A PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT (AIA) FOR THE PROPOSED CANYON SPRINGS WIND AND SOLAR FACILITY LOCATED ON PORTIONS 18, 19, 20 AND 21 OF FARM 258, PEDDIE, WESLEY, AMATHOLE DISTRICT MUNICIPALITY, EASTERN CAPE PROVINCE

Prepared for:

USK Consulting Environmental & Waste Engineering Service
23 Ray Craib Crescent
Beacon Bay
East London
South Africa
Tel: +27 (0)43 748 5567/45
Fax: +27 (0)43 748 1114
Web: www.uskconsulting.com
Contact person: Mr Steve K Kalule
Email: kklalule@uskconsulting.com

Prepared by:

Ms Celeste Booth
Department of Archaeology
Albany Museum
Somerset Street
Grahamstown
6139
Tel: (046) 622 2312
Fax: (046) 622 2398
Contact person: Ms Celeste Booth
Email: celeste.booth@ru.ac.za

September 2011

TABLE OF CONTENTS

A PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT (AIA) FOR THE PROPOSED CANYON SPRINGS WIND AND SOLAR FACILITY LOCATED ON PORTIONS 18, 19, 20 AND 21 OF FARM 258, PEDDIE, WESLEY, AMATHOLE DISTRICT MUNICIPALITY, EASTERN CAPE PROVINCE

Note: This report follows the minimum standard guidelines required by the South African Heritage Resources Agency (SAHRA) for compiling Phase 1 Archaeological Impact Assessment (AIA).

EXECUTIVE SUMMARY

Purpose of the Study

The purpose of the study was to conduct a phase 1 archaeological impact assessment (AIA) for the proposed Canyon Springs hybrid Wind and Solar Energy Generation Facility on portions 18, 19, 20 and, 21 of Farm 258, Peddie, Amathole District Municipality, Eastern Cape Province. The survey was conducted to establish the range and importance of the exposed and *in situ* archaeological heritage materials and features, the potential impact of the development and, to make recommendations to minimize possible damage to these sites.

Brief Summary of Findings

The area for the proposed Canyon Springs wind and solar energy facility is located to the east, directly across the R72 road, of the small town / village of Wesley, situated about halfway between East London and Port Alfred. The proposed area is approximately between 6km – 8km from the coast, falling just outside the 5km coastal archaeological sensitivity zone which is established to range within 5km of the coast. The proposed area is mostly covered in dense grass vegetation and thicket vegetation near watercourses that made archaeological visibility difficult. The area has mainly been disturbed by general farming activities such as cultivation and grazing. Other disturbances include sand quarry activities, the construction the Wesley substation and associated power lines, as well as telephone lines, fences, farm roads and soil erosion.

Occasional isolated scatters of predominantly Middle Stone Age (MSA) stone artefacts were observed within the heavily disturbed sand quarry area and within the less vegetated areas on the slopes of hills, gravel farm roads and erosion affected areas. It is unlikely that these stone artefact scatters are *in situ* and are, therefore, considered being in a secondary context. It is, however, possible that stone artefacts may occur *in situ* under the dense grass vegetation cover and between the surface and 50 – 80cm below ground within the area proposed for development. No sites containing any depth of deposit or other archaeological material associated with the stone tool artefacts were observed within the area. The proposed area for development is considered as having a low cultural significance, although the recommendations must be taken into consideration prior to the construction activities.

Recommendations (for full recommendations, see page 22)

The area is of a low cultural sensitivity and development may proceed as planned, although the following recommendations must be considered:

1. An archaeologist must be appointed during vegetation clearing and excavations to monitor possible encounters of archaeological material remains or sites.

2. A built environment specialist must assess the significance of the original farm houses and built environment if they are to be demolished or altered.

3. If concentrations of archaeological heritage material and human remains are uncovered during construction, all work must cease immediately and be reported to the Albany Museum (046 622 2312) and/or the South African Heritage Resources Agency (SAHRA) (021 642 4502) so that systematic and professional investigation/ excavation can be undertaken.

4. Construction managers/foremen must be informed before construction starts on the possible types of heritage sites and cultural material they may encounter and the procedures to follow when they find sites.

BACKGROUND INFORMATION

The phase 1 archaeological impact assessment (AIA) report is required for the environmental impact assessment (EIA).

Canyon Springs Investments 71 (Pty) Ltd are proposing to establish a hybrid Wind and Solar Energy Generation Facility with a total generation capacity of approximately 90MW. The wind and solar facility will include both wind and solar energy generators. The proposed wind energy generators will include a total of 25 Vestas type, V90 model turbines each generating 2MW of power making up a total power generation output of 50MW. The proposed turbine towers will be 80 meters in height with maximum hub height of 105m and rotor blade diameter of approximately 90 meters. The area has been established as suitable for wind energy generation with steady annual wind speeds of over 8m/s. The proposed solar energy generators are expected to accommodate an array of photovoltaic (PV) panels (1400m x 290m) with a generating capacity of up to 40MW. An initial pilot phase of 4MW is to be developed in the first two years and will continue thereafter to be developed in phases. The solar energy or irradiance in this area is roughly 2000KW per square meter making the project feasible.

Other infrastructure associated with the facility will include:

- A meteorological station on a 50m mast;
- Foundations to support the turbines, masts and, PV panels;
- Cabling between the project components to be lain underground, above ground power lines (22kV) feeding into the Eskom electricity network at the existing Wesley substation;
- Internal access roads and;
- A control room and workshop area for maintenance and storage.

Developer:

Canyon Springs Investments 71 (Pty) Ltd

Consultant:

USK Consulting Environmental & Waste Engineering Service
23 Ray Craib Crescent
Beacon Bay
East London
South Africa
Tel: +27 (0)43 748 5567/45
Fax: +27 (0)43 748 1114
Contact person: Mr Steve K Kalule (kklalule@uskconsulting.com)

Terms of Reference

To conduct a phase 1 archaeological impact assessment (AIA) for the proposed Canyon Springs hybrid Wind and Solar Energy Generation Facility on portions 18, 19, 20 and, 21 of Farm 258, Peddie, Amathole District Municipality, Eastern Cape Province. The survey was conducted to establish the range and importance of the exposed and *in situ* archaeological heritage materials and features, the potential impact of the development and, to make recommendations to minimize possible damage to these sites.

Brief legislative requirements

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

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;
(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.

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.

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, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
(b) the construction of a bridge or similar structure exceeding 50m in length;
(c) any development or other activity which will change the character of the site -
(i) exceeding 5000m^2 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 000m^2 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.

BRIEF ARCHAEOLOGICAL BACKGROUND

Literature review

Little is known about the archaeology of the immediate area, mainly because no systematic research has been conducted within the area proposed for development. However, a desktop study (Booth 2010) and phase 1 archaeological impact assessment (AIA) (Binneman *et al.* 2010) have been conducted in the area to the north of Wesley between Hamburg and Wesley that provides insight into the archaeological material remains that may be encountered during the survey for the proposed Canyon Springs wind and solar facility. The desktop study had established that Later Stone Age hunter-gatherer shell midden sites occur along the coast and that some caves / shelters containing rock art had been recorded. There are several focus areas for the precolonial human settlement that can be identified: the coastal zone, the main river courses and river valleys, and hilltops.

The coastal zone stretches from the coastal sea-side area to 5 km inland; this is where the general occurrence of shell middens may be encountered. The presence of bones, features, ash, stone artefacts and pottery may also be found associated with shell middens. Shell middens or the so-called 'Strandloper middens' occur along the whole length of the Ciskei coast (Derricourt 1977). A few shell middens that occur along the coast have been documented between the Keiskamma River Mouth and east along the coast to the Fish River Mouth. The associated archaeological finds include Middle Stone Age (MSA) and Later Stone Age (LSA) stone artefacts made on lydianite, siltstone, quartzite, silcrete and chert. Other artefacts include grinders, bored stones and pottery. Caves, rock shelters and Early Iron Age (EIA) sites are known to occur within the river valleys and Late Iron Age (LIA) sites are known to occur on top of the higher ground hilltops. A few sites have been formally documented and are held within the records of the Department of Archaeology, Albany Museum, Grahamstown, and R.M. Derricourt's *Prehistoric Man in the Ciskei and Transkei* is another main source of information.

