

**AN ARCHAEOLOGICAL WALK-THROUGH FOR THE PROPOSED KARUSA WIND ENERGY FACILITY SITUATED ON THE FARMS: DE HOOP 202, STANDVASTIGHEID 210, PORTION 1 OF THE FARM RHEEBOKKE FONTEIN 209, PORTION 2 OF THE FARM RHEEBOKKE FONTEIN 209, PORTION 3 OF THE FARM RHEEBOKKE FONTEIN 209 AND THE REMAINDER OF THE FARM RHEEBOKKE FONTEIN 209, NEAR SUTHERLAND, KAROO HOOGLAND LOCAL MUNICIPALITY, NAMAKWA DISTRICT MUNICIPALITY, NORTHERN CAPE PROVINCE.**

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**AN ARCHAEOLOGICAL WALK-THROUGH FOR THE PROPOSED KARUSA WIND ENERGY FACILITY SITUATED ON THE FARMS: DE HOOP 202, STANDVASTIGHEID 210, PORTION 1 OF THE FARM RHEEBOKKE FONTEIN 209, PORTION 2 OF THE FARM RHEEBOKKE FONTEIN 209, PORTION 3 OF THE FARM RHEEBOKKE FONTEIN 209 AND THE REMAINDER OF THE FARM RHEEBOKKE FONTEIN 209, NEAR SUTHERLAND, KAROO HOOGLAND LOCAL MUNICIPALITY, NAMAKWA DISTRICT MUNICIPALITY, NORTHERN CAPE PROVINCE.**

**NOTE:** The phase 1 archaeological impact assessment for the proposed Hidden Valley Wind Energy Facility (Booth 2012) was conducted as a requirement of the National Heritage Resources Act 25 of 1999, Section 38 (1)(c)(i):

38. (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorized as –

- (a) the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300 m in length;
- (c) any development or other activity which will change the character of the site –
  - (i) exceeding 5000 m<sup>2</sup> in extent

This archaeological walk-through report follows the South African Heritage Resources Agency (SAHRA) Review Comment on the Phase 1 Archaeological Impact Assessment (Booth 2012), 9 May 2012, SAHRA File No. 9/2/091/0004.

## **1. EXECUTIVE SUMMARY**

### **1.1. Purpose of the Study**

The purpose of the study, in response to comment from SAHRA, was to conduct an archaeological heritage walk-through of the final optimised layout of the Karusa wind energy facility<sup>1</sup> (WEF) situated on the Farms: De Hoop 202, Standvastigheid 210, Portion 1 of the Farm Rheebokke Fontein 209, Portion 2 of the Farm Rheebokke Fontein 209, Portion 3 of the Farm Rheebokke Fontein 209 and the remainder of the Farm Rheebokke Fontein 209, Near Sutherland, Karoo Hoogland Local Municipality, Namakwa District Municipality, Northern Cape Province.

The archaeological heritage walk-through survey was conducted to assess the final optimised layout of the Karusa Wind Energy Facility to establish the range and importance of the exposed and *in situ* archaeological heritage material remains, sites and features; to establish the potential impact of the development; and to make recommendations to minimize possible damage to the archaeological heritage of the final layout of the Karusa Wind Energy Facility (WEF).

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<sup>1</sup> Project Company: ACED Renewables Hidden Valley (Pty) Ltd.

## 1.2. Brief Summary of Findings

The public gravel access road, which would be used to gain access to the Karusa main access roads, will be slightly rerouted to avoid negative social impacts (e.g. noise, dust and health and safety) to the Saaiplaas farmstead on the Farm Standvastigheid 210. The access road on the Farm De Hoop passes the HVDHStable and HVDHOldFarmstead complex, recorded in the 2012 survey, to the south. Two stone dry packed stone walls occur within the route for the detour. The stone walls are historically significant and mark the areas where the horses were kept during early settlement of the area.

The South African Heritage Resources Agency Review Comment had been considered for the final layout and all turbines and associated infrastructure have been planned to sufficiently avoid significant heritage resources reported in the 2012 report. No archaeological heritage remains were observed within the rest of the Karusa Wind Energy Facility's final layout.

## 1.3. Recommendations

The overall area is considered as having a **low archaeological significance**. The following recommendations must be considered before development continues:

1. If any significant changes are made to the final layout of the Karusa Wind Energy Facility outside of the buffer areas assessed, an archaeological walk-through survey of the changes must be conducted and further mitigatory recommendations may be made if necessary.
2. It is unlikely that the remnants of the stone walling on the Farm De Hoop 202 will be negatively affected by the construction of the road, however, precautions must be taken as to avoid impact during construction activities.
3. The access road on the Farm De Hoop 202 would need to be at least 30 m from any sensitive heritage features at the HVDVStable and HVDHOldFarmstead Complex, as is already the case based on the current alignment.
4. The stone walls must be recorded in detail and a destruction permit for portions of the dry packed stone walls on the Farm Standvastigheid 210 must be applied for to continue upgrade of the detour road south of the Saaiplaas farmstead.
5. If concentrations of historical and pre-colonial archaeological heritage material and/or human remains (including graves and burials) are uncovered during construction, all work in the immediate area affecting the find must cease immediately and be reported to the South African Heritage Resources Agency (SAHRA) (Philip Hine / 021 462 4502,) or the MacGregor Museum in Kimberly (David Morris / 053 839 2706), so that systematic and professional investigation/excavation can be undertaken. Phase 2 mitigation in the form of test-pitting/sampling or systematic excavations and collections of the pre-colonial shell middens and associated artefacts will then be conducted to establish the contextual status of the sites and possibly remove the archaeological deposit before development activities continue.

6. A person must be trained as a site monitor to report any archaeological sites found during the development. Construction managers/foremen and/or the Environmental Control Officer (ECO)/ contractor's Environmental Officer (EO) should be informed before construction starts on the possible types of heritage sites and cultural material they may encounter and the procedures to follow if they find sites.

#### **1.4. Declaration of Independence and Qualifications**

This section confirms a declaration of independence that the archaeological heritage specialist, Ms Celeste Booth, has no financial or any other personal interests in the project for the walk-through of the Karusa Wind Energy Facility final layout. Ms Celeste Booth was appointed on a strictly professional basis to conduct a Phase 1 Archaeological Impact Assessment in line with the South African national heritage legislation, the National Heritage Resources Act 25 of 1999 (NHRA 25 of 1999) and in response to the recommendations provided by the Department of Environmental Affairs and according to the relevant environmental impact assessment regulations.

Ms Celeste Booth (BSc Honours: Archaeology) is an archaeologist who has had almost eight years (October 2015) of full time Cultural Resource Management in the Eastern Cape and sections of the Northern Cape and Western Cape. Ms Booth has conducted several Archaeological Desktop Studies and Phase 1 Archaeological Impact Assessments within the Eastern Cape and in the Karoo region across the Eastern Cape, Northern Cape and Western Cape.

## **2. BACKGROUND INFORMATION**

### **2.1. Previous studies conducted for the proposed Karusa Wind Energy Facility (WEF)**

An archaeological desktop study for the proposed Hidden Valley Wind Energy Facility, situated on a site south of Sutherland, Northern Cape Province, was conducted in 2011 (Booth 2011). The outcome of the desktop study recommended that a phase 1 archaeological impact assessment of the site be conducted.

A phase 1 archaeological impact assessment of the proposed Hidden Valley Wind Energy Facility on a site south of Sutherland, Northern Cape Province, was conducted in 2012 (Booth 2012). The proposed wind energy facility area was divided into three phases:

- Phase 1 – Proposed Karusa Wind Farm to be located on the Farm De Hoop 202, Farm Standvastigheid 201, and Portion 1, 2, 3 and the remainder of Farm Rheeboeke Fontein 209;
- Phase 2 – Proposed Soetwater Wind Farm to be located on the remainder of and Portion 1, 2 and 4 of Farm Orange Fontein 203, Annex Orange Fontein 185, Farm Leeuwe Hoek 183 and Farm Zwanepoelshoek 184;

- Phase 3 – Proposed Great Karoo Wind Farm to be located on Farm Kentucky 206 and Portion 1 of Farm Wolvenkop 207.

The findings of the archaeological investigation indicated that no precolonial heritage remains, features or sites were encountered within the area proposed for the development of the wind energy facility. However, several historical archaeological remains, features and sites were highlighted as they occurred adjacent to possible main access roads that would have been used during the construction and development activities. The area, including phases 1 – 3, was considered as having a medium – high cultural sensitivity according to the sensitive remains, features and sites encountered.

