



ARCUS

**TERRESTRIAL PLANT SPECIES COMPLIANCE
STATEMENT FOR THE PROPOSED MULILO TOTAL
HYDRA STORAGE PROJECT: GRID INTERCONNECTION
NEAR DE AAR, NORTHERN CAPE PROVINCE**

For

Mulilo Total Hydra Storage (Pty) Ltd

February 2021



Prepared By:

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Registered in South Africa No. 2015/416206/07

TABLE OF CONTENTS

1	SPECIALIST DETAILS	1
2	STATEMENT OF INDEPENDENCE	1
3	INTRODUCTION	1
	3.1 Background	1
	3.2 Scope of Study.....	3
	3.3 Assumptions and Limitations	3
	3.4 Legislative Context.....	4
4	METHODOLOGY	4
	4.1 Desk-top Study.....	4
	4.1.1 Site Screening	4
	4.1.2 Existing Studies	4
	4.1.3 Vegetation	5
	4.1.4 Species	5
	4.1.5 Species of Conservation Concern.....	5
	4.1.6 Modelling	6
	4.2 Site inspection details	6
5	RESULTS	6
	5.1 Vegetation	6
	5.1.1 Northern Upper Karoo	7
	5.1.2 Plant Species.....	8
6	IDENTIFICATION OF POTENTIAL IMPACTS.....	9
7	ASSESSMENT OF IMPACTS	9
8	PROPOSED MITIGATION MEASURES	10
9	ADDITIONAL REQUIREMENTS	10
10	IMPACT STATEMENT	10
	APPENDIX I: LEGISLATIVE REQUIREMENTS	12
	Convention on Biodiversity (CBD)	12
	National Environmental Management Act (Act No. 107 of 1998, NEMA)	12
	National Environmental Management: Biodiversity Act (Act No. 10 of 2004, NEMBA)	12

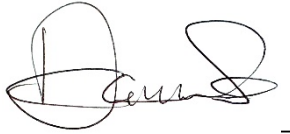
National Forests Act (Act No. 84 of 1998)	13
Conservation of Agricultural Resources Act (Act No. 43 of 1983 as amended in 2001)	13
National Veld and Forest Fire Act (Act No. 101 of 1998)	13
Northern Cape Nature Conservation Act (Act No. 9 of 2009)	13
APPENDIX II: POTENTIAL PLANT SPECIES ON THE PROJECT SITE	14
APPENDIX III: POTENTIAL PROTECTED PLANT SPECIES ON THE PROJECT SITE.....	17

1 SPECIALIST DETAILS

- Dr Owen Rhys Davies (Phone: +27 (0) 72 558 0080; Email: OwenD@arcusconsulting.co.za)
- SACNASP registration for Ecological Science (member # 117555).
- Experience: 5 years of consulting, primary expertise in Avifauna.
- *Curriculum vitae* attached.

2 STATEMENT OF INDEPENDENCE

I, Owen Rhys Davies, as the appointed Ecological Scientist, hereby declare/affirm the correctness of the information provided in this compliance statement, and that I: meet the general requirements to be independent and have no business, financial, personal or other interest in the proposed development and that no circumstances have occurred that may have compromised my objectivity; and am aware that a false declaration is an offence in terms of regulation 48 of the EIA Regulations (2014).



Signature

15 February 2021

Date

3 INTRODUCTION

3.1 Background

Mulilo Total Hydra Storage (Pty) Ltd ('MTHS') is applying for environmental authorisation for a self-build grid interconnection project which will consist of a short overhead powerline, switching station and access road ('proposed development') as part of the Mulilo Total Hydra Storage Project.

The Mulilo Total Hydra Storage Project is a hybrid electricity generation plant comprising of solar photovoltaic (PV) technology, a battery energy storage system (BESS) and emergency backup Diesel / Gas generator installations (Gensets). The Mulilo Total Hydra Storage Project was bid in the Risk Mitigation Independent Power Producers Procurement Program (RMI4P), and if selected as a preferred bidder, the project would obtain SIP1 status. The Mulilo Total Hydra Storage Project is located 5km South East of De Aar in the Northern Cape and roughly 8km north of the Eskom Main Transmission Substation (MTS), Hydra.

In terms of the Self-Build agreement for the proposed development, Eskom has provided an indicative Cost Estimate Letter to connect MTHS to the national electricity network (Grid). All environmental approvals for MTHS are in place however the Grid connection works had to be adjusted and a separate Environmental Authorisation is required to be issued for all the infrastructure which is handed over to Eskom on completion.

The following Self-Build works are proposed as part of this Environmental Application.

3.1.1 MTHS Self Build Grid Interconnection (Overhead power line):

The overhead powerline (OHPL) will evacuate electricity generated from the Mulilo Total Hydra Storage Project and is to be approximately 8 km in length, with a capacity of up to 132 kV. The proposed OHPL follows the existing 132 kV Eskom Hydra-Bushbuck OHPL for

the most part, and will run in a south easterly direction to the Eskom Hydra Main Transmission Substation (MTS). A single track service road will be required for the construction and maintenance of the OHPL and would run directly below the OPHL. The intended end-user for this project is Eskom, and responsibility will be handed over to Eskom should favourable environmental authorisation be granted and the project successfully commissioned.

The grid connection route considered in this application was previously assessed as a 200m wide corridor (100m on either side of the line) for the 400 kV grid connection associated with the Mulilo De Aar 2 South Wind Energy Facility ('DA2S WEF') (Arcus, 2021). The specialist assessments conducted for this route have been used to inform the baseline environment and impacts for this proposed development

- Design and construct ± 8 km of single circuit 132 kV overhead power line (OHPL), between the Hydra MTS and Mulilo Total Hydra Storage Project;
- The overhead power line is to be strung with twin tern conductor;
- Preferred technology to be that of bird friendly steel monopole structures. These are to be used with a maximum height of 25m.
- Telecommunication via fibre optic is required on the 8km HV Line.

Associated infrastructure will include:

- Foundations and insulators;
- Existing access roads and jeep tracks; and
- Line and servitude clearances to meet the statutory requirements.

3.1.2 MTHS Self-Build Associated Infrastructure:

This associated infrastructure is being mentioned as part of this report as they form part of the Grid Interconnection Project to be handed over to Eskom for commissioning responsibility.

3.1.2.1 Switching Station Access Road:

A 6km long, 12 m wide access road is required for construction and maintenance of the self-build switching station. Access begins off the N10 highway and terminates at the self-build switching station. A <6m service road continues along the proposed OHPL route within the servitude, and as far as possible, this road will be used.

3.1.2.2 Self-Build Switching Station:

A 132 kV, double busbar switching station, is required to be constructed at the Mulilo Total Hydra Storage Project site. The switching station is named the Self Build Switching Station, and will house the required metering and protection equipment inside various substation buildings. In addition, there will be spatial provision to establish at least four additional outgoing feeder bays with access to the property for at least two additional incoming line bays to cater for future expansions. The switching station will eventually contain six bays but would start with the initial two bays as required by the Mulilo Total Hydra Storage project. The land required would be 100 m x 100 m for the 2-bay phase, increasing to 200 m x 100 m for six bays and with a maximum height of 25 m.

3.1.3 Additional Project Considerations:

The following two project considerations have been proposed by MTHS as part of the self-build agreement with Eskom. These will be commissioned in terms of Eskom's Build guidelines and preference.

3.1.3.1 Upgrades at Hydra MTS:

As part of the above-mentioned self-build, MTHS intend on extending the existing 132kV double busbars by one bay and establishing a new 132kV feeder bay at the Eskom Hydra MTS. This upgrade will also include protection and metering components.

3.1.4 Alternatives Considered:

Should an alternative powerline route be required, MTHS have identified a possible solution and have engaged with the Eskom Grid Access Unit to establish its viability.

