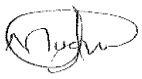
Annex A
(informative)

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: Thabelo Mugwedi ..... Signature: 

in consultation with: …… Signature: .....

CAPACITY (e.g. land owner, specialist): .....

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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 R983, R984 or R985, published in terms of the National Environmental Management Act No. 107 of 1998.
2. Identify and mitigate the negative impact of Eskom's activities to a minimum in line with both Legislation and Eskom's Environmental Policies.
3. This report is a guide to Route Selection, Construction and Field Services.

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.

Annex A

(informative)

1 Project description

Project name/Survey: Balkfontein - Doornhoek Area

Project number: File number .....

Rural scheme/
Feeder Balkfontein – Doornhoek Feeder
Voltage: 11kV

Supply from .....
(scheme name, pole numbers for tee-off)

Supply to .....
(Farm name, etc.)

Scope of work:
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2 Properties traversed

Farm name .....

Registration number and Division ..... Sub-division.....

Compilation number ..... Line length/Site area (m^2): 7104.12m.....

Farm name .....

Registration number and Division ..... Sub-division.....

Compilation number ..... Line length/Site area (m^2) 6022.31m.....

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3 Brief description of the surrounding area

The Balkfontein – Doornhoek proposed powerline is located in the Balkfontein area which is close to the Vaal River and Vals river which is a river that feeds into the major Vaal river. The area is densely vegetated and has
A number of large birds and mammals living along the route of the powerline.
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Could the proposed project have an impact on or be constrained by any of the following environmental aspects?

Encircle the appropriate aspect, giving a description of the present state as well as an indication of the possible negative impact. **Note that mitigating measures for these impacts are to be included in the Environmental Management Programme.**

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4 Physical environment

4.1 Water: streams rivers dams wetlands springs floodplains OTHER ……..

Present condition: The Balkfontein – Doornhoek powerline route is the Balkfontein area and the current route of the power line as well as the route surveyed for the line to be re-built is in very close proximity to the Vaal River. With the line being in such close proximity to a large river, there are a number streams that feed into the Vaal, both perennial and non-perennial which were observed in the Google Earth imaging. During the assessment of the proposed power line route, a two non-perennial stream crossings and a perennial crossing of the Vaal river. A non-perennial stream was observed between proposed poles BD-16 and BD-`16A. There is also another non-perennial dry stream between poles BD-23 and BD-24. Proposed poles BD-27 to BD-30 are running parallel to the Vals River and there is a river crossing with one pole BD-30 being on one side of the Vals River and another pole BD-31 being on the other side of the Vals River. The soil around the two non-perennial streams has signs of prolonged wetness which is common in wetland soils.

Potential impact (e.g. threat of pollution): The major potential impact here is erosion by vehicles especially when driving through wet soil which could leave deep track marks in the soil. Destruction or disturbance of already existing vegetation could also loosen the soil exposing it to further erosion. There is also a potential of pollution during the construction period in the form of waste, excess soil as well as possible oil spills that could end up in the water.
The commencement of the project also has a potential for a contravention of the Water Act as there will be construction activities taking place within regulated area of the Water Act. . . ..

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Comments/mitigation measures: Applications in terms of the National Water Act as well as NEMA should be done before construction in order not to contravene environmental legislation (NEMA and NWA). Machinery and all cars used during the construction should be checked for leaks and if any are found, they should be repaired before commencing with the construction. During construction, access to the site used should be away from waterbodies to reduce/ eliminate the potential for soil erosion.

4.2 Soil: sandy Rocky clayey OTHER Loam soil……

Present condition: The soil type in the area is predominantly loam soil with some areas, especially the wetland areas being mainly clay. The area used to access the route of the powerline is high in clay content power-line is mainly a gravel road of mixed sand, stones and import soil. .....

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Potential impact: (e.g. of erosion): There is a potential of erosion and soil displacement especially if soil is disturbed by driving through it when wet. It is also important that the already established vegetation not be disturbed or removed to ensure the continued stability of the soil. The clay soil in the area makes it hard to drive with a normal car when the soil is wet and this could lead to vehicles being stuck in the mud and erosion from the deepening tracks in muddy soil.

Mitigation measures: Disturbance of soil should be kept to a minimum. There should not be any unnecessary soil removal during construction of the line. Multiple tracks should be avoided, stick to one access route to get to the areas of pole planting. It is strongly advised that construction activities should not be done during the rainy season to minimize the risk of erosion and vehicles getting stuck in muddy soil. .....

4.3 Topography: mountains ridges hills valleys ravines dongas OTHER …Undulating terrain……

Present condition:

The area is undulating in topography with a gentle change in slope around the seasonal streams. There is however a steep change in the topography downstream where the line is running next to the Vals River as well as where there is a crossing of the river.

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Potential impact (e.g. of erosion)**:** As the terrain is uneven, surface run off can lead to further erosion. Another potential impact is soil displacement especially by vehicles driving through areas that are wet. The animal burrows in the area also pose a potential for injury should people step in the area with a burrow accidentally.

