

ENVIRONMENTAL IMPACT ASSESSMENT
DRAFT BASIC ASSESSMENT REPORT

ESKOM ERMELO-UITKOMS 88kV LINE
DEA Ref nr 14/12/16/3/3/1/784
NEAS Ref DEA/EIA/0001597/2012

Appendix G
Environmental Management Programme



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Appendix G Environmental Management Programme (EMPr)

The affected properties for the project are:

Route Alternative 1 is on the farms Nooitgedacht 268 IT, Van Oudshoornstroom 261 IT portion 86, 27, 57, 75, 9, Rem, 12, 4, 17, 5, 1; Jan Hendriksfontein 263 IT portion 3, 4, 9, 14, 15; Transutu 257 IT portion 0; Jan Hendriksfontein 263 IT portion 6; Witpunt 267 IT portion 9, 22, 34, Witpunt 267 IT (Consolidated to portion 40 of 267 IT) portion 1, Witpunt 267 IT portion 35 and 36; Camden Power Station 329 IT Rem.

Proposed Route Alternative 2 is on the farms Nooitgedacht 268 IT, Van Oudshoornstroom 261 IT portion 86, 27, 57, 75, 9, Rem, 12, 4, 17, 5, 1; Jan Hendriksfontein 263 IT portion 3; Uitkomst 292 IT (Consolidated to portion 18 of 292 IT) portion 3; Camden Power Station 329 IT Rem; Witpunt 267 IT portion 35 and 36.

Both routes are in the Msukaligwa Local Municipality in the Mpumalanga Province.

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1. DETAILS OF THE PROPOSED ACTIVITIES

1.1 Background

The proposed project is part of a broader scope of work to improve Eskom's network performance. The existing Distribution networks are exceeding their maximum power transfer capability. Currently the network is experiencing under voltages and is incapable of handling additional loads due to the contingency restraints of the network. As part of its assessment of a range of electricity supply options, Eskom is investigating the feasibility of constructing a new Chickadee 88kV powerline between the Ermelo and Uitkoms Substations.

A Basic Assessment (BA) process for this proposed powerline route is currently being undertaken by Texture Environmental Consultants (DEA Ref 14/12/16/3/3/1/784).

To date, two route alternatives have been identified for investigation. The proposed layout and best route will be determined through environmental and specialist studies as well as public opinion.

The proposed project entails the construction of a new 88kV Chickadee Powerline from the Ermelo substation located in Ermelo Town to the Uitkoms substation (approximately 22 km) in the Msukaligwa Local Municipality in the Mpumalanga Province.

The scope of work includes:

- Identification of potential alternative corridor routes for a 22km 88kV chickadee power line between the existing Ermelo substation to the existing Uitkoms substation;
- The project involves identification of a 100m corridor within which Eskom would be able to locate a 31m servitude for the powerline between Ermelo substation and Uitkoms substation. The servitude is required for maintenance purposes.
- Identification of potential corridors to construct an access/ construction road of 8 meters wide for the line.

The applicant is Eskom Distribution, Mpumalanga Operating Unit, Land Development with contact person Ms. Betty Ngobeni, Environmental Management in Witbank.

1.2 Locality and Regional Context

The proposed power line corridors are situated in the Mpumalanga Province, to the south-east of Ermelo. Two alternative routes are considered for the power line. The study area for the proposed power line servitudes runs approximately south-east over a distance of 22km and links between the two substations of Ermelo and Uitkoms. Both substations lay mostly between the public roads of the N2 (to the south) and the R65 (to the north), with Uitkoms Substation situated at the east end of Camden Power Station.

Property descriptions of Route Alternative 1

The **Route Alternative 1** for the line is on the farms Nooitgedacht 268 IT, Van Oudshoornstroom 261 IT portion 86, 27, 57, 75, 9, Rem, 12, 4, 17, 5, 1; Jan Hendriksfontein 263 IT portion 3, 4, 9, 14, 15; Transutu 257 IT portion 0; Jan Hendriksfontein 263 IT portion 6; Witpunt 267 IT portion 9, 22, 34, Witpunt 267 IT (Consolidated to portion 40 of 267 IT) portion 1, Witpunt 267 IT portion 35 and 36; Camden Power Station 329 IT Rem.

Property descriptions of Proposed Route Alternative 2

The proposed **Route Alternative 2** for the line is on the farms Nooitgedacht 268 IT, Van Oudshoornstroom 261 IT portion 86, 27, 57, 75, 9, Rem, 12, 4, 17, 5, 1; Jan Hendriksfontein 263 IT portion 3; Uitkomst 292 IT (Consolidated to portion 18 of 292 IT) portion 3; Camden Power Station 329 IT Rem; Witpunt 267 IT portion 35 and 36.

Both routes are in the Msukaligwa Local Municipality in the Mpumalanga Province.

The study area is situated on the 1:50 000 topographical base maps 2629BD, 2629DB, 2630AC & 2630CA. (Refer to Appendices A1-A5 for copies of the Locality map and the route maps).

Co-ordinates:

The alternatives for the project are found at approximately:

Alternative 1 Route (21.13km):**Ermelo substation:**

Latitude (Degrees Decimal Minutes)	Longitude (Degrees Decimal Minutes)
26° 30.732' S	29° 58.692' E

250m intervals	Latitude (Degrees Decimal Minutes)	Longitude (Degrees Decimal Minutes)
1	26° 30.678' S	29° 58.866' E
2	26° 30.620' S	29° 59.002' E
3	26° 30.554' S	29° 59.133' E
4	26° 30.488' S	29° 59.264' E
5	26° 30.439' S	29° 59.403' E
6	26° 30.405' S	29° 59.549' E
7	26° 30.371' S	29° 59.695' E
8	26° 30.337' S	29° 59.840' E
9	26° 30.303' S	29° 59.986' E
10	26° 30.269' S	30° 0.131' E
11	26° 30.234' S	30° 0.277' E
12	26° 30.271' S	30° 0.417' E
13	26° 30.322' S	30° 0.557' E
14	26° 30.374' S	30° 0.696' E
15	26° 30.425' S	30° 0.835' E
16	26° 30.476' S	30° 0.974' E
17	26° 30.528' S	30° 1.114' E
18	26° 30.579' S	30° 1.253' E
19	26° 30.630' S	30° 1.392' E
20	26° 30.681' S	30° 1.531' E
21	26° 30.732' S	30° 1.671' E
22	26° 30.784' S	30° 1.810' E
23	26° 30.839' S	30° 1.946' E
24	26° 30.937' S	30° 2.050' E
25	26° 31.035' S	30° 2.154' E
26	26° 31.133' S	30° 2.257' E
27	26° 31.231' S	30° 2.361' E
28	26° 31.329' S	30° 2.465' E
29	26° 31.427' S	30° 2.569' E
30	26° 31.525' S	30° 2.673' E
31	26° 31.623' S	30° 2.777' E
32	26° 31.721' S	30° 2.881' E
33	26° 31.819' S	30° 2.985' E
34	26° 31.916' S	30° 3.089' E
35	26° 32.014' S	30° 3.193' E
36	26° 32.117' S	30° 3.291' E
37	26° 32.222' S	30° 3.386' E
38	26° 32.326' S	30° 3.482' E
39	26° 32.431' S	30° 3.577' E
40	26° 32.535' S	30° 3.673' E
41	26° 32.640' S	30° 3.769' E
42	26° 32.745' S	30° 3.864' E
43	26° 32.849' S	30° 3.960' E
44	26° 32.954' S	30° 4.055' E
45	26° 33.058' S	30° 4.151' E
46	26° 33.165' S	30° 4.244' E
47	26° 33.273' S	30° 4.335' E
48	26° 33.380' S	30° 4.426' E
49	26° 33.488' S	30° 4.517' E
50	26° 33.596' S	30° 4.608' E

51	26° 33.704' S	30° 4.699' E
52	26° 33.812' S	30° 4.790' E
53	26° 33.920' S	30° 4.880' E
54	26° 34.028' S	30° 4.972' E
55	26° 34.135' S	30° 5.063' E
56	26° 34.243' S	30° 5.153' E
57	26° 34.351' S	30° 5.245' E
58	26° 34.459' S	30° 5.335' E
59	26° 34.567' S	30° 5.426' E
60	26° 34.675' S	30° 5.517' E
61	26° 34.782' S	30° 5.608' E
62	26° 34.890' S	30° 5.699' E
63	26° 34.998' S	30° 5.790' E
64	26° 35.106' S	30° 5.881' E
65	26° 35.212' S	30° 5.975' E
66	26° 35.312' S	30° 6.077' E
67	26° 35.412' S	30° 6.178' E
68	26° 35.511' S	30° 6.280' E
69	26° 35.611' S	30° 6.382' E
70	26° 35.711' S	30° 6.483' E
71	26° 35.811' S	30° 6.585' E
72	26° 35.911' S	30° 6.686' E
73	26° 36.011' S	30° 6.788' E
74	26° 36.112' S	30° 6.884' E
75	26° 36.237' S	30° 6.827' E
76	26° 36.363' S	30° 6.771' E
77	26° 36.488' S	30° 6.715' E
78	26° 36.608' S	30° 6.646' E
79	26° 36.723' S	30° 6.567' E
80	26° 36.839' S	30° 6.488' E
81	26° 36.920' S	30° 6.382' E
82	26° 36.950' S	30° 6.235' E
83	26° 36.980' S	30° 6.088' E
84	26° 37.011' S	30° 5.941' E
85	26° 37.027' S	30° 5.865' E
86	26° 37.051' S	30° 5.848' E

Uitkoms substation:

Latitude (Degrees Decimal Minutes)	Longitude (Degrees Decimal Minutes)
26° 37.051' S	30° 5.848' E

Proposed / preferred Alternative 2 (22.18km):

Ermelo substation:

Latitude (Degrees Decimal Minutes)	Longitude (Degrees Decimal Minutes)
26° 30.732' S	29° 58.692' E

250m intervals	Latitude (Degrees Decimal Minutes)	Longitude (Degrees Decimal Minutes)
1	26° 30.680' S	29° 58.868' E
2	26° 30.618' S	29° 59.002' E
3	26° 30.552' S	29° 59.134' E
4	26° 30.487' S	29° 59.265' E
5	26° 30.439' S	29° 59.405' E
6	26° 30.405' S	29° 59.550' E
7	26° 30.371' S	29° 59.696' E
8	26° 30.336' S	29° 59.841' E
9	26° 30.302' S	29° 59.987' E
10	26° 30.268' S	30° 0.133' E

11	26° 30.234' S	30° 0.278' E
12	26° 30.272' S	30° 0.418' E
13	26° 30.323' S	30° 0.558' E
14	26° 30.374' S	30° 0.697' E
15	26° 30.426' S	30° 0.836' E
16	26° 30.477' S	30° 0.976' E
17	26° 30.528' S	30° 1.115' E
18	26° 30.579' S	30° 1.254' E
19	26° 30.630' S	30° 1.394' E
20	26° 30.682' S	30° 1.533' E
21	26° 30.733' S	30° 1.672' E
22	26° 30.784' S	30° 1.811' E
23	26° 30.840' S	30° 1.947' E
24	26° 30.938' S	30° 2.051' E
25	26° 31.036' S	30° 2.155' E
26	26° 31.134' S	30° 2.258' E
27	26° 31.232' S	30° 2.362' E
28	26° 31.330' S	30° 2.466' E
29	26° 31.428' S	30° 2.570' E
30	26° 31.526' S	30° 2.674' E
31	26° 31.624' S	30° 2.778' E
32	26° 31.721' S	30° 2.882' E
33	26° 31.820' S	30° 2.986' E
34	26° 31.917' S	30° 3.090' E
35	26° 32.015' S	30° 3.194' E
36	26° 32.118' S	30° 3.291' E
37	26° 32.223' S	30° 3.386' E
38	26° 32.328' S	30° 3.482' E
39	26° 32.432' S	30° 3.577' E
40	26° 32.537' S	30° 3.672' E
41	26° 32.642' S	30° 3.768' E
42	26° 32.747' S	30° 3.863' E
43	26° 32.852' S	30° 3.958' E
44	26° 32.956' S	30° 4.053' E
45	26° 33.061' S	30° 4.149' E
46	26° 33.166' S	30° 4.244' E
47	26° 33.278' S	30° 4.190' E
48	26° 33.390' S	30° 4.106' E
49	26° 33.503' S	30° 4.023' E
50	26° 33.616' S	30° 3.940' E
51	26° 33.728' S	30° 3.856' E
52	26° 33.841' S	30° 3.773' E
53	26° 33.959' S	30° 3.801' E
54	26° 34.078' S	30° 3.872' E
55	26° 34.197' S	30° 3.943' E
56	26° 34.288' S	30° 3.859' E
57	26° 34.372' S	30° 3.741' E
58	26° 34.456' S	30° 3.623' E
59	26° 34.541' S	30° 3.505' E
60	26° 34.625' S	30° 3.388' E
61	26° 34.709' S	30° 3.270' E
62	26° 34.794' S	30° 3.152' E
63	26° 34.884' S	30° 3.051' E
64	26° 35.017' S	30° 3.078' E
65	26° 35.150' S	30° 3.104' E
66	26° 35.234' S	30° 3.216' E
67	26° 35.310' S	30° 3.341' E
68	26° 35.386' S	30° 3.466' E
69	26° 35.462' S	30° 3.590' E
70	26° 35.537' S	30° 3.715' E
71	26° 35.613' S	30° 3.840' E
72	26° 35.689' S	30° 3.964' E
73	26° 35.765' S	30° 4.089' E

74	26° 35.841' S	30° 4.213' E
75	26° 35.917' S	30° 4.338' E
76	26° 35.993' S	30° 4.463' E
77	26° 36.069' S	30° 4.587' E
78	26° 36.145' S	30° 4.712' E
79	26° 36.221' S	30° 4.837' E
80	26° 36.297' S	30° 4.961' E
81	26° 36.360' S	30° 5.088' E
82	26° 36.413' S	30° 5.210' E
83	26° 36.505' S	30° 5.320' E
84	26° 36.597' S	30° 5.430' E
85	26° 36.689' S	30° 5.540' E
86	26° 36.761' S	30° 5.667' E
87	26° 36.849' S	30° 5.778' E
88	26° 36.961' S	30° 5.862' E
89	26° 37.027' S	30° 5.865' E
90	26° 37.051' S	30° 5.848' E

Uitkoms substation:

Latitude (Degrees Decimal Minutes)	Longitude (Degrees Decimal Minutes)
26° 37.051' S	30° 5.848' E

1.3 Legal Requirements

An application for environmental authorisation is submitted to the National Department of Environmental Affairs (DEA) in terms of the National Environmental Management Act 107 of 1998 (NEMA), and the Environmental Impact Assessment Regulations published in GNR 543/2010 - GNR 546/2010 of 18 June in terms of section 24(5) of the Act.