MTHS are proposing to perform a "loop in loop out" onto one circuit of the existing Eskom Hydra-Bushbuck double circuit 132kV OHPL and to restring the remaining portion of that circuit (if required) between the Project and the Hydra Substation. The purpose of the proposed restring is provide additional electricity evacuation option to Eskom and to the Mulilo Total Hydra Storage Project and to minimise any potential servitude or feeder bay constraints at the Hydra Substation. This proposed commission will not trigger any additional activities other than those being applied for.

3.2 Previous Assessment

The proposed grid connection route considered in this application and specialist assessment was one of the connection route options previously assessed for the 400 kV grid connection associated with the Mulilo De Aar 2 South Wind Energy Facility ('DA2S WEF'). The proposed grid connection route follows the route of an existing power line throughout its length.

3.3 Scope of Study

The scope of this assessment included:

- Confirmation of findings of the 200 m corridor previously assessed as part of the DA2S WEF Grid Connection report and a determination of their suitability for this assessment;
- Updating the description of vegetation and plant species that may occur within the area applicable to this assessment;
- Updating of GIS and sensitivity maps applicable to this assessment;
- Updating of potential impacts on Terrestrial Plant Species applicable to this assessment;
- Updating of potential mitigation measures required to reduce the impacts of the development; and
- A substantiated statement, based on the findings of this specialist assessment regarding the acceptability, or not, of the proposed development, if it should receive approval or not and any conditions to which the statement is subjected.

3.4 Assumptions and Limitations

The resolution and reliability of distribution records and available databases is largely dependent on the sampling effort conducted in the area. Private property is often poorly sampled and therefore database queries may not adequately represent the actual flora present on the site. The two main approaches taken to reduce the effect of this limitation were; 1) the desk-top database search was expanded beyond the immediate project site to cover a larger area with similar vegetation and habitat types, and 2) an extended site visit was conducted on the proposed development site and included a much larger area sharing the same vegetation types and habitats as those found in the development corridor considered for this application. The site work was concluded prior to the publication of the Species Environmental Assessment Guidelines² and therefore some of the methodologies

² South African National Biodiversity Institute (SANBI). 2020. Species Environmental Assessment Guideline. Guidelines for the implementation of the Terrestrial Fauna and Terrestrial Flora Species Protocols for environmental impact assessments in South Africa. South African National Biodiversity Institute, Pretoria. Version 1.2020.

outlined and recommended therein were not employed. This limitation is not however considered to compromise the outcome of the impact assessment as the on-site experience gathered during the assessment of the larger DA2S WEF development corridor (that included the grid connection corridor considered for this application) offered the specialist a greater understanding of the biodiversity relevant to the broader area and the development footprint considered for this application. This complies with the precautionary approach prescribed the National Environmental Management Act, Act No. 107 of 1998 (NEMA).

3.5 Legislative Context

The applicable legislation relevant to this assessment is provided in more detail in Appendix I, however the Government Gazette, No. 43855 (Published in Government Notice No. 1150) of 30 October, 2020: "Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Plant Species" is of particular relevance to the production of this report. The assessment and minimum reporting requirements are associated with a level of environmental sensitivity identified by the national web-based screening tool³.

The proposed project site falls within an area identified by the screening tool as 'low sensitivity' in the Terrestrial Plant Species Theme and this classification was initially confirmed during site-sensitivity verification (Terrestrial Plant Species Site Sensitivity Verification Report attached), therefore a Terrestrial Plant Species Compliance Statement is applicable.

4 METHODOLOGY

Various databases of distribution records were consulted during a desk-top study to determine the potential species of flora that could occur on the site, these are described in more detail below. In addition to the desk-top study a five-day site walkthrough was conducted between 10 and 14 February 2020. Important habitats and species present or potentially present (i.e. suitable habitat was identified) within approximately 200 m of the proposed line were assessed through a site walk-through, the different habitats, biodiversity features and landscape units were investigated and their position and sensitivity were mapped in the field. Field notes were transcribed onto publically available satellite imagery and mapped in GIS.

4.1 Desk-top Study

4.1.1 Site Screening

Following the protocol listed in the Government Gazette, No. 43855 (Published in Government Notice No. 1150) of 30 October, 2020: "Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Plant Species" the information presented by the online screening tool³ was consulted to determine the sensitivity of the project site prior to the field site visit and ground-truthing.

4.1.2 Existing Studies

Several existing ecological studies in the area were consulted in the formulation of this assessment report, including:

- The Proposed 132kV Power line associated with the Castle Wind Energy Facility on a site near De Aar, Northern Cape Province (Savannah Environmental, 2015),

³ <https://screening.environment.gov.za/>

- The Environmental Impact Assessment for the Proposed Castle Wind Energy Facility and Associated Infrastructure near De Aar, Northern Cape. DEA Ref No. 14/12/16/3/3/2/278 Fauna & Flora Specialist Impact Assessment Report compiled by Todd (2014) for Savannah Environmental,
- Appendix F: Assessment of Potential Impacts and Possible Mitigation Measures for the Proposed 132 kV transmission line corridor adjacent to the existing Eskom transmission line from Longyuan Mulilo De Aar 2 North Wind Energy Facility (WEF) to the Hydra Substation in De Aar, Northern Cape (Aurecon 2013),
- Bird Impact Assessment Study Longyuan Mulilo De Aar 2 North Wind Energy Facility DEFF REF. NO. 12/12/20/2463/2 (Chris van Rooyen Consulting, 2014),
- Castle Wind Energy Facility Avifaunal Impact Assessment (WildSkies Ecological Services, 2014, Unpublished Report),
- Operational phase bird monitoring at the Longyuan Mulilo De Aar 2 North Wind Energy Facility, Year 1 (Chris van Rooyen Consulting, 2018 Unpublished Report),
- Operational phase bird monitoring at the Longyuan Mulilo De Aar 2 North Wind Energy Facility, Year 2 Quarters 1-3 (Chris van Rooyen Consulting, 2018, Unpublished Report), and
- Zingesele Wind Energy Facility Final Pre-construction Bird Monitoring and Avifaunal Impact Assessment Scoping Report (Arcus Consulting, 2019, Unpublished Report).

4.1.3 Vegetation

Broad vegetation types were mapped using the updated National Vegetation Map 2018 (NVM 2018) database⁴ and the vegetation descriptions were obtained from Mucina & Rutherford (2006)⁵.

4.1.4 Species

The list of plant species previously recorded in the wider area were obtained from the Database of Southern Africa (BODATSA) database⁶ on the SANBI website⁷. An area of roughly 50 km around the project site (centred on -30.655040, 24.169673) was searched for potential species of concern.

4.1.5 Species of Conservation Concern

Species of concern were considered to be those listed by conservation authorities as being on a 'Red List' and at risk of extinction and those listed by National or Regional legislation as being protected. Red List plant species were obtained from the SANBI⁸ website and the Species Environmental Assessment Guidelines, it must be noted however that the conservation status listed by SANBI considers only the populations of species within South Africa's geopolitical borders and does not take into account the global population size for non-endemic species. The regional or national assessment of a species may therefore differ to the global status on the IUCN Red List. National and regional legislation was evaluated to determine which species that may occur on site are protected species.

