between the Ankerlig Power Station and the Koeberg-Dassenberg line and HV Yard

Due to their size and prominence, electrical infrastructure constitutes an important interface between wildlife and man. Negative interactions between wildlife and electricity structures take many forms, but two common problems in southern Africa are electrocution of birds (and other animals) and birds colliding with power lines. Other problems are: electrical faults caused by bird excreta

when roosting or breeding on electricity infrastructure; and disturbance and habitat destruction during the construction and maintenance activities associated with electrical infrastructure (EWT, 2007).

Electrocution refers to the scenario where a bird is perched or attempts to perch on the electrical structure and causes an electrical short circuit by physically bridging the air gap between live components and/or live and earthed components.

Collision refers to the scenario where a bird collides with the conductors or earth wires of overhead power lines. The groups of birds most severely impacted by collision with overhead lines are bustards, storks and cranes. These species are generally large, heavy-bodied birds with limited manoeuvrability, which makes it difficult for them to take the necessary evasive action to avoid colliding with power lines. An unknown number of smaller, fast-flying species – especially pursuit hunting raptors such as falcons - are also prone to colliding with power lines. Unfortunately, many collision-sensitive species are considered threatened in southern Africa, and many are long-lived, slow reproducing species poorly adapted to coping with high rates of adult mortality, inflated by power line casualties.

On the proposed 132kV pole structure the larger bird species are those of any real concern in terms of electrocution as these species are potentially able to span the sizeable air gaps which separate the various elements on these structures (EWT, 2007). However, provided that suitably bird-friendly tower designs are used in the erection of the new line, as should be the case in all new power line installations, electrocution of birds should not be a significant issue.

During the construction phase and maintenance of power lines some **habitat destruction and alteration** inevitably takes place. This happens with the construction of access roads and the clearing of servitudes. Taller vegetation (>4m in height) within power line servitudes has to be trimmed at regular intervals in order to prevent vegetation from intruding into the legally prescribed clearance gap between the ground and the conductors, and to minimise the risk of fire under the line which can result in electrical flashovers. These activities have an impact on birds breeding, foraging and roosting in or in close proximity to the servitude through modification of habitat. Similarly, these activities impact on birds through disturbance, particularly during the bird's breeding activities. As a result of the generally disturbed nature of the area through which the proposed power line alternatives pass, this impact is expected to be of low significance.

The ecology of the power station site has been largely transformed through the construction of the existing Ankerlig Power Station. Therefore, the construction

of the 132kV HV yard adjacent to the existing transmission HV yard is not expected to have any impacts on avifauna or avifaunal habitats.

5.5.4. Comparison of the power line alternative corridors identified for the 132kV power line between the Ankerlig Power Station and the Koeberg-Dassenberg line

Option 3 traverses relatively undisturbed habitats to the north of the R307. These areas may provide habitats to certain sensitive avifauna species. In addition, this route would stand alone in the landscape for most of its route, particularly where it crosses this undisturbed vegetation. This option is therefore not preferred from an avifauna perspective.

Option 2 runs close to and parallel with the existing Ankerlig-Koeberg and proposed Ankerlig-Omega power lines along its entire length. This option has the distinct advantage from an avifauna perspective as this option minimises the length of a new, isolated power line, and effectively reduces the collision risk for both the new line and the existing ones by grouping the entire assemblage together, hugely improving the conspicuousness of all the overhead lines traversing this area (EWT, 2008). The existing road infrastructure on this alignment would also largely negate the need for new construction and maintenance roads, reducing the overall impact of the power line.

Option 1 passes through the Atlantis Industrial area. Very little natural vegetation remains within the area. Therefore, habitats for sensitive bird species are unlikely to be present.

Therefore, **Options 1 and 2** are both considered to be acceptable from a visual perspective.

5.5.6. Conclusions and Recommendations

It is recommended that an avifaunal specialist study of the preferred alternative power line route/s be undertaken as part of the EIA Phase in order to confirm the likelihood of occurrence of potential impacts.

5.6. Potential Impacts on Heritage Sites

Numerous fossil and archaeological sites have been recorded in the broader study area. No specific heritage surveys have been carried out for this project at this stage, as sufficient information was obtainable from existing information. However, in general the receiving environment tends to be fairly featureless, somewhat neglected and situated well away from any scenic routes, tourist destinations or any other places of cultural significance (Hart, 2005).

5.6.1. Nature and Extent of Impacts associated with the decommissioning of the gas units at the Acacia and Port Rex sites

The Acacia and Port Rex power stations are located on already disturbed sites. The decommissioning of the gas units at these power station sites will therefore not impact on any heritage sites.