Two major rivers are situated to the south (Gqutywa River) and south-west (Bira River) of the proposed area for development. Smaller perennial rivers that surround or are located within the proposed area for development include the Ngculura River to the south and the Daninge River occurring within the proposed area for development. Several tributaries and watercourses also occur within the proposed area for development. Accumulations of shell along the rivers, referred to as fresh water shell middens may be encountered along the banks of the rivers. These shell middens are predominantly made up of fresh water mussel collected from the rivers and freshwater fish. The shell accumulations would also have included associated artefacts and remains. Fresh water mussel accumulations have been recorded at two excavated sites in the upper reaches of the Fish River Valley on the banks of the Fish River. The sites date from about 4 000 years and were occupied by hunter-gatherer-fishers, although the large freshwater mussel middens with pottery occurring on the banks of the middle and upper reaches of the Fish River demonstrate that pastoralists also made extensive use of this resource (Hall 1990).

The Early Iron Age (EIA) first-farming communities, during the first millennium AD, generally preferred to occupy river valleys within the eastern half of southern Africa owing to the summer-rainfall climate that was conducive for growing millet and sorghum. Thus far, the closest documented and well-researched Early Iron Age site is located within the Great Kei River Valley. The site is situated some 200m below the plateau and 60 km inland from the coast. There has is the past been some speculation that Early Iron Age populations may have spread well south of the Transkei into the Ciskei, possibly up to the Great Fish River (Binneman *et al.* 1992), however, no further research has been undertaken to confirm these statements. An Early Iron Age site has been documented to the south of East London (Cronin 1982). Thicker and decorated pottery sherds, kraals, possible remains of domesticated animals, upper and lower grindstones and storage pits are associated with the identification of Early Iron Age sites. The sites are generally large settlements, but the archaeological visibility may in most cases be difficult owing to the organic nature of the homesteads. Metal and iron implements are also associated with Early Iron Age communities.

Hilltop settlement is mainly associated with Later Iron Age (LIA) settlement patterns that occurred during the second millennium AD. The Later Iron Age communities later moved from settlement in river valleys to the hilltops. Later Iron Age settlements have been formally recorded by the Albany Museum and cover a relatively extended area in comparison to the Early Iron Age settlement patterns. A possible Late Iron Age or historical settlement was documented during the previous phase 1 archaeological impact assessment (AIA) (Binneman *et al.* 2010).

Early Stone Age (ESA) (1.5 million years ago-250 000 years ago) stone artefacts such as handaxes and cleavers may be encountered. Generally these artefacts are not found *in situ* and are likely to be out of their primary context. Middle Stone Age (MSA) (250 000-30 000 years ago) and Later Stone Age (LSA) (30 000 years ago-present) stone artefacts may also be encountered as surface scatters. Similarly these artefacts are not usually *in situ*. Mainly surface scatters of Middle Stone Age stone artefacts were encountered in the previous phase 1 archaeological impact assessment. These were documented in exposed and disturbed areas such as quarries, erosion dongas, the gravel farm roads, and 'man-made' dams (Binneman *et al.* 2010).

References:

Binneman, J., Webley, L. & Biggs, V. 1992. Preliminary notes on an Early Iron Age site in the Great Kei River Valley, Eastern Cape. *Southern African Field Archaeology* 1: 108-109.

Cronin, M. 1982. Radiocarbon dates for the Early Iron Age in the Transkei. *South African Journal of Science* 78 (1): 38.

Derricourt, R.M. 1977. *Prehistoric Man in the Ciskei and Transkei.* C. Struik (Pty) Ltd: Cape Town and Johannesburg.

Hall, S.L. 1990. Hunter-Gatherer-Fishers of the Fish River Basin: A Contribution to the Holocene Prehistory of the Eastern Cape. Unpublished PhD Thesis: University of Stellenbosch.

Klopper, D. 1990. The Politics of the Pastoral: The Poetry of Thomas Pringle. *English in Africa.* Vol. 17, No. 1: 21-59.

Rudner, J. 1968. Strandloper pottery from South and South West Africa. *Annals of the South African Museum* 49:441-663.

Relevant archaeological impact assessments:

A desktop study and phase 1 archaeological impact assessment have been conducted for the proposed Riverbank Wind Energy Facility.

References:

Binneman, JNF; Booth, C. & Higgitt, N. 2010. A phase 1 archaeological impact assessment (AIA) for the proposed Riverbank Wind Energy Facility between Hamburg and Wesley, Amathole District Municipality, Eastern Cape Province. Prepared for Savannah Environmental (Pty) Ltd.

Booth, C. 2010. An archaeological desktop study for the proposed Riverbank Wind Energy Facility between Hamburg and Wesley, Peddie, Amathole District Municipality, Eastern Cape Province. Prepared for Savannah Environmental (Pty) Ltd).