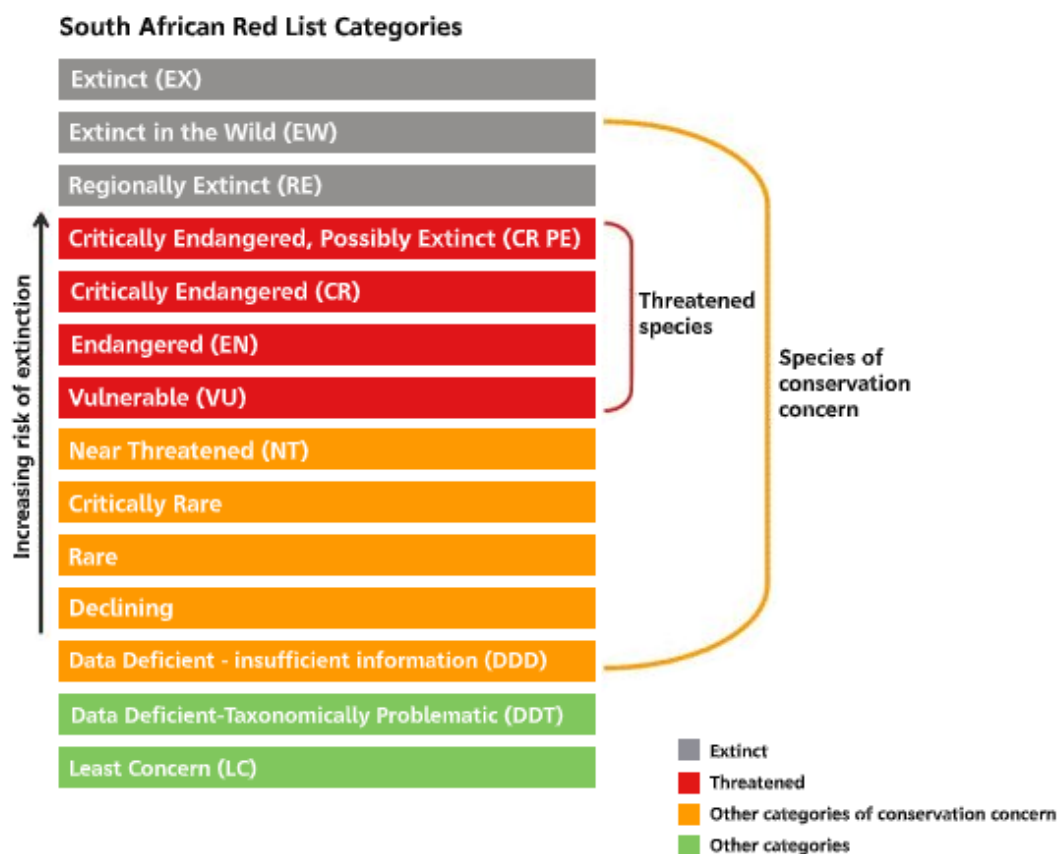
⁴ South African National Biodiversity Institute (2006-2018). The Vegetation Map of South Africa, Lesotho and Swaziland, Mucina, L., Rutherford, M.C. and Powrie, L.W. (Editors), Online, <http://bgis.sanbi.org/Projects/Detail/186>, Version 2018 accessed January 20 2020.

⁵ Mucina, L. and Rutherford, M.C. (eds) 2006. The vegetation of South Africa, Lesotho and Swaziland, in *Strelitzia* 19. South African National Biodiversity Institute, Pretoria.

⁶ South African National Biodiversity Institute. 2016. Botanical Database of Southern Africa (BODATSA) [dataset]. doi: to be assigned.

⁷ <http://newposa.sanbi.org/> accessed January 20 2020.

⁸ <http://redlist.sanbi.org> accessed January 20 2020.



4.1.6 Modelling

No modelling was required.

4.2 Site inspection details

- Date: 10 February 2020 – 14 February 2020
- Duration: 5 Days
- Season: Summer
- Season Relevance: As a summer rainfall region, the conditions during the site visit were excellent for the field assessment as the area had received a good amount of rainfall allowing for a thorough assessment of features such as temporary wetlands, vleis, drainage lines, seeps and water-filled depressions to be conducted. Plant species such as grasses and herbs were flourishing during the site visit.

5 RESULTS

This statement is to confirm the results of the study conducted for the area assessed as part of the DA2S WEF Grid Connection report. The findings contained herein are suitable and applicable for this assessment of impacts of the proposed Mulilo Total Hydra Storage Project: Grid Interconnection.

5.1 Vegetation

The broad vegetation type that occurs in the study area is classified⁵ as Northern Upper Karoo (NKu3, Figure 2) and is considered to be Least Threatened. The vegetation in the assessment corridor has suffered from overgrazing by varying degrees across the project site. As this vegetation type is fairly widespread throughout the broader region and largely

untransformed the vegetation type is considered to be *Least Threatened* and floral species found on the site are not at significant risk of negative impact from the development.

5.1.1 Northern Upper Karoo

Table 1 presented below describes the main vegetation type found on the project site, adapted from Mucina & Rutherford (2006).

Table 1: General characteristics of Northern Upper Karoo vegetation.

Vegetation Type		Northern Upper Karoo (Nku 3)
Distribution		Northern Cape and Free State Provinces: Northern regions of the Upper Karoo plateau from Prieska, Vosburg and Carnarvon in the west to Philipstown, Petrusville and Petrusburg in the east. Bordered in the north by Niekerkshoop, Douglas and Petrusburg and in the south by Carnarvon, Pampoenpoort and De Aar. The study site is near a transition zone between the Northern Upper Karoo vegetation type and the Eastern Upper Karoo vegetation type towards the south and the east. The vegetation type mostly occurs at an altitude between 1000 – 1500 m.
Vegetation & Landscape Features		This vegetation type occurs on flats and gently sloping plains with isolated hills of Upper Karoo Hardeveld and interspersed with many pans. It is dominated by dwarf karoo shrublands, grasses and occasional low trees.
Geology & Soils		Shales of the Volksrust Formation and to a lesser extent the Prince Albert Formation (both of the Ecca Group) as well as Dwyka Group diamictites form the underlying geology. Jurassic Karoo Dolerite sills and sheets support this vegetation complex in places. Wide stretches of land are covered by superficial deposits including calcretes of the Kalahari Group. Soils are variable from shallow to deep, red-yellow, apedal, freely drained soils to very shallow Glenrosa and Mispah forms.
Climate		Rainfall peaks in autumn (March). Mean annual precipitation ranges for this vegetation type are from about 190 mm in the west to 400 mm in the northeast. The mean annual precipitation for De Aar is about 300 mm. Mean maximum and minimum monthly temperatures for De Aar are 37.1°C and -4.8°C for January and July, respectively.
Important taxa	Small Trees	<i>Acacia mellifera</i> subsp. <i>detinens</i> , <i>Boscia albitrunca</i> .
	Succulent Shrubs	<i>Hertia pallens</i> , <i>Salsola calluna</i> , <i>S. glabrescens</i> , <i>S. rabieana</i> , <i>S. tuberculata</i> , <i>Zygophyllum flexuosum</i> .
	Tall Shrubs	<i>Lycium cinereum</i> (d), <i>L. horridum</i> , <i>L. oxycarpum</i> , <i>L. schizocalyx</i> , <i>Rhigozum trichotomum</i> , <i>Gymnosporia szyszyłowiczii</i> subsp. <i>namibiensis</i> .
	Low Shrubs	<i>Chrysocoma ciliata</i> (d), <i>Gnidia polycephala</i> (d), <i>Pentzia calcarea</i> (d), <i>P. globosa</i> (d), <i>P. incana</i> (d), <i>P. spinescens</i> (d), <i>Rosenia humilis</i> (d), <i>Amphiglossa triflora</i> , <i>Aptosimum marlothii</i> , <i>A. spinescens</i> , <i>Asparagus glaucus</i> , <i>Barleria rigida</i> , <i>Berkheya annectens</i> , <i>Eriocephalus ericoides</i> subsp. <i>ericoides</i> , <i>E. glandulosus</i> , <i>E. spinescens</i> , <i>Euryops asparagoides</i> , <i>Felicia muricata</i> , <i>Helichrysum lucilioides</i> , <i>Hermannia spinosa</i> , <i>Leucas capensis</i> , <i>Limeum aethiopicum</i> , <i>Melolobium candicans</i> , <i>Microloma armatum</i> , <i>Osteospermum leptolobum</i> , <i>O. spinescens</i> , <i>Pegolettia retrofracta</i> , <i>Pentzia lanata</i> , <i>Phyllanthus maderaspatensis</i> , <i>Plinthus karooicus</i> , <i>Pteronia glauca</i> , <i>P. sordida</i> , <i>Selago geniculata</i> , <i>S. saxatilis</i> , <i>Tetragonia arbuscula</i> , <i>Zygophyllum lichtensteinianum</i> .
	Herbs	<i>Chamaesyce inaequilatera</i> , <i>Convolvulus sagittatus</i> , <i>Dicoma capensis</i> , <i>Gazania krebsiana</i> , <i>Hermannia comosa</i> , <i>Indigofera alternans</i> , <i>Lessertia pauciflora</i> , <i>Radyera urens</i> , <i>Sesamum capense</i> , <i>Sutera pinnatifida</i> , <i>Tribulus terrestris</i> , <i>Vahlia capensis</i> , <i>Convolvulus boedeckerianus</i> .
	Geophytic Herbs	<i>Moraea pallida</i> .
	Succulent Herbs	<i>Psilocalon coriarium</i> .
	Graminoids	<i>Aristida adscensionis</i> (d), <i>A. congesta</i> (d), <i>A. diffusa</i> (d), <i>Enneapogon desvauxii</i> (d), <i>Eragrostis lehmanniana</i> (d), <i>E. obtusa</i> (d), <i>E. truncata</i> (d), <i>Sporobolus fimbriatus</i> (d), <i>Stipagrostis obtusa</i> (d), <i>Eragrostis</i>

