JUNO-GROMIS 400kV POWER LINE

ECOLOGICAL WALK-THROUGH REPORT

PRODUCED FOR NSOVO ENVIRONMENTAL CONSULTING

ON BEHALF OF ESKOM HOLDINGS

SIMON TODD CONSULTING

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September 2016

DECLARATION OF CONSULTANTS' INDEPENDENCE

- I Simon Todd, as the appointed independent specialist hereby declare that I:
- act/ed as the independent specialist in this application;
- regard the information contained in this report as it relates to my specialist input/study to be true and correct, and
- do not have and will not have any financial interest in the undertaking of the activity, other than remuneration for work performed in terms of the NEMA, the Environmental Impact Assessment Regulations, 2010 and any specific environmental management Act;
- have and will not have no vested interest in the proposed activity proceeding;
- have disclosed, to the applicant, EAP and competent authority, any material information that have or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required in terms of the NEMA, the Environmental Impact Assessment Regulations, 2010 and any specific environmental management Act;
- am fully aware of and meet the responsibilities in terms of NEMA, the Environmental Impact Assessment Regulations, 2010 (specifically in terms of regulation 17 of GN No. R. 543) and any specific environmental management Act, and that failure to comply with these requirements may constitute and result in disqualification;
- have provided the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not; and
- am aware that a false declaration is an offence in terms of regulation 71 of GN No. R. 543.

Note: The terms of reference must be attached.

Simon Todd Pr.Sci.Nat 400425/11.

July 2013

Introduction & Background

Nsovo Environmental Consulting has appointed Simon Todd Consulting to provide a pre-construction walk-through of the 400kV power line to be constructed between Juno substation near Koekenaap in the Western Cape and Gromis substation near Kleinsee in the Northern Cape. The line is approximately 280km long and would require approximately 585 towers in order to span the route. The walk-through forms part of the requirements of the environmental authorisation for the power line development.

The purpose of the walk-through is to locate and identify any species or habitats of conservation concern which may be impacted by the power line. Depending on the nature of the species or habitats present, minor adjustments to the pylon locations may be recommended to avoid impact to the sensitive receptors or alternatively, affected individuals of species of conservation concern can be translocated to a safe location nearby. In addition, the walk-through provides the information regarding all listed and provincially protected species which might be affected by the development, which is required for the permit applications from CapeNature and NC-DENC before construction activities can commence.

This report details the findings of the walk-through study that was conducted for the power line.

Relevant Aspects of the Development

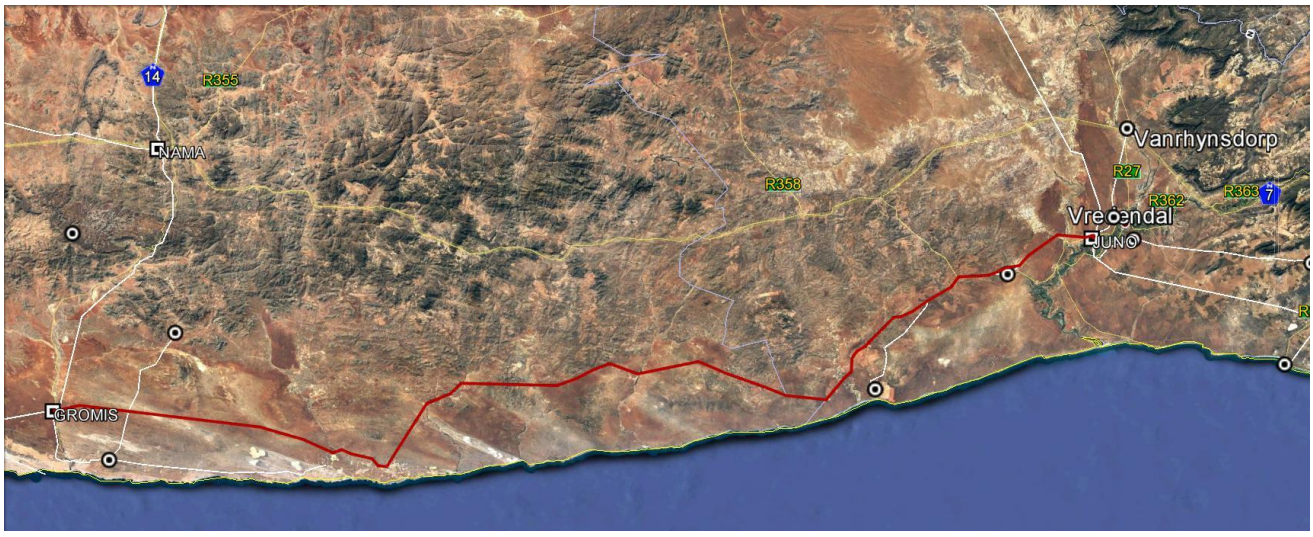

Figure 1. Satellite image illustrating the route of the power line from the Juno substation in the South to Gromis in the North.

