

ARCHAEOLOGICAL IMPACT ASSESSMENT: PROPOSED CONSTRUCTION OF RE CAPITAL 11 SOLAR DEVELOPMENT ON THE REMAINDER OF THE FARM DYASON'S KLIP 454, NORTHERN CAPE

(Assessment conducted under Section 38 (8) of the
National Heritage Resources Act No 25 of 1999)

Prepared for:

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EXECUTIVE SUMMARY

ACO Associates cc was appointed by Perception Planning on behalf of the client, **Dyasonsklip Solar Energy Facility 1 (Pty) Ltd**, to undertake an Archaeological Impact Assessment for the construction of a PV facility on the Remainder of the Farm Dyason's Klip 454, in the Kai Garib local Municipality of the Northern Cape.

The client proposes to construct a 75 MW PV and/or concentrated PV facility on approximately 200 ha of the property. The PV facility will include a lay-down area, access roads and a 132 kV powerline which will connect to a new sub-station.

The site was surveyed by Webley & Halkett on the 17th and 18th October 2014. The property was accessed by the local farm roads and transects were walked across the study area. We drove along sections of the access road where this was possible. Visibility was good. The only limitations experienced was in following all the powerline options, many of which will go through the Khi Solar One facility property boundaries.

Numerous heritage impact assessments have been conducted in close vicinity to the study area during the last decade. Morris (2013a) surveyed portions Dyason's Klip to the north and south of the study area for the RE Capital 3 Solar Facility. None of these reports have identified sites of high significance. The landscape is characterised as a gently sloping plain crossed by shallow drainage lines and covered in sparse vegetation.

The field assessment identified:

- Very ephemeral scatters of ESA and MSA material;
- Some stone cairns which are unlikely to represent graves;
- A ruined mud brick shepherd's hut;
- Evidence for 20th century mining, possibly of tungsten.

Indications are that in terms of archaeological heritage the proposed activity is viable; impacts are expected to be very limited and controllable.

Construction of the proposed solar facility may proceed according to the layout assessed in this report. The following recommendations should be enforced:

- If any human remains are uncovered during construction, the ECO should have the area fenced off and contact SAHRA (Tel: 021 462 4502) immediately.

If there are any significant changes to the layout of the facility, the new design should be assessed by a heritage practitioner.

GLOSSARY

Archaeology: Remains resulting from human activity which is in a state of disuse and are in or on land and which are older than 100 years, including artefacts, human and hominid remains and artificial features and structures.

Early Stone Age: The archaeology of the Stone Age between 700 000 and 2500 000 years ago.

Fossil: Mineralised bones of animals, shellfish, plants and marine animals. A trace fossil is the track or footprint of a fossil animal that is preserved in stone or consolidated sediment.

Heritage: That which is inherited and forms part of the National Estate (Historical places, objects, fossils as defined by the National Heritage Resources Act 25 of 1999).

Holocene: The most recent geological time period which commenced 10 000 years ago.

Late Stone Age: The archaeology of the last 20 000 years associated with fully modern people.

Middle Stone Age: The archaeology of the Stone Age between 20-300 000 years ago associated with early modern humans.

National Estate: The collective heritage assets of the Nation

Palaeontology: Any fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial use, and any site which contains such fossilised remains or trace.

Pleistocene: A geological time period (of 3 million – 20 000 years ago).

SAHRA: South African Heritage Resources Agency – the compliance authority which protects national heritage in the Northern Cape.

Structure (historic:) Any building, works, device or other facility made by people and which is fixed to land, and includes any fixtures, fittings and equipment associated therewith. Protected structures are those which are over 60 years old.

Acronyms

DEA	Department of Environmental Affairs
ESA	Early Stone Age
GPS	Global Positioning System
HIA	Heritage Impact Assessment
LSA	Late Stone Age
MSA	Middle Stone Age
NHRA	National Heritage Resources Act
SAHRA	South African Heritage Resources Agency

1. INTRODUCTION

ACO Associates cc was appointed by Perception Planning on behalf of the client, **Dyasonsklip Solar Energy Facility 1 (Pty) Ltd**, to undertake an Archaeological Impact Assessment for the construction of a new solar facility on the Remainder of the Farm Dyason's Klip 454, in the Kai Garib local Municipality of the Northern Cape. The property is located some 22 km south-west of Upington on the N14 (Figure 1).

