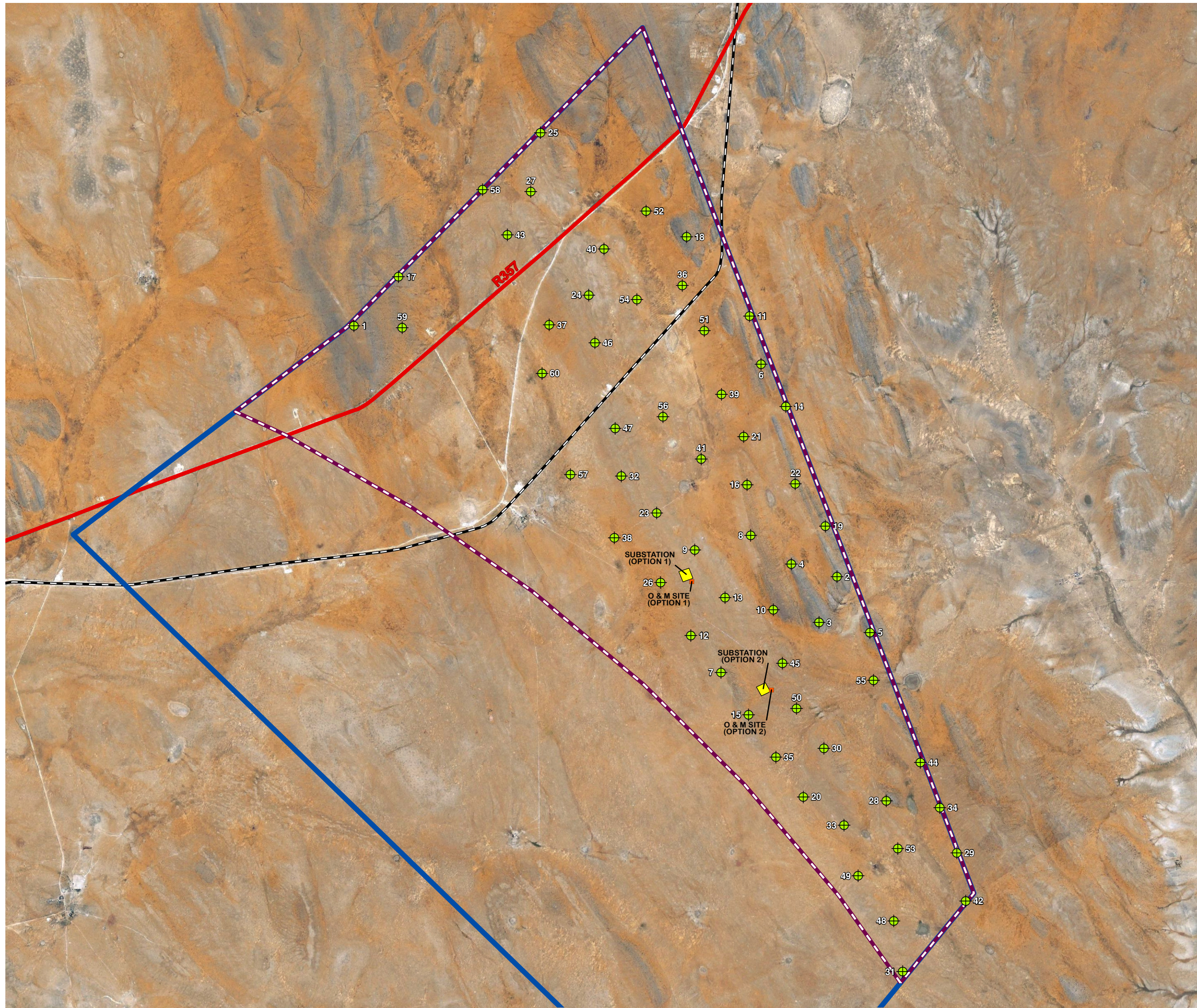


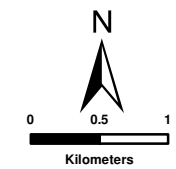
**PROPOSED
CONSTRUCTION OF A
140MW WIND ENERGY
FACILITY
ALETTA WIND
NEAR COPPERTON
NORTHERN CAPE PROVINCE
DETAILED 60 TURBINE LAYOUT**



Legend

- Main Roads
- Railway Line
- Application Site
- Proposed Aletta Wind Development Area
- + Proposed Turbine Positions (60 Turbines)
- Substation Site Alternatives
- O&M Site Alternatives

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



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Map Ref No 13169/EA_AW12	Revision 0	Date

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**PROPOSED
CONSTRUCTION OF A
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FACILITY
ALETTA WIND
NEAR COPPERTON
NORTHERN CAPE PROVINCE
ALETTA WIND
DEVELOPMENT PROJECTS**

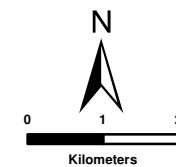
Legend

-  Main Roads
-  Railway Line
-  Existing High Voltage Power Lines (>=132kV)
-  Aletta Wind Application Site
-  Proposed Aletta Wind Development Area
-  Main Towns
-  Existing Substations
-  Proposed Copperton Wind Substation
-  Proposed Aletta Substation Site Alternatives

Proposed Corridor Alternatives

-  Option 1 (Kronos)
-  Option 2 (Loop-In-Loop-Out)
-  Option 3 (Cuprum)
-  Option 4 (Copperton IPP)

