







## **Appendix 5**

### **Maps**





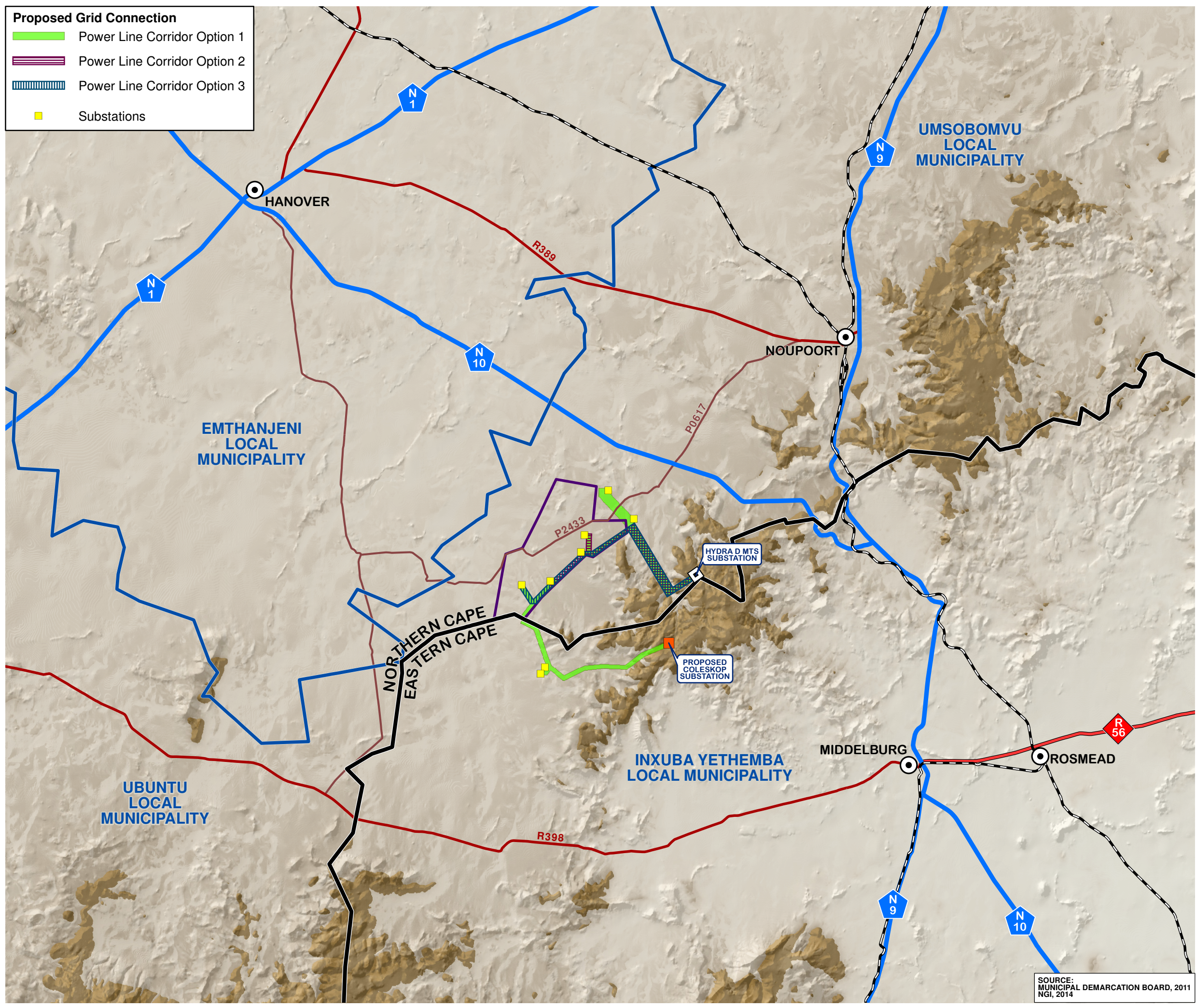
**Proposed Grid Connection**

-  Power Line Corridor Option 1
-  Power Line Corridor Option 2
-  Power Line Corridor Option 3
-  Substations












**PROPOSED  
GRID CONNECTION FOR  
WONDERHEUVEL SOLAR  
PHOTOVOLTAIC (PV)  
ENERGY FACILITY**

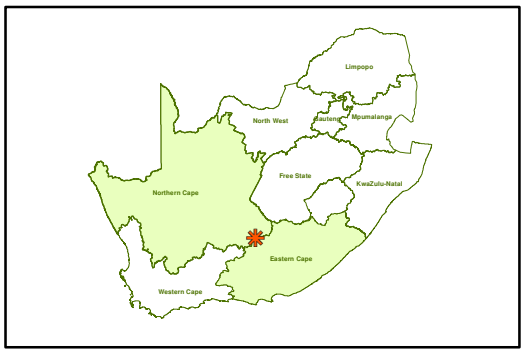
**NEAR NOUPOORT,  
NORTHERN AND EASTERN  
CAPE PROVINCES**


**REGIONAL CONTEXT**




**Legend**

-  Provincial Boundary
-  Local Municipal Boundaries
-  National Routes
-  Main Arterial Routes
-  Main Roads
-  Secondary Roads
-  Railways
-  Main Towns
-  Hydra D MTS Substation
-  Proposed Coleskop WEF Substation
-  Wonderheuvele Solar PV Application Site



  
 0 2.5 5  
 Kilometers

  
**ENVIRONMENTAL DIVISION**  
 51 WESSELS ROAD  
 RIVONIA, 2128  
 JOHANNESBURG  
 SOUTH AFRICA  
 Phone: +27 11 798 0600  
 Fax: +27 11 803 7272  
 e-mail: info@sivest.co.za

Project No 15324	Prepared By KLS	Date 20/01/2020
Map Ref No 15324/WG_01	Revision 0	Date

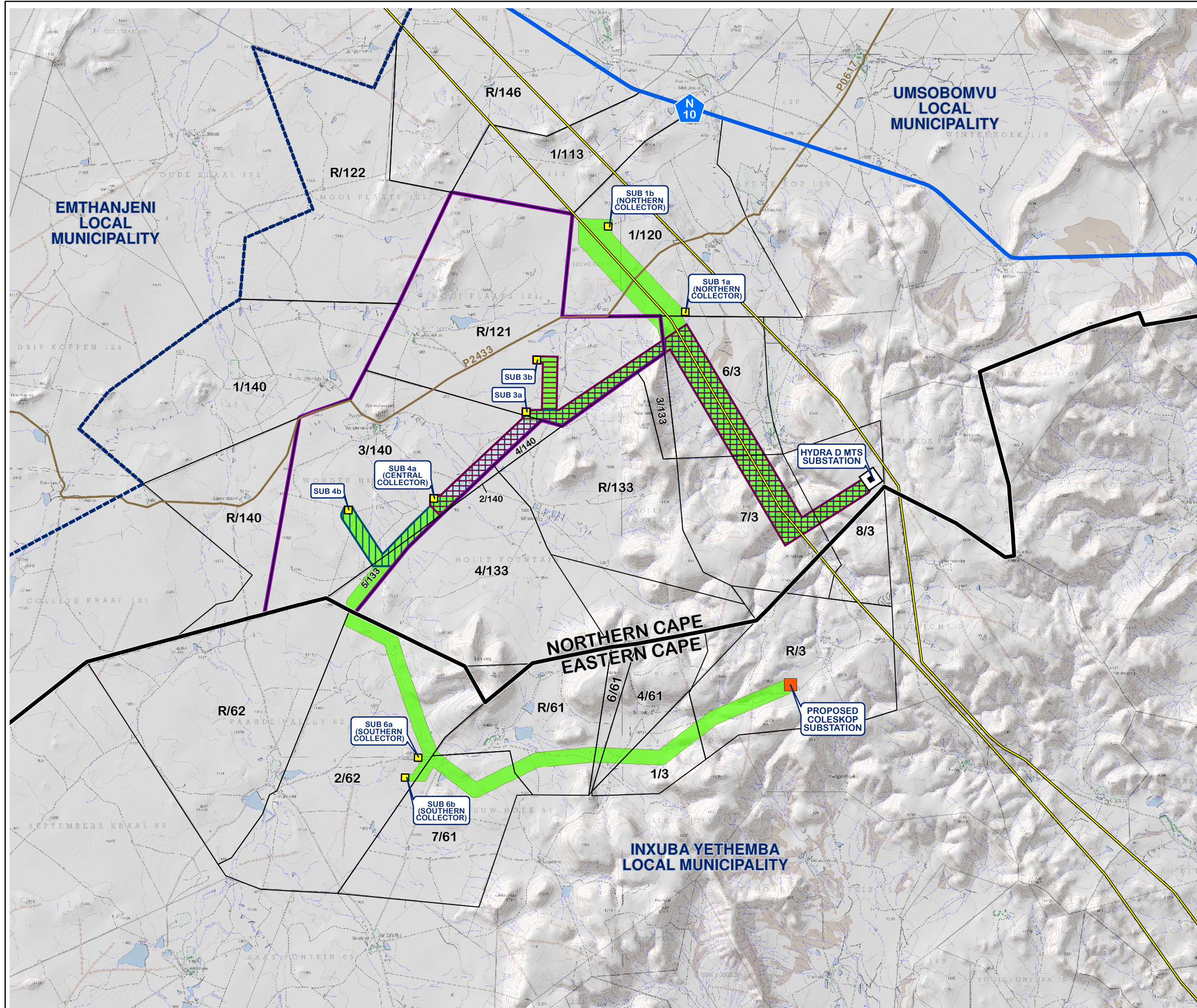
"COPYRIGHT IS VESTED IN SIVEST IN TERMS OF THE COPYRIGHT ACT (ACT 98 OF 1978) AND NO USE OR REPRODUCTION OR DUPLICATION THEREOF MAY OCCUR WITHOUT THE WRITTEN CONSENT OF THE AUTHOR"

