Heritage Report

Proposed extension of the EA granted for the proposed development of the Khoi-Sun Solar Farm near the Orange River in the Northern Cape

SAHRA Case No: 202 and 13468

Prepared by CTS Heritage

CTS HERITAGE

For

Savannah Environmental

May 2023

CTS HERITAGE

EXECUTIVE SUMMARY

1. Site Name:

Khoi-Sun Solar Farm

2. Location:

North of Pofadder near the Orange River

3. Locality Plan:

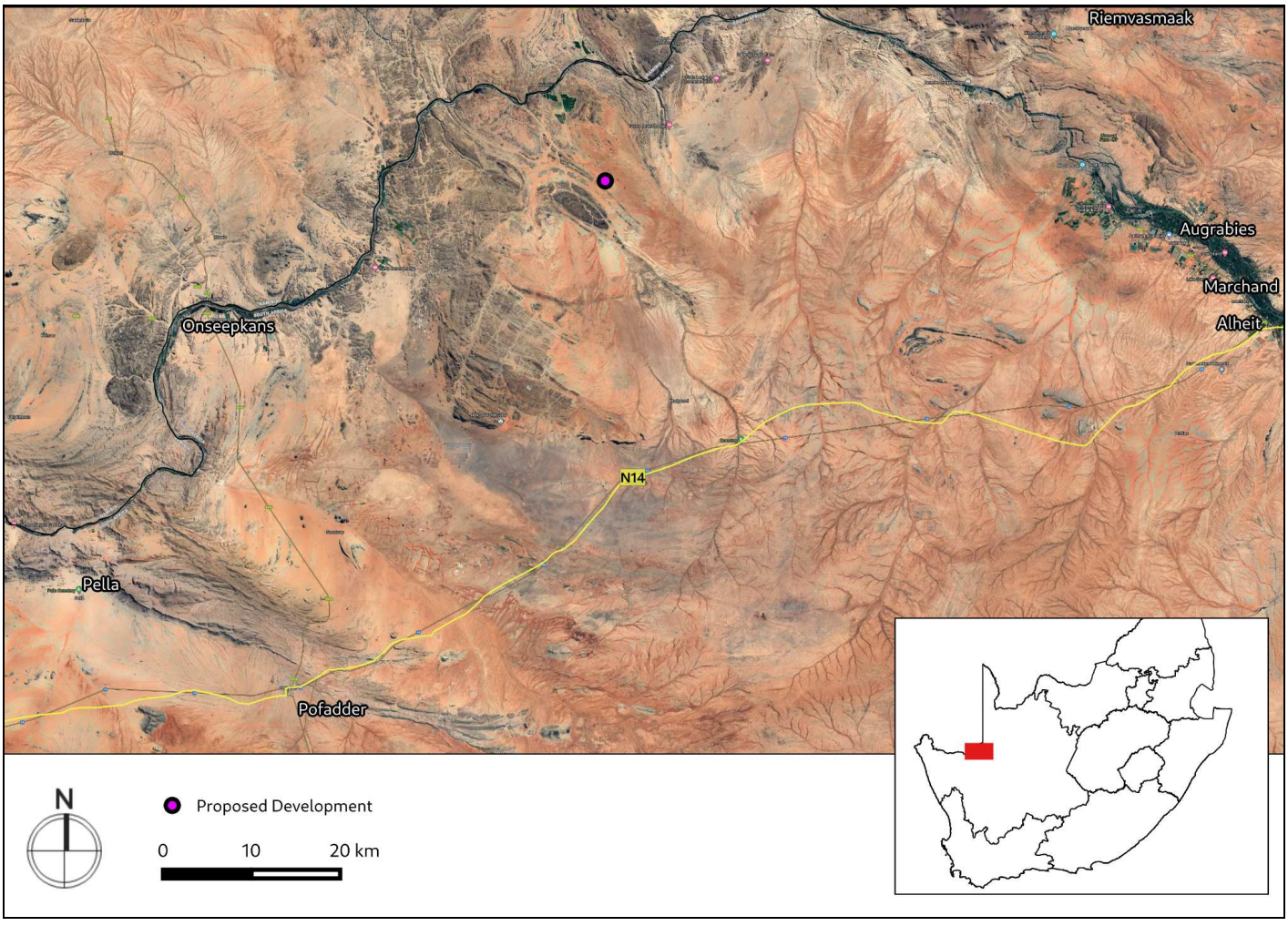


Figure 1: Location of the proposed development area

4. Description of Proposed Development:

The proposed Khoi-Sun Development is to consist of solar photovoltaic panels with a feed-in capacity of 75MW (megawatts) Alternating Current (AC) / >90MW Direct Current (DC), as well as associated infrastructure, which will include:

- On-site substation
- Auxiliary buildings (administration / security, workshop, storage and ablution)
- Inverters, transformers and internal electrical reticulation (underground cabling);
- Access and internal roads network;
- Overhead electrical transmission line (to connect to existing Schuitdrift Substation)
- Rainwater tanks
- Perimeter Fencing

EA for this project was granted in 2013 and is set to expire in 2023. This report is submitted in support of the extension of the EA for a period of a further 10 years.

5. Heritage Resources Identified:

No significant heritage resources were identified

6. Anticipated Impacts on Heritage Resources:

No impacts to significant heritage resources are anticipated.

7. Recommendations:

There is no objection to the proposed development on heritage grounds and the following is recommended:

- No mitigation is required prior to construction operations commencing.
- Should any evidence of archaeological sites or remains (e.g. remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils or other categories of heritage resources be found during the proposed development, SAHRA APM Unit (Natasha Higgitt/Phillip Hine 021 462 5402) must be alerted.
- If unmarked human burials are uncovered, the SAHRA Burial Grounds and Graves (BGG) Unit (Mimi Seetelo 012 320 8490), must be alerted immediately as per section 36(6) of the NHRA. A professional archaeologist must be contracted as soon as possible to inspect the findings. A Phase 2 rescue excavation operation may be required subject to permits issued by SAHRA.