Historical heritage sites within the area proposed for the Phase 1 – Proposed Karusa Wind Energy Facility were documented on the Farms Standvastigheid 201 and De Hoop 202:

1. A fenced graveyard consisting of both mixed formal family graves and informal labourers' stone packed burials situated within the current farmstead complex (Farm Standvastigheid 201);
2. Dry packed stone walling kraal within the vicinity of the current farmstead complex (Farm Standvastigheid 201);
3. Two dry packed stone walling boundary walls situated north-west and south-east of the current farmstead (Farm Standvastigheid 201); and
4. Stone walled farmstead complex consisting of a dry packed stone walled kraal, a main cottage and stables (Farm De Hoop 202).

All of these heritage resources were located close to the existing internal access gravel roads that may have been developed as access routes for the wind energy facility. Recommendations suggested that alternative access routes be proposed for the construction and development activities of the wind energy facility as the widening of the roads may impact on the sensitive heritage structures. The Proponent responded by proposing a new access road.

The South African Heritage Resources Agency (SAHRA) Review Comment on the Phase 1 Archaeological Impact Assessment (Booth 2012), 9 May 2012, SAHRA File No. 9/2/091/0004, recommended the following:

1. Decisions on Built Environment (structures older than 60 years, including all farm infrastructure) must be made by the Provincial Heritage Resources Authority of the Northern Cape.
2. SAHRA supports the recommendations of the archaeologist in terms of finding alternative access roads so as not to impact the farm buildings and graveyards adjacent to them. These access roads would need to be at least 30 m from any sensitive heritage features. An archaeologist will need to survey the routes of the new access roads, should they need to be moved.

3. The graves should be restored where these are dilapidated, protected and conserved in perpetuity. For this purpose, a proper fence must be built around the unfenced graveyards, with entry gates to allow visits from relatives and family graves. The fence must be placed 5 m away from the perimeter of the graves. No development is allowed within 30 m of the fence line surrounding graves.
4. Heritage Western Cape has requested that all wind turbines be moved from the top of the ridges along the border between the Western and Northern Cape. This request is supported by SAHRA and extended to the southern parts of the Northern Cape in order to maintain the same visual impact across the area.
5. Once the final layout of turbines, substations, power lines and access roads has been decided, the archaeologist must be informed and, if necessary, another field survey should be conducted. The archaeological report must be submitted to SAHRA for comment before construction can begin. Phase 2 mitigation could be necessary.
6. Should any new evidence of archaeological sites or artefacts, graves, or other heritage resources be found during construction, SAHRA (021 462 4502) or the MacGregor Museum in Kimberly must be contacted and an archaeologist must be appointed at the cost of the developer.

The SAHRA Archaeology, Palaeontology and Meteorites Unit reviewed the Final Environmental Impact Report for the Proposed Hidden Valley Wind Energy Facility (comprising three development phases) on a site south of Sutherland, Northern Cape Province (April 2014).

SAHRA re-assessed the information provided in terms of heritage and acknowledges that the conditions stipulated by the archaeologist in Appendix 1 of the EIR are unchanged from those included in the archaeological impact assessment dated February 2012.

Since SAHRA's previous comment (August 2012), SAHRA had also commented on the Phase 1 of the Roggeveld Wind Energy Facility and associated infrastructure located on the western side of the R354. The layout of the Roggeveld WEF includes turbines which are closer than 3 km from the R354, both in the Northern Cape and Western Cape. However, the impact of these turbines on the sense of place on the R354 was carefully considered and it is expected to be marginal, at least in the Northern Cape, the province for which SAHRA is responsible in terms of archaeology.

SAHRA's case comment stipulated that SAHRA does not object to the development of the three phases of the Hidden Valley Wind Farm provided the following recommendations are adhered to:

1. Turbines 197, 200, 201 and 202 be removed in order to protect the sense of place experienced along the R354, SAHRA acknowledges that the latest layout at



page 186 of the EIR already makes provision for the removal of these four turbines.

2. If any turbine be located within the 3 km from the R354, the impact on the sense of place of this road must be assessed separately.
3. Ancillary infrastructure should be no closer than 500 m to the R354.
4. Alternative access roads must be identified and located at least 30 m from any sensitive heritage features, such as graveyards.
5. The graves should be restored where these are dilapidated, protected and conserved. For this purpose, a proper fence must be built around the unfenced graveyards, with entry gates to allow visits from relatives and friends. The fence must be placed 5 m away from the perimeter of the graves. No development is allowed within 30 m of the fence line surrounding the graves.
6. Once the final layout of turbines, substations, power lines and access roads has been decided, the archaeologist must be informed and, if necessary, another field survey may be conducted. The archaeological report must be submitted to SAHRA for further comments.
7. Decisions on the Built Environment (structures older than 60 years including all farm infrastructure) must be made by the Provincial Heritage Resources Agency of the Northern Cape.

## **2.2. Proposed activity for the Karusa Wind Energy Facility**

The proposed activity for the Karusa Wind Energy Facility (i.e. the "Project") includes:

- The construction of 43 wind turbines (3.3MW in capacity and with a 117 m rotor diameter and a hub height of 91.5 m);
- Medium voltage cabling between turbines to be laid underground where practical;
- Internal access roads for each turbine, the substation complex and ancillaries;
- Proposed 132kV substation;
- Proposed 132kV power line from Karusa substation (proposed) to the Eskom Komsberg Substation; operations and services workshop area / office building for control, maintenance and storage; and
- Temporary infrastructure including a site camp, laydown areas and a batching plant.

## **2.3. Applicant:**

ACED Renewables Hidden Valley (Pty) Ltd (Karusa Wind Farm)

## **2.4. Consultant:**

Savannah Environmental Pty Ltd  
PO Box 148  
Sunninghill

2157

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Contact person: Ms Tebogo Mapinga

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## **2.5. Terms of reference**

The purpose of the study, in response to comment from SAHRA, was to conduct an archaeological heritage walk-through of the final optimised layout of the Karusa wind energy facility<sup>2</sup> (WEF) situated on the Farms: De Hoop 202, Standvastigheid 210, Portion 1 of the Farm Rheeboeke Fontein 209, Portion 2 of the Farm Rheeboeke Fontein 209, Portion 3 of the Farm Rheeboeke Fontein 209 and the remainder of the Farm Rheeboeke Fontein 209, Near Sutherland, Karoo Hoogland Local Municipality, Namakwa District Municipality, Northern Cape Province.

The Terms of Reference (ToR) are as follows:

- Conduct a walk-through of the optimised Karusa layout to confirm whether any significant archaeological artefacts or sites would be impacted;
- Ensure the walk-through addresses SAHRA's requirements as per their comments on the project, specifically with regard to surveying the final layout;
- Address condition 128 of the Environmental Authorisation which states the following: "*The final layout should be shown to the appointed archaeologist before implementation to confirm that all significant heritage resources have been adequately protected.*"
- Indicate whether any further permits might be required for the destruction of any heritages sites, if applicable.
- Make recommendations regarding practical mitigation measures if and where additional mitigations to those proposed in the initial Archaeology study is required.

## **3. HERITAGE LEGISLATIVE REQUIREMENTS**

Parts of sections 3(1)(2)(3), 34(1), 35(4), 36(3) and 38(1)(8) of the National Heritage Resources Act 25 of 1999 apply:

### ***S3. National estate***

3. (1) For the purposes of this Act, those heritage resources of South Africa which are of cultural significance or other special value for the present community and for future generations must be considered part of the national estate and fall within the sphere of operations of heritage resources authorities.

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<sup>2</sup> Project Company: ACED Renewables Hidden Valley (Pty) Ltd.