THIS MAP HAS BEEN PREPARED UNDER THE CONTROLS ESTABLISHED BY THE SIVEST QUALITY MANAGEMENT SYSTEM WHICH HAS BEEN CERTIFIED ISO 9001:2015 COMPLIANT

SOURCE:  
MUNICIPAL DEMARCATION BOARD, 2011  
NGI, 2014



**PROPOSED  
GRID CONNECTION FOR  
WONDERHEUVEL SOLAR  
PHOTOVOLTAIC (PV)  
ENERGY FACILITY**  
NEAR NOUPOORT,  
NORTHERN AND EASTERN  
CAPE PROVINCES  
ROUTE ALIGNMENT



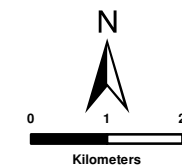
**Legend**

- Provincial Boundary
- Local Municipal Boundaries
- National Route (N10)
- Secondary Roads
- Existing High Voltage Power Lines (400kV)
- Farm Portions
- Wonderheuvel Solar PV Application Site
- Hydra D MTS Substation
- Proposed Coleskop WEF Substation
- Power Line Corridor Option 1
- Power Line Corridor Option 2
- Power Line Corridor Option 3
- Substations

**Proposed Grid Connection**

- Power Line Corridor Option 1
- Power Line Corridor Option 2
- Power Line Corridor Option 3
- Substations

SOURCE:  
ESKOM, 2012  
MUNICIPAL DEMARCATION BOARD, 2016  
NGI, 2014



**ENVIRONMENTAL DIVISION**  
51 WESSELS ROAD  
RIVONIA, 2128  
JOHANNESBURG  
SOUTH AFRICA  
Phone: +27 11 798 0600  
Fax: +27 11 803 7272  
e-mail: info@sivest.co.za

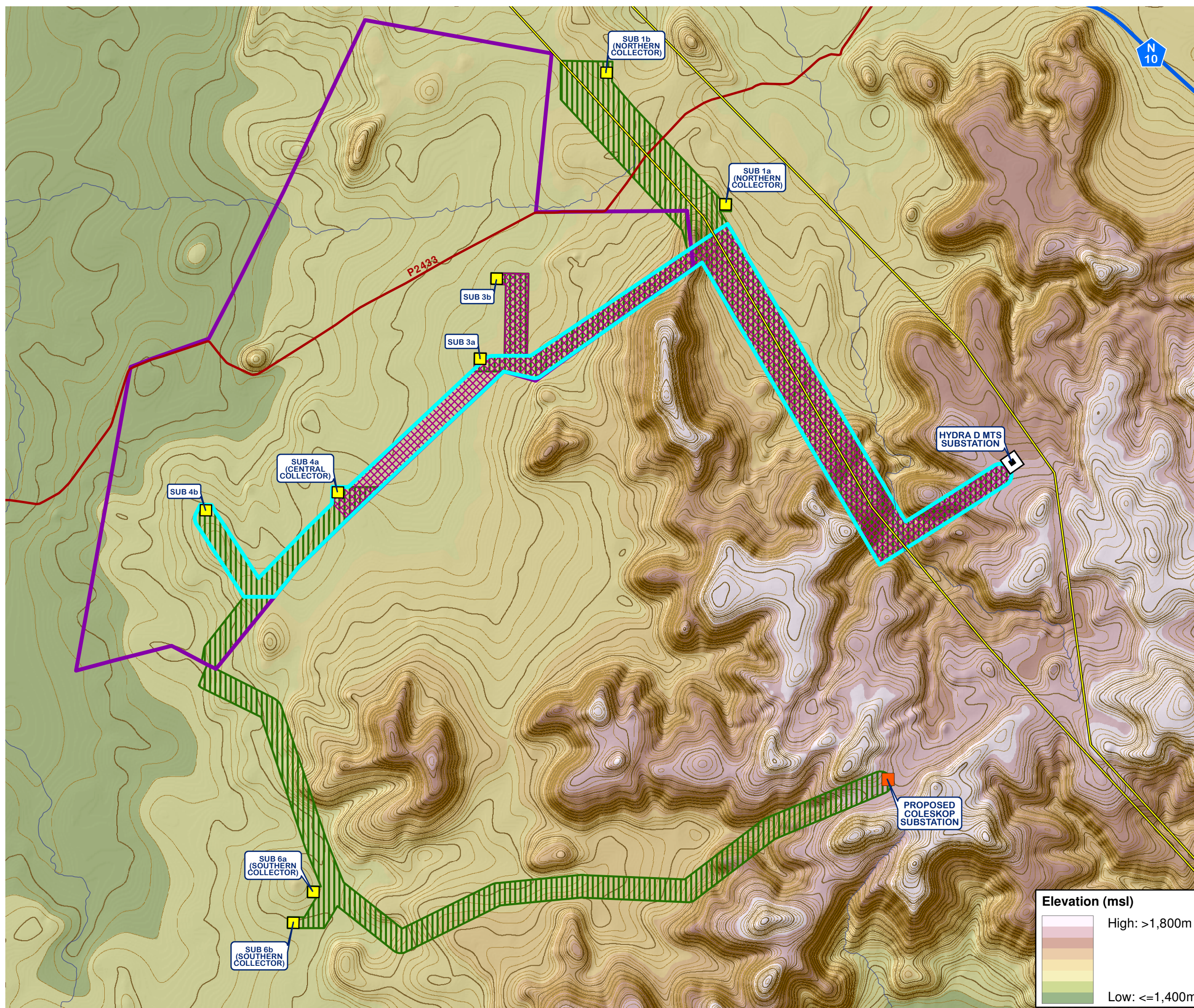
Project No 15324	Prepared By KLS	Date 20/01/2020
Map Ref No 15324/WG_02	Revision 0	Date

"COPYRIGHT IS VESTED IN SIVEST IN TERMS OF THE COPYRIGHT ACT (ACT 98 OF 1978) AND NO USE OR REPRODUCTION OR DUPLICATION THEREOF MAY OCCUR WITHOUT THE WRITTEN CONSENT OF THE AUTHOR"














THIS MAP HAS BEEN PREPARED UNDER THE CONTROLS ESTABLISHED BY THE SIVEST QUALITY MANAGEMENT SYSTEM WHICH HAS BEEN CERTIFIED ISO 9001:2015 COMPLIANT



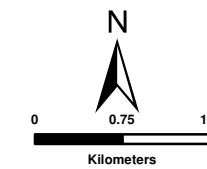
**PROPOSED  
GRID CONNECTION FOR  
WONDERHEUVEL SOLAR  
PHOTOVOLTAIC (PV)  
ENERGY FACILITY**  
NEAR NOUPOORT,  
NORTHERN AND EASTERN  
CAPE PROVINCES  
TOPOGRAPHY