DESCRIPTION OF THE PROPERTY

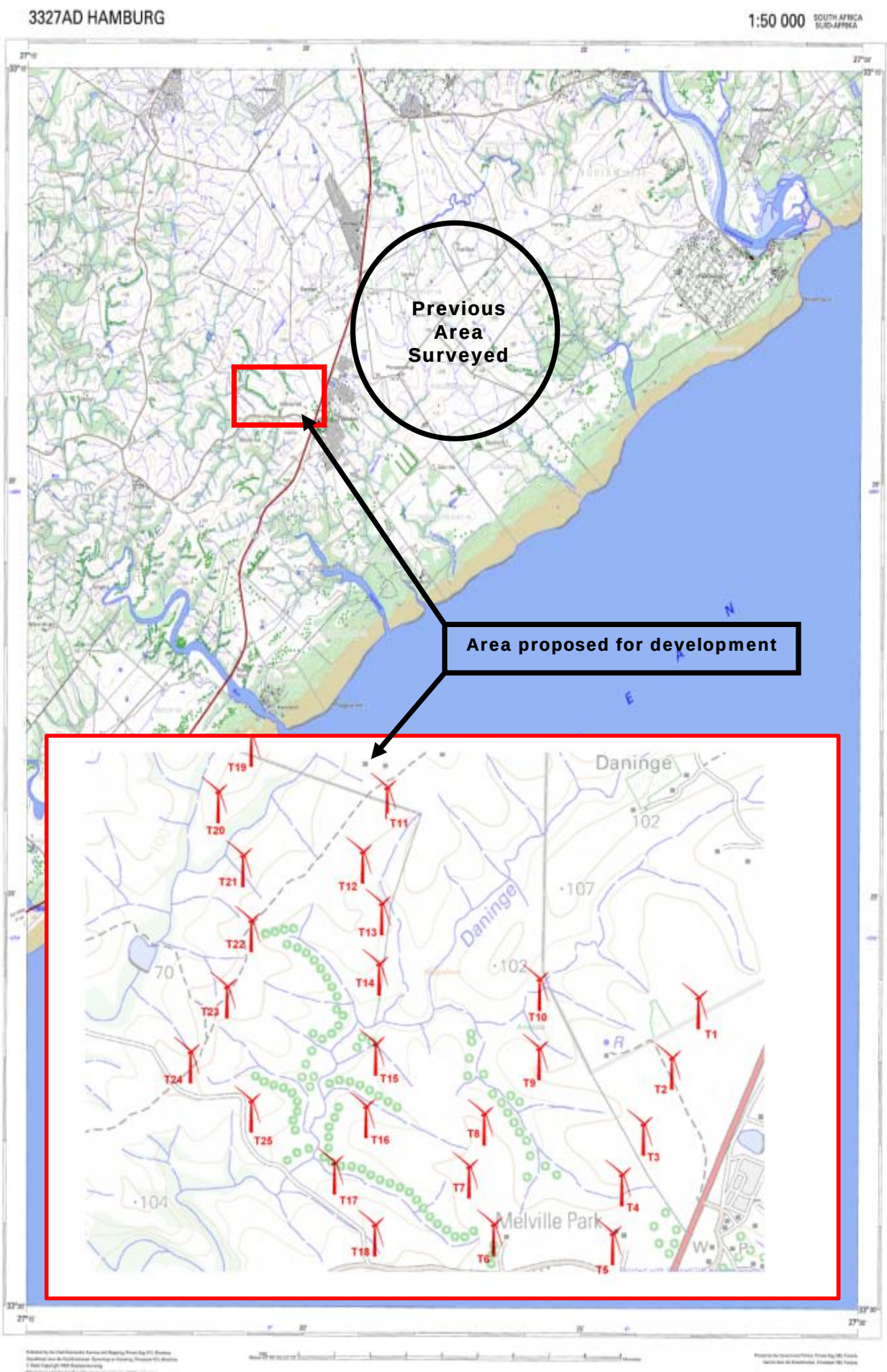
Area surveyed

Location data

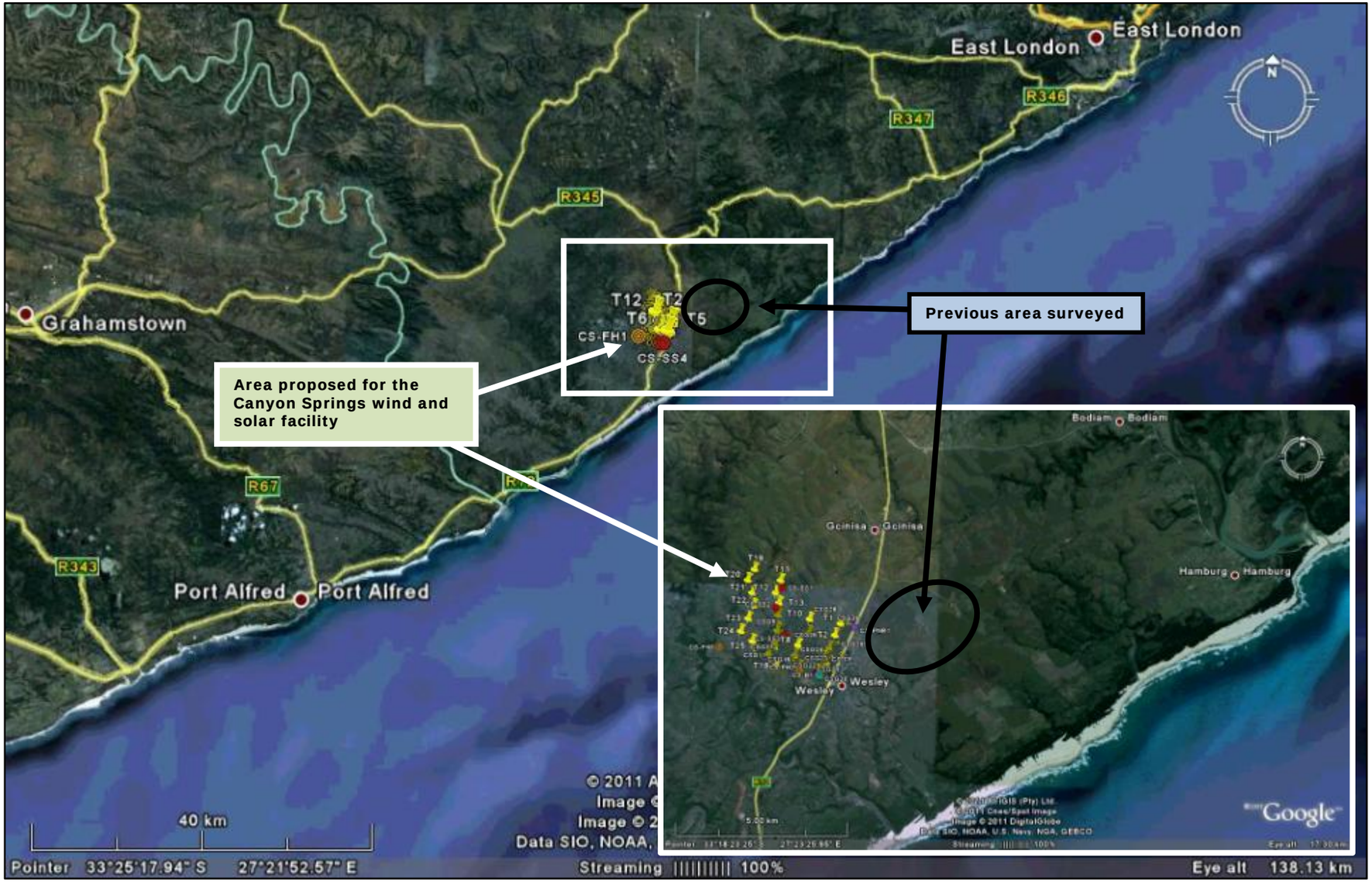
The area for the proposed Canyon Springs wind and solar energy facility is located to the east, directly across the R72 road, of the small town / village of Wesley, situated about halfway between East London and Port Alfred. The proposed area is approximately between 6km – 8km from the coast, falling just outside the 5km coastal archaeological sensitivity zone which is established to range within 5km of the coast. The proposed area is mostly covered in dense grass vegetation and thicket vegetation near watercourses that made archaeological visibility difficult. Two major rivers are situated to the south (Gqutywa River) and south-west (Bira River) of the proposed area for development. Smaller perennial rivers that surround or are located within the proposed area for development include the Ngculura River to the south and the Daninge River occurring within the proposed area for development. Several tributaries and watercourses also occur within the proposed area for development. The area has mainly been disturbed by general farming activities such as cultivation and grazing. Other disturbances include sand quarry activities, the construction the Wesley substation and associated power lines, as well as fences, gravel farm roads and soil erosion.

