












PROPOSED CONSTRUCTION OF A 75MW SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITY

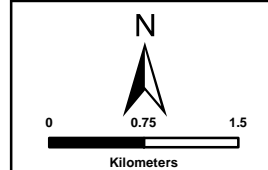
SENDAWO SOLAR 2
NEAR VRYBURG
NORTH WEST PROVINCE

SENDAWO SOLAR
DEVELOPMENT PROJECTS

Legend

-  National Routes
-  Railway Line
-  Existing High Voltage Power Lines (400kV)
-  Existing Substation
-  Proposed Sendawo Application Site
- Proposed PV Development Areas**
-  Proposed Sendawo Solar 1 Development Area
-  Proposed Sendawo Solar 2 Development Area
-  Proposed Sendawo Solar 3 Development Area
- Proposed 400kV Power Line Corridor Alternatives (500m)**
-  Alternative 2A
-  Alternative 2B
-  Proposed 400kV Substation Site

SOURCE:
ESKOM, 2012
BIOTHERM ENERGY, 2015
NGI, 2015

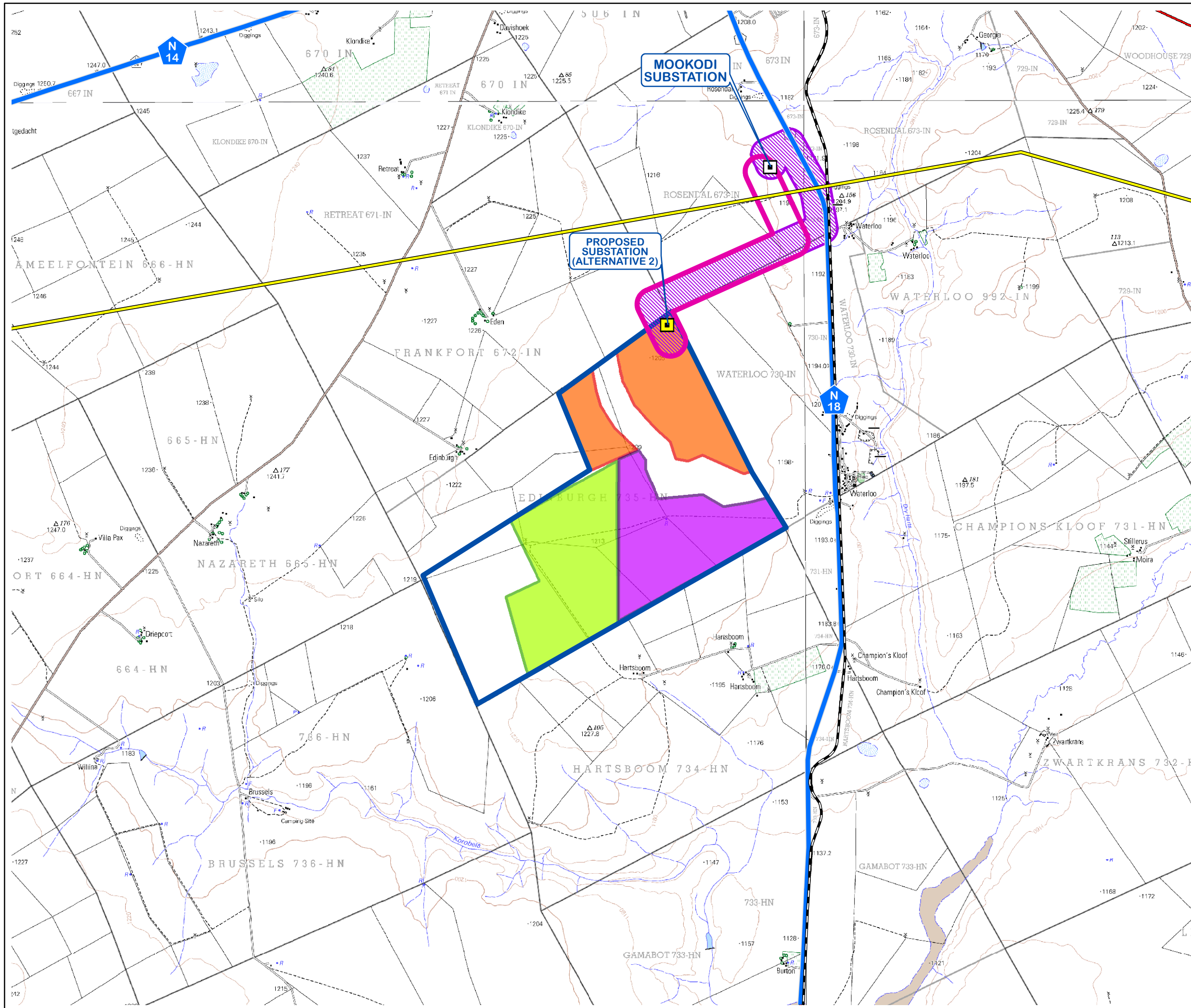


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Map Ref No 13303S/EA2_08	Revision 0	Date

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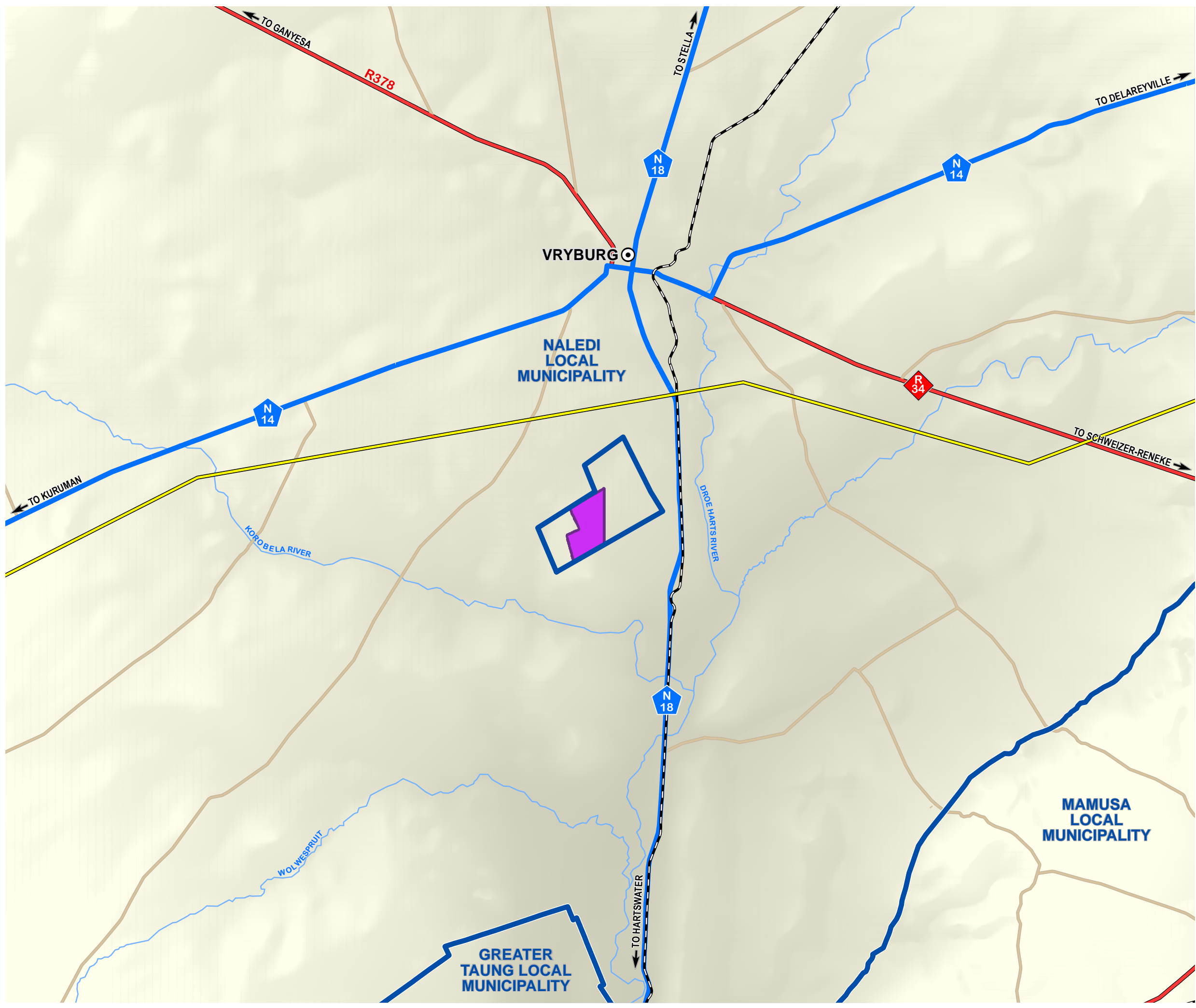
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**PROPOSED
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A 75MW SOLAR
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ENERGY FACILITY**

**SENDAWO SOLAR 2
NEAR VRYBURG
NORTH WEST PROVINCE**

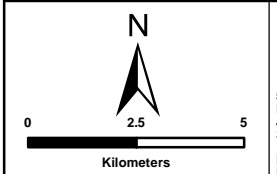
REGIONAL CONTEXT



Legend

- Local Municipal Boundaries
- National Routes
- Main Roads
- Secondary Roads
- Railway Line
- Existing High Voltage Power Lines (400kV)
- Main Rivers
- Main Towns
- Proposed Sendawo Application Site
- Proposed Sendawo Solar 2 Development Area

SOURCE:
ESKOM, 2012
BIOTHERM ENERGY, 2015
NGI, 2015



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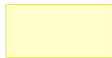
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Map Ref No 13303S/EA2_02	Revision 0	Date _____

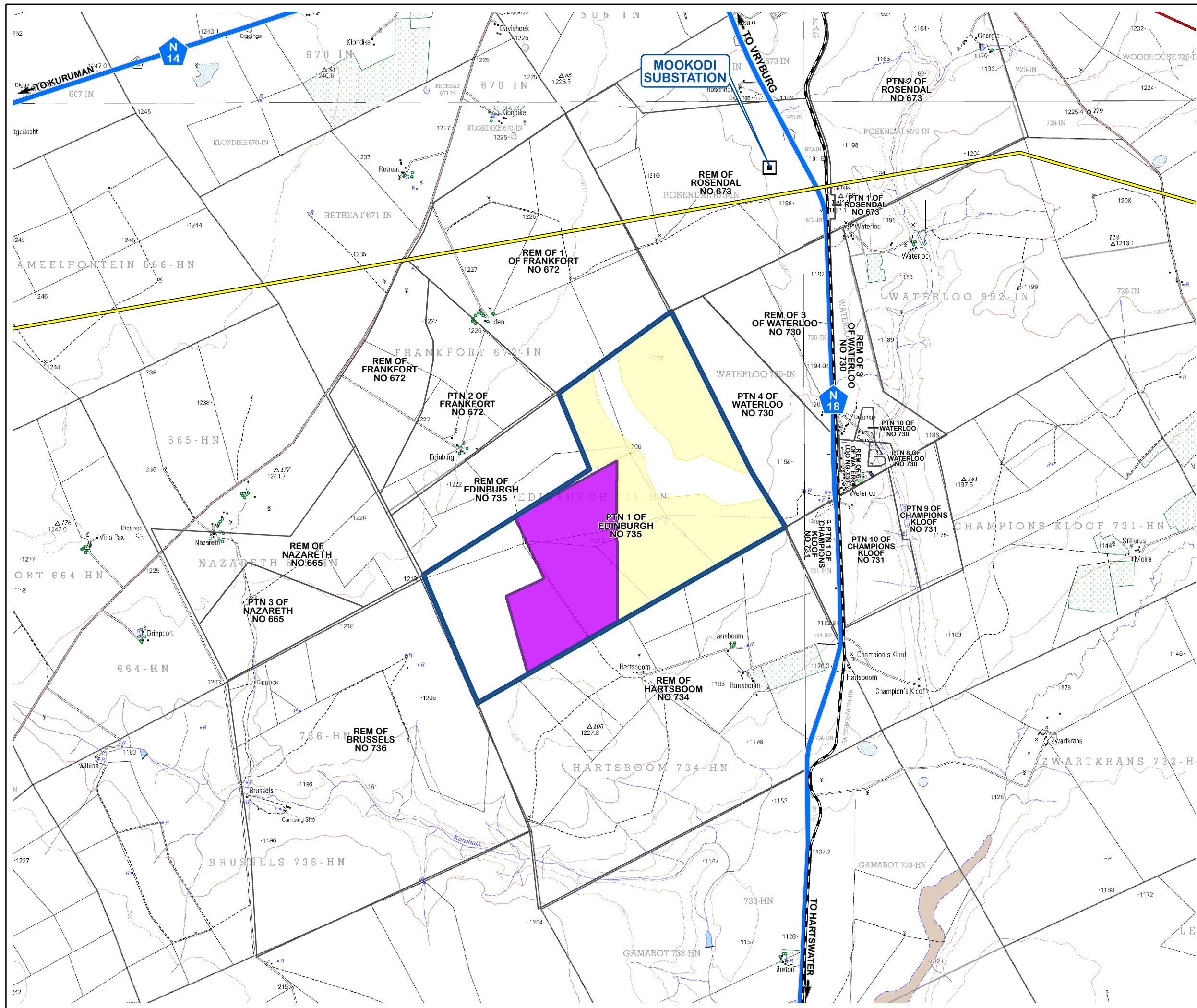
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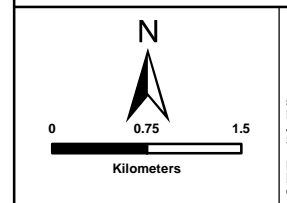
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SENDAWO SOLAR 2 NEAR VRYBURG
NORTH WEST PROVINCE
SITE LOCALITY