**Legend**

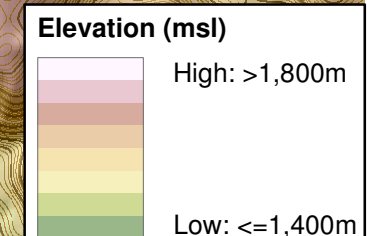
-  National Route (N10)
-  Secondary Roads
-  Existing High Voltage Power Lines (400kV)
-  Rivers
-  Contours (20m Interval)
-  Contours (5m Interval)
-  Wonderheuvel Solar PV Application Site
-  Hydra D MTS Substation
-  Proposed Coleskop WEF Substation
- Proposed Grid Connection**
-  Power Line Corridor Option 1
-  Power Line Corridor Option 2
-  Power Line Corridor Option 3
-  Substations

SOURCE:  
ESKOM, 2012  
NGI, 2014



**ENVIRONMENTAL DIVISION**  
51 WESSELS ROAD  
RIVONIA, 2128  
JOHANNESBURG  
SOUTH AFRICA

Phone: +27 11 798 0600  
Fax: +27 11 803 7272  
e-mail: info@sivest.co.za



Project No 15324	Prepared By KLS	Date 20/01/2020
---------------------	--------------------	--------------------

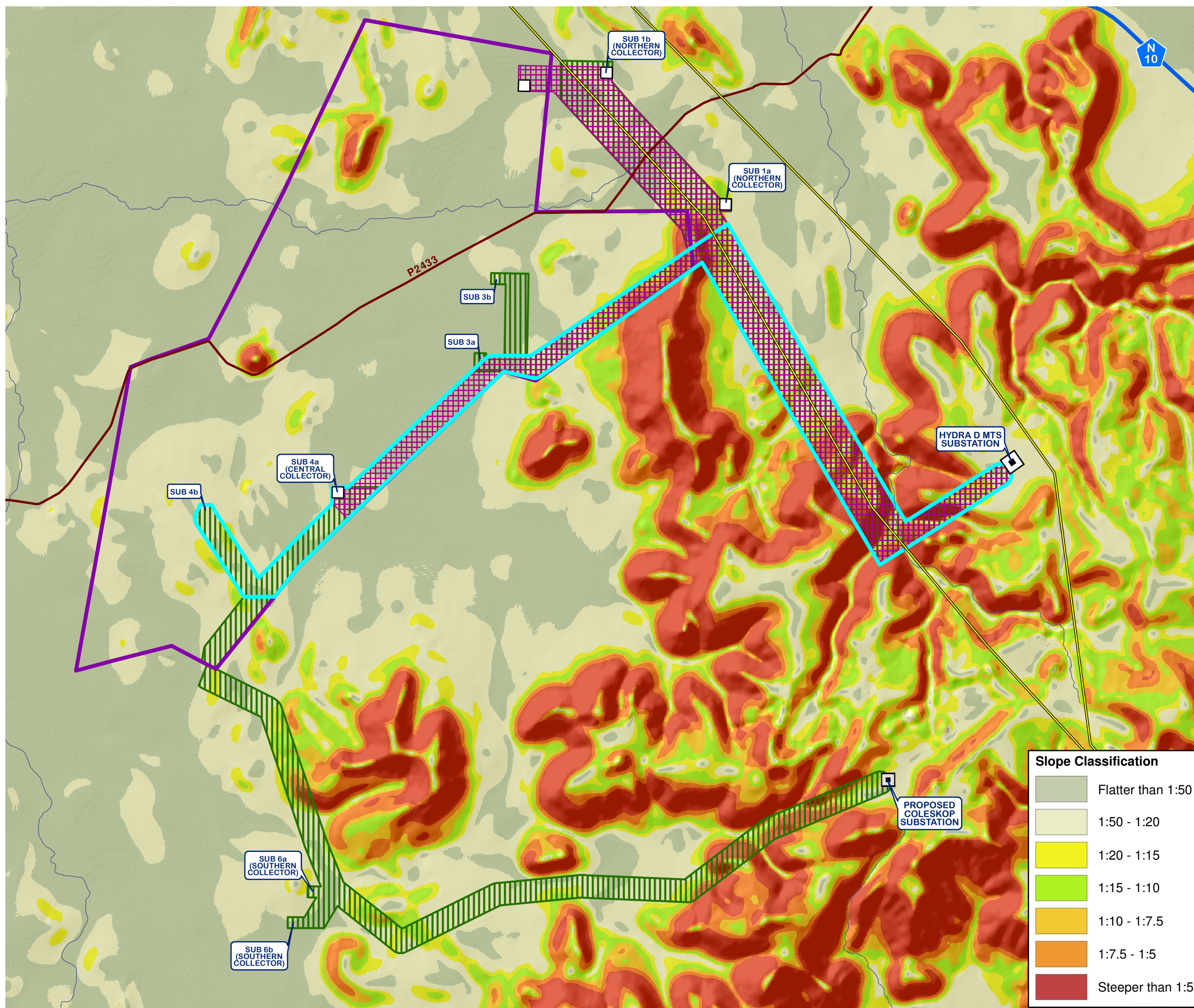
Map Ref No 15324/WG_03	Revision 0	Date
---------------------------	---------------	------

"COPYRIGHT IS VESTED IN SIVEST IN TERMS OF THE COPYRIGHT ACT (ACT 98 OF 1978) AND NO USE OR REPRODUCTION OR DUPLICATION THEREOF MAY OCCUR WITHOUT THE WRITTEN CONSENT OF THE AUTHOR"


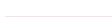









THIS MAP HAS BEEN PREPARED UNDER THE CONTROLS ESTABLISHED BY THE SIVEST QUALITY MANAGEMENT SYSTEM WHICH HAS BEEN CERTIFIED ISO 9001:2015 COMPLIANT



**PROPOSED  
GRID CONNECTION FOR  
WONDERHEUVEL SOLAR  
PHOTOVOLTAIC (PV)  
ENERGY FACILITY  
NEAR NOUPOORT,  
NORTHERN AND EASTERN  
CAPE PROVINCES  
SLOPE CLASSIFICATION**



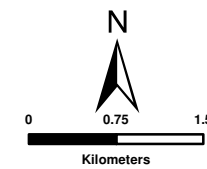
**Legend**

-  National Route (N10)
-  Secondary Roads
-  Existing High Voltage Power Lines (400kV)
-  Rivers
-  Wonderheuvel Solar PV Application Site
-  Hydra D MTS Substation
-  Proposed Coleskop WEF Substation
- Proposed Grid Connection**
-  Power Line Corridor Option 1
-  Power Line Corridor Option 2
-  Power Line Corridor Option 3
-  Substations

**Slope Classification**

-  Flatter than 1:50
-  1:50 - 1:20
-  1:20 - 1:15
-  1:15 - 1:10
-  1:10 - 1:7.5
-  1:7.5 - 1:5
-  Steeper than 1:5