Map

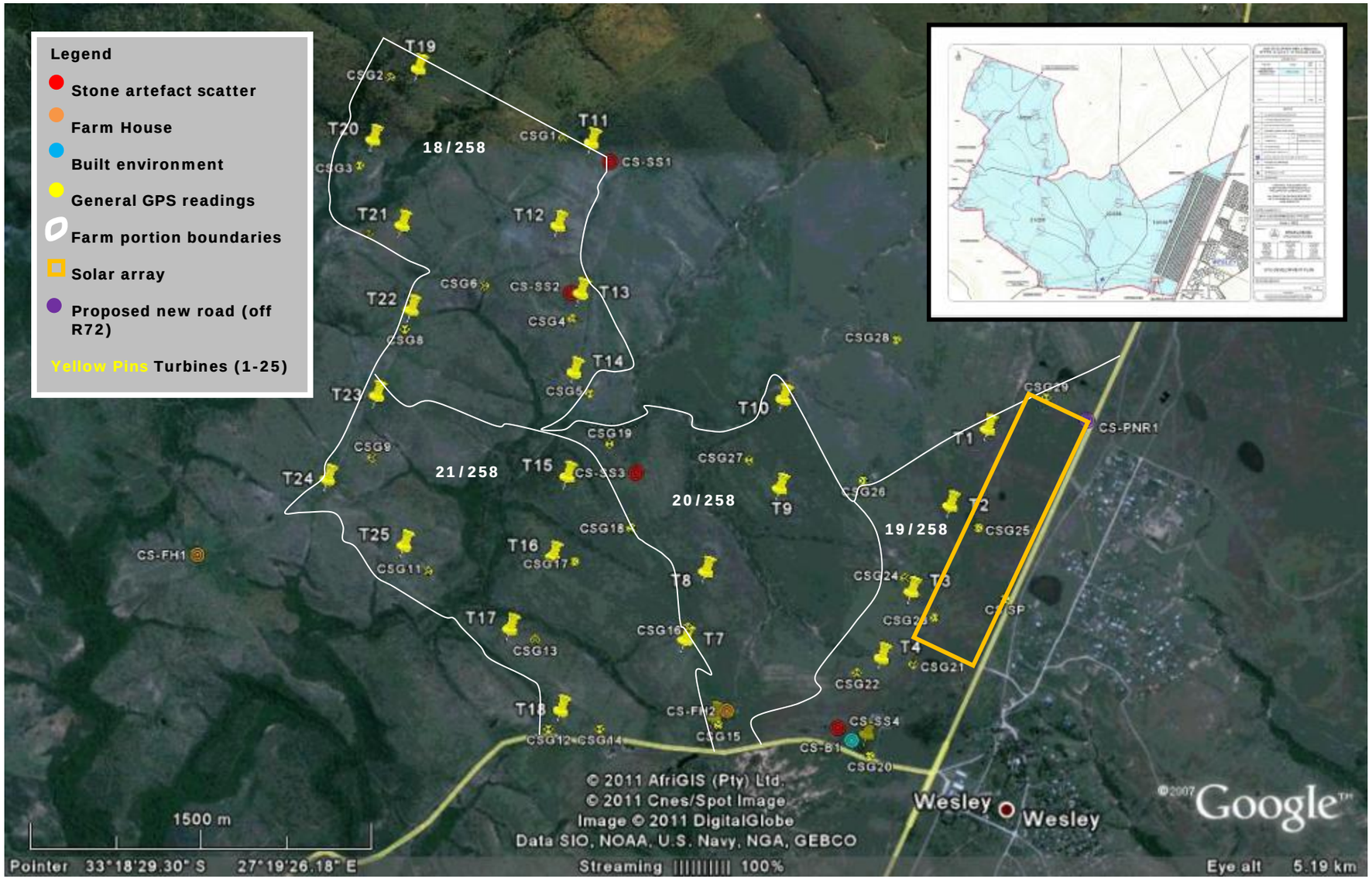
1:50 000 Maps: 3327AD HAMBURG (Map 1).



Map 1. 1:50 000 map highlighting the area proposed for the Canyon Springs Wind and Solar Facility with the positions of the turbines and solar photovoltaic panel array plotted (insert map courtesy of Solar Projects).



Map 2. Aerial view showing the position of the area for the proposed Canyon Springs wind and solar facility and the previous area surveyed (Binneman *et al.* 2010).



Map 3. Close-up aerial view of the area for the proposed Canyon Springs wind and solar facility (farm portion boundary lines not to scale) (insert map courtesy of Solar Projects).

ARCHAEOLOGICAL INVESTIGATION

Methodology

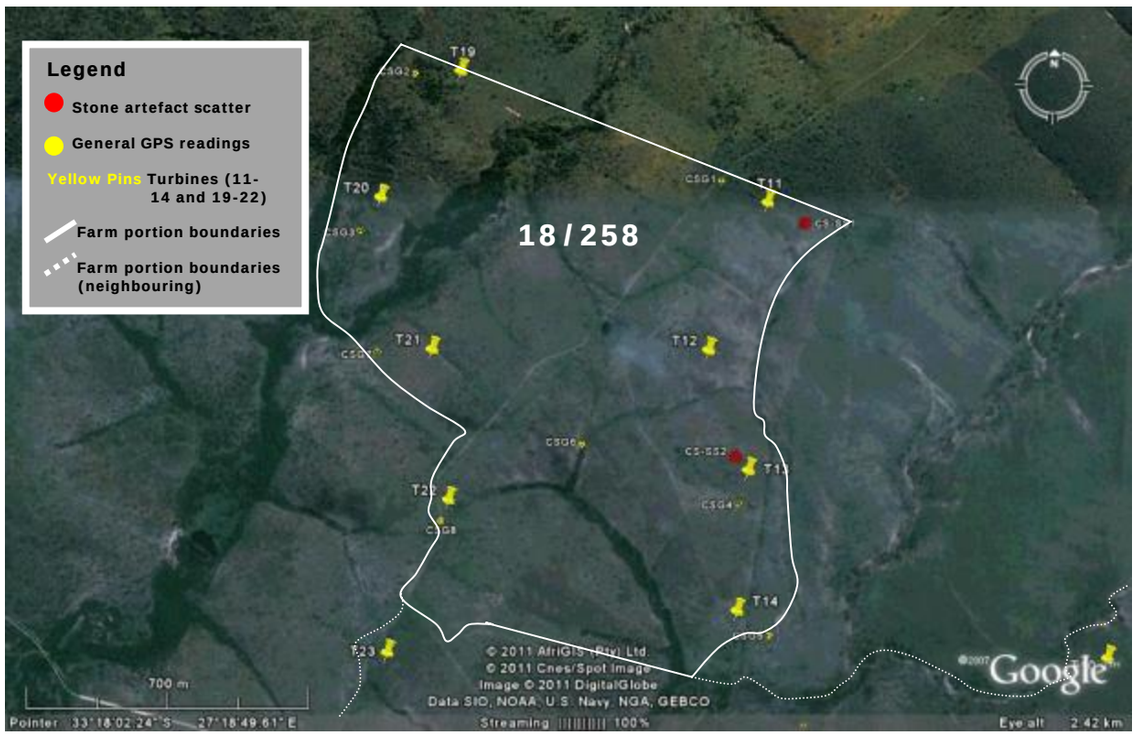
The survey was conducted over four days by conducting spot checks on foot from a vehicle following the existing farm and service roads. Most of the area was surveyed on foot by investigating disturbed, quarried and eroded areas. GPS readings were taken using a Garmin Oregon 550 (Table 1). The GPS readings have been plotted on Maps 3 - 7.

Description

The proposed area for the Canyon Springs wind and solar facility is relatively hilly with flat hilltops and slight gradient slopes and covered in dense grass vegetation with thicker vegetation occurring near water sources. These vegetation conditions made archaeological visibility difficult. However, disturbed, exposed, quarry, and less vegetated slope areas allowed for the investigation of possible archaeological material remains.

The area proposed for the Canyon Springs wind and solar facility is divided into portions 18, 19, 20, and 21 of the Farm 258. The portions will be described individually to allow for comprehensive description and discussion.

Portion 18 of the Farm 258:



Map 4. Close-up aerial view of portion 18 of Farm 258 showing the positions of the turbines, general GPS points and archaeological material remains encountered (farm boundaries not to scale).

Portion 18 of Farm 258 is situated in the north-western corner of the proposed area for development and covers an area of approximately 1400m x 1400m in extent. Eight turbines, 11-14 and 19-22, are proposed to be erected on this portion of Farm 258. The eight turbines are proposed to be constructed on the relatively flat hilltops and slight gradient slopes. Access to the proposed area will be on the existing farm road that enters the area through the Ngcinisa Village to the north. New roads and bridges are proposed to be constructed from the existing gravel road linking the turbines. One new proposed access point, to the south-west of the farm portion is proposed.

The landscape is hilly and mostly covered in thick dense grass vegetation, that made archaeological visibility difficult (Figs 1-2). Dense thicket vegetation occurs near the several watercourses that occur within the area. Some of the watercourses have over several years caused erosion damage allowing for the exposed and disturbed areas to be investigated for possible archaeological material remains.