3. (2) Without limiting the generality of subsection (1), the national estate may include –
- (a) places, buildings, structures and equipment of cultural significance;
  - (b) places to which oral traditions are attached or which are associated with living heritage;
  - (c) historical settlements and townscapes;
  - (d) landscapes and natural features of cultural significance;
  - (e) geological sites of scientific or cultural importance;
  - (f) archaeological and palaeontological sites;
  - (g) graves and burial grounds, including –
    - (i) ancestral graves;
    - (ii) royal graves and graves of traditional leaders;
    - (iii) graves and victims of conflict;
    - (iv) graves of individuals designated by the Minister by notice in the Gazette;
    - (v) historical graves and cemeteries; and
    - (vi) other human remains which are not covered in terms of the Human Tissue Act, 1983 (Act No. 65 of 1983);
  - (h) sites of significance relating to the history of slavery in South Africa;
  - (i) movable objects, including –
    - (i) objects recovered from the soil or waters of South Africa, including archaeological and palaeontological specimens;
    - (ii) objects to which oral traditions are attached or which are associated with living heritage;
    - (iii) ethnographic art and objects;
    - (iv) military objects;
    - (v) objects of decorative or fine art;
    - (vi) objects of scientific or technological interest; and
    - (vii) books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1(xiv) of the National Archives of South Africa Act (Act No. 43 of 1996).
3. (3) Without limiting the generality of subsections (1) and (2), a place or object is to be considered part of the national estate if it has cultural significance or other special value because of –
- (a) its importance in the community, or pattern of South Africa's history;
  - (b) its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;
  - (c) its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
  - (d) its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;
  - (e) its importance in exhibiting particular aesthetic characteristics valued by a

- community or cultural group;
- (f) its importance in demonstrating a high degree of creative or technical achievement at a particular period;
- (g) its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa; and
- (i) sites of significance relating to the history of slavery in South Africa.

### ***S34. Structures***

34. (1) No person may alter or demolish any structure or part of a structure which is older than 60 years without a permit issued by the relevant provincial heritage resources authority.

### ***S35. Archaeology, palaeontology and meteorites***

35 (4) No person may, without a permit issued by the responsible heritage resources authority—

- (a) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;
- (b) destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite; or
- (d) bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites.

### ***S36. Burial grounds and graves***

36. (3) (a) No person may, without a permit issued by SAHRA or a provincial heritage resources authority—

- (a) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;
- (b) destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or
- (c) bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation equipment, or any equipment which assists in the detection or recovery of

metals.

### **S38. Heritage resources management**

38. (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorized as –

- (a) the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300 m in length;
- (b) the construction of a bridge or similar structure exceeding 50 m in length;
- (c) any development or other activity which will change the character of the site –
  - (i) exceeding 5 000 m<sup>2</sup> in extent, or
  - (ii) involving three or more erven or subdivisions thereof; or
  - (iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or
  - (iv) the costs of which will exceed a sum set in terms of regulations by SAHRA,

or

- a provincial resources authority;
- (d) the re-zoning of a site exceeding 10 000 m<sup>2</sup> in extent; or
- (e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must as the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

## **4. DESCRIPTION OF THE PROPERTY**

### **4.1. Location data**

The Karusa Wind Farm site is located approximately 50 km south of Sutherland and 30 km north of Matjiesfontein within the Karoo Hoogland Local Municipality, Namakwa District Municipality, Northern Cape Province, east of the R354 regional road that runs between Matjiesfontein in the Western Cape and Sutherland in the Northern Cape.

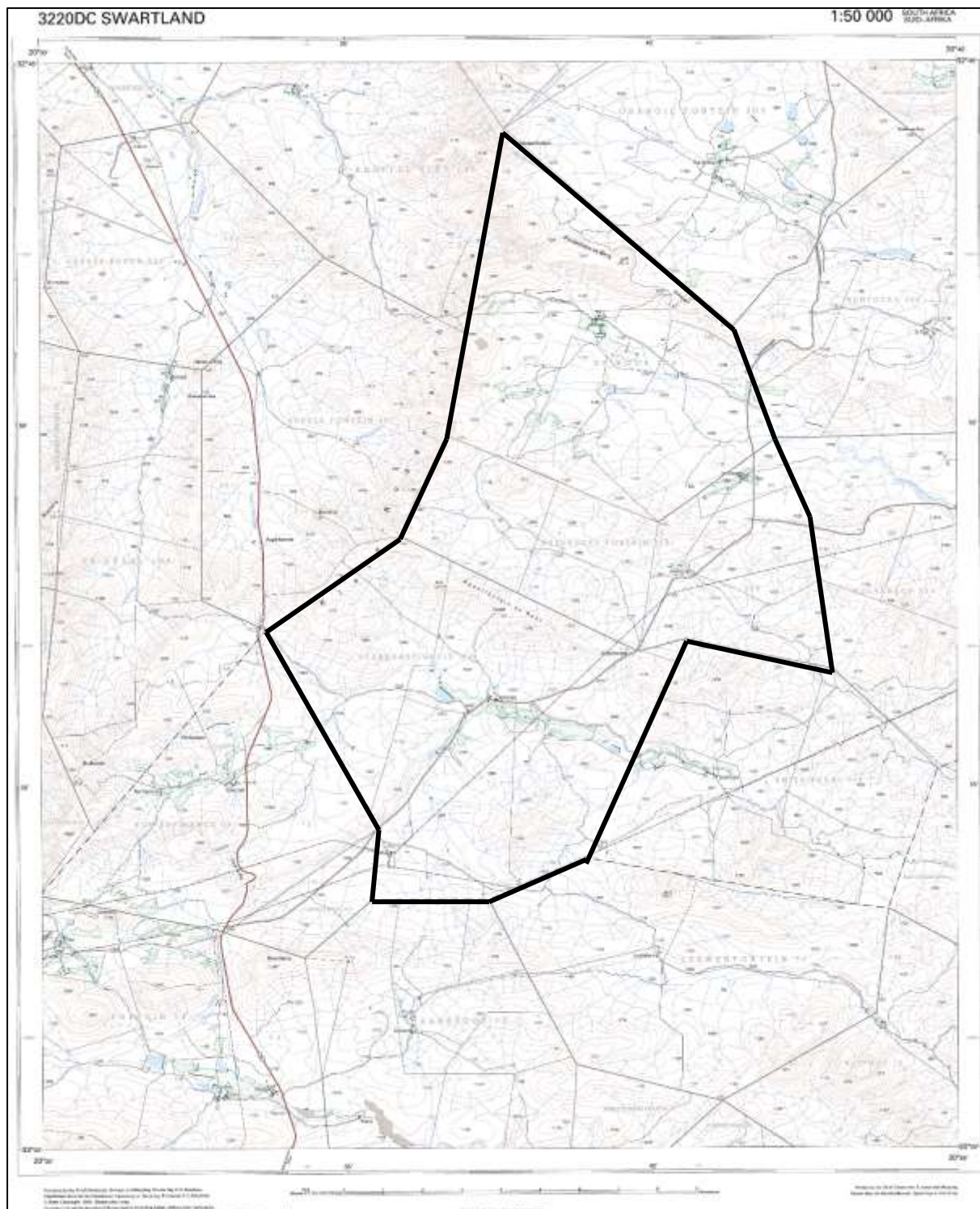
Karusa wind energy facility (WEF) situated on the Farms: De Hoop 202, Standvastigheid 310, Portion 1 of the Farm Rheeboeke Fontein 209, Portion 2 of the Farm Rheeboeke Fontein 209, Portion 3 of the Farm Rheeboeke Fontein 209 and the remainder of the Farm Rheeboeke Fontein 209, Near Sutherland, Karoo Hoogland Local Municipality, Namakwa District Municipality, Northern Cape Province.

The majority wind turbines and associated infrastructure are situated on the ridges of the Klein Roggeveldberge stretching north-south on the eastern boundary of the Wind Farm layout. The northern turbines lead from the Klein Roggeveldberge onto the koppies referred to *Perdeplaas se Berge* (see Figure 1) and the southern turbines lead from the

Klein Roggeveldberge onto the koppies referred to as *Appelfontein se Rant* (see Figure 1). Two main access roads will be constructed and lead from the public access gravel road to connect to turbines and associated infrastructure along the koppies. The public gravel access road, which would be used to gain access to the Karusa main access roads, will be slightly rerouted to avoid negative social impacts (e.g. noise, dust and health and safety) to the Saaiplaas farmstead on the Farm Standvastigheid 210.