SOURCE:  
ESKOM, 2012  
NGI, 2014



**ENVIRONMENTAL DIVISION**  
51 WESSELS ROAD  
RIVONIA, 2128  
JOHANNESBURG  
SOUTH AFRICA

Phone: +27 11 798 0600  
Fax: +27 11 803 7272  
e-mail: info@sivest.co.za

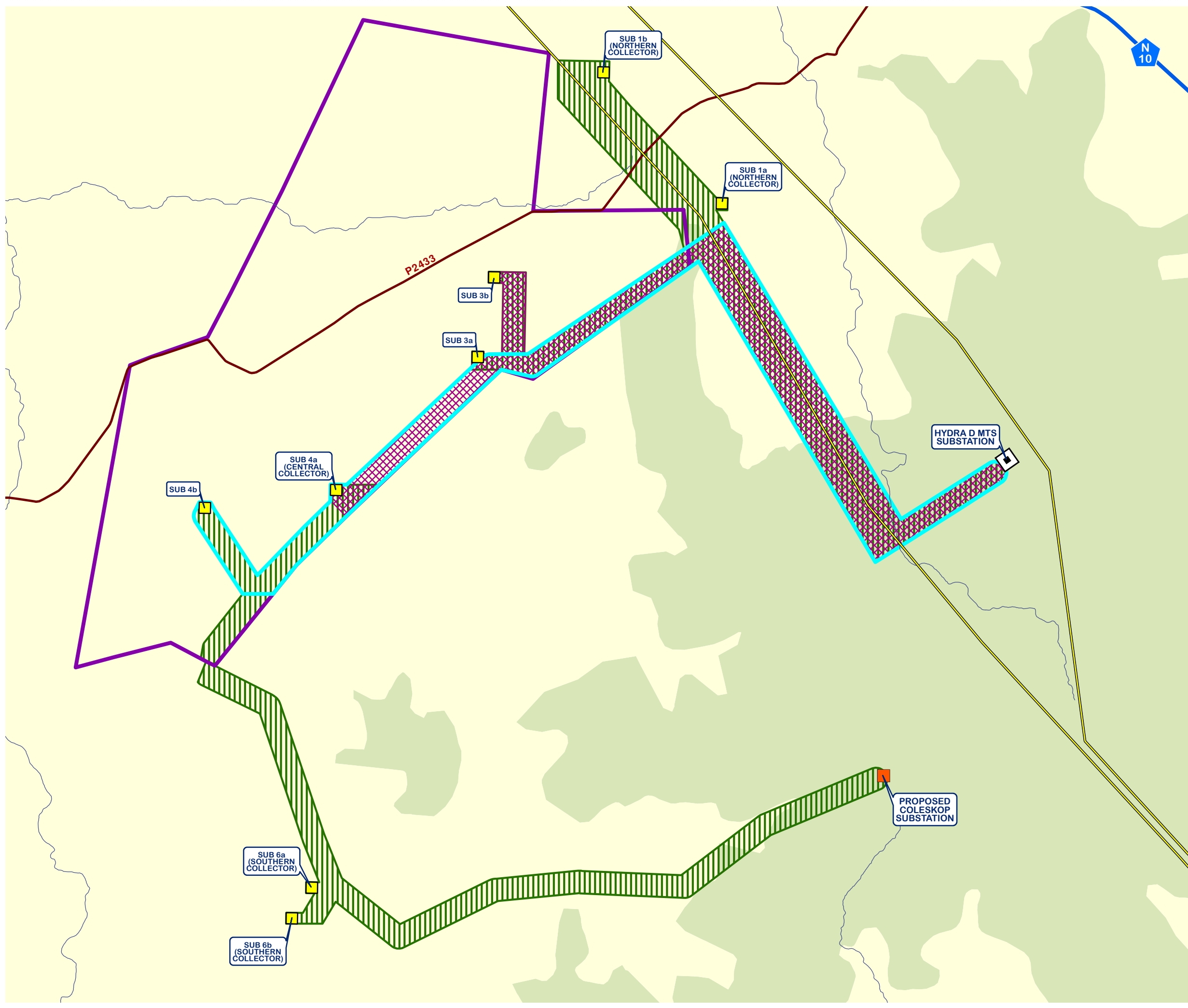
<b>Project No</b> 15324	<b>Prepared By</b> KLS	<b>Date</b> 20/01/2020
<b>Map Ref No</b> 15324/WG_04	<b>Revision</b> 0	<b>Date</b>

"COPYRIGHT IS VESTED IN SIVEST IN TERMS OF THE COPYRIGHT ACT (ACT 98 OF 1978) AND NO USE OR REPRODUCTION OR DUPLICATION THEREOF MAY OCCUR WITHOUT THE WRITTEN CONSENT OF THE AUTHOR"














THIS MAP HAS BEEN PREPARED UNDER THE CONTROLS ESTABLISHED BY THE SIVEST QUALITY MANAGEMENT SYSTEM WHICH HAS BEEN CERTIFIED ISO 9001:2015 COMPLIANT



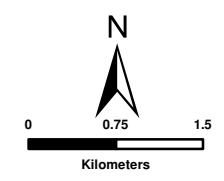
**PROPOSED  
GRID CONNECTION FOR  
WONDERHEUVEL SOLAR  
PHOTOVOLTAIC (PV)  
ENERGY FACILITY**  
**NEAR NOUPOORT,  
NORTHERN AND EASTERN  
CAPE PROVINCES**  
**VEGETATION CLASSIFICATION**



**Legend**

-  National Route (N10)
-  Secondary Roads
-  Existing High Voltage Power Lines (400kV)
-  Rivers
-  Wonderheuvel Solar PV Application Site
-  Hydra D MTS Substation
-  Proposed Coleskop WEF Substation
- Proposed Grid Connection**
-  Power Line Corridor Option 1
-  Power Line Corridor Option 2
-  Power Line Corridor Option 3
-  Substations
- Vegetation Classification**
-  Besemkaree Koppies Shrubland
-  Eastern Upper Karoo

SOURCE:  
ESKOM, 2012  
NGI, 2014  
SANBI, 2012



**SIVEST**  
ENVIRONMENTAL DIVISION  
51 WESSELS ROAD  
RIVONIA, 2128  
JOHANNESBURG  
SOUTH AFRICA  
Phone: +27 11 798 0600  
Fax: +27 11 803 7272  
e-mail: info@sivest.co.za

<b>Project No</b> 15324	<b>Prepared By</b> KLS	<b>Date</b> 20/01/2020
<b>Map Ref No</b> 15324/WG_05	<b>Revision</b> 0	<b>Date</b> 

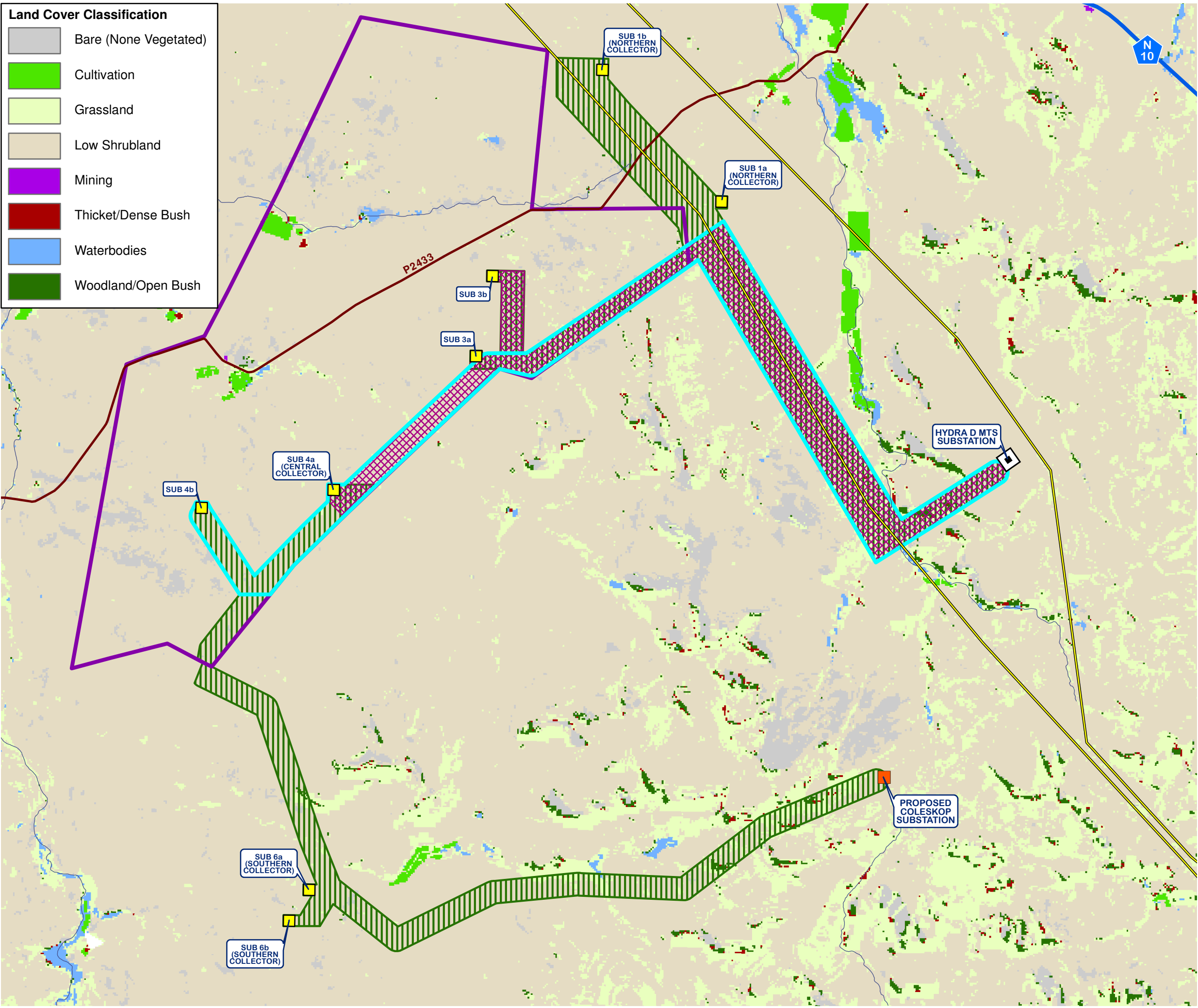
"COPYRIGHT IS VESTED IN SIVEST IN TERMS OF THE COPYRIGHT ACT (ACT 98 OF 1978) AND NO USE OR REPRODUCTION OR DUPLICATION THEREOF MAY OCCUR WITHOUT THE WRITTEN CONSENT OF THE AUTHOR"