Relevant to this project is the activities that are listed in Listing Notices 1 and 3. A Basic Assessment (BA) is the procedure designed for Listing Notices 1 and 3, where the impacts of activities are more generally known and can be easily managed. This document constitutes the Basic Assessment Report prepared in support of an environmental authorisation application.

Relevant to this project is the following listed activities:

Listed Activity	Activity/Project Description
GN R544/2010 Item 10 The construction of facilities or infrastructure for the distribution of electricity outside urban areas with a capacity of more than 33kV but less than 275kV.	Construction of the 88KV power line from Ermelo substation to Uitkoms substation
GN R546/2010 Item 4 The construction of a road wider than 4 metres with a reserve less than 13,5 metres. (activity to be confirmed).	Construction of an access or construction road of 8 meters wide.
GN R546/2010 Item 14 The clearance of an area of 5 hectares or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation. (activity to be confirmed)	Clearance of indigenous vegetation of a 31m wide servitude x 22 000m of powerline = 682 000m ² = 6,82ha

2. OBJECTIVES OF THE EMPr

The Environmental Management Programme (EMPr) has the following objectives:

- To state the standards and guidelines which Eskom will be required to adhere to in terms of environmental legislation;
- To set out the mitigation measures and environmental specifications which Eskom will be required to implement for the construction phase of the project in order to minimize the extent of environmental impacts, and where possible to improve the condition of the environment;
- To provide guidance regarding the method statements which Eskom will be required to compile and implement to achieve the environmental specification;
- To define corrective actions which Eskom must take in the event of non-compliance with the specifications of this EMPr;
- To mitigate potential negative impact associated with the project and ensure optimising of positive impact;
- To prevent long-term or permanent environmental degradation;
- To ensure that the Applicant, construction workers and the operational and maintenance staff are well acquainted with their responsibilities in terms of the environment;
- To ensure that communication channels to report on environment related issues are in place.

3. DETAILS OF THE PERSON WHO PREPARED THE EMPr

This Environmental Management Programme was prepared by Texture Environmental Consultants. Ria Pretorius is the principal member of Texture. Texture has significant experience and is well equipped and qualified to undertake Environmental Impact Assessments and inclusive thereof Environmental Management Programmes. Texture has access to a variety of skills through association with specialists in their different fields of expertise. These specialist fields include the following: ecologists; archaeologists; architects & historical architects; agricultural specialists; geotechnical engineers; geohydrologists; civil and electrical engineers and social consultants as well as landscapers and contractors. Texture has a broad client base, developed over years of professional services supplied, from both private and government sectors. A company profile is available on request.

4. DETAILS OF PERSONS RESPONSIBLE FOR IMPLEMENTATION OF THE EMPr

The following undertaking must be filled out and signed by the applicant and forwarded to the Department of Environmental Affairs (DEA) prior to commencement of construction:

AGREEMENT & UNDERTAKING OF THE APPLICANT

I hereby confirm and state that I am aware of the contents of the Environmental Management Programme and the conditions of the Environmental Authorisation (EA) and shall comply with all legislation pertaining to the nature of the work to be done and all things accidental thereto.

Signed on behalf of: _____

Date: _____

Place: _____

Signature: _____

Full Name: _____

Postal Address: _____

Physical Address: _____

Office Telephone Number: _____

AGREEMENT & UNDERTAKING OF THE ECO

The following details of the Environmental Control Officer (ECO) must be filled out, signed and forwarded to DEA prior to construction:

Company Name: _____

Contact Person(s): _____

Physical Address: _____

Street Address: _____

Office Telephone Number: _____

Cellular phone Number: _____

Fax Number: _____

5. PROPOSED MECHANISM FOR COMPLIANCE

Key impacts generally associated with Eskom construction activities, as confirmed during the course of the Environmental Impact Assessment process are:

- Risk of erosion
- Impact on natural habitat
- Risk of surface and groundwater pollution
- Visual Impact
- Impact on safety and security
- Impact on agriculture
- Impact on birds
- Social impact
- Impact of influx of labourers to the area
- Impact of solid waste
- Impact on cultural heritage resources
- Introduction of alien vegetation

Specifications and conditions are hereby provided to limit and/or prevent impact on these components during all the phases of project development, namely

- Specifications applicable to all Phases of Project Development
- Design & Pre-construction Phase
- Construction Phase
- Post-construction & Operational Phase

6. SPECIFICATIONS APPLICABLE TO ALL PHASES OF PROJECT DEVELOPMENT

Roles and Responsibilities

Eskom

Eskom is the applicant for the project. Eskom will therefore, be the entity monitoring the implementation of the EMPr. The Contractor who wins the tender for the construction, will, in terms of the tender documentation, be responsible to implement the proposed mitigation measures in this EMPr on Eskom's behalf.

Eskom will:

- Be responsible for the overall implementation of the EMPr in accordance with the requirements of the environmental authorization, issued by DEA.
- Ensure that all third parties who carry out all or part of Eskom's obligations under the Contract comply with the requirements of this EMPr.

Environmental and Health Training and Awareness

Eskom will ensure that its employees are adequately trained with regard to the implementation of the EMPr, as well as regarding environmental legal requirements and obligations. All employees should have an induction presentation on environmental awareness. Where possible the presentation will be conducted in the language of the employees.

The **environmental training should**, as a minimum, include the following:

- The importance of conforming with all environmental policies, procedures, plans and systems;
- The significant environmental impacts, actual or potential, which could result from their work activities;
- The environmental benefits of improved personal performance;
- The roles and responsibilities in achieving conformance with the environmental policy and procedures, including emergency preparedness and response requirements;
- The potential consequences of departure from specified operating procedures;
- The mitigation measures to be implemented when carrying out their work activities;
- The importance of not littering;

- The need to use water sparingly;
- Details of, and encouragement to, minimizing the production of waste and re-use, recover and recycle waste where possible;
- Details regarding archaeological and/or historical sites which may be unearthed during construction, and the procedures to be followed should these be encountered;
- The procedures which should be followed should a grave be encountered or unearthed during the construction phase;
- Details regarding flora and fauna of special concern, including protected/endangered plant and animal species, and the procedures to be followed should these be encountered during the construction phase.

Emergency Preparedness

Eskom's environmental emergency procedures ensure that there will be an appropriate response to unexpected or accidental actions or incidents that will cause environmental impacts, throughout the life cycle of the project. Such incidents may include, inter alia:

- Accidental discharges to water and land;
- Accidental exposure of employees to hazardous substances;
- Accidental veld fires;
- Accidental spillage of hazardous substances;
- Specific environmental and ecosystem effects from accidental releases or incidents.

The emergency preparedness plan

- Construction employees shall be adequately trained in terms of incidents and emergency situations.
- An emergency preparedness plan will include details of the organization (manpower) and responsibilities, accountability and liability of personnel.
- The emergency preparedness plan shall include a list of key personnel.
- Details of emergency services (e.g. the fire department, spill clean-up services, etc.) shall be listed.
- Internal and external communication plans, including prescribed reporting procedures shall be listed.
- Actions to be taken in the event of different types of emergencies shall be included.
- Information on hazardous materials, including the potential impact associated with each, and measure to be taken in the event of accidental release shall be listed.
- Training plans, testing exercises, and schedules for effectiveness shall be included.
- Eskom will comply with the emergency preparedness, and incident and accident-reporting requirements, as required by the Occupational Health and Safety Act, 1993 (Act No 85 of 1993), the National Environmental Management Act, 1998 (Act No 107 of 1998) as amended, the National Water Act, 1998 (Act No 36 of 1998) and the National Veld and Forest Fire Act, 1998 (Act No 101 of 1998) as amended, and/or any other relevant legislation.

Spillages

- Streams, rivers and dams will be protected from direct or indirect spillage of pollutants such as refuse, garbage, cement, concrete, sewage, chemicals, fuels, oils, aggregate, wash water, organic materials and bituminous products.
- In the event of a spillage during the construction phase, the responsibility for spill treatment will be with Eskom and Eskom will be liable to arrange for competent assistance to clear the affected area.
- Eskom will compile and maintain environmental emergency procedures, to ensure that there will be an appropriate rapid response to unexpected or accidental environmental related incidents throughout the life cycle of the project.
- The individual responsible for, or who discovers a hazardous waste spill must report the incident to the Engineer.
- The Engineer will assess the situation in consultation with the SECO and act as required in all cases, the immediate response will be to contain the spill. The exact treatment of pollutes soil/water will be determined by die Engineer in consultation with the SECO. Areas cleared of hazardous waste will be re-vegetated.
- Should water downstream of the spill be polluted, and fauna and flora show signs of deterioration or death, specialist hydrological or ecological advice must be sought for appropriate treatment and remedial procedures to be followed. The costs of containment and rehabilitation will be for Eskom's account, including the costs of specialist input.

During an emergency situation, the following will apply

- No person shall be allowed to approach a spill unless he/she is equipped with the personal protective clothing.
- The risk involved shall be assessed before anyone approaches the scene of the incident with the emergency response plan.
- A written report shall be forwarded to the relevant environmental authority within 24 hours of the incident.
- Any known or discovered spillage of toxic substances into a stream or river should be followed by immediate monitoring of the receiving streams and rivers.

Fires

- The adjacent landowners will be informed and/or involved in case of any fire.
- It must be ensured that the basic fire fighting equipment is supplied to all living quarters, site offices, kitchen areas, workshop areas and stores.
- Welding gas cutting or cutting of metal will only be allowed inside the working/demarcated areas and with appropriate fire fighting equipment at hand.

Checking and Corrective Action

Non-compliance

Non-compliance with the specifications of the EMPr constitutes a breach of Contract for which Eskom must be immediately notified accordingly. Eskom will be deemed not to have complied with the EMPr if;

- There is evidence of contravention of the EMPr specifications within the boundaries of the construction site, site extensions and access roads;
- There is contravention of the EMPr specifications which relate to activities outside the boundaries of the construction sites;
- Environmental damage ensues due to negligence;
- Construction activities take place outside the defined boundaries of the site;
- Eskom fails to comply with corrective or other instruction.
- Non-compliance will be dealt with in terms of the contract documentations signed by the various parties.

Monitoring

Monitoring will be undertaken as and when required. Any incidents that might have a detrimental impact on the environment will be investigated and the environmental monitoring will be conducted. Complaints received will be checked through verifiable monitoring.

Inspections

Ongoing visual inspections will be conducted daily by the Site Environmental Control Officer (SECO). The SECO will spend time on site on the lookout for any unsafe acts and activities that transgress the requirements as specified in the EMPr to define what action shall be taken to rectify the problem and prevent its reoccurrence.

Incident Reporting and Remedy

If a leakage or spillage of hazardous substances occurs as a result of activities of Eskom or other users, the local emergency services will be immediately notified of the incident. The following information must be provided:

- The location;
- The nature of the load;
- The status of the site of the accident itself (i.e., whether further leakage is still taking place, whether the vehicle or the load is on fire, etc.).

Written records of the corrective and remedial measures decided upon, and the progress achieved therewith over time, must be kept. Such progress reporting will be important for monitoring and auditing purposes. The written reports may be used for training purposes in an effort to prevent similar future occurrences.

Written instructions

Written reporting will be given following an audit. The written instructions will indicate the source or sources of the problems identified on site and propose solutions to those problems. The implementation to solutions will be assessed in a follow-up audit and further written instructions issued if required.

Maximum allowable response time: 4 working days.

Liaison

Eskom will comply with the requirements for public consultation as required by the EIA Regulations 2010, promulgated in terms of the National Environmental Management Act, 1998 (Act No 107 of 1998).