Figs 1-2. Views of the landscape on portion 18 of the Farm 258.

Parts of the proposed area have been disturbed by the construction of the gravel farm road, however this impact is limited and minimal, as well as the construction of fences. No power lines run over this portion of Farm 258. In the past the area has been used as general agricultural lands for cultivation. The exposed areas, the dongas and areas where heavy erosion has taken place, were investigated for the possible occurrence of archaeological material. Less vegetated areas on the slopes also allowed for investigation for possible archaeological material remains (Figs 3-4).

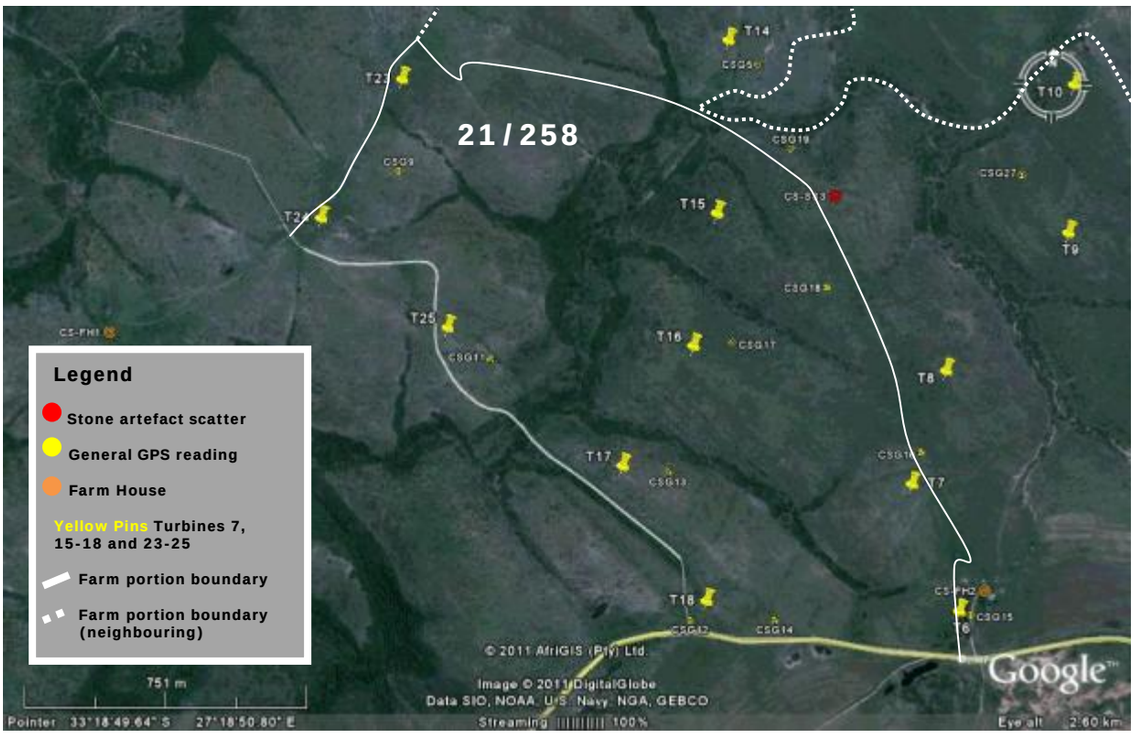

Figs 3-4. Examples of the disturbed (road and fences) and exposed areas (dongas and erosion areas).

Two occurrences of archaeological material remains were encountered during the survey of portion 18 of Farm 258. This has been plotted as CS-SS1 and CS-SS2 on maps 3 and 4 (close-up). A surface scatter of Middle Stone Age stone artefacts was encountered in an exposed area at the area marked CS-SS1, made predominantly on quartzite raw material (see Figs 28 and 29 for an example of the sample of stone artefacts encountered during the survey). One relatively sized Middle Stone Age medium grained quartzite core was encountered on the surface in the less vegetated area on the slope of the hill marked CS-SS2 (Fig 5). It may be possible that further stone artefacts may be encountered on the surface within the dense grass vegetation and possibly between the surface and 80cm below ground.

Fig 5. Quartzite core documented on the hill slope at the area marked CS-SS2 within portion 18 of the Farm 258.

Two occurrences of surface scatters of Middle Stone Age stone artefacts were observed within portion 18 of Farm 258. These stone artefacts are likely to be in a secondary context owing to previous cultivation and farming activities. No associated archaeological material remains or depth of deposit was observed.

Portion 21 of the Farm 258:



Map 5. Close-up aerial view of portion 21 of the Farm 258 showing the positions of the turbines, general GPS points and archaeological material remains encountered (farm boundaries not to scale).

Portion 21 of the Farm 258 is situated directly to the south of portion 18 in the south-western corner of the proposed area for development and covers an area of approximately 1315m x 1125m. Eight turbines, 7, 15-18 and, 23-25 are proposed to be erected on this portion of Farm 258. The eight turbines are proposed to be constructed on the hilltops and along the slight gradient slopes. The area is covered in thick dense grass vegetation with

thicket vegetation occurring close to the several watercourses that occur of over the proposed area for development (Figs 6-9).

Figs 6-9. Views of the landscape showing the dense grass and ticket vegetation and relatively flat hilltops with slight gradient slopes.

Access to this portion of the Farm 258 will continue on the existing road from the north. New access points and roads to turbines 17, 18, 23, 24, and 25 are proposed to be constructed from the existing road to the south-west of the area. Turbines 7, 15 and, 16 will link with proposed new roads to the east on Potion 20 of the Farm 258. Underground cables with culverts/bridges are proposed to be constructed to link the turbines.

Sections of the proposed area have been disturbed by the construction of the gravel farm roads; however this is minimal, as these roads become overgrown from the dense vegetation and lack of current usage. The construction of the farm boundary fences and agricultural cultivation activities has in the past also disturbed the area. The land is currently being used for grazing domestic stock. Remnants of the cultivation activities can still be seen in the step terracing on the slight gradient slopes on the hills. Powerline run over the most southern part of this portion of Farm 258, to the north of Turbine 18. Exposed, disturbed, and, less vegetated areas were scarce within this portion of Farm 258 (Figs 10-11).