THIS MAP HAS BEEN PREPARED UNDER THE CONTROLS ESTABLISHED BY THE SIVEST QUALITY MANAGEMENT SYSTEM WHICH HAS BEEN CERTIFIED ISO 9001:2015 COMPLIANT










**Land Cover Classification**

-  Bare (None Vegetated)
-  Cultivation
-  Grassland
-  Low Shrubland
-  Mining
-  Thicket/Dense Bush
-  Waterbodies
-  Woodland/Open Bush







**PROPOSED  
GRID CONNECTION FOR  
WONDERHEUVEL SOLAR  
PHOTOVOLTAIC (PV)  
ENERGY FACILITY**  
NEAR NOUPOORT,  
NORTHERN AND EASTERN  
CAPE PROVINCES  
**BROAD LAND COVER  
CLASSIFICATION**

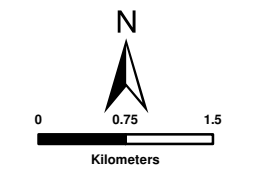
**Legend**

-  National Route (N10)
-  Secondary Roads
-  Existing High Voltage Power Lines (400kV)
-  Rivers
-  Wonderheuveld Solar PV Application Site
-  Hydra D MTS Substation
-  Proposed Coleskop WEF Substation

**Proposed Grid Connection**

-  Power Line Corridor Option 1
-  Power Line Corridor Option 2
-  Power Line Corridor Option 3
-  Substations

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



**SIVEST**  
ENVIRONMENTAL DIVISION  
51 WESSELS ROAD  
RIVONIA, 2128  
JOHANNESBURG  
SOUTH AFRICA  
Phone: +27 11 798 0600  
Fax: +27 11 803 7272  
e-mail: info@sivest.co.za

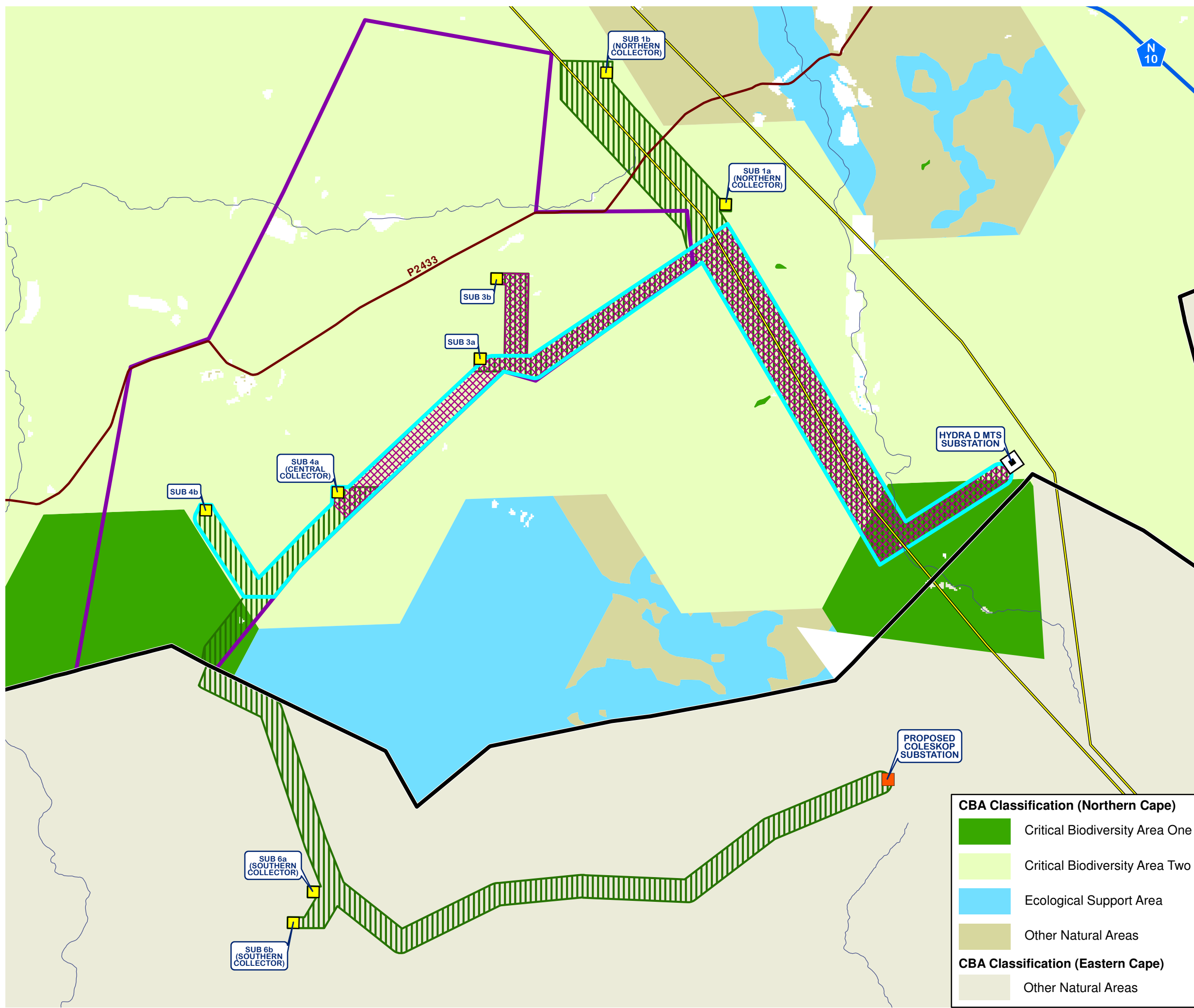
Project No 15324	Prepared By KLS	Date 20/01/2020
Map Ref No 15324/WG_06	Revision 0	Date

"COPYRIGHT IS VESTED IN SIVEST IN TERMS OF THE COPYRIGHT ACT (ACT 98 OF 1978) AND NO USE OR REPRODUCTION OR DUPLICATION THEREOF MAY OCCUR WITHOUT THE WRITTEN CONSENT OF THE AUTHOR"

THIS MAP HAS BEEN PREPARED UNDER THE CONTROLS ESTABLISHED BY THE SIVEST QUALITY MANAGEMENT SYSTEM WHICH HAS BEEN CERTIFIED ISO 9001:2015 COMPLIANT



**PROPOSED  
GRID CONNECTION FOR  
WONDERHEUVEL SOLAR  
PHOTOVOLTAIC (PV)  
ENERGY FACILITY**  
**NEAR NOUPOORT,  
NORTHERN AND EASTERN  
CAPE PROVINCES**  
**CRITICAL BIODIVERSITY AREAS**

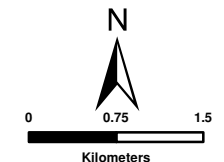


**Legend**

- Provincial Boundary
  - National Route (N10)
  - Secondary Roads
  - Existing High Voltage Power Lines (400kV)
  - Rivers
  - Wonderheuveld Solar PV Application Site
  - Hydra D MTS Substation
  - Proposed Coleskop WEF Substation
- Proposed Grid Connection**
- Power Line Corridor Option 1
  - Power Line Corridor Option 2
  - Power Line Corridor Option 3
  - Hydra D MTS Substation

SOURCE:  
ESKOM, 2012  
NFEPA, 2011  
NORTHERN CAPE DEPT OF ENVIRONMENT AND  
CONSERVATION, 2016  
EASTERN CAPE BIODIVERSITY CONSERVATION PLAN, 2007

- CBA Classification (Northern Cape)**
- Critical Biodiversity Area One
  - Critical Biodiversity Area Two
  - Ecological Support Area
  - Other Natural Areas
- CBA Classification (Eastern Cape)**
- Other Natural Areas