Legend

-  National Routes
-  Railway Line
-  Existing High Voltage Power Lines (400kV)
-  Existing Substation
-  Adjoining Farm Boundaries
-  Proposed Sendawo Application Site
-  Proposed Sendawo Solar 2 Development Area
-  Other Proposed Solar PV Facilities



SOURCE:
 ESKOM, 2012
 BIOTHERM ENERGY, 2015
 NGI, 2015



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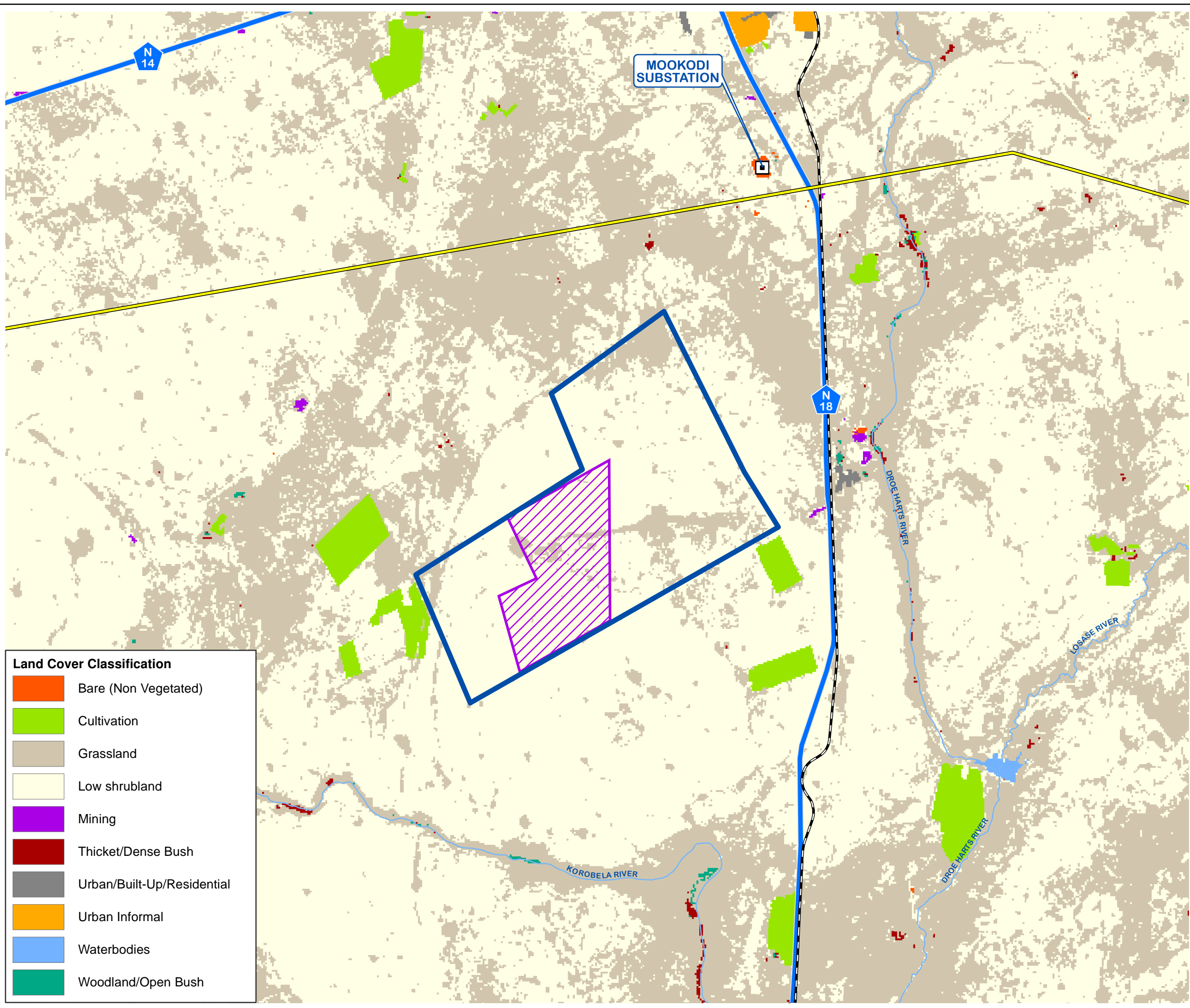
PROPOSED CONSTRUCTION OF A 75MW SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITY

SENDAWO SOLAR 2
NEAR VRYBURG
NORTH WEST PROVINCE




BROAD LAND COVER CLASSIFICATION

Legend


-  National Routes
-  Railway Line
-  Existing High Voltage Power Lines (400kV)
-  Main Rivers
-  Existing Substation
-  Proposed Sendawo Application Site
-  Proposed Sendawo Solar 2 Development Area




Land Cover Classification

-  Bare (Non Vegetated)
-  Cultivation
-  Grassland
-  Low shrubland
-  Mining
-  Thicket/Dense Bush
-  Urban/Built-Up/Residential
-  Urban Informal
-  Waterbodies
-  Woodland/Open Bush

SOURCE:
ESKOM, 2012
BIOTHERM ENERGY, 2015
2013-2014 SA NATIONAL LAND COVER
(© GEOTERRAIMAGE - 2014)



0 0.75 1.5
Kilometers

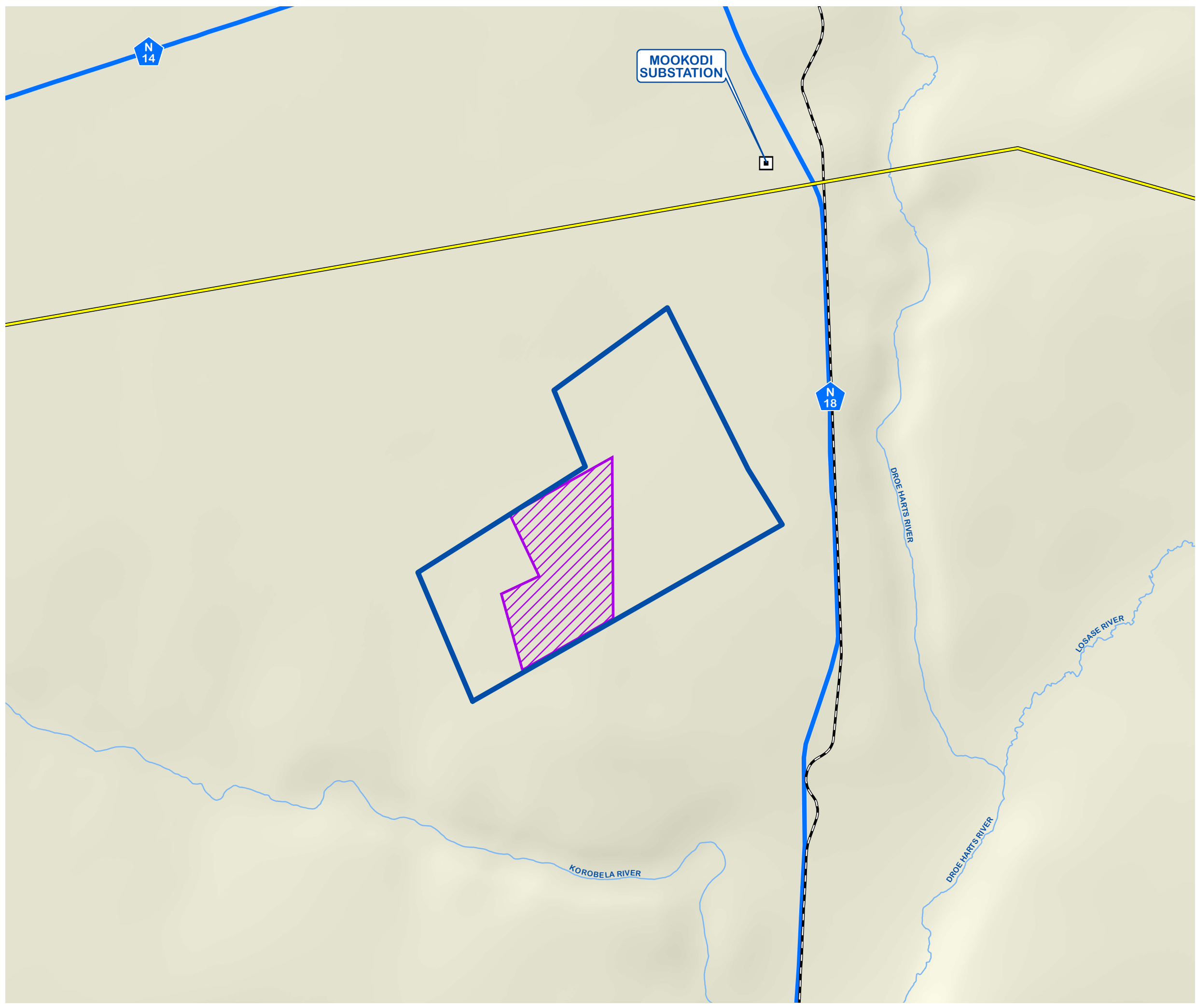


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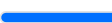







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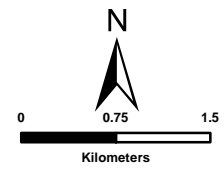
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ENERGY FACILITY**

**SENDAWO SOLAR 2
NEAR VRYBURG
NORTH WEST PROVINCE**

SLOPE CLASSIFICATION

- Legend**
-  National Routes
 -  Railway Line
 -  Existing High Voltage Power Lines (400kV)
 -  Main Rivers
 -  Existing Substation
 -  Proposed Sendawo Application Site
 -  Proposed Sendawo Solar 2 Development Area
- Slope Classification
(Percent Rise)**
-  <=8%