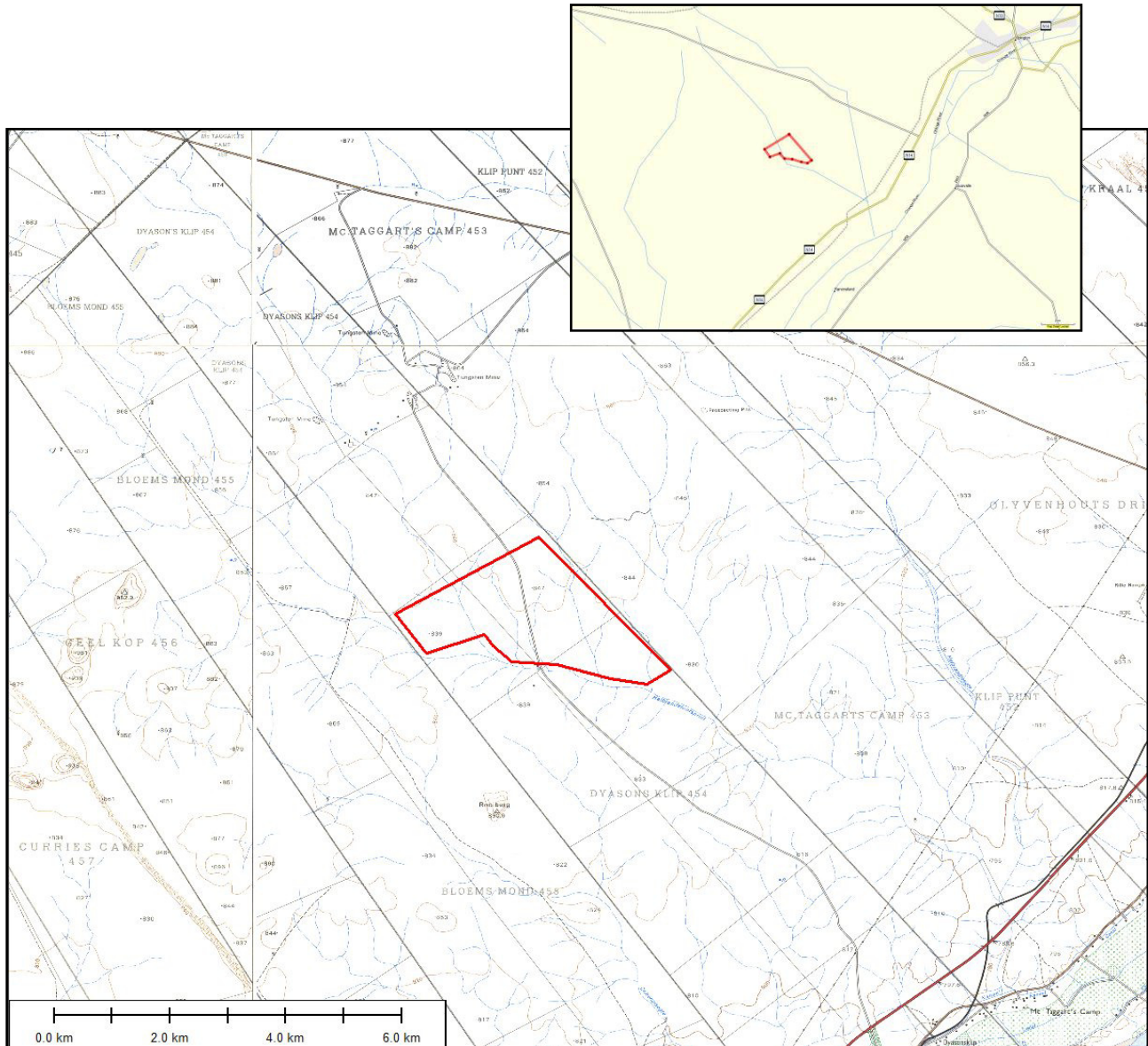


Figure 1: The location the proposed facility on the Remainder of Dyason's Klip 454 (1:50 000 map 2821 CA Kanoneiland).

2. DEVELOPMENT PROPOSALS

The client proposes to construct a 75 MW PV facility with fixed, single or double axis tracking technology on approximately 200 ha of the property (Figure 1). The total footprint will not exceed 240 ha and will include a 2-5 ha laydown area. Access roads are expected to vary between 6m – 8m. The length of the roads depends on the various layout assessed. The lifetime of the facility is 2-25 years and the site will be rehabilitated at the end of the project.

The facility will connect from the on-site substation to a planned MTS substation (close to the current Oasis substation) via a 132 kV powerline. Various grid connections are being considered

(Figure 2). The powerline poles will be steel monopole structures and the servitude width is expected to be 32 m.



Figure 2: An aerial image of the proposed PV facility on the Farm Dyason's Klip. The facility is indicated as the yellow polygon, the access road alternatives as turquoise and white lines, and the grid connection alternatives as the red, green and blue lines.

3. HERITAGE LEGISLATION

This report is conducted in terms of Section 38 (8) of the National Heritage Resources Act, No 25 of 1999.

The NHRA provides protection for the following categories of heritage resources:

- Landscapes, cultural or natural (Section 3 (3))
- Buildings or structures older than 60 years (Section 34);
- Archaeological Sites, palaeontological material and meteorites (Section 35);
- Burial grounds and graves (Section 36);
- Public monuments and memorials (Section 37);
- Living heritage (defined in the Act as including cultural tradition, oral history, performance, ritual, popular memory, skills and techniques, indigenous knowledge systems and the holistic approach to nature, society and social relationships) (Section 2 (d) (xxi)).

3.1 Grading

The South African heritage resources management system is based on grading, which provides for assigning the appropriate level of management responsibility to a heritage resource.