#### **4.2. Map**

1:50 000 Maps: 3220 DC SWARTLAND



**Figure 1. 1: 50 000 topographic map 3320 DC SWARTLAND showing the farm portions for the Karusa Wind Energy Facility.**



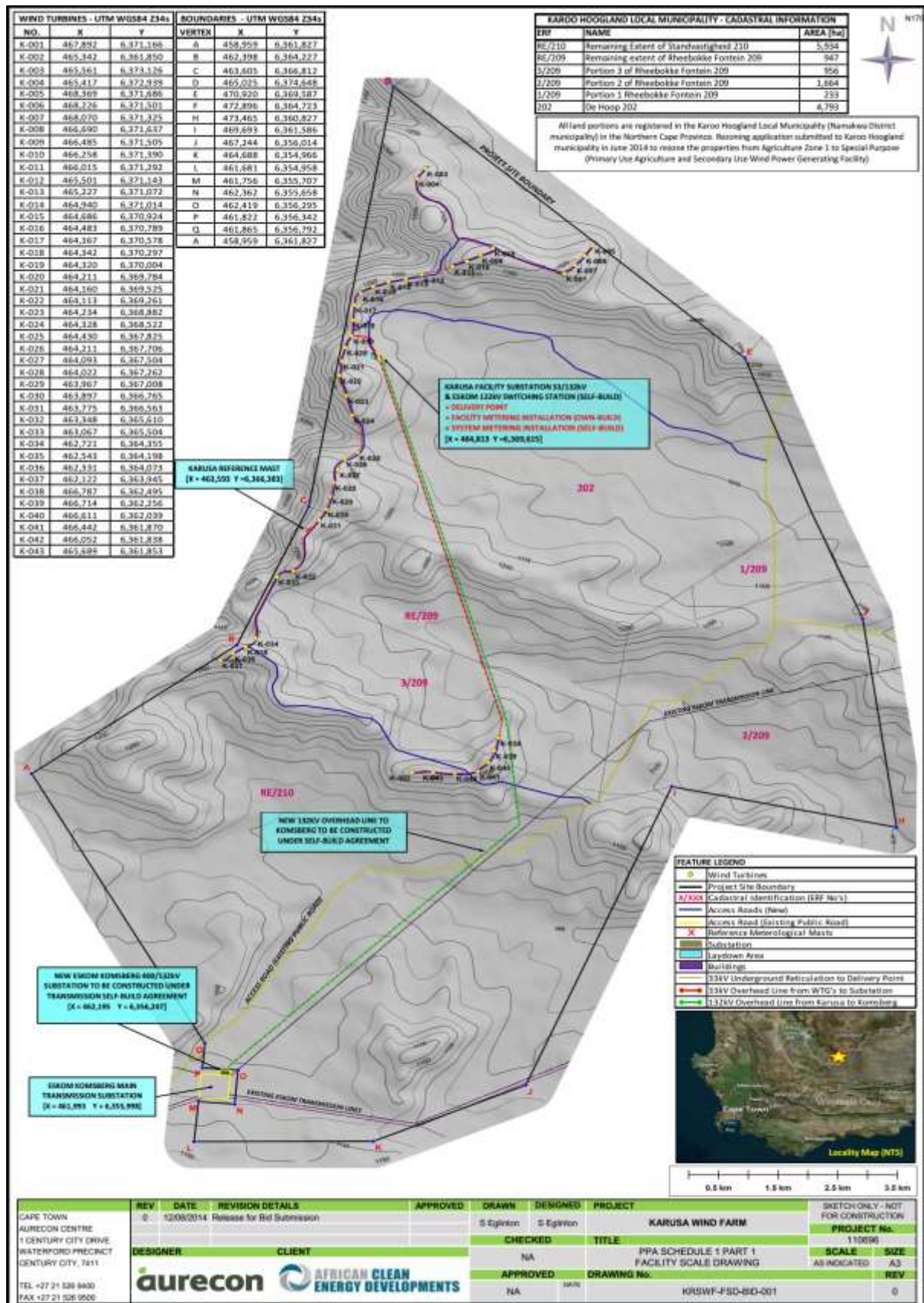
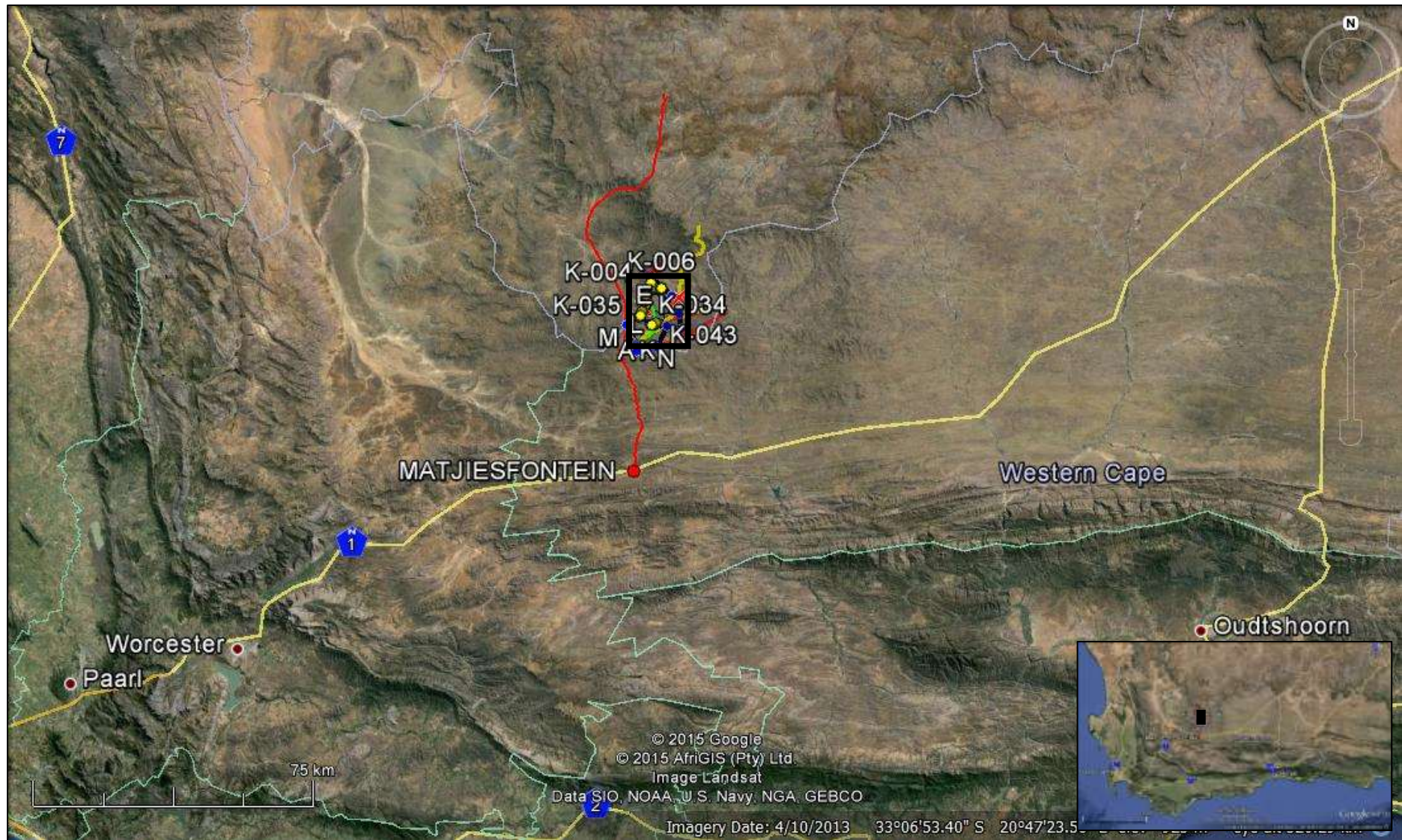