SOURCE:
ESKOM, 2012
BIOTHERM ENERGY, 2015

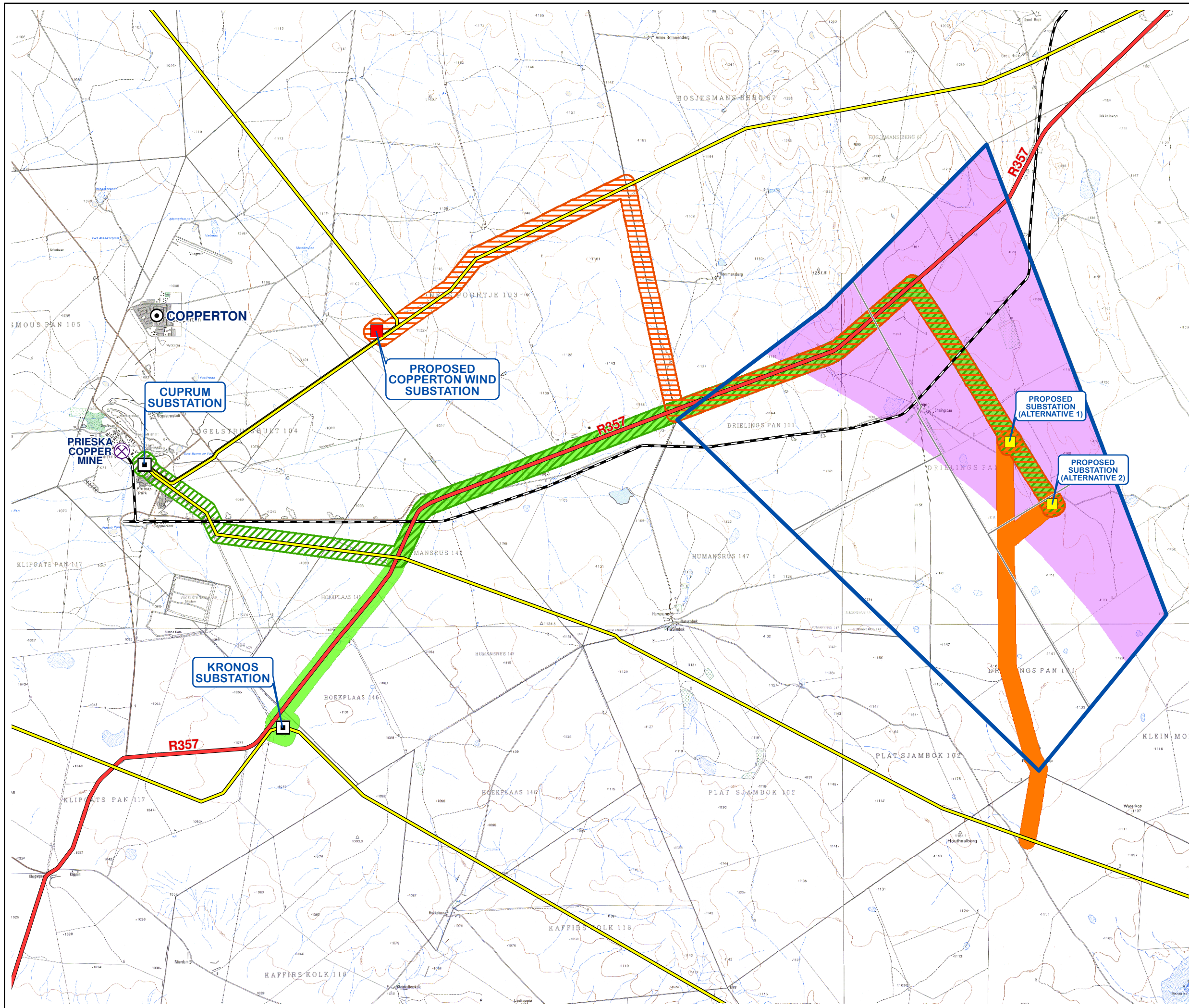


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Project No 13169	Prepared By KLS	Date 29/09/2016
Map Ref No 13169/EA_AW09	Revision 0	Date











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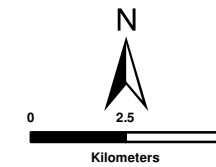


**PROPOSED
CONSTRUCTION OF A
140MW WIND ENERGY
FACILITY
ALETTA WIND
NEAR COPPERTON
NORTHERN CAPE PROVINCE
OTHER PROPOSED RENEWABLE
ENERGY DEVELOPMENTS**

Legend

-  Local Municipal Boundaries
-  Main Roads
-  Railway Line
-  Existing High Voltage Power Lines (400kV)
-  Main Towns
-  Kronos MTS Substation
-  Farm Boundaries
-  Application Site
-  Proposed Aletta Wind Development Area
-  Other Renewable Energy Application Sites

SOURCE:
BIOTHERM ENERGY, 2015
ESKOM, 2012
MUNICIPAL DEMARCATION BOARD, 2011
SOUTH AFRICAN RENEWABLE ENERGY
EIA APPLICATION DATABASE, 2015



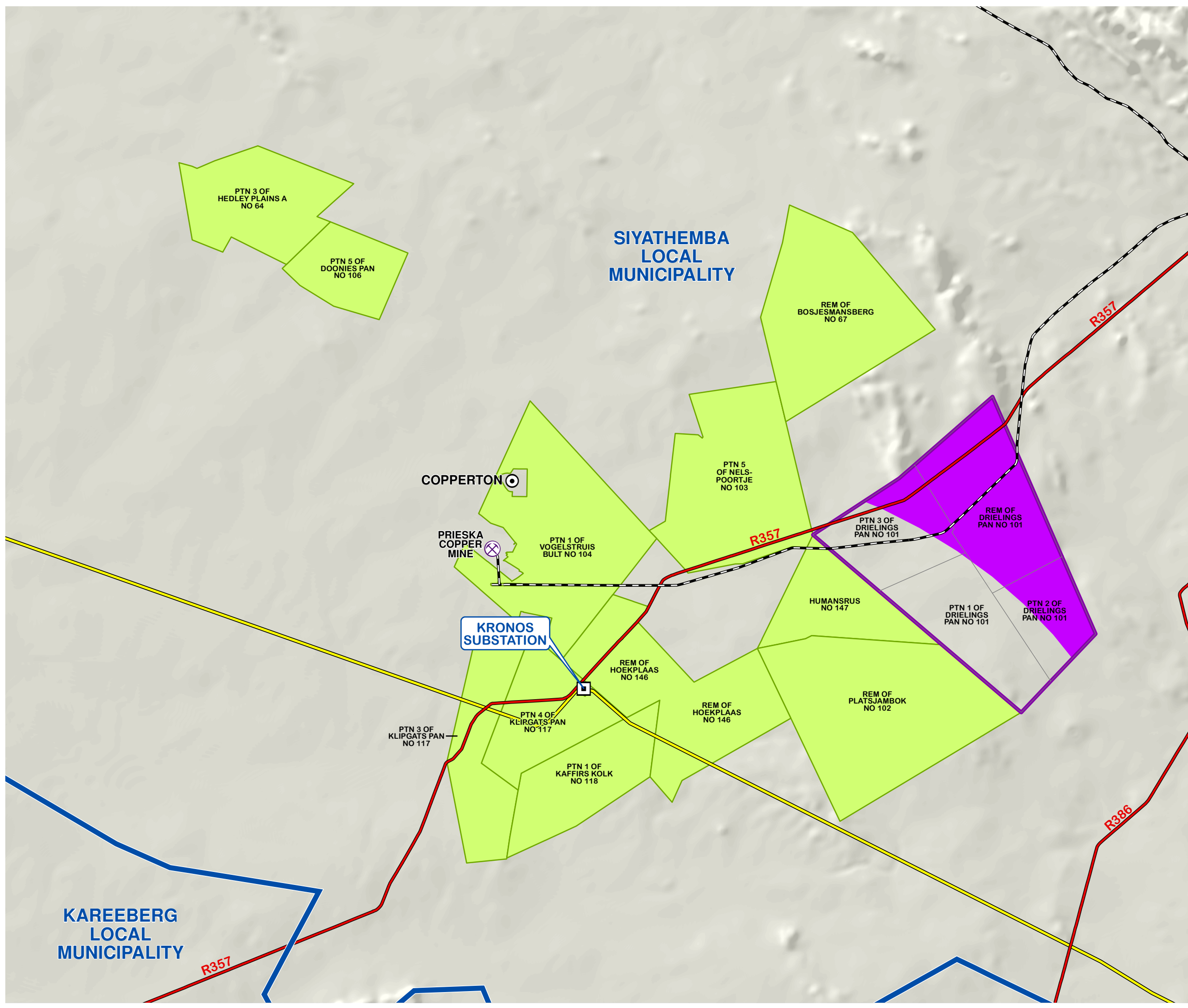
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**KAREEBERG
LOCAL
MUNICIPALITY**