SOURCE:
ESKOM, 2012
BIOTERM ENERGY, 2015
NGI, 2015



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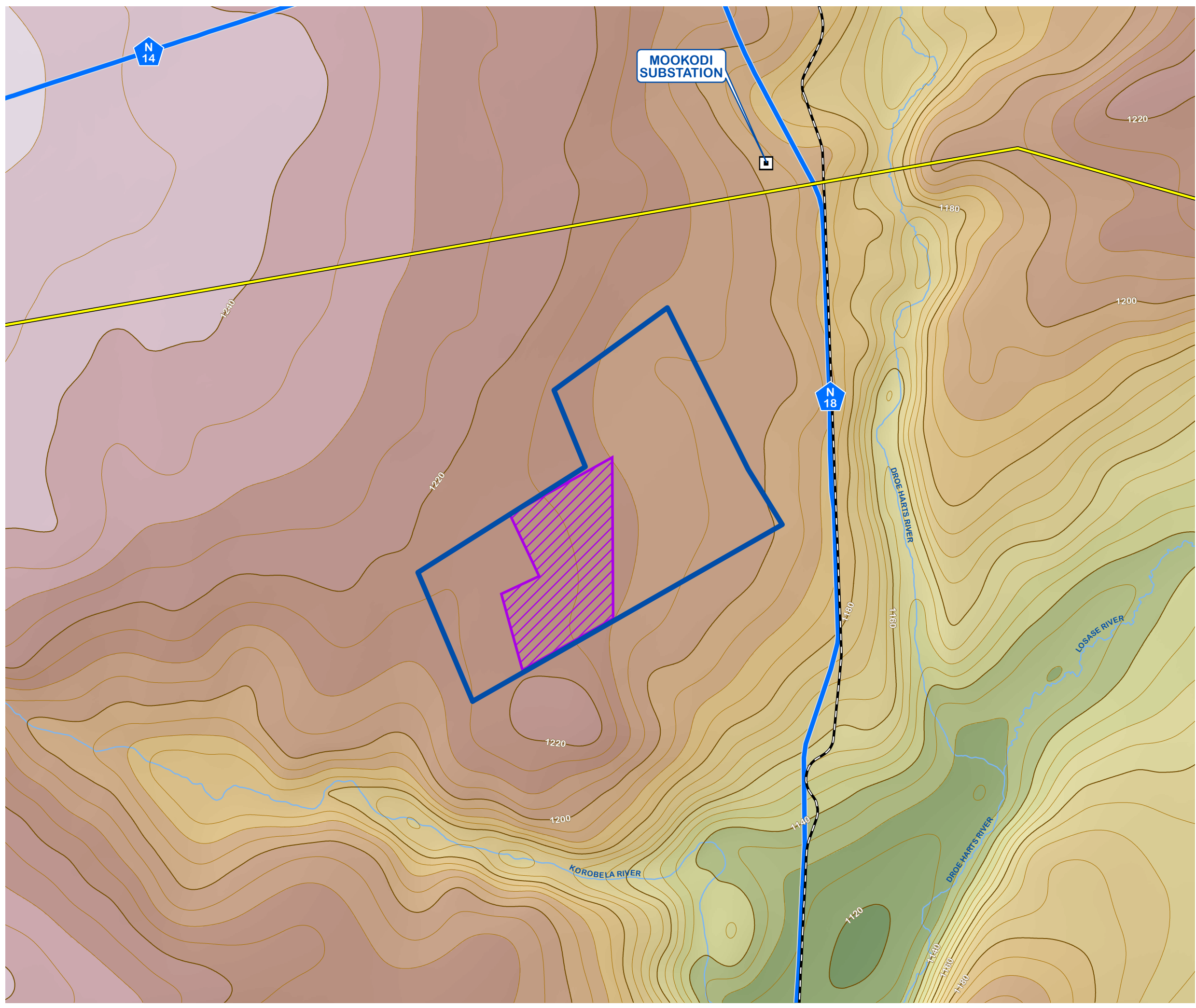
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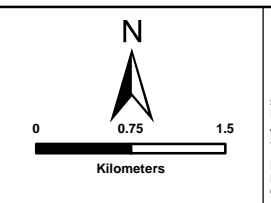
**SENDAWO SOLAR 2
NEAR VRYBURG
NORTH WEST PROVINCE**

TOPOGRAPHY

Legend

- National Routes
 - Railway Line
 - Existing High Voltage Power Lines (400kV)
 - Main Rivers
 - Contours (20m Interval)
 - Contours (5m Interval)
 - Existing Substation
 - Proposed Sendawo Application Site
 - Proposed Sendawo Solar 2 Development Area
- Elevation (msl)**
- High : >1,250
 - Low : <1,120

SOURCE:
ESKOM, 2012
BIOTERM ENERGY, 2015
NGI, 2015



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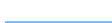



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**PROPOSED
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**SENDAWO SOLAR 2
NEAR VRYBURG
NORTH WEST PROVINCE**

CRITICAL BIODIVERSITY AREAS

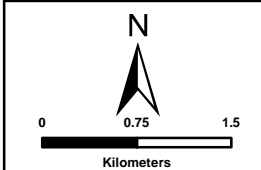
Legend

-  National Routes
-  Railway Line
-  Existing High Voltage Power Lines (400kV)
-  Main Rivers
-  Existing Substation
-  Proposed Sendawo Application Site
-  Proposed Sendawo Solar 2 Development Area

Critical Biodiversity Areas

-  CBA 1
-  CBA 2
-  ESA 1
-  ESA 2

SOURCE:
ESKOM, 2012
BIOTHERM ENERGY, 2015
NGI, 2015
NORTH WEST PROVINCE BIODIVERSITY
CONSERVATION ASSESSMENT, 2009
SANBI, 2009

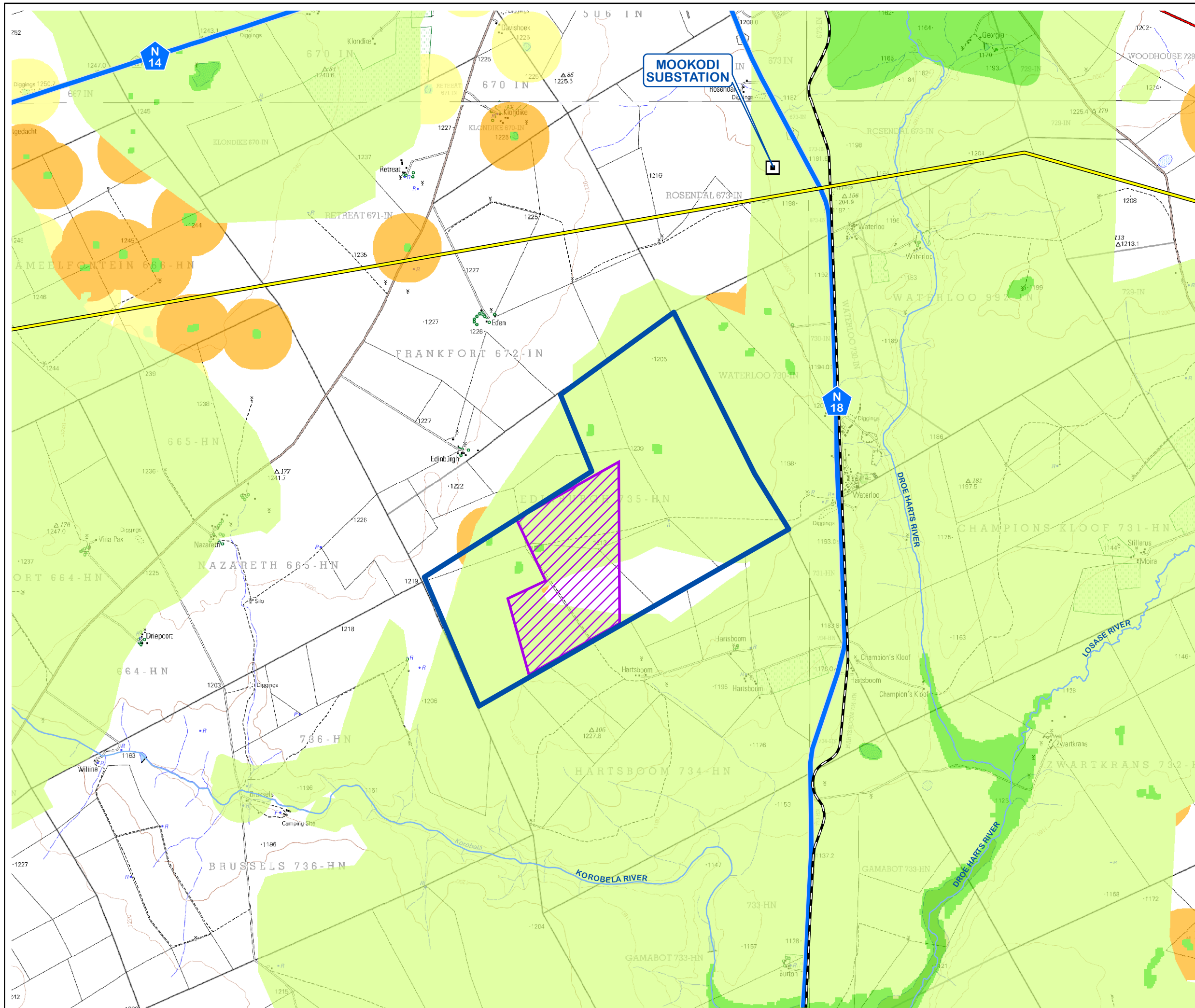


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**SENDAWO SOLAR 2
NEAR VRYBURG
NORTH WEST PROVINCE**

VEGETATION CLASSIFICATION

Legend

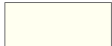
-  National Routes
-  Railway Line
-  Existing High Voltage Power Lines (400kV)
-  Main Rivers

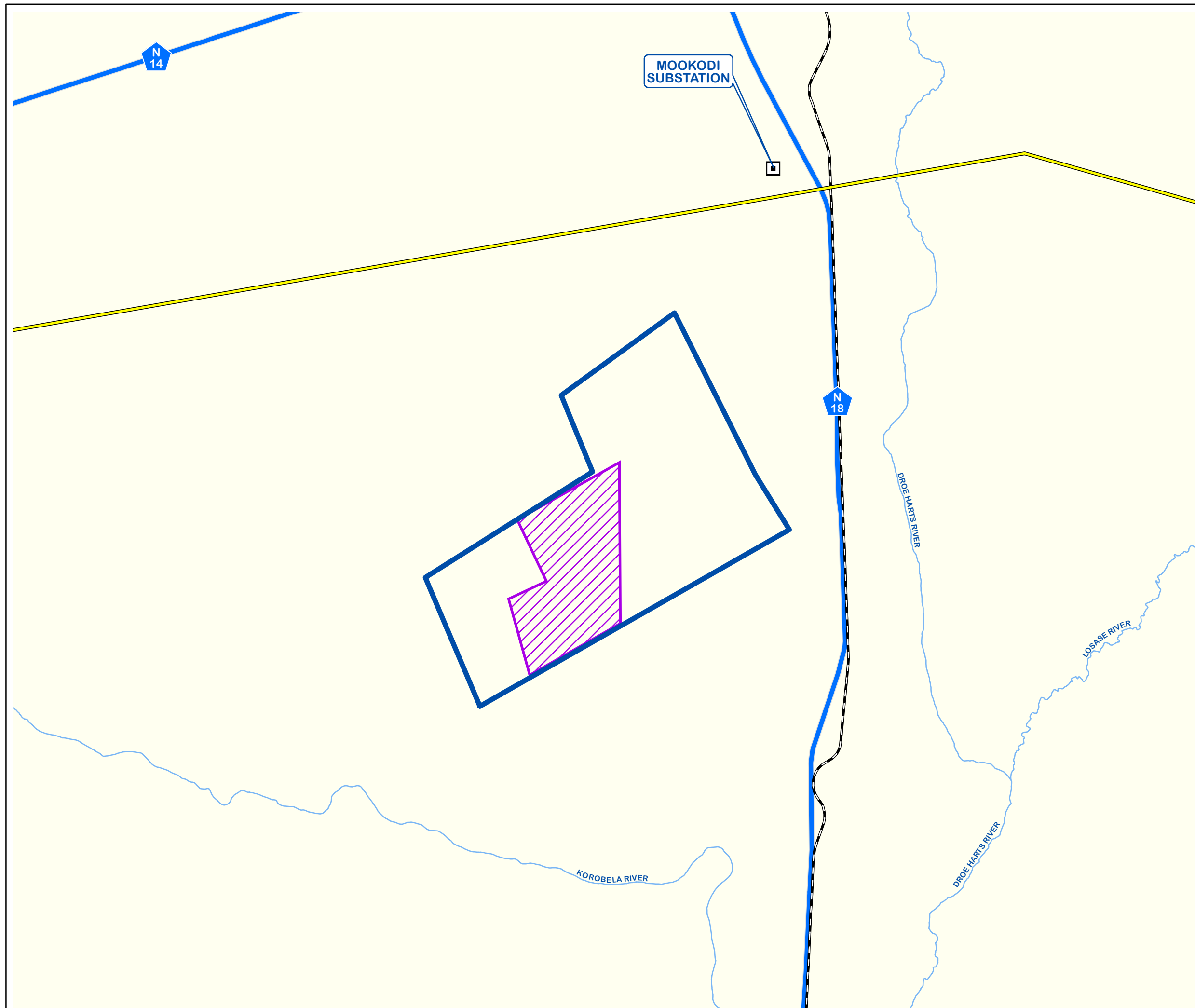
 Existing Substation

 Proposed Sendawo Application Site

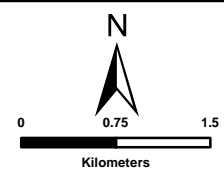
 Proposed Sendawo Solar 2 Development Area