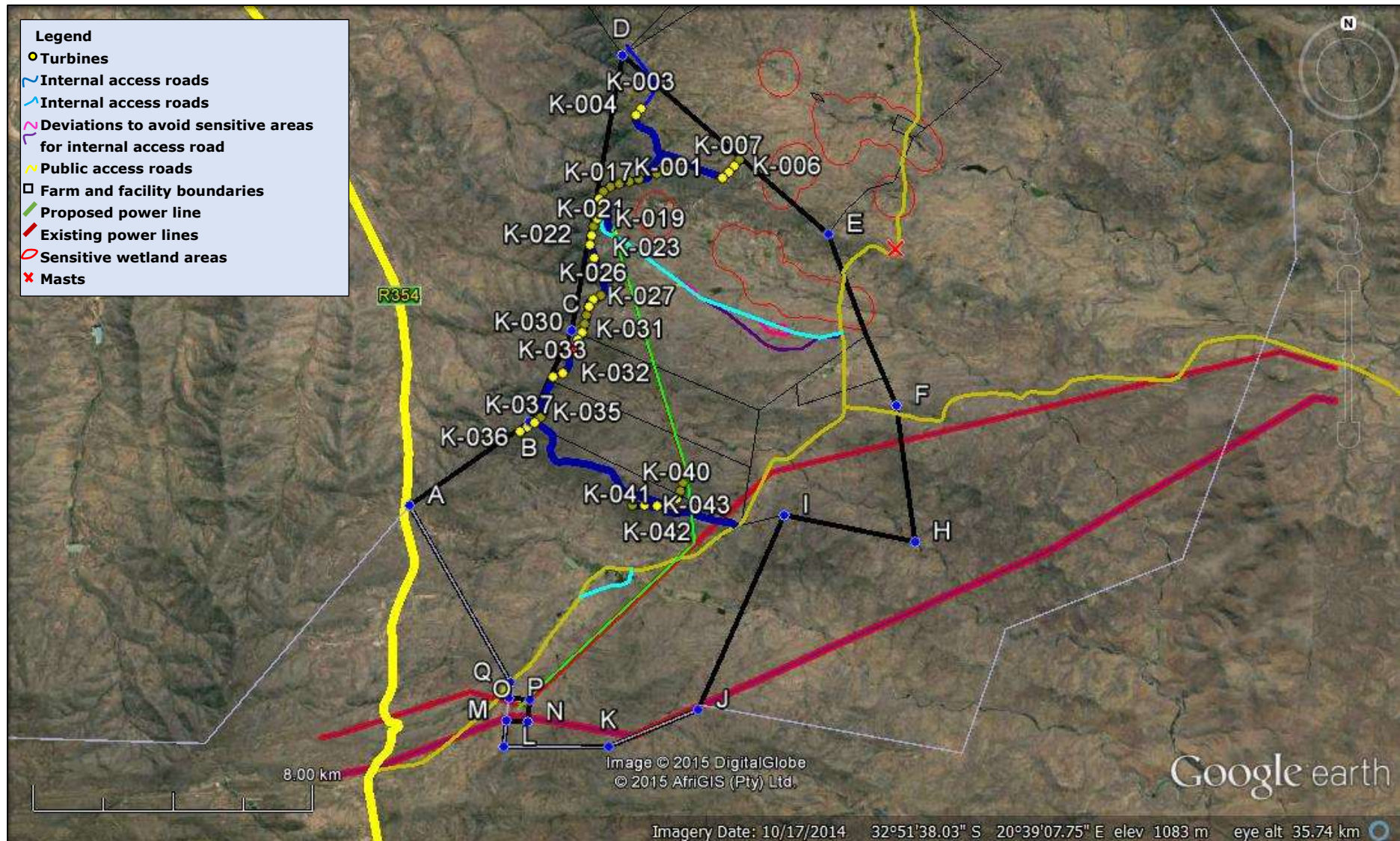
Figure 2. GIS generated map showing the location of the Karusa Wind Energy Facility (courtesy of Savannah Environmental (Pty) Ltd).





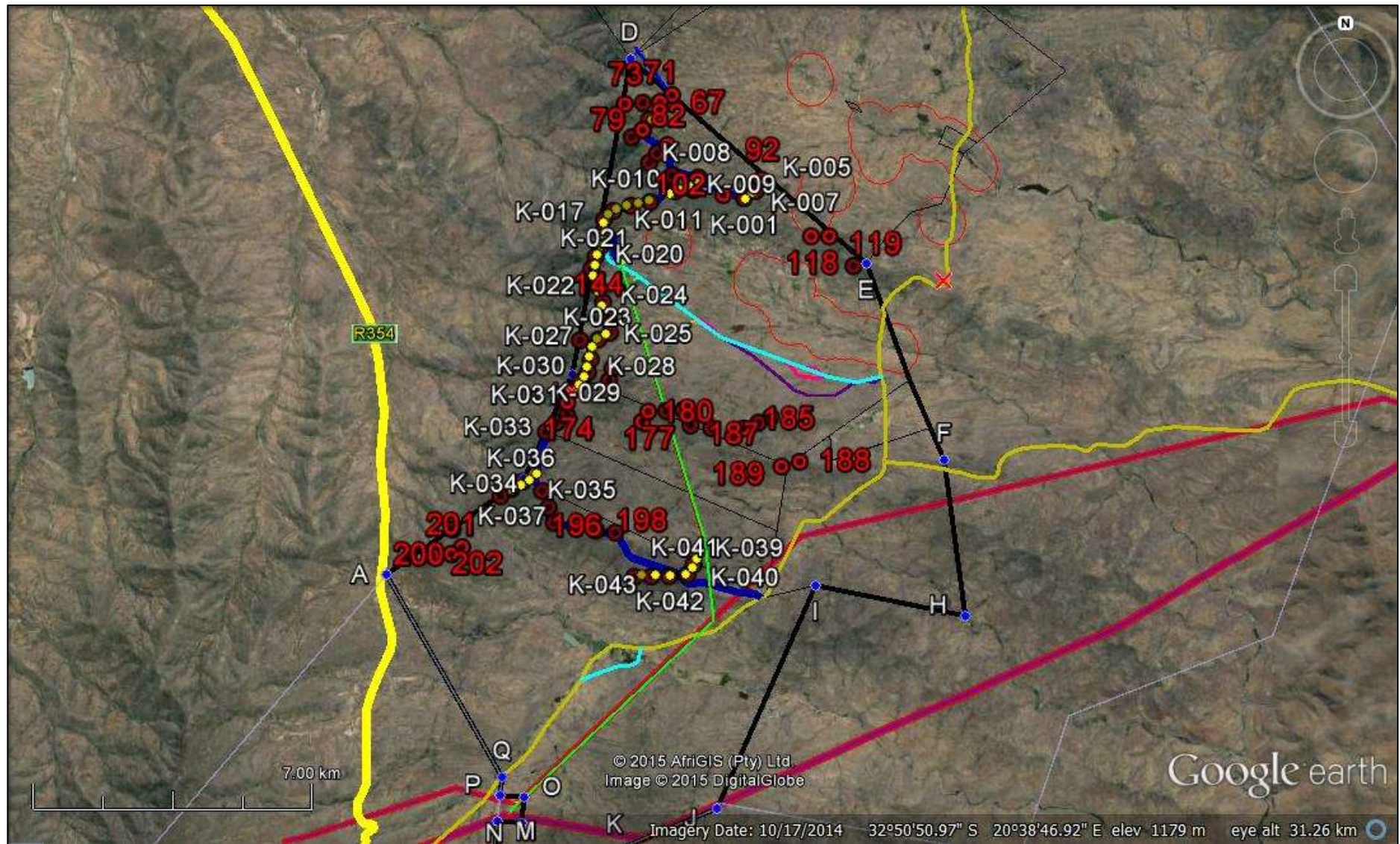
**Figure 3. Aerial view showing the location of the Karusa Wind Energy Facility (black block).**





