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 R544 or R545 or R546, 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 **……**…….

Area: **ZASTRON AREA** .....

Project number **2009S010** ..... File number .....

Rural scheme/
Feeder ..... Voltage 22KV.....

Supply from ZASTRON SUBSTATION.....
(Scheme name, pole numbers for tee-off)

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

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2 Properties traversed

Farm name .....

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

Compilation number ..... Line length/Site area (m^2): 3471m.....

BUILD A 3741m 22kV INTERCONNECTOR LINE FROM ZASTRON SUBSTATION TO THE ZMT FEEDER WHICH SUPPLIES MATLAKENG

Farm name .....

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

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

BUSH CLEARING TO BE DONE

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3 Brief description of the surrounding area

The plain is gently undulating and is covered with dry Highveld grassland with spread shrubs. Mainly used for grazing of cattle and small domesticated animals. This area also consists of an industrial area and municipal buildings such as a traffic department and a prison. .....

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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: There is a small stream that was observed along the route of the proposed line ,approximately 300m from where the line is going to take – off from the substation. There is also a dam that was observed next to the route of the proposed line, this dam is also located within 300m from the small stream.

Potential impact (e.g. threat of pollution): Water contamination might occur from oil leaking vehicles and equipment during site preparation and construction activities. Contravention of the National water act 36 of 1998 section 21 on water uses if the banks or bed of the water bodies are altered.

Comments/ mitigation measures: Any construction must take place **at least** 32 meters away from the edge of a watercourse or water body. No vehicular movement and activities should take place through the water. Construction vehicles and equipment should be serviced regularly to avoid oil leaks. Drip trays should be placed in trucks/ vehicles to transport breakers and transformers to the stores and should drive at a moderate speed. No water used for the purposes of construction of this line should be extracted from either the small stream of the dam along the route of the line. .....

Image 1: Small stream observed along the route of the proposed line.

4.2 Soil: sandy rocky clayey OTHER Loam soil……

Present condition: A portion of the line goes along a rocky route where it is also mountainous which made it slightly challenging when walking on that particular terrain. The bigger portion of the route of the line however is along an area that ranges between sandy and loam soil covered by grass.....

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Potential impact (e.g. of erosion): The area can suffer loss of topsoil through soil erosion by wind, water or other causes of erosion as a result of the increase in traffic that will occur associated with construction activities. Land pollution can impact on the fertility and composition of soil. Vehicular movement and excessive activity on the soil can also accelerate soil erosion.

Comments/ mitigation measures: Drive vehicles at a moderate speed in the area. Refrain from commencing construction activities on highly sandy plains and sand dunes as this will lead to topsoil removal and erosion. . Do not drive vehicles and trucks through cultivation land in order to minimize loss of top soil. Extract soil in layers when excavating, in order to deposit the soil back into its original layers to keep maximum top soil. Do not litter anywhere. Vegetation removal should be kept at a minimal as it stabilizes the topsoil in the area. .....

4.3 Topography: mountains ridges hills valleys ravines dongas OTHER: Erosion gully……

Present condition: At approximately 250m from the substation, the proposed line is along a steep slope moving towards a hill. . There is a bend along the proposed line which is located at the top of the hill and at which point the proposed line will start sloping down the hill again. Along the route of the line, there is also an erosion gully which the proposed line is going to be crossing. .....

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Potential impact (e.g. of erosion): The presence of hills can accelerate soil erosion. The presence of an erosion gully along the route of the line indicates that the soil in that specific area is prone to erosion over a period of time and hence activities taking place in the area during construction and maintenance of the line have a potential to increase the erosion in the area. .....

Comments/mitigating measures: The area where the line will be going up a hill is well vegetated and the vegetation stabilizes soil in an area, all areas that are not going to be used for the planting of poles should not have excavation and vegetation cover should not be

removed. Only one access route should be used to get to the site and the use of multiple tracks should be avoided.