Vegetation Classification

 SVk 7 Ghaap Plateau Vaalbosveld



SOURCE:
ESKOM, 2012
BIOTERM ENERGY, 2015
NGI, 2015
SANBI, 2009



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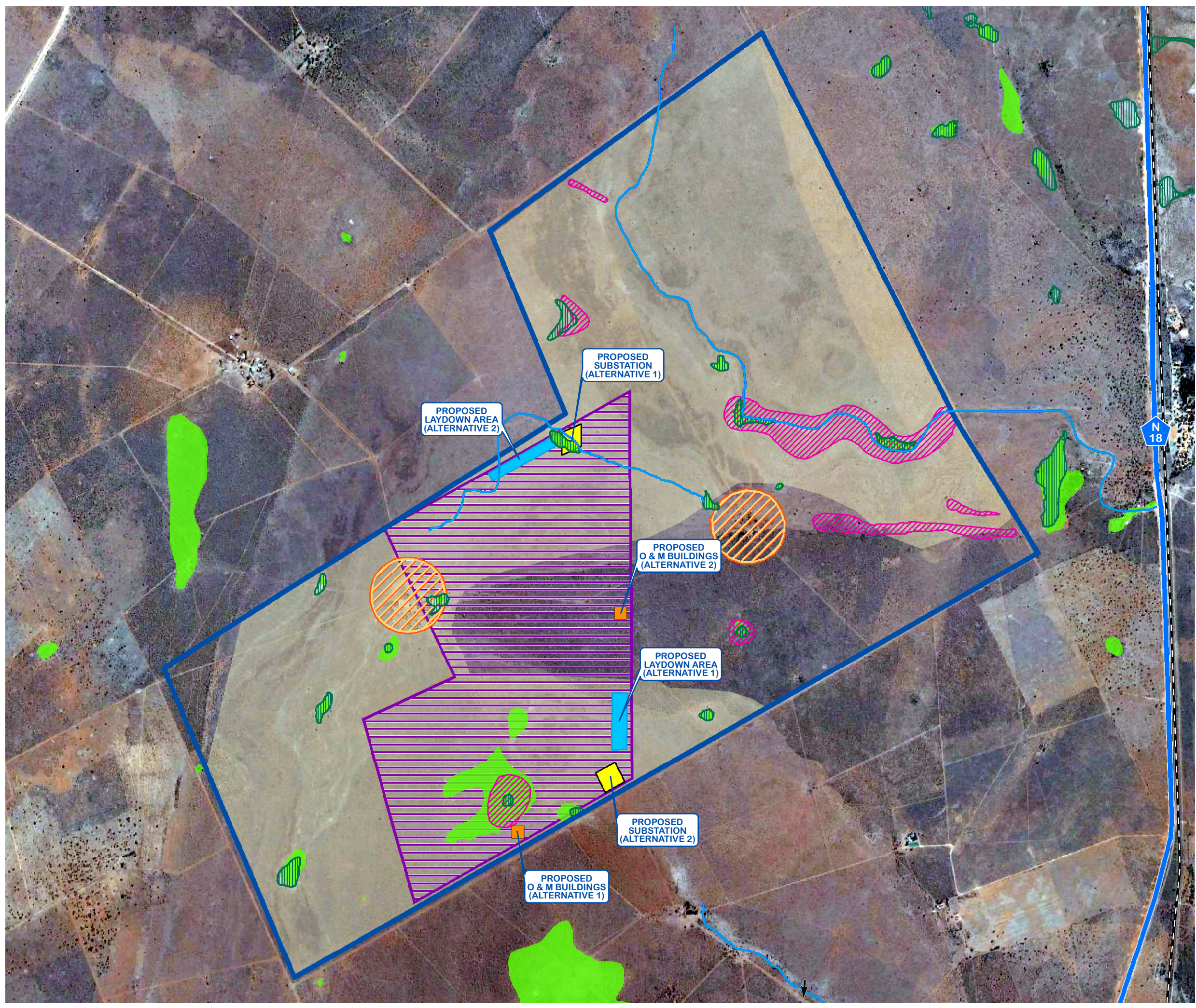
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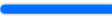












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**SENDAWO SOLAR 2
NEAR VRYBURG
NORTH WEST PROVINCE**

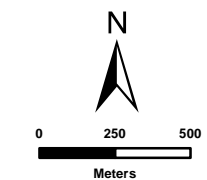
ENVIRONMENTAL SENSITIVITY



Legend

-  National Routes
-  Railway Line
-  Proposed Sendawo Application Site
- Proposed Layout Components**
-  PV Array
-  132kV Substation Site Alternatives
-  Laydown Area Site Alternatives
-  O&M Buildings Site Alternatives
- Sensitive Areas**
-  Avifaunal Sensitivity
-  Biodiversity Sensitivity
-  Heritage Sensitivity
-  Palaeontology Sensitivity
-  Wetlands
-  Rivers and Water Courses

SOURCE:
BIOTHERM ENERGY, 2015
GOOGLE EARTH, 2015



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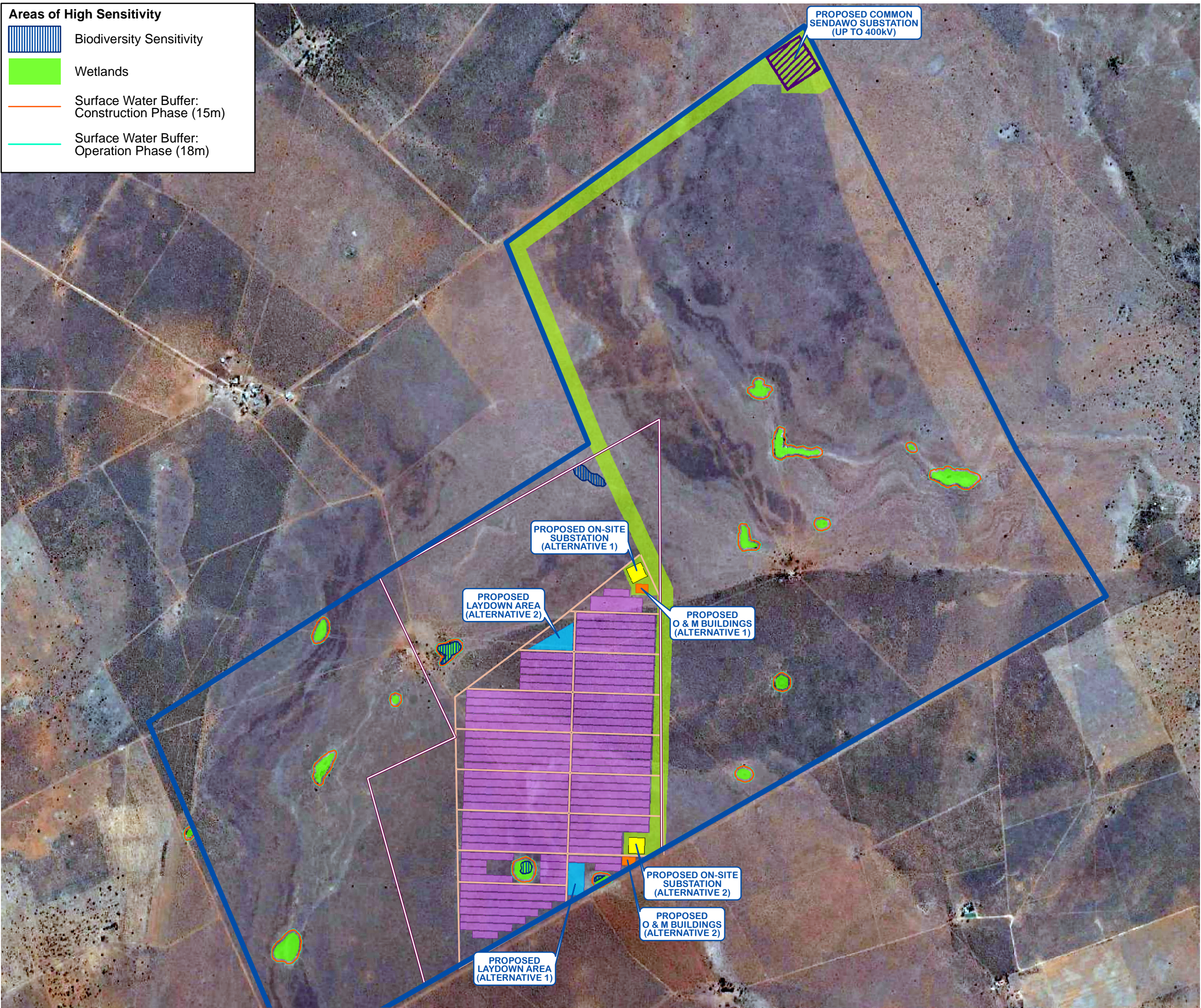
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Areas of High Sensitivity

-  Biodiversity Sensitivity
-  Wetlands
-  Surface Water Buffer: Construction Phase (15m)
-  Surface Water Buffer: Operation Phase (18m)


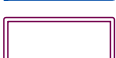



PROPOSED CONSTRUCTION OF A 75MW SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITY






SENDAWO SOLAR 2 NEAR VRYBURG NORTH WEST PROVINCE

AREAS OF HIGH SENSITIVITY

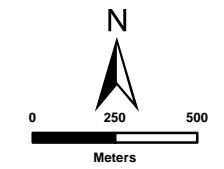
Legend

-  Proposed Sendawo Application Site
-  Proposed Sendawo Solar 2 Development Area
-  Proposed Common Sendawo Substation (up to 400kV)

Proposed Layout Components

-  Proposed 132kV Power Line Corridor
-  PV Array
-  Substation Site Alternatives
-  Laydown Area Site Alternatives
-  O & M Buildings Site Alternatives
- Internal Road Network