**SIYATHEMBA
LOCAL
MUNICIPALITY**

COPPERTON








**KRONOS
SUBSTATION**

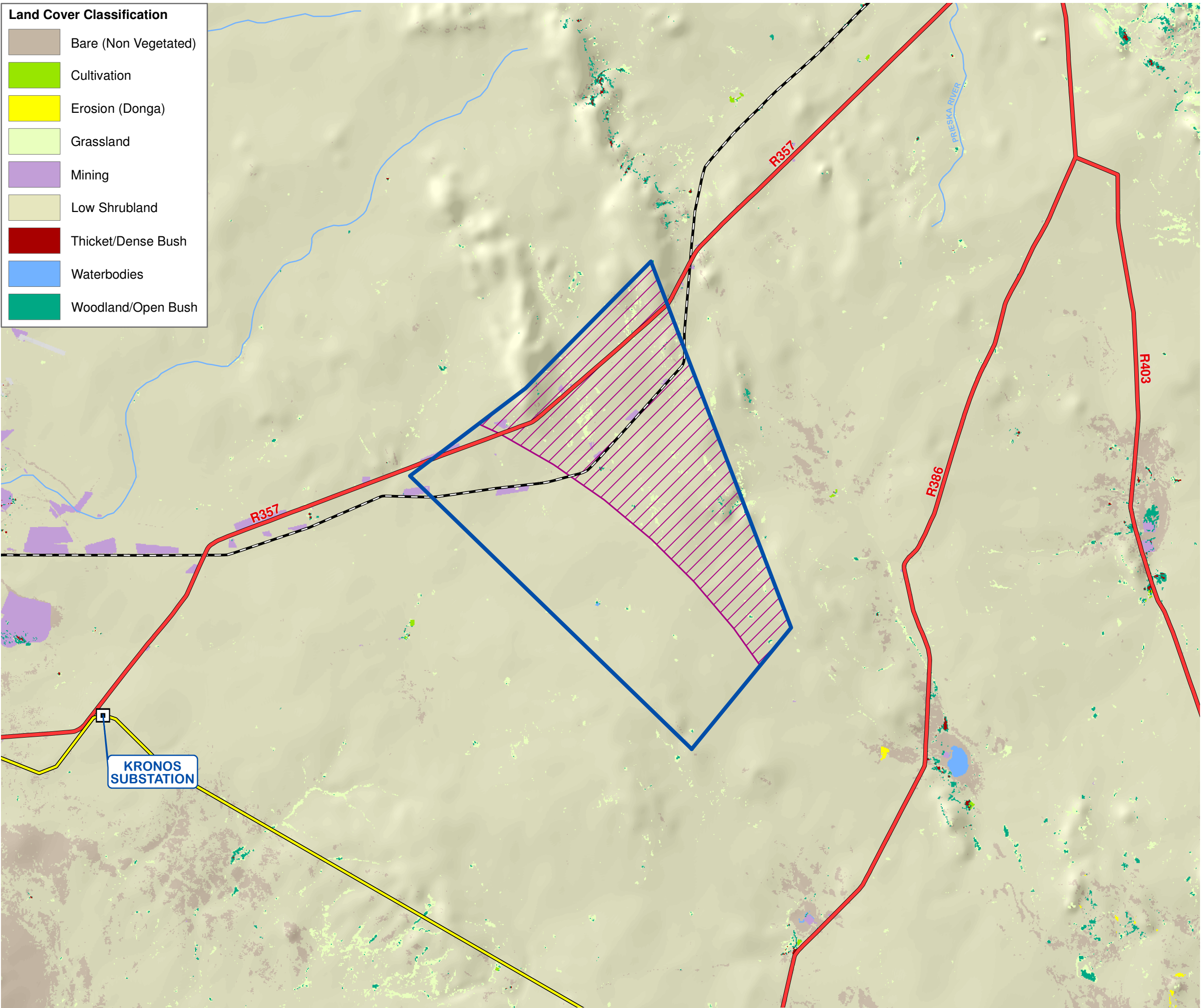
Land Cover Classification

-  Bare (Non Vegetated)
-  Cultivation
-  Erosion (Donga)
-  Grassland
-  Mining
-  Low Shrubland
-  Thicket/Dense Bush
-  Waterbodies
-  Woodland/Open Bush

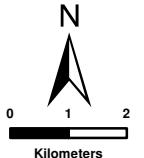
**PROPOSED
CONSTRUCTION OF A
140MW WIND ENERGY
FACILITY
ALETTA WIND
NEAR COPPERTON
NORTHERN CAPE PROVINCE
BROAD LAND COVER
CLASSIFICATION**

Legend

-  Main Roads
-  Railway Line
-  Existing High Voltage Power Lines (400kV)
-  Main Rivers/Water Courses
-  Existing Substation
-  Application Site
-  Proposed Aletta Wind Development Area



SOURCE:
ESKOM, 2012
BIOTHERM ENERGY, 2015
2013-2014 SA NATIONAL LAND COVER
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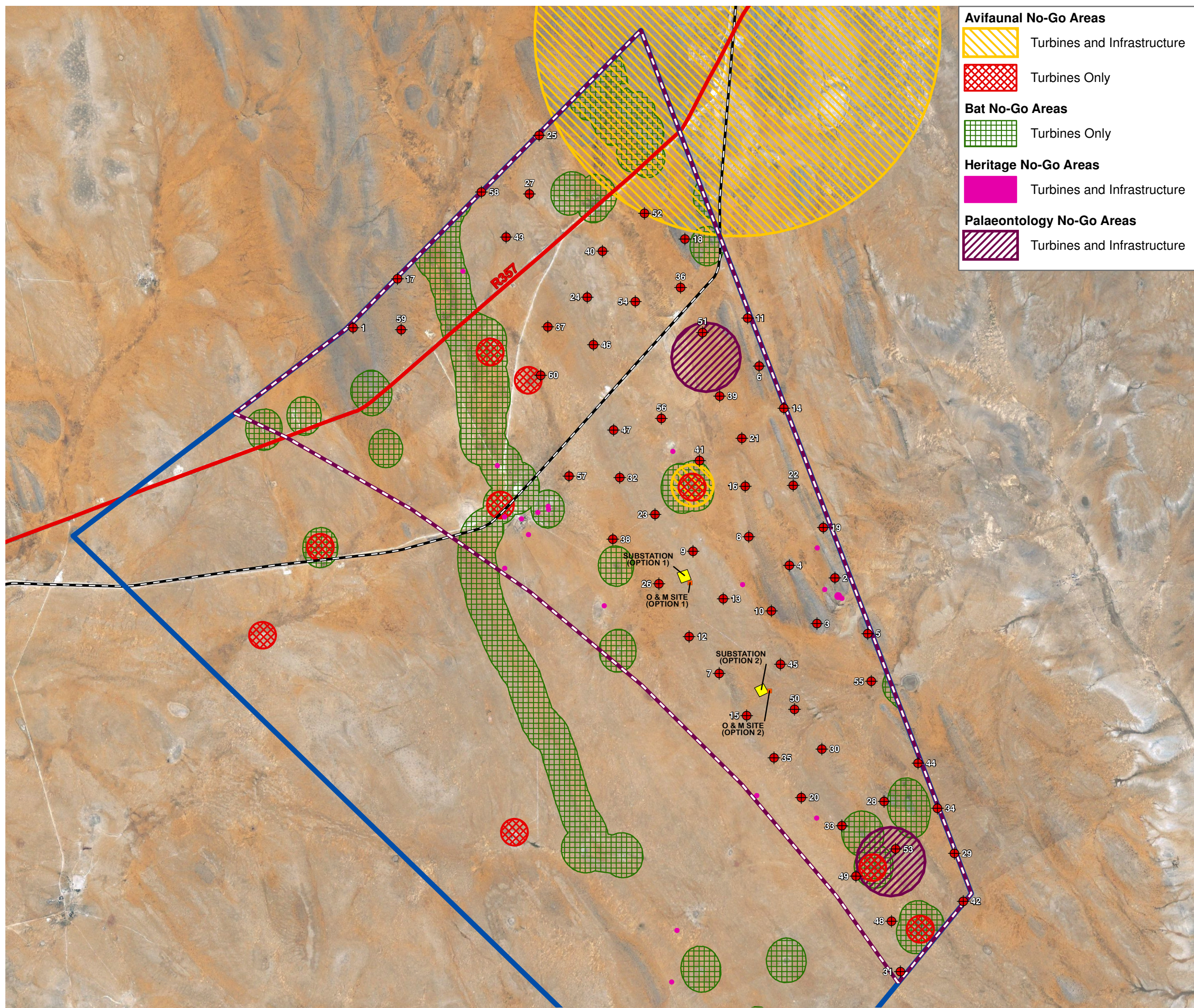
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PROPOSED CONSTRUCTION OF A 140MW WIND ENERGY FACILITY