Throughout the project, ongoing liaison will be maintained with authorities and communities alike to ensure that the following is effected;

- Timeous advanced warning of any project activities that may have some impact on the surrounding communities i.e. blasting.
- Ongoing feedback on the environmental performance of the project.
- A register for comments needs to be opened and maintained by the SECO. The register will contain the contact details of the complainant and information regarding the complaint itself, including the date of submission.

SITE ENVIRONMENTAL CONTROL OFFICER

Eskom will nominate a knowledgeable member of staff on site who will be responsible for the implementation of the Environmental Management Programme as well as the arrangement and maintenance of all traffic accommodation measures required for the duration of the contract. The Site Environmental Control Officer (SECO) will oversee the construction phases of the project and will ensure that all environmental specifications and EMPr requirements are met at all times. The SECO will report to the Engineer in an advising capacity.

The SECO will be responsible for monitoring, reviewing and verifying Eskom's compliance with the EMPr. The SECO's duties in this regard will include, inter alia, the following:

- Ensuring that all the environmental authorizations and permits required in terms of the applicable legislation have been obtained prior to construction commencing;
- Monitoring and verifying that the EMPr and environmental authorization are adhered to at all times and taking action if specifications are not followed;
- Monitoring and verifying that environmental impacts are kept to a minimum;
- Assisting Eskom in finding environmentally responsible solutions to problems;
- Keeping accurate and detailed records of all activities on site;
- Inspecting the site and surrounding areas on a regular basis with regard to compliance with the EMPr and environmental authorization;
- Monitoring Eskom's undertaking to provide environmental awareness training for all new personnel on site.

ENVIRONMENTAL CONTROL OFFICER

- An Environmental Control Officer (ECO) must be appointed by Eskom prior to commencement of construction and DEA must be notified of such an appointment.
- The key responsibility of the ECO is to ensure that all the conditions stipulated in the Record of Decision/ Environmental Authorisation (EA) are being adhered to and should monitor project compliance with the conditions of the environmental authorisation, environmental legislation and the recommendations of the revised EMPr.
- The ECO must liaise with the SECO and/or attend site meetings where applicable and where necessary inspect the construction site on a regular basis to ensure that the mitigation and rehabilitation measures are applied.
- The ECO might make reasonable amendments to the EMPr in co-operation with the contractor and the SECO. Penalties for non-compliance must be enforced.
- The ECO will remain employed until all rehabilitation measures, as required for implementation due to construction damage, are completed and the site is handed over to Eskom by the contractor for the operation.
- Any conservation authority/institution as listed in the List of Interested and Affected Parties for the project should be allowed reasonable access to the construction site on request and arrangement with the ECO, the SECO and the Contractor.

SITE SPECIFIC REQUIREMENTS

The following specific requirements as identified during the EIA process need to be taken due cognisance of and proposed mitigating measures should be implemented:

- Site-specific measures in terms of ecology as identified by the ecologist, Johannes Maree (Tel 082 564 1211) must be included in the contract with the Contractor and implemented by the Contractor during the construction phase. These measures are included in this EMPr of the BAR.
 - No area for a campsite or temporary storage site should be selected where it would be necessary to cut down any trees or clear any shrub land whatsoever, not even alien species.
 - No indigenous trees or shrubs outside of the powerline corridor of 8m to be removed.
 - Disturbed surface areas in the construction phase to be rehabilitated. No open trenches to be left. No mounds of soils created during construction to be left.
 - An on going programme to be implemented to mechanically control alien plant species that invade the disturbed soils around the newly erected pylons. This should be done in such a way as to allow the natural grasses and pioneer plants to colonise the disturbed areas. Typically there should not be any, or very little, infestation of weeds under the powerlines where the veld / grass has only been cut. The weeds found in the area typically invade disturbed soils, with the exception of tree species, but these typically invade kloofs, ravines and drainage lines.
 - No chemical control (herbicides) to be used in the control of alien plants or indigenous plants, except on tree and bush stumps in 8m corridors directly under powerlines. All control of weeds to be mechanical in nature. That is, physically cut down, pulled out or mowed over.
 - All construction material, equipment and any foreign objects brought into the area by contractors and staff to be removed immediately (within two weeks) after construction.
 - Removal of all waste construction material to an approved waste disposal site. And only by an official registered waste removal company.
 - No temporary or other construction facilities to be erected or stored within 100m of the banks of the rivers, streams or main drainage lines.
 - Positioning of any pylons need to be a minimum of 32m (preferably 50m) from the edge of the river banks or outside of the 1 in 100 year floodline, whichever is furthest.
 - No campsite, temporary storage facility, or any other facility to be erected within 500m of a wetland.
- **Alternative Route 2 is preferred and submitted as the proposed route.**
- The site-specific requirements will be updated with reasonable requests for mitigation by the negotiator during meetings and discussion with individual landowners prior to commencement of construction activities - as stipulated in Appendix D of the Option documents.
- A detailed schedule of affected landowners is included in the Register of Landowners on the Route in Appendix E5b of the BA Report.
- The applicable Emergency telephone numbers should always be available on site. Eskom's Environmental Officer Advisor, Ms. Betty Ngobeni, Environmental Management, Eskom Mpumalanga Operating Unit, is the relevant contact person (Tel: Tel 013 693 4469).
- A copy of this EMPr must be submitted to relevant landowners should they request it. They can assist Eskom in assuring that the contractor adheres to rules as stipulated and that mitigation and rehabilitation measures are applied.
- The specific measures identified to mitigate the impact of the construction site and workers must be implemented.

The following requirements should be adhered to:

Department of Water Affairs

Legal Requirements Regarding Impact on Watercourses

The National Water Act (Act 36 of 1998) (NWA) sees river crossings, floodplains or wetlands, where there is a need to erect pylons within the demarcated sensitive areas, as a Water Use that will either need to be registered (General Authorisation) or a water use licence applied for (WULA), depending on the circumstances and impacts.

In the Basic Assessment Report, a general indication is given as to which river crossings and/or wetland areas will probably need a Water Use Licence Application (WULA). The water uses are all covered in the NWA. In the case of overhead powerlines, special attention needs to be given to Section 21 (c) and (i) of the NWA, as well as to General Authorisations in regard to Section 21 water uses.

South African National Road Agency SOC Ltd, Northern Region/ Provincial Department of Roads and Transport

The Roads N17, N2, and District roads are affected by the proposed powerline servitudes

In terms of the National Roads Act (Act No 54 of 1971), the requirements of standard conditions applicable to power lines parallel to or across national and provincial roads are as follows:

- Only under exceptional circumstances will crossings within 500m of an intersection be permitted.
- No infrastructure will be allowed within a distance of ninety-five (95) metres from the centre line of a building restriction road.
- Vertical clearance as set out in the Occupational Health and Safety Act No. 85 of 1993 to be maintained.
- The proposed angle of crossing to be as close to 90 degrees as possible.
- When considering an infrastructure site, no direct access from a national road to be permitted.

In addition, the following *general requirements of the Provincial Department of Roads and Transport: Roads Management* could be expected:

- A wayleave will be granted in terms of the Advertising on Roads and Ribbon Development Act (Act 21 of 1940, as amended) and the Roads Ordinance (Ordinance 22 of 1957, as amended) and its Regulations and does not exempt Eskom from the provisions of any other law.
- The Wayleave Application should be supplied to the Dept, with appropriate plans before the commencement of construction.
- The general conditions for the overhead wayleave should be accepted by Eskom in writing as per written notification of the Dept.
- The overhead lines are not to be lower than 10m above the highest point of the road surface.
- Crossing services should be perpendicular to the affected road(s).

It is expected that Eskom Land and Rights will apply for exemption from some of the requirements above. The specific requirements from the Provincial Department of Roads and Transport: Roads Management as well as from South African National Road Agency SOC Ltd, Northern Region should be obtained, before any agreements could be signed.

7. DESIGN AND PRE-CONSTRUCTION PHASE

ENVIRONMENTAL SUPERVISION

- The SECO (Site Environmental Control Officer) (contact person: Ms. Betty Ngobeni, Environmental Management, Eskom Mpumalanga Operating Unit, Tel: 013 693 4469) and ECO must inspect the construction site on a regular basis (during pre-construction, construction and post-construction periods) to confirm the current state of the site and to ensure that the mitigation and rehabilitation measures are applied as specified in the EMPr. These officers might make reasonable amendments to the EMPr in co-operation with the contractor.

DESIGN

- The engineering drawings must adhere to any site-specific mitigation measures supplied by the geotechnical engineer for the project in order to accommodate the geotechnical and earth-scientific constraints in terms of founding and construction methods, construction materials, excavation, etc.
- The final design of the powerlines must accommodate any requirements of the landowners, as communicated during the Public Participation Process and confirmed in Appendix D of the option document, signed by the applicable affected landowner.
- The final design of the power line must accommodate the requirements of the ecologist, Johannes Maree (Tel 082 564 1211), of which the site-specific details are included in this EMPr. The ecological assessments are included in Appendix D1 of the BA Report.

COMPLIANCE WITH IDENTIFIED LEGAL REQUIREMENTS

The National Water Act (Act No 36 of 1998)

Potential water uses

- Certain parts of the proposed powerline corridors run parallel in close proximity to the Witpuntspruit, or within the floodplain of the spruit itself. These areas include most of the medium / high sensitivity areas. There are a few areas where other small streams flowing into the Witpuntspruit converge, creating a larger floodplain. These floodplain areas are classified as wetland types and cannot be avoided by the powerline corridors. There is also a wetland area near to Uitkoms Substation and Camden Powerstation.
- These areas are seen as potential 'water uses' and it is strongly recommended that a formal Water Use Licence Application (WULA) be completed and submitted for the project.
- It should be noted, that any activities which relates to section 21 water uses of the National Water Act 1998 (Act No. 36 of 1998), the applicant will need to get authorisation from the Department before such activities commences.
- Locality maps that show where the development will affect the watercourse as well as a description of how it would be affected need to be submitted to the relevant office together with the license application to undertake such a development. The likely relevant activity is described in Section 21(i) as "Altering the bed, banks, course or characteristics of a watercourse". An additional activity that could be relevant and for which authorisation could also be required is Section 21(c) "Impeding or diverting the flow of water in a watercourse".
- Additional information with the latest requirements for water use applications are supplied on the Department's website, www.dwae.gov.za.

National Forests Act (Act 84 of 1998)

- Some species of indigenous trees are protected by law in terms of the National Forests Act (Act No. 84 of 1998) that may not be removed unless permission is granted by Department of Agriculture, Forestry and Fisheries (DAFF). Authorisations for cutting, trimming or removing of these protected trees must be obtained prior to commencement of construction in the relevant area. For protected trees on the National list, permits should be obtained from the relevant provincial office of the Department of Agriculture, Forestry and Fisheries (DAFF).
- Relevant to this project is that no Red data species and protected species were present along the powerline corridor.
- A walk down study could confirm the presence/absence of all protected trees once the final route is demarcated (pegged). Any protected trees must be mapped (GPS) and applications for trimming, cutting and removal must be acquired before the clearing of the servitude can commence.
- In general only one application requesting one permit per power line corridor is necessary. All the protected trees, in this corridor, 2m and above, should be indicated on a map.
- Enquiries regarding such permit applications can be made to the following addresses:
Assistant Director
Izak van der Merwe
Tel: (012) 336 7731
Email: 1dq@dwaf.gov.za
Or
Assistant Director: Forest Regulation
Ephraim Monyemoratho
Tel: (012) 336 7140
Email: 1ai@dwaf.gov.za
- Due cognisance must be taken of the latest forms and regulations currently available on the following website link :
<http://www2.dwaf.gov.za/webapp/SustainableProtectedTrees.aspx>
 - [Application for a license regarding Protected Trees](#)
 - [Protected Trees Species list, 2007](#)
 - [Criteria & Framework for application of Legislation on Protection of Indigenous Tree Species, 2000](#)

COMMUNITY ISSUES

- Eskom representatives must liaise personally with all directly affected landowners prior to any construction activities taking place. The objectives of this liaison will be the following:
 - To identify the most effective time schedule for construction activities to take place on the applicable properties;
 - To confirm site-specific requirements as identified during the EIA process;
 - To identify any additional site-specific issues with reasonable mitigation measures that had not been identified and documented during the Public Participation Procedures of the EIA process undertaken for the project;
 - To confirm final negotiations and stipulate these negotiated terms in Appendix D of the signed option document;
 - To update the contact details of affected landowners in case that access to properties are required for both maintenance and emergency situations;
 - To confirm contact details of the Contractor and Eskom representatives to ensure effective communication during the construction and operational phases of the project.
- (Find attached in Appendix E5b of the BAR a register of the affected landowners).

EDUCATIONAL PROGRAMMES

An environmental education programme should be followed to ensure that the construction workers are well aware of relevant issues such as

- The purpose of conservation of the natural environment;
- The restriction on cutting of firewood from the veld;
- Pollution control and waste management;
- Rules to curb social pathologies (prostitution, drunkenness, theft);

- HIV/Aids prevention.