The route of the power line from the Juno substation to Gromis substation is depicted above in Figure 1. The route is approximately 280km long and heads northwards from the Juno substation before taking a number of minor deviations along the route to the Gromis substation. The vast majority of the route traverses natural vegetation on a path of its' own and does not follow any existing roads or other power lines, except in the south, where it runs adjacent to the 132kV line from Juno to Brand se Baai.

Walk-Through

The walk-through was conducted during August and September 2016, during the optimal time for vegetation sampling. The rains preceding the walk-through had been good and the vegetation was green with a large proportion of the species present in flower, including many geophytes. Consequently, the results of the walk-through can be considered highly reliable and it is not likely that there were any species of conservation concern that were not present and visible at the time of the walk-through.

The whole power line route from Juno to Gromis was walked and all sensitive features and species of concern along the route were noted and recorded on a GPS. Specific attention was paid to each pylon position and all species within the footprint were recorded. Where there were sensitive features within the pylon footprint that should preferably be avoided, alternative locations for the pylon were identified in the field.

The report provides a summary of species present within the footprint of every pylon, as well as a photograph of every position for documentation and illustration purposes. Where changes are recommended, these are detailed with a description of where the pylon should be moved to.

Identification of Listed and Protected Species

The conservation status of species of conservation concern is taken from the SANBI *Red List of South African Plants* (2016) (http://redlist.sanbi.org/), while species protected at the provincial level are taken from the *Western Cape Nature Conservation Laws Amendment Act* of 2000, as well as the Northern Cape Nature Conservation Bill of 2009.

Western Cape:

The *Western Cape Nature Conservation Laws Amendment Act* provides lists of protected species of plant and animals and in some cases whole plant genera or families may be listed as protected. Of particular relevance are the following, which highlights the plant genera and families most likely to be encountered at the site, but is not intended to be a comprehensive list.

Schedule 4 Protected Flora:

- *Amaryllidaceae* – All species
- *Lachenalia* – All Species
- *Diascia* – All Species
- *Iridaceae* – All Species
- *Mesembryanthemaceae* – All species

In terms of the families and genera above, some of the families such as *Mesembryanthemaceae* contain many species and constitute the dominant species along large parts of the route.

In terms of fauna, the following *inter alia* are protected and may not be hunted, captured or harmed without a permit:

- All tortoises
- All lizards
- All frogs
- Most snakes
- All indigenous antelope
- Aardvark
- Most small carnivores such as Honey Badger, Cape Fox, Bat-eared Fox, Large Grey Mongoose etc.
- Most birds except pest species

Or relevance to the current study would be burrows of any of the above species within the development footprint, specialized habitat of red-listed fauna, or nesting and roosting sites of birds such as raptors or cranes.

Northern Cape

Under the Northern Cape Nature Conservation Bill of 2009, the following are considered to be of particular relevance, which are extracted from the legislation and are not intended to provide a comprehensive list of all protected species, only those which are commonly encountered in the area. The reader is referred to the schedules of the Act for a full list of species listed under the act.

Schedule 1: Specially Protected Flora

- Family *Geraniaceae* - Pelargonium spp. all species

Schedule 2 Protected Flora

- *Amaryllidaceae* – All species
- *Apiaceae* – All Species
- *Apocynaceae* – All Species
- *Asphodelaceae* – All species except Aloe ferox
- *Iridaceae* – All species
- *Mesembryanthemaceae* – All species
- *Crassulaceae* - All species except those listed in Schedule 1
- *Euphorbiaceae* - Euphorbia spp. All species
- *Oxalidaceae* - Oxalis spp All species
- *Portulacaceae* - Anacampseros spp. All species

In terms of fauna the following are species which potentially occur at the site and are listed as protected species:

