

**PROCEDURE FOR ENVIRONMENTAL ASSESSMENT OF RETICULATION AND SUB-TRANSMISSION PROJECTS: ANNEX Q OF CAPITAL INVESTMENT IN THE DISTRIBUTION BUSINESS**

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***Distribution environmental screening document (DESD)***  
**Reticulation Powerlines and Ancillary Services**

Ratified and accepted by  
Environmental Practitioner  
Environmental Specialist  
Head of Engineering Survey .....  
(one signature please)

Accepted by Land Owner/s/Users .....  
I have seen the completed document and accept the recommendations made.

**Assessor/s**

Form completed by: EARL DANIELS, TEFO KOBEQO Signature: .....  
in consultation with: LUNGELWA MOTAUNG (0794819079).....Signature:  
CAPACITY (e.g. land owner, specialist): Pieter Venter (083 303 7953/ 0516832281) LAND OWNER  
.....

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**Instructions**

1. Fill the report in as neatly and completely as possible.
2. Where the question / statement is not applicable mark N/A.
3. The form must be completed in consultation with someone who knows the area well and who can also predict if any future development is envisaged (e.g. a land owner, land user, specialist, etc.).
4. Indicate sensitive areas on a map and/or spanning plans.
5. When in doubt, consult the Environmental Practitioner in your region.

The purpose of this *DESD* is to:

1. Determine whether or not the project should be subject to R544, R545, R546 published in terms of the National Environmental Management Act No. 107 of 1998: EIA Regulations of June 2010.
2. To determine whether the project is subject to National water act 36 of 1998 section 21: water use licence.
3. Identify and firstly avoid or secondly mitigate the negative impact of Eskom's activities to a minimum in line with both Legislation and Eskom's Environmental Policies.
4. Guide Route Selection, Construction and maintenance of this power line.

**NOTE Complete the report before the survey!!!**

**This is not an office exercise.**

**Extra sheets of paper may be added and referenced if insufficient space has been provided.**

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## Methodology

- ❖ *A GIS Desktop study and research on environmental elements in the Smithfield area was done.*
- ❖ *A site visit to the area under study has been conducted in which the proposed route of the line was followed in the veld.*
- ❖ *The portions of the proposed route where access was possible were screened physically during the site visit.*
- ❖ *Consultation with landowners regarding environmental elements on their property was made.*

### 1. Project description

Project name/Survey RVS 244 project.....  
Area SMITHFIELD AREA.....  
Project number ..... File number .....  
Rural scheme/  
Feeder RVS FEEDER Voltage: 22Kv.....  
Supply from... RVS 244/89/47/18 ... Total length...692 Meters...  
(Scheme name, pole numbers for tee-off)  
Supply to RVS 244/89/47/24  
(Farm name, etc.).... Kaauwfontein 390

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### 2. Brief description of the surrounding area

The plain of the area is mainly deeply undulating covered with sand and grasses. The vegetation cover is dense with different grass, shrubs and trees. The Caledon River runs next to the proposed site and the plain is rocky. There are furrows over the area which is going to the river.

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### 3. Physical environments

3.1 Water: streams rivers dams wetlands springs floodplains OTHER

#### Present condition:

The Caledon River falls under the Middle Vaal Upper Orange water management area and runs through the study area. The water level of the river was very low at the time of the site visit. The sediment level of the river is high and it has a healthy riparian habitat (See image 1). There are furrows and streams running over the floodplain into the river (See image 2). The proposed line route is aligned over the floodplain of the river (See image 3).

#### Potential impact (e.g. threat of pollution):

- ✓ Impacting on a valley bottom floodplain wetland and its buffer might occur
- ✓ Water pollution due to oil leaks from construction vehicles and oil filled equipment on site.
- ✓ The risk of erosion is high on the river bank as erosion gullies already occurs.
- ✓ Legal contravention of Secion 21 (C) and (I) of the National water act 36 of 1998