		<i>bicolor</i> , <i>E. porosa</i> , <i>Fingerhuthia africana</i> , <i>Heteropogon contortus</i> , <i>Stipagrostis ciliata</i> , <i>Themeda triandra</i> , <i>Tragus berteronianus</i> , <i>T. koelerioides</i> , <i>T. racemosus</i> .		
Endemic Taxa	Succulent Shrubs	Hooker's Pebble Plant (<i>Lithops hookeri</i>), <i>Stomatium pluridens</i> .		
	Low Shrubs	<i>Atriplex spongiosa</i> , <i>Galenia exigua</i> .		
	Herb	<i>Manulea deserticola</i> .		
Conservation	Target (%)	Conserved (%)	Transformed (%)	Status
	21	0	4	Least Threatened
Remarks	This vegetation type dominates the project site. As this vegetation type is fairly widespread throughout the region and largely untransformed the floral species found on the site are not at significant risk of negative impact from the development.			

5.1.2 Plant Species

5.1.2.1 Red List plant species of the study area

An area of roughly 50 km around the project site (centred on -30.662761; 24.165841) was searched for potential species of concern. Despite this broad search, **there are very few species that were evaluated to be of conservation concern that could potentially occur in the project area**. Only a single species, Transkei Medusa's Head (*Euphorbia flanaganii*, *Vulnerable*), was evaluated to be of conservation concern on the BODATSA database search for the area, however it is the specialist's opinion that this record may have been a misidentification of the similar looking Karoo Spiny Milkweed (*E. arida*, *Least Concern*) given the distribution of the former species⁹. The potentially endemic *Chasmatophyllum maninum* was listed as Data Deficient. None of the plant species observed on site were listed in any threat category.

5.1.2.2 Protected plants (NEMBA)

None of the plant species listed on the BODATSA database for the study area or recorded on site were listed as protected by NEMBA.

5.1.2.3 Protected plants (Northern Cape Nature Conservation Act)

Fifty-one plant species that were listed on the BODATSA database for the study area (Appendix II) and could potentially occur in the study site are protected under the Northern Cape Nature Conservation Act (Appendix III). A number of species were found on site that are protected according to the Northern Cape Nature Conservation Act. From the field survey, the following species were observed on or around the project site (Figure 3): Steekvy (*Ruschia intricata*), Eastern Candelabra (*Brunsvigia radulosa*), Krimpsiektebos (*Lessertia annularis*), Sorrel (*Oxalis depressa*) and Cape Saffron (*Jamesbrittenia aurantiaca*).



Figure 3: Several plant species observed on the project site are protected under the Northern Cape Nature Conservation Act such as Eastern Candelabra (left) and Steekvy (right).

⁹ <http://redlist.sanbi.org/species.php?species=574-126>

Despite not being threatened, they are protected and any impacts on these species requires a permit from the relevant authorities. It must be noted that many of these species are widespread and not of any conservation concern, but protected due to the fact that the Northern Cape Nature Conservation Act protects entire families of flowering plants irrespective of whether some members are rare or common. The implication is that a comprehensive list of species occurring within the footprint of the proposed infrastructure is required and a permit application submitted for any of those listed as protected. A walk-through survey is therefore required once the final pylon positions and layouts have been decided in order to obtain the number of applicable plants for which permits are required for their destruction. This is a permitting requirement rather than a requirement needed to effectively assess the impacts.

5.1.2.4 Protected trees

One tree species, the Shepherd's Tree (*Boscia albitrunca*) is listed to occur in both habitat types present on the study site and is protected under the National Forest Act. However, this species was not recorded to be present on the study site during the ecological survey. No indigenous forests are present near the development corridor.

5.1.2.5 Screening Tool

No species were identified in the screening tool and the site is designated as having a 'low sensitivity'.

5.1.2.6 Plant Sensitivity

Overall, the plant sensitivity of the project site is confirmed to be low.

6 IDENTIFICATION OF POTENTIAL IMPACTS

Potential impacts of developments on the Terrestrial Plant Species of the area include the following:

- Destruction of individual plants during clearing of vegetation for infrastructure impacting on overall species richness, genetic variability and population dynamics;
- Dust accumulation on individual plants reducing physiological ability to survive or reproduce;
- Introduction of alien invasive species that may outcompete indigenous plant species; and
- Habitat degradation (e.g. erosion) or alteration of environmental conditions (e.g. moisture or fire regimes) required for the persistence of current species diversity and population dynamics of plant species on the landscape.

7 ASSESSMENT OF IMPACTS

As the Terrestrial Plant Species sensitivity of the project site is low and the vegetation type found on the project site is widespread in the area, not threatened and largely untransformed and contiguous, the proposed development is unlikely to have a significant negative impact on the overall species richness, genetic variability or population dynamics of any Terrestrial Plant Species given the relatively small development footprint.

The plant species found in the development footprint are not unique and given the position of the proposed development amongst existing power lines and access roads, it is unlikely that the proposed development will significantly contribute, amplify or add to the impacts that already exist on the site following the implementation of mitigation measures.

8 PROPOSED MITIGATION MEASURES

The following proposed impact management actions or mitigation measures must be included in the EMPr to reduce the potential impacts of the proposed development:

- Preconstruction walk-through of the development footprints (pylon bases, new servitudes, access road, switching station, lay-down areas and temporary infrastructure) once finalised for micro-siting to ensure that sensitive habitats are avoided where possible and to collate a list of protected plants that may require permits;
- Minimise the development footprint as far as possible by maximising the use of existing access roads and servitudes and rehabilitate areas disturbed during construction that are not required by the operational phase of the development (i.e. a Habitat Rehabilitation Programme is required);
- Any topsoil removed during excavation activities must be kept aside and used for the rehabilitation of temporarily disturbed areas;
- An environmental induction for all construction staff on site to ensure that basic environmental principles are adhered to. Including topics such as avoiding fire hazards, no littering, appropriate handling of pollution and chemical spills, remaining within demarcated construction areas etc.;
- All construction vehicles should adhere to clearly defined and demarcated roads, no off-road driving should be allowed;
- Ensure that sufficient erosion control measures are constructed and/or rehabilitated on all servitudes and access roads on and to the project site;
- All roads and other hardened surfaces should have runoff control features which redirect water flow and dissipate energy in the water stream which may pose an erosion risk;
- Regular monitoring for erosion is to take place regularly throughout the lifespan of the project (e.g. during routine maintenance) and reported for prompt intervention with appropriate erosion control solutions;
- All vehicles should adhere to a low speed limit (60km/h) and speed limits must apply within the project site to reduce dust accumulation;
- Disturbed areas such as road verges, lay-down areas and areas utilised by temporary construction facilities must be regularly monitored to detect the establishment of alien species and those species should be eradicated before they spread (i.e. an Alien Species Control Programme is required);
- Regular alien clearing should be conducted, as needed, using the best-practice methods for the species concerned, the use of herbicides should be avoided as far as possible; and
- The use of herbicides (if absolutely required) for the control and eradication of alien grasses should be done in accordance with an alien eradication programme to reduce unintended ecological impacts.