- The above recommendations must be included in the Environmental Management Plan (EMP) for the project

Details of Specialist who prepared the HIA

Jenna Lavin, an archaeologist with an MSc in Archaeology and Palaeoenvironments, and currently completing an MPhil in Conservation Management , heads up the heritage division of the organisation, and has a wealth of experience in the heritage management sector. Jenna's previous position as the Assistant Director for Policy, Research and Planning at Heritage Western Cape has provided her with an in-depth understanding of national and international heritage legislation. Her 8 years of experience at various heritage authorities in South Africa means that she has dealt extensively with permitting, policy formulation, compliance and heritage management at national and provincial level and has also been heavily involved in rolling out training on SAHRIS to the Provincial Heritage Resources Authorities and local authorities.

Jenna is a member of the Association of Professional Heritage Practitioners (APHP), and is also an active member of the International Committee on Monuments and Sites (ICOMOS) as well as the International Committee on Archaeological Heritage Management (ICAHM). In addition, Jenna has been a member of the Association of Southern African Professional Archaeologists (ASAPA) since 2009. Recently, Jenna has been responsible for conducting training in how to write Wikipedia articles for the Africa Centre's WikiAfrica project.

Since 2016, Jenna has drafted over 100 Heritage Impact Assessments throughout South Africa.

CONTENTS

1. INTRODUCTION

1.1 Background Information on Project

The proposed Khoi-Sun Development is to consist of solar photovoltaic panels with a feed-in capacity of 75MW (megawatts) Alternating Current (AC) / >90MW Direct Current (DC), as well as associated infrastructure, which will include:

- On-site substation
- Auxiliary buildings (administration / security, workshop, storage and ablution)
- Inverters, transformers and internal electrical reticulation (underground cabling);
- Access and internal roads network;
- Overhead electrical transmission line (to contect to existing Schuitdrift Substation)
- Rainwater tanks
- Perimeter Fencing

EA for this project was granted in 2013 and is set to expire in 2023. This report is submitted in support of the extension of the EA for a period of a further 10 years.