Table 1: Grading of Heritage Resources

Grade	Level of significance	Description
I	National	Of high intrinsic, associational and contextual heritage value within a national context, i.e. formally declared or potential Grade 1 heritage resources.
II	Provincial	Of high intrinsic, associational and contextual heritage value within a provincial context, i.e. formally declared or potential Grade 2 heritage resources.
IIIa	Local	Of high intrinsic, associational and contextual heritage value within a local context, i.e. formally declared or potential Grade 3a heritage resources.
IIIb	Local	Of moderate to high intrinsic, associational and contextual value within a local context, i.e. potential Grade 3b heritage resources.
IIIc	Local	Of medium to low intrinsic, associational or contextual heritage value within a national, provincial and local context, i.e. potential Grade 3c heritage resources.

The grading of heritage sites, as prescribed in the NHRA, is only concerned with categories I, II and III. The subdivision of Grade III sites was introduced in the Western Cape and is aimed primarily at the grading of the Built Environment. There is currently no consensus on the grading of archaeological sites and various categories have been implemented by heritage practitioners working in the Northern Cape.

4. METHODOLOGY

4.1 Background Literature study

Background research included a review of the published material as well as unpublished reports on the SAHRIS database. The 1:50 000 maps of the area as well as Google Earth aerial images were consulted. Numerous impact assessments have been conducted in proximity to the proposed facility as reflected on the SAHRIS database.

Morris (2013a) conducted an assessment on the northern and central sections of the farm Dyason's Klip 454 itself for RE Capital 3 (Pty) Ltd. He has also undertaken an assessment of the adjoining property of McTaggart's Camp 453 which included a mitigation study (Morris 2013). The Khi Solar One concentrating solar plant (CSP) facility is currently being constructed on this farm.

Gaigher (2013) undertook an assessment for the construction of the proposed Sirius Solar Project on the farm Tungsten Lodge 638 to the east of Dyason's Klip; Van der Walt (2011) assessed the construction of a solar facility on the farm Geel Kop 456 some 2 km to the west of Dyason's Klip and Dreyer (2006) undertook a fairly superficial assessment for the development of a CSP on the farm Olyvenhout's Drift to the east of the study area.

4.2 Field Survey

The polygon of the proposed development was provided to ACO Associates. The area was surveyed by Lita Webley and David Halkett on 17th and 18th October 2014. Our tracks were recorded by means of Garmin GPS devices and all sites were digitally recorded.

We accessed the area by the local farm roads and drove along sections of the access road and powerline options where this was possible. We primarily walked transects of the study area looking for archaeological remains. These tracks are indicated in Figure 3.

4.3 Assumptions and Limitations

Visibility was good because of the sparse vegetation of the study area. We were able to cover most of the study area satisfactorily.

However, we were not able to access large sections of the powerline options because they traversed the concentrated solar power facility on the adjoining property of McTaggart's Camp (Khi Solar One). This is not considered a significant limitation because we were able to make inferences regarding the archaeology from the adjoining areas.

5. RECEIVING ENVIRONMENT

The study area is located on the northern banks of the Orange River. The farm Dyason's Klip 454 is a narrow strip of land extending from the Orange River in a north-westerly direction (Figure 1). Morris (2013a) describes the environment of the farm as an arid, gently sloping plain with shallow drainage lines running through it. The landscape is very sparsely vegetated and surface archaeological material is therefore highly visible.



Plate 1: View of the terrain with the low lying drainage lines behind the vehicle indicated by the denser vegetation.



Plates 2 & 3: Views of the terrain and the tracks which cross the property.

The artefact distributions occur on gravel pavements, sometimes underlain by calcretes deposits. There are occasional outcrops of quartz and some appear to have been quarried for artefacts. However, it is more common to find artefacts made on hornfels and banded ironstone in proximity to the quartz outcrops, suggesting that they formed some type of focus for settlement.



Plate 4: Quartz outcrops occur across the study area.

Morris (2013a) reported on some bedrock exposures on the southern portions of Dyason’s Klip during his survey for RE Capital 3. The bedrock contains shallow water hollows (“waterbakke”). No bedrock exposures were observed in the study area.

The landscape is dominated by the 200 m high tower of the concentrating solar power (CSP) facility of Khi Solar One on the adjoining McTaggart’s Camp Farm 453.



Plate 5: The tower of the CSP facility on the adjoining farm.

5.1 Archaeological Background

Early and Middle Stone Age

Beaumont et al. (1995) has reported on the widespread, but low density, distribution of stone artefacts of Pleistocene age across large areas of Bushmanland to the south of the Orange River. These artefacts are made mainly on quartzite cobbles derived from the Dwyka glacial till. Systematic collections have suggested that these industries can be distinguished by their degree of weathering. Morris (2013) describes the ESA from the area as including Victoria West cores on dolerite and quartzite while the assemblages included a very low incidence of handaxes and cleavers.

Van der Walt (2011) recorded an open scatter of MSA artefacts on the farm Geel Kop 453 to the west of Dyason's Klip. The artefacts were predominantly on banded ironstone and included convergent flakes and small retouched blades. Artefact densities of 4 per m² were recorded over an area of 100 m x 50 m.