Comments/mitigating measures:

Well established vegetation should remain undisturbed during construction. As the area can get wet especially after rains it's important that drivers drive carefully with suitable vehicles for the terrain ie 4×4 and avoid creating multiple tracks which can cause further damage. Care should be taken when working in areas where land owners have made ridges to channel surface run-off, these shouldn't be destroyed or disturbed without consultation with the owner. Care should also be taken with regards to checking the surface that one is walking on to ensure that no injuries occur from stepping on uneven surfaces.

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5 Natural environment

5.1 Flora: indigenous protected exotic OTHER ..……

Brief description and conservation status (e.g. rare, etc., mention trees/bush/grass): The area along the route of the proposed power line is densely vegetated with both grassland and trees. The two most common tree species observed along the route of the power line are Blue gum trees (*Eucalyptus Globulus)* as well as Sweet Thorn trees(*Acacia Karoo*).

Potential impact (e.g. permit applications): Soil erosion because of the removal of vegetation. Destruction of habitat for the species that depend on these trees and grassland for shelter and food.

Comments/mitigation measures: Vegetation removal should be kept at a minimum and no vegetation cover should be removed for purposes other than pole planting. If the trees are trimmed/cut, only qualified personnel should handle the process. Landowners need to be contacted with regards to cutting of trees to ensure that necessary permissions are obtained to cut the trees and agreements of what needs to happen with the wood from the trees cut/trimmed.

5.2 Fauna: mammals birds OTHER ……..

Brief description and conservation status:
(e.g. rare, protected, etc., mention giraffe, elephants, eagles, vultures, etc., mention migratory paths)

The area close to the proposed power line has a lot of wild game animals inside the game farm. There are also cattle that were observed on the adjacent farm to the proposed power line. There are also other small wild animals such as monkeys and water monitors. The area also has a number of large birds such as fish eagles and owls.

Potential impact (e.g. threat of electrocution, collision, etc.): There is a threat of disturbance of the animals and also potential habitat destruction caused by movement of vehicles and other activities during the project's lifecycle. Threat of animal poaching, loss of livestock should gates not be closed. There is also a potential for bird electrocutions from the large birds extending their wings whilst taking off after resting on the poles. There is also a potential for bird collisions from a power line being built in an area where there has not been a line in the past.

Comments/mitigating measures:

Animals present on the farms should be avoided and not be bothered in any way. Care must be taken for control of gates to be maintained to prevent loss of livestock. Gates must be left

as they are found (gates to be left open when found open and closed when found closed) unless otherwise arranged with landowner. Boundary fences should however be closed.
It is of vital importance that arrangements are made with landowners before accessing their farms.
No poaching or hunting of animals is allowed.
Care must be taken when working in areas where there are burrows present as people can injure themselves should they trip due to them. Bird-friendly structures to be used for this line construction and bird flappers installed along the route of the line where the line crosses the Vals river. There is also a portion of line that runs parallel with the stream, it is recommended that bird flappers be placed along that span of line as well in order to mitigate the risk of collision.

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6 Social environment

6.1 Restricted areas: nature/game reserves | hiking trails | tourism routes | parks | recreational areas

residential-areas | green belts | sacred/holy grounds | OTHER……..

Brief description

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.....

Potential impact e.g. threat of encroachment, etc.: N/A. .....

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Comments/Mitigation measures: N/A

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6.2 Visual aesthetics: easily seen | hidden | partially……..

Brief description: The line runs deep through farms and far from main roads so cannot be easily seen by anyone driving along the nearest tarred road.....

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Potential impact: This project does not have any potential impact on the current aesthetic properties as it will be following the route of the existing power line there are a number of spans running parallel to the farm fence reducing the impact of the visual aesthetics.

Comments/mitigation measures: N/A. .....

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6.3 Sensitive areas: historical sites | archaeological | monuments | natural heritage sites

graves | landmarks | ruins | OTHER……..

Present condition: The area does not have any aboveground sensitive areas that were observed along the route of the power line. The area of study however is in an area that is classified as a high sensitive area in terms of the Paleontological map available on the SAHRIS website.

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Potential impact: Disturbance of sensitive Paleontological sensitive area without approval from SAHRA, which could potentially lead to an environmental legal contravention. .....

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Comments/mitigating measures: It is important that a Palaeontology study and report is done by a competent Paleontologist on this project and submitted to SAHRA as part of the notification stipulated by the National Heritage Resources Act.....

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7 Economic environment

7.1 Land use: crops | orchards | grazing | crop spraying | game farming | forestry areas | mining | OTHER …….

Brief description: During the desktop study as well as the site visit along the whole route of the line as well as the areas surrounding the proposed power-lines, most of the land use surrounding the route is grazing land for domesticated animals as well as animals in the game farm. The proposed power-line runs parallel to a game farm fence for a significant distance. The line however runs outside of the fence and where the animals are kept. There are also crops close to the route of the line lands.

Potential impact: There is a potential of disturbance of animals living within the vicinity of the proposed power-line due to heavy traffic moving including both workers and machinery (vehicles included).

Comments/ mitigation measures: Livestock should not be bothered (communicate with farmer to let him know of construction dates so they can be prepared to move livestock if necessary) .Disturbance of farming land to be kept at a minimum.