9 ADDITIONAL REQUIREMENTS

Micro-siting of infrastructure is required after finalization of locations and prior to construction to compile a list of floral species that may be cut, chopped, uprooted, broken, damaged or destroyed to obtain any relevant permits necessary for these restricted activities.

10 IMPACT STATEMENT

The proposed grid connection and associated infrastructure are unlikely to generate significant impacts on Terrestrial Plant Species following mitigation. It is the specialist opinion that the proposed development will have a low potential impact to Terrestrial Plant

Species and therefore the proposed development can be approved from a Terrestrial Plant Species perspective.

APPENDIX I: LEGISLATIVE REQUIREMENTS

Relevant legislation is provided below to provide a description of the applicable legal considerations of relevance to the proposed project.

Convention on Biodiversity (CBD)

The CBD requires signatory states to implement objectives of the Convention, which are the conservation of biodiversity; the sustainable use of biological resources and the fair and equitable sharing of benefits arising from the use of genetic resources. South Africa became a signatory to the CBD in 1993, which was ratified in 1995. Article 14 (a) of the CBD states that *“Each Contracting Party, as far as possible and as appropriate, shall: (a) Introduce appropriate procedures requiring environmental impact assessment of its proposed projects that are likely to have significant adverse effects on biological diversity with a view to avoiding or minimizing such effects and, where appropriate, allow for public participation in such procedures”*.

National Environmental Management Act (Act No. 107 of 1998, NEMA)

Section 24 of the Constitution of the Republic of South Africa provides the right to every person for a non-harmful environment and simultaneously mandates the government to protect the environment. NEMA is the framework to enforce Section 24 of the Constitution.

NEMA requires, amongst others, that:

- Development must be socially, environmentally, and economically sustainable;
- Disturbance of ecosystems and loss of biological diversity are avoided, or, where they cannot be altogether avoided, are minimised and remedied; and
- A risk-averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions.

Government Notice No. 40733 of 2017: Draft National Biodiversity Offset Policy published under NEMA is to ensure that significant residual impacts of developments are remedied, thereby ensuring sustainable development as required by section 24 of the Constitution of the Republic of South Africa, 1996. This policy should be taken into consideration with every development application that still has significant residual impact after the mitigation has been followed. The mitigation sequence entails the consecutive application of avoiding or preventing loss, then at minimizing or mitigating what cannot be avoided, rehabilitating where possible and, as a last resort, offsetting the residual impact.

National Environmental Management: Biodiversity Act (Act No. 10 of 2004, NEMBA)

NEMBA is the principal national act that regulates biodiversity protection, and is concerned with the management and conservation of biological diversity, as well as the use of indigenous biological resources in a sustainable manner. Section 57 (1) states that a person may not carry out a restricted activity involving a specimen of a listed threatened or protected species without a permit issued in terms of Chapter 7 (2) The Minister may, by notice in the Gazette, prohibit the carrying out of any activity- (a) which is of a nature that may negatively impact on the survival of a listed threatened or protected species. Restricted activities include damaging, uprooting or destroying specimens of listed threatened or protected species as well as movement and possession of these species. NEMBA also aims to, inter alia, (a) prevent the unauthorized introduction and spread of alien species and invasive species to ecosystems and habitats where they do not naturally occur; (b) to manage and control alien species and invasive species to prevent or minimize harm to the environment and to biodiversity in particular and (c) to eradicate alien species and invasive species from ecosystems and habitats where they may harm such ecosystems or habitats.

National Forests Act (Act No. 84 of 1998)

This act lists protected tree species and prohibits certain activities. The prohibitions provide that "*no person may cut, damage, disturb, destroy or remove any protected tree, or collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree, except under a licence granted by the Minister*".

Conservation of Agricultural Resources Act (Act No. 43 of 1983 as amended in 2001)

This act lists declared weed and invader species of plants and prescribes the required actions to combat their spread depending on their listed category, the three categories are:

- Category 1 plants: prohibited and must be controlled;
- Category 2 plants: may be grown in demarcated areas providing that there is a permit and that steps are taken to prevent their spread; and
- Category 3 plants: may not be planted; existing plants may remain as long as reasonable steps are taken to prevent their spread, except within the flood line of watercourses and wetlands.

National Veld and Forest Fire Act (Act No. 101 of 1998)

The purpose of the National Veld and Forest Fire Act, as amended by the National Fire Laws Amendment Act, is to prevent and combat veld, forest and mountain fires throughout South Africa. The Act applies to the open countryside beyond the urban limit and puts in place a range of requirements. It also specifies the responsibilities of land owners. The term 'owners' includes lessees, people in control of land, the executive body of a community, the manager of State land, and the chief executive officer of any local authority. The requirements include, but are not limited to, the maintenance of firebreaks and availability of firefighting equipment to reasonably prevent the spread of fires to neighbouring properties.

Northern Cape Nature Conservation Act (Act No. 9 of 2009)

This Act provides for the sustainable utilisation of wild animals, aquatic biota and plants; provides for the implementation of the Convention on International Trade in Endangered Species of Wild Fauna and Flora; provides for offences and penalties for contravention of the Act; provides for the appointment of nature conservators to implement the provisions of the Act; and provides for the issuing of permits and other authorisations. Amongst other regulations, the following may apply to the current project: Aquatic habitats may not be destroyed or damaged restricted activities involving protected animals and plants, including the uprooting, breaking, damage or destruction of listed plant species. The Act provides lists of species offered protection in the Province.

APPENDIX II: POTENTIAL PLANT SPECIES ON THE PROJECT SITE

This list was compiled by extracting a list of species from the BODATSA database that have been recorded within an area that includes the study area as well as similar habitats in surrounding areas, as obtained from <http://newposa.sanbi.org/> accessed on January 20, 2020.