Morris (2013) recorded a low density surface scatter of MSA material on McTaggart's Camp in 2010 and this was sampled in Phase 2 mitigation (Morris 2012). The artefacts were concentrated around a bedrock exposure where water would be held for a time after good rain. Dreyer (2006) mentions the presence of stone artefact scatters on the farm Olyvenhout's Drift to the east of Dyason's Klip – his description includes references to points with convergent ends and flakes with faceted platforms made on quartzite, chalcedony and banded ironstone. "The material could arbitrarily be classified as Middle Stone Age", he concludes.

Late Stone Age

Late Stone Age sites dating to the Late Holocene are frequently recorded in surveys to the south and south-west of this stretch of the Orange River (eg. Morris & Beaumont 1991; Beaumont *et al.* 1995). These sites tend to cluster around certain features on the landscape, such as hills or rocky outcrops and in proximity to water (i.e. pans or rivers). Morris (2013) suggests these are generally short-lived occupations in contrast to the more substantial pastoralist settlements on the floodplains of the Orange River. Smith (1995) excavated the small rock shelter (and specularite mining site) of Zoorvoorbij in a range of hills to the north-east of Keimoes.

Morris (2013a) reported a small scatter of LSA material on Dyason's Klip and Gaigher (2013) reported three small scatters of LSA microlithic stone tools on the adjoining farm of Tungsten Lodge. He refers to these artefacts as "re-worked microliths". However, the heavy patination on some of the artefacts illustrated in the report suggests that some may be of MSA origins. Morris (2013) also reported grinding grooves in the bedrock exposures on Dyason's Klip.

The lower units of Zoorvoorbij Cave contain a large flake component which Smith (1995) attributes to the MSA although this is not confirmed by radiocarbon dates. The upper units contain heavy patinated LSA material, including large scrapers, and radiocarbon dates suggest two distinct clusters of dates, that of c.4500-4300 and 2600-2300 BP.

5.2 Historical Background

Early travellers such as Wikar and Gordon travelled along the Orange River in the 1770s and described various communities living along the river (Penn 1995). By the mid-19th century the stretch of the Orange River to the west of Upington was settled by the Korana, a Khoekhoen group whose origins are still unclear (Strauss 1979). With increasing Trekboer encroachment from the south, the Korana became involved in a struggle to maintain an independent existence. The attempt by the Korana to resist resulted in two wars, that of 1868-9 and 1878-9.

According to Morris (2013a), the name Dyason's Klip is derived from events which occurred during the Korana War of 1879-1880. Apparently a certain Captain Dyason of the Northern Border Police was killed by Korana adversaries while walking between two rocks at this place in 1880. However, it is not recorded exactly where these stones are situated. The adjoining property of McTaggart's Camp also derives its name from events during the Korana War when Captain McTaggart set up his military camp here. It is assumed that the camp was located close to the river and that it is unlikely to have left much of an archaeological trace.

In his assessment of the farm Olyvenhout's Drift, Dreyer (2006) reported finding a heavily soldered food tin resembling those that held British rations during the Anglo-Boer War (1899-1902). He considered it possible that a British camp may have existed in the area. Van der Walt (2011) reported the presence of a sandy track marking an old wagon-track on the farm Geel Kop to the west of Dyason's Klip. The wagon road between Keimoes and Upington crossed the farm and is

marked on maps dating to 1908 (Van der Walt 2011). To the north of the farm Geel Kop, on the farm Van Rooi's Vley 443, is the Rebellion Tree monument (Van der Walt 2011). It marks the Rebellion of 1914 in which many Afrikaners opposed the plan of the South African government to invade German South-West Africa at the commencement of World War I (Van Vollenhoven 2012). The site is a Provincial Heritage site.

Van der Walt (2011) mentions the presence of mining exploration trenches on the farm Geel Kop dating to 1929 and Morris (2013) also reports on tungsten mining on the north-western portion of the farm McTaggart's Camp dating to the early 1930s. Morris (2013) identified two ruined mud-brick structure, presumably that of 19th/20th century farm workers, on the farm Dyason's Klip.

6. FINDINGS

Our survey tracks are reflected in Figure 3 and Figure 4 and the findings are listed in Table 2 at the end of the report. The majority of stone tool scatters are of Middle Stone Age origins.