**SIVEST**  
ENVIRONMENTAL DIVISION  
51 WESSELS ROAD  
RIVONIA, 2128  
JOHANNESBURG  
SOUTH AFRICA  
Phone: +27 11 798 0600  
Fax: +27 11 803 7272  
e-mail: info@sivest.co.za

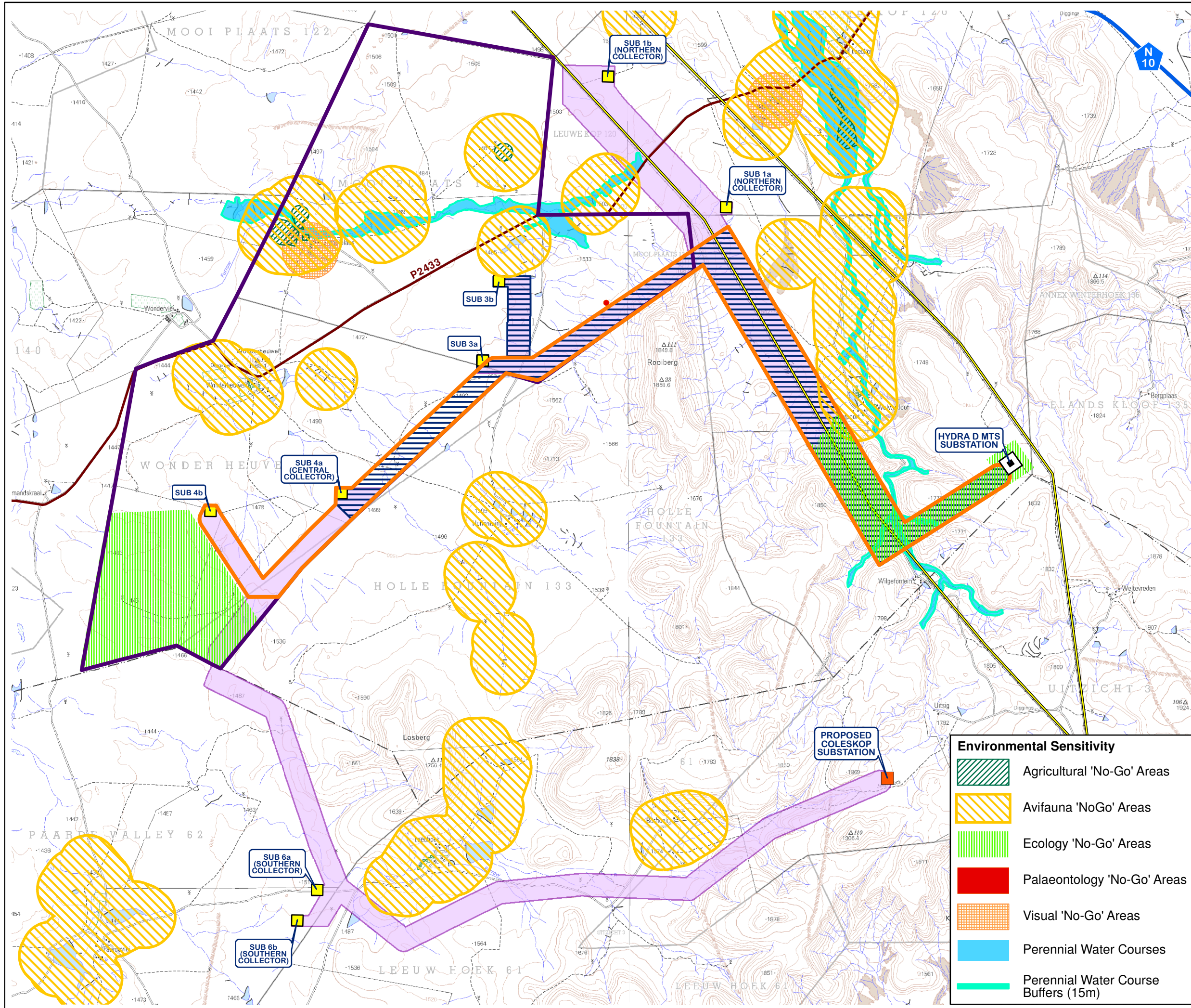
Project No 15324	Prepared By KLS	Date 20/01/2020
Map Ref No 15324/WG_07	Revision 0	Date

"COPYRIGHT IS VESTED IN SIVEST IN TERMS OF THE COPYRIGHT ACT (ACT 98 OF 1978) AND NO USE OR REPRODUCTION OR DUPLICATION THEREOF MAY OCCUR WITHOUT THE WRITTEN CONSENT OF THE AUTHOR"

THIS MAP HAS BEEN PREPARED UNDER THE CONTROLS ESTABLISHED BY THE SIVEST QUALITY MANAGEMENT SYSTEM WHICH HAS BEEN CERTIFIED ISO 9001:2015 COMPLIANT



**PROPOSED  
GRID CONNECTION FOR  
WONDERHEUVEL SOLAR  
PHOTOVOLTAIC (PV)  
ENERGY FACILITY**  
**NEAR NOUPOORT,  
NORTHERN AND EASTERN  
CAPE PROVINCES**  
**ENVIRONMENTAL SENSITIVITY**



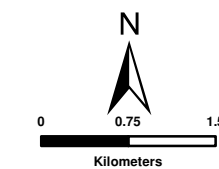
**Legend**

- National Route (N10)
- Secondary Roads
- Existing High Voltage Power Lines (400kV)
- Wonderheuveld Solar PV Application Site
- Hydra D MTS Substation
- Proposed Coleskop WEF Substation
- Proposed Grid Connection**
- Power Line Corridor Option 1
- Power Line Corridor Option 2
- Power Line Corridor Option 3
- Substations

**Environmental Sensitivity**

- Agricultural 'No-Go' Areas
- Avifauna 'No-Go' Areas
- Ecology 'No-Go' Areas
- Palaeontology 'No-Go' Areas
- Visual 'No-Go' Areas
- Perennial Water Courses
- Perennial Water Course Buffers (15m)

SOURCE:  
ESKOM, 2012  
NGI, 2014



**ENVIRONMENTAL DIVISION**  
51 WESSELS ROAD  
RIVONIA, 2128  
JOHANNESBURG  
SOUTH AFRICA  
Phone: +27 11 798 0600  
Fax: +27 11 803 7272  
e-mail: info@sivest.co.za

Project No 15324	Prepared By KLS	Date 20/01/2020
Map Ref No 15324/WG_08	Revision 0	Date

"COPYRIGHT IS VESTED IN SIVEST IN TERMS OF THE COPYRIGHT ACT (ACT 98 OF 1978) AND NO USE OR REPRODUCTION OR DUPLICATION THEREOF MAY OCCUR WITHOUT THE WRITTEN CONSENT OF THE AUTHOR"

THIS MAP HAS BEEN PREPARED UNDER THE CONTROLS ESTABLISHED BY THE SIVEST QUALITY MANAGEMENT SYSTEM WHICH HAS BEEN CERTIFIED ISO 9001:2015 COMPLIANT