5.6.2. Nature and Extent of Impacts associated with the relocation of the gas units to the Ankerlig Power Station site

The Ankerlig Power Station site has been largely transformed through the construction of the existing power station. Therefore, the relocation of the gas units from the Acacia Power Station site to the Ankerlig Power Station site is not expected to impact on any heritage sites.

5.6.3. Nature and Extent of Impacts associated with the 132kV power line between the Ankerlig Power Station and the Koeberg-Dassenberg line and HV Yard

Given the relatively low sensitivity of the proposed development area, it is anticipated that the power line route, with the limited footprint of the towers will result in very few impacts to a heritage depleted environment. Furthermore, very little of the proposed routes crosses undeveloped land (Bohlweki Environmental, 2007).

The power station site has been largely transformed through the construction of the existing Ankerlig Power Station. Therefore, the construction of the 132kV HV yard adjacent to the existing transmission HV yard is not expected to have any impacts on heritage resources, as any which may have occurred on this site are likely to have already been disturbed or destroyed.

5.6.4. Comparison of the power line alternative corridors identified for the 132kV power line between the Ankerlig Power Station and the Koeberg-Dassenberg line

Impacts on any heritage sites as a result of the construction of the proposed 132kV power line are expected to be localised and of low significance regardless of the alternative selected. Therefore any of the options identified is considered to be acceptable from a heritage perspective.

5.4.5. Conclusions and Recommendations

In order to confirm the likelihood of occurrence of heritage resources, it is recommended that a heritage specialist study be undertaken for the nominated preferred alternative power line route/s as part of the EIA Phase.

In addition, once the location of the actual tower footprints is known, these can be field proofed for archaeological material, and if necessary, mitigated. This can be undertaken during the detailed EMP phase after surveying and profiling of the power line alignment within the authorised power line corridor.

5.7. Potential Impacts on the Social Environment

5.7.1. Nature and Extent of Impacts associated with the decommissioning of the gas units at the Acacia site

The Acacia Power Station is located in close proximity to the residential areas of Bothasig, Edgemead and Monta Vista. Impacts on the social environment associated with the decommissioning phase could include:

» **Intrusion impacts** associated with decommissioning activities (such as noise, etc) is expected to be of local extent and short duration on the nearest communities in Bothasig, Edgemead and Monta Vista (refer to Section 5.2).
» **Local traffic impacts** associated with construction vehicles and vehicles transporting components from the Acacia Power Station site. The potential impact on daily movement patterns as a result of construction traffic is expected to be of low to medium significance at a regional scale[15] in the short term (18-24 months). The assessment of this impact will be informed by the Transport Study to be undertaken in the EIA phase.

There may be limited employment opportunities associated with the decommissioning of the Acacia units. However, the majority of these employment opportunities are expected to require skilled personnel. Therefore, any benefits to local communities would be limited.

The Acacia Power Station currently has an existing impact on the local area in terms of air quality, noise and visual quality. The decommissioning of the units at the Acacia Power Station site will remove these existing impacts from the area and is therefore expected to have a positive impact on the social environment at

[15] Because this impact may be felt along access routes between the supply point of the power station components (possibly Cape Town harbour) and the Ankerlig Power Station site, and not only within communities adjoining the site, the extent of the impact may be widespread rather than concentrated in the study area (Afrosearch 2005).

a local level. The existing transmission HV yard will not be decommissioned, and therefore this positive impact is expected to be limited.

Land use of the site after decommissioning and relocation of the units is expected to be commercial and/or industrial. The transmission HV yard on the site will remain in operation, and may be extended in the future. The remainder of the site will remain in use by Eskom, possibly for use as offices.

5.7.2. Nature and Extent of Impacts associated with the decommissioning of the gas units at the Port Rex site

Due to the industrial nature of the area within which the Port Rex Power Station is located, impacts on the social environment are expected to be limited to impacts associated with the transport of components between the Port Rex site and the Ankerlig Power Station. Potential impacts are expected to be similar to those associated with the relocation of the units from the Acacia Power Station site as discussed above.

There may be limited employment opportunities associated with the decommissioning of the Port Rex unit. However, the majority of these employment opportunities are expected to require skilled personnel. Therefore, any benefits to local communities would be limited.

The Port Rex Power Station currently has an existing impact on the local area in terms of air quality, noise and visual quality. The decommissioning of the units at the Acacia Power Station site will reduce these existing impacts from the area and is therefore expected to have a positive impact on the social environment at a local level. However, due to the industrial nature of the area within which the power station is located, this positive impact is expected to be limited.

As two of the three units at the Port Rex site will remain in operation at this site, the land use of the site will remain that of a power station.