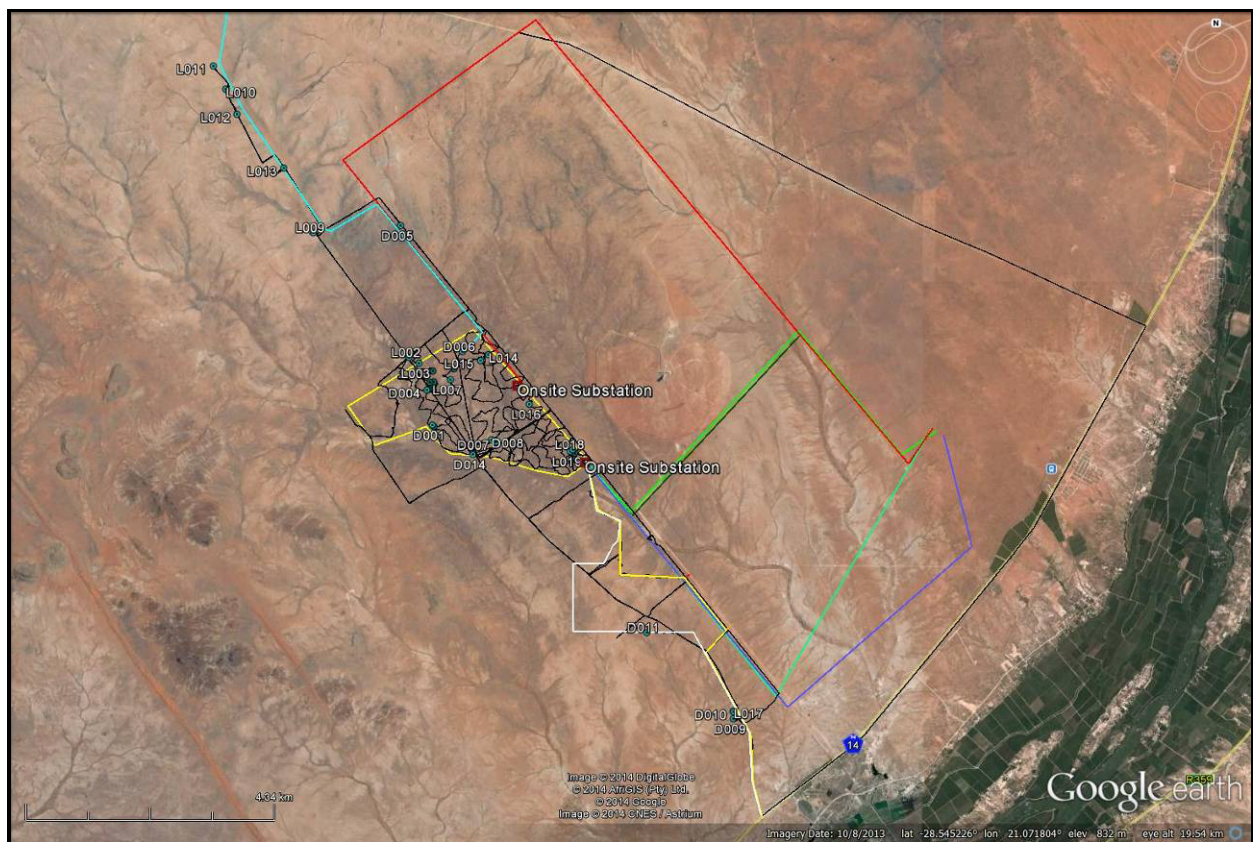


Figure 3: Illustrates the extent of our coverage of the study area as well as access roads and powerlines. Our tracks are shown in black and sites as a red circle.

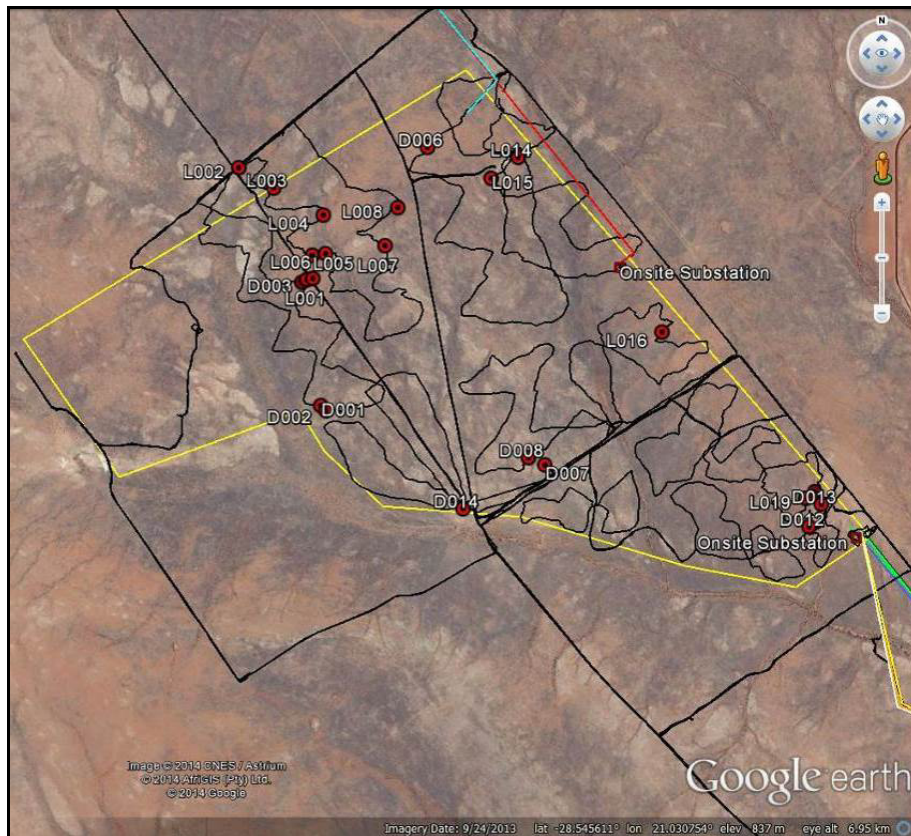


Figure 4: A close up of the study area showing our tracks (black lines) and sites (red circles).