SOURCE:
ESKOM, 2012
BIOTHERM ENERGY, 2015
GOOGLE EARTH, 2016



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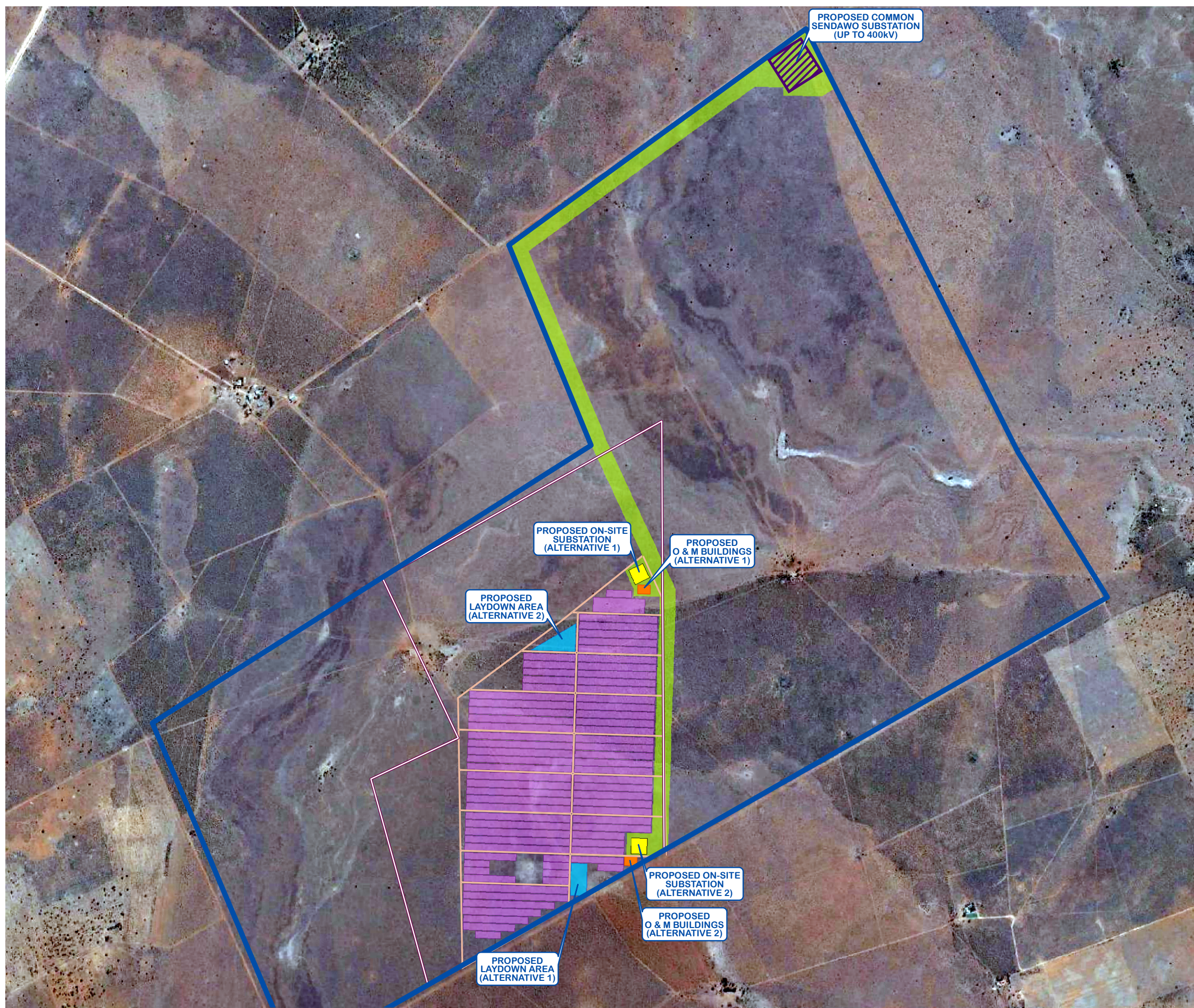
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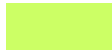


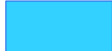


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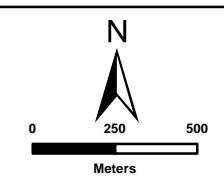
EIA PHASE LAYOUT ALTERNATIVES



Legend

-  Proposed Sendawo Application Site
-  Proposed Sendawo Solar 2 Development Area
-  Proposed Common Sendawo Substation (up to 400kV)
-  Proposed 132kV Power Line Corridor
-  PV Array
-  Substation Site Alternatives
-  Laydown Area Site Alternatives
-  O & M Buildings Site Alternatives
-  Internal Road Network

SOURCE:
ESKOM, 2012
BIOTHERM ENERGY, 2015
GOOGLE EARTH, 2016



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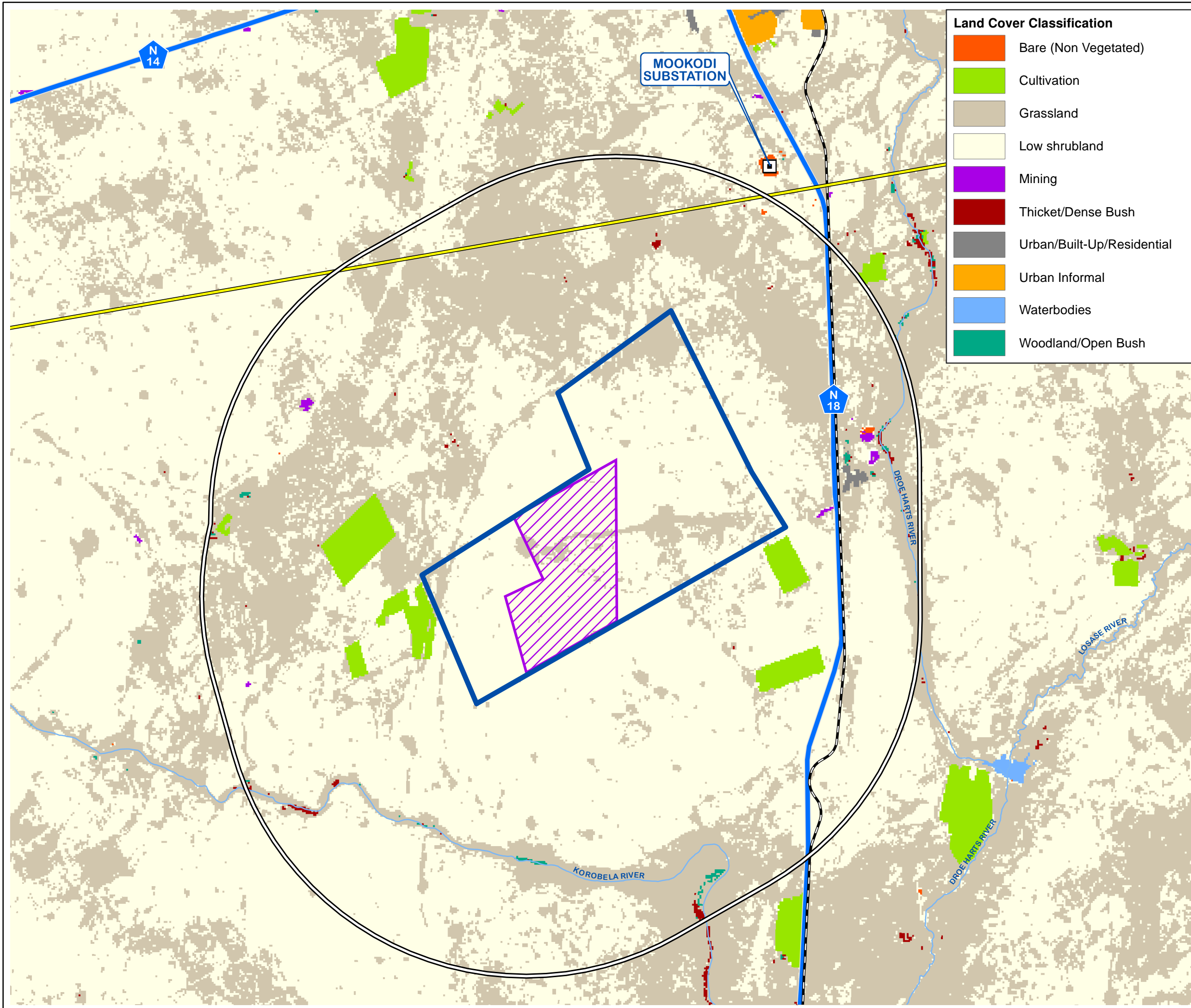
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Land Cover Classification

- Bare (Non Vegetated)
- Cultivation
- Grassland
- Low shrubland
- Mining
- Thicket/Dense Bush
- Urban/Built-Up/Residential
- Urban Informal
- Waterbodies
- Woodland/Open Bush

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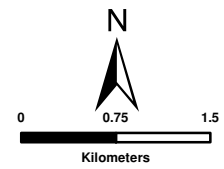
**SENDAWO SOLAR 2
NEAR VRYBURG
NORTH WEST PROVINCE**

**VISUAL ASSESSMENT:
BROAD LAND COVER
CLASSIFICATION**

Legend

- National Routes
- Railway Line
- Existing High Voltage Power Lines (400kV)
- Main Rivers
- Existing Substation
- Proposed Sendawo Application Site
- Proposed Sendawo Solar 2 Development Area
- 5km Visual Assessment Zone

SOURCE:
ESKOM, 2012
BIOTHERM ENERGY, 2015
2013-2014 SA NATIONAL LAND COVER
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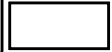
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PROPOSED CONSTRUCTION OF A 75MW SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITY


**SENDAWO SOLAR 2
NEAR VRYBURG
NORTH WEST PROVINCE**

**VISUAL ASSESSMENT:
POTENTIALLY SENSITIVE VISUAL
RECEPTOR LOCATIONS**

Legend



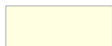
-  National Routes
-  Railway Line
-  Existing High Voltage Power Lines (400kV)
-  Existing Substation
-  Proposed Sendawo Application Site
-  Proposed Sendawo Solar 2 Development Area
-  5km Visual Assessment Zone

Visual Receptors

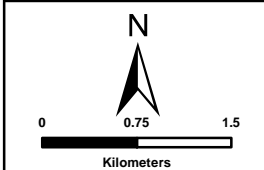
-  Potentially Sensitive Receptor Locations

-  Receptor Road

Zones of Visual Exposure

-  High ($\leq 500m$)
-  Moderate (501m - 2km)
-  Low (2.1 - 5km)