#### Mitigation measures:

- ❖ In order to avoid the possible need for Water use licence. **Poles should ideally be planted at least 100m away from the edge of a watercourse or out of the 1:100 year flood line.**
- ❖ No vehicles or construction trucks should drive within a water body or stream.
- ❖ Long powerline spans with higher pole structures must be used to cross the watercourses.
- ❖ The natural flow of water should not be interrupted without a water use license.
- ❖ Vehicles and oil containing equipment should be serviced to avoid oil contamination of water during construction and maintenance of the powerline.
- ❖ Ensure that Water bodies that serve as drinking water sources for animals are not polluted and impacted on by construction vehicles and other human activities.
- ❖ The soil shall be re-deposited in the same sequence as it was excavated in order to retain the top soil.
- ❖ Ensure minimal vegetation clearance within the 1:100 year flood line to minimize soil erosion.

**NB! A WATER USE LICENCE OR GENERAL AUTHORISATION APPLICATION WILL BE NEEDED TO COMMENCE WITH THIS PROJECT.**

**THESE APPLICATIONS ARE GOING TO DELAY THE PROJECT.**

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**Image 1: Caledon River**



**Image 2: Furrows running into the river**



**Image 3: Floodplain where existing line is to be dismantled**

**3.2 Soil:** **sandy** **rocky** clayey OTHER .....

**Present condition:**

The layer of soil on the mother rock is very shallow. The soil is mainly sandy and sediments are prevalent on the plain. The subsequent rocks and stones are very visible at certain areas in the surroundings (See image 4). Certain portions along the access road to the site are deeply eroded and rocky parts which show signs of corrosion.

**Potential impact (e.g. of erosion):**

Highly fertile top soil could be lost due to vegetation clearance and earthworks for site preparation and the planting of poles. Erosion may accelerate due to construction works on the floodplain and increase the erosion gullies. The pollution of land and soil may occur from oil leaks by construction vehicles and oil filled equipment. The contravention of **Section 26, 27 of the NEMA: Waste Act 59 of 2008** might occur due to littering.



**Image 4: Sandy with prevalent rocky parts**

**Comments/ Mitigating measures:**

- ❖ The movement of vehicles should be kept to a minimum in and around wet areas, proposed cultivated land and **on slopes**.
- ❖ Minimal vegetation removal should take place during site clearance for construction.
- ❖ Soil should be re-deposited in the same order as it is excavated in order to retain the fertile top soil.
- ❖ Soil stockpiles should be kept in a safe place for re-use and re-filling of holes. These stockpiles should be secured by packing or covering them with bricks or any other method that would prevent wind or water erosion.
- ❖ The vehicles must use existing access road to the proposed route and adhere to speed limit (60km/h) on the gravel roads and farm tracks.
- ❖ Vehicles and equipment to be used on site should be serviced regularly to avoid oil leaks.
- ❖ No littering should take place and all waste should be cleaned up and removed from site during site rehabilitation.

**3.3.Topography** mountains ridges hills valleys ravines

OTHER  
Koppies,  
Erosion gullies

**Present condition:**

The plain is **deeply undulating** along the route of the line as it is aligned on the edge of the floodplain where the plain slopes down to the river bank (See image 5). The proposed line route is crossing the furrows which forms natural channels that go down to the river. The terrain is uneven on the floodplain where the proposed power line will be aligned.

**Potential impact (e.g. of erosion):**

**Potential soil erosion** by means of water, wind and other means may take place in the area. The **loss of top soil** due to excavations for pole holes on slopes where the vegetation cover is little. Construction vehicles and activities **de-compacts the soil and increase its porosity** and the infiltration of water which will ultimately decrease the run-off of water to other parts of the area. **Access roads** to the proposed line are likely to be eroded and damaged as traffic in the area is going to increase.

**Comments/mitigating measures:**

- ❖ The current vegetation should be left as far as possible in its original state.
- ❖ The creation of multiple access routes to the construction point should be avoided.
- ❖ Vehicles must be driven at a moderate speed (max 60km/h) and steep slopes should be avoided as far as possible.
- ❖ Soil stockpiles should be kept in a place where it cannot be eroded away in order to preserve top soil. These stockpiles should be secured by packing or covering them with bricks or any other method that would prevent wind or water erosion.