A single example of a possible Early Stone Age artefact was found in proximity to a small brick and cement reservoir in the centre of the study area (Site D014). The small uniface (possible handaxe) on banded ironstone was found together with a localised spread of stone artefacts made on cobbles and pebbles of the Orange River gravels. It seems these stones may have been introduced historically to be mixed with the cement for the construction of the reservoir as some of the stones appeared to be embedded in the concrete.



Plate 6: The reservoir with the spread of stone around it; **Plates 7 & 8:** A small uniface

Another ESA site (Site L013) was recorded outside of the study area, but in proximity to one of the proposed access routes (indicated as the turquoise line in Figure 2). A scatter of flakes and chunks were observed in proximity to some black dolerite outcrops. There was some evidence of flaking of the black dolerite/basalt? A single weathered handaxe was recorded.

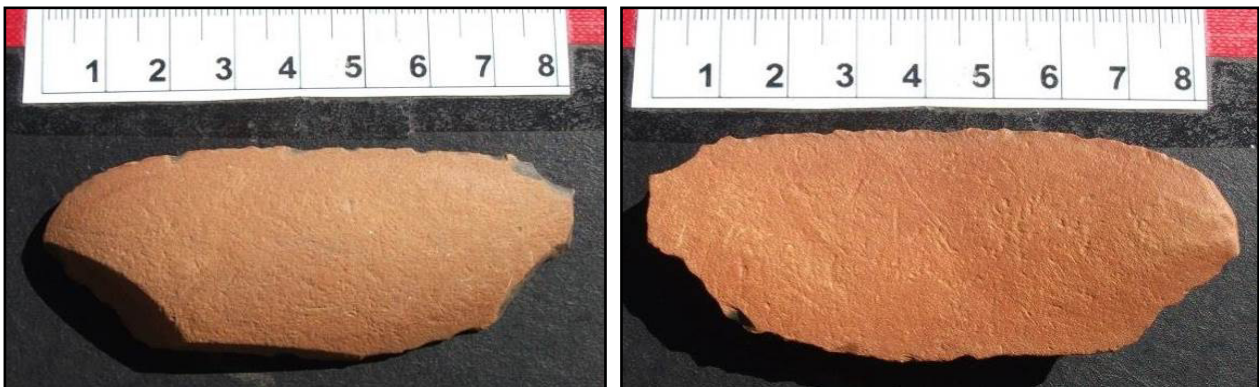


Plates 9 & 10: A weathered handaxe at L013.



Plates 11 & 12: A Unifacially worked flake with notched end on banded ironstone.

The majority of Middle Stone Age stone tools listed in Table 2 are found on open patches of gravel, sometimes with underlying calcretes surfaces, between areas of knee high grass. Often the stone tools are found in proximity to quartz outcrops although the majority of stone tools are made on banded ironstone and hornfels, rather than on quartz. There is also a small element of quartzite. Many of the artefacts are retouched. They appear to be predominantly MSA.



Plates 13 & 14: A weathered hornfels blade with cortex.

There were no obvious Late Stone Age artefactual scatters on the site. A single dense distribution of quartz on one of the southern access roads (indicated as the white line on Figure 2) included a number of quartz cores, chunks and flakes but none were clearly LSA in origin.



Plate 15: View of Site D013 showing the density of quartz – the majority of which was unflaked.

A few stone cairns were recorded (Sites L006, L007 and L019) but they are all small in size, comprising only a few stones each, and they are unlikely to represent graves.



Plate 16: Note the heap of small stones at the base of the dead tree.

The ruins of a collapsed mud brick structure with stone foundation were recorded at D008. The interior measured 2.5 m x 2.3 m. A scatter of tin cans (including a paraffin tin) were found in the vicinity. The structure probably represents a shepherd's hut.



Plate 17: The ruins of a mud-brick structure

There is also some evidence of mining on the property, with a large trench and mining equipment abandoned on site. According to the 1:50 000 map for the area (2821 CA Kanoneiland), the mines are for tungsten and Morris (2013a) suggests that the mining took place in the 1930s.



Plate 18: A mining trench and abandoned mine equipment.

The extent of the mine is reflected as L014-L015.

7. IMPACT ASSESSMENT

The levelling and clearing of the ground to install the PV units will result in the relocation or destruction of all surface heritage material. Similarly, the clearing of vegetation for the on-site substation and control room, as well as access roads would impact material that lies buried in the surface sand.

7.1 Impact on Pre-Colonial Archaeology

Since heritage sites, including archaeological sites, are non-renewable, it is important that they are identified and their significance assessed prior to development.

The main cause of impacts to archaeological sites is direct, physical disturbance of the material itself and its context. The significance of an archaeological site is highly dependent on its geological and spatial context. This means that even though, for example a deep excavation may expose buried archaeological sites and artefacts, the artefacts are relatively meaningless once removed from the area in which they were found. The impacts are likely to be most severe during the construction period although indirect impacts may occur during the operational phase of the project.