CONSTRUCTION SITE

- Camp site, storage facilities and other necessary temporary structures to preferably be erected within the confines of the Ermelo and Uitkoms Substations. With the possibility of another one (maximum two) temporary sites within the powerline corridors due to the distance between the substations.
- No camp sites or other temporary structures to be erected outside the designated areas of the powerline corridors. The locations must be negotiated with the relevant landowners and specifications of the landowners must be adhered to.
- Plan campsites an appropriate distance from any facility where it can cause a nuisance.
- Encourage the construction contractor to employ local people as far as is reasonably practical and encourage the contractor to transport them daily to and from site. This will reduce solid and liquid waste production and water demand at the site camps.
- Contractors should develop a comprehensive site camp management plan. This should apply even in the case of the limited accommodation camps discussed above.
- If at all viable, accommodation for the construction workers should be rented in the nearest town. Sewage disposal will therefore be through the Municipality's main sewer line. Should accommodation in a construction camp be unavoidable, then the measures as stipulated in the EMPr must be adhered to.
- The construction site office and storage areas for material and equipment must be fenced in to prevent impacts and human interference to spread further than the site.
- No material or machinery to be stored or placed in the open veld outside the designated area of the powerline corridors.
- All construction activities and movement of people and machinery to remain within the designated powerline corridor, as far as possible and within reason.
- Temporary access roads for vehicles carrying equipment, materials, etc. into the powerline corridors need to be kept to an absolute minimum. None of these access roads may cross through sensitive areas.
- Work corridor to be limited to 20 metres along the route of the servitudes.
- Mixing of cement, concrete, paints, solvents, sealants and adhesive must be done in specified areas on concrete aprons or on protected plastic linings to contain spillage or overflows onto soil to avoid contamination of underground water.
- Minimize on-site storage of petroleum products.
- Ensure proper maintenance procedures in place for vehicles and equipment.
- Servicing of vehicles to be in designated areas with appropriate spill management procedures in place.
- Ensure measures to contain spills readily available on site (spill kits).
- Proper and adequate containers (rubbish bins) to be placed in campsites for the temporary disposal of food waste and general litter generated by construction workers. These containers need to close securely to avoid items (e.g. Paper and plastic) been blown into the veld, or been pushed over and rummaged through by wild animals.
- Proper waste management is essential and disposal at municipal waste disposal sites should be regular - at least twice a week.
- Any waste, that could be recycled, will be transported to an appropriate landfill site licensed in terms of section 20 (b) of the National Environment Management Waste Act, 2008 (Act No 59 of 2008). The disposal of any construction waste will be the responsibility of the developer and should be done at least twice a week. A letter of agreement between the developer and the Permit Holder of the waste disposal site shall be provided to the Department of Water Affairs and to the ECO.
- Dispose of liquid waste (grey water) with sewerage.
- Under no circumstances may any sewage, waste food or general litter be dumped in the veld.
- No water for drinking or cooking purposes should be used from out of streams, vleis or farm dams in the vicinity. It is important for relevant management or contractors to ensure that staff/workers are supplied regularly with adequate clean drinking and cooking water.
- The water used to supply the site with potable water is sourced/purchased from landowners in the area with pre-existing rights. The contractor should deliver the water to the site in the applicable water tankers. These requirements are included in the EMPr under the headings "*Construction site*" and "*Ground and Surface Water*".

- In all cases, abstraction of water for construction purposes will require a permit from the Department of Water Affairs unless pre-existing rights are purchased from landowners.
- Sufficient ablution and proper cooking facilities must be provided at the site camp.
- Install appropriate facilities at the campsite. Preferably utilize municipal systems (conservancy tanks with periodic removal) or chemical toilets.
- In general, no ablution facilities should be located within 200m of the banks of any watercourse.
- The disposal of chemical toilets should be at a registered or licensed sewage disposal facility. Proof of agreement between the applicant and the sewage disposal facility for such disposal, confirming that there will be enough capacity to accommodate additional waste, should be submitted to the Department of Water Affairs.

FIRE MANAGEMENT PLAN

A fire management plan must be identified, implemented and maintained, commencing prior to construction and maintained throughout the operational phase. The following additional measures must be included :

- Collection of wood for fires and cooking from out of the surrounding veld is prohibited.
- In campsites, a designated area for camp fires and cooking needs to be made. Should open fires be used then an area of at least 2m by 2m needs to be cleared of any flammable materials such as grass.
- No open fires to be allowed in the powerline corridors or adjacent areas. In such cases proper provision for portable gas stoves should be made. All relevant laws related to flammable substances to be strictly adhered to.
- No fires may be made for the burning of vegetation and waste.
- Fire fighting equipment must be readily available on site during all times.
- Branches and other debris resulting from pruning processes should not be left in areas where it will pose a risk to infrastructure.
- Fires shall not be made for the purpose of chasing or disturbing indigenous fauna.
- Fire Risk Management is dealt with under a procedure titled "Distribution Fire Risk Management", reference SCSASAAJ6. Grass fires are dealt with in this procedure stating that vegetation and equipment must be maintained. A specific procedure deals with fire risk management for substations where the chipped stone needs to be maintained to prevent vegetation growth.
- Eskom Distribution does not make use of the practice to burn fire breaks, rather, it relies on the maintenance of vegetation in accordance to its Vegetation Management Standard to reduce the risk of fires starting from Eskom infrastructure.
- Eskom Distribution Division does not remove the grass below power lines since this does not pose a safety risk and will create the potential for erosion, causing environmental degradation and hence legal liability.

APPOINTMENT OF CONTRACTORS

- Environmental clauses as referred to in this EMP, should be included in contract documents of all contractors.
- All identified site-specific measures in terms of community requirements, the ecology and bird impact for the specific property must be included in the contract with the Contractor and implemented by the Contractor during the construction phase.
- The appointment of contractors with proven track records of sound environmental performance should be given priority.
- It is recommended that the contractor employ local semi-skilled and unskilled labour from the study area to avoid conflict between locals and outsiders with regards to the securing of employment.
- Eskom should stipulate in their contracts with the contractors that local labour should be used for e.g. bush clearing, road construction and fencing.
- Ward councillors could assist in determining available local labourers that could be considered for possible employment.
- Eskom should ensure an equitable process whereby minorities and previously disadvantaged individuals (women) are also taken into account.
- It is recommended that Eskom implements a skills audit and develops a skills database.
- Capacity building and skills transfer should immediately commence to ensure that locals are employable.

- It should be ensured that contractors use local skills, or train semi-skilled people or re-skill appropriate candidates for employment purposes where possible.
- Onsite training should focus on the development of transferable skills (technical, marketing and entrepreneurial skills) to ensure long term benefits to the individuals involved.
- The contractor must ensure that he is well aware of the implications of and must ensure compliance with the following legal requirements, guidelines and policies:
- To identify the most effective time schedule for construction activities to take place on the applicable properties;
- All relevant Eskom standards, specifications and procedures to manage the significant aspects with regards to oil management, bush clearing, entrance of private property, etc.
- Requirements in terms of removing cutting and/or trimming of protected trees in terms of the National Forests Act (Act 84 of 1998).
- All Sections and Regulations of the National Water Act, 1998 (Act 36 of 1998) must be complied with; specifically specifications as described in Section 19 on Pollution and Waste.
- Any activities which relates to section 21 water uses of the National Water Act 1998 (Act No. 36 of 1998), that requires the applicant to get authorisation from the Department before such activities commences.
- Environmental Best Practice Guidelines and Specifications, compiled by the Department of Water Affairs.
- Legislation with regard to graves that is included in the National Heritage Resources Act (No 25 of 1999). It should be noted that the Act also distinguishes between various categories of graves and burial grounds. Other legislation with regard to graves includes those which apply when graves are exhumed and relocated, namely the Ordinance on Exhumations (No 12 of 1980) and the Human Tissues Act (No 65 of 1983 as amended).
- The contractor must be aware that all waste material generated during and after construction that could not be recycled should be transported to the appropriate landfill site licensed in terms of section 20 (b) of the National Environment Management Waste Act, 2008 (Act No 59 of 2008). An agreement letter between the municipality and the contractor should be submitted to the regional office of the Department of Water Affairs regarding the disposal of such waste material. Proof to be kept on site.

8. CONSTRUCTION PHASE

GROUND AND SURFACE WATER

- Site-specific mitigating requirements as included in the table in the section “Specifications applicable to all Phases of Project Development” must be adhered to.
- No water for drinking or cooking purposes should be used from out of streams, vleis or farm dams in the vicinity. It is important for relevant management or contractors to ensure that staff/workers are supplied regularly with adequate clean drinking and cooking water.
- Water should be sourced/purchased from farmers in the area with existing water rights and delivered to the site in the applicable water tankers.
- In all cases, abstraction of water for construction purposes will require a permit from the Department of Water Affairs unless pre-existing rights are purchased from farmers.
- All storm water run-offs must be managed efficiently so as to avoid storm water damage and erosion to adjacent properties.
- During and after construction, storm water control measures should be implemented especially around stockpiled soil, excavated areas, trenches etc. to avoid the export of soil into the watercourse.
- Storm water should not be discharged into the working areas and it should be ensured that storm water leaving the footprint of the proposed development areas is not contaminated by any substance, whether that substance is solid, liquid, vapor or any combination thereof.
- Stockpiling of construction material and soils should be such that pollution of water resources is prevented and that the materials will be retained in a storm event.
- It is strongly recommended that no construction of any sort takes place within aquatic and riparian habitats encountered, as these habitats are viewed as sensitive.

Rivers, seasonal streams and drainage lines

- Rivers and drainage lines are always seen as sensitive and should be avoided at all cost. A few streams / small rivers (Witpuntspruit, Humanspruit,) along with drainage lines cross the powerline corridors. These need to be avoided in the sense that no pylons may be placed directly within the main stream of any one of these watercourses.
- No temporary or other construction facilities to be erected or stored within 100m of the banks of the rivers, streams or main drainage lines.
- Positioning of any pylons need to be a minimum of 32m (preferably 50m) from the edge of the river banks or outside of the 1 in 100 year floodline, whichever is furthest.
- Positioning of the foundation slabs for the pylons must be a minimum of 32m away from the edge of all drainage lines.
- Under no circumstances may a pylon be placed directly in the bed (main flow) of a river or drainage line. Not even if in possession of a valid WUL.
- During and after construction, storm water control measures should be implemented especially around stockpiled soil, excavated areas, trenches etc. so that export of soil into the watercourse is avoided.
- No temporary ablution facilities to be placed within 200m of the banks of any river or seasonal stream.
- No temporary ablution facilities to be placed within 200m of any drainage line, even if they are dry.
- All stream crossings are considered as sensitive areas and no traffic are allowed through it (only at properly constructed bridges) during construction or maintenance of the power line.
- No fishing, capture of any water or land animals, or removal of water plants or other vegetation for food to be allowed.

Construction camp

- Camp site, storage facilities and other necessary temporary structures to be erected within the immediate area demarcated for the substations.
- Encourage the construction contractor to employ local people as far as is reasonably practical and encourage the contractor to transport them daily to and from site. This will reduce solid and liquid waste production and water demand at the site camps.
- According to the applicant and their contractors, accommodation for the construction workers is mostly rented in the nearest town. Sewage disposal will therefore be through the Municipality's main sewer line. Should

accommodation in a construction camp be unavoidable, then the measures as stipulated in the EMPr must be adhered to.

- Included as requirement in the EMPr under heading “*Waste Management*” is the following: The disposal of chemical toilets should be at a registered or licensed sewage disposal facility. Proof of agreement between the applicant and the sewage disposal facility for such disposal, confirming that there will be enough capacity to accommodate additional waste, should be submitted to the Department of Water Affairs.
- No water for drinking or cooking purposes should be used from out of streams, vleis or farm dams in the vicinity. It is important for relevant management or contractors to ensure that staff/workers are supplied regularly with adequate clean drinking and cooking water.
- The water used to supply the site with potable water is sourced/purchased from farmers in the area with pre-existing rights. The contractor should deliver the water to the site in the applicable water tankers.
- In all cases, abstraction of water for construction purposes will require a permit from the Department of Water Affairs unless pre-existing rights are purchased from farmers. For this project, water tanks will be used during construction.
- Mixing of cement, concrete, paints, solvents, sealants and adhesive must be done in specified areas on concrete aprons or on protected plastic linings to contain spillage or overflows onto soil to avoid contamination of underground water.
- No material or machinery to be stored or placed in the open veld outside the designated area of the powerline corridors.
- Proper and adequate containers (rubbish bins) to be placed in campsites for the temporary disposal of food waste and general litter generated by construction workers. These containers need to close securely to avoid items (e.g. Paper and plastic) been blown into the veld, etc. Proper waste management is essential.