Schedule 1. Specially Protected Fauna

- *Felis nigripes* - Black-footed cat/Miershooptier
- *Felis silvestris* - African wild cat/Afrika wildekat
- *Ictonyx striatus* - Striped polecat/Stinkmuishond
- *Mellivora capensis* - Honey badger/Ratel
- *Otocyon megalotis* - Bat-eared fox/Bakoorvos
- *Proteles cristatus* – Aardwolf/Maanhaarjakkals

- *Vulpes chama* - Cape fox / Silver jackal Silwervos
- *Orycteropus afer* - Aardvark / Ant-bear Erdvark / Aardvark
- Family: *Chamaeleonidae* - Chamaeleons, all species
- Family: *Cordylidae* Girdled lizards, all species

Schedule 2. Protected Species

Virtually all indigenous fauna which do not fall under Schedule 1 are classified under Schedule 2, except those species classified as pests. In terms of mammals most rodents, shrews, elephant shrews, bats, hares and rabbits, carnivores such as mongoose, genets, and meerkat, antelope such as klipspringer, steenbok and duiker are included. In terms of other vertebrates, all tortoises, lizards, most harmless snakes and all frogs are listed under Schedule 2. The full list is contained within the Schedule and it not repeated here.

In terms of fauna, the following *inter alia* are protected and may not be hunted, captured or harmed without a permit:

- All tortoises
- All lizards
- All frogs
- Most snakes
- All indigenous antelope
- Aardvark
- Most small carnivores such as Honey Badger, Cape Fox, Bat-eared Fox, Large Grey Mongoose etc.
- Most birds except pest species

Study Limitations

The state of the vegetation at the time of the site visit was very good and is not considered a significant limitation. The walk-through was based on the route provided by the developer and should any deviations from this route occur the walk-through clearly would not be valid for those deviated sections. It is assumed that disturbance created during construction would be kept to a relatively low level and that wholesale clearing for roads and pylon construction would not be required, however it is not possible to know the exact extent and location of disturbance around each pylon position. The study therefore describes the vegetation composition at each pylon position, but it is not possible to provide an exact number of affected individuals of each species at each site, although this could be estimated if required based on the extent of the footprint. In addition, the route traverses some sensitive habitats such as dunes and in these habitats it is not possible to avoid the generally sensitive nature of the surrounding landscape. The impacts in these areas were assessed in the EIA and the walk-through is able to avoid local pylon-site scale features only. In addition, there is a limit to how much a pylon can be moved without significant implications

for the engineering of the line and so these considerations are also kept in mind when selecting alternative sites for pylon positioning.

Walk-Through Results

The results of the walk-through are described below, starting from the Gromis Substation and working southwards to the Juno Substation. The walk-through study consists of the following components:

- Walk-through report (this)
- Spreadsheet of pylon site descriptions
- Photographs of every pylon position.
- KMZ of recommended tower positions, where these are required.

Due to the large number of pylons, the description of each of the 585 pylon positions is provided in a spreadsheet with a link to the associated photograph of the site. Only those pylons where some kind of change or action is required are described in this report. All the pylons regardless are however described in the spreadsheet and information contained includes the following for each tower position:

1. Tower position;
2. Province
3. Link to the photograph of affected area at each tower position;
4. Species list of dominant plant species at each tower position;
5. Potential impacts on flora; and
6. Recommended mitigation measure.

The tower positions where some kind of recommended action is required are detailed below. The accompanied spreadsheet also notes nearby sensitive features that should be considered if a service road is to be constructed beneath the line, however some adjustment in the field should be made based on the information provided. Overall, the road and pylons should be located within disturbed habitats as much as possible as the likelihood of impacting species of conservation concern are significantly lower in these habitats. Where disturbed patches occur near to towers located in high condition (i.e. intact vegetation) or sensitive areas, these points were marked and recommended as alternative tower positions.

Table 1. Recommended changes to alignments and pylon positions along the Juno-Gromis 400kV line. Waypoint numbers refer to those provided in the KMZ file of recommended changes and pylon positions.