Our survey confirmed the findings of Morris (2013a) elsewhere in the area. There are low density scatters of MSA material in the area. There are also more ephemeral traces of ESA material. There is no clear indication for the presence of the LSA. It is anticipated that the impact of the proposed development on pre-colonial archaeology will be very low.

Table 3: Potential impact to pre-colonial Archaeology

	Extent	Intensity	Duration	Consequence	Probability	Significance	Status	Confidence
Without mitigation	1 Local	1 Local	3 Irreversible	5 Low	Improbable	Very Low	Negative	High
Essential Mitigation Measures: <ul style="list-style-type: none"> If any significant concentrations of archaeological material area uncovered, then work in that area should stop, and SAHRA (Telephone: 021 462 4502) should be contacted. Best Practice Mitigation Measures: <ul style="list-style-type: none"> Archaeological remains are best left <i>in situ</i>, and conserved for the future. If this is not possible then mitigation in the form of excavation with a permit will be required. 								
With mitigation	1 Low	1 Low	3 Irreversible	5 Low	Improbable	Very Low	Neutral	High

7.2 Impact on Colonial Period Heritage

The fact that both Dyason's Klip and the adjoining farm of McTaggart Camp derive their names from the Korana Wars suggested that archaeological material from this time period might occur in the study area. However, little historical material was identified on the property and it is concluded that military settlements would have been located closer to the Orange River. The only historical material recorded during the survey was the mud-brick ruins of a small structure (possibly a shepherd's hut) and the trenches and abandoned equipment relating to 20th century mining of tungsten on the property. These remains are of low significance.

7.3 Impacts to Graves

The landowner was interviewed with respect to graveyards on the property and confirmed that none were present. A few small stone cairns were recorded, but their size suggests that they probably do not represent graves.

Table 4: Potential Impacts to Graves

	Extent	Intensity	Duration	Consequence	Probability	Significance	Status	Confidence
Without mitigation	1 Local	1 High	3 Irreversible	5 Low	Probable	High	Negative	High
Essential Mitigation Measures: <ul style="list-style-type: none"> If any human remains are uncovered during construction, then work in that area should stop immediately, and SAHRA (Telephone: 021 462 4502) should be contacted. Best Practice Mitigation Measures: <ul style="list-style-type: none"> Human remains are best left <i>in situ</i>. If it becomes necessary to exhume human remains, then application must be made to SAHRA. 								

With mitigation	1 Low	1 Low	3 Irreversible	5 Low	Improbable	High	Neutral	High
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Human remains are the most complicated aspects of heritage to mitigate since they require their own public participation process (See Section 36 of the NHRA) before they can be exhumed. Human remains are protected by a plethora of legislation including the Human Tissues Act (Act No 65 of 1983) and the National Heritage Resources Act (Act No 25 of 1999). In the event of human bones being found on site, SAHRA must be informed immediately and the remains removed by an archaeologist under an emergency permit. This process will incur some expense as removal of human remains is at the cost of the developer. Time delays may result while application is made to the authorities and an archaeologist is appointed to do the work.

7.4 Impacts to Powerline and Access Roads

Potential impacts caused by a 132 kV power line and the power line access roads are likely to be limited and local.

Morris (2013) points out that the access road required for a 132 kV powerline is likely to be a 'two-track' which generally only requires limited physical disturbance of the ground surface. In the case of RE Capital 11, two possible alternative access roads are proposed. The one leaves the property from the north and the other from the south. The southern route will cross over Site D013 which is considered of low-medium significance. No mitigation is required. The northern route will pass in close proximity to a number of abandoned worker's cottages. They are discussed in greater depth in the HIA report.

A number of alternative power line options are proposed (Figure 2) to transfer the power to the closest substation. A number of these alternatives will cross over, or follow the boundary lines, of the adjoining Khi Solar One CSP facility. It was not possible to drive along the alternative routes. However, inferences may be drawn from the other CRM projects undertaken in proximity to the site. It is concluded that the impacts will be limited.

8. CONCLUSIONS AND RECOMMENDATIONS

Based on the archaeology of the adjoining areas, the terrain on which the proposed **Dyasonsklip Solar Energy Facility 1** will be located is unlikely to be rich in heritage remains. Morris (2013a) identified 11 heritage sites during his survey of the farm Dyason's Klip and he graded them as of "low" significance.

The field assessment identified:

- Very ephemeral scatters of ESA and MSA material;
- Some stone cairns which may represent graves although this is unlikely in view of the size of the cairns;
- A ruined mud brick shepherd's hut;
- Evidence for 20th century mining, possibly of tungsten.

Indications are that in terms of archaeological heritage the proposed activity is viable; impacts are expected to be limited and controllable.

Construction of the proposed solar facility may proceed according to the layout assessed in this report. The following recommendations should be enforced:

- If any human remains are uncovered during construction, the ECO should have the area fenced off and contact SAHRA (Tel: 021 462 4502) immediately.

If there are any significant changes to the layout of the facility, the new design should be assessed by a heritage practitioner.