Diesel, hydraulic fluid and lubricants

- Minimize on-site storage of petroleum products. Relevant to this project, is that the relevant dangerous goods to be stored on site is diesel. The diesel tank can hold 2000 litres (2 cubic metres). Of relevance is: GNR 544 of 2010, activity nr 13 that states “...storages of dangerous goods with a capacity above 80 cubic metres...”. The amount of diesel that will be stored on site is 2 cubic metres and is therefore a relatively small amount and well below the threshold of the listed activity of 80 cubic metres.
- Precautionary methods to be implemented for handling of oil and substances that could impact on the soils, ground- and surface water :
- No hazardous substances may be stored on site for a period exceeding 90 days. (Note that the Department of Water Affairs requires a permit for a waste disposal site in the event that longer storage periods apply).
- All hazardous substances at the site must be adequately stored and accurately identified, recorded and labeled. The storage of any hazardous substances must take place in a secured lock-up building or covered area.
- Build adequate structures (berms and containment structures) to contain any oil spills that might emanate from transformers.
- Bund storage tanks to 120% of capacity.
- Ensure proper maintenance procedures in place for vehicles and equipment.
- Servicing of vehicles to be in designated areas with appropriate spill management procedures in place.
- Ensure measures to contain spills readily available on site (spill kits).
- A container filled with sand to soak up any spillages, as well as an empty container into which the “contaminated” sand could be placed and stored for collection by the supplier of the chemicals or oils must be provided.
- If spills occur it should be reported to the SECO and/or ECO with immediate effect. It should be immediately cleaned up to the satisfaction of the Regional Representative of the Department of Water Affairs by removing the spillage together with the polluted soil and by disposing it at an authorized waste disposal site. The Department should be notified of such spills within 24 hours of the incident.

Site camp domestic waste (kitchens, showers)

- Deposit solid waste in containers and dispose of regularly- at least weekly. Any waste that cannot be recycled will be transported to the appropriate landfill site licensed in terms of section 20 (b) of the National Environment Management Waste Act, 2008 (Act No 59 of 2008). Proof to be kept by contractor.
- Under no circumstances may any waste food or general litter be dumped, or buried in the veld.
- Dispose of liquid waste (grey water) with sewerage.

Site camp sewage

- Minimize on-site accommodation.

- Supply, maintain and enforce the use of mobile toilets at the work sites. Only proper portable, chemical ablution facilities to be used and these to be positioned only within the 31m powerline servitudes.
- No temporary ablution facilities to be placed within 200m of the banks of any of the rivers, streams or drainage lines (even those that are dry during the time of construction).
- The following is included as requirement in the EMPr under the heading “*Waste Management*”: The disposal of chemical toilets should be on a regular basis and at a registered or licensed sewage disposal facility. Proof of agreement between the applicant and the sewage disposal facility for such disposal, confirming that there will be enough capacity to accommodate additional waste, should be submitted to the Department of Water Affairs.
- Under no circumstances may any effluent or sewage to be dumped (or buried) in the open veld.

Site camp inert waste (waste concrete, reinforcing rods, waste bags, wire, timber etc.)

- Ensure compliance with stringent clean up requirements on site. As a general requirement, disposal should be at least twice a week.
- The solid waste will be transported off site by the contractor and returned to Eskom Stores where the scrap will be handed over to buyers (scrap dealers). Mostly the waste is steel that is recycled and taken to the Eskom stores. Other waste is normally the used cement bags and this is disposed of in the construction hole for the pylon. The bags will be mixed into the cement and used to fill the excavated hole of the pylon. Any other waste that could not be recycled (this is minimal) will be transported to an appropriate landfill site licensed in terms of section 20 (b) of the National Environment Management Waste Act, 2008 (Act No 59 of 2008). The disposal of any construction waste will be the responsibility of the developer and should be done at least twice a week. A letter of agreement between the developer and the Permit Holder of the waste disposal site shall be provided to the DWA.
- These measures are also included as requirements in the EMPr under the headings “*Appointment of Contractors*” and “*Waste Management*”. Also refer to the other mitigation measures under the same headings.

WASTE MANAGEMENT

- Proper and adequate containers (rubbish bins) to be placed in campsites for the temporary disposal of food waste and general litter generated by construction workers. These containers need to close securely to avoid items (e.g. Paper and plastic) been blown into the veld, etc. Disposal should be regularly- at least twice a week.
- It is recommended that the construction teams have immediate access to rubbish containers/bags. These bags should be available on the construction vehicles.
- The site camp inert waste shall be transported off site by the contractor and returned to Eskom Stores where the scrap will be handed over to buyers (scrap dealers).
- Any **other waste that could not be recycled**, shall be transported to an appropriate landfill site licensed in terms of section 20 (b) of the National Environment Management Waste Act, 2008 (Act No 59 of 2008).
- The disposal of any construction waste will be the responsibility of the developer and should be done at least twice a week. A letter of agreement between the developer and the Permit Holder of the waste disposal site shall be provided to the DWA. Proof to be kept on site.
- Dispose of liquid waste (grey water) with sewerage.
- Chemical toilets should be provided for employees on site and their disposal should be at a registered or licensed sewage disposal facility. Proof of agreement between the applicant and the sewage disposal facility for such disposal, confirming that there will be enough capacity to accommodate additional waste, should be submitted to the Department of Water Affairs.
- Minimize on-site storage of petroleum products. Relevant to this project, is that the only relevant dangerous goods to be stored on site is diesel. The diesel tank can hold 2000 litres (2 cubic metres). Of relevance is: GNR 544, activity nr 13 that states “...storages of dangerous goods with a capacity above 80 cubic metres...” is a listed activity. The amount of diesel that will be stored on site is therefore relatively small and well below the threshold of the listed activity of above 80 cubic metres.
- *Precautionary measures* to be implemented for handling of oil and substances that could impact on the soils, ground- and surface water :
- No hazardous substances may be stored on site for a period exceeding 90 days. (Note that the Department of Water Affairs requires a permit for a waste disposal site in the event that longer storage periods apply).

- All hazardous substances, *if any*, at the site must be adequately stored and accurately identified, recorded and labeled. The storage of any hazardous substances must take place in a secured lock-up building or covered area. All these hazardous substances should be disposed of at a licensed Class H site.
- Build adequate structures (berms and containment structures) to contain any oil spills, which might emanate from transformers (relevant to this project is that no substation with its applicable transformers will be constructed).
- Bund storage tanks to 120% of capacity.
- Ensure proper maintenance procedures in place for vehicles and equipment.
- Servicing of vehicles to be in designated areas with appropriate spill management procedures in place.
- Ensure measures to contain spills readily available on site (spill kits).
- A container filled with sand to soak up any spillages, as well as an empty container into which the “contaminated” sand could be placed and stored for collection by the supplier of the chemicals or oils must be provided.
- In case of a spill, any oil-contaminated waste (soil, cloths used to clean small spills etc.) must be disposed of at a facility that is registered as a hazardous landfill.
- The Regional Representative of the Department of Water Affairs and Forestry (tel 012- 392 1411) should immediately be informed if pollution of any groundwater or soils occurs. They will give instruction on actions to be taken in this regard.

PREPARATION OF SERVITUDE / VEGETATION CLEARANCE

- Site-specific mitigation requirements as included in the section “Specifications applicable to all Phases of Project Development” must be adhered to.
- The procedures for vegetation clearance and maintenance within overhead power line servitudes and on Eskom owned land, updated September 2009 must be implemented.

The minimum standards are summarised as a guideline as follows:

Item	Standard	Follow up
Centre line of proposed powerline	Specification for width of vegetation clearance on new lines (above 33kV) shall be determined based on the EIA and EMP. New power line, an 8 metre (or as determined per site) wide strip of identified vegetation along the centre line should be cleared. If Required, 5 meter wide strip to be cut close to the ground (50 mm) for access purposes.	Re-growth shall be cut within 50 mm of the ground and/or treated with herbicide as necessary.
Inaccessible valleys (trace line)	If no other alternative, clear a 1 metre strip for access by foot, only for the pulling of a pilot wire by hand, or make use of a helicopter, or other technique, to fly line across.	Vegetation not to be disturbed after initial clearing– vegetation to regrow.
Tower position and support/stay wire position	Clear all vegetation within proposed tower position and within a maximum (depending on the tower type and voltage) radius of 5 m around the position, including destumping /cutting stumps to ground level, treating with an herbicide and re-compaction of soil.	Re-growth to be cut at ground level and treated with herbicide as necessary.
Indigenous vegetation within servitude area (outside of the maximum 8 m strip)	Selective trimming or cutting down of those identified plants interfering or posing a threat to the integrity of the power line.	Selective trimming
Alien species (Declared Weeds ito CARA Reg 229) within servitude area (outside of the maximum 8 m strip)	Control programme to be implemented as per above procedure. Trimming need not be selective.	Cut and treat with appropriate herbicide.

- Indigenous vegetation that does not interfere with the safe operation of the power line should be left undisturbed. No indigenous trees or shrubs outside of the power line corridor of 8m to be removed.
- Existing access roads should be used as far as possible. Where clearing for an access and maintenance road is essential, the maximum width to be cleared is 8m.
- Temporary access roads for vehicles carrying equipment, materials, etc. into the power line corridors need to be kept to an absolute minimum. None of these access roads may cross through sensitive areas.

- Ensure that no trees or existing grass strata outside of the servitude corridor be removed to lower any kinetic energy of potential run-off, that disturbed surface areas in the construction phase be restored and lastly that no open trenches or mounds of soils created during construction be left.
- Clearing for pylon positions must be the minimum required for the specific tower, not more than a 5m radius around the structure position.
- A few rocky/mountainous areas have been identified along the proposed servitude routes. These areas are considered moderately sensitive and should be approached with caution.
- The area is not seen as a “No-Go” area, but care should still be taken to avoid any unnecessary disturbance of veld or soil. Removal of trees, shrubs and other vegetation should be kept strictly to within the 8m corridor under the power lines.
- Only a single, basic vehicle track to be constructed as an access road under pylons moving through the rocky area.
- Access roads need to be kept to an absolute minimum.
- All exotic plants must be removed during construction and cleared areas must be rehabilitated. Areas where exotic plants are cleared should be rehabilitated and re-planted with approved indigenous species.
- Care must be taken to ensure alien vegetation is not spread as a result of vegetation management processes through the transport of seeds or other vegetative material from one site to another.

CONTROL OF ALIEN VEGETATION

- The manner in which the right of way was obtained/registered is an important factor in determining the legal requirements for erosion and weed control.
- The Conservation of Agricultural Resources Act (Act 43 of 1983) places a duty on the land user to control erosion and declared weeds and invader plants. Hence, the standard specifies weed control as a requirement for all power lines: The act defines land user as follows:
 - 'land user' means the owner of land, and includes-
 - any person who has a personal or real right in respect of any land in his capacity as fiduciary, fideicommissary, servitude holder, possessor, lessee or occupier, irrespective of whether he resides thereon;
 - any person who has the right to cut trees or wood on land or to remove trees, wood or other organic material from land.
- A servitude is a real right which Eskom obtained in order to construct its infrastructure upon the affected property and it is registered in the Deeds Office against the title deed of the affected property. This places a duty on Eskom to control declared weeds and invader plants.
- Alien vegetation in servitudes shall be managed in terms of the Regulation GNR.1048 of 25 May 1984 (as amended) issued in terms of the Conservation of Agricultural Resources Act, Act 43 of 1983. In Terms of these regulations, Eskom shall “control” i.e. to combat category 1, 2 and 3 plants to the extent necessary to prevent or to contain the occurrence, establishment, growth, multiplication, propagation, regeneration and spreading such plants within servitude areas or land owned by Eskom.
- Mechanical control of alien plants around disturbed areas to be implemented within three months of completion of construction. Thereafter every six months. These areas will be predominantly around the erected pylons where the soils were originally disturbed during the construction phase. Mechanical control to be of such a nature as to allow local grasses and other pioneer plants to colonise the previously disturbed areas, thereby keeping out alien invasives.
- No chemical control (herbicides) of alien plants to be used. These chemicals will have a detrimental effect on the surrounding vegetation and habitats.
- Vegetation under pylons and next to pylons to be mowed and not ploughed. This in an effort to avoid disturbing the ground which leaves it open to colonisation by alien weeds.
- Disturbance of the soils must be kept to an absolute minimum to limit the potential introduction of alien plants.

PROTECTION OF FAUNA AND FLORA

- No animals or birds may be fed, disturbed, hunted or trapped as well as no plant material removed or stored if not part of identified vegetation clearance.

- Various species of indigenous trees and bush are protected by law in terms of the National Forests Act No 122 of 1984, which stipulates that it is necessary to obtain a permit from the relevant provincial office of the Department of Agriculture, Forestry and Fisheries in order to cut them.
- Protected or endangered plant species that will be affected by the physical footprint of the power lines will require the necessary permits to cut or remove them.
- The ecological survey **observed no protected trees** during the site investigations, therefore **permits** for cutting or trimming are not envisaged.
- A walk down study is needed to confirm the presence/absence of all protected trees once the final route is demarcated (pegged). The protected trees must be mapped (GPS) and applications for trimming, cutting and removal must be acquired before the clearing of the servitude can commence.
- The rescue of protected and endangered plants that can be replanted should be coordinated by the ECO in consultation with the provincial environmental authorities, and the appropriate post-construction rehabilitation measures must be implemented.
- The harvesting of medicinal plants, which may occur on the site prior to site clearance, should be coordinated by the ECO.

BIRD IMPACT

- The proposed construction of the Alternative 1 power line should have a medium habitat transformation impact and the construction of Alternative 2 a low-medium habitat transformation impact from an avifaunal perspective, depending on how much excess vegetation are cleared during the construction of the line. The removal of large trees should be avoided as much as possible.
- Strict control should be maintained over all activities during construction, in particular heavy machinery and vehicle movements, and staff. It is difficult to mitigate properly for this as some habitat destruction is inevitable. It is important to ensure that the construction Environmental Management Plan incorporates guidelines as to how best to minimize this impact.
- During Construction, if any of the “Focal Species” identified in this report are observed to be roosting and/or breeding in the vicinity (within 500m of the power line), the EWT is to be contacted for further instruction.