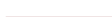







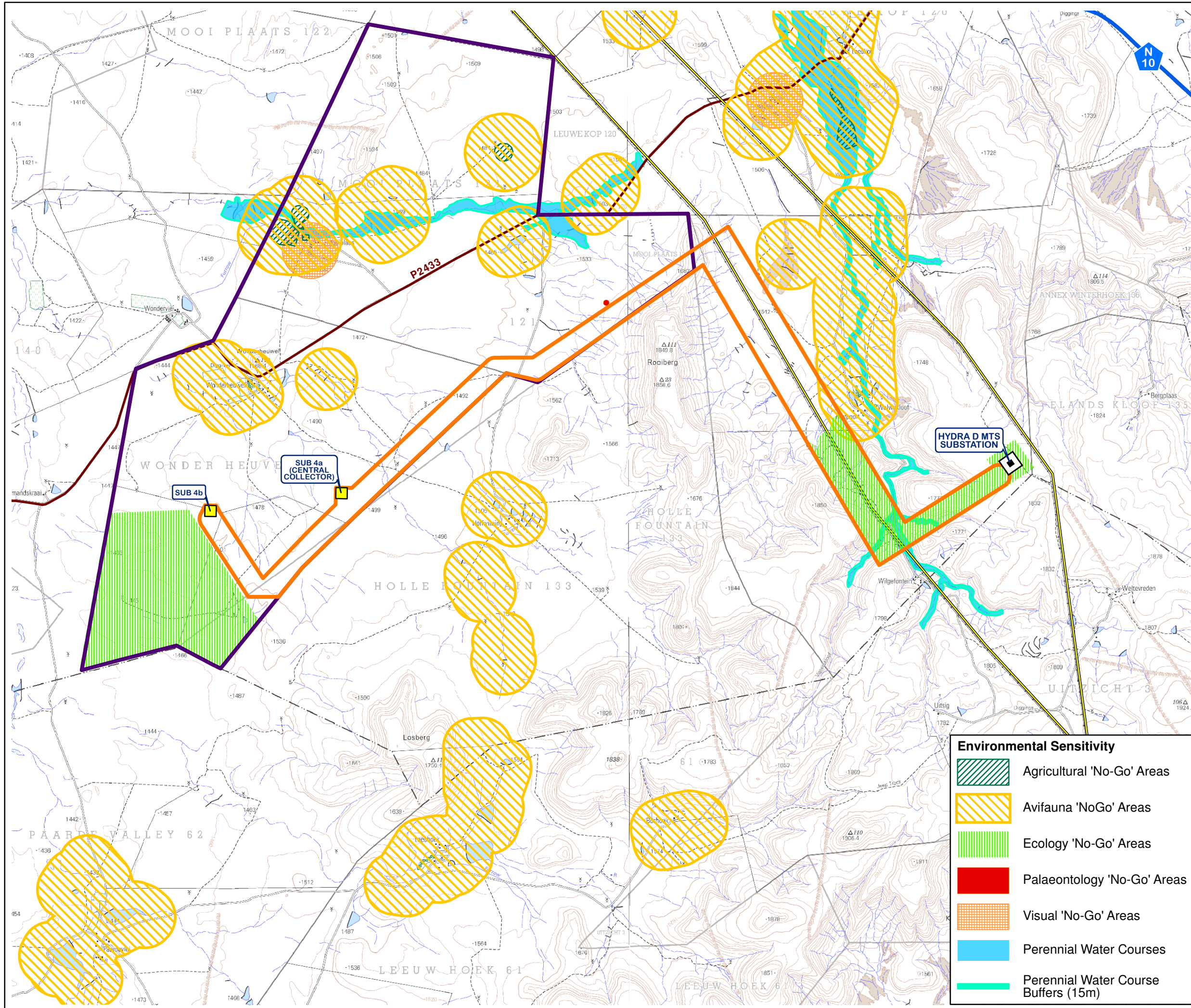
# PROPOSED GRID CONNECTION FOR WONDERHEUVEL SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITY

## NEAR NOUPOORT, NORTHERN AND EASTERN CAPE PROVINCES






### PREFERRED ALTERNATIVES

#### Legend

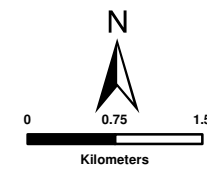
-  National Route (N10)
-  Secondary Roads
-  Existing High Voltage Power Lines (400kV)
-  Wonderheuvvel Solar PV Application Site
-  Hydra D MTS Substation
- Preferred Alternatives**
-  Power Line Corridor Option 3
-  Substations



#### Environmental Sensitivity

-  Agricultural 'No-Go' Areas
-  Avifauna 'No-Go' Areas
-  Ecology 'No-Go' Areas
-  Palaeontology 'No-Go' Areas
-  Visual 'No-Go' Areas
-  Perennial Water Courses
-  Perennial Water Course Buffers (15m)

SOURCE:  
ESKOM, 2012  
NGI, 2014



**ENVIRONMENTAL DIVISION**  
51 WESSELS ROAD  
RIVONIA, 2128  
JOHANNESBURG  
SOUTH AFRICA

Phone: +27 11 798 0600  
Fax: +27 11 803 7272  
e-mail: info@sivest.co.za

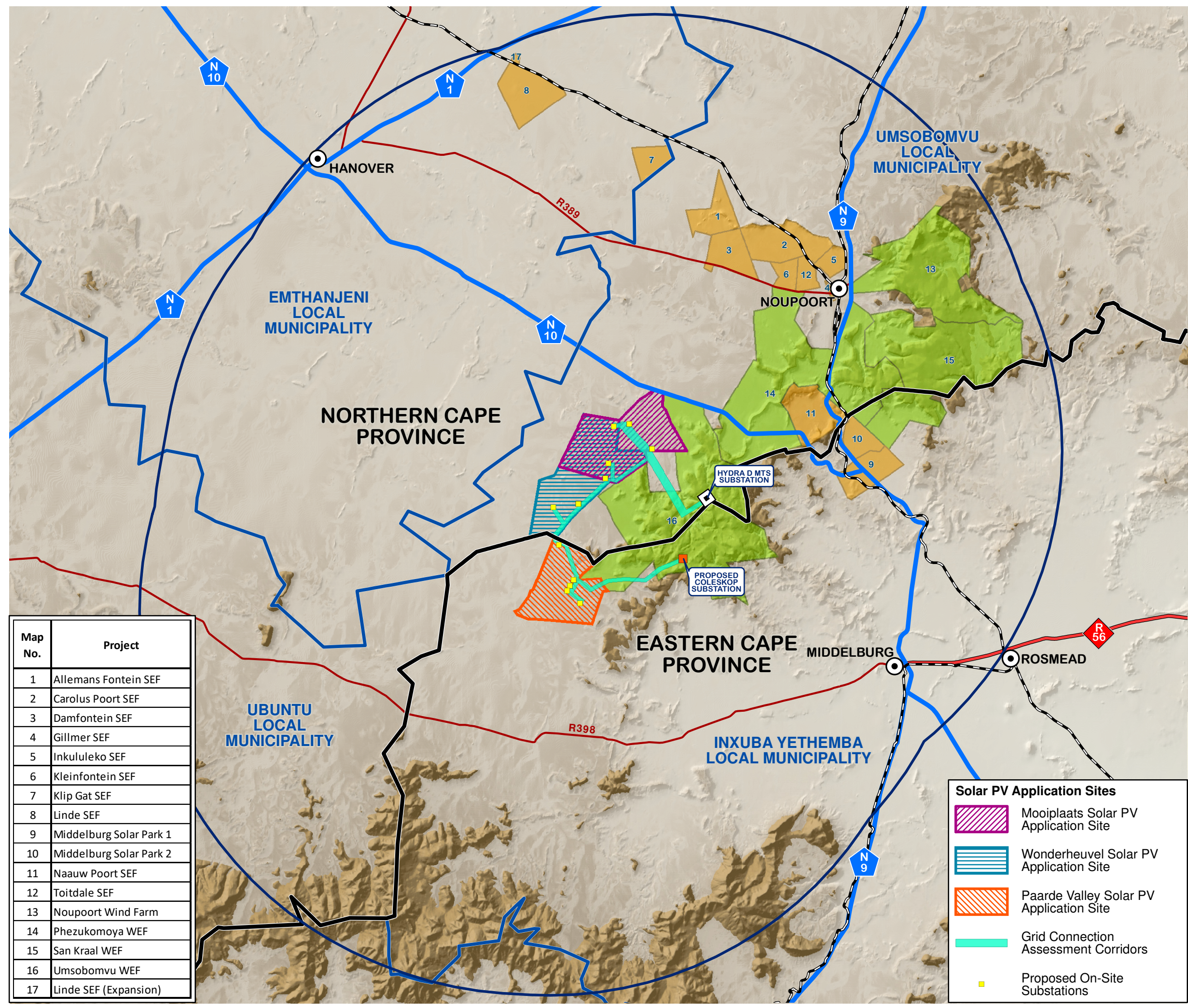
Project No 15324	Prepared By KLS	Date 20/01/2020
Map Ref No 15324/WG_09	Revision 0	Date

"COPYRIGHT IS VESTED IN SIVEST IN TERMS OF THE COPYRIGHT ACT (ACT 98 OF 1978) AND NO USE OR REPRODUCTION OR DUPLICATION THEREOF MAY OCCUR WITHOUT THE WRITTEN CONSENT OF THE AUTHOR"

THIS MAP HAS BEEN PREPARED UNDER THE CONTROLS ESTABLISHED BY THE SIVEST QUALITY MANAGEMENT SYSTEM WHICH HAS BEEN CERTIFIED ISO 9001:2015 COMPLIANT