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**Image 5: Undulating plain on edge of floodplain**

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#### 4. Natural environment

4.1 Flora: **indigenous** protected **exotic** OTHER.....

##### **Brief description and conservation status (e.g. rare, etc., mention trees/bush/grass) ...**

The natural vegetation cover of the area is from the Nama-karoo and grassland biomes. **Bluegum, Olien hout, poplar and weeping willow trees** were also observed on the farm and on the banks of the Caledon River (See image 6). **Dwarf shrubs**, Karoo bushes and Karee trees were observed in the area. Most of the trees form part of the riparian zone of the river.

##### **Potential impact (e.g. permit applications)**

**Vegetation disturbance** due to vehicle movement and other associated construction activities, which get conducted on grass plains and around water bodies, might **destroy habitat for mammals and birds**. The acceleration of **soil erosion** might occur due to the removal of vegetation. Grazing land for game might be disturbed by construction activities. The **clearance of the line** at the river crossing might be encroached by the riparian area which consists of high trees and bushes. **Veld fires** and **power cuts** might be caused by the aforementioned encroachment.

##### **Comments/ mitigating measure:**

- ❖ Minimal removal of vegetation should take place.
- ❖ No fires should be started in the veld or on cultivated lands.
- ❖ Use the existing roads and tracks and drive with the speed limit of 60km/h on gravel roads according to Eskom rules.
- ❖ Vehicles and equipment must be regularly serviced to avoid chemical fluid leaks in the veld.
- ❖ Refrain from littering at all times
- ❖ Wood from trees should be left on site or disposed of according to the land owner's discretion.



**Image 6: Weeping willow and poplar trees on the river bank**

**4.2 Fauna:** **mammals** **birds** OTHER

**Brief description and conservation status:**

(E.g. rare, protected, etc., mention giraffe, elephants, eagles, vultures, etc., mention migratory paths)

**Game** was observed on the farm. There are also water birds present in and around the Caledon River such as **Egyptian goose, Makou, hadeda ibis**. The area is also known for **vultures (Threatened)** and **raptures** as their prey is in abundance in the Nama karoo biome. **Fish eagle** was observed on site. The land owner also confirmed that there are **horses, owls, cape cobra and puff adder snakes** present in the area. The game which are being farmed with on the farm consist of **Rhinoceros, nyala, buffalo, letswe, kudu, springbok and zebra**. There are also small mammals present in the area like **rats, moles, and ground squirrels** taken from the holes observed on site (See image 8). Many anthills were observed on site which accommodates the termites in the area.

**Potential impact (e.g. threat of electrocution, collision, etc)**

The **destruction of natural bird and small mammal habitat** might occur during construction of the line. Birds might **pollute the conductors and structures** through streaming and cause faults on the system. **Loss of prey for birds** as termites and anthills get impacted on during construction in dense grassy areas. **Birds might get electrocuted** on power lines. Bigger water birds in the area might collide with the powerline. **Vehicles accidents** involving game on farm tracks and gravel roads might occur during construction

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and maintenance. **The loss of game** due to farm gates being left open by Eskom or contractors might take place. Game might be disturbed by construction activities or **veld fires** caused by Eskom or contractor staff.

**Comments/mitigating measures:**

- ❖ Minimal vegetation clearance in this area should take place.
- ❖ No poaching of guinea fowls or any other bird species should take place.
- ❖ **Bird flappers and bird flight diverters should be installed on the deviated piece of line which will stand next to the proposed cultivated land**
- ❖ The bird friendly structures must be used on this project as per the Eskom's Biodiversity Standard (32-815).
- ❖ Landowners must be informed of when construction is going to commence in order for them to relocate their game to another camp.
- ❖ Property gates should be opened and closed according to the landowner's request.
- ❖ No animal on the property should be disturbed.
- ❖ No fires should be started on any Eskom construction site.
- ❖ Vehicles should be driven at a speed limit of 60km/h on a gravel road according to Eskom rules.



**Image 7: Hole of ground burrowing animals in close proximity of the proposed route**

**5. Social environments**

<b>5.1 Restricted areas:</b>	nature/game reserves	hiking trails	tourism routes	parks	recreational areas
residential-areas	green belts	sacred/holy grounds	OTHER <b>Farm house and farm worker houses...</b>		

**Brief description**

There is a farm house which was under renovations during the site visit. Farm worker houses with households were observed on the route to the proposed site (See image 8).

