PRECONSTRUCTION WALK-THROUGH REPORT:

THE PROPOSED CONSTRUCTION OF THE 10KM 50KV POWER LINE FROM ESKOM HELIOS SUBSTATION TO THE PROPOSED NEW TRANSNET HELIOS TRACTION FEEDER SUBSTATION.





PREPARED FOR NSOVO ENVIRONMENTAL CONSULTING



October 2015

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.

October 2015

Introduction & Background

Nsovo Environmental Consultants has appointed Simon Todd Consulting to provide a preconstruction walk-through of the power line which will connect the Helios substation to the new Helios traction feeder substation, located 10km north of Helios. The walk-through forms part of the requirements of the environmental authorisation for the 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 application from 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 Helios substation to the location of the new traction feeder substation. The red dots indicate the location of the pylons and substation features, while the black points are observations of species of concern observed along the route.

Walk-Through

The walk-through was conducted on the 3rd of September 2014, with a follow-up site visit on the 8th of November 2015 to cover sections of the route that were not covered in the first visit. The power line route was walked and particular attention was paid to the presence of protected or listed species within the footprint or any rare or important habitats that might be affected by the development. All plant species, fauna and habitats of concern located along the route were recorded with the GPS.

Identification of Listed and Protected Species

Plant species of conservation concern which may occur in the area were identified a priori as far as possible, based on a species list for the broad area extracted from the SANBI SIBIS database for the quarter degree squares 3019AD, BC, CB and DA (Annex 2). Species of conservation concern were extracted from the list based on their status according to Red List of South African plants version 2015 (http://redlist.sanbi.org/) as well as species listed as endangered or protected under the Northern Cape Nature Conservation Bill of 2009. In some cases species are listed under both, but in general the provincial legislation is more inclusive and attempts to provide some protection for species, genera and families likely to vulnerable to illegal plant collection and other similar threats. Of particular relevance to the current study are the following, which are extracted from the legislation and are not intended to provide a comprehensive list of all protected species, only those which are likely to be 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

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

Study Limitations & Assumptions

Conditions at the time of the site visit were reasonably favourable for the walk-through as there had been a little rain prior to the site visit which had stimulated some growth. However, forbs and geophytes were generally absent and the walk-though would therefore not have been able to locate and species within these growth forms. There are few listed forbs present in the area, but a variety of protected geophytes are present in the area including species from genera such as *Brunsvigia* and *Drimia*. Therefore, the results are considered reliable for perennial shrubs, succulents and grasses but probably not for geophytes.

It is important to note that the walk-through identifies species of concern that are within the potential development footprint, but does not locate all individuals of common species that are within protected genera or families such as the Mesembryanthemaceae. This is because some of the common species are the dominant plants across large parts of the site and there would be many thousands of individuals within the power line corridor. As these species are common, they are not of specific concern, but should be listed on any permit applications for clearing. At the site examples of such plants include species such as *Aridaria noctiflora*, *Ruschia intricata* and *Drosanthemum lique* and even weedy mesembs such as *Mesembryanthemum crystallinum*. These are very widespread and common species and the power line would not generate any noticeable impact on the local abundance of these species. As such, their presence is noted, but they are not specifically recorded along the power line route.

Walk-Through Results

A total of 10 observations were made along the power line route. The majority of these were some distance from the line itself and are not likely to be impacted, but are included in order to ensure that these features are avoiding by vehicles and construction equipment accessing the site as they may be close to roads. The majority of observations are of *Hoodia gordonii*, while single observations were made of *Aloe falcata* and *Aloinopsis luckhoffi*. These species are all illustrated in the Annex to this report, so that the images can be used by the ECO during construction to ensure that they can be identified and avoided where necessary. Where any individuals of these species cannot be avoided, it should be translocated to a safe area in the immediate vicinity. The potentially affected individuals should be marked with construction barrier tape or similar prior to construction to ensure that they are visible and can be avoided during construction. None of the plants are directly beneath the location of any of the pylons and are only under the line, where they can easily be avoided. A single burrow was observed, but is some way from the line and should not be affected. Consequently, apart from avoiding the plants in close proximity to the line or access roads using construction, no additional avoidance or mitigation is deemed necessary. The location of the affected plants is provided below in Table 1.