ALETTA WIND NEAR COPPERTON NORTHERN CAPE PROVINCE

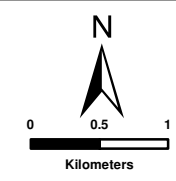
'NO-GO' AREAS



- Avifaunal No-Go Areas**
- Turbines and Infrastructure
 - Turbines Only
- Bat No-Go Areas**
- Turbines Only
- Heritage No-Go Areas**
- Turbines and Infrastructure
- Palaeontology No-Go Areas**
- Turbines and Infrastructure

- Legend**
- Main Roads
 - Railway Line
 - Application Site
 - Proposed Aletta Wind Development Area
 - Proposed Turbine Positions (60 Turbines)
 - Substation Site Alternatives
 - O&M Site Alternatives

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



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Map Ref No 13169/EA_AW11	Revision 0	Date

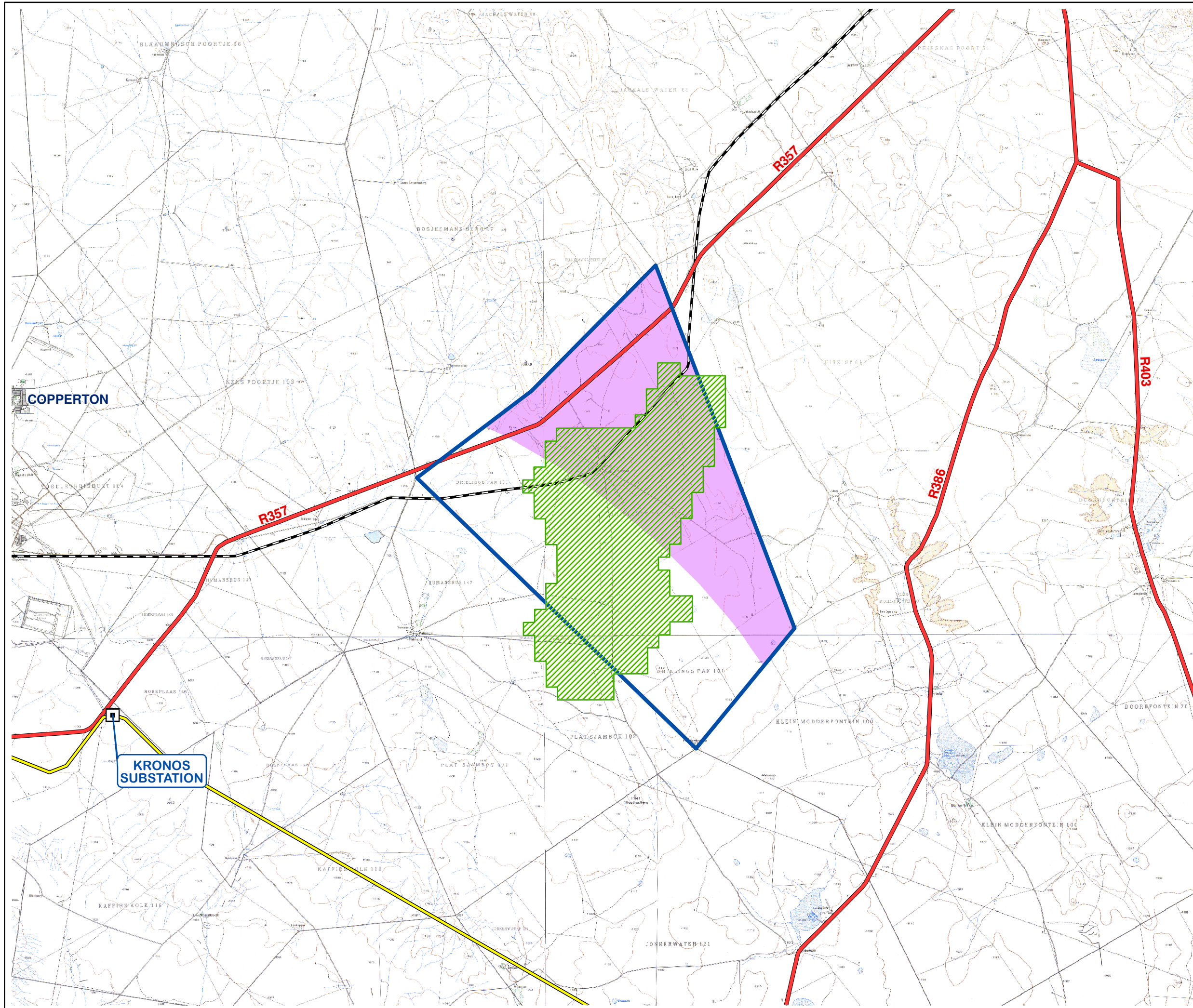
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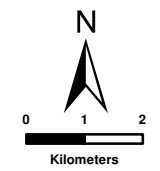
**PROPOSED
CONSTRUCTION OF A
140MW WIND ENERGY
FACILITY
ALETTA WIND
NEAR COPPERTON
NORTHERN CAPE PROVINCE
NPAES FOCUS AREAS**

Legend

-  Main Roads
-  Railway Line
-  Existing High Voltage Power Lines (400kV)
-  Existing Substation
-  Application Site
-  Proposed Aletta Wind Development Area
-  Focus Areas For Protected Area Expansion