Family	Species	Family	Species	Family	Species
Acanthaceae	<i>Barleria rigida</i>	Colchicaceae	<i>Ornithoglossum vulgare</i>	Poaceae	<i>Eragrostis bergiana</i>
	<i>Dicliptera clinopodia</i>	Commelinaceae	<i>Commelina africana</i>		<i>Eragrostis bicolor</i>
Aizoaceae	<i>Chasmatophyllum maninum</i>	Crassulaceae	<i>Adromischus caryophyllaceus</i>		<i>Eragrostis chloromelas</i>
	<i>Delosperma sp.</i>		<i>Crassula corallina</i>		<i>Eragrostis curvula</i>
	<i>Galenia pubescens</i>		<i>Tylecodon ventricosus</i>		<i>Eragrostis homomalla</i>
	<i>Galenia sarcophylla</i>	Cucurbitaceae	<i>Cucumis africanus</i>		<i>Eragrostis lehmanniana</i>
	<i>Galenia secunda</i>		<i>Cucumis heptadactylus</i>		<i>Eragrostis mexicana</i>
	<i>Mesembryanthemum coriarium</i>		<i>Cucumis myriocarpus</i>		<i>Eragrostis nindensis</i>
	<i>Oscularia deltoides</i>	Cyperaceae	<i>Bulbostylis humilis</i>		<i>Eragrostis obtusa</i>
	<i>Ruschia sp.</i>		<i>Cyperus congestus</i>		<i>Eragrostis pilosastate</i>
<i>Tetragonia fruticosa</i>	<i>Cyperus marginatus</i>		<i>Eragrostis procumbens</i>		
Amaranthaceae	<i>Atriplex vestita</i>	Dryopteridaceae	<i>Arachniodes webbiana</i>		<i>Eragrostis tef</i>
	<i>Bassia salsoloides</i>	Ebenaceae	<i>Euclea crispa</i>		<i>Eragrostis truncata</i>
	<i>Salsola calluna</i>	Euphorbiaceae	<i>Euphorbia arida</i>		<i>Festuca costata</i>
	<i>Salsola dealata</i>		<i>Euphorbia flanaganii</i>		<i>Fingerhuthia africana</i>
	<i>Salsola glabrescens</i>		<i>Euphorbia juttai</i>		<i>Heteropogon contortus</i>
<i>Salsola humifusa</i>	Fabaceae		<i>Amphithalea muraltioides</i>		<i>Hyparrhenia hirta</i>
Amaryllidaceae		<i>Brunsvigia radulosa</i>	<i>Argyrolobium sp.</i>		<i>Leptochloa fusca</i>
		<i>Cyrtanthus huttonii</i>	<i>Calobota spinescens</i>		<i>Melica decumbens</i>
Anacardiaceae		<i>Searsia ciliata</i>	<i>Cullen tomentosum</i>		<i>Melinis repens</i>
Apocynaceae		<i>Apium graveolens</i>	<i>Indigastrum niveum</i>		<i>Oropetium capense</i>
		<i>Asclepias gibba</i>	<i>Indigofera alternans</i>		<i>Panicum coloratum</i>
		<i>Brachystelma rubellum</i>	<i>Indigofera hedyantha</i>		<i>Panicum impeditum</i>
		<i>Ceropegia multiflora</i>	<i>Leobordea platycarpa</i>		<i>Panicum sp.</i>
		<i>Gomphocarpus fruticosus</i>	<i>Lessertia annularis</i>		<i>Panicum stapfianum</i>
		<i>Microloma armatum</i>	<i>Lotononis laxa</i>		<i>Pennisetum villosum</i>
	<i>Pachypodium succulentum</i>	<i>Lotononis pungens</i>	<i>Pentameris airoides</i>		
	<i>Stapelia grandiflora</i>	<i>Medicago sativa</i>	<i>Pentameris setifolia</i>		
	<i>Stenostelma eustegioides</i>	<i>Melolobium calycinum</i>	<i>Puccinellia acroxantha</i>		
Asparagaceae	<i>Asparagus striatus</i>	<i>Melolobium candicans</i>	<i>Puccinellia distans</i>		
	<i>Asparagus suaveolens</i>	<i>Rhynchosia adenodes</i>	<i>Setaria lindenbergiana</i>		
Asphodelaceae	<i>Bulbine frutescens</i>	Funariaceae	<i>Goniomitrium africanum</i>	<i>Sorghum halepense</i>	

Family	Species	Family	Species	Family	Species
	<i>Haworthia bolusii</i>	Gentianaceae	<i>Sebaea pentandra</i>		<i>Sporobolus albicans</i>
	<i>Haworthiopsis tessellata</i>		<i>Erodium cicutarium</i>		<i>Sporobolus coromandelianus</i>
	<i>Haworthiopsis tessellata</i>		<i>Pelargonium aestivale</i>		<i>Sporobolus discosporus</i>
	<i>Kniphofia ensifolia</i>	Geraniaceae	<i>Pelargonium althaeoides</i>		<i>Sporobolus fimbriatus</i>
Aspleniaceae	<i>Asplenium cordatum</i>		<i>Pelargonium pseudofumarioides</i>		<i>Sporobolus ioclados</i>
	<i>Arctotis leiocarpa</i>		<i>Pelargonium tragacanthoides</i>		<i>Sporobolus sp.</i>
	<i>Athanasia minuta</i>	Gisekiaceae	<i>Gisekia pharnaceoides</i>		<i>Sporobolus tenellus</i>
	<i>Berkheya eriobasis</i>	Grimmiaceae	<i>Grimmia pulvinata</i>		<i>Stipagrostis ciliata</i>
	<i>Berkheya pinnatifida</i>		<i>Daubinya comata</i>		<i>Stipagrostis namaquensis</i>
	<i>Berkheya sp.</i>		<i>Dipcadi viride</i>		<i>Stipagrostis obtusa</i>
	<i>Brachylaena glabra</i>	Hyacinthaceae	<i>Lachenalia ensifolia</i>		<i>Stipagrostis uniplumis</i>
	<i>Chrysocoma ciliata</i>		<i>Lachenalia sp.</i>		<i>Themeda triandra</i>
	<i>Dicoma capensis</i>		<i>Ledebouria apertiflora</i>		<i>Tragus berteronianus</i>
	<i>Dimorphotheca cuneata</i>		<i>Ornithogalum nanodes</i>		<i>Tragus koelerioides</i>
	<i>Dimorphotheca sp.</i>	Hypericaceae	<i>Hypericum lalandii</i>		<i>Tragus racemosus</i>
	<i>Dimorphotheca zeyheri</i>	Hypoxidaceae	<i>Empodium elongatum</i>		<i>Urochloa panicoides</i>
	<i>Eriocephalus ericoides</i>		<i>Hypoxis rigidula</i>		<i>Polygala asbestina</i>
	<i>Felicia burkei</i>		<i>Gladiolus dalenii</i>	Polygalaceae	<i>Polygala ephedroides</i>
	<i>Felicia filifolia</i>		<i>Gladiolus ecklonii</i>		<i>Polygala hispida</i>
	<i>Felicia muricata</i>		<i>Gladiolus permeabilis</i>	Polygonaceae	<i>Rumex lanceolatus</i>
	<i>Gazania jurineifolia</i>	Iridaceae	<i>Moraea falcifolia</i>		<i>Didymodon tophaceopsis</i>
	<i>Gazania krebsiana</i>		<i>Moraea pallida</i>		<i>Didymodon tophaceus</i>
	<i>Geigeria filifolia</i>		<i>Moraea sp.</i>		<i>Didymodon umbrosus</i>
	<i>Geigeria ornativa</i>		<i>Syringodea concolor</i>		<i>Gymnostomum aeruginosum</i>
	<i>Gnaphalium filagopsis</i>		<i>Leonotis ocymifolia</i>	Pottiaceae	<i>Gymnostomum sp.</i>
	<i>Helichrysum asperum</i>	Lamiaceae	<i>Salvia verbenaca</i>		<i>Hymenostylium recurvirostre</i>
	<i>Helichrysum dregeanum</i>		<i>Stachys cuneata</i>		<i>Pseudocrossidium crinitum</i>
	<i>Helichrysum lineare</i>		<i>Stachys linearis</i>		<i>Tortula atrovirens</i>
	<i>Helichrysum lucilioides</i>	Leucobryaceae	<i>Campylopus robillardei</i>		<i>Trichostomum brachydontium</i>
	<i>Helichrysum micropoides</i>	Limeaceae	<i>Limeum sulcatum</i>	Pteridaceae	<i>Cheilanthes eckloniana</i>
	<i>Helichrysum zeyheri</i>		<i>Lobelia flaccida</i>		<i>Cheilanthes hirta</i>
	<i>Hertia kraussii</i>	Lobeliaceae	<i>Lobelia thermalis</i>	Ptychomitriaceae	<i>Ptychomitrium cucullatifolium</i>
	<i>Hertia pallens</i>		<i>Monopsis scabra</i>		<i>Anemone tenuifolia</i>
	<i>Ifloga glomerata</i>		<i>Grewia flava</i>	Ranunculaceae	<i>Ranunculus multifidus</i>
	<i>Lepidostephium denticulatum</i>		<i>Hermannia burkei</i>		<i>Ranunculus trichophyllus</i>
	<i>Leysera tenella</i>	Malvaceae	<i>Hermannia cuneifolia</i>	Resedaceae	<i>Oligomeris dipetala</i>
	<i>Oedera humilis</i>		<i>Hermannia erodioides</i>		<i>Rhamnus prinoides</i>
	<i>Oedera oppositifolia</i>		<i>Hermannia pulchella</i>	Rhamnaceae	<i>Ziziphus mucronata</i>