Tower No.	Issue	Recommended Change
JUN047	Located in seasonal salt pans that support vegetation and high numbers of *Cheiridopsis deniticulata.*	Move to less sensitive area at waypoint 008 (29°47'35.31"S; 17°14'54.77"E).
JUN098	Located on top of a dune.	Move tower 50m north or 50m

		south to avoid dune.
JUN117	Would impact a distinctive population of *Searsia laevigata* that is a locally very rare feature.	Move tower 30m south.
JUN120	Located on a dune.	Avoid dune at waypoint 017 (30° 7'29.39"S; 17°18'47.27"E)
JUN150	Located on a dune. The Near Threatened *Helichrysum tricostatum* occurs at this point.	Place tower next to fence 40-50m west along road to avoid dune.
JUN151	Located on a dune.	Can only be avoided if the tower is moved to the fence 90m to the west.
JUN158	Sensitive intact duneveld.	A more environmentally acceptable tower position would be at waypoint 019 30°16'53.41"S; 17°19'23.93"E) in the disturbed area.
JUN167	Sensitive intact duneveld.	Move tower to disturbed area at waypoint 021 (30°18'44.85"S; 30°18'44.85"S)
JUN169	Rehabilitated mining area.	Move tower off re-created dune to waypoint 022 30°19'21.53"S; 17°18'59.46"E).
JUN171	Small rehabilitated dune.	Move off rehabilitated dune to waypoint 024 (30°19'36.91"S; 17°19'19.59"E).
Sensitive habitat between JUNO180 and JUN181	Avoid dune with high numbers of *Aloe perfoliata* at waypoint 027.	Avoid area at waypoint 027 (30°20'15.86"S; 17°22'19.96"E).
JUN180	Located on the edge of a dune.	Move tower to waypoint 028 (30°20'16.21"S; 17°22'26.86"E) to avoid damage to the dune.
JUN188	Sensitive intact fynbos.	Move tower to disturbed area at waypoint 030 (30°20'45.54"S; 17°24'43.17"E).
JUN192	Sensitive intact duneveld.	Move tower off the dune to waypoint 039 (30°20'58.63"S; 17°25'58.59"E).
JUN193	Located on a dune.	Move tower off dune to waypoint 040 (30°21'6.56"S; 17°26'21.80"E).
JUN194	Located on a dune.	Move tower off dune to waypoint 042 (30°21'10.61"S;

		17°26'40.56"E).
JUN195	Located on a dune.	Move tower off dune to waypoint 043 (30°21'13.55"S; 17°26'57.05"E).
JUN196	Located on a dune.	Move tower off dune to waypoint 044 (30°21'13.34"S; 17°27'4.11"E).
JUN197	Located on a dune.	Move tower off dune to waypoint 045 (30°21'18.67"S; 17°27'25.19"E).
JUN198	Located on a dune.	Move tower off dune either to waypoint 046 (30°21'23.25"S; 17°27'41.97"E) or 140m East.
JUN199	Located on a dune.	Located on top of a dune. Move tower off dune either 80m east or 80m west
Sensitive habitat between JUNO212 and JUN213	Rare form of *Dorotheanthus rourkei* may be impacted.	Population of rare red form of *Dorotheanthus rourkei* at waypoint 049 (30°23'14.66"S; 17°31'21.85"E) should be avoided.
JUN213	Population of rare red form of *Dorotheanthus rourkei* at waypoint.	High numbers so impacts probably very low (i.e. 'acceptable' loss).
JUN227	Located on top of a dune.	Move tower to waypoint 052 (30°25'34.72"S; 17°34'37.52"E).
Sensitive habitat between JUNO230 and JUN231	A 'meerkat heuweltjie' occurs at waypoint 056 (30°26'31.15"S; 17°35'0.87"E).	Avoid important ecological feature at waypoint 056.
JUN223	Located on a dune but area surrounded by dunes, so no leeway to move tower.	No leeway to move tower.
JUN237	Located on a dune but area surrounded by dunes, so no leeway to move tower.	No leeway to move tower.
JUN243	Located on a dune. *Agathosma elata* not found at this point but does occur in the area.	Move tower off dune to side of dune at waypoint 062 (30°29'39.50"S; 17°36'7.97"E).
JUN248	Located on top of dune.	Move tower further south to waypoint 063 (30°30'53.40"S; 17°36'34.93"E).
JUN250	Located on dune top.	Move tower 50 m north to avoid dune.
JUN252	Located on a dune top	Move tower to waypoint 065