SOURCE:
ESKOM, 2012
BIOTHERM ENERGY, 2015
SANPARKS/SANBI, 2010



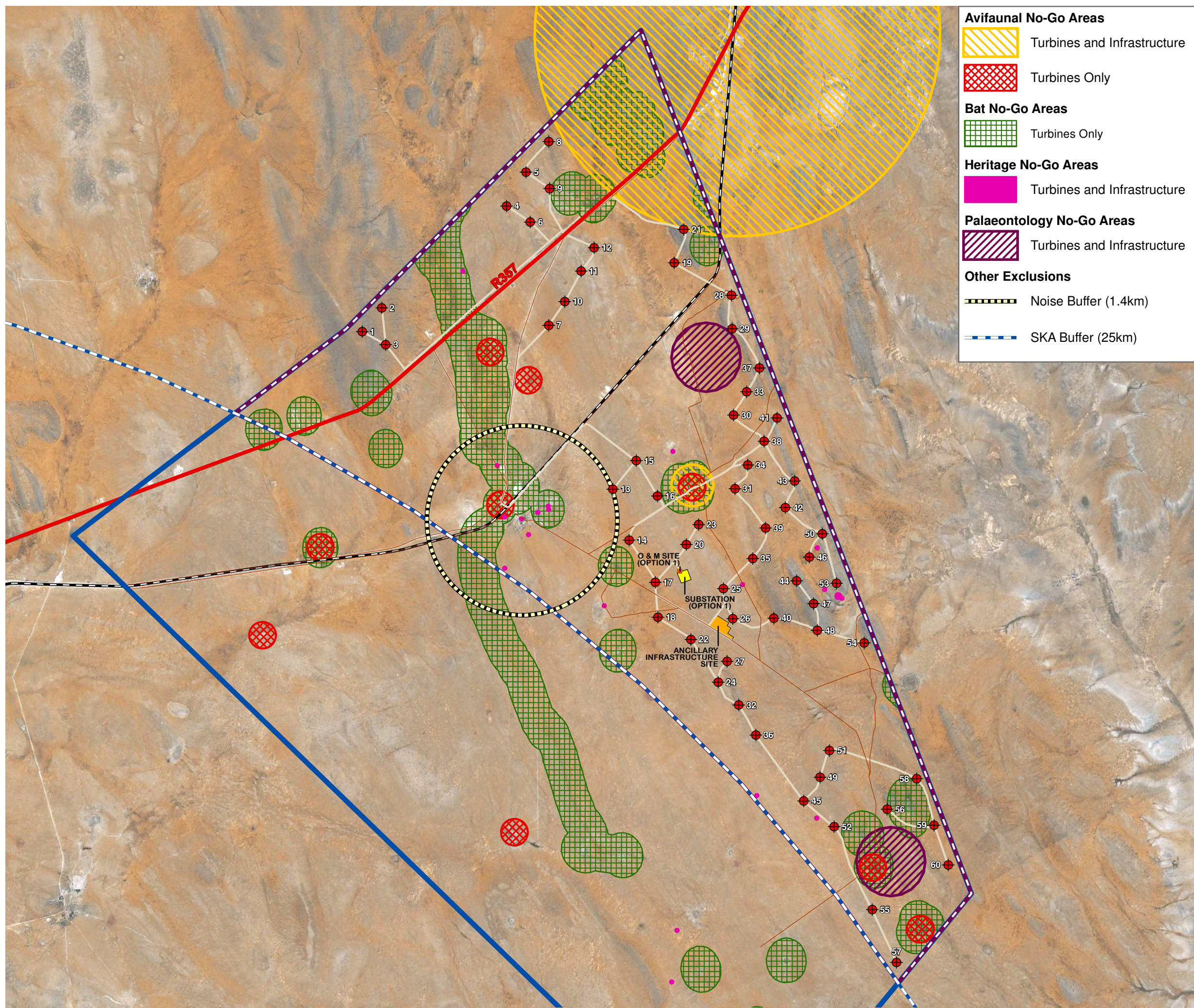
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**PROPOSED
CONSTRUCTION OF A
140MW WIND ENERGY
FACILITY
ALETTA WIND
NEAR COPPERTON
NORTHERN CAPE PROVINCE
'NO-GO AREAS'
(PREFERRED LAYOUT)**



Avifaunal No-Go Areas

- Turbines and Infrastructure
- Turbines Only

Bat No-Go Areas

- Turbines Only

Heritage No-Go Areas

- Turbines and Infrastructure

Palaeontology No-Go Areas

- Turbines and Infrastructure

Other Exclusions

- Noise Buffer (1.4km)
- SKA Buffer (25km)

Legend

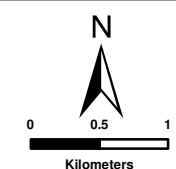
- Main Roads
- Railway Line
- Application Site
- Proposed Aletta Wind Development Area

Site Components

- Preferred Turbine Positions (60 Turbines)
- Preferred Substation Site
- Preferred O&M Site
- Ancillary Infrastructure Site*
- Existing Site Roads/Tracks
- Proposed Internal Access Roads

*Site to accommodate:
Batching Plant
Concrete Tower Laydown
Construction Camp
Laydown Staging Area

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



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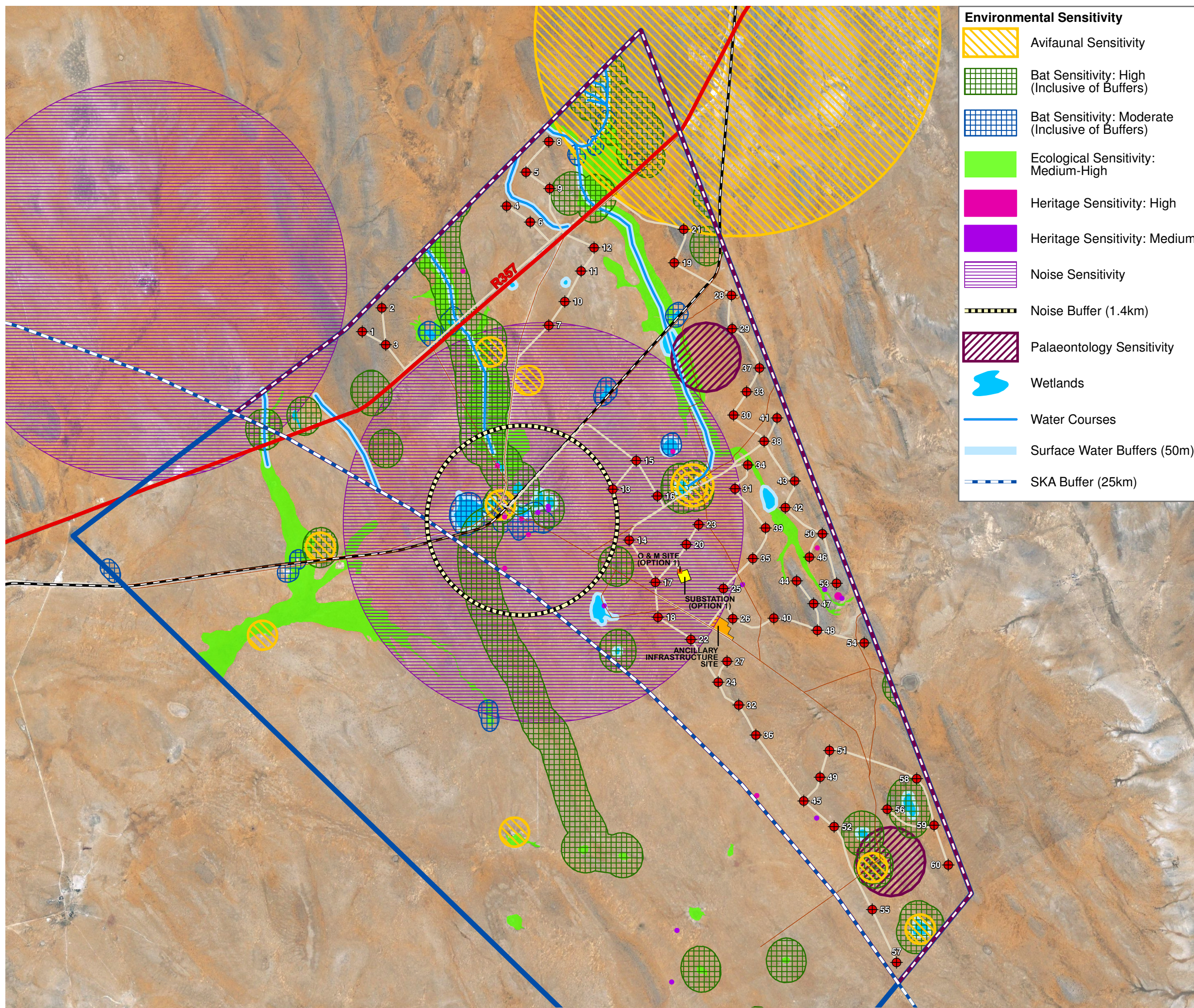
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PROPOSED CONSTRUCTION OF A 140MW WIND ENERGY FACILITY ALETTA WIND NEAR COPPERTON NORTHERN CAPE PROVINCE ENVIRONMENTAL SENSITIVITY (PREFERRED LAYOUT)