SOIL EROSION

- Neither drainage nor erosion is seen to be significant threats as long as the proper mitigating measures are implemented.
- Site-specific mitigation requirements as included in the table in the section “Specification applicable to all Phases of Project Development” must be adhered to.
- To cause the loss of soil by erosion is an offense under the Soil Conservation Act, Act No 76 of 1969.)
- Construction activities should be well managed to prevent erosion and the following is relevant:
- Rocky ridges are generally seen as sensitive and need to be avoided where possible. There are no typical koppies (rocky outcrops) found within the powerline corridors. There are a few areas where there are bolder-strewn undulating slopes, but these are not the same as koppies or rocky ridges and are not seen as been ecologically sensitive, from either a floral or faunal point of view.
- The routes for both Alternative 1 and Alternative 2 were designed to follow existing power lines and these servitudes can be used as access roads during construction. This will lower the need for clearing of natural vegetation during construction.
- Care should still be taken to avoid any unnecessary disturbance of veld or soil. Removal of trees, shrubs and other vegetation should be kept strictly to within the 8m corridor under the power lines.
- Only a single, basic vehicle track to be constructed as an access road under pylons.
- Access roads need to be kept to an absolute minimum.
- No roads may be cut through riverbanks, stream banks or drainage line banks, as this may lead to erosion and siltation of watercourses and downstream dams. Only existing, proper watercourse crossings may be used during construction and maintenance phases.

- Pro-active measures must be implemented to curb erosion and to rehabilitate eroded areas. All areas susceptible to erosion must be installed with temporary and permanent diversion channels and berms to prevent concentration of surface water and scouring of slopes and banks, thereby countering soil erosion.
- Crossing of dongas and existing eroded areas shall be thoroughly planned prior to the start of construction and movement of construction and delivery vehicles.
- Water diversion berms shall be installed at donga crossings to ensure runoff water on the servitude does not run into dongas and cause an erosion hazard, nor resulting in increased or further erosion.
- Suitable erosion containment structures shall be constructed at donga crossings where required and viable. Specialists shall properly design all structures and drawings shall be available for reference purposes.
- No unplanned / improperly planned cutting of donga embankments is allowed as this leads to erosion and degradation of the natural environment.
- No unnecessary roads or vehicle tracks or driving of vehicles through the veld as this leads to increased denuding of the covered soils, which leads to increased erosion potential.
- Unnecessary clearing of flora resulting in exposed soil prone to erosive conditions should be avoided.
- No trees or existing grass strata outside of the power line corridor should be removed to lower any kinetic energy of potential run-off.
- Indigenous vegetation, which does not interfere with the safe operation of the substation/ power line, should be left undisturbed.
- The ground around all foundation slabs for the pylons need to be inspected before and after the summer rainy season for erosion. Any erosion found needs to be fixed and preventative measures put in place to prevent a reoccurrence of the situation.
- Specifications (as identified in the Environmental Management Programme) for topsoil storage and replacement, to ensure sufficient soil coverage as soon as possible after construction activities, must be implemented.
- All cleared areas must be ripped and rehabilitated after construction. The top 200mm layer of topsoil must be removed and stockpiled in heaps not higher than 2m and replaced on the construction areas once the activities have been completed. The affected areas should be replanted with a grass mixture indigenous to the area.
- Construction during the dry months/periods of the year should be considered in order to overcome the problems caused by excessive moisture.
- The eradication of any alien vegetation should be followed up as soon as possible by replacement with indigenous vegetation to ensure quick and sufficient coverage of exposed soil.
- Surface area under powerlines to be mowed and not ploughed.
- Disturbed surface areas in the construction phase to be restored. No open trenches to be left. No mounds of soils created during construction to be left.
- The final design of the power line must accommodate the requirements of the ecologist, Johannes Maree (Tel 082 564 1211), of which the site-specific details are included in this EMPr. These measures will limit the impact on erosion.

HERITAGE RESOURCES

- A *Phase I Heritage Impact Assessment* study for the proposed Eskom Project revealed no presence of the types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) in and near the Eskom Project Area.
- In addition a desktop *Palaeontological Study* was conducted to assess the fossil heritage of national and international significance. The palaeontological sensitivity was found to be MODERATE.

Recommendation

- Both Alternative 1 and Alternative 2 are recommended for the proposed 88kV power line between Ermelo substation and Uitkoms substation from a heritage as well as a palaeontological impact assessment point of view.
- It may be necessary to perform a Phase 1 Palaeontological Impact Assessment to determine whether the planting of pylons will affect fossiliferous outcrops as the palaeontological sensitivity is MODERATE. A Phase 2 Palaeontological Mitigation may be required taken into account the overall palaeontological impact is LOW to VERY HIGH depending on the outcome of the Phase 1 Palaeontological Impact Assessment.

- If archaeological/palaeontological or other types of heritage resources are uncovered during construction/ground clearance activities SAHRA (Mrs Colette Scheermeyer/ Mr Phillip Hine, tel: 021 462 4502) and a professional archaeologists/palaeontologist dependent on the finds must be alerted immediately to inspect the finds. A rescue excavation may be required if the identified heritage resource/s is deemed to be significant.

COMMUNITY ISSUES (SAFETY, SECURITY, NOISE, DUST, ETC.)

- Site-specific mitigatory requirements as included in the table in the section “Specification applicable to all Phases of Project Development” must be adhered to.
- Eskom and the contractors should maximise the use of local labour where possible by developing a strategy to involve local labour in the contractor teams and construction process.
- Before construction commences, representatives from the local authority and community-based organisations, as well as neighbouring and/or affected residents should be informed of the details of the construction company (contractor), size of the workforce and construction schedules.
- Conditions stipulated by property owners in terms of the construction activities should be implemented and monitored.
- Contractors and temporary employees should behave fittingly at all times.
- Workers should receive fines if they do not adhere to the conditions, rules and regulations.
- Workers should be made aware of property owners’ concerns regarding construction work on their properties so that they are familiar with the sensitive issues.
- A specific contact person should be identified to allow community members and property owners to easily direct their queries and concerns and obtain general information regarding the construction process.
- Prepare a comprehensive Environmental Management Programme (EMPr) for the control of environmental impacts at the site camps.
- Construction workers must be extremely careful not to damage any property. Should any damage occur it should be reported to the Environmental Officer and repaired to the written satisfaction of the landowner.
- Removal of agricultural products is prohibited.
- No firewood may be collected without the landowner’s permission. All cut wood must be left on the property.
- No fires are to be made on private property.
- In order to prevent and/or minimize crime, it is required that all construction workers be supplied with controlled serviced accommodation or be supplied with transport to their homes.
- No wandering on adjacent properties is allowed, unless written consent has been obtained from the relevant landowners.
- All adjacent landowners have to be informed of the blasting programme (if applicable) prior to any blasting taking place. Contractors must liaise personally with adjacent landowners. All communication in this regard must be documented.
- Blasting may only be undertaken by specialists in the field and should be limited to small localized areas. All relevant legislation must be adhered to.
- All contractors and construction workers will be issued with temporary permits to enter the property.
- All construction workers will be allowed only for specified day light hours. Transport should be made available by the Contractor to remove labourers from the site after working hours.
- Secure accommodation facilities must be provided for guarding personnel.
- Supervision of labourers must at all times take place.
- Construction hours will be restricted to specific periods that exclude Sundays and public holidays.
- Sweeping of construction sites, clearing of building rubble and debris (storage areas, roads, etc.) must take place at least once a day.
- All excavated areas must be clearly marked and barrier tape must be placed around them to prevent humans and animals from falling into them.
- All gates into the properties of landowners should be kept closed at all times.
- No squatting to be allowed in the servitude area.

PROTOCOL FOR ACCESS TO PROPERTY

Eskom Holdings has a right to enter property in order to maintain plant and obtain meter readings, therefore the manner of access to land, on which Eskom holds servitudes and electrical infrastructure, should be considered by Eskom as well as landowners. Security on farms is important to landowners who need to ensure that the safety of their family, staff and property is catered for. Coupled to this is the escalating crime rate on farms.

Approaches to facilitate access to farms for all Eskom staff and contractors (performing work on behalf of Eskom) is stipulated in the Access to Farms (Distribution, Transmission and Generation) Standard 32-1173 of which a copy can be obtained from the local organised agriculture structures.

Protocol measures are i.e. as follows:

- All Eskom staff will carry identity cards containing their photographs, indicating that they are Eskom employees. Landowners may verify presence of Eskom staff telephonically at the Contact Centre, at 08600 37566.
- Eskom contractors will carry identity cards displaying their photographs, indicating that they are contractors. Letters containing contract appointment as well as whom at Eskom to contact will be given to each Contractor. In the case of unplanned activities, the contractor must be in possession of a work order number.
- Eskom vehicles will be clearly marked on the door. Vehicles operating after dark will be fitted with amber rotating lights.
- Vehicles of Eskom contractors must have a magnetic strip on the side containing the words "Eskom contractor", as well as an amber rotating light.
- No person may climb or crawl over or through fences without the owners' permission. No person may damage or remove a fence without the owners' permission.
- Gates should be left in the state the landowner intended. In order to assist with any possible claims, any visitor will keep a log of each gate that is used stating:
 - the position of the gate with reference to towers
 - the state in which it was found (open or closed)
 - the time
 - any other appropriate information (locks, etc.)
- Standard Eskom locks shall be used in all cases and in such a manner that it securely locks the gate. Where dual-use is made of the gate by Eskom Holdings and the landowner, the Eskom lock shall be locked into the chain-link, separate from the farmer's lock as to permit both parties to gain access without inconveniencing either party. No interference with landowners' locks will be tolerated. The cutting of landowners' locks except in extreme emergency will result in disciplinary action.
- Where helicopters are deployed, care should be taken in conjunction with the Line and Servitude Manager and the landowner not to cause any disturbance or harm to livestock such as ostriches or game. The use of helicopters on lines during line patrols does present its challenges when all the property owners en route need to be informed before the inspection. Notice of such patrols should be communicated via District Agricultural offices a month before.
- Any damage caused to any gate, fence, crop or grazing shall be reported to the Line and Servitude Manager or ECO who will then refer it to the appropriate Eskom Holdings Official for processing. Extreme care must be taken with fires and the use of fires will only be permitted with express approval of the landowner.
- No fauna or flora will be collected or removed from any farm by any visitor without written permission of the Landowner, in which case cognizance will be taken of appropriate provincial legislation pertaining to fauna and flora. Under such cases Eskom Holdings ethical policies and guidelines will be strictly applied.
- Any visitor will at all times refrain from littering and must remove any refuse when leaving.
- Visitors shall as far as possible only use the servitude roads or the roads as determined by the environmental management plan and agreed to with the Land owner. Where this is not possible the landowner's permission shall be obtained for the use of any other roads. In all cases care shall be taken to not cause any damage in the process and driving through the veld must be avoided as far as possible.

Planned outages

- Eskom will notify customers at least 10 days in advance through the appropriate media – either in writing, electronically (SMS) or telephonically. The onus rests on the Customer to ensure that all their contact details are updated on the Eskom system. Should its best attempts to communicate fail, the work will proceed regardless.

Planned activities such as vegetation control, live-line work and line inspections.

- Eskom will notify customers at least 48 hours in advance through the appropriate media – either in writing, electronically or telephonically. Should its attempts to communicate fail, the work will proceed.

Unplanned/unscheduled visits

- Rapid power restoration without any delay is in the interest of both Eskom and the customer. This is dependent on free movement.
- All Eskom staff as well as representatives of Eskom contractors will carry identity cards containing their photographs to indicate whether they are Eskom employees or Eskom contractors. In addition, customers may request a work order number to be verified with the Contact Centre. Vehicles must be clearly marked.

FIRE BREAKS AND SERVITUDE MAINTENANCE

The servitude areas have to be maintained to ensure the safety of the Eskom hardware, but in particular the safety of the landowner and his property. Should the servitude not be maintained this could result in danger to the power line as well as damage to the property of the landowner.