**PROPOSED  
CONSTRUCTION OF THREE  
SOLAR PHOTOVOLTAIC (PV)  
ENERGY FACILITIES  
NEAR NOUPOORT,  
NORTHERN AND EASTERN  
CAPE PROVINCES  
RENEWABLE ENERGY PROJECTS  
(EXISTING AND PROPOSED)**



**Legend**

- Local Municipal Boundaries
- National Routes
- Main Arterial Routes
- Main Roads
- Railways
- Main Towns
- 35km Radius

**Renewable Energy Application Sites**

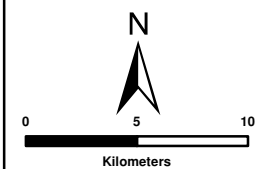
- Solar
- Wind

Map No.	Project
1	Allemans Fontein SEF
2	Carolus Poort SEF
3	Damfontein SEF
4	Gillmer SEF
5	Inkululeko SEF
6	Kleinfontein SEF
7	Klip Gat SEF
8	Linde SEF
9	Middelburg Solar Park 1
10	Middelburg Solar Park 2
11	Naauw Poort SEF
12	Toitdale SEF
13	Noupoort Wind Farm
14	Phezukomoya WEF
15	San Kraal WEF
16	Umsobomvu WEF
17	Linde SEF (Expansion)

**Solar PV Application Sites**

- Mooiplaats Solar PV Application Site
- Wonderheuvel Solar PV Application Site
- Paarde Valley Solar PV Application Site
- Grid Connection Assessment Corridors
- Proposed On-Site Substations

SOURCE:  
DEA, 2018  
MUNICIPAL DEMARCATION BOARD, 2011  
NGI, 2014



**ENVIRONMENTAL DIVISION**  
51 WESSELS ROAD  
RIVONIA, 2128  
JOHANNESBURG  
SOUTH AFRICA

Phone: +27 11 798 0600  
Fax: +27 11 803 7272  
e-mail: info@sivest.co.za






Project No 15324	Prepared By KLS	Date 05/11/2019
Map Ref No 15324/ERE_01	Revision 0	Date

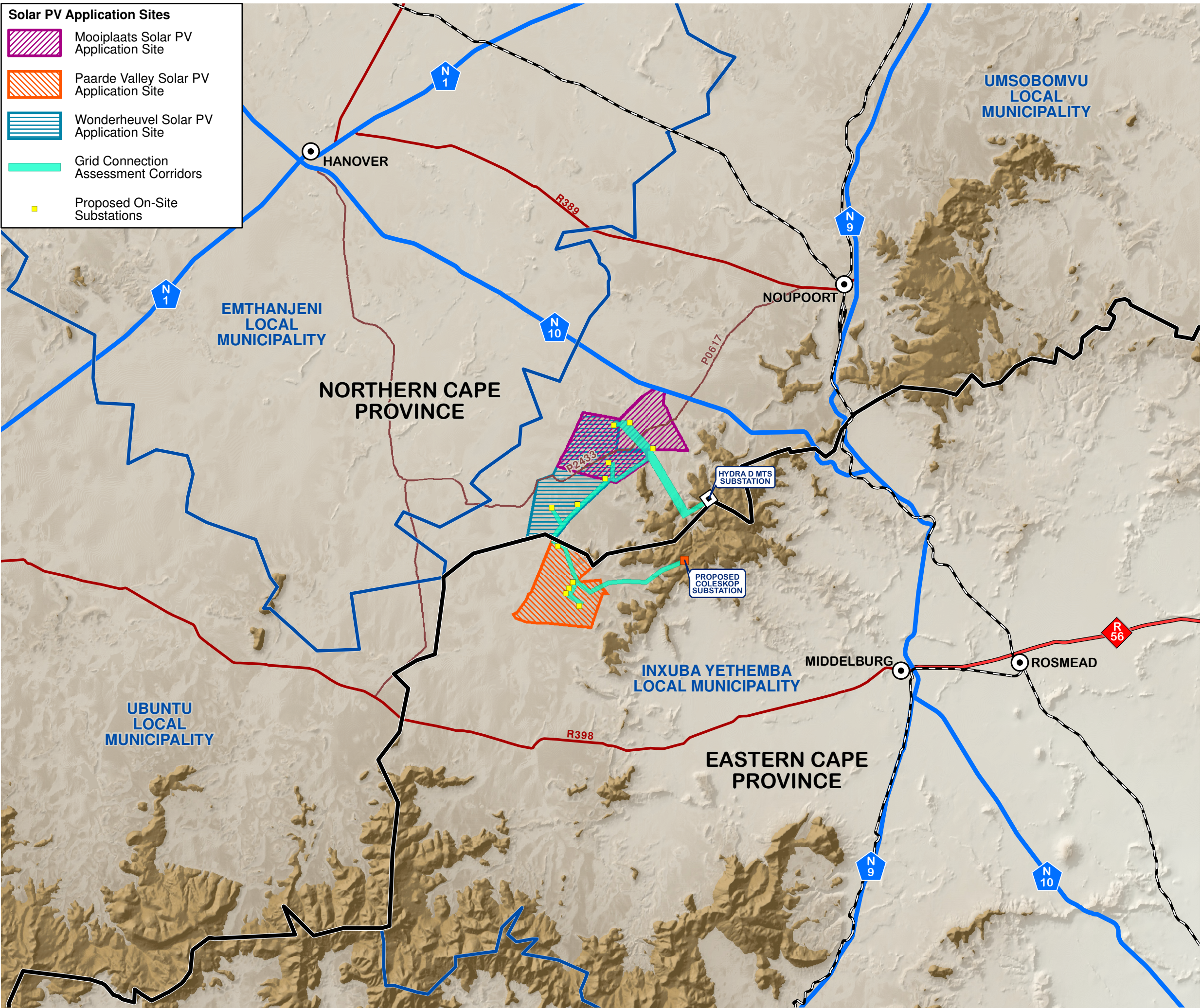
"COPYRIGHT IS VESTED IN SIVEST IN TERMS OF THE COPYRIGHT ACT (ACT 98 OF 1978) AND NO USE OR REPRODUCTION OR DUPLICATION THEREOF MAY OCCUR WITHOUT THE WRITTEN CONSENT OF THE AUTHOR"

THIS MAP HAS BEEN PREPARED UNDER THE CONTROLS ESTABLISHED BY THE SIVEST QUALITY MANAGEMENT SYSTEM WHICH HAS BEEN CERTIFIED ISO 9001:2008 COMPLIANT













**Solar PV Application Sites**

-  Mooiplaats Solar PV Application Site
-  Paarde Valley Solar PV Application Site
-  Wonderheuveld Solar PV Application Site
-  Grid Connection Assessment Corridors
-  Proposed On-Site Substations



**PROPOSED CONSTRUCTION OF THREE SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITIES NEAR NOUPOORT, NORTHERN AND EASTERN CAPE PROVINCES REGIONAL CONTEXT**

**Legend**

-  Provincial Boundary
-  Local Municipal Boundaries
-  National Routes
-  Main Arterial Routes
-  Main Roads
-  Secondary Roads
-  Railways
-  Main Towns
-  Hydra D MTS Substation
-  Proposed Coleskop WEF Substation

SOURCE: MUNICIPAL DEMARCATION BOARD, 2011  
NGI, 2014



**SIVEST**  
ENVIRONMENTAL DIVISION  
51 WESSELS ROAD  
RIVONIA, 2128  
JOHANNESBURG  
SOUTH AFRICA  
Phone: +27 11 798 0600  
Fax: +27 11 803 7272  
e-mail: info@sivest.co.za

Project No 15324	Prepared By KLS	Date 05/11/2019
Map Ref No 15324/EIA_01	Revision 0	Date

"COPYRIGHT IS VESTED IN SIVEST IN TERMS OF THE COPYRIGHT ACT (ACT 98 OF 1978) AND NO USE OR REPRODUCTION OR DUPLICATION THEREOF MAY OCCUR WITHOUT THE WRITTEN CONSENT OF THE AUTHOR"

THIS MAP HAS BEEN PREPARED UNDER THE CONTROLS ESTABLISHED BY THE SIVEST QUALITY MANAGEMENT SYSTEM WHICH HAS BEEN CERTIFIED ISO 9001:2008 COMPLIANT