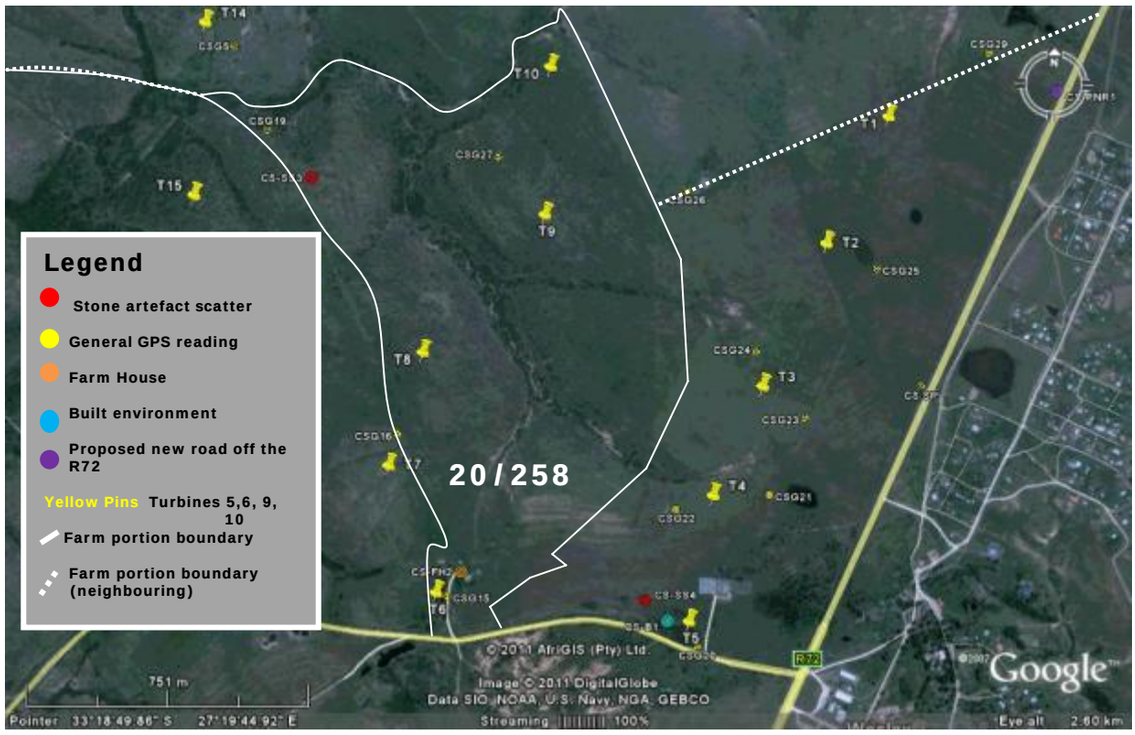
Isolated surface scatters of very weathered stone artefacts were encountered in the gravel farm road. These have been disturbed and damaged and are in a secondary context. However, owing to the lack of archaeological visibility further occurrences of stone artefacts may be encountered within the dense grass vegetation and between the surface and 50-80cm below ground. Remnants of the original farmhouse were recorded at the area marked CS-FH1, however this falls outside the area proposed for development and is unlikely to be affected by the development activities. No associated artefacts were observed surrounding the ruins of the farmhouse; however, this may be due to the thick grass vegetation and lack of archaeological visibility. The farmhouse may contain remnants of both original and modern additions, however, stone walling was observed as the possible foundation or paving around the house (Figs 11-14).

Figs 10-11. Examples of disturbances such as power lines (left) and domestic stock grazing (right).

Figs 11-14. Remains of the farmhouse marked at the area CS-FH1 (top left); close-up of the bricks (top right); extent of the stone walling foundation still visible (bottom left); and a close-up of the stone walling (bottom right).

Only surface scatters of very weathered and damaged Middle Stone Age stone artefacts were encountered within this portion of Farm 258. These stone artefacts most likely occur in a secondary context. No associated archaeological material remains or depth of deposit was observed. The remains of the original farmhouse fall outside of the proposed area for development and are unlikely to be affected during development activities. No associated archaeological or historical archaeological materials were observed, however, this may be due to the dense vegetation cover. Stone walling foundations could still be observed through the dense grass vegetation.

Portion 20 of Farm 258:



Map 6. Close-up aerial view of portion 20 of the Farm 258 showing the positions of the turbines, general GPS points and archaeological material remains encountered (farm boundaries not to scale).

Portion 20 of Farm 258 is situated directly to the east of portion 21 of Farm 258 and to the west of portion 19 of Farm 258 and covers an area of approximately 1500m x 940m. Four turbines, 6 and 8-10 are proposed to be erected on this portion of Farm 258. The four turbines are mainly proposed to be constructed on the hilltops and on the slight gradient slopes. The area is covered in thick dense grass vegetation with thicket vegetation close to the several watercourses that occur of over the proposed area (Figs 15-16). One proposed road will be constructed to link Turbines 9 and 10 from Turbine 4 on the adjacent portion 19 of the Farm 258 to the east. The access to Turbine 6 will be linked from the existing gravel farm road that leads to the farmhouse. The original farmhouse, within the area of Turbine 6 will be used as a site office. Underground cables will also be constructed across the proposed area to link the turbines.

Figs 15-16. Views of the landscape showing the dense grass vegetation.

Sections of the proposed area have been disturbed by the construction of the gravel farm roads; however this is minimal, these roads become overgrown from the dense vegetation and lack of current usage. The construction of the farm boundary fences and agricultural cultivation activities has in the past also disturbed the area, and the land is currently used for grazing domestic stock. Powerline run over the southern part of this portion of Farm

258, to the north of the original farmhouse. Exposed, disturbed, and, less vegetated areas were scarce within this portion of Farm 258.

One occurrence of very weathered Middle Stone Age stone artefacts was encountered during the survey of this portion of the Farm 258 in an exposed less vegetated area on one of the slight gradient slopes at the area marked CS-SS3 (Fig 17). These stone artefacts comprised of one core and one flake with cortex manufactured on medium-grained quartzite raw material. The stone artefact scatter is likely to be in a secondary context; however, further occurrences of stone artefacts may be encountered within the dense grass vegetation and between the surface and 80cm below ground.

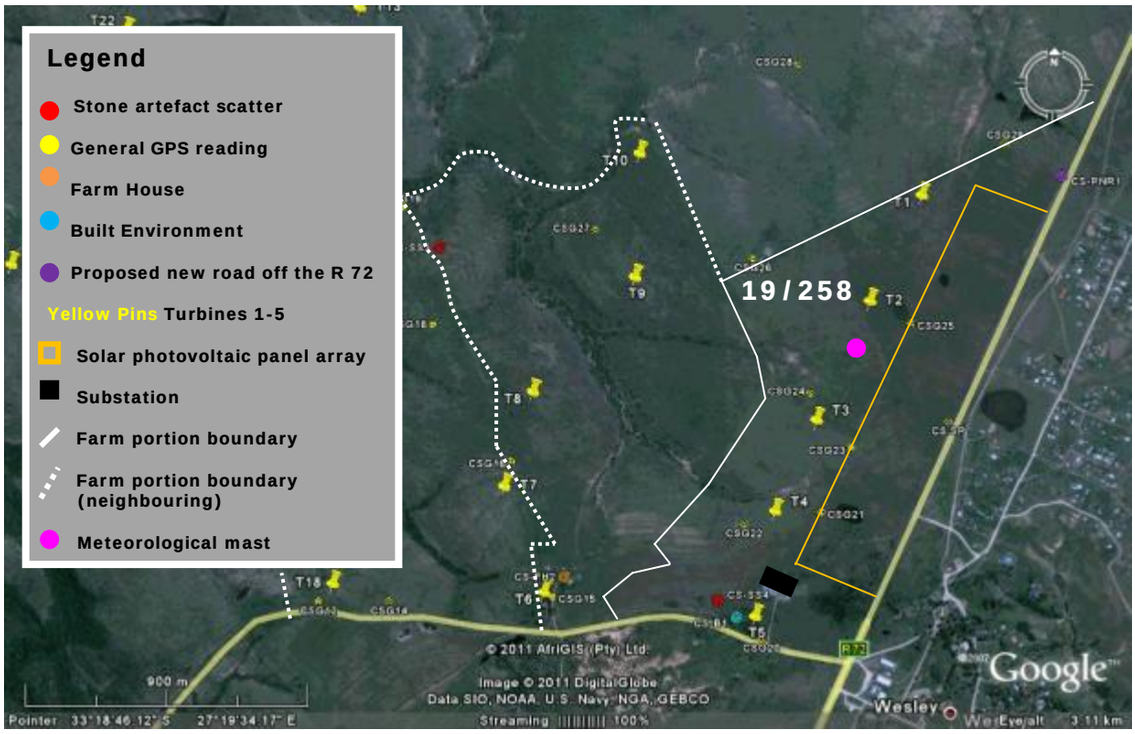
Fig 17. Middle Stone Age stone artefacts encountered during the survey of portion 20 of the Farm 258 at the area marked CS-SS3 (scale = 4.50cm).

Ruins of an old farm house were observed at the area marked CS-FH2, nearby Turbine 6. The farmhouse may contain remnants of both original and modern additions. The farmhouse and associated buildings are in a very dilapidated state and is proposed to be transformed into the site office for the proposed development. No associated archaeological or historical archaeological artefacts were observed, however, this may be due to the thick grass vegetation and lack of archaeological visibility (Figs 18-19).