- In the case of 33kV, 88kV and 132kV distribution power lines, Eskom obtains the rights to a servitude.
- A servitude is a real right which Eskom obtained in order to construct its infrastructure upon the affected property and it is registered in the Deeds Office against the title deed of the affected property. The effected owner normally gets compensated for this right according to market related values. The servitude stays effective even if a property is transferred to another owner.
- The National Veld and Forest Fire Act (Act 101 of 1998) places an obligation on the owner to ensure compliance and hence creation of fire-breaks amongst other. The Act defines owner as follows: “owner” has its common law meaning and includes— (a) a lessee or other person who controls the land in question in terms of a contract, testamentary document, law or order of a High Court.
- The Eskom understanding is that Eskom needs to ensure compliance to the Act where it has purchased a property (hence being the owner) such as a substation. Eskom is not considered as the owner for rights obtained via a wayleave agreement or servitude. Hence, the requirements for creating firebreaks or joining Fire Protection Agencies are applicable as far as where Eskom has a substation and not for power lines. These opinions were reflected in the specifications – thus, the Vegetation Management Standard does not specify requirements for fire breaks.
- Fire Risk Management is dealt with under a procedure titled “Distribution Fire Risk Management”, reference SCSASAAJ6. Grass fires are dealt with in this procedure stating that vegetation and equipment must be maintained. A specific procedure deals with fire risk management for substations where the chipped stone needs to be maintained to prevent vegetation growth.
- Eskom Distribution does not make use of the practice to burn fire breaks, since this is not a legal requirement. Rather, it relies on the maintenance of vegetation in accordance to its Vegetation Management Standard to reduce the risk of fires starting from Eskom infrastructure.
- Eskom Distribution Division does not remove the grass below power lines since this does not pose a safety risk and will create the potential for erosion, causing environmental degradation and hence legal liability. It will furthermore be an economically unsustainable exercise for Eskom given the amount of power lines throughout South Africa.
- The existing complaints structure must be revised by Eskom and be updated on a regular basis and communicated with all the affected landowners to ensure effective response and service supply.
- The contact details of all landowners affected as well as relevant Eskom staff must be listed and updated regularly and be communicated with all the stakeholders to ensure effective communication in the case of emergencies such as veldfires.
- Branches and other debris resulting from pruning processes should not be left below conductors or in areas where it will pose a risk to infrastructure.
- Debris shall not be burnt under any circumstances
- Fires shall not be made for the purpose of chasing or disturbing indigenous fauna.
- Eskom encourages affected landowners and maintenance staff to participate in the Fire Protection Agency.

ROADS AND TRAFFIC MANAGEMENT

- Property owners that would be affected by the distribution line construction should be consulted prior to the construction phase with regards to the construction schedules, transportation corridors, construction of additional access roads and construction methods to be used.
- Eskom should keep the construction of access roads to a minimum and rather use the existing infrastructure, as the construction and maintenance of these roads are very costly, impact on the residents' daily living and movement patterns, and create a potential for erosion.
- Rehabilitation of new access roads for construction vehicles should be undertaken as soon as the construction process allows.
- There should be strict adherence to speed limits when using local roads and when travelling through residential areas.
- Access Corridors and access points for heavy construction vehicles should be indicated to warn motorists of the movement of these vehicles.
- Limit the movement of construction vehicles to off-peak periods (where possible).
- Limit the movement of construction vehicles in areas where sensitive receptors are situated e.g. schools and pedestrians.
- Construction hours will be restricted to specific periods which exclude Sundays and public holidays.

9. OPERATIONAL & POST-CONSTRUCTION PHASE

SOIL EROSION

- Specifications for topsoil storage and replacement to ensure sufficient soil coverage as soon as possible after construction activities as identified in the Environmental Management Programme must be implemented.
- All embankments (if any) must be adequately compacted and planted with grass to stop any excessive erosion and scouring of the landscape.
- After construction, all roads should be rehabilitated.
- The site must be rehabilitated and replanted with suitable, indigenous grass to prevent erosion.
- Vegetation within the powerline corridors to be mowed as a maintenance procedure and not ploughed. Ploughing disturbs the soils, increasing the possibility of soil erosion by water runoff.
- Areas around foundation slabs to be checked before and after the summer rainy season for signs of soil erosion due to stormwater run-off. Such sites need to be modified and rehabilitated to prevent ongoing erosion. These sites need to be monitored more closely than other sites which show no or minimal signs of erosion.

ALIEN VEGETATION

- An on going programme to be implemented to mechanically control alien plant species that invade the disturbed soils around the newly erected pylons. This should be done in such a way as to allow the natural grasses and pioneer plants to colonise the disturbed areas.
- Typically there should not be any, or very little, infestation of weeds under the powerlines where the veld / grass has only been cut. The weeds found in the area typically invade disturbed soils, with the exception of tree species, but these typically invade kloofs, ravines and drainage lines.
- Mechanical control of alien plants around disturbed areas to be implemented within three months of completion of construction. Thereafter every six months. These areas will be predominantly around the erected pylons where the soils were originally disturbed during the construction phase. Mechanical control to be of such a nature as to allow local grasses and other pioneer plants to colonise the previously disturbed areas, thereby keeping out alien invasives.
- No chemical control (herbicides) of alien plants to be used. These chemicals will have a detrimental effect on the surrounding vegetation and habitats.
- Vegetation under pylons and next to pylons to be mowed and not ploughed. This in an effort to avoid disturbing the ground which leaves it open to colonisation by alien weeds.
- Disturbance of the soils must be kept to an absolute minimum to limit the potential introduction of alien plants.

CONSTRUCTION SITE CLEARANCE

- After construction, any building material, signs of excess concrete, equipment, houses, ablution facilities, building rubble, refuse and litter needs to be removed and cleaned up from the construction site as well as from the store room by the contractor. This within 3 months of completion of the project
- Proper and complete take down and removal of all temporary accommodation sites, storage sites, etc. needs to take place within three months of completion of the project. This includes all litter.
- Items that can be used again should be recycled. Unusable waste steel and aluminum will be sold to scrap dealers for recycling at the Eskom stores.
- Any waste that cannot be recycled should be transported to the appropriate landfill site licensed in terms of section 20 (b) of the National Environment Management Waste Act, 2008 (Act No 59 of 2008).
- Once construction is completed, the contractor has to obtain written consent from the relevant landowner that the construction site, construction areas, access routes, etc. are sufficiently and adequately rehabilitated to the landowners' satisfaction.
- All disturbed sites and surfaces to be rehabilitated.

- No unused piles of sand, soil or construction materials of any kind whatsoever to be left in the powerline corridors, or at temporary construction or storage sites.

COMMUNITY ISSUES

- All complaints received with regards to poor conduct of Eskom personnel, malfunction of or damage to Eskom structures; bird killings as a result of electrocutions and/or collisions; etc. will be investigated by Eskom in co-operation with all the relevant stakeholders.
- The existing complaints structure must be revised by Eskom and be updated on a regular basis and communicated with all the affected landowners to ensure effective response and service supply.
- A list of all names, telephone numbers and addresses of the relevant Eskom employees, contractors and all affected landowners must be compiled and regularly updated and distributed to everyone to ensure sufficient communication channels in case of emergency and where access is required for maintenance and debushing purposes.
- Once construction is completed, the contractor has to obtain written consent from the relevant landowner that the construction site, construction areas, access routes, etc. are sufficiently and adequately rehabilitated to the landowner's satisfaction.
- No wandering on adjacent properties is allowed, unless written consent has been obtained from the relevant landowners.

VEGETATION MAINTENANCE OF THE SERVITUDE

- The document "Eskom Environmental Procedure: Procedure for Vegetation Clearing and Maintenance within Overhead Powerline Servitudes and on Eskom owned land", updated September 2007, must be implemented.
- Selective bush clearing must take place. Indigenous vegetation which would not interfere with the safe operation of the new Substation and the power lines should be left undisturbed.
- A minimum rolling three year vegetation management programme should be promoted. This will allow effective identification, management and follow up of problematic vegetation.
- Surface area under powerlines to be mowed and not ploughed.
- Alien vegetation in servitudes shall be managed in terms of Regulation GNR.1048 of 25 May 1984 (as amended) issued in terms of the Conservation of Agricultural Resources Act, Act 43 of 1983. In terms of these regulations, Eskom shall "control" i.e. combat category 1, 2 and 3 plants to the extent necessary to prevent or to contain the occurrence, establishment, growth, multiplication, propagation, regeneration and spreading such plants within servitude areas or land owned by Eskom. Due to the nature of alien vegetation, a control programme for alien vegetation control must be implemented.
- Mechanical control of alien plants around disturbed areas to be implemented within two months of completion of construction. Thereafter every six months. These areas will be predominantly around the erected pylons where the soils were originally disturbed during the construction phase. Mechanical control to be of such a nature as to allow local grasses and other pioneer plants to colonise the previously disturbed areas, thereby keeping out alien invasives.
- No chemical control (herbicides) of alien plants to be used. These chemicals will have a detrimental effect on the surrounding vegetation and habitats.
- Vegetation under pylons and next to pylons to be mowed and not ploughed. This in an effort to avoid disturbing the ground which leaves it open to colonisation by alien weeds.
- Disturbance of the soils must be kept to an absolute minimum to limit the potential introduction of alien plants.

BIRD IMPACT

Electrocutions

Electrocution is possible on 88kV power lines, especially where large raptors and vultures feature prevalently. Fortunately, it is highly unlikely that vultures will occur in the study area and few large raptors were recorded in the SABAP data sets, so *the impact of electrocution is likely to be of Low Significance* for the proposed power line if the proposed mitigations are implemented.

Collisions

In general, large lines with earth wires that are not always visible to birds can have the largest impact in terms of collisions. Most heavily impacted upon are korhaans, bustards, storks, cranes and various species of water birds. These species are mostly heavy-bodied birds with limited manoeuvrability, which makes it difficult for them to take the necessary evasive action to avoid colliding with power lines. Unfortunately, many of the collision sensitive species are considered threatened in southern Africa. Collision of certain large flying bird species such as Southern Bald Ibis, White Stork, Blue Korhaan, Secretarybird, Greater Flamingo and Grey Crowned Crane with the proposed lines is a possibility, and *this impact is predicted to be of Moderate Significance*.

Recommendations

Collisions

- The area within 100m on either side of the Witpuntspruit, as well as all open water bodies and farm dams in the area are classified as *Medium-High Sensitivity*. Within these areas, it is recommended that construction of the power line be avoided, if possible, and any line that is built in these zones will require collision mitigation in the form of bird flight diverters (“flappers”). All remaining areas on the site are classed as *Low-Medium Sensitivity*.
- Mark the relevant sections of line with appropriate marking devices. These sections of line, and the exact spans, should be finalised by a “walk down” as part of the Environmental Management Programme (EMP) phase, once power-line routes are finalised and pylon positions are pegged.

Electrocution

- It is highly recommended that the steel monopole design be used and that this incorporates the standard bird perch. If this is the case then most raptors and birds of high electrocution risk will perch well above the conductors and out of harm’s way. In addition it is critical that all clearances between live and earth components are greater than 1.8 meters. If this is the case then the impact of bird electrocution will be very minimal.

Disturbance during routine maintenance

- No nests may be removed, without first consulting the EWT’s Wildlife and Energy Program (WEP). During maintenance, if any of the “Focal Species” identified in this report are observed to be roosting and/or breeding in the vicinity, the EWT is to be contacted for further instruction.

MONITORING PROGRAMMES

- The Environmental officer should inspect the construction site on a regular basis to ensure that the mitigation and rehabilitation measures are applied as specified in the Environmental Management Plan.
- Inspection of the servitude should include monitoring of the servitude during the Post-Construction & Operational Phase to detect any potential erosion problems timely. Mitigation measures should immediately be identified and implemented by Eskom in cooperation with the landowner.
- Any incidents resulting from Eskom structures and operation that might have a detrimental impact on the environment will be investigated and measures, if applicable, will be identified in close cooperation with the affected parties and/or stakeholders and be implemented and monitored accordingly.
- Eskom must at all times follow acceptable maintenance and operational practices to ensure consistent, effective and safe performance of the infrastructure.

10. DECOMMISSIONING

Should the powerlines have to be decommissioned in the future (it is not envisaged), the structures will generally have to be physically removed. This will entail the reversal of the construction process with potential significant environmental impact if not undertaken in a sensitive manner. It is therefore recommended that Eskom compile an Environmental Management Programme (EMPr) specifically for the decommissioning process at that stage to restrict and prevent potential negative impact on the environment.

It is proposed that this EMPr for Decommissioning includes the following mitigating measures:

- The construction teams will ensure that all waste is removed from the site and that all items are recycled as far as possible at the Eskom stores. Excess waste steel and aluminum can also be sold to scrap dealers for recycling.
- Any waste that cannot be recycled will be transported to the appropriate landfill site licensed in terms of section 20 (b) of the National Environment Management Waste Act, 2008 (Act No 59 of 2008).
- The natural habitat within the servitudes will as far as reasonable be rehabilitated to its original state.
- Once construction is completed, the contractor has to obtain written consent from the relevant landowner that the construction site, construction areas, access routes, etc. are sufficiently and adequately rehabilitated to the landowner's satisfaction.

11. ADDITIONAL INFORMATION TO THE EMPr

According to Dept. Environment Affairs the Environmental Management Plan report (EMPr), which is submitted as part of the application for environmental authorisation, must include the following:

1. Plant rescue and protection plan
2. Re-vegetation and habitat rehabilitation plan
3. Alien invasive management plan
4. Erosion management plan/ storm water management plan
5. Monitoring system to detect leakage or spillage of hazardous substances
6. Traffic management plan
7. Measures to protect hydrological features
8. An environmental sensitivity map

All mitigating and management measures recommended in the report need to be implemented and form the basic framework for all of the plans below. These mitigating measures are included in the EMPr.

11.1 PLANT RESCUE AND PROTECTION PLAN

The focus of the plant rescue and protection plan is to allow for the maximum transplant of conservation important species from the areas that will be transformed by the project. According to Dept. Environment Affairs guidelines the plan must be compiled by a vegetation specialist familiar with the site, and in consultation with the Environmental Control Officer (ECO) for the project. The plan must be implemented prior to the commencement of the construction phase.