**Potential impact e.g. threat of encroachment, etc.:**

**Disturbance** of the normal daily activities of farm workers due to the construction activities and the movement of construction vehicles that will be taking place in the area. **Vehicle accidents** might occur which might involve household members from farm worker houses. **The noise** cause by the construction vehicles might impact on farm residents. **The dust** that

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might be generated due to construction vehicles in the area might be disturbing to residents. The electricity which will be supplied to the pivot for cultivated land will have **positive impact** to residents in the form of food supply on the farm and job creation on the land

**Comments/ Mitigating measures:**

Limit construction and vehicle movement to normal working hours during the day.

Adhere to speed limits on the gravel road and slowdown in and around the vicinity of the farm house and farm worker houses.

Wet soil a little bit before deep excavations are made to reduce the dust pollution

Do not temper with the residence goods and houses.



**Image 8: Farm house on the property**

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**5.2 Visual aesthetics:**

easily seen

hidden

Partially

**Brief description:**

The line will be hidden because there are dense bushes and trees next to the river where it will be aligned (See image 9).

**Potential impact:**

The visual impact will be low as the Caledon River is situated at the back of the farm where human activity is low.

**Comments/ Mitigating measures:**

- ❖ Make use of wooden poles on the project.
- ❖ Reduce clearance of vegetation along the proposed route.
- ❖ Make use of non-reflective materials where possible.
- ❖ Camouflage the poles into the vegetation next to the Modder River where applicable.



**Image 9: Riparian habitat next to the river**

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**5.3 Sensitive areas:** historical sites archaeological monuments natural heritage sites  
graves landmarks ruins OTHER...Provincial heritage site.....

**Present condition:**  
NONE

**Potential impact:**

NONE

**Comments/ mitigating a measure:**

NONE

**6. Economic environments**

**6.1 Land use:** crops orchards grazing crop spraying  
game farming forestry areas mining OTHER .....

**Brief description:**

The majority of the property is being used for **game farming**. There are wild camps that also serve as **grazing land** for the wild animals on the farm (See image 10). The proposed pivot will consist of Lucerne crops which will serve as forage for animals on the farm. The **crops** will be sprayed through the irrigation system that is intended to be installed.

**Potential impact:**

Grazing land for cattle and sheep might be impacted on negatively by construction activities. The disturbance and/or pouching of wild animals on the game farms might take place. The land to be used for crops might be polluted by oil or other fuel leaks from construction vehicles and equipment.

**Comments/ Mitigating measures:**

- ❖ Minimal removal of grassland should take place.
- ❖ Littering and land pollution must be prevented at all times.
- ❖ Gates should be left as it was found and landowner must be informed when construction is going to take place so he/she can relocate his/her livestock.
- ❖ Livestock should not be disturbed and vehicles must drive at a moderate speed which is 60km/h on gravel roads according to Eskom rules.



**6.1.1 Commercial:** factories shops OTHER  
.....

**Brief description:** NONE.....

**Potential impact:** NONE.....



**Image 10: Wild camps present on site**

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**6.1.2 Infrastructure:** roads railways communications power lines air fields  
pipelines sewage OTHER .....

**Brief description:**

There are gravel roads and farm tracks present on the farm Kaauwfontein 390. The existing line 22kV power line which is aligned over the proposed site is to be dismantled and rerouted closer to the river to avoid the proposed pivot (See image 11). There is old pipeline infrastructure in close proximity to the proposed site which was used to pump water from the river into a man-made dam (See image 12).

**Potential impact:**

The excessive driving might accelerate **erosion on the gravel roads**. The old pipes lying on the proposed site may be damaged by construction vehicles.

**Comments/mitigating measures:**

- ❖ Comply with way leave conditions and landowners requests to promote healthy relationships with customers and stakeholders.
- ❖ Be alert for loose structures, hanging conductors and conductors lying in the veld because it might be live.
- ❖ Keep to safety clearances of roads and pipelines.