SOURCE:
ESKOM, 2012
BIOTHERM ENERGY, 2015
NGI, 2015



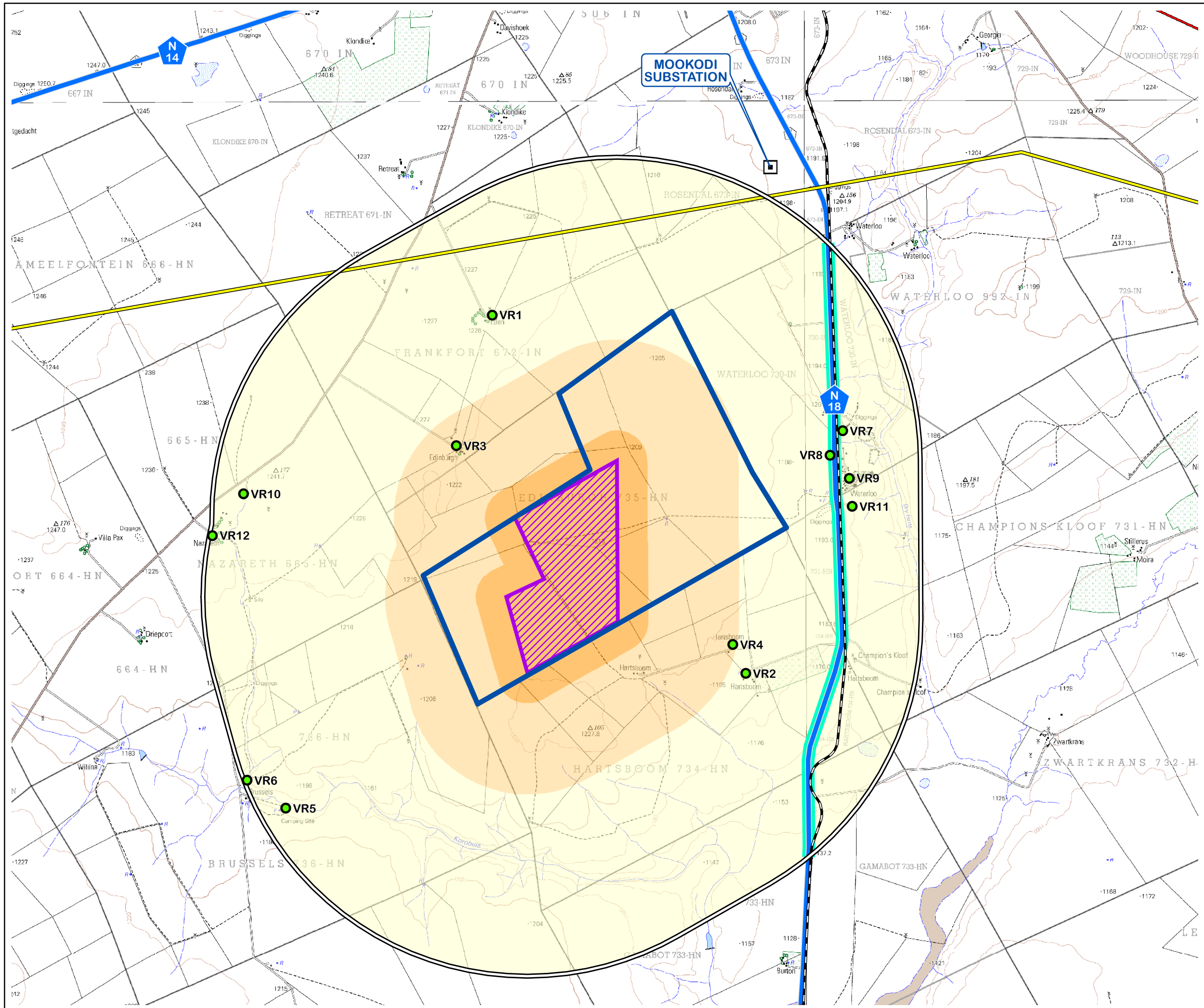
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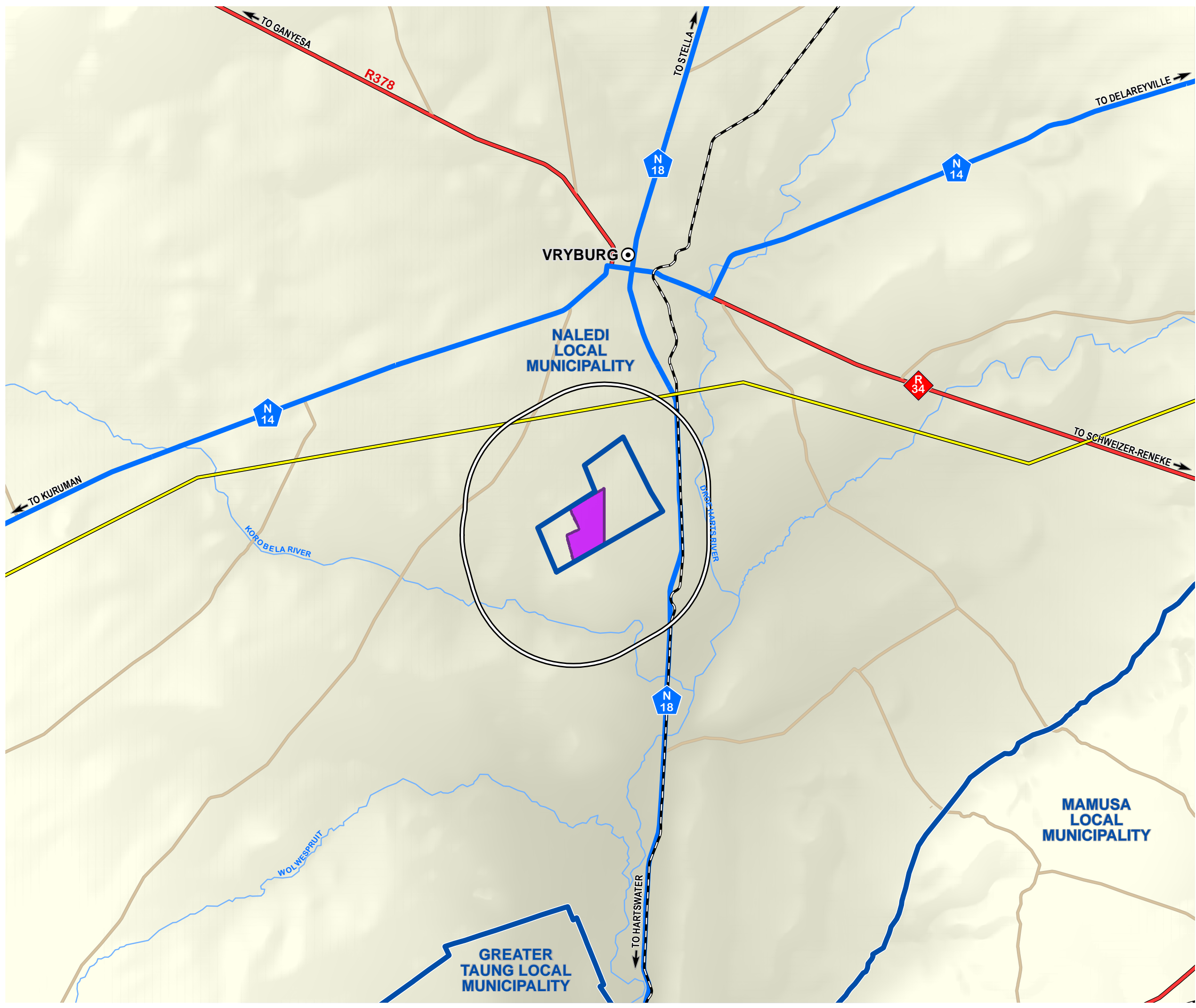
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


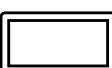
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A 75MW SOLAR
PHOTOVOLTAIC (PV)
ENERGY FACILITY**

**SENDAWO SOLAR 2
NEAR VRYBURG
NORTH WEST PROVINCE**

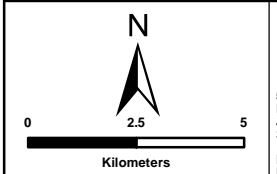
**VISUAL ASSESSMENT:
REGIONAL CONTEXT**



Legend

-  Local Municipal Boundaries
-  National Routes
-  Main Roads
-  Secondary Roads
-  Railway Line
-  Existing High Voltage Power Lines (400kV)
-  Main Rivers
-  Main Towns
-  Proposed Sendawo Application Site
-  Proposed Sendawo Solar 2 Development Area
-  5km Visual Assessment Zone

SOURCE:
ESKOM, 2012
BIOTERM ENERGY, 2015
NGI, 2015



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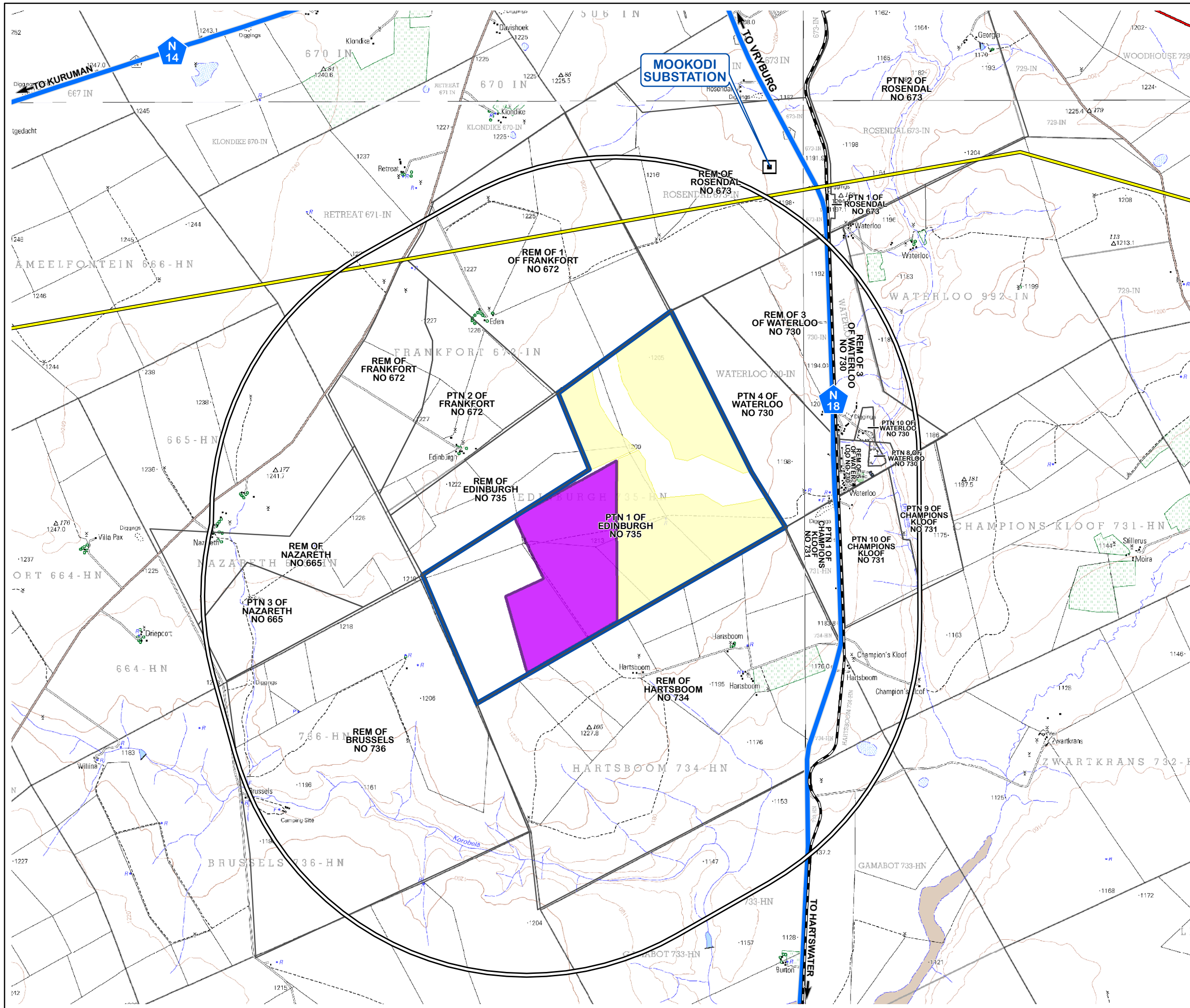
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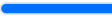








PROPOSED CONSTRUCTION OF A 75MW SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITY

**SENDAWO SOLAR 2
NEAR VRYBURG
NORTH WEST PROVINCE**

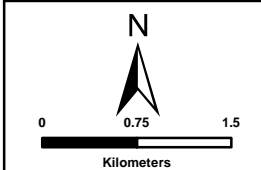
**VISUAL ASSESSMENT:
SITE LOCALITY**



Legend

-  National Routes
-  Railway Line
-  Existing High Voltage Power Lines (400kV)
-  Existing Substation
-  Adjoining Farm Boundaries
-  Proposed Sendawo Application Site
-  Proposed Sendawo Solar 2 Development Area
-  Other Proposed Solar PV Facilities
-  5km Visual Assessment Zone