Environmental Sensitivity

- Avifaunal Sensitivity
- Bat Sensitivity: High (Inclusive of Buffers)
- Bat Sensitivity: Moderate (Inclusive of Buffers)
- Ecological Sensitivity: Medium-High
- Heritage Sensitivity: High
- Heritage Sensitivity: Medium
- Noise Sensitivity
- Noise Buffer (1.4km)
- Palaeontology Sensitivity
- Wetlands
- Water Courses
- Surface Water Buffers (50m)
- SKA Buffer (25km)

Legend

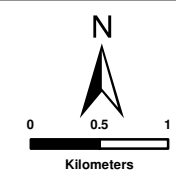
- Main Roads
- Railway Line
- Application Site
- Proposed Aletta Wind Development Area

Site Components

- Preferred Turbine Positions (60 Turbines)
- Preferred Substation Site
- Preferred O&M Site
- Ancillary Infrastructure Site*
- Existing Site Roads/Tracks
- Proposed Internal Access Roads

*Site to accommodate:
Batching Plant
Concrete Tower Laydown
Construction Camp
Laydown Staging Area

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



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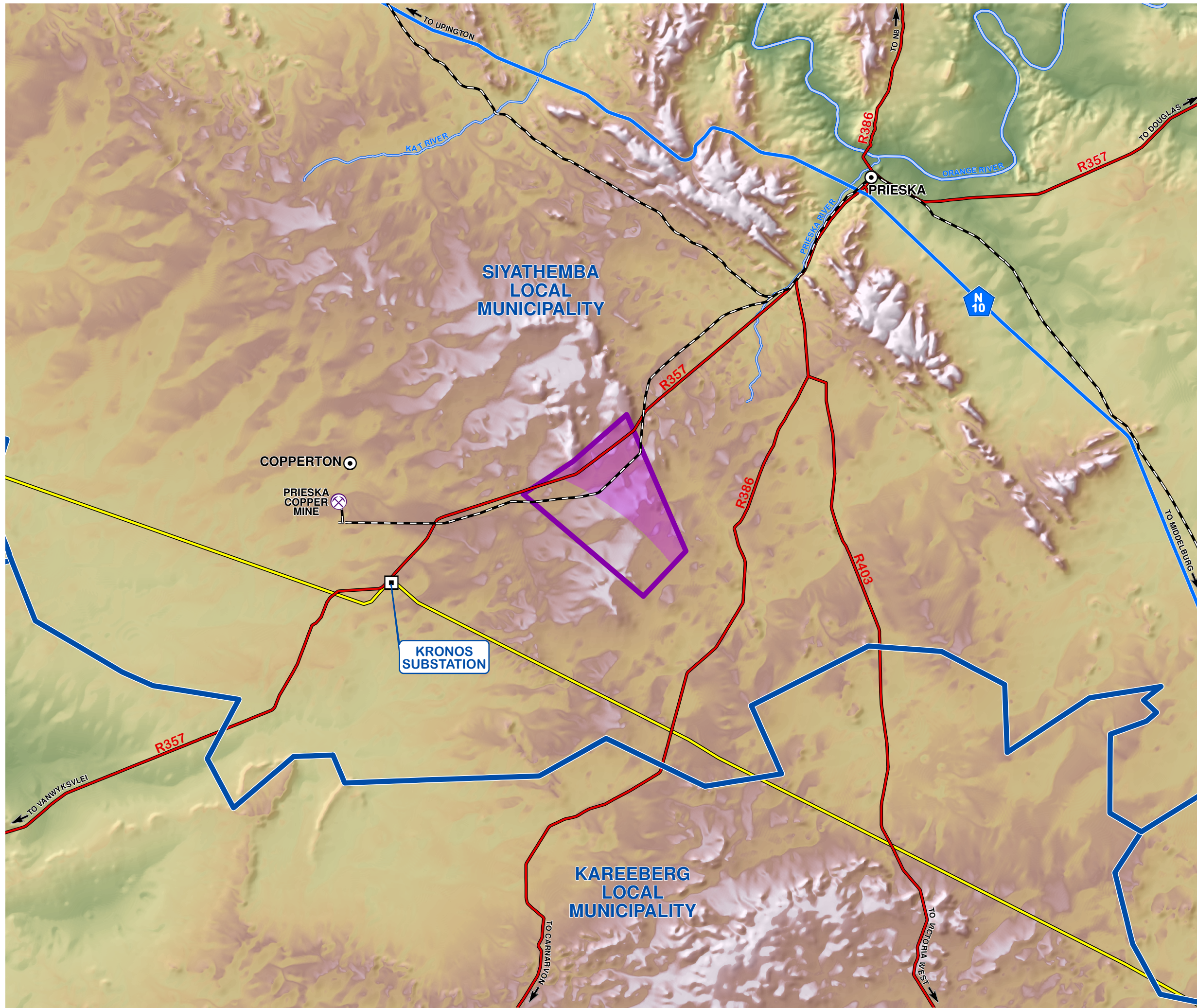
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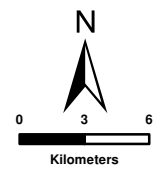
**PROPOSED
CONSTRUCTION OF A
140MW WIND ENERGY
FACILITY
ALETTA WIND
NEAR COPPERTON
NORTHERN CAPE PROVINCE
REGIONAL CONTEXT**

Legend

-  Local Municipal Boundaries
-  National Route (N10)
-  Main Roads
-  Railway Line
-  Existing High Voltage Power Lines (400kV)
-  Main Rivers
-  Main Towns
-  Kronos MTS Substation
-  Application Site
-  Proposed Aletta Wind Development Area