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**Image 11: Existing power line to be dismantled**

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**Image 12: Old pipe line infrastructure to feed water into the close by man-made dam**

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**7.1 Impact criteria**

The criterion below was used to assess the significance of the impacts. The significance ratings in relation to characteristics of powerline rebuilding activities are determined. These ratings are defined in terms of the magnitude, Likelihood, Business risks, Regulatory scrutiny and Stakeholder interest.

<b>LIKELIHOOD</b>	<b>MAGNITUDE</b>
<p><b>High (3):</b></p> <p>Routine or ongoing activity or impact. Is known to have occurred on routine basis in the past. Impacts associated with the aspects are likely to emerge soon. Impacts are known.</p> <p><b>Medium (2):</b></p> <p>Periodically occurs once or twice a year. Impacts that are likely to occur within one year.</p> <p><b>Low (1):</b></p> <p>Very infrequent, every several years. Impacts associated with the aspects are several years away</p>	<p><b>High (3):</b></p> <p>Aspect has a recognized global environmental impact. Widespread or permanent ecological damage locally. Remediation would take longer than one year. Could result in a major public health hazard.</p> <p><b>Medium (2):</b></p> <p>Aspect could result in a major uncontained or sustained environmental release impacting on a regional or local environment only. Ecological damage can be remedied within one year. Health hazard to humans in the immediate vicinity, but not resulting in .critical or fatal.</p> <p><b>Low (1):</b></p> <p>Little or no ecological effect and no measurable impact on human health.</p>

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BUSINESS RISK/ BENEFITS	REGULATORY SCRUTINY	STAKEHOLDER INTEREST
<p><b>High (3):</b></p> <p>Aspect poses significant risk. Early response necessary. Industrial initiatives underway/developed. May have major impact on competitive position. May have a significant impact on value of Eskom's assets.</p> <p><b>Medium (2):</b></p> <p>Aspect is likely to pose risk.</p> <p><b>Low (1):</b></p> <p>Aspect does not pose significant risk. No need for early response. No industry initiative associated with aspect. Does not threaten competitive position. Does not affect values of Eskom assets</p>	<p><b>High (3):</b></p> <p>Regulated by Legislation. High potential for regulatory action or limitations to operate (subject to regulatory inspections &amp; historical compliance problems)</p> <p><b>Medium (2):</b></p> <p>Regulated &amp; Legislated, however not a priority in terms of enforcement</p> <p><b>Low (1):</b></p> <p>Relatively unimportant, Little or no potential for regulatory action (e.g. not regulated; not a target of enforcement).</p>	<p><b>High (3):</b></p> <p>Very important to public and customers. Aspect has the potential to cause damage to corporate reputation. Ongoing dialogue has begun; negative perception, possibility for third party lawsuits. Customers expect superior performance by Eskom in managing this aspect.</p> <p><b>Medium (2):</b></p> <p>Important to the public and customers. The aspect is likely to cause damage to corporate reputation.</p> <p><b>Low (1):</b></p> <p>Relatively unimportant; the public is unaware or is aware but it is not an issue. No threat to corporate image. It is not an issue with customers.</p>

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**SIGNIFICANCE OF THE IMPACTS:**

The significance of the unmanaged and managed impacts has been assessed through consideration of the likelihood of the impact occurring, the magnitude over which the impact will be experienced, and the level of business risk, regulatory scrutiny and stakeholders interest the impact will have on the environment.

The formula for calculating the significant environmental impacts score is:

(Likelihood X Magnitude)

+ Regulatory scrutiny

+ Stakeholder interest

+ Business risk/benefit

The significant rating, as determined by the Operating unit, is as follows:

- 0 – 5:      Low
- 6 -10:      Medium
- 11 – 18:      High

Impacts with a value greater than or equal to 11 will be considered as significant.

**7.1 Impact before mitigation**

What impact will this project have on elements 4 to 7?