5.7.3. Nature and Extent of Impacts associated with the relocation of the gas units to the Ankerlig Power Station site

The Ankerlig Power Station site is located within the Koeberg and Blaauwberg sub-councils of the City of Cape Town Metropolitan Municipality in the Western Cape Province. The population potentially affected by the development include residents of Atlantis, particularly the suburbs of Avondale, Wesfleur, Protea Park, Beacon Hill and Robinvale, and the nearby informal settlement of Witsand, situated in close proximity to the Industrial area.

Potential impacts on the social environment as a result of the proposed relocation of the OCGT units from Acacia could include:

» **Local traffic impacts** associated with construction vehicles and vehicles transporting components from the Acacia Power Station site to the Ankerlig Power Station site. Increase in traffic during the construction phase can potentially result in the disruption of daily movement patterns. Depending on access routes that are used, construction vehicles could impact on safety and daily movement patterns of residents in surrounding communities. The magnitude of this impact will depend on current traffic volumes, traffic volumes that will be associated with construction activities, as well as construction schedules (Afrosearch 2005). The potential impact on daily movement patterns as a result of construction traffic is expected to be of low to medium significance at a regional scale[16] in the short term (18-24 months). The assessment of this impact will be informed by the Transport Study to be undertaken in the EIA phase.
» **Impacts on Sense of Place[17]**. As the OCGT units from Acacia are proposed to be relocated to the existing Ankerlig Power Station site in the Atlantis Industrial Area, impact on sense-of place can be expected to be limited. To the extent that such impacts may occur, their significance would relate largely to other impacts, notably visual and noise impacts, as well as impacts on air quality and traffic volumes, which need to be taken into consideration in assessing this impact (refer to Sections 5.1, 5.2 and 5.3).
» **Impacts on Health and Safety**. Concern has been expressed throughout previous public participation processes for the Ankerlig Power Station regarding potential health and safety implications that may result from potential impacts on air quality during operation, and transportation and storage of fuel. These potential impacts were assessed within the initial OCGT power station (Bohlweki Environmental, 2005) and the power station expansion (Bohlweki Environmental, 2007). The findings of these studies will be used as the basis for the assessment of these potential impacts on the social environment during the EIA process. Impacts are expected to be localised and of low to medium significance.

There may be limited employment opportunities associated with the relocation and commissioning of the Acacia units at the Ankerlig Power Station site.

[16] As this impact may be felt along access routes between the supply point of the power station components (possibly Cape Town harbour) and the Ankerlig Power Station site, and not only within communities adjoining the site, the extent of the impact may be widespread rather than concentrated in the study area (Afrosearch 2005).

[17] The term sense of place has been defined and utilised in different ways by different people. To some, it is a characteristic some geographic places have and some do not, while to others it is a feeling or perception held by people (not by the place itself). It is often used in relation to those characteristics that make a place special or unique, as well as to those that foster a sense of authentic human attachment and belonging.

However, the majority of these employment opportunities are expected to require skilled personnel. Therefore, any benefits to local communities would be limited.

5.7.4. Nature and Extent of Impacts associated with the 132kV power line between the Ankerlig Power Station and the Koeberg-Dassenberg line and HV yard

Impacts on the social environment as a result of the proposed transmission power line will be associated with both the construction and operational phases. Potential impacts on the social environment as a result of the proposed relocation of the OCGT units from Acacia could include:

» **Increase in traffic** during the construction phase could result in the disruption of daily movement patterns. Depending on access routes that are used, construction vehicles could impact on safety and daily movement patterns of residents in surrounding communities. The significance of this impact will depend on current traffic volumes, traffic volumes that will be associated with construction activities, as well as construction schedules (Afrosearch 2005), but is expected to be similar to that experienced during the construction phases associated with the power lines from the OCGT power station (initial 4 units). Impacts are expected to be localised and of short-term duration.
» **Impacts on current land use**. Alternative B could potentially impact on the existing industrial activities within the Atlantis Industria area. Alternative A would follow the existing Ankerlig-Koeberg and proposed Ankerlig-Omega power lines along its entire length and would minimise impacts on land uses.

There may be limited employment opportunities associated with the construction of the 132kV power line and HV yard. However, the majority of these employment opportunities are expected to require skilled personnel. In addition, no additional employment opportunities are expected to be associated with the maintenance phase as power lines already exist within the area and Eskom would have an existing maintenance team. Therefore, any benefits to local communities are expected to be limited to non-skilled jobs which may be associated with the construction phase.

The 132kV HV yard is proposed to be constructed alongside the existing transmission HV yard within the Ankerlig Power Station site. This existing HV yard has an existing impact on the surrounding area (particularly in terms of visual mpacts). The addition of the 132kV HV yard is not expected to add significantly to this existing impact.