	depression (blowout). Not a suitable location.	(30°31'44.41"S; 17°36'54.49"E).
Sensitive habitat between JUNO259 and JUN261	General area is sensitive due to the locality of *Hermannia* sp. nov.	Avoid the species at waypoint 070 (30°33'31.87"S; 17°37'33.69"E).
JUN261	Sensitive habitat, and locality of *Hermannia* sp. nov. population	The tower should be moved to the less sensitive area at waypoint 071 (30°33'48.86"S; 17°37'38.66"E).
JUN282	Located on a heuweltjie.	Move tower to waypoint 073 (30°38'54.75"S; 17°40'34.44"E) or any direction 50 m away from JUN282 to avoid heuweltjie.
JUN294	Located on a heuweltjie.	Move tower off heuweltjie 20m to the west.
JUN303	Located on a heuweltjie.	Move tower off heuweltjie to waypoint 076 (30°42'50.48"S; 17°44'33.22"E).
JUN322	Located on a dune.	Move tower 60 m north to avoid dune.
JUN323	Meerkat heuweltjie.	Move tower 20m south to avoid sensitive ecological feature.
JUN333	Located on a heuweltjie.	Move tower 40m north.
JUN333A	Located very close to a heuweltjie.	Move tower 30m south to waypoint 079 (30°50'34.50"S; 17°47'16.81"E).
JUN343	Located on a dune ridge.	Move tower off the ridge, to either waypoint 080 (30°52'44.54"S; 17°48'46.94"E) or 081 (30°52'47.02"S; 17°48'48.72"E).
JUN347	Located on a dune ridge.	Move tower off ridge to waypoint 085 (30°53'37.06"S; 17°49'12.59"E).
JUN348	Dune 'blowout'. Not ideal to place a tower here since this is may be an ancient and important ecological feature.	Move tower 60m south
JUN358	Located on top of a large sandy hill with dunes.	No leeway to move tower since the habitat is the same in every direction!

Sensitive habitat south of JUN383	*Lampranthus procumbens* found at waypoint 097.	Avoid any impacts at waypoint 097 (31° 3'26.95"S; 17°48'46.66"E).
JUN384	Endangered species *Agathosma elata* population.	Move tower to waypoint 098 to avoid *Agathosma elata*.
JUN387	Located on the side of a dune. *Boophone haemanthoides* present.	Move tower off the dune edge to waypoint 099 (31° 4'27.87"S; 17°48'43.26"E).
JUN392	Dunes occur in all directions.	No leeway to mitigate impacts by moving tower.
JUN393	Located on the side of a heuweltjie.	Move tower off heuweltjie to waypoint 101 (31° 6'3.51"S; 17°48'48.33"E).
JUN394	*Agathosma elata* is common at this point so ecological benefit in moving the tower. Twenty plants of *Leucospermum rodolentum* occur at waypoint 102.	Avoid impacts to *Leucospermum rodolentum* which occur at waypoint 102 (31° 6'32.62"S; 17°48'57.32"E).
JUN396	Dune systems in all directions. The Near Threatened *Metalasia adunca* occurs at this point.	No leeway to reposition tower.
JUN397	Located on top of a large rounded dune-like hilltop.	Move tower off the dune to waypoint 105 (31° 7'11.54"S; 17°49'7.68"E) to avoid dune.
JUN398	Located on a dune.	Move tower to waypoint 107 (31° 7'28.23"S; 17°49'12.43"E) to avoid dune.
JUN399	Located between dune, which is not a suitable position.	Moving the tower would impact the surrounding dunes, which would have no ecological benefit.
JUN405	Located on a dune saddle-like feature i.e. not a dune slack.	Avoid this position by moving the tower to waypoint 112 (31° 9'15.48"S; 17°49'40.77"E).
JUN406	Located on edge of small dunes.	Move tower to waypoint 115 (31° 9'34.29"S; 17°49'45.93"E) to avoid dunes.
JUN411	Located on a heuweltjie.	Move tower off heuweltjie to waypoint 118 (31°10'40.37"S; 17°50'18.00"E).
JUN416	Located on a heuweltjie.	Move tower to waypoint 120 (31°11'9.01"S; 17°51'40.81"E) to avoid heuweltjie.