Image 2: Erosion gully along the route of the proposed line as observed from the top of the hill

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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 route of the proposed line is covered mainly with grass. There is also a portion of the proposed line that is however that is along an area with a lot of trees. Where the proposed line is next to the substation, there are a lot of trees that will need to be removed. There were also more trees for removal that were identified in the vicinity of the erosion gully

Potential impact (e.g. permit applications): The potential impact that this project poses on the surrounding environment can be soil erosion due to vegetation removal/clearance done for the construction of the proposed line. Debris that result from vegetation clearance, cut and trimmed trees can pose as a fire risk on the property of landowners if they are left to dry on site. This project also poses a potential for the loss in grazing land and natural habitat of small mammals and birds living in grassland. Veld fires can also pose danger to Eskom equipment and infrastructure where grasses are long.

Comments/ mitigation measures: Minimize the removal of vegetation cover during site preparation and construction. Drive with moderate speed in the veldt. Consult with the land owners and adjacent land occupants about debris and wood to be removed. .....

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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): During the site visit, there were cattle that were observed along the proposed power line route. There were also other domesticated animals such as goats, ducks, sheep, and chickens which were observed approximately 150m from the line route (where the line crosses the railway). The area also has small animals such as meerkats, rats, ground squirrels and rabbits that roam freely around the grasslands. The line span stretching from the Zastron substation runs through a mountainous area that has baboons. The area surrounding the route of the line also has birds such as Lanner falcons as well as Hadeda ibis and laughing doves.

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Potential impact (e.g. threat of electrocution, collision, etc.): The construction of a new line poses a potential for habitat destruction as well as disturbance for the animals that use the area along the proposed line route as habitat and also as grazing land. There is also a potential for bird collisions as the route of the proposed line is in an area that has birds which are known to collide with Eskom lines. .....

Comments/mitigating measures: The area adjacent to the mountain that the birds use as a for flying between the hill and the open grassland should be installed with bird flappers that will be visible when birds fly between the two areas. The construction activities should not disturb the cattle grazing in the area. It is also important to consult with the owners of the cattle before construction so as to use alternative areas for grazing during the period of construction (if possible).