Examples of Helios substation to Helios feeder traction substation route; left looking along the proposed route from near the Helios substation and right, looking south from approximately 7km along the route from Helios substation.

Table 1. Location of the five listed or protected species that were observed during the walk-through. These are mapped as the black dots in Figure 1.

Wpt Id	Latitude	Longitude	Identity
1	-30.48725	19.55866	Burrow
2	-30.47372	19.56339	Hoodia gordonii
3	-30.46976	19.56847	Hoodia gordonii
4	-30.46185	19.57583	Aloe falcata
5	-30.44299	19.59342	Aloinopsis luckhoffii
6	-30.468718	19.56889	Hoodia gordonii
7	-30.468757	19.56897	Hoodia gordonii
8	-30.468533	19.56911	Hoodia gordonii
9	-30.468529	19.56894	Hoodia gordonii
10	-30.468147	19.56925	Hoodia gordonii

Conclusions and Recommendations

The abundance of listed or protected species within the development footprint is low. Several plants of Hoodia gordonii are present, while single individuals of Aloe falcata and Aloinopsis luckhoffii were observed. As these are not within the footprint of any pylons, it is likely that all the listed individuals can be avoided during construction. The plants in proximity to construction activity should be marked with tape prior to construction to ensure that they are not damaged or destroyed by construction activities. As such it should not be necessary to translocate the identified individuals. No other specific avoidance or mitigation measures are deemed necessary or recommended at this point.

Annex 1. Photographic Guide to Species of Concern



Aloinopsis luckhoffii

Provincially Protected –Schedule 2



Aloe falcata

Provincially Protected – Schedule 2



Hoodia gordonii

Nationally Protected



Euphorbia multiceps

Provincially Protected – Schedule 2

Annex 2. List of Plants

List of plant species observed at the Helios site during the current as well as previous site visits to the area. The table indicates all species know from the broader area as well as those observed at the site. Conservation status is from the South African Red Data List of Plants 2014.