7.1.1 Commercial: factories | shops | OTHER ……

Brief description: N/A

Potential impact: N/A

7.1.2 Infrastructure: roads | railways | communications | power lines | air fields | *pipelines* | *sewage* | OTHER …

Brief description: The line mainly runs along an area where there is already existing powerlines as this is a re-build close to the existing power line. There is also two HV power lines, which were observed within close proximity to the route of the proposed power line.

Potential impact: There is potential of disturbance to the existing powerlines and also potential of electrocution should clearance distances be not adhered to.

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Comments/mitigating measures:

All safety protocols for working in close proximity to powerlines need to be adhered to .....

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7.1.3 Impact

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

1. Physical

No impact (0) Medium impact (2) High impact (4)

2. Natural

No impact (0) Medium impact (2) High impact (4)

3. Social

No impact (0) Medium impact (2) High impact (4)

Overall impact:

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

0	2	4
No impact	Medium impact	High impact

If the overall impact is between 2 and 4, contact the Environmental Practitioner or specialist.

Alternatives

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

Yes ____X____ as part of the survey process
No _____

Detailed study

Is an *environmental scoping* required in terms of regulation 544?

Yes _____

No____X_____

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Environmental Management Plan

1 General conditions

1.1 The Eskom project manager or co-ordinator 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.

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/coordinator 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**).

2 Special conditions

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

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TYPICAL MITIGATION MEASURES

ENVIRONMENTAL CONCERNS	MITIGATION MEASURES
AGRICULTURE	
Loss of standing crop due to access road	- Limit width of access and size of tower

and tower work site.	site. - Avoidance of crop areas. - Monetary compensation for crop loss. - Time construction to avoid growing season.
Soil Compaction	- Scheduling activities to times of the year when soils are least susceptible to compaction. - Stop activities when ground conditions are poor. - Use of equipment with low bearing capacity. - Chisel ploughing.
Construction of new lines	- Locate access roads along existing traffic routes.
Topsoil – subsoil mixing/soil rutting	- Scheduling activities. - Stop activity when ground conditions are poor. - Use of equipment with low bearing capacity. - Use of gravel roads. - Addition of manures to offset fertility loss. - Compensation for reduced soil productivity. - Removal of spoil and/or bentonite from foundation operations. - Segregation of topsoil and subsoil.
Disturbance to farm operations	- Maintain contact with landowner/tenant regarding preferences.
Loss of livestock	- Employ noise control measures near sensitive livestock. - Construction of farm gates. - Securing farm gates. - Clean-up construction materials which could be ingested. - Compensation for lost, injured livestock.
SOCIAL IMPACTS	
Noise and Vibration	- Limit this type of work to daylight hours. - Observe protocol or applicable municipal by-laws. - Use of appropriate methods where available.
Mud and Dust	- Wetting down dry soils. - Chemical control of dust. - Cleaning roads to remove mud. - Temporary planting of grasses.
Aesthetics	- Screen with natural of planted vegetation restoration. - Avoid linear access down the right-of-way. - Addition of topsoil to gravel access roads. - Hoarding construction sites. - Installation of landscaping in advance of site completion.
Inconvenience	- Select route and method of installation to suit landowners' conditions.

	- select timing of activity.
Heritage resources	- Avoidance/isolation. - Design measures to make facility less obtrusive. - Screening. - Alternate methods of equipment. - Protection by use of enclosures, barrier fencing, covering. - Salvage in conjunction with SAHRA. - Relocation in conjunction with SAHRA.
Tourism and recreation resources	- Design measures to make facility less obtrusive of disruptive. - Screening and restoration. - Minimize noise and dust. - Safety precautions to protect the public. - Scheduling to avoid peak use periods.
WATER QUALITY	
Sedimentation of streams due to erosion from the right-of way.	- Minimize use of slopes adjacent to streams during soils testing, construction and maintenance. - Maintain a cover crop. - Retain buffers.
Stream bank erosion.	- Mechanical erosion control. - Retain shrubby stream bank vegetation and selectively cut or prune trees during line clearing/maintenance. - Selective spraying of herbicides. - Mechanical erosion control.
Impedance of natural flow streams/others surface waters.	- Use and maintenance of appropriate stream crossing device.
Ponding or channelization of surface waters due to rutting.	- Timing activities to stable ground conditions. - Use of gravel roads.
Contamination of surface or ground waters through spills or leaks of toxic substances.	- Spill control material and procedures readily available. - Site selection where possible.
Soil compaction/topsoil-subsoil mixing.	- Avoidance of rutting by vehicles where possible. - Construction timing. - Use of gravel roads. - Use of vehicles with low bearing pressures. - Stop activities when ground conditions are poor.
Wind/water erosion.	- Avoidance of areas with high erosion potential. - Timing activities to the most stable ground conditions. - Slope stabilization. - Mechanical erosion control. - Vegetation erosion control. - Re-compaction of trenches. - Avoid trenching parallel to the fall of a

	slope.
Contamination by petrochemicals.	- Spill control material and procedures made readily available. - Restoration methods investigated.