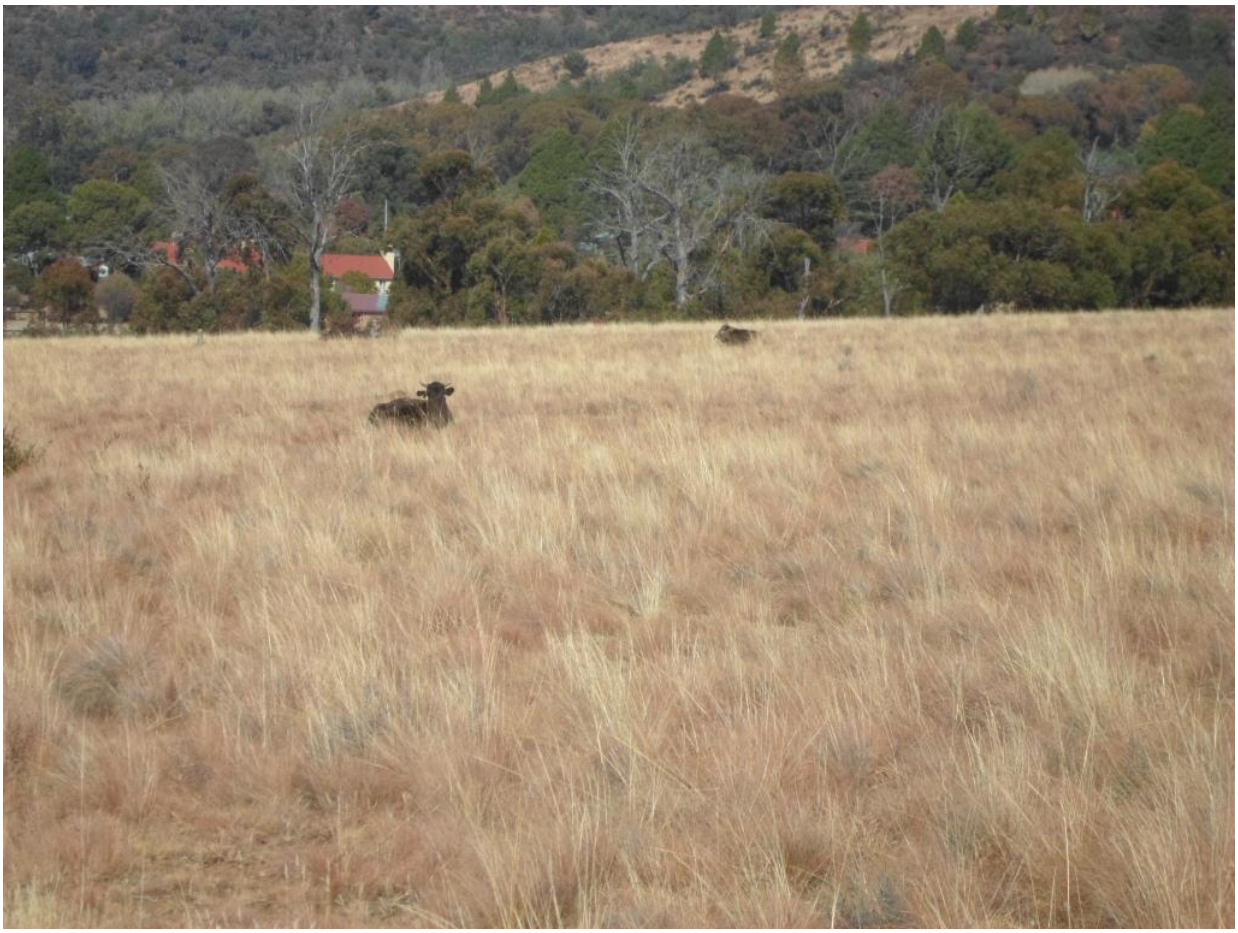

Image 3: Cattle grazing in the open grassland along the route of the proposed line.

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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: N/A .....

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Potential impact (e.g. threat of encroachment): N/A .....

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

Brief description: Most of the line runs through areas that are easily visible to the surrounding community. There is also a portion of the line that crosses the main tar road used then entering the town. The portion of the line that is towards Matlakeng Township runs next to a road.....

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Potential impact: The construction process and maintenance of the line has the potential for causing disturbance as well as being visually unpleasant for people located in the area as it will be just beside the road where people drive and also walk.

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Comments/mitigation measures: Construction activities should be done during day-time working hours and equipment used should not be left on site. .....

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

graves | landmarks | ruins | OTHER……..

Present condition: N/A .....

Potential impact (possible impact on heritage resources): N/A .....

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Comments/mitigating measures: N/A.....

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7 Economic environment

7.1 Land use:	crops	orchards	grazing	crop spraying
	game farming	forestry areas	mining	OTHER: Collection of firewood ……

Brief description: Approximately 150m next to the Zastron substation (along the route of the proposed line), there were trees cut and some firewood in that vicinity. That area is normally used for collection of this firewood by surrounding residents. Where the line crosses though grassland areas, there were cattle observed grazing in the areas and in other grassland areas where cattle were not observed, there was cow dung which indicated that there are cattle grazing in that area. .....

Potential impact: Disturbance of the environment and resources used by residents for the collection of firewood. There is also a potential for the disturbance of the grazing land which would occur during the construction period of the project. .....

Comments/mitigation measures: Where tree-cutting is going to take place in the area where there is collection of fire-wood, it is recommended that the neighboring residents should be consulted before debris from trees that have been cut can be transported from site to another area. There should be no disturbance as well as poaching of the animals that use the area along which the proposed line is going to be for grazing. .....