**1. Physical**

Low impact (0-5)                      Medium impact (6-8)                      High impact (11-18)

**2. Natural**

Low impact (0-5)                      Medium impact (6-8)                      High impact (11-18)

**3. Social**

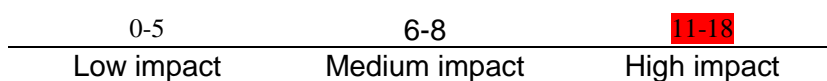
Low impact (0-5)                      Medium impact (6-8)                      High impact (11-18)

**4. Economic**

Low impact (0-5)                      Medium impact (6-8)                      High Impact (11-18)

**Overall impact before mitigation:**

This section addresses the overall environmental impact of the project before mitigation measures are applied. The impacts as assessed in the above three spheres (physical, natural and social) need to be considered to determine the overall impact





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**7.2 Impact after mitigation**

What impact will this project have on elements 4 to 7?

5. Physical

Low impact (0-5) Medium impact (6-8) High impact (11-18)

6. Natural

Low impact (0-5) Medium impact (6-8) High impact (11-18)

7. Social

Low impact (0-5) Medium impact (6-8) High impact (11-18)

8. Economic

Low impact (0-5) Medium impact (6-8) High Impact (11-18)

**Overall impact after mitigation:**

0-5 6-8 11-18  
Low impact Medium impact High impact

**IF THE OVERALL IMPACT IS BETWEEN 11 AND 18, CONTACT THE ENVIRONMENTAL PRACTITIONER OR SPECIALIST.**

**Alternatives**

Have alternative routes been discussed with the relevant land owner/s or users?

Yes  (as part of survey) \_\_\_\_\_

No \_\_\_\_\_

**Detailed study**

Is an environmental scoping required in terms of regulation 544 or 546?

Yes \_\_\_\_\_

No  \_\_\_\_\_

**SAHRA**

Should SAHRA be notified according the proposed construction?

Yes \_\_\_\_\_

No  \_\_\_\_\_

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## **Annex A**

### **Environmental Management Plan**

#### **1 General conditions**

- 1.1. The Eskom project manager or coordinator shall be responsible for ensuring that the land owners have been informed before any work is carried out on site. Contractors shall find out if the land owners have been informed before moving onto site.
- 1.2. No fences, gates or locks shall be damaged to obtain access onto a line route. Arrangements shall be made in advance to obtain permission for access.
- 1.3 Use of private roads shall be arranged in advance. Any damage to private roads shall be repaired at the contractor's expense and to the satisfaction of the land owner. This shall be the responsibility of the project manager or co-ordinator.
- 1.4 Gates shall be left as they are found, i.e. closed gates shall be kept closed and open gates shall be left open. Gates to adjacent properties or onto public roads shall be closed at all times. Any Eskom gates installed on the line route shall be kept closed and locked except while stringing is taking place. Open gates shall be guarded to prevent animals straying and unauthorized persons and vehicles entering into adjacent camps or properties.
- 1.5 Permission shall be obtained from land owners before any water is used.
- 1.6 No fires shall be lit on private property. If fires are lit on Eskom's property or in the construction camp, provision shall be made that no accidental fires are started. No fire wood shall be collected in the veld.
- 1.7 If activities that can cause a fire are carried out, fire extinguishers shall be available on site and in the construction camp.
- 1.8 No property may be accessed after normal working hours except with the permission of the land owner. Privacy shall be respected at all times.
- 1.9 Eskom, Eskom's contractors and their employees shall at all times be courteous towards land owners, tenants and the local community.
- 1.10 Eskom, Eskom's contractors and their employees shall not cause damage to property, crops or animals. Activities that may cause conflict with land owners, tenants, the local work force or the local community shall be avoided. Should conflict arise it shall be immediately reported to the Eskom project manager or coordinator.
- 1.11 Vehicles shall be driven at a moderate speed on private roads and stay within the statutory speed limit on public roads.

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1.12 All movement of vehicles shall take place on the established Eskom servitude road or on private roads as agreed in advance. Keep to existing tracks. No movement shall take place through the veld. Special care shall be taken to prevent excess damage during wet weather.

1.13 If any vehicle should get stuck, the damage shall be repaired immediately so that no deep ruts remain.

1.14 Any damage to private property shall immediately be reported to Eskom and the owner. The damage shall be rectified immediately if possible and/or appropriate compensation shall be paid to the owner at the discretion of the project manager/co-ordinator in consultation with the property owner. A record of damages and rectifying action shall be kept. The land owner's satisfaction with the outcome of rectifying action shall be obtained in writing.