SOURCE:
ESKOM, 2012
BIOTHERM ENERGY, 2015
NGI, 2015



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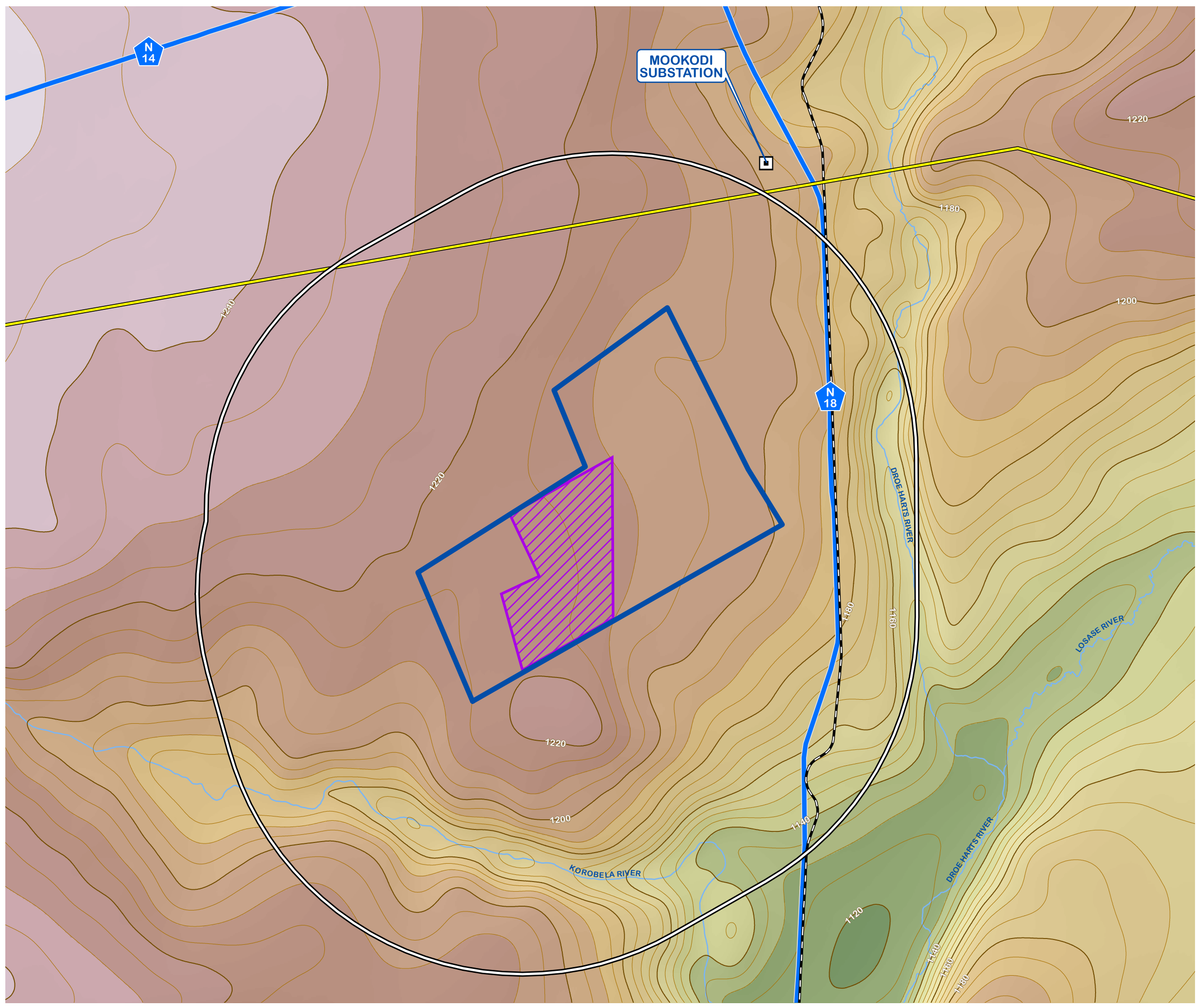
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**PROPOSED
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A 75MW SOLAR
PHOTOVOLTAIC (PV)
ENERGY FACILITY**

**SENDAWO SOLAR 2
NEAR VRYBURG
NORTH WEST PROVINCE**

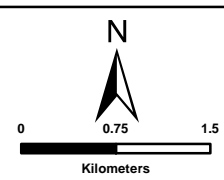
**VISUAL ASSESSMENT:
TOPOGRAPHY**



Legend

-  National Routes
 -  Railway Line
 -  Existing High Voltage Power Lines (400kV)
 -  Main Rivers
 -  Contours (20m Interval)
 -  Contours (5m Interval)
 -  Existing Substation
 -  Proposed Sendawo Application Site
 -  Proposed Sendawo Solar 2 Development Area
 -  5km Visual Assessment Zone
- Elevation (msl)**
-  High : >1,250
 -  Low : <1,120

SOURCE:
ESKOM, 2012
BIOTHERM ENERGY, 2015
NGI, 2015



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**PROPOSED
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A 75MW SOLAR
PHOTOVOLTAIC (PV)
ENERGY FACILITY**


**SENDAWO SOLAR 2
NEAR VRYBURG
NORTH WEST PROVINCE**

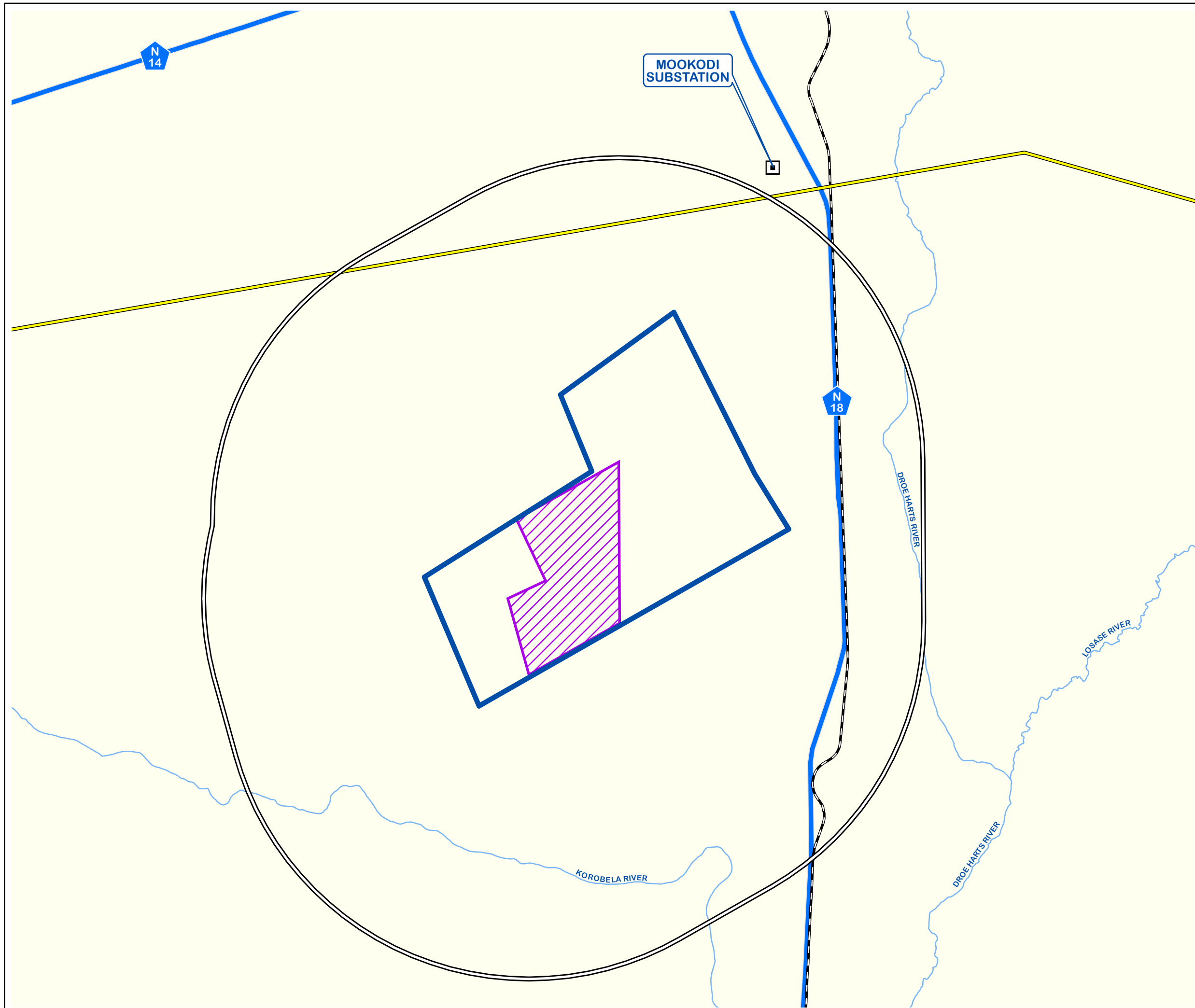
**VISUAL ASSESSMENT:
VEGETATION CLASSIFICATION**

Legend

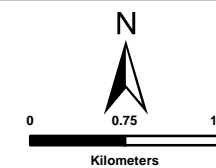
-  National Routes
-  Railway Line
-  Existing High Voltage Power Lines (400kV)
-  Main Rivers
-  Existing Substation
-  Proposed Sendawo Application Site
-  Proposed Sendawo Solar 2 Development Area
-  5km Visual Assessment Zone

Vegetation Classification

-  SVk 7 Ghaap Plateau Vaalbosveld



SOURCE:
ESKOM, 2012
BIOTHERM ENERGY, 2015
NGI, 2015
SANBI, 2009



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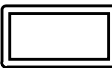



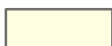
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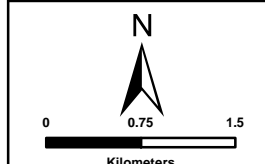
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NEAR VRYBURG
NORTH WEST PROVINCE

VISUAL ASSESSMENT:
ZONES OF VISUAL CONTRAST

Legend

-  National Routes
 -  Railway Line
 -  Existing High Voltage Power Lines (400kV)
 -  Existing Substation
 -  Proposed Sendawo Application Site
 -  Proposed Sendawo Solar 2 Development Area
 -  5km Visual Assessment Zone
 -  Potentially Sensitive Receptor Locations
- Zones of Visual Contrast**
-  High
 -  Moderate
 -  Low