JUN417	Located on the edge of a heuweltjie.	Move tower to waypoint 121 (31°11'15.22"S; 17°51'57.48"E) to avoid heuweltjie.
Sensitive quartz patches between JUN436 and JUN438	Sensitive endemic succulents on quartz patches.	Avoid quartz patches at and surrounding waypoint 128 (31°12'7.44"S; 17°56'50.51"E).
JUN437	Sensitive quartz patch.	Move tower to waypoint 129 (31°12'6.04"S; 17°56'58.65"E).
JUN439	Located on a dune.	Move tower to more stable part of dune at waypoint 131 (31°12'6.80"S; 17°57'36.02"E).
JUN453	Granite rocky habitat.	Avoid area and place tower at waypoint 132 (31°13'27.63"S; 18° 0'28.06"E).
JUN453A	Located very close to a minor drainage line. Erosion-prone area.	Move tower to waypoint 133 (31°13'33.80"S; 18° 0'42.68"E).
JUN456	Slight erosion exists.	Ensure erosion control or move tower to waypoint 134 (31°13'52.65"S; 18° 1'27.41"E) to circumvent this
JUN459	Erosion prone area next to drainage line.	Move away from drainage line to waypoint 136 (31°14'17.03"S; 18° 2'25.11"E).
JUN462	Rocky granite habitat.	Move off rocky area to waypoint 138 (31°14'37.52"S; 18° 3'12.92"E).
JUN466	Quartz patch with A*rgyroderma* sp. population.	Move tower to either waypoint 139 (31°14'57.25"S; 18° 4'12.57"E) or 141 (31°14'58.64"S; 18° 4'15.25"E) or 142 (31°15'17.25"S; 18° 4'49.17"E) to avoid quartz patch.
JUN495	Located on a heuweltjie.	Move tower to waypoint 143 (31°19'36.21"S; 18°10'15.01"E) to avoid heuweltjie.
Sensitive habitat south of JUN501	Numerous heuweltjies and quartz patch	Tower should be moved to waypoint 144 (31°20'37.46"S; 18°11'36.97"E) to avoid numerous heuweltjies. Avoid impacts to quartz patch at waypoint 145 (31°20'38.81"S; 18°11'37.62"E).

JUN504	Agricultural land with numerous heuweltjies.	Move tower to waypoint 147 (31°21'11.15"S; 18°12'24.12"E).
JUN509	Located on a heuweltjie.	Move tower off heuweltjie to waypoint 148 (31°21'35.79"S; 18°13'59.34"E).
JUN515	Located on a heuweltjie.	Move tower to waypoint 151 (31°22'58.28"S; 18°14'50.68"E).
JUN519	Located on a heuweltjie.	Move tower to waypoint 153 (31°24'0.67"S; 18°15'21.08"E).
JUN520	Located on a heuweltjie.	Move tower to waypoint 154 (31°24'16.32"S; 18°15'28.11"E).
Sensitive area northeast of JUN525	Area would potentially be impacted during construction	Avoid heuweltjie at waypoint 156 (31°25'22.43"S; 18°16'5.10"E). Move tower to waypoint 157 (31°25'23.30"S; 18°16'5.16"E).
Sensitive areas between waypoint 162 (31°27'39.92"S; 18°18'17.41"E) and 172 (31°28'9.06"S; 18°18'34.57"E).	Sensitive quartz patches with endemic succulents.	Avoid quartz patch with *Argyroderma* sp. at waypoint 162 (31°27'39.92"S; 18°18'17.41"E). Note that *Argyroderma* sp. and *Conophytum* sp. occur at waypoint 165 (31°27'52.65"S; 18°18'27.04"E) and 166 (31°27'53.14"S; 18°18'27.39"E).
JUN538	Sensitive quartz patch and SCC. Quartz patches support endemic species that are highly sensitive and confined in terms of geographical surface area. The Rare *Othonna lepidocaulis* occurs on the koppie at waypoint 070.	Avoid area and move tower off quartz to waypoint 167 (31°27'55.22"S; 18°18'27.14"). Highly sensitive quartz koppie at waypoints 168 (31°28'6.23"S; 18°18'35.31"E), 169 (31°28'5.60"S; 18°18'36.31"E) and 170 (31°28'7.37"S; 18°18'36.81"E) must not be impacted.
JUN544	Located on a heuweltjie. Move tower to waypoint 176 to avoid heuweltjie.	Located on a heuweltjie. Move tower to waypoint 176 to avoid heuweltjie.
Sensitive habitat between JUN456 and JUN457.	Quartz patch located at waypoint 179 (31°29'13.59"S; 18°20'34.20"E) supports *Argyroderma* sp.	Area must be avoided.
JUN554	Located on top of a dune.	Move tower off the dune to waypoint 180 (31°30'18.63"S;