5.7.5. Comparison of the power line alternative corridors identified for the 132kV power line between the Ankerlig Power Station and the Koeberg-Dassenberg line

Option 3 would have a high visual impact on users of the R307, as well as on recreational users of the dunes to the north-west of the power station. This option could therefore impact on the tourism potential of these dunes. This option is not preferred from a social perspective.

Adoption of Option 2 (i.e. following the existing lines from the Ankerlig power station to the Koeberg-Aurora lines) would result in the consolidation of power line infrastructure, thereby minimising the impact on the social environment associated with the new line to some extent. Option 1 passes through the Atlantis Industrial area. As the visual quality of the area is already impacted by industrial activities, visual impacts associated with the proposed power line along this route are not expected to be of high significance. In addition, no residences or industrial activities are expected to be impacted by this option. Therefore, impacts on the social environment with the adoption of options 2 or 3 are not expected to be significant. **Options 1 and 2** are both considered to be acceptable from a social perspective.

5.7.6. Conclusions and Recommendations

In order to assess the potential impacts on the social environment associated with the proposed relocation of the Acacia and Port Rex gas units and the construction and operation of the proposed power line and HV yard, a Social Impact Assessment (SIA) must be undertaken within the EIA phase of the project.

5.8. Nomination of Preferred Power Line Alternative

From the evaluation of the alternative power line alternatives identified for the Koeberg-Dassenberg power line, it is concluded that **Option 3** is **not** considered to be **preferred** from an environmental perspective.

As **Options 1 and 2** cross a disturbed, industrial area, impacts on the environment with the adoption of either of these alternatives are not expected to be significant. Therefore, these alternatives are considered to be acceptable from an environmental perspective and are nominated for further investigation in the EIA Phase of the process.

5.9. Impacts associated with the 'Do-nothing' Alternative

The 'do-nothing' alternative is the option of not addressing the overload condition on the existing Koeberg-Acacia 400kV line which under certain network conditions

is not acceptable. From a system operations, perspective the do-nothing option will result in the unnecessary tripping of Koeberg generator units under certain network conditions in order to be in compliance with the Grid Code. This situation cannot be accommodated in terms of the national electricity grid.

Therefore, this option is rejected as a feasible alternative.

CONCLUSIONS AND RECOMMENDATIONS CHAPTER 6

Eskom Holdings Limited (Eskom) is, therefore, investigating the decommissioning of the existing Acacia aero derivative gas turbine units and the relocation of these units to the existing Ankerlig Power Station site in Atlantis, to stabilise the transmission network in the area and ensure the required dedicated emergency back-up power supply to the Koeberg Nuclear Power Station. In addition, in order to provide additional operational flexibility, an additional aero derivative gas turbine units is proposed to be decommissioned and relocated to the Ankerlig Power Station site from the Port Rex site in East London.

Eskom is also proposing to turn the existing Koeberg-Dassenberg 132 kV line into Ankerlig and supply the dedicate line to connect the aero derivative gas turbines to Koeberg. This 132kV power line would be connected to a new 132kV HV yard adjacent to the now-to-be extended substation (high voltage (HV) yard) at the Ankerlig Power Station. A 400/132kV transformer will be added to Ankerlig for effective network integration. This 132kV HV yard would be accommodated within the existing Ankerlig Power Station site.

The Scoping Study has been undertaken in accordance with the EIA Regulations published in Government Notice 28753 of 21 April 2006, in terms of Section 24(5) of the National Environmental Management Act (NEMA; Act No 107 of 1998). This report aimed at detailing the nature and extent of the proposed project, identifying potential issues associated with the proposed project, and defining the extent of studies required within the EIA. This evaluation was largely based on existing information and the findings of studies undertaken for the EIA for the Ankerlig OCGT Power Station (Bohlweki Environmental, 2005), as well as that for the expansion of the Ankerlig Power Station (Bohlweki Environmental, 2007), and the Scoping Study undertaken for the Ankerlig Conversion and Transmission Integration Project (Savannah Environmental, 2008).

A summary of the conclusions and recommendations of the evaluation of the proposed relocation of the Acacia and Port Rex units and construction of a 132kV power line and HV yard is provided below. Recommendations regarding the scope of investigations required to be undertaken within the EIA are provided within the Plan of Study for EIA (refer to Chapter 7).

6.1. Conclusions drawn from the Evaluation of the Proposed Decommissioning of the Gas Units at the Acacia Power Station Site

The existing three gas units at the existing Acacia Power Station site near Goodwood will be decommissioned and will be relocated to the existing Ankerlig Power Station site near Atlantis.