Figs 18-19. Remains of the original farmhouse.

One surface scatter occurrence of very weathered Middle Stone Age stone artefacts was encountered at the area marked CS-SS3 that comprised of a core and a flake made on quartzite raw material. These stone artefacts are most likely in a secondary context. No associated archaeological material remains or depth of deposit was observed. The original farmhouse is in a very dilapidated state and no associated artefacts were encountered within the surrounding area.

Portion 19 of Farm 258:



Map 7. Close-up aerial view of portion 19 of the Farm 258 showing the positions of the turbines, general GPS points and archaeological material remains encountered (farm boundaries not to scale).

Portion 19 of the Farm 258 is situated to the east of Portion 20 of the Farm 258 and adjacent to the R72 road and Wesley village. This portion covers an area of approximately 2025m x 900m. Five turbines, the solar photovoltaic panel array and a meteorological mast between Turbines 2 and 3 are proposed to be erected and established within this area. For convenience the areas proposed for the wind turbines and solar photovoltaic panel array will be described and discussed separately.

Wind Turbines:

The five proposed Turbines, 1-5, will be situated at the existing entrance to the substation from the south and the on the flat hilltop to the west of the proposed solar photovoltaic panel array. Turbines 1-4 will follow the existing powerline route. This portion comprises an already existing and functional power substation. The area is mostly covered in thick grass vegetation with thicket vegetation occurring closer to the several watercourses that occur of over the proposed area (Figs 20-23).

Figs 20-21. Views of the landscape within the area proposed for Turbine 5.


Figs 22-23. Views of the landscape within the areas proposed for Turbines 1-4.

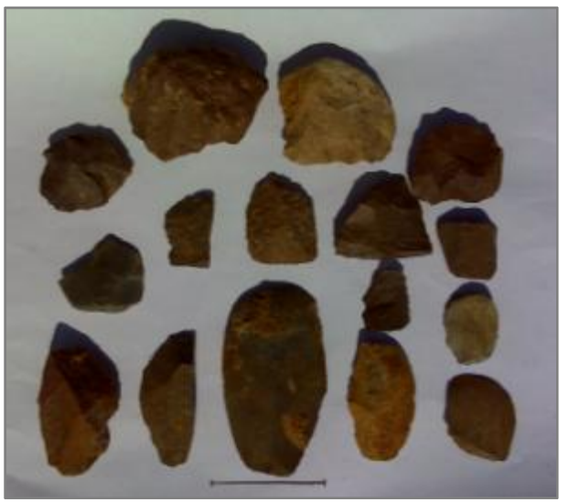
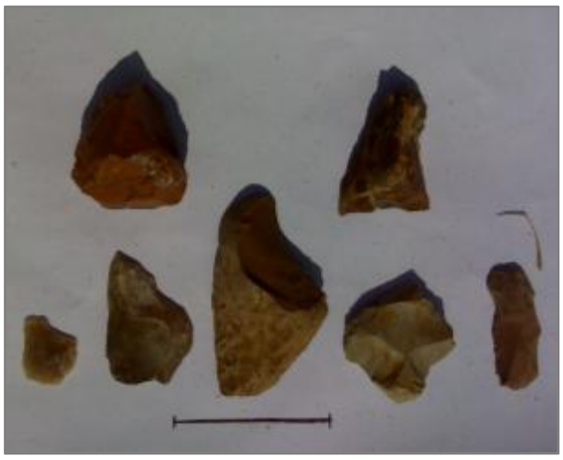
The proposed new road will link the existing service road and Turbine 4 with Turbine 7 to the west situated within portion 20 of the Farm 258, and Turbine 2 with Turbine 9. A proposed new access point is expected to be established to the north of the proposed solar photovoltaic panel array that will lead from the R72 road. During the survey new Eskom poles were being erected along the current Eskom pylons within the proposed area for Turbines 1-4. The holes provided insight into whether any archaeological materials could be observed. No archaeological material remains were observed within the newly dug holes (Figs 24-25).


Figs 24-25. Examples of disturbances such as Eskom power lines and the newly dug holes.

The sand quarry area, marked CS-SS4, had been heavily disturbed by earth moving and quarrying activities (Figs 26-27). The area was investigated for possible archaeological material remains. Several Middle Stone Age stone artefacts were documented on top and within the sand heaps of the quarry. The stone artefacts documented within this area represented a wide variety of flakes (with retouch and edge-damage), facetted platform flakes, blades, and cores made on various raw materials including medium-grained quartzite, and the finer-grained raw materials such as silcrete, and cryptocrystalline silicate (CCS) (Figs 28-29). However, these stone artefacts have been disturbed by the quarrying activities and are regarded as being in a secondary context. The observation of the scatter of stone artefacts on top and within sand heaps confirms the assumption that further stone artefacts may occur within the dense grass vegetation and between the surface and 50-80cm below ground. No other archaeological material remains were encountered in association with the stone artefact scatters or any depth of archaeological deposit.

A relatively modern paved and dipping tank area was observed at the area marked CS-B1 between the sand quarry and Turbine 5 (Figs 30-31). It is possible that the remains may be associated with the original farming activities and may be older than 60 years.


Figs 26-27. Views of the sand quarry area marked CS-SS4.

Figs 28-29. Examples of the variety Middle Stone Age stone artefacts documented within the sand quarry area. Stone artefacts made on medium-grained quartzite raw materials (left) and stone artefacts made on the finer-grained raw materials (silcrete and CCS) (right) (scale = 4.50cm).


Figs 30-31. Views of the paving and dipping tank at the area marked CS-B1.

One surface scatter occurrence of Middle Stone Age stone artefacts was documented within the proposed area for the construction of the turbines. This occurrence, however, presented a variety of Middle Stone Age stone artefacts that are likely occur over the proposed area for the wind and solar facility, possibly within the dense grass vegetation that made archaeological visibility difficult and confirms the assumption that stone artefacts may occur between the surface and 50-80cm below ground. The paving area and possible dipping tank may be associated with the original farming activities and therefore, older than 60 years.

Solar Photovoltaic Panel Array:

The proposed area for the solar photovoltaic panel array is situated adjacent to the R72 road and is approximately 1400m x 290m in extent. The proposed area is covered in dense grass vegetation with thicket occurring near wetland areas and water sources. The only disturbed areas affecting this area was the farm boundary fence that runs along the R72 road and mole hills that were investigated for possible archaeological material remains (Figs 32-35). The dense grass vegetation made archaeological visibility difficult and with a scarcity of exposed or disturbed areas located within the area no archaeological material remains were observed.

Figs 32-35. Views of landscape showing the dense grass vegetation and thicket near water sources and examples of disturbances such as mole hills (left) and the farm boundary fence next to the R72 (right).

No archaeological material remains were observed within the area proposed for the solar photovoltaic panel array. However, occurrences of stone artefacts may occur within the dense grass vegetation and between the surface and 50-80cm below ground.

SURVEY / DESCRIPTION OF SITES

Isolated surface scatters of Middle Stone Age stone artefacts were observed within disturbed the disturbed gravel farm roads, the eroded dongas, and the less vegetated areas on the slopes of the slight gradient hills marked CS-SS1, CS-SS2, and CS-SS3. A wider variety of Middle Stone Age stone artefacts were documented on top and within the sand heaps of the sand quarry area marked CS-SS4. These surface scatters of stone artefacts were documented within a disturbed and secondary context not constituting enough significance to classify the areas as formal sites. No archaeological material remains or depth of archaeological deposited were recorded to be associated with the stone artefacts occurrences. However, the findings do confirm the assumption that possible stone artefacts and/or associated archaeological material remains and depth of archaeological may be encountered within the dense grass vegetation and between the surface and 50-80cm below ground.