1.2 Description of Property and Affected Environment

The proposed Khoi-Sun solar facility lies about 13km south of the Orange River and the Namibian border. A 220kV overhead powerline runs past the eastern side of the proposed development area and onto the Orange River while a larger 400kV overhead powerline runs a few kilometres further east and parallel to the 220kV line. This line crosses over the Orange River and onwards into Namibia.

Access to the study site can be made either from the east through the small town of Augrabies or from the southern end along the dirt road that leaves the N14 highway. A small substation is on the southeastern corner of the solar pv area closer to the old Skuitdrift werf and outbuildings. The terrain slopes gently down in a northerly direction towards the Orange River and red Kalahari sands cover the area, dotted by small outcrops of granite.
There is scant vegetation and some acacia thorn trees, shrubs and sparse grassland are present on the site. More intense irrigation agriculture along the banks of the Orange River is taking place by the owner at Southern Farms but otherwise the area is mainly used for sheep farming, hunting and safaris farms.

Figure 1.1: The proposed development area relative to the Orange River.

2. METHODOLOGY

2.1 Purpose of HIA

The purpose of this Heritage Impact Assessment (HIA) is to satisfy the requirements of section 38(8), and therefore section 38(3) of the National Heritage Resources Act (Act 25 of 1999).

2.2 Summary of steps followed

- A Desktop Study was conducted of relevant reports previously written (please see the reference list for the age and nature of the reports used)
- An archaeologist conducted an assessment of archaeological resources likely to be disturbed by the proposed development. The archaeologist conducted his site visit on 9 May 2023.
- The identified resources were assessed to evaluate their heritage significance
- Alternatives and mitigation options were discussed with the Environmental Assessment Practitioner

2.3 Assumptions and uncertainties

- The *significance* of the sites and artefacts is determined by means of their historical, social, aesthetic, technological and scientific value in relation to their uniqueness, condition of preservation and research potential. It must be kept in mind that the various aspects are not mutually exclusive, and that the evaluation of any site is done with reference to any number of these.

- It should be noted that archaeological and palaeontological deposits often occur below ground level. Should artefacts or skeletal material be revealed at the site during construction, such activities should be halted, and it would be required that the heritage consultants are notified for an investigation and evaluation of the find(s) to take place.

However, despite this, sufficient time and expertise was allocated to provide an accurate assessment of the heritage sensitivity of the area.