In general, impacts associated with the decommissioning of the units are expected to be localised in the short-term. The power station currently has an existing air quality, noise and visual impact on the local area. The decommissioning of the units at the Acacia Power Station site will remove this existing impact from the area and is therefore expected to have a positive impact on the local environment. The existing transmission HV yard will not be decommissioned, and therefore the positive impact in terms of aesthetics of the local area is expected to be limited.

6.2. Conclusions drawn from the Evaluation of the Proposed Decommissioning of the Gas Unit at the Port Rex Power Station Site

One of the existing gas units at the Port Rex Power Station site in the Woodbrook industrial area of East London will be decommissioned and will be relocated to the existing Ankerlig Power Station site near Atlantis.

In general, impacts associated with the decommissioning of the units are expected to be localised in the short-term. The power station currently has an existing air quality, noise and visual impact on the local area. The decommissioning of one of the units at the Port Rex Power Station site will reduce this existing impact and is therefore expected to have a limited positive impact on the local environment.

6.3. Conclusions drawn from the Evaluation of the relocation of the OCGT units to the Ankerlig Power Station site

The existing gas units will be decommissioned at the Acacia and Port Rex power station sites, and will be relocated to the existing Ankerlig Power Station site near Atlantis. No additional land take will be required outside of the existing power station boundaries for the establishment of these units. Potential impacts associated with the proposed relocation of the units are expected to occur during both the construction and operational phases. New impact sources associated with the relocation of these units are expected to be cumulative at a local level and would mainly include:

» **Visual impacts** as a result of the additional gas infrastructure and 132kV HV yard on the site.

- **Air quality impacts** associated with the construction phase (dust) and the operational phase (emissions from the OCGT units).
- **Noise impacts** associated with the OCGT units.
- **Impacts on the social environment** as a result of intrusion impacts associated with the construction phase, as well as traffic movements associated with the relocation of the units from the Acacia Power Station site to the Ankerlig Power Station site.

No environmental fatal flaws have been identified to be associated with the proposed relocation of the gas units at this stage of the project. Detailed specialist studies are required to be undertaken within the EIA phase of the process (refer to Chapter 7).

6.3. Conclusions drawn from the Evaluation and Comparison of the Proposed Power Line Alternatives

Three technically feasible alternative power line alignment corridors (approximately 500 m in width) have been identified for investigation within the EIA process (refer to Figure 2.2). Potential impacts associated with the proposed power line are expected to occur during the construction and operational phases, and have been identified through this scoping process include:

- **Impacts on flora and fauna** as a result of the disturbance of habitats within the power line servitude and at tower footprints.
- **Impacts on avifauna** as a result of collisions with the earthwire, electrocution and disturbance of habitats within the power line servitude.
- **Impacts on heritage sites** as a result of disturbance or destruction during the construction phase, as well as due to visual impacts on heritage sites. No heritage sites have, however, been identified within the study area and therefore no impacts are expected as a result of the proposed project.
- **Visual impacts** on the surrounding area.
- **Impacts on the social environment** as a result of the creation of employment opportunities, impacts on land use, and impacts on sense of place.

From the evaluation of the alternative power line alternatives identified for the Koeberg-Dassenberg power line, it is concluded that **Option 3** is **not** considered to be **preferred** from an environmental perspective.

As **Options 1 and 2** cross a disturbed, industrial area, impacts on the environment with the adoption of either of these alternatives are not expected to be significant. Therefore, these alternatives are considered to be acceptable from an environmental perspective and are nominated for further investigation in the EIA Phase of the process.

In order to assess the potential impacts on the environment associated with the construction and operation of the proposed power line project, specialist studies to address the above issues must be undertaken within the EIA phase of the project.

PLAN OF STUDY FOR ENVIRONMENTAL IMPACT ASSESSMENT CHAPTER 7

A detailed description of the proposed decommissioning of the existing Acacia Open Cycle Gas Turbine (OCGT) units at the existing Acacia Power Station site in Goodwood, and one gas turbine unit from the existing Port Rex Power Station site in East London, and the relocation of these units to the existing Ankerlig Power Station site in Atlantis, the scoping process, as well as the issues identified and evaluated through the Scoping Phase have been included in the Draft Scoping Report and provide the context for this Plan of Study for Environmental Impact Assessment (EIA).

This Plan of Study for EIA describes how the EIA for proposed project will proceed during the EIA phase. The EIA phase of the study includes detailed specialist studies for those potential impacts evaluated to be of significance. The key findings of the scoping process have been used to inform this Plan of Study for EIA, together with the requirements of the NEMA EIA Regulations and associated guidelines.

It should be noted that no specific information requirements for the Scoping Report have been specified by DEAT in terms of Regulation 29(1)(j) of the EIA Regulations, besides the general requirement to meet Regulations 29 and 30 of Government Notice No. R385 of 21 April 2006.