**Figure 4. Close-up aerial view showing the final layout of the Karusa Wind Energy Facility.**

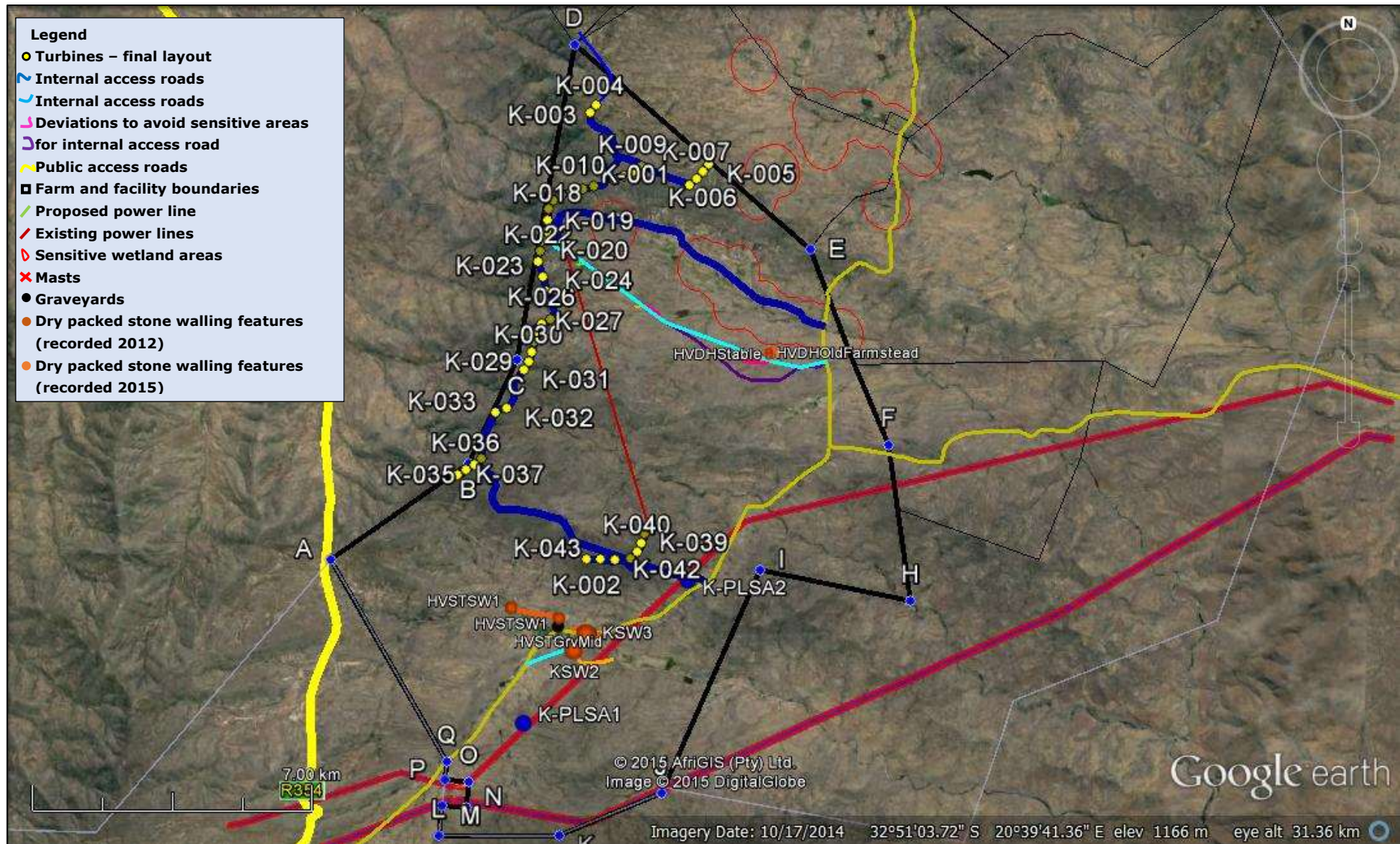




#### Legend

- Turbines – final layout
- Turbines – original layout
- ~ Internal access roads
- ~ Internal access roads





**Figure 6. Aerial view showing the heritage features recorded during the Hidden Valley Phase 1 Archaeological Impact Assessment (2012) and the archaeological heritage walk-through (2015) in relation to the final layout of the Karusa Wind Energy Facility.**

## **5. ARCHAEOLOGICAL INVESTIGATION**

### **5.1. Methodology**

An archaeological desktop literature review was conducted as part of the original AIA study for the Hidden Valley Wind Energy Facility and is therefore not repeated here. Very little systematic archaeological research has been conducted within the immediate area of the Karusa Wind Energy Facility.

The areas were previously surveyed during the phase 1 archaeological impact assessment for the proposed Hidden Valley Wind Energy Facility conducted in 2012. The archaeological walk-through focused on areas not included in the original layout which included the final layout of roads where areas had not yet been surveyed.

Archaeological visibility was relatively good during the survey and if archaeological heritage sites, features and remains were present these would have been observed. The GPS co-ordinate readings and photographs were taken using a Garmin Oregon 550 unit.

### **5.2. Changes to the final layout of the Karusa Wind Energy Facility**

The original layout of the Karusa Wind Farm comprised 74 wind turbines, the number has been decreased to 43 wind turbines in response to various environmental sensitivities and technical requirements. Turbines 197, 200, 201 and 202 have been removed as per SAHRA's Review Comment to protect the sense of place. No ancillary infrastructure will be established within 500 m of the R354. Alternative access roads have been identified. The access roads will lead off the existing public road through the valley and will follow the ridges connecting to the wind turbines. The main access road on De Hoop 202 has also been revised and avoids the initially identified grave site by more than a kilometre.

The public gravel access road routed directly passed the farmstead on Standvastigheid 210 has also been revised and therefore also avoids the heritage sensitivities near the farmhouse by approximately 500 m. It would however require the destruction of a section of stone wall which would require a permit (discussed in more detail under section 6.3.1 below). Therefore, no roads will occur within 30 m of any sensitive heritage features.

### **5.3. Results of the Archaeological Investigation**

#### **5.3.1. Construction of new access roads**

The positions of the turbines were previously surveyed during the phase 1 archaeological impact assessment for the proposed Hidden Valley Wind Energy Facility conducted in 2012 and it was established that no archaeological or heritage resources were encountered within the areas proposed for the wind turbines. The positions of the

turbines in the final layout for the Karusa Wind Farm have not moved drastically, however, several have been removed. The medium voltage cabling between the turbines that are to be laid underground will follow the line of the turbines which has been covered in the 2012 survey.

The areas for the proposed 132kV substation, operations and services workshop area, office building for control, maintenance and storage situated, as well as the laydown and batching areas situated on the Farm De Hoop 202 have been covered in the 2012 survey.

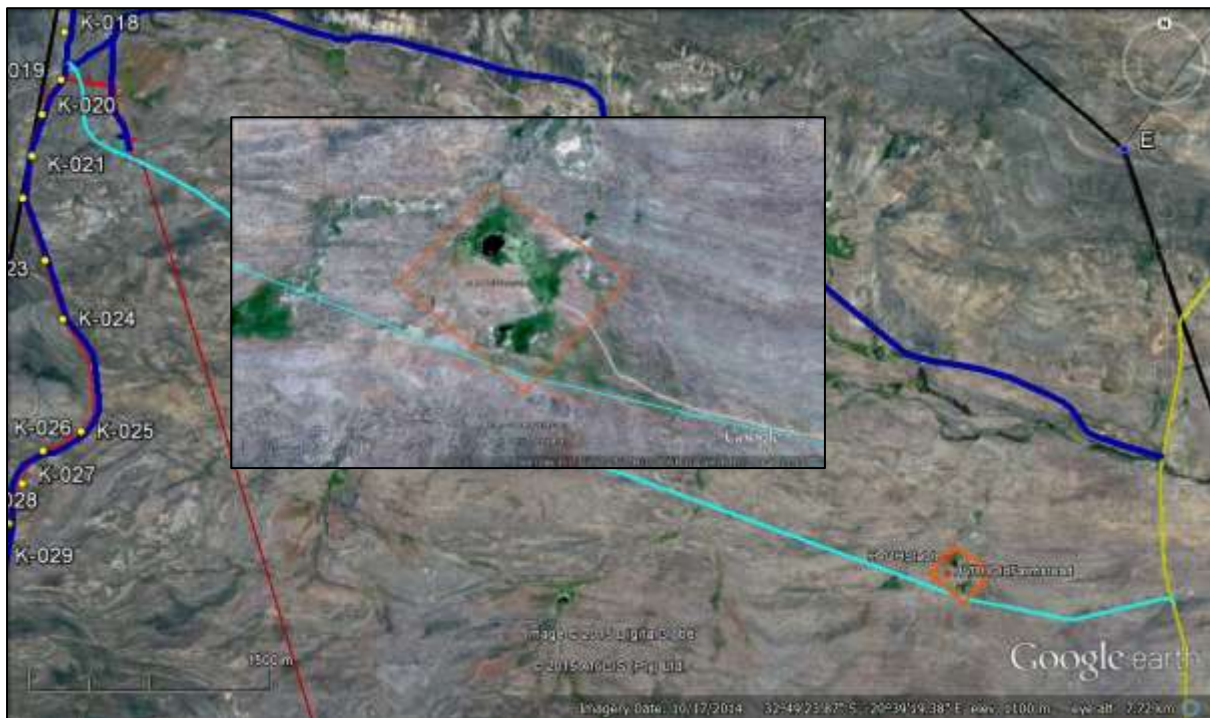
The proposed 132kV power line from the proposed Karusa facility substation to the Eskom Substation has been covered during the current study and has been compiled in a separate report that forms part of a separate Basic Assessment process undertaken.

The access roads to the turbines that had not been finalised and assessed in detail during the original survey were surveyed as part of this archaeological walk-through. Two major access roads will be constructed between the turbines. All access roads lead off the public gravel road. The southern access road is situated on the Farm Standvastigheid 210. The northern preferred access road is situated on the Farm De Hoop 202 and will pass approximately 1.8 km south of the existing farmstead.

The access road on the Farm De Hoop passes the HVDHStable and HVDHOldFarmstead complex, recorded in the 2012 survey, to the south (Figure7). The mitigation and conservation measures must be followed during the construction and utilisation of the road during the construction and continued lifetime of the project. It is unlikely that the access road will negatively impact on the heritage resources and the recommendations in this report must be adhered to during the construction of the road.