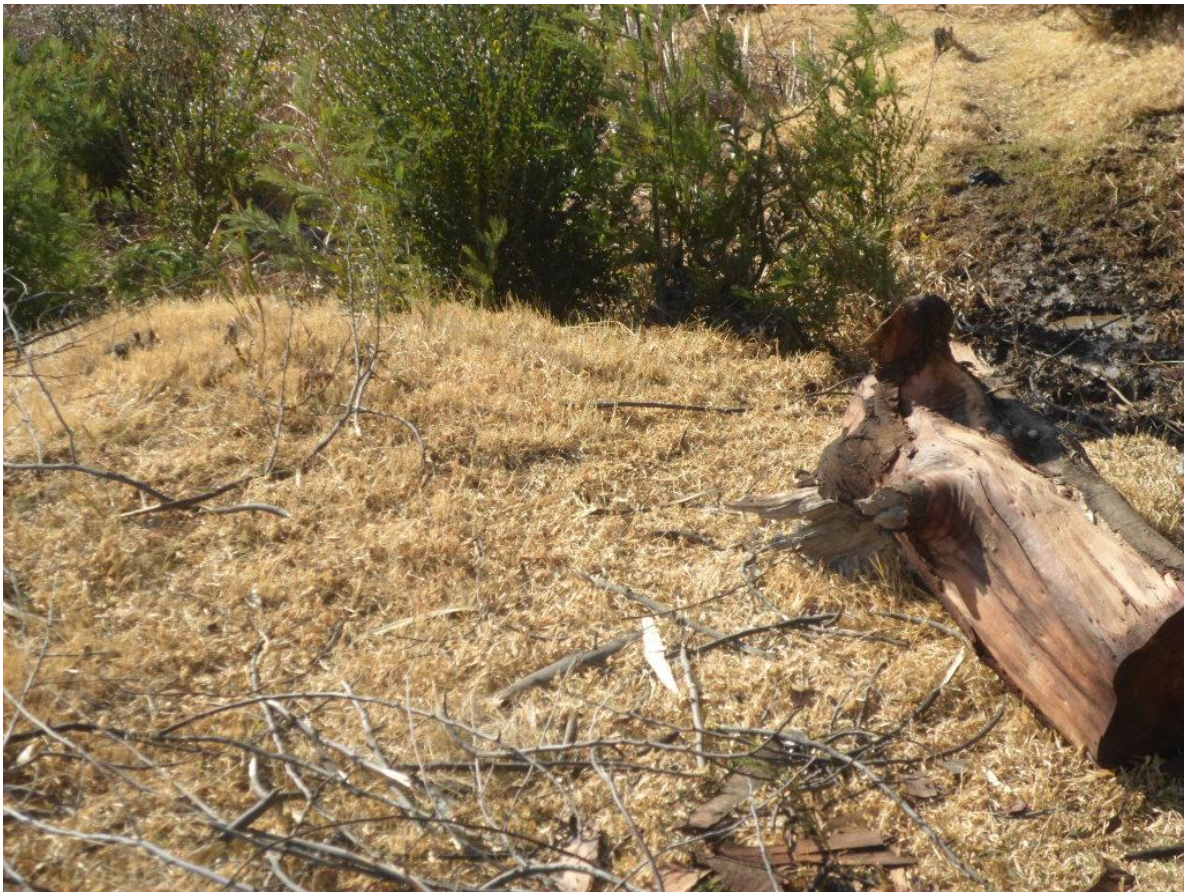

Image 4:Area along the route of the proposed line where trees are cut for the purposes of firewood.

7.1.1 Commercial: factories shops OTHER: N/A ……

Brief description: N/A .....

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Potential impact: N/A .....

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7.1.2 Infrastructure: roads railways communications power lines air fields

pipelines *sewage* OTHER …….

Brief description: The proposed interconnector line makes one railway crossing. There is also a portion of the proposed line which runs parallel to an existing power-line. .....

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Potential impact: Encroachment into the safety clearance. There is also a potential for disturbance of the normal functioning times of the railway during the time when the line is being constructed. .....

Comments/ mitigation measures: Safety clearances should be maintained between the railway line and the proposed Eskom power-line, and also with the existing power-line. All construction activities that area going to happen where the railway line is located should take place during times where the railway line is not in use and this information should be obtained before construction activities can commence. Research regarding servitudes and deeds is recommended before commencing on the project. Be alert for loose structures and hanging conductors. Remove old conductors (which are not connected to any source of electricity) and structures from the proposed route if there are any found. .....
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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, as part of route selection
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 co-ordiator.

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.

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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's standard on the safe use of herbicides **DST_32-329.**

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 and tower work site.	- limit width of access and size of tower 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 routs.
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. - minimise 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.	- minimise 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 stabilisation. - mechanical erosion control.

	- vegetation erosion control. - recompaction of trenches. - avoid trenching parallel to the fall of a slope.
Contamination by petrochemicals.	- spill control material and procedures made readily available. - restoration methods investi-gated.