7.1. Aims of the EIA

The EIA will aim to achieve the following:

» Provide an overall assessment of the direct, indirect and cumulative impacts on the social and biophysical environments affected by the proposed project.
» Assess potentially significant impacts associated with the proposed project as well as the nominated preferred alternative transmission power line corridor.
» Identify and recommend appropriate mitigation measures for potentially significant environmental impacts.
» Undertake a fully inclusive public involvement process to ensure that I&APs are afforded the opportunity to participate, and that their issues and concerns are recorded.

The EIA will address potential environmental impacts and benefits (direct, indirect and cumulative impacts) associated with all phases of the project and will aim to provide the environmental authorities with sufficient information in order to make an informed decision regarding the project.

7.2. Authority Consultation

Consultation with the regulating authorities (i.e. DEAT and DEA&DP) has been undertaken during the scoping process, and will continue throughout the EIA process. On-going consultation will include the following:

» Submission of a Final Scoping Report following a 30-day public review period (and consideration of comments received).
» Consultation during the detailed EIA phase in order to ensure that any specific requirements from DEAT and DEA&DP have been addressed and included within the process.
» Submission of a Final Environmental Impact Assessment Report following a 30-day public review period.
» A consultation meeting with DEAT and DEA&DP in order to discuss the findings and conclusions of the EIA Report.

7.3. Nomination of Preferred Alternatives to be assessed within the EIA

7.3.1. Relocation of the Acacia Units

The three existing gas units currently located at the Acacia Power Station (located on Portion 7 of the Farm Montague Gardens in Goodwood, Cape Town) and the one existing gas unit currently located at the Port Rex Power Station located in the Woodbrook industrial area, Cape Road in East London), will be accommodated within the existing Ankerlig Power Station site (located on the Remainder of Farm 1395, Atlantis, Cape Town). These OCGT units are proposed to be located on the Gas 1 site, alongside Neil Hare Road. This proposed relocation will not require any additional land take outside of the existing power station boundaries. Therefore, **no location alternatives** are to be considered within this EIA process.

7.3.2. Transmission power lines

From the evaluation of the alternative power line alternatives identified for the Koeberg-Dassenberg power line, it is concluded that **Option 3** is **not** considered to be **preferred** from an environmental perspective.

As **Options 1 and 2** cross a disturbed, industrial area, impacts on the environment with the adoption of either of these alternatives are not expected to be significant. Therefore, these alternatives are considered to be acceptable from an environmental perspective and are nominated for further investigation in the EIA Phase of the process.

7.4. Assessment of Potential Impacts and Recommendations regarding Mitigation Measures

A summary of the issues which require further investigation within the EIA phase, as well as the proposed activities to be undertaken in order to assess the significance of these potential impacts is provided within Table 7.1. The specialists involved in the EIA Phase are also reflected in Table 7.1.

A Peer Review of the EIA process will be undertaken by Jeremy Blood of CCA Environmental.

Table 7.1: Summary of the issues which require further investigation within the EIA phase and activities to be undertaken in order to assess the significance of these potential impacts

Issue	Activities to be undertaken in order to assess significance of impacts	Specialist
Air quality impacts » OCGT units	A specialist study will be undertaken to determine existing air quality and potential air pollution impacts as a result of the proposed decommissioning and relocation of the Acacia units, and to make recommendations for mitigation measures, and air quality monitoring (if deemed necessary). The main aims of the air quality study will be: » The establishment of the dispersion potential of the area utilising localised meteorological data or data from the extended area. » The establishment of an emissions inventory for dust, total suspended particulates, PM10 SO_2, NOx, CO and CO_2, in which emissions from all project-related activities are quantified under the following conditions: * Under normal operations * During start-up and upset conditions. » The prediction of ambient air pollutant concentrations and dust fallout, in terms of dispersion modelling for each of the above-mentioned scenarios. Different climatic conditions for different times of the day and year will be utilised in order to determine the average and worst-case conditions. » The assessment of the impacts based on comparisons of the resulting concentration against the pre-construction ambient conditions, as well as against relevant standards and guidelines. » Detailed assessment considering direct, indirect and cumulative impacts for all phases of the project » Identification of emission reduction opportunities and cost-effective emission abatement strategies. » Provision of recommendations regarding the optimum air quality monitoring positions and the establishment of an air quality monitoring programme, if necessary. The selected proposed air pollution dispersion model is the new-generation AEROMOD View, which is a complete and powerful package incorporating into one interface the popular preferred U.S. EPA models: AERMOD, ISCST3, ISC-PRIME, and AERMOD-PRIME. Different emission scenarios will be generated for the construction and operational phases of the project.	Demos Dracoulides of DDA