**Figure 7. View of the farmstead complex situated on the Farm De Hoop 202 north of the existing access road to be upgraded.**

### 5.3.2. Rerouting around Saaiplaas farmstead



**Figure 8. View of the road to be constructed as a detour south of the farmstead complex on the Farm Standvastigheid 210.**

The public gravel access road, which would be used to gain access to the Karusa main access roads, will be slightly rerouted to avoid negative social impacts (e.g. noise, dust

and health and safety) to the Saaiplaas farmstead on the Farm Standvastigheid 210. The farmhouse and associated farm buildings (for example, sheds and staff houses) are situated immediately adjacent and near to the current public gravel access road which, if upgraded and used during construction, will result in social impacts as described above. This road will be the main access road to the construction of the turbine sites to the north. The farmhouse and occupants will therefore be negatively affected by the increased traffic during the construction period.

Two dry packed stone walls occur within the route for the detour (KSW2 and KSW3, Figure 8). The stone walls are historically significant and mark the areas where the horses were kept during early settlement of the area. However, no other alternative site for the road is available as sensitive heritage features and farm buildings occur to the north of the public gravel access road and dry packed stone walling occurs south of the public access road. The occupants of the farmhouse have been negatively impacted with regards to churning up of dust and related health and safety impacts from the gravel road during previous construction activities where the road that passes the farmhouse experienced higher traffic volumes. It is at their request that the detour road be established. The positions of the dry packed stone walls were mentioned in discussion with the occupants of the farmhouse and the significance thereof. They are however of the opinion that given impacts experienced in the past and the potential of these impacts again being experienced during construction, that the dry packed stone walls are of less importance. This poses a situation where the impact of the development will affect negatively on both the human factor and on the heritage of the area. In this case the negative impact on the human factor outweighs the impact on the heritage, whereby mitigatory measures for the construction of the road through the stone walling should be established and adhered to.

## **6. DESCRIPTION OF SITES**

### **6.1. KSW2 and KSW3**

Two stone dry packed stone walls occur within the route for the detour on the Farm Standvastigheid 210. The stone walls are historically significant and mark the boundary of where the horses were kept during early settlement of the area. However, as noted above, the human impact outweighs the impact on the heritage. Only a section of the wall would need to be destructed. The relevant permit must be applied for and mitigations, i.e. xx, must be implemented.

'General' Protection B (Field Rating IV B): This site should be recorded before destruction (*Medium significance, but outweighed by the impact on inhabitants of the farmhouse which can likely be seen as high significance*).

### **6.2. HVDHStable and HVDHOldFarmstead**



Stone walled farmstead complex consisting of a dry packed stone walled kraal, a main cottage and stables (Farm De Hoop 202). This site will however not be impacted on as the access road is routed approximately 40 m south of the site.

Local: This site is suggested to be Grade IIIB significance. It could be mitigated and (part) retained as a heritage register site (*High significance*).

## 7. COORDINATES AND SITES FOR THE WALK-THROUGH FOR THE PROPOSED KARUSA WIND ENERGY FACILITY NEAR SUTHERLAND, NORTHERN CAPE PROVINCE.

**TABLE 1. COORDINATES AND SITES FOR THE WALK-THROUGH FOR THE PROPOSED KARUSA WIND ENERGY FACILITY NEAR SUTHERLAND, NORTHERN CAPE PROVINCE.**

REFERENCE	DESCRIPTION	CO-ORDINATE	HERITAGE GRADING
KSW2	Dry packed stone wall boundary	32°54'05.40"S; 20°37'34.10"E	'General' Protection B (Field Rating IV B ( <i>Medium significance</i> )).
KSW3	Dry packed stone wall boundary	32°53'51.60"S; 20°37'45.70"E	'General' Protection B (Field Rating IV B ( <i>Medium significance</i> )).
HVDHStable and HVDHOldFarmstead	Stone walled farmstead complex	32°50'03.60"S; 20°40'42.10"E 32°50'06.70"S; 20°40'42.10"E	Grade IIIB significance ( <i>High significance</i> )

## 8. CONCLUSION AND SUMMARY OF THE TERMS OF REFERENCE

- Conduct a walk-through of the optimised Karusa layout to confirm whether any significant archaeological artefacts or sites would be impacted:

The optimised layout was surveyed on foot to establish whether any heritage/archaeological sites would be impacted. Four sites were identified (KSW2, KSW3, HVDHStable and HVDHOldFarmstead) within the optimised layout, two of which would be affected (i.e. KSW2 and KSW3). The human impact is however considered higher than what the impact on the heritage features would be and with the relevant mitigations and permitting the impact is considered acceptable.

- Ensure the walk-through addresses SAHRA's requirements as per their comments on the project, specifically with regard to surveying the final layout:

SAHRA's case comment stipulated that SAHRA does not object to the development of the three phases of the Hidden Valley Wind Farm provided the following recommendations are adhered to:

1. Turbines 197, 200, 201 and 202 be removed in order to protect the sense of place experienced along the R354, SAHRA acknowledges that the latest layout at page 186 of the EIR already makes provision for the removal of these four turbines.
  - The optimised layout confirms these turbines have been removed.
2. If any turbine be located within the 3 km from the R354, the impact on the sense of place of this road must be assessed separately.
  - The optimised layout confirms no turbines are within 3 km of the R354.
3. Ancillary infrastructure should be no closer than 500 m to the R354.
  - The optimised layout confirms no ancillary infrastructure to be closer than 500 m from the R354.
4. Alternative access roads must be identified and located at least 30 m from any sensitive heritage features, such as graveyards.
  - The Proponent designed an alternative access road that is further than 30 m from any sensitive heritage feature, as is confirmed by the optimised layout and the walkthrough from the specialist.
5. The graves should be restored where these are dilapidated, protected and conserved. For this purpose, a proper fence must be built around the unfenced graveyards, with entry gates to allow visits from relatives and friends. The fence must be placed 5 m away from the perimeter of the graves. No development is allowed within 30 m of the fence line surrounding the graves.
  - The graves will no longer be affected as the revised access road routing is far south of the graves. It is therefore the opinion of the specialist that the mitigations proposed by SAHRA, as noted here, are no longer required considering that any construction activity will be more than 1km from the graves.
6. Once the final layout of turbines, substations, power lines and access roads has been decided, the archaeologist must be informed and, if necessary, another field

survey may be conducted. The archaeological report must be submitted to SAHRA for further comments.

– The purpose of the walk-through and resulting report is to give effect to this requirement from SAHRA.

7. Decisions on the Built Environment (structures older than 60 years including all farm infrastructure) must be made by the Provincial Heritage Resources Agency of the Northern Cape.

– The relevant authority will be consulted if required.

- Address condition 128 of the Environmental Authorisation (EA) which states the following: *"The final layout should be shown to the appointed archaeologist before implementation to confirm that all significant heritage resources have been adequately protected."*

This walk-through survey was commissioned to fulfil the above EA requirement. It was found that all significant heritage resources have been adequately protected.

- Indicate whether any further permits might be required for the destruction of any heritages sites, if applicable.

A destruction permit would be required for the stone-walling features on the Farm Standvastigheid 210, to allow for the rerouting of the access road.

- Make recommendations regarding practical mitigation measures if and where additional mitigations to those proposed in the initial Archaeology study is required.

The recommendations have been explained in detail in the below section.

The OBJECTIVE of the walk-through for the final layout of the Karusa Wind Energy Facility was to establish the range and importance of the exposed and *in situ* archaeological heritage material remains, sites and features; to establish the potential impact of the development; and to make recommendations to minimize possible damage to the archaeological heritage.

<b>Project component/s</b>	<ul style="list-style-type: none"> <li>• The construction of 43 wind turbines (3.3MW in capacity and with a 117 m rotor diameter and a hub height of 91.5 m);</li> <li>• Medium voltage cabling between turbines to be laid underground where practical;</li> <li>• Internal access roads for each turbine, the substation complex and ancillaries;</li> <li>• Proposed 132kV substation;</li> <li>• Proposed 132kV power line from Karusa substation (proposed) to the Eskom Komsberg Substation; operations</li> </ul>
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	<p>and services workshop area / office building for control, maintenance and storage; and</p> <ul style="list-style-type: none"> <li>• Temporary infrastructure including a site camp, laydown areas and a batching plant.</li> </ul>
<b>Potential Impact</b>	<ul style="list-style-type: none"> <li>• Negative impact on the stone wall features during construction activities.</li> <li>• Physical destruction of archaeological heritage resources not visible at the surface.</li> </ul>
<b>Activity/risk source</b>	Construction of the Karusa Wind Energy Facility
<b>Mitigation: Target/objective</b>	Protection and conservation of heritage features documented during the walk-through for the final layout of the Karusa Wind Energy Facility and possible archaeological heritage resources occurring below the surface not visible on the surface.