		18°22'25.18"E).
JUN558	Area supports high numbers of heuweltjie in all direction in very close proximity.	No leeway to move tower position.
JUN559	Located on a heuweltjie.	Move tower off heuweltjie to waypoint 181 (31°31'8.53"S; 18°23'47.03"E).
JUN562	Located on a small hill ridge.	Move tower to waypoint 182 (31°31'39.59"S; 18°24'37.27"E) to avoid ridge. Avoid *Conophytum* sp. population at waypoint 183 (31°31'46.66"S; 18°24'42.96"E).
JUN574	Located on a heuweltjie.	Move tower 20m southeast to avoid heuweltjie.
JUN580	Located on a heuweltjie.	Move tower 20m west to avoid heuweltjie.

General Mitigation Measures

Access roads are potentially more destructive than the tower impacts if roads are not built in a sensitive manner. Access roads should be kept as narrow as possible and avoid sensitive features as much as possible. Clearly, it is not possible to eliminate access roads during construction however, these should be routed to avoid sensitive features such as:

- Dune systems
- Quartz patches
- Salts pans
- Drainage lines, including river systems and minor drainage lines
- Quartz patches
- Rocky habitats, including exposed granite, gravel patches and hard clay
- Heuweltjies
- Areas supporting species of conservation concern

Where it is necessary for access roads to traverse drainage lines, rocky drift crossings should be used as illustrated below, as these have little impact on flow patterns, but limit erosion and other impacts caused by construction vehicles crossing the drainage lines multiple times.

Rocky bed gabions used to facilitate river and drainage line crossings on the Kappa-Omega 765kV line. Similar gabions should be used on the Juno-Gromis line for river crossings.

Construction of pylons along the Kappa-Omega 765kV line, illustrating the disturbance footprint typical of pylon construction. Although this is local and largely superficial, it can extend well beyond the actual footprint of the pylon tower.

Newly constructed 400kV line near to Komsberg substation, showing the post-construction disturbance footprint, which is of relatively limited extent and superficial in nature. The disturbed area quickly becomes recolonized and some yellow *Galenia africana* is already visible growing on the disturbed area and these areas are usually no longer discernable after about 10 years.

Conclusions and Recommendations

In terms of sensitive habitats along the power line route, there are a number of sensitive areas present, where particular caution should be exercised during construction. This includes the dunes, which are vulnerable to disturbance, quartz patches which usually contain species of conservation concern, drainage lines which are ecologically sensitive and vulnerable to erosion impacts as well as heuweltjies which are often important for fauna.

At a broad level, it is clear from the walk-through that the areas of Sand Fynbos north and south of Hondeklipbay are the most sensitive sections of the power line route and contain the highest abundance of species of conservation concern, which might be affected by the power line construction activities. In addition, the sandy dunes are vulnerable to disturbance and wind erosion impacts and roads should be carefully routed through these areas to avoid the dune crests as this is where the sand is loosest and wind erosion most likely to occur. In addition, this is also the most likely area for vehicles to get begged down in the loose sand and create additional disturbance.

Overall, there are not a lot of species of real conservation concern within the development footprint. With careful micro-siting of the pylons it seems likely that most if not all such species can be avoided. Provided that disturbance during construction is kept to a minimum it is unlikely that active rehabilitation along the disturbed areas along the line would be necessary. The footprints

beneath the towers would generally be likely to recover fairly quickly as the sandy soils do not have a strong structure and superficial disturbance would not pose a long-term impact.

Photographs of Species of Conservation Concern


Babiana thunbergii, flower and plant. Occasional in dunes in Sand Fynbos and Namaqualand Strandveld.

Lachenalia arenicola occasional in Sand Fynbos and Namaqualand Strandveld.

Muraltia obovata occasional in Namaqualand Strandveld.

Leucoptera nodosa – occasional in Namaqualand Strandveld.

Agathosma elata – localized in Sand Fynbos habitats.

Metalasia adunca – occasional in sand fynbos

Argyrolobium velutinum – occasional in Sand Fynbos and Namaqualand Strandveld.