Issue	Activities to be undertaken in order to assess significance of impacts	Specialist
Noise impacts » OCGT units	The noise impact assessment study of the EIA phase will: » Determine the existing noise levels within and around the perimeter of the Ankerlig Power Station site, as well as within surrounding communities and sensitive receptors in the extended area. » Create a representative noise model in order to simulate the noise propagation and determine the resulting noise levels due to the upgrade. » Detailed assessment considering direct, indirect and cumulative impacts for all phases of the project based on South African legislation and international guidelines » Identify potential noise emission reduction opportunities and cost-effective emission abatement strategies. » Provide recommendations regarding the optimum noise monitoring positions and the establishment of a noise monitoring programme. The baseline noise study will be based on noise measurements in accordance with the SANS 10103: 2004 and SANS 10328:2001, or equivalent national or international standards required by Eskom or DEAT. The internationally recognised 3-dimensional software CADNAA for predicting noise contours from all the noise sources will be utilised in the noise study. This will enable different scenarios to be realised and tested to optimise layouts of potentially noisy activities, the plant and equipment and determine the resulting noise levels in the area.	Demos Dracoulides of DDA
Visual impacts » OCGT units » Power line	The specialist study to be undertaken in the EIA phase will include: » Spatial analyses are to be undertaken in order to create a visual impact index that will further aid in determining potential areas of visual impact. » The site-specific issues and potential sensitive visual receptors should be measured against this visual impact index and be addressed individually in terms of nature, extent, duration, probability, severity and significance of impact. » Specific areas of focus for the visual impact assessment of the decommissioning and relocation of the Acacia units should include the additionally exposed areas and the potential cumulative visual impact of additional infrastructure on the Ankerlig Power Station site, as well as the removal of the units from the site in Goodwood. » Detailed assessment considering direct, indirect and cumulative impacts The detailed visual impact assessment will be informed by the DEA&DP Guidelines for visual specialist studies.	Lourens du Plessis of MetroGIS

Issue	Activities to be undertaken in order to assess significance of impacts	Specialist
Impacts on heritage sites » Power line	Information collected within the EIA undertaken for the Ankerlig Power Station conversion and transmission integration project will be used as the basis for this study as the preferred power line route follows the preferred alignment as recommended within this study (ACO, 2008). The detailed heritage studies will be undertaken in accordance with the requirements of the DEA&DP specialist guidelines, as well as the requirements of Heritage Western Cape.	Tim Hart of the Archaeology Contracts Office, Department of Archaeology: University of Cape Town
Impact on vegetation » Power line	Information collected within the EIA undertaken for the Ankerlig Power Station conversion and transmission integration project will be used as the basis for this study as the preferred power line route follows the preferred alignment as recommended within this study (Helme, 2008). The specialist study will be undertaken in accordance with the requirements of the DEA&DP guidelines for biodiversity studies.	Nick Helme of Nick Helme Botanical Surveys
Impact on fauna » Power line	Information collected within the EIA undertaken for the Ankerlig Power Station conversion and transmission integration project will be used as the basis for this study as the preferred power line route follows the preferred alignment as recommended within this study (Mouton, 2008). The specialist study will be undertaken in accordance with the requirements of the DEA&DP guidelines for biodiversity studies.	Prof. Le Fras Mouton of the Department of Botany & Zoology, Stellenbosch University
Social Impact Assessment » OCGT units » Power line	The identification and assessment of social impacts will be guided by the specialist SIA Guidelines adopted by DEA&DP in the Western Cape. The SIA will assess impacts associated with the decommissioning and relocation of the OCGT units and power line.	Liezl Coetzee of Southern Hemisphere
Risk Assessment	A risk assessment for the additional fuel tanks proposed to be located at the power station site will be undertaken in accordance with the requirements of the relevant legislation in order to assess the risks associated with the storage of additional fuel on the power station site.	Riscom

7.5. Methodology for the Assessment of Potential Impacts

Direct, indirect and cumulative impacts of the above issues, as well as all other issues identified will be assessed in terms of the following criteria:

- The **nature**, which shall include a description of what causes the effect, what will be affected and how it will be affected.
- The **extent**, wherein it will be indicated whether the impact will be local (limited to the immediate area or site of development) or regional, and a value between 1 and 5 will be assigned as appropriate (with 1 being low and 5 being high):
- The **duration**, wherein it will be indicated whether:
  - the lifetime of the impact will be of a very short duration (0–1 years) – assigned a score of 1;
  - the lifetime of the impact will be of a short duration (2-5 years) - assigned a score of 2;
  - medium-term (5–15 years) – assigned a score of 3;
  - long term (> 15 years) - assigned a score of 4; or
  - permanent - assigned a score of 5;
- The **magnitude**, quantified on a scale from 0-10, where 0 is small and will have no effect on the environment, 2 is minor and will not result in an impact on processes, 4 is low and will cause a slight impact on processes, 6 is moderate and will result in processes continuing but in a modified way, 8 is high (processes are altered to the extent that they temporarily cease), and 10 is very high and results in complete destruction of patterns and permanent cessation of processes.
- The **probability** *of occurrence*, which shall describe the likelihood of the impact actually occurring. Probability will be estimated on a scale of 1–5, where 1 is very improbable (probably will not happen), 2 is improbable (some possibility, but low likelihood), 3 is probable (distinct possibility), 4 is highly probable (most likely) and 5 is definite (impact will occur regardless of any prevention measures).
- the **significance**, which shall be determined through a synthesis of the characteristics described above and can be assessed as low, medium or high; and
- the **status**, which will be 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.
- the *degree* to which the impact can be *mitigated.*

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

S=(E+D+M)P

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).

Recommendations for mitigation will be made and significance ratings before and after mitigation will be indicated.

7.6. Integration and Preparation of the EIA Report

The results of the specialist studies and other available information will be integrated and synthesised by the Savannah Environmental project team. An EIA report will be compiled in accordance with the requirements of the EIA Regulations, and will include:

» Detailed description of the proposed activity
» A description of the property(ies) on which the activity is to be undertaken and the location of the activity on the property(ies)
» A description of the environment that may be affected by the activity and the manner in which the physical, biological, social, economic and cultural aspects of the environment may be affected by the proposed activity
» Details of the public participation process conducted, including:
  * steps undertaken in accordance with the Plan of Study for EIA
  * a list of persons, organisations and organs of state that were registered as interested and affected parties
  * a summary of comments received from, and a summary of issues raised by registered I&APs, the date of receipt of these comments and the response to those comments
  * copies of any representations, objections and comments received from registered I&APs.

- A description of the need and desirability of the proposed project and identified potential alternatives to the proposed activity, including advantages and disadvantages that the proposed activity or alternatives may have on the environment and the community that may be affected by the activity.
- An indication of the methodology used in determining the significance of potential environmental impacts.
- A description and comparative assessment of all alternatives identified during the environmental impact assessment process.
- A summary of the findings and recommendations of specialist reports.
- A description of all environmental issues that were identified during the environmental impact assessment process, an assessment of the significance of each issue and an indication of the extent to which the issue could be addressed by the adoption of mitigation measures.
- An assessment of each identified potentially significant impact.
- A description of any assumptions, uncertainties and gaps in knowledge.
- An environmental impact statement which contains:
  - a summary of the key findings of the environmental impact assessment
  - a comparative assessment of the positive and negative implications of the proposed activity and identified alternatives.
- A draft environmental management plan
- Copies of specialist reports

The draft EIA Report will be released for a 30-day public review period. The comments received from I&APs will be captured within a Comments and Response Report, which will be included within the final EIA Report, for submission to the authorities for decision-making.

7.7. Public Participation Process

A public participation process will be undertaken by Sustainable Futures ZA in conjunction with Savannah Environmental.

Consultation with key stakeholders and I&APs will be on-going throughout the EIA process. Through this consultation process, stakeholders and I&APs will be encouraged to identify additional issues of concern or highlight positive aspects of the project, and to comment on the findings of the EIA process.

In order to accommodate the varying needs of stakeholders and I&APs within the study area, as well as capture their inputs regarding the project, various opportunities will be provided for stakeholders and I&APs to be involved in the EIA phase of the process, as follows:

- Focus group meetings (pre-arranged and stakeholders invited to attend).

» One-on-one consultation meetings (for example with directly affected landowners).
» Telephonic consultation sessions (consultation with various parties from the EIA project team, including the project participation consultant, lead EIA consultant as well as specialist consultants).
» Written, faxed or e-mail correspondence.

The draft EIA report will be made available for public review for a 30-day period prior to finalisation and submission to DEAT for review and decision-making. In order to provide an overview of the findings of the EIA process and facilitate comments, a public meeting and key stakeholder workshop will be held during this public review period.

7.8. Key Milestones of the programme for the EIA

The envisaged key milestones of the programme for the Environmental Impact Assessment (EIA) phase of the project are outlined in the table below.

Key Milestone Activities	Proposed completion date[11]
Finalisation of Scoping Report	End-June 2008
Authority acceptance of the Scoping Report and Plan of Study to undertake the EIA	Mid-July 2008
Undertake detailed specialist studies and public participation process	July 2007
Compile Draft EIA Report and Draft EMP	July 2008
Make Draft EIA Report and Draft EMP available to the public, stakeholders and authorities	Mid-August 2008

[11] Indicative dates only

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