SOURCE:
BIOTHERM ENERGY, 2015
ESKOM, 2012
MUNICIPAL DEMARCATION BOARD, 2011
NFEPA, 2011
NGI, 2014



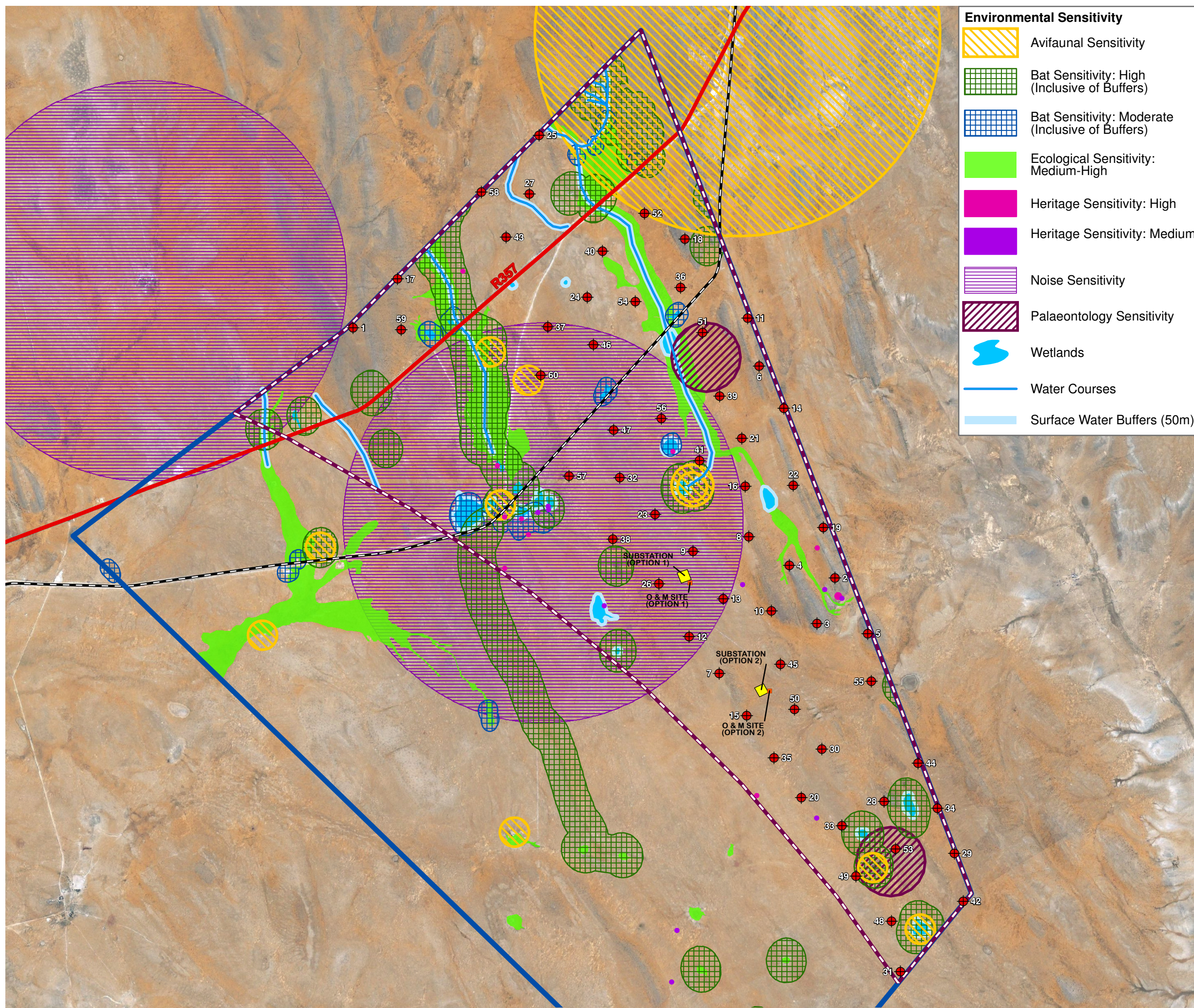
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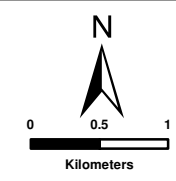
PROPOSED CONSTRUCTION OF A 140MW WIND ENERGY FACILITY ALETTA WIND NEAR COPPERTON NORTHERN CAPE PROVINCE ENVIRONMENTAL SENSITIVITY



- Environmental Sensitivity**
- Avifaunal Sensitivity
 - Bat Sensitivity: High (Inclusive of Buffers)
 - Bat Sensitivity: Moderate (Inclusive of Buffers)
 - Ecological Sensitivity: Medium-High
 - Heritage Sensitivity: High
 - Heritage Sensitivity: Medium
 - Noise Sensitivity
 - Palaeontology Sensitivity
 - Wetlands
 - Water Courses
 - Surface Water Buffers (50m)

- Legend**
- Main Roads
 - Railway Line
 - Application Site
 - Proposed Aletta Wind Development Area
 - Proposed Turbine Positions (60 Turbines)
 - Substation Site Alternatives
 - O & M Site Alternatives

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



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Map Ref No 13169/EA_AW10	Revision 0	Date

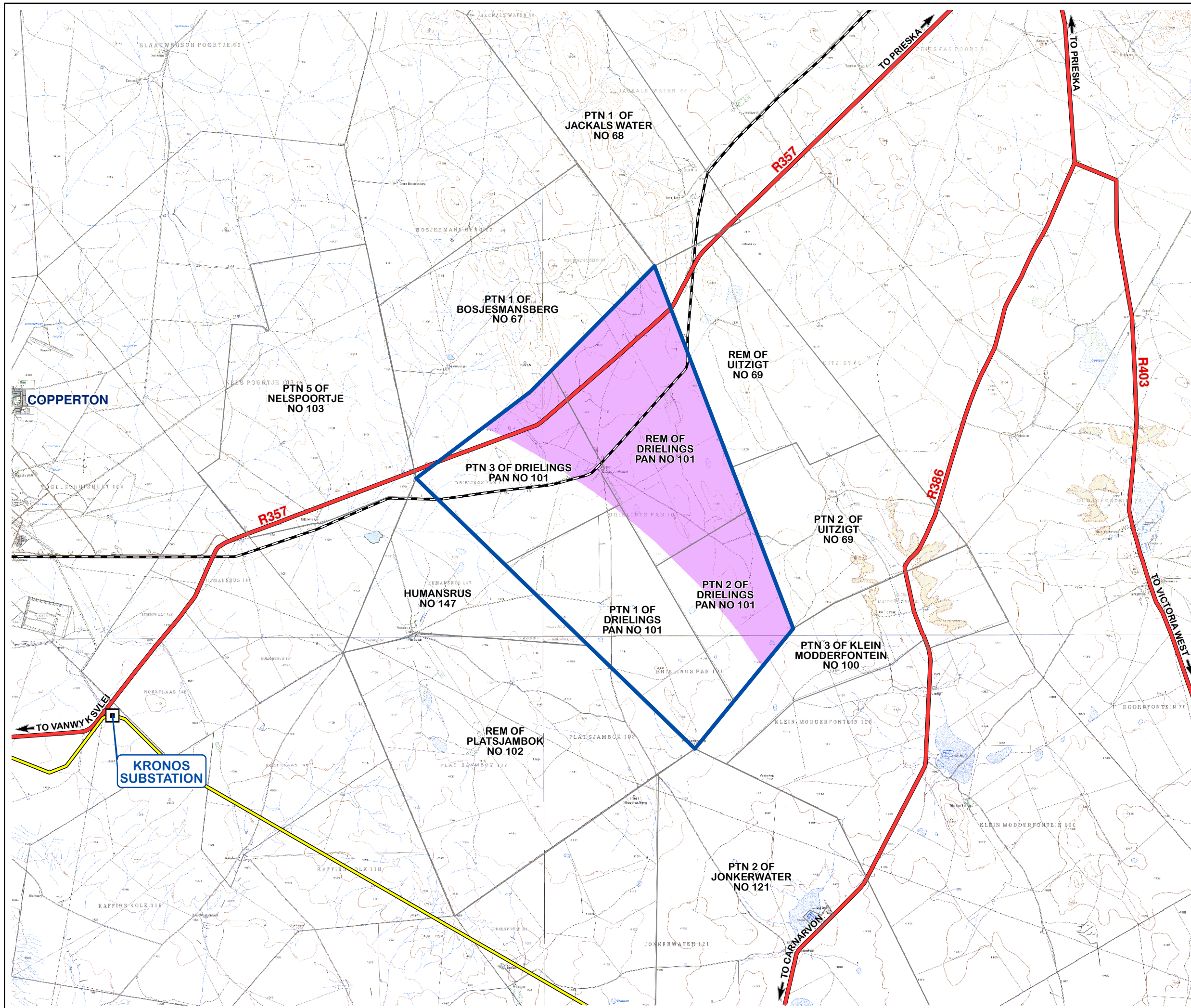
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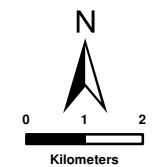
**PROPOSED
CONSTRUCTION OF A
140MW WIND ENERGY
FACILITY
ALETTA WIND
NEAR COPPERTON
NORTHERN CAPE PROVINCE
SITE LOCALITY**