Family	Species	Family	Species	Family	Species	
	<i>Osteospermum leptolobum</i>		<i>Hibiscus pusillus</i>	Ricciaceae	<i>Riccia albornata</i>	
	<i>Osteospermum scariosum</i>		<i>Malva parviflora</i>		<i>Riccia nigrella</i>	
	<i>Osteospermum spinescens</i>		<i>Radyera urens</i>	Rubiaceae	<i>Nenax microphylla</i>	
	<i>Othonna pavonia</i>		<i>Melianthus comosus</i>	Ruscaceae	<i>Sansevieria aethiopica</i>	
	<i>Pegolettia retrofracta</i>	Melianthaceae	<i>Melianthus dregeanus</i>	Santalaceae	<i>Osyris lanceolata</i>	
	<i>Pentzia calcarea</i>	Orchidaceae	<i>Disa pulchra</i>		<i>Thesium congestum</i>	
	<i>Pentzia elegans</i>		<i>Orthochilus foliosus</i>	Sapindaceae	<i>Allophylus decipiens</i>	
	<i>Pentzia globosa</i>		<i>Satyrium longicauda</i>		<i>Aptosimum procumbens</i>	
	<i>Pentzia incana</i>		<i>Satyrium membranaceum</i>		<i>Aptosimum spinescens</i>	
	<i>Pentzia lanata</i>	Oxalidaceae	<i>Oxalis depressa</i>		<i>Chaenostoma halimifolium</i>	
	<i>Pentzia quinquefida</i>	Pedaliaceae	<i>Pterodiscus luridus</i>		<i>Chaenostoma rotundifolium</i>	
	<i>Pentzia sp.</i>		<i>Sesamum capense</i>		<i>Hebenstretia dura</i>	
	<i>Pentzia spinescens</i>	Peraceae	<i>Clutia thunbergii</i>		<i>Jamesbrittenia aurantiaca</i>	
	<i>Phymaspermum aciculare</i>	Phyllanthaceae	<i>Phyllanthus maderaspatensis</i>		<i>Jamesbrittenia filicaulis</i>	
	<i>Phymaspermum parvifolium</i>	Pittosporaceae	<i>Pittosporum viridiflorum</i>		<i>Limosella africana</i>	
	<i>Printzia huttoni</i>	Plantaginaceae	<i>Plantago major</i>		<i>Limosella sp.</i>	
	<i>Pteronia erythrochaeta</i>		<i>Alloteropsis semialata</i>		Scrophulariaceae	<i>Manulea fragrans</i>
	<i>Pteronia glauca</i>		<i>Aristida adscensionis</i>			<i>Nemesia linearis</i>
	<i>Pteronia glaucescens</i>		<i>Aristida congesta</i>			<i>Nemesia sp.</i>
	<i>Pteronia sordida</i>		<i>Aristida congesta</i>			<i>Peliostomum leucorrhizum</i>
<i>Schistostephium flabelliforme</i>	<i>Aristida diffusa</i>				<i>Peliostomum origanoides</i>	
<i>Senecio isatideus</i>	<i>Aristida diffusa</i>				<i>Selago albida</i>	
<i>Senecio leptophyllus</i>	<i>Aristida vestita</i>				<i>Selago geniculata</i>	
<i>Senecio niveus</i>	<i>Brachiaria eruciformis</i>				<i>Selago paniculata</i>	
Boraginaceae	<i>Heliotropium ciliatum</i>		<i>Cenchrus ciliaris</i>			<i>Selago saxatilis</i>
	<i>Heliotropium curassavicum</i>		<i>Chloris virgata</i>			<i>Zaluzianskya karrooica</i>
	<i>Heliotropium lineare</i>		<i>Cymbopogon pospischillii</i>			Solanaceae
	<i>Lithospermum papillosum</i>		<i>Cynodon incompletus</i>	<i>Lycium pumilum</i>		
Brassicaceae	<i>Erucastrum strigosum</i>		<i>Cynodon polevansii</i>	<i>Solanum humile</i>		
	<i>Heliophila minima</i>		<i>Digitaria eriantha</i>	<i>Solanum retroflexum</i>		
	<i>Rorippa fluviatilis</i>	<i>Digitaria sp.</i>	Tecophilaeaceae	<i>Cyanella lutea</i>		
Bryaceae	<i>Bryum argenteum</i>	<i>Elionurus muticus</i>	Thymelaeaceae	<i>Lasiosiphon polycephalus</i>		
	<i>Bryum sp.</i>	<i>Enneapogon desvauxii</i>	Verbenaceae	<i>Chascanum cuneifolium</i>		
Campanulaceae	<i>Wahlenbergia nodosa</i>	<i>Enneapogon scaber</i>	Zygophyllaceae	<i>Roepera lichtensteiniana</i>		
Caryophyllaceae	<i>Dianthus micropetalus</i>	<i>Enneapogon scoparius</i>		<i>Tetraena microcarpa</i>		
	<i>Spergularia bocconeii</i>	<i>Eragrostis barrelieri</i>		<i>Tribulus terrestris</i>		
Colchicaceae	<i>Colchicum asteroides</i>					

APPENDIX III: POTENTIAL PROTECTED PLANT SPECIES ON THE PROJECT SITE

Plant species listed by BODATSA database that have been recorded within an area that includes the study area as well as similar habitats in surrounding areas and offered protection by the Northern Cape Conservation Act.

Family	Species	Family	Species
Aizoaceae	<i>Chasmatophyllum maninum</i>	Fabaceae	<i>Lessertia annularis</i>
	<i>Delosperma</i> sp.	Geraniaceae	<i>Pelargonium aestivale</i>
	<i>Galenia pubescens</i>		<i>Pelargonium althaeoides</i>
	<i>Galenia sarcophylla</i>		<i>Pelargonium pseudofumarioides</i>
	<i>Galenia secunda</i>		<i>Pelargonium tragacanthoides</i>
	<i>Mesembryanthemum coriarium</i>	Hyacinthaceae	<i>Daubenya comata</i>
	<i>Oscularia deltoides</i>		<i>Lachenalia ensifolia</i>
	<i>Ruschia</i> sp.		<i>Ornithogalum nanodes</i>
Amaryllidaceae	<i>Tetragonia fruticosa</i>	Iridaceae	<i>Gladiolus dalenii</i>
	<i>Brunsvigia radulosa</i>		<i>Gladiolus ecklonii</i>
Apiaceae	<i>Cyrtanthus huttonii</i>		<i>Gladiolus permeabilis</i>
	<i>Apium graveolens</i>		<i>Moraea falcifolia</i>
Apocynaceae	<i>Asclepias gibba</i>		<i>Moraea pallida</i>
	<i>Brachystelma rubellum</i>	<i>Syringodea concolor</i>	
	<i>Ceropegia multiflora</i>	<i>Disa pulchra</i>	
	<i>Gomphocarpus fruticosus</i>	Orchidaceae	<i>Orthochilus foliosus</i>
	<i>Microloma armatum</i>		<i>Satyrium longicauda</i>
	<i>Pachypodium succulentum</i>		<i>Satyrium membranaceum</i>
Caryophyllaceae	<i>Stapelia grandiflora</i>	Oxalidaceae	<i>Oxalis depressa</i>
	<i>Stenostelma eustegioides</i>	Scrophulariaceae	<i>Jamesbrittenia aurantiaca</i>
Crassulaceae	<i>Dianthus micropetalus</i>		<i>Jamesbrittenia filicaulis</i>
	<i>Adromischus caryophyllaceus</i>		<i>Manulea fragrans</i>
Euphorbiaceae	<i>Crassula corallina</i>	Tecophilaeaceae	<i>Nemesia linearis</i>
	<i>Tylecodon ventricosus</i>		<i>Cyanella lutea</i>
	<i>Euphorbia arida</i>		
	<i>Euphorbia flanaganii</i>		
	<i>Euphorbia juttæ</i>		