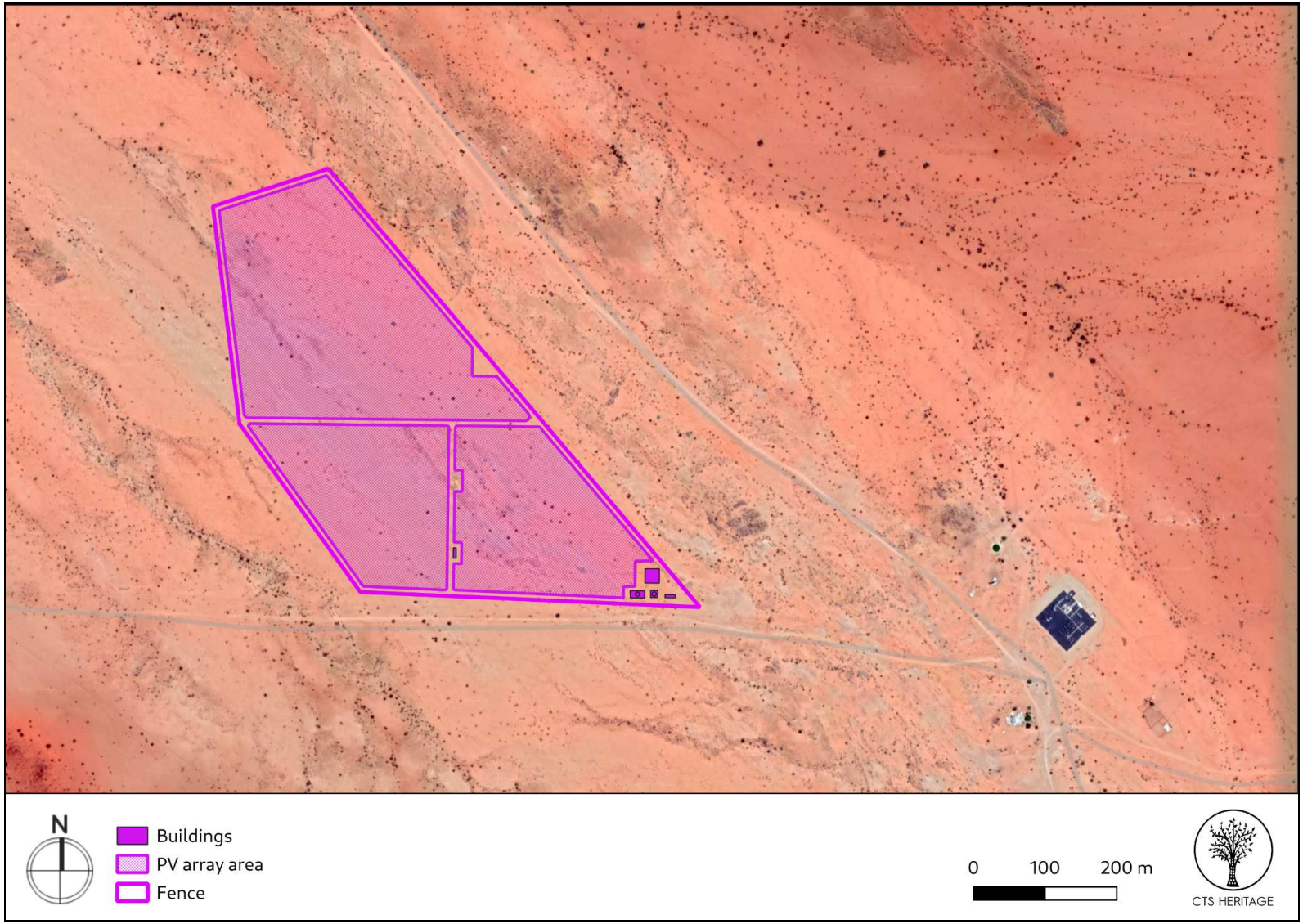


Figure 1.2: The proposed development area including the approved PV Facilities.

2.4 Constraints & Limitations

There was very little vegetation cover present on site and the study area is very small. It did not warrant a full survey given the very small area requiring assessment and the fact that a full HIA had been conducted for the solar PV farm on two previous occasions. The assessment supported the findings we made in our desktop screening study which found that this area has no heritage sensitivities.

2.5 Savannah Impact Assessment Methodology

Direct, indirect and cumulative impacts of the issues identified through the Basic Assessment process were assessed in terms of the following criteria:

- The nature, which shall include a description of what causes the effect, what will be affected and how it will be affected.
- The extent, wherein it will be indicated whether the impact will be local (limited to the immediate area or site of development) or regional, and a value between 1 and 5 will be assigned as appropriate (with 1 being low and 5 being high).
- The duration, wherein it will be indicated whether:
    - The lifetime of the impact will be of a very short duration (0 – 1 years) – assigned a score of 1.
    - The lifetime of the impact will be of a short duration (2 – 5 years) – assigned a score of 2.
    - Medium-term (5 – 15 years) – assigned a score of 3.
    - Long term (> 15 years) – assigned a score of 4.
    - Permanent – assigned a score of 5.
- The consequences (magnitude), quantified on a scale from 0 – 10, where 0 is small and will have no effect on the environment, 2 is minor and will not result in an impact on processes, 4 is low and will cause a slight impact on processes, 6 is moderate and will result in processes continuing but in a modified way, 8 is high (processes are altered to the extent that they temporarily cease), and 10 is very high and results in complete destruction of patterns and permanent cessation of processes.
- The probability of occurrence, which shall describe the likelihood of the impact actually occurring. Probability will be estimated on a scale of 1 – 5, where 1 is very improbable (probably will not happen), 2 is improbable (some possibility, but low likelihood), 3 is probable (distinct possibility), 4 is highly probable (most likely) and 5 is definite (impact will occur regardless of any prevention measures).
- The significance, which shall be determined through a synthesis of the characteristics described above and can be assessed as low, medium or high.
- The status, which will be described as either positive, negative or neutral.
- The degree to which the impact can be reversed.
- The degree to which the impact may cause irreplaceable loss of resources.