Legend

-  Main Roads
-  Railway Line
-  Existing High Voltage Power Lines (400kV)
-  Existing Substation
-  Adjoining Farm Boundaries
-  Application Site
-  Proposed Aletta Wind Development Area



SOURCE:
ESKOM, 2012
BIOTHERM ENERGY, 2015

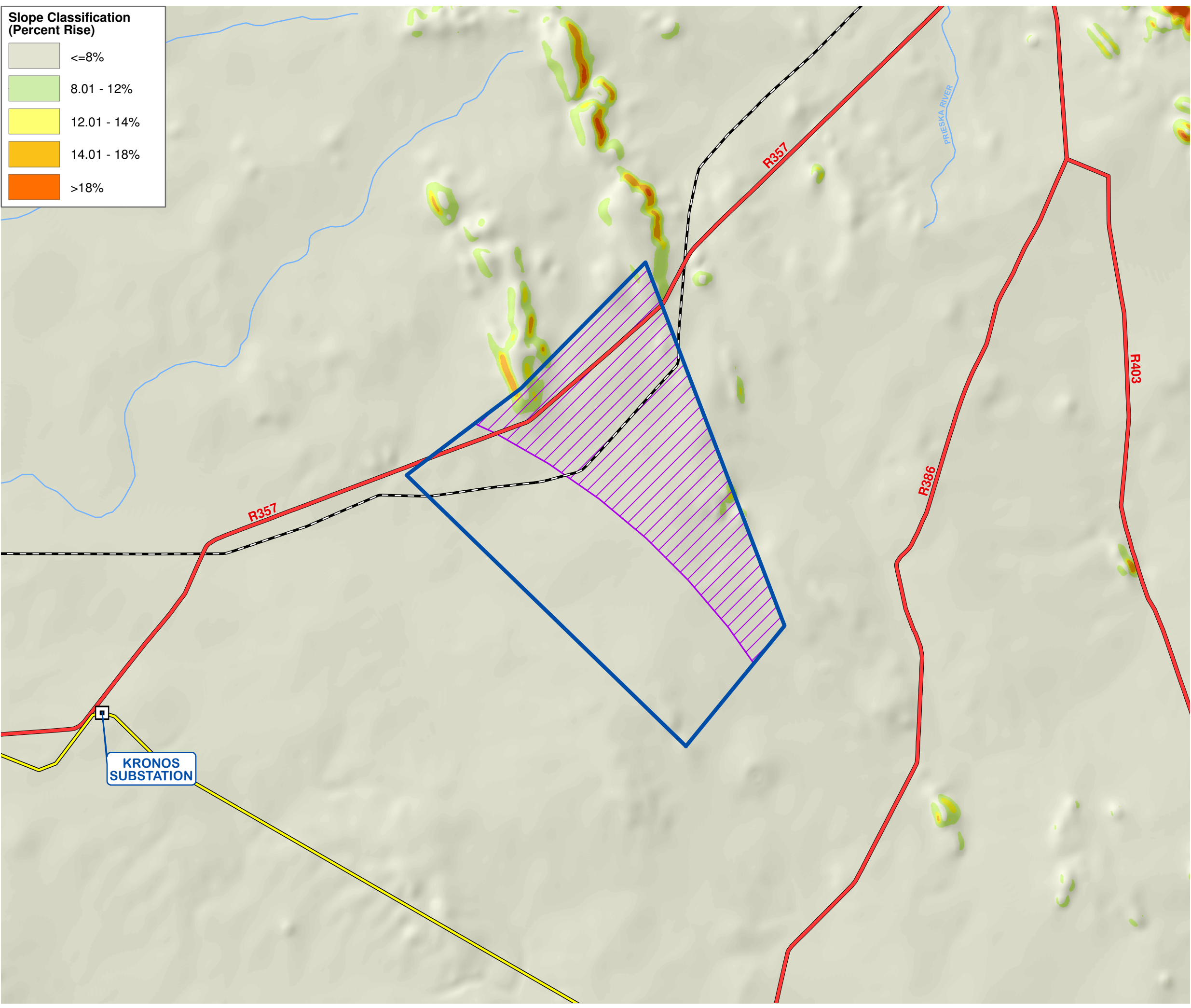
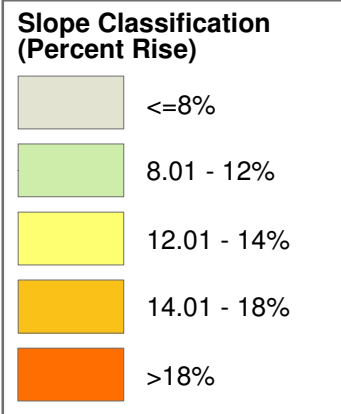


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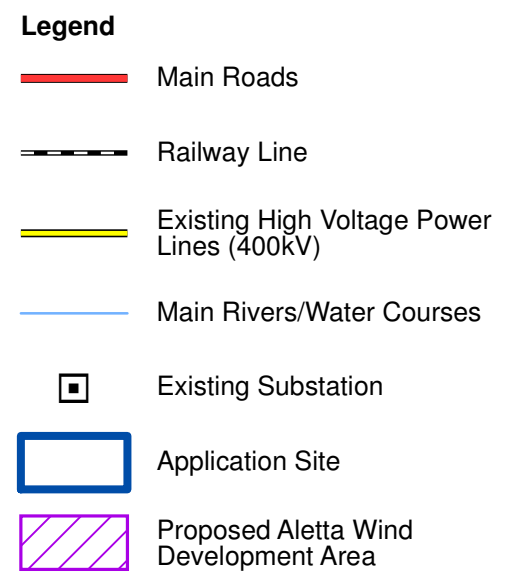
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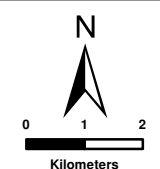
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**PROPOSED
CONSTRUCTION OF A
140MW WIND ENERGY
FACILITY
ALETTA WIND
NEAR COPPERTON
NORTHERN CAPE PROVINCE
SLOPE CLASSIFICATION**



SOURCE:
ESKOM, 2012
BIOTHERM ENERGY, 2015
NGI, 2014



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