No plants (vegetation) to be removed unnecessarily. During the digging of holes for pylons, all topsoil (top 30cm) to be placed one side and used again as the final soil layer when closing up holes after construction. Preferably in the same holes or immediate vicinity where originated from. The reason is that this is usually the layer in which seeds, rhizomes and bulbs of locally indigenous plants will be. Grasses will recover easily due to their mechanism of growth. Therefore, no need to 'worry' specifically about 'rescuing' the grass layer.

In plant ecology one plant community gradual replaces another plant community over time, by natural processes. This is called plant succession. Disturbed, open soils will in many ways start a new succession. Pioneer plants, which are often opportunistic and grow vigorously will colonise the area first. Unfortunately, this is what most weeds are and therefore need to be continually removed. Thus given the indigenous species change to colonise and stabilise the area. As well as reintroduce the local plant mix back into the area and hereby also keep out many weeds.

Activities of all kinds to be avoided within the main channels of streams, rivers and drainage lines. Under no circumstances, even with a valid WULA should pylons be erected directly in the main channel of the watercourse.

Due to the very narrow, linear characteristic of the powerline project and the very small actual footprint of the pylons, no intricate or detailed plant rescue plan is necessary. This is also because of the plant communities and vegetation types present in the study area. However, care must be taken to remove any bulbous plants found. These need only be removed if directly in the footprint of the pylon or service road.

Management Objectives

- Remain out of main channel of watercourses to limit impact on natural habitats
- Remove any bulbous plants (orchids, lilies, etc) found growing directly in the area where the pylon is to be erected
- Immediately replant any lifted bulbs nearby, or in a similar habitat
- Any lifted bulbs to be handled with care to avoid physical damage, which could lead to them dying or reduce their chances of successfully re-establishing on the new site
- Use longest possible spans between pylons to limited number of pylons. That is, to limit the actual physical footprint on the ground leading to disturbance
- After construction (within two weeks) a mix of local, indigenous grass seeds to be showed on disturbed, bare soils.

Measurable Targets

- No construction of pylons directly in main channel of any watercourses
- Bulbs identified growing directly in area where pylon is to be erected have been carefully lifted and immediately replanted.
- Bulbs lifted not damaged
- Bulbs lifted replanted immediately nearby in the same or similar habitat
- Mix of local grass seeds shown on disturbed, bare soils with two weeks after completion of construction, or immediately after rehabilitation of the disturbed soils

11.2. RE-VEGETATION AND HABITAT REHABILITATION PLAN

The re-vegetation and habitat rehabilitation plan is to be implemented during the construction and operation phases of the project. It includes timeframes for restoration, which indicate rehabilitation within the shortest possible times after completion of the construction activities. This in an effort to limit the amount of habitat converted at any one time and to speed up the recovery of the natural habitats disturbed.

The topsoil removed from digging of holes for pylons and other structures must be put to one side for reuse in the same holes or immediate area. Where necessary a suitable mixture of local, indigenous grass seed shall be used to re-seed damaged areas. Badly damaged areas shall be fenced in to enhance rehabilitation. Afterwards fencing to be removed. Under no circumstances may alien grass seed or any alien or non-local plant species be used for rehabilitation.

Management Objectives

- Minimise damage to existing access roads
- Minimise damage to natural environment due to construction of new access roads
- Minimise loss of topsoil and enhancement of erosion
- Minimise loss of natural habitat
- Minimise disturbance to fauna and flora in the area
- To keep the servitude neat and clean

- Disposal of all rubble and refuse in an appropriate and legal manner
- Removal of all excess construction material
- Successfully rehabilitate disturbed areas during to construction
- Successfully prevent soil erosion
- Successfully prevent introduction or spread of alien plants

Measurable Targets

- Roads should be upgraded before construction should the condition of the roads be unable to handle the traffic load
- No-use roads shall be clearly marked
- Existing road infrastructure should be used as far as possible
- Rehabilitation of roads should start within two weeks after construction
- No mounds of topsoil, or other soil types to be left after construction
- Rehabilitation to start within two weeks after construction
- All waste material (construction, effluent, litter from workers, etc) to be removed on a weekly basis and only by official, registered companies
- All waste to be removed to official municipal waste disposal sites. Under no circumstances may any waste (including cooking waste) be dumped in the veld
- Removal of all remaining waste to commence immediately (same day) after construction is completed
- Rehabilitated and re-vegetated areas to be inspected every month until fully established. Any 'failed' areas to be re-assessed and rehabilitated until fully established and settle
- Any visible erosion to be immediately attended to and corrected

11.3. ALIEN INVASIVE MANAGEMENT PLAN

The alien invasive management plan (in other words, weed-control plan) needs to be implemented during the construction and operation phases of the project. The plan includes mitigating measures to reduce the invasion (and encroachment) of alien plant species. Furthermore, the plan includes the continuous monitoring and removal of alien species.

All invasive species should be removed, as stipulated by CARA (Act No 43 of 1983), and an on-going monitoring programme implemented. This monitoring plan can be incorporated into the routine inspection activities.

Management Objectives

- Prevent the introduction of alien plant species into the area
- Minimise the spread of existing alien plant species
- Stick to Eskom Guidelines for Herbicide Use, TRR/S91/032.

Measurable Targets

- No weeds growing around newly erected pylons
- No weeds growing in disturbed (rehabilitated) soils
- Ensure that all activities adhere to the Eskom Guidelines for Herbicide use
- Ensure that contractors, practitioners adhere to Eskom Guidelines for Herbicide use

11.4. EROSION MANAGEMENT PLAN

The erosion management plan includes monitoring and rehabilitating measures. The plan focuses on erosion events within the area of the facility. The plan includes mitigating and management measures to prevent and reduce the risk of any potential erosion. This plan also includes measures that serve as a **storm water management plan**. Neither drainage nor erosion is seen to be significant threats as long as the proper mitigating measures are implemented.

No roads may be cut through riverbanks, stream banks or drainage line banks, as this may lead to erosion and siltation of watercourses and downstream dams. Only existing, proper watercourse crossings may be used during construction and maintenance phases.

Crossing of dongas and existing eroded areas shall be thoroughly planned prior to the start of construction and movement of construction and delivery vehicles. Water diversion berms shall be installed at donga crossings to ensure runoff water on the servitude does not run into dongas and cause an erosion hazard, nor resulting in increased or further erosion. Suitable erosion containment structures shall be constructed at donga crossings where required and viable. Specialists shall properly design all structures and drawings shall be available for reference purposes. No unplanned / improperly planned cutting of donga embankments is allowed as this leads to erosion and degradation of the natural environment. No unnecessary roads or vehicle tracks or driving of vehicles through the veld as this leads to increased denuding of the covered soils, which leads to increased erosion potential.

Management Objectives

- Minimise erosion damage on donga crossings
- Minimise impeding the natural flow of water
- Minimise initiation of erosion through donga embankments
- Minimise general erosion or potential for erosion

Measurable Targets

- No disturbance to donga embankments
- No disturbance to watercourse embankments
- No erosion visible on donga embankments due to construction activities
- No erosion visible to watercourse embankments
- No unauthorised vehicle tracks / routes through the open veld

11.5 MONITORING SYSTEM TO DETECT LEAKAGE OR SPILLAGE OF HAZARDOUS SUBSTANCES

Diesel, hydraulic fluid and lubricants

- Minimize on-site storage of petroleum products. Relevant to this project, is that the relevant dangerous goods to be stored on site is diesel. The diesel tank can hold 2000 litres (2 cubic metres). Of relevance is: GNR 544 of 2010, activity nr 13 that states "...storages of dangerous goods with a capacity above 80 cubic metres....". The amount of diesel that will be stored on site is 2 cubic metres and is therefore a relatively small amount and well below the threshold of the listed activity of 80 cubic metres.
- Precautionary methods to be implemented for handling of oil and substances that could impact on the soils, ground- and surface water :
- No hazardous substances may be stored on site for a period exceeding 90 days. (Note that the Department of Water Affairs requires a permit for a waste disposal site in the event that longer storage periods apply).
- All hazardous substances at the site must be adequately stored and accurately identified, recorded and labeled. The storage of any hazardous substances must take place in a secured lock-up building or covered area.
- Build adequate structures (berms and containment structures) to contain any oil spills that might emanate from transformers.
- Bund storage tanks to 120% of capacity.
- Ensure proper maintenance procedures in place for vehicles and equipment.
- Servicing of vehicles to be in designated areas with appropriate spill management procedures in place.
- Ensure measures to contain spills readily available on site (spill kits).
- A container filled with sand to soak up any spillages, as well as an empty container into which the "contaminated" sand could be placed and stored for collection by the supplier of the chemicals or oils must be provided.
- If spills occur it should be reported to the SECO and/or ECO with immediate effect. It should be immediately cleaned up to the satisfaction of the Regional Representative of the Department of Water Affairs by removing the spillage together with the polluted soil and by disposing it at an authorized waste disposal site. The Department should be notified of such spills within 24 hours of the incident.

11.6 TRAFFIC MANAGEMENT PLAN

- Property owners that would be affected by the distribution line construction should be consulted prior to the construction phase with regards to the construction schedules, transportation corridors, construction of additional access roads and construction methods to be used.
- Eskom should keep the construction of access roads to a minimum and rather use the existing infrastructure, as the construction and maintenance of these roads are very costly, impact on the residents' daily living and movement patterns, and create a potential for erosion.
- Rehabilitation of new access roads for construction vehicles should be undertaken as soon as the construction process allows.
- There should be strict adherence to speed limits when using local roads and when travelling through residential areas.
- Access Corridors and access points for heavy construction vehicles should be indicated to warn motorists of the movement of these vehicles.
- Limit the movement of construction vehicles to off-peak periods (where possible).
- Limit the movement of construction vehicles in areas where sensitive receptors are situated e.g. schools and pedestrians.
- Construction hours will be restricted to specific periods, which exclude Sundays and public holidays.
- All complaints received with regards to poor conduct of Eskom personnel, malfunction of or damage to Eskom structures; etc. will be investigated by Eskom in co-operation with all the relevant stakeholders.
- The existing complaints structure must be revised by Eskom and be updated on a regular basis and communicated with all the affected landowners to ensure effective response and service supply.
- A list of all names, telephone numbers and addresses of the relevant Eskom employees, contractors and all affected landowners must be compiled and regularly updated and distributed to everyone to ensure sufficient communication channels in case of emergency and where access is required for maintenance purposes.

11.7 MEASURES TO PROTECT HYDROLOGICAL FEATURES

Mitigating and management measures have been recommended to protect all hydrological features such as streams, rivers, pans, wetlands, dams and their catchments and other environmental sensitive areas from construction impacts. Including the direct and/or indirect spillage of pollutants.

No roads may be cut through riverbanks, stream banks or drainage line banks, as this may lead to siltation of watercourses and downstream dams. Only existing, proper watercourse crossings may be used during construction and maintenance phases of the project. Existing drifts and bridges may be used if the Landowner gives their consent. Such structures shall then be thoroughly examined for strength and durability before they are used. New drifts and bridges shall only be constructed with the approval of Eskom and the Landowner and at the discretion of the ECO. All structures constructed for access purposes shall be properly designed and drawings of such structures shall be available for record purposes. Should the need arise for the construction of a new watercourse crossing then a WULA process will need to be followed and approval will need to be obtained from Dept. Water Affairs.

No roads may be cut through wetland areas under any circumstances. Not even at the consent of the Landowner. Alternative routes will need to be used. Should it be physically impossible to reach construction areas within the powerline corridor, but through a wetland area, then a wetland specialist needs to be consulted as to the preferred. That is, the route that will have the least impact. Hereafter, a WULA process will need to be followed to obtain licence and permission from the Dept. Water Affairs.

Management Objectives:

- Minimise additional impact / damage to river and stream embankments
- Minimise additional impact / damage to riparian vegetation
- Minimise additional impact / damage to aquatic habitats
- Minimise erosion of embankments and subsequent siltation of rivers, streams, wetlands and dams

Measurable Targets

- No access roads through watercourses (rivers, stream, drainage lines & wetlands)
- No visible erosion scars on embankments once construction is completed
- No construction material remaining after construction within watercourses or associated floodplains and riparian vegetation
- All construction material and related equipment and materials, including all forms of waste resulting in any related activity, to be completely removed within 2 weeks of completion of construction
- No damage to wetland areas
- No complaints from landowners or litigation
- No temporary storage structures within 100m of watercourse embankments
- No temporary housing, cooking or latrine facilities within 100m of watercourse embankments
- No temporary storage, housing, or latrine facilities within 500m of wetland boundaries

11.8 ENVIRONMENTAL SENSITIVITY MAP

The environmental sensitivity map indicates environmental areas and features identified in the study area and specifically the activity area, during the EIA process. The main ecological sensitivities encountered in the study area where:

- Perennial streams (Witpuntspruit, Humanspruit)
- Floodplains of the Witpuntspruit
- Wetland area in the vicinity of Uitkoms Substation

Management Objectives

- Prevent unnecessary impact on sensitive areas
- Prevent unauthorised impact on sensitive areas
- Maintain impact within registered powerline corridors

Measurable Targets

- No authorised construction or activities within demarcated sensitive areas as per sensitivity maps
- Any activities identified within unauthorised sensitive areas to be halted immediately and reported

(Sensitivity maps included in Appendices A6-A9: Ecological Sensitivity NW & SE; Bird Impact Sensitivity NW & SE)