The remains of two farmhouses were encountered during the survey. The ruins of the farmhouse situated at the area marked CS-FH1 is located outside of the proposed area for development and is unlikely to be impacted during the development activities. The farmhouse situated at the area marked CS-FH2 is heavily dilapidated, but is proposed to be converted in the site office for the proposed Canyon Springs wind and solar facility. No associated archaeological material remains or historical archaeological material remains were observed within the areas surrounding the two farmhouses, this may be due to the dense grass vegetation cover. The stone walling foundations at CS-FH1 is still visible through the dense grass vegetation. The paving and possible dipping tank situated at the area marked CS-B1 may be associated with the original farming activities and therefore, older than 60 years.

RECOMMENDATIONS

The area is of a low cultural sensitivity and development may proceed as planned, although the following recommendations must be considered prior to the commencement of any development activities:

1. A professional archaeologist (with the appropriate collection permit) must be appointed during vegetation clearing and excavations to monitor possible encounters of archaeological material remains or sites that may be uncovered within the dense grass vegetation and between the surface and 50-80cm below ground.

2. A built environment heritage specialist should be appointed assess the significance of the original farm houses and built environment if they are to be demolished or altered as they are probably older than 60 years.

3. If concentrations of archaeological heritage material and human remains are uncovered during construction, all work must cease immediately and be reported to the Albany Museum (046 622 2312) and/or the South African Heritage Resources Agency (SAHRA) (021 642 4502) so that systematic and professional investigation/ excavation can be undertaken.

4. Construction managers/foremen must be informed before construction starts on the possible types of heritage sites and cultural material they may encounter and the procedures to follow when they find sites.

GENERAL REMARKS AND CONDITIONS

Note: This report is a phase 1 archaeological heritage impact assessment/ investigation only and does not include or exempt other required heritage impact assessments (see below).

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, that is, 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 archaeological heritage sensitivity investigation are based on the visibility of archaeological sites/features and may not therefore, reflect the true state of affairs. Many sites/features may be covered by soil and vegetation and will only be located once this has been removed. In the event of such finds being uncovered, (such as during any phase of construction work), archaeologists 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 Act No. 25 of 1999.

It must also be clear that Archaeological Specialist Reports (AIAs) will be assessed by the relevant heritage resources authority. The final decision rests with the heritage resources authority, which may grant a permit or a formal letter of permission for the destruction of any cultural sites.

APPENDIX A: IDENTIFICATION OF ARCHAEOLOGICAL FEATURES AND MATERIAL FROM THE SURROUNDING COASTAL AND INLAND AREAS: guidelines and procedures for developers

1. Identification of Iron Age archaeological features and material

- Upper and lower grindstones, broken or complete. Upper grindstone/rubber will be pitted.
- Circular hollows –sunken soil, would indicate storage pits and often associated with grindstones.
- Ash heaps, called middens with cultural remains and food waste such as bone.
- Khaki green soils would indicate kraal areas.
- Baked clay/soil blocks with or without pole impressions marks indicate hut structures.
- Decorated and undecorated pots sherds.
- Iron slag and/or blowpipes indicate iron working.
- Human remains may also be associated with khaki green soils.
- Metal objects and ornaments.

2. Shell middens

Shell middens can be defined as an accumulation of marine shell deposited by human agents rather than the result of marine activity. The shells are concentrated in a specific locality above the high-water mark and frequently contain stone tools, pottery, bone and occasionally also human remains. Shell middens may be of various sizes and depths, but an accumulation which exceeds 1 m^2 in extent, should be reported to an archaeologist.

3. 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 or in ceramic pots. Developers are requested to be on alert for these features and remains.

4. Fossil bone

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

5. Stone artefacts

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

6. Stone features and platforms

These occur in different forms and sizes, but easily identifiable. The most common are an accumulation of roughly circular fire cracked stones tightly spaced and filled in with charcoal and marine shell. They are usually 1-2 metres in diameter and may represent cooking platforms for shell fish. Others may resemble circular single row cobble stone markers. These occur in different sizes and may be the remains of wind breaks or cooking shelters.

7. Large stone cairns

The most common cairns consist of large piles of stones of different sizes and heights 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.

8. Historical artefacts or features

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

Table 1: GPS co-ordinates and sites.

Reference	Description and Farm Portions	GPS Co-ordinates
CS-SS1	Middle Stone Age stone artefact scatter (18/258)	33°17'50.04"S; 27°19'11.95"E
CS-SS2	Middle Stone Age stone artefact scatter (18/258)	33°18'08.90"S; 27°19'05.90"E
CS-SS3	Middle Stone Age stone artefact scatter (20/258)	33°18'34.20"S; 27°19'17.90"E
CS-SS4	Middle Stone Age stone artefact scatter (19/258)	33°19'09.70"S; 27°19'17.90"E
CS-FH1	Farmhouse (outside area proposed for development) (21/258)	33°18'47.65"S; 27°18'03.58"E
CS-FH2	Farmhouse (to be converted to a site office) (20/258)	33°19'07.70"S; 27°19'34.50"E
CS-B1	Paving and possible dipping tank (19/258)	33°19'11.40"S; 27°19'59.00"E
CS-PNR1	Proposed new road (off the R72) (19/258)	33°18'24.90"S; 27°20'34.40"E
CSG1	General reading (North access point – 18/258)	33°17'46.85"S; 27°19'03.79"E
CSG2	General reading (18/258)	33°17'38.95"S; 27°18'34.07"E
CSG3	General reading (18/258)	33°17'51.62"S; 27°18'29.25"E
CSG4	General reading (18/258)	33°18'12.55"S; 27°19'06.24"E
CSG5	General reading (18/258)	33°18'23.19"S; 27°19'09.55"E
CSG6	General reading (18/258)	33°18'08.23"S; 27°18'51.17"E
CSG7	General reading (18/258)	33°18'01.34"S; 27°18'31.19"E
CSG8	General reading (18/258)	33°18'14.69"S; 27°18'37.87"E
CSG9	General reading (21/258)	33°18'33.10"S; 27°18'32.87"E
CSG11	General reading (21/258)	33°18'49.06"S; 27°18'42.92"E
CSG12	General reading (21/258)	33°19'11.00"S; 27°19'04.19"E
CSG13	General reading (21/258)	33°18'58.34"S; 27°19'01.46"E
CSG14	General reading (21/258)	33°19'10.80"S; 27°19'12.90"E
CSG15	General reading (20/258)	33°19'09.80"S; 27°19'33.10"E
CSG 16	General reading (21/258)	33°18'56.00"S; 27°19'27.50"E

CSG 17	General reading (21/258)	33°18’47.04”S; 27°19’07.81”E
CSG 18	General reading (21/258)	33°18’42.10”S; 27°19’17.30”E
CSG 19	General reading (21/258)	33°18’30.20”S; 27°19’13.20”E
CSG 20	General reading (20/258)	33°19’13.50”S; 27°19’59.00”E
CSG 21	General reading (19/258)	33°19’00.30”S; 27°20’06.00”E
CSG 22	General reading (19/258)	33°19’01.77”S; 27°19’56.46”E
CSG 23	General reading (19/258)	33°18’53.60”S; 27°20’09.40”E
CSG 24	General reading (19/258)	33°18’48.06”S; 27°20’04.19”E
CSG 25	General reading (19/258)	33°18’40.60”S; 27°20’16.40”E
CSG 26	General reading (19/258)	33°18’34.40”S; 27°19’56.60”E
CSG 27	General reading (20/258)	33°18’31.93”S; 27°19’37.05”E
CSG 28	General reading (19/258)	33°18’14.20”S; 27°20’01.50”E
CSG 29	General reading (19/258)	33°18’21.80”S; 27°20’27.30”E