9. REFERENCES

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Table 2: Archaeological sites at Dyason's Klip

Field Number	Latitude	Longitude	Discussion	Significance
L001	-28.53913399	21.03615141	Light scatter of banded ironstone flakes. 1 MSA with prepared butt, retouch, unifacial flake with notch at end	Low
L002	-28.53422077	21.03242087	2 banded ironstone and 1 quartz flake on slight calcrete exposure	Low
L003	-28.53512216	21.03418853	1 quartz flake and 1 banded ironstone flake	Low
L004	-28.53632572	21.03668525	Long flake blade on weathered hornfels with cortex on one side	Low
L005	-28.53810403	21.03612986	3 x banded ironstone flakes. Some artefacts are very small and very weathered.	Low
L006	-28.53803446	21.03679572	Small rectangular patch of cobbles. Cairn? Right next to a dead tree. Could this have been a grave under a tree. 1.3 m x 50 cm.	High?
L007	-28.53768233	21.03979644	Cairn consisting of 7 stones. V. Small only 50cm x 60cm. Not grave.	High?
L008	-28.53599455	21.04044151	Scatter of quartz flakes and chunks on bare piece of ground	Low
L009	-28.51476135	21.01546680	Four little houses, single-roomed. With no roofs, doors or window panes. Inside 2 houses are packs of tin cans. The paper packets have disintegrated and tins tumbling out doors. Compound for mine?	Low-Medium
L010	-28.49237706	20.99997788	A quartz ridge. 2 quartz flakes and 1 core. Some OES	Low
L011	-28.48874124	20.99778760	Number of black (basalt?) cores and flakes. There are some outcrops nearby.	Low
L012	-28.49627774	21.00194369	Quartz outcrop. 1 quartzite radial core. Mainly banded ironstone flakes.	Low
L013	-28.50466191	21.01024655	Basalt handaxe on a cleared surface. Nearby are black bedrock outcrops and evidence of knapping.	Low
L014-015	-28.53376388 -28.53469385	21.04651613 21.04515508	The extent of the tungsten mining trench. Some type of old mine crane, a 4 stroke engine with winch, some isolated metal cans (old sardine can). Photos	Low
L016	-28.54151362	21.05379062	Flat area with 2 artefacts, 1 quartz flake and 1 banded ironstone flake	Low
L017	-28.58957109	21.09013472	V weathered banded ironstone artefacts on the edge of the stone outcrop. Little bit of quartz. Lots of retouch. Higher density. Hornfels	Low
L018	-28.54860747	21.06153416	On the banks of a little dry stream. 1 quartzite flake with retouch, 1 quartzite irregular core; 1 flaked banded ironstone cobble with cortex. Stone artefact density slightly higher along the streams. Further on, a single MSA flake with prepared platform.	Low
L019	-28.54890008	21.06107893	Two v small cairns. 1 with 4 rocks, the other with 6 rocks. But only 50 cm x 50 cm. On softer soils of the river sands.	High?
D001	-28.54477300	21.03655701	2 quartz cores, 1 large quartz flake and 1 wind-blasted broken MSA flake on quartzite. On a calcretes exposure in featureless grassland. Very low density.	Low
D002	-28.54500099	21.03682296	Area of denser quartz MSA flakes on a calcretes surface. About 50 – 100 quartz pieces and 1 quartzite.	Low
D003	-28.53918202	21.03585502	An extension of L001. Wind blasted MSA on yellow banded ironstone, some artefacts with retouch.	Low
D004	-28.53930498	21.03560197	A crude biface?	Low

D005	-28.51364597	21.03096200	Small open area with banded ironstone, hornfels and quartzite flakes – about 10 stone tools - MSA	Low
D006	-28.53332500	21.04194104	Old diggings – unsure of date – done mechanically	Low
D007	-28.54741196	21.04788397	Quartz outcrop with some quartz scatter as well as quartzite and banded ironstone flakes.	Low
D008	-28.54709202	21.04705601	Collapsed mud brick structure with stone foundation. Possibly shepherd's house. Interior 2.5 m x 2.3 m. Few tin cans in the vicinity. Paraffin tin. No glass.	Low-Medium
D009	-28.59070499	21.09008996	Possible grinding surface (x 3) on rough slab	Low
D010	-28.58959196	21.09012399	See L017	Low
D011	-28.57721399	21.07466801	Small quartz outcrop and other more volcanic rock too. Lots of quartz debris, quite a bit seems to be flakes and chunks. Also banded ironstone MSA. Quite dense quartz.	Medium – High Grade IIIc
D012	-28.55016701	21.06125697	Gravel area near stream. Low density quartz and banded ironstone. Scatter of MSA. About 5 banded ironstone pieces. Wind blasted. Some retouch. Quartz outcrop to the NW	Low
D013	-28.54916302	21.06187304	Extensive quartz gravel area. Occasional banded ironstone flakes, chunks and cores. Some with cobble cortex. Large distribution of quartz but not clear that all is artefactual.	Low-Medium
D014	-28.54936201	21.04375002	A higher distribution of Orange River gravel type (stones/cobbles) localised near a small cement reservoir. It seems these stones may have been introduced historically to be mixed with the cement for the reservoir. Banded ironstone, hornfels, quartzite and some schist? There is one small uniface (small handaxe) on banded ironstone.	Low-Medium