Family	Species	IUCN Status	Present	Family	Species	IUCN Status	Present
ACANTHACEAE	Acanthopsis disperma	LC		ACANTHACEAE	Blepharis furcata	LC	
AIZOACEAE	Aizoon canariense	LC	1	AIZOACEAE	Galenia africana	LC	1
AIZOACEAE	Galenia fruticosa	LC	1	AIZOACEAE	Galenia sarcophylla	LC	1
AIZOACEAE	Galenia squamulosa	LC		AIZOACEAE	Plinthus karooicus	LC	1
AIZOACEAE	Tetragonia arbuscula	LC		AIZOACEAE	Tetragonia fruticosa	LC	1
AIZOACEAE	Tetragonia microptera	LC		AMARYLLIDACEAE	Brunsvigia comptonii	LC	
APOCYNACEAE	Gomphocarpus filiformis	LC	1	APOCYNACEAE	Fockea sinuata	LC	1
APOCYNACEAE	Hoodia gordonii	DDD	1	APOCYNACEAE	Quaqua incarnata Asparagus capensis var	LC	1
ASPARAGACEAE	Asparagus africanus	LC		ASPARAGACEAE	capensis	LC	1
ASPHODELACEAE	Aloe claviflora	LC	1	ASPHODELACEAE	Aloe falcata Amellus, strigosus, subsp	LC	1
ASTERACEAE	Amellus microglossus	LC		ASTERACEAE	pseudoscabridus	LC	
ASTERACEAE	Arctotis fastuosa Didalta carposa var	LC		ASTERACEAE	Dicoma capensis	LC	
ASTERACEAE	carnosa	LC		ASTERACEAE	Didelta spinosa	LC	
ASTERACEAE	Dimorphotheca polyptera Eriocephalus	LC		ASTERACEAE	Eriocephalus ericoides subsp. ericoides	LC	
ASTERACEAE	microphyllus var. pubescens	LC	1	ASTERACEAE	Eriocephalus spinescens	LC	1
ASTERACEAE	Felicia clavipilosa subsp. clavipilosa	LC	1	ASTERACEAE	Foveolina dichotoma	LC	
ASTERACEAE	Gazania lichtensteinii	LC	1	ASTERACEAE	Gazania jurineifolia	LC	1
ASTERACEAE	Helichrysum herniarioides Osteospermum	LC		ASTERACEAE	Lasiopogon glomerulatus	LC	
ASTERACEAE	pinnatum var. pinnatum	LC		ASTERACEAE	Osteospermum spinescens	LC	1
ASTERACEAE	Pegolettia retrofracta	LC	1	ASTERACEAE	Pentzia spinescens	LC	1
ASTERACEAE	Pteronia adenocarpa	LC		ASTERACEAE	Pteronia glauca	LC	
ASTERACEAE	Pteronia glomerata	LC	1	ASTERACEAE	Pteronia leucoclada	LC	1
ASTERACEAE	Pteronia mucronata	LC	1	ASTERACEAE	Pteronia oblanceolata	LC	
ASTERACEAE	Rosenia humilis	LC	1	ASTERACEAE	Senecio niveus	LC	1
ASTERACEAE	Senecio abbreviatus Triptoris sinuata var	LC	1	ASTERACEAE	Tripteris sinuata var. linearis	LC	
ASTERACEAE	sinuata	LC	1	ASTERACEAE	Ursinia nana subsp. nana	LC	
BIGNONIACEAE	Rhigozum trichotomum	LC	1	BRASSICACEAE	Heliophila arenosa	LC	
BRASSICACEAE	Lepidium desertorum	LC	1	CARYOPHYLLACEAE	Dianthus namaensis var. dinteri	LC	
CHENOPODIACEAE	Atriplex vestita var. appendiculata Exomis microphylla ver	LC	1	CHENOPODIACEAE	Bassia salsoloides	LC	1
CHENOPODIACEAE	axyrioides	LC		CHENOPODIACEAE	Salsola aellenii	LC	