1.15 A proper system of waste management shall be instituted in the construction camp. This entails that sufficient waste bins are available on site and in the construction camp. The waste shall be dumped at an approved waste disposal site. No containers, scrap metal, conductor etc. shall be left on site. All scrap shall be removed and taken to an appropriate disposal site. No oil, diesel or other chemicals shall be spilled or discarded anywhere. If an accidental spill occurs, it shall be reported immediately and cleaned to the satisfaction of Eskom and the land owner. No waste shall be left in the veld or on the line route.

1.16 Washing and toilet facilities shall be provided on site and in the construction camp. The facilities shall comply with Eskom standards and shall have the approval of the land owner.

1.17 No human excrement shall be left in the veld. If no toilet facilities are available such waste shall be buried immediately.

1.18 Herbicides shall only be applied with Eskom's permission and in accordance with the Eskom Policy on Herbicides ESKPBAAD4.

1.19 Camp and office sites shall be dismantled and removed after completion of the construction phase of the project. The site shall be rehabilitated to as close as possible to its original condition to the satisfaction of the land owner which shall be in writing.

1.20 All excavations shall be enclosed to prevent animals or people from accidentally falling into excavations.

1.21 No trees shall be cut or removed without prior permission from the landowner. Permits shall be obtained for the cutting and removal protected trees (protected trees shall be dealt with in 2, Special conditions).

**PROCEDURE FOR  
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ASSESSMENT OF RETICULATION AND SUB-  
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**2 Special recommendations**

(Specific issues identified during the scoping as needing attention i.e. erosion berms, bird flappers, protected trees. etc.).

- ❖ **BIRD FLAPPERS AND BIRD FLIGHT DIVERTERS SHALL BE INSTALLED ON THE POWERLINE FROM THE TAKE-OFF POLE TO WHERE IT CONNECTS AGAIN**

**NB! A WATER USE LICENCE OR GENERAL AUTHORISATION APPLICATION WILL BE NEEDED TO COMMENCE WITH THIS PROJECT**

**THESE APPLICATIONS ARE GOING TO DELAY THE PROJECT.**

**TYPICAL MITIGATION MEASURES**

<b>ENVIRONMENTAL CONCERNS</b>	<b>MITIGATION MEASURES</b>
<b>AGRICULTURE</b>	
Loss of standing crop due to access road and tower work site.	<ul style="list-style-type: none"> <li>- limit width of access and size of tower site.</li> <li>- avoidance of crop areas.</li> <li>- monetary compensation for crop loss.</li> <li>- time construction to avoid growing season.</li> </ul>
Soil Compaction	<ul style="list-style-type: none"> <li>- scheduling activities to times of the year when soils are least susceptible to compaction.</li> <li>- stop activities when ground conditions are poor.</li> <li>- use of equipment with low bearing capacity.</li> <li>- chisel ploughing.</li> </ul>
Construction of new lines	<ul style="list-style-type: none"> <li>- locate access roads along existing traffic routs.</li> </ul>
Topsoil – subsoil mixing/soil rutting	<ul style="list-style-type: none"> <li>- scheduling activities.</li> <li>- stop activity when ground conditions are poor.</li> <li>- use of equipment with low bearing capacity.</li> <li>- use of gravel roads.</li> <li>- addition of manures to offset fertility loss.</li> <li>- compensation for reduced soil productivity.</li> <li>- removal of spoil and/or bentonite from foundation operations.</li> <li>- Segregation of topsoil and subsoil.</li> </ul>
Disturbance to farm operations	<ul style="list-style-type: none"> <li>- maintain contact with landowner/tenant regarding preferences.</li> </ul>
Loss of livestock	<ul style="list-style-type: none"> <li>- employ noise control measures near sensitive livestock.</li> <li>- Construction of farm gates.</li> <li>- Securing farm gates.</li> <li>- Clean-up construction materials which could be ingested.</li> <li>- Compensation for lost, injured livestock.</li> </ul>
<b>SOCIAL IMPACTS</b>	
Noise and Vibration	<ul style="list-style-type: none"> <li>- limit this type of work to daylight hours.</li> <li>- observe protocol or applicable municipal by-laws.</li> <li>- use of appropriate methods where available.</li> </ul>
Mud and Dust	<ul style="list-style-type: none"> <li>- wetting down dry soils.</li> <li>- chemical control of dust.</li> <li>- cleaning roads to remove mud.</li> <li>- temporary planting of grasses.</li> </ul>
Aesthetics	<ul style="list-style-type: none"> <li>- screen with natural or planted vegetation restoration.</li> <li>- avoid linear access down the right-of-way.</li> <li>- addition of topsoil to gravel access roads.</li> <li>- hoarding construction sites.</li> </ul>