<b>Mitigation: Action / control</b>	<b>Responsibility</b>	<b>Timeframe</b>
<ul style="list-style-type: none"> <li>• If the current layout is changed significantly, an archaeological walk-through survey of the changes, if outside of the assessed footprint area, must be conducted and further mitigatory recommendations may be made if necessary.</li> </ul>	Contracted archaeologist	Prior to construction as part of the EMP.
<ul style="list-style-type: none"> <li>• The existing access road on the Farm De Hoop 202 would need to be at least 30 m from any sensitive heritage features at the HVDVStable and HVDHOldFarmstead Complex, as is currently the case.</li> </ul>	Environmental control officer (ECO)/ Contractor's Environmental Officer (EO), and Proponent	Prior to construction as part of the EMP.
<ul style="list-style-type: none"> <li>• The stone walls must be recorded in detail and a destruction permit for portions of the dry packed stone walls on the Farm Standvastigheid 210 must be applied for to continue construction of the detour road south of the Saaiplaas farmstead.</li> </ul>	Contracted archaeologist ECO/EO, and Proponent Contractor, ECO/EO	Prior to construction as part of the EMP.
<ul style="list-style-type: none"> <li>• It is unlikely that the remnants of the stone walling will be negatively affected by the construction of the road, however, precautions must be taken as to avoid impact during construction activities.</li> </ul>	Environmental control officer (ECO)/ Contractor's Environmental Officer (EO), and Proponent	Prior to construction of the access road.
<ul style="list-style-type: none"> <li>• If concentrations of historical and pre-colonial archaeological heritage material and/or human remains (including graves and burials) are</li> </ul>	Contracted archaeologist Environmental control officer (ECO), developer and	During construction of the Karusa Wind Energy Facility.



The overall area is considered as having a **low archaeological significance**. The following recommendations must be considered before development continues:

1. If any significant changes are made to the final layout of the Karusa Wind Energy Facility outside of the buffer areas assessed, an archaeological walk-through survey of the changes must be conducted and further mitigatory recommendations may be made if necessary.
2. It is unlikely that the remnants of the stone walling on the Farm De Hoop 202 will be negatively affected by the construction of the road, however, precautions must be taken as to avoid impact during construction activities.
3. The access road on the Farm De Hoop 202 would need to be at least 30 m from any sensitive heritage features at the HVDVStable and HVDHOldFarmstead Complex, as is already the case based on the current alignment.
4. The stone walls must be recorded in detail and a destruction permit for portions of the dry packed stone walls on the Farm Standvastigheid 210 must be applied for to continue upgrade of the detour road south of the Saaiplaas farmstead.
5. If concentrations of historical and pre-colonial archaeological heritage material and/or human remains (including graves and burials) are uncovered during construction, all work in the immediate area affecting the find must cease immediately and be reported to the South African Heritage Resources Agency (SAHRA) and/or the MacGregor Museum, Kimberly, so that systematic and professional investigation/excavation can be undertaken. Phase 2 mitigation in the form of test-pitting/sampling or systematic excavations and collections of the pre-colonial shell middens and associated artefacts will then be conducted to establish the contextual status of the sites and possibly remove the archaeological deposit before development activities continue.
6. A person must be trained as a site monitor to report any archaeological sites found during the development. Construction managers/foremen and/or the ECO/ contractor's EO should be informed before construction starts on the possible types of heritage sites and cultural material they may encounter and the procedures to follow if they find sites.

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## **12. GENERAL REMARKS AND CONDITIONS**

**NOTE:** This report is an archaeological heritage walk-through and does not include or exempt other required specialist assessments as part of the heritage impact assessments (HIAs).

The National Heritage Resources Act (Act No. 25 of 1999, Section 35 [Brief Legislative Requirements]) requires a full Heritage Impact Assessment (HIA) in order that all heritage resources including all places or objects of aesthetics, architectural, historic, scientific, social, spiritual, linguistic, or technological value or significance are protected. Thus any assessment should make provision for the protection of all these heritage components including archaeology, shipwrecks, battlefields, graves, and structures older than 60 years, living heritage, historical settlements, landscapes, geological sites, palaeontological sites and objects.

It must be emphasized that the conclusions and recommendations expressed in this phase 1 archaeological impact assessment (AIA) are based on the visibility of archaeological remains, features and, sites and may not reflect the true state of affairs. Many archaeological remains, features and, sites may be covered by soil and vegetation and will only be located once this has been removed. In the event of such archaeological heritage being uncovered (such as during any phase of construction activities), archaeologists or the relevant heritage authority must be informed immediately so that they can investigate the importance of the sites and excavate or collect material before it is destroyed. The onus is on the developer to ensure that this agreement is honoured in accordance with the National Heritage Resources Act No. 25 of 1999 (NHRA 25 of 1999).

Archaeological Specialist Reports (desktops and AIA's) will be assessed by the relevant heritage resources authority. The final comment/decision rests with the heritage resources authority that may confirm the recommendations in the archaeological specialist report and grant a permit or a formal letter of permission for the destruction of any cultural sites.

## **APPENDIX A: GRADING SYSTEM**

The National Heritage Resources Act 25 of 1999 stipulates the assessment criteria and grading of archaeological sites. The following categories are distinguished in Section 7 of the Act and the South African Heritage Resources Agency:

- National: This site is suggested to be considered of Grade 1 significance and should be nominated as such. Heritage resources with qualities so exceptional that they are of special national significance.
- Provincial: This site is suggested to be considered of Grade II significance and should be nominated as such. Heritage resources which, although forming part of the national estate, can be considered to have special qualities which make them significant within the context of a province or a region

- Local: This site is suggested to be Grade IIIA significance. This site should be retained as a heritage register site (High significance) and so mitigation as part of the development process is not advised.
- Local: This site is suggested to be Grade IIIB significance. It could be mitigated and (part) retained as a heritage register site (High significance).
- 'General' Protection A (Field Rating IV A): This site should be mitigated before destruction (usually High/Medium significance).
- 'General' Protection B (Field Rating IV B): This site should be recorded before destruction (usually Medium significance).
- 'General' Protection C (Field Rating IV C): This site has been sufficiently recorded (in the Phase 1). It requires no further recording before destruction (usually Low significance).

## **APPENDIX B: IDENTIFICATION OF ARCHAEOLOGICAL FEATURES AND MATERIAL FROM INLAND AREAS: guidelines and procedures for developers**

### **1. Human Skeletal material**

Human remains, whether the complete remains of an individual buried during the past, or scattered human remains resulting from disturbance of the grave, should be reported. In general the remains are buried in a flexed position on their sides, but are also found buried in a sitting position with a flat stone capping and developers are requested to be on the alert for this.

### **2. Freshwater mussel middens**

Freshwater mussels are found in the muddy banks of rivers and streams and were collected by people in the past as a food resource. Freshwater mussel shell middens are accumulations of mussel shell and are usually found close to rivers and streams. These

shell middens frequently contain stone tools, pottery, bone, and occasionally human remains. Shell middens may be of various sizes and depths, but an accumulation which exceeds 1 m<sup>2</sup> in extent, should be reported to an archaeologist.

### 3. Stone artefacts

These are difficult for the layman to identify. However, large accumulations of flaked stones which do not appear to have been distributed naturally should be reported. If the stone tools are associated with bone remains, development should be halted immediately and archaeologists notified

### 4. Fossil bone

Fossil bones may be found embedded in geological deposits. Any concentrations of bones, whether fossilized or not, should be reported.

### 5. Large stone features

They come in different forms and sizes, but are easy to identify. The most common are roughly circular stone walls (mostly collapsed) and may represent stock enclosures, remains of wind breaks or cooking shelters. Others consist of large piles of stones of different sizes and heights and are known as *isisivane*. They are usually near river and mountain crossings. Their purpose and meaning is not fully understood, however, some are thought to represent burial cairns while others may have symbolic value.

### 6. Historical artefacts or features

These are easy to identified and include foundations of buildings or other construction features and items from domestic and military activities.