- The degree to which the impact can be mitigated.

The significance is calculated by combining the criteria in the following formula:

S = (E + D + M) x P

S = Significance weighting

E = Extent

D = Duration

M = Magnitude

P = Probability

The significance weightings for each potential impact are as follows:

- < 30 points: Low (i.e. where this impact would not have a direct influence on the decision to develop in the area).
- 30 – 60 points: Medium (i.e. where the impact could influence the decision to develop in the area unless it is effectively mitigated).
- > 60 points: High (i.e. where the impact must have an influence on the decision process to develop in the area).

In the previous heritage assessment completed for this project in 2012, no impact tables were drafted for the development. We have included impact tables in section 5 below.

3. HISTORY AND EVOLUTION OF THE SITE AND CONTEXT

3.1 Desktop Assessment

The original Environmental Authorisation for the Khoi-Sun PV Facility and grid connection was granted in 2013. The area proposed for the PV Facility is located north of Pofadder and near the Orange River in the Northern Cape. The area proposed for the PV Facility and grid connection was assessed for impacts to heritage resources by De Kock et al. (2012, SAHRIS Case ID 202). This desktop assessment refers extensively to this work.

Cultural Landscape and Built Environment Heritage

According to Gaigher (2012, SAHRIS ID 34135), prior to colonial settlement, this area was occupied by the Korana who had been forced to the outskirts of the Cape Colony along the Gariep River. In 1868, colonial forces were sent to deal with the conflicts arising with the Korana. The colonial forces set up camp beneath a camelthorn tree and with time the town of Kenhardt developed from under this tree, becoming a municipality in 1909. When this area was eventually settled by colonists, war broke out between the colonial settlers and the Korana, who were then dispursed upon their defeat. Kenhardt has for a long time been the most remote settlement in the Northern Cape.

The area between Kenhardt and Brandvlei has previously been described as “a huge landscape of nothingness”, however this is misleading as this area was occupied for thousands of years by the Korana and their ancestors. Evidence of this is available in the distribution of stone age artefacts across the landscape, the rock engravings known from this area located on dolerite boulders that occur throughout the region between Kenhardt, Brandvlei and Vanwyksvlei. as well as in the accounts of Khoe and San culture available from the interviews by Bleek and Lloyd with /Xam men from the Kenhardt district (Deacon, 1997; Beaumont and Vogel, 1989; Skinner, 2017). Deacon (1997) notes that “the symbolism (of the /Xam) tends to be earth-bound in linking people to the land through ritual. The importance of the landscape can also be seen in the personification of geographical features through myths and legends that explain their form. As I have suggested elsewhere, rock art enhanced this symbolic linkage by marking those landscape features that were used in rituals over many generations”.

According to Deacon (1997), “The landscape of the Upper Karoo where the /Xam lived appears to the stranger to be flat, and indeed the /Xam who lived between Kenhardt and Vanwyksvlei called themselves the "Flat Bushmen". To find one's way it is often necessary to climb a vantage point and such points are offered by dolerite dykes that snake across the plains.” Such a dolerite outcrop is located in the eastern section of the proposed development area (Figure 4b). According to Deacon (1997), these dolerite outcrops may have provided protection from the wind and scatters of artefacts can be found there confirming that people made use of them. Furthermore, Deacon (1997) posits that these dolerite hills were strongly culturally linked to rain-making activities, and may have played a role in men’s initiation.