SOURCE:
ESKOM, 2012
BIOTHERM ENERGY, 2015
NGI, 2015



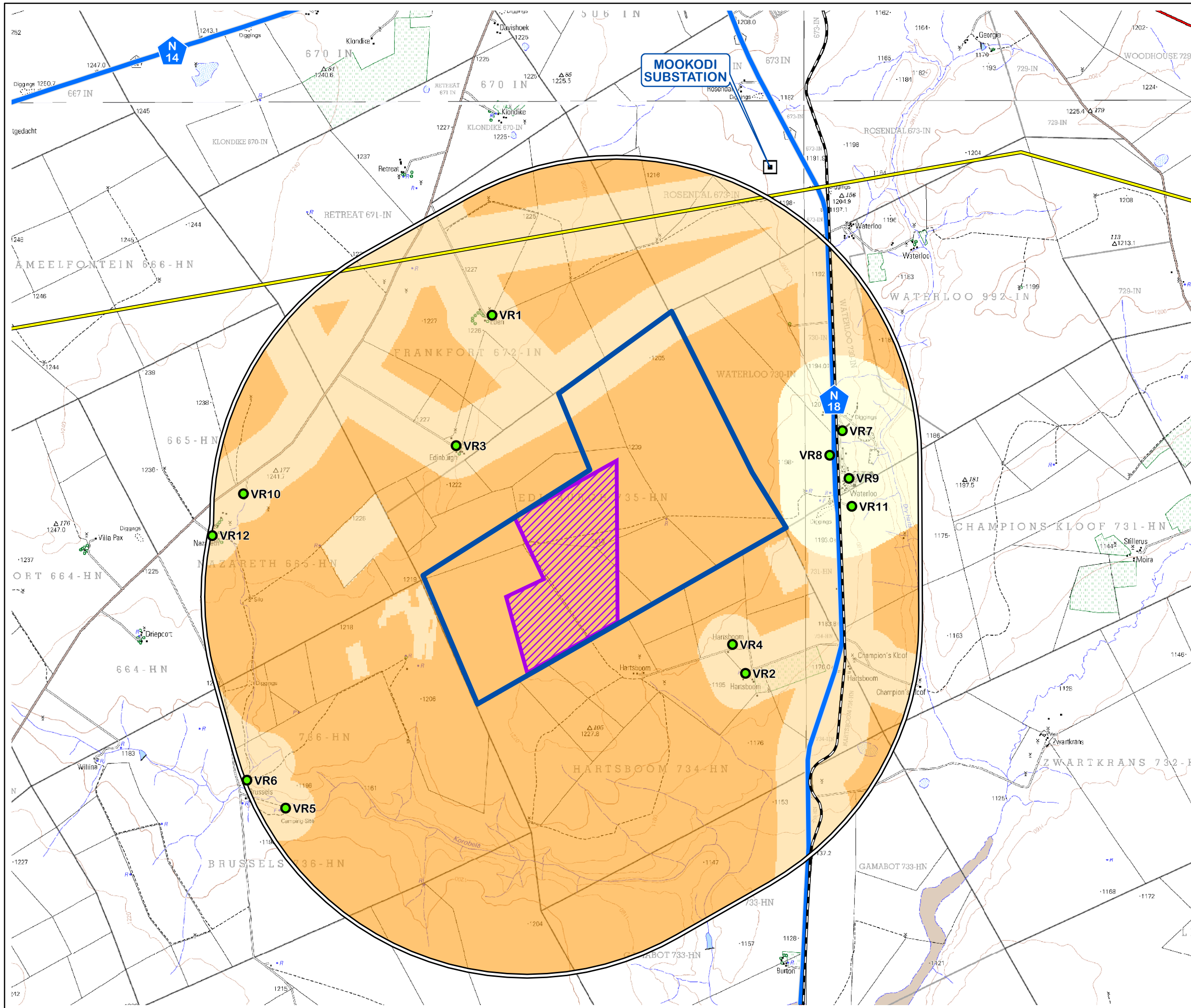
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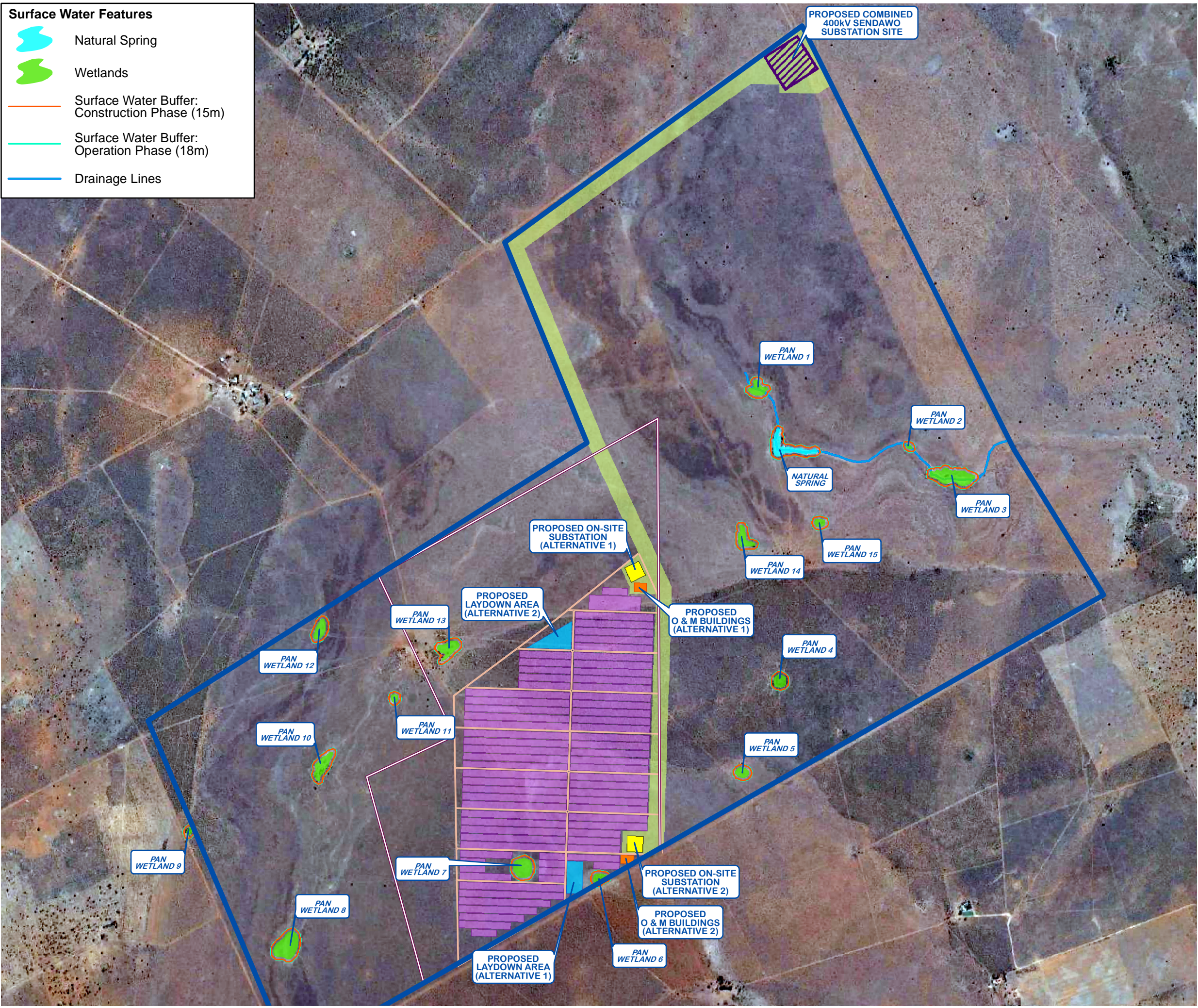
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Surface Water Features

-  Natural Spring
-  Wetlands
-  Surface Water Buffer: Construction Phase (15m)
-  Surface Water Buffer: Operation Phase (18m)
-  Drainage Lines






PROPOSED CONSTRUCTION OF A 75MW SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITY







SENDAWO SOLAR 2 NEAR VRYBURG NORTH WEST PROVINCE

SURFACE WATER ASSESSMENT: SURFACE WATER DELINEATION

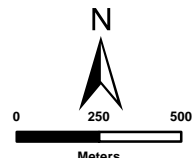
Legend

-  Proposed Sendawo Application Site
-  Proposed Sendawo Solar 2 Development Area
-  Proposed Combined 400kV Sendawo Substation Site

Proposed Layout Components

-  Proposed 132kV Power Line Corridor
-  PV Array
-  Substation Site Alternatives
-  Laydown Area Site Alternatives
-  O & M Buildings Site Alternatives
-  Internal Road Network

SOURCE:
BIOTHERM ENERGY, 2015
GOOGLE EARTH, 2016



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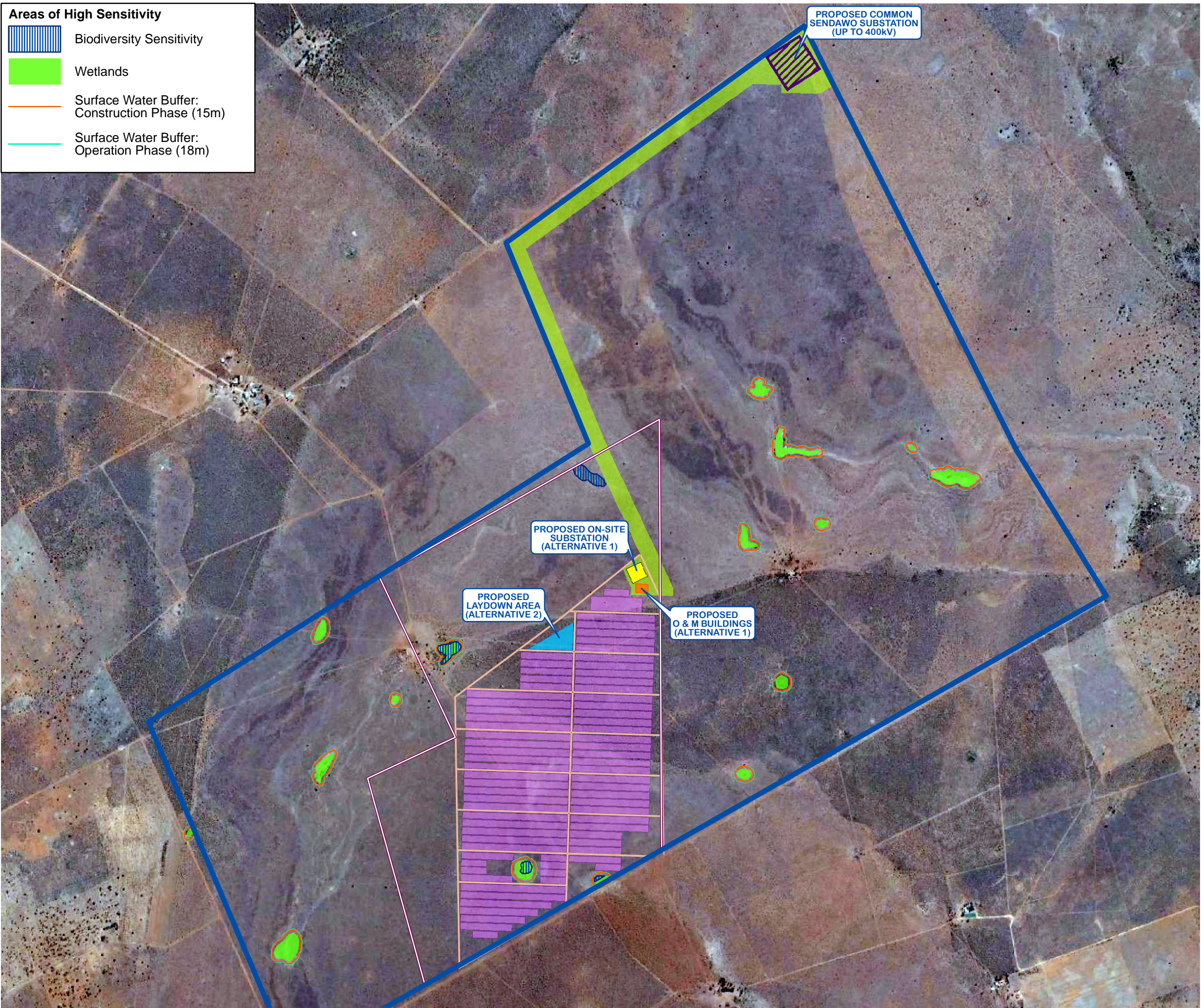
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Areas of High Sensitivity

-  Biodiversity Sensitivity
-  Wetlands
-  Surface Water Buffer: Construction Phase (15m)
-  Surface Water Buffer: Operation Phase (18m)






**PROPOSED
CONSTRUCTION OF
A 75MW SOLAR
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ENERGY FACILITY**







**SENDAWO SOLAR 2
NEAR VRYBURG
NORTH WEST PROVINCE**

PREFERRED SITE LAYOUT

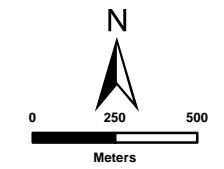
Legend

-  Proposed Sendawo Application Site
-  Proposed Sendawo Solar 2 Development Area
-  Proposed Common Sendawo Substation (up to 400kV)

Preferred Layout Components

-  Proposed 132kV Power Line Corridor
-  PV Array
-  Preferred Substation Site (Alternative 1)
-  Preferred Laydown Area (Alternative 2)
-  Preferred O & M Buildings Site (Alternative 1)
-  Internal Road Network

SOURCE:
ESKOM, 2012
BIOTHERM ENERGY, 2015
GOOGLE EARTH, 2016



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