			1				
CHENOPODIACEAE	Salsola aphylla	LC	T	CHENOPODIACEAE	Salsola henriciae	LC	1
CHENOPODIACEAE	Salsola procera	LC		CHENOPODIACEAE	Salsola tuberculata	LC	1
CHENOPODIACEAE	Suaeda fruticosa	LC	1	CHENOPODIACEAE	Suaeda merxmuelleri	LC	1
CHENOPODIACEAE	Sasola kali Atrinlex lindlevi subsp	Alien	T	CHENOPODIACEAE	Atriplex semibaccata	Alien	1
CHENOPODIACEAE	inflata	Alien	1	EUPHORBIACEAE	Euphorbia aequoris	LC	1
EUPHORBIACEAE	Euphorbia multiceps	LC	1	FABACEAE	Lebeckia spinescens	LC	1
FABACEAE	Lessertia macrostachya var. macrostachya	LC		FABACEAE	Lotononis leptoloba	LC	
FABACEAE	Melolobium candicans	LC	1	FABACEAE	Parkinsonia africana	LC	1
FABACEAE	Sutherlandia frutescens	LC		FABACEAE	Prosopis glandulosa	Alien	1
FRANKENIACEAE	Frankenia pulverulenta	LC		GERANIACEAE	Pelargonium minimum	LC	1
GERANIACEAE	Sarcocaulon patersonii	LC	1	HYACINTHACEAE	Drimia intricata	LC	
IRIDACEAE	Moraea pallida	LC		IRIDACEAE	Tritonia karooica	LC	
LAMIACEAE	Salvia disermas	LC		LORANTHACEAE	Septulina glauca	LC	
MALVACEAE	Hermannia paucifolia	LC		MALVACEAE	Hermannia spinosa	LC	1
MALVACEAE	Radyera urens	LC	1	MELIANTHACEAE	Melianthus comosus	LC	
MESEMBRYANTHEMACEAE	Aloinopsis luckhoffii	DDT	1	MESEMBRYANTHEMACEAE	Antimima evoluta	LC	
MESEMBRYANTHEMACEAE	Aridaria noctiflora subsp. straminea Cononbytum uviforme	LC	1	MESEMBRYANTHEMACEAE	Cephalophyllum fulleri	Rare	
MESEMBRYANTHEMACEAE	subsp. uviforme	LC		MESEMBRYANTHEMACEAE	Drosanthemum lique	LC	1
MESEMBRYANTHEMACEAE	Lampranthus haworthii	LC	1	MESEMBRYANTHEMACEAE	Lampranthus uniflorus	LC	1
MESEMBRYANTHEMACEAE	Lithops otzeniana	VU		MESEMBRYANTHEMACEAE	Mesembryanthemum crystallinum	LC	1
MESEMBRYANTHEMACEAE	stenandrum	LC	1	MESEMBRYANTHEMACEAE	Psilocaulon coriarium	LC	1
MESEMBRYANTHEMACEAE	Psilocaulon junceum	LC	1	MESEMBRYANTHEMACEAE	Ruschia abbreviata	LC	1
MESEMBRYANTHEMACEAE	Ruschia robusta	LC	1	MESEMBRYANTHEMACEAE	Stoeberia frutescens	LC	
MESEMBRYANTHEMACEAE	Stomatium mustellinum	LC		MOLLUGINACEAE	Hypertelis salsoloides var. salsoloides	LC	1
MOLLUGINACEAE	Limeum aethiopicum	LC	1	NEURADACEAE	Grielum humifusum var. parviflorum	LC	
OXALIDACEAE	Oxalis beneprotecta	LC		PEDALIACEAE	Sesamum capense	LC	
PLUMBAGINACEAE	Dyerophytum africanum	LC		POACEAE	Aristida adscensionis	LC	
POACEAE	Ehrharta calycina	LC		POACEAE	Enneapogon desvauxii	LC	1
POACEAE	Enneapogon scaber	LC		POACEAE	Fingerhuthia africana	LC	1
POACEAE	Schismus barbatus	LC		POACEAE	Stipagrostis anomala	LC	1
POACEAE	Stipagrostis brevifolia	LC	1	POACEAE	Stipagrostis ciliata var. capensis	LC	1
POACEAE	Stipagrostis namaquensis	LC		POACEAE	Stipagrostis obtusa	LC	1
POLYGALACEAE	Polvaala seminuda	LC		RUTACEAE	Aaathosma viraata	LC	
SANTALACEAE	Thesium hystricoides	LC		SANTALACEAE	Thesium hystrix	LC	1
SANTALACEAE	, Thesium lineatum	LC	1	SCROPHULARIACEAE	, Aptosimum indivisum	LC	1
SCROPHULARIACEAE	Aptosimum procumbens	LC	1	SCROPHULARIACEAE	Aptosimum spinescens	LC	1
	Jamesbrittenia atropurpurea subsp.		1				
SCKUPHULAKIALEAE	atropurpurea Peliostomum	LU	4	SCRUPHULARIACEAE	ivernesia calcarata	LL	
SCROPHULARIACEAE	leucorrhizum	LC	1	SCROPHULARIACEAE	Selago albida	LC	
SCROPHULARIACEAE	Selago pinguicula	LC	1	SOLANACEAE	Lycium cinereum	LC	1
SOLANACEAE	Lycium pilifolium	LC	1	SOLANACEAE	Lycium oxycarpum	LC	1
SOLANACEAE	Solanum burchellii	LC		SOLANACEAE	Solanum capense	LC	
URTICACEAE	Forsskaolea candida	LC		ZYGOPHYLLACEAE	Tribulus terrestris	LC	1
ZYGOPHYLLACEAE	Tribulus zeyheri	LC	1	ZYGOPHYLLACEAE	Zygophyllum flexuosum	LC	

ZYGOPHYLLACEAE	Zygophyllum lichtensteinianum	LC	1	ZYGOPHYLLACEAE	Zygophyllum retrofractum	LC	1
ZYGOPHYLLACEAE	Zygophyllum simplex	LC	1				