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**TERRESTRIAL PLANT SPECIES SITE SENSITIVITY
VERIFICATION REPORT FOR THE PROPOSED MULILO TOTAL
HYDRA STORAGE PROJECT: GRID INTERCONNECTION NEAR DE
AAR, NORTHERN CAPE PROVINCE**

For

Mulilo Total Hydra Storage (Pty) Ltd

February 2021



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Registered in South Africa No. 2015/416206/07

TABLE OF CONTENTS

1	INTRODUCTION	1
2	METHODS	1
	2.1 Desk-top Study.....	1
	2.2 Site Visit	1
3	RESULTS	2
	3.1 Desktop Study	2
	3.1.1 Screening Tool	2
	3.1.2 Database Search.....	2
	3.2 Site Visit	3
4	CONCLUSION.....	3

1 INTRODUCTION

The Government Gazette, No. 43855 (Published in Government Notice No. 1150) of 30 October, 2020: "Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Plant Species" is of particular relevance to the production of this report. This protocol replaces the requirements of Appendix 6 of the Environmental Impact Assessment Regulations.

The assessment and minimum reporting requirements of this protocol are associated with a level of environmental sensitivity identified by the National Web Based Screening Tool¹ ('Screening Tool').

A desk-top study and a site visit was conducted to determine the suitability of the site sensitivity determination of the Screening Tool.

2 METHODS

2.1 Desk-top Study

The Screening Tool was used to generate the potential environmental sensitivity of the site. The outputs were compared with satellite imagery and GIS maps of the project site. Broad vegetation types were mapped using the updated National Vegetation Map 2018 (NVM 2018) database² and the vegetation descriptions were obtained from Mucina & Rutherford (2006)**Error! Bookmark not defined.** A list of plant species previously recorded in the wider area were obtained from the Database of Southern Africa (BODATSA) database³ on the SANBI website⁴. An area of roughly 50 km around the project site was searched for potential species of concern.

The species list was used to highlight any habitats or taxa that may be particularly sensitive to impacts from the development and indicate any features that could occur on the project site which may require increased attention during the site visit.

Due to ongoing updates of the Screening Tool, the output was regenerated prior to the compilation of this report (accessed 10 February 2021) to determine if any additions to the databases queried had relevance to the proposed development.

2.2 Site Visit

A site walk-through was conducted during the survey of the site between 10 February 2020 and 14 February 2020. The conditions of the site visit were ideal for the assessment as the area receives summer rainfall and a significant amount of rainfall had fallen during the season, allowing for a thorough assessment of features such as temporary wetlands, vleis, drainage lines, seeps and water-filled depressions to be conducted. Plant species such as grasses and herbs were flourishing during the site visit.

¹ <https://screening.environment.gov.za/screeningtool/>

² South African National Biodiversity Institute (2006-2018). The Vegetation Map of South Africa, Lesotho and Swaziland, Mucina, L., Rutherford, M.C. and Powrie, L.W. (Editors), Online, <http://bgis.sanbi.org/Projects/Detail/186>, Version 2018.

³ South African National Biodiversity Institute. 2016. Botanical Database of Southern Africa (BODATSA) [dataset]. doi: to be assigned.

⁴ <http://newposa.sanbi.org/>

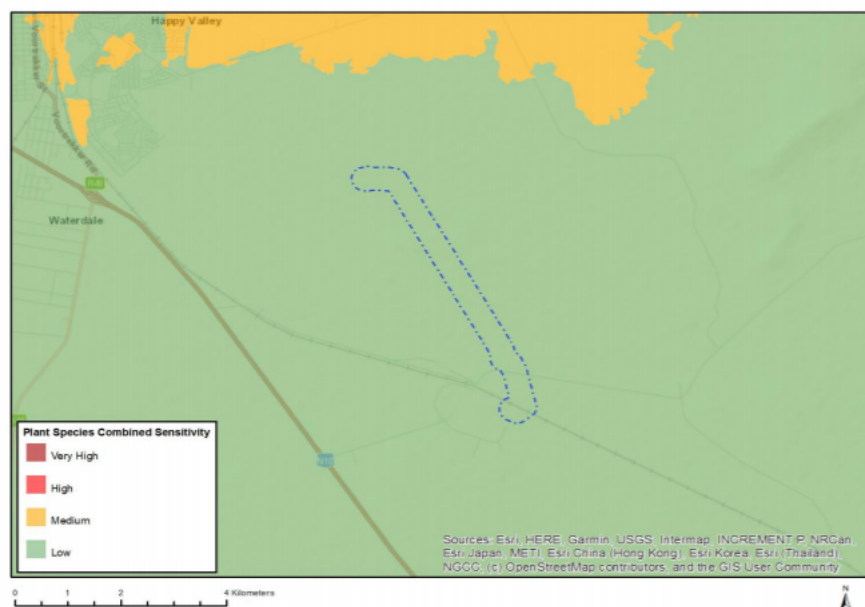
3 RESULTS

3.1 Desktop Study

3.1.1 Screening Tool

The Screening Tool identified the project site to be of **Low Sensitivity** in the Plant Species Theme (Figure 1).

MAP OF RELATIVE PLANT SPECIES THEME SENSITIVITY



Where only a sensitive plant unique number or sensitive animal unique number is provided in the screening report and an assessment is required, the environmental assessment practitioner (EAP) or specialist is required to email SANBI at eiadatarquests@sanbi.org.za listing all sensitive species with their unique identifiers for which information is required. The name has been withheld as the species may be prone to illegal harvesting and must be protected. SANBI will release the actual species name after the details of the EAP or specialist have been documented.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity

Figure 1: Results of the National Web-based Screening Tool.

3.1.2 Database Search

An area of roughly 50 km around the project site (centred on -30.662761; 24.165841) was searched for potential species of concern. Despite this broad search, there were no species that were listed on the Red List⁵ or evaluated to be of conservation concern that could potentially occur in the project area. Only a single species, Transkei Medusa's Head (*Euphorbia flanaganii*, Vulnerable), was evaluated to be of conservation concern on the BODATSA database search for the area, however it is the specialist's opinion that this record may have been a misidentification of the similar looking Karoo Spiny Milkweed (*E. arida*,

⁵ <http://redlist.sanbi.org/>

Least Concern) given the distribution of the former species . The potentially endemic *Chasmatophyllum maninum* was listed as Data Deficient.

3.2 Site Visit

The timing of the site visit following good summer rainfall resulted in perfect conditions to assess the plant species in the area. The site had experienced varying levels of overgrazing, particularly in the flatter plain areas and rocky outcrops exhibited a higher level of plant diversity. Nevertheless, none of the plant species observed on site were listed in any threat category.



Figure 2: The timing of the site-visit coincided with good recent rainfall which had promoted a good coverage of grasses (right) and the flowering of species such as Eastern Candellabra (*Brunsvigia radulosa*, right). While the site had experienced overgrazing to various degrees the rocky outcrops held higher levels of plant diversity.

4 CONCLUSION

The results from the desk-top study, GIS and satellite mapping and site visit indicate that the classification of the site to be of Low Terrestrial Plant Species sensitivity by the Screening Tool was appropriate and therefore a Plant Species Compliance Statement applies.