**PROCEDURE FOR ENVIRONMENTAL ASSESSMENT OF RETICULATION AND SUB-TRANSMISSION PROJECTS: ANNEX Q OF CAPITAL INVESTMENT IN THE DISTRIBUTION BUSINESS**

	<ul style="list-style-type: none"> <li>- installation of landscaping in advance of site completion.</li> </ul>
Inconvenience	<ul style="list-style-type: none"> <li>- select route and method of installation to suit landowners' conditions.</li> <li>- select timing of activity.</li> </ul>
Heritage resources	<ul style="list-style-type: none"> <li>- avoidance/isolation.</li> <li>- design measures to make facility less obtrusive.</li> <li>- screening.</li> <li>- alternate methods of equipment.</li> <li>- protection by use of enclosures, barrier fencing, covering.</li> <li>- salvage in conjunction with SAHRA.</li> <li>- relocation in conjunction with SAHRA.</li> </ul>
Tourism and recreation resources	<ul style="list-style-type: none"> <li>- design measures to make facility less obtrusive or disruptive.</li> <li>- screening and restoration.</li> <li>- minimise noise and dust.</li> <li>- safety precautions to protect the public.</li> <li>- scheduling to avoid peak use periods.</li> </ul>
<b>WATER QUALITY</b>	
Sedimentation of streams due to erosion from the right-of way.	<ul style="list-style-type: none"> <li>- minimise use of slopes adjacent to streams during soils testing, construction and maintenance.</li> <li>- maintain a cover crop.</li> <li>- retain buffers.</li> </ul>
Stream bank erosion.	<ul style="list-style-type: none"> <li>- mechanical erosion control.</li> <li>- retain shrubby stream bank vegetation and selectively cut or prune trees during line clearing/maintenance.</li> <li>- selective spraying of herbicides.</li> <li>- Mechanical erosion control.</li> </ul>
Impedance of natural flow streams/others surface waters.	<ul style="list-style-type: none"> <li>- use and maintenance of appropriate stream crossing device.</li> </ul>
Ponding or channelization of surface waters due to rutting.	<ul style="list-style-type: none"> <li>- timing activities to stable ground conditions.</li> <li>- use of gravel roads.</li> </ul>
Contamination of surface or ground waters through spills or leaks of toxic substances.	<ul style="list-style-type: none"> <li>- spill control material and procedures readily available.</li> <li>- site selection where possible.</li> </ul>
Soil compaction/topsoil-subsoil mixing.	<ul style="list-style-type: none"> <li>- avoidance of rutting by vehicles where possible.</li> <li>- construction timing.</li> <li>- use of gravel roads.</li> <li>- use of vehicles with low bearing pressures.</li> <li>- stop activities when ground conditions are poor.</li> </ul>
Wind/water erosion.	<ul style="list-style-type: none"> <li>- avoidance of areas with high erosion potential.</li> <li>- timing activities to the most stable ground conditions.</li> <li>- slope stabilisation.</li> </ul>

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	<ul style="list-style-type: none"><li>- mechanical erosion control.</li><li>- vegetation erosion control.</li><li>- recompaction of trenches.</li><li>- avoid trenching parallel to the fall of a slope.</li></ul>
Contamination by petrochemicals.	<ul style="list-style-type: none"><li>- spill control material and procedures made readily available.</li><li>- restoration methods investigated.</li></ul>