In his assessment, Do Kock (2012) notes that "The proposed development site is located within a flat, arid landscape bound by a series of low granite hills to the northeast. Soils were found to be sandy and overgrown with sparse vegetation including grass and low-growing shrubs interspersed. As illustrated with the recent aerial photograph, a narrow gravel road (also the main access road on the farm) traverses the site – continuing further northwest/ parallel to the western property boundary towards the Orange River. The existing Skuitdrift substation and a cellular mast are directly southwest of the site. From this substation a 33kV overhead line leads to the west while a 132kV overhead line leads to the east (Blouputs). No buildings, ruins or any other structure were noted on the proposed development site. The existing Skuitdrift farmstead, just north of the site boundary, is not older than 60 years. A small building complex, including a much-altered farmstead and outbuildings older than 60 years, a modern labourer's cottage and agricultural building (most likely older than 60 years) were noted directly south-west of the site (i.e. also just outside proposed development site boundary)."

Archaeology

The area proposed for development was assessed for impacts to archaeological heritage by Smith (2012) and again by Morris (2017). Smith's assessment notes that "only around the number of koppies that exist on the farm was any material of significance found. The conclusions are that the flat, open country has low archaeological significance, but the koppies need to be avoided by any construction teams and their vehicles. It is suggested that a 'buffer zone' of 50m extending around the base of each koppie would be adequate protection of the archaeological sites. There appear to be no other inhibitors to the solar facility from an archaeological perspective." Smith (2012) goes on to note that "The only artefact concentrations of any note are around the base of the koppies on the footprint. It is recommended that in the installation of the solar panels that an area around each koppie is designated as a 'buffer zone' (perhaps 50m.) and no tracks be built through the buffer zone. From an archaeological perspective the open terrain is of low significance, as there is little cultural material to be found. With the proviso of the 'buffer zones' around the koppies, there is no other archaeological impediment to the solar facility going ahead. Based on results of the current study it is recommended that: • It is recommended that in the installation of the solar panels that an area around each koppie is designated as a 'buffer zone' (perhaps 50m.) and no tracks be built through the buffer zone."

Morris completed a walkdown of the development area in 2017. He notes that "Based on previous experience in the area (including Smith 2012), it is estimated that any terrain close to hills or rocky features, particularly sandy spots near sheltering rocks, may tend to have traces of precolonial Stone Age occupation/activity. No such features occur on the actual footprint of the proposed development. While places in the open plains have been found to have sparsely scattered artefacts (such as at Konkoonsies near the Paulputs Substation site – Morris 1999a), these areas are expected to be less significant. An exception to this is where rocky outcrops at the surface on the plains provide places where water pools exist after rains. Such places often attracted people in the past

with traces of this including artificial grinding grooves in the bedrock and ample evidence of stone artefacts and pottery… Colonial era sites or features within the study area include farm infrastructure, and a grave site beyond the footprint that was noted by De Kock (2012).” Morris (2017) concludes that “The lack of topographical features such as rocky outcrops, major watercourses, or dunes, suggested on the basis of prior experience of the archaeology of the region that the development footprint was not likely to be rich in archaeological traces of major significance.”

Palaeontology

According to the SAHRIS Palaeosensiitvity Map (Figure 4), the area proposed for development is underlain by sediments of zero and moderate palaeontological sensitivity. According to the letter of recommendation for exemption from further heritage studies completed by Almond (2012), “The above report indicates that the proposed development site is underlain by ancient Precambrian basement rocks (Schuitdrift Gneiss) that are approximately two to one billion years old and entirely unfossiliferous (Almond & Pether 2008). The report furthermore indicates that while alluvial gravels of the Orange River of Miocene and younger age are locally highly fossiliferous, these are highly unlikely to be found in the study area. The palaeontological sensitivity of the Skuitdrift solar plant study area is accordingly assessed as VERY LOW. As such, it is recommended that no further palaeontological studies be required in this instance.” This recommendation remains appropriate and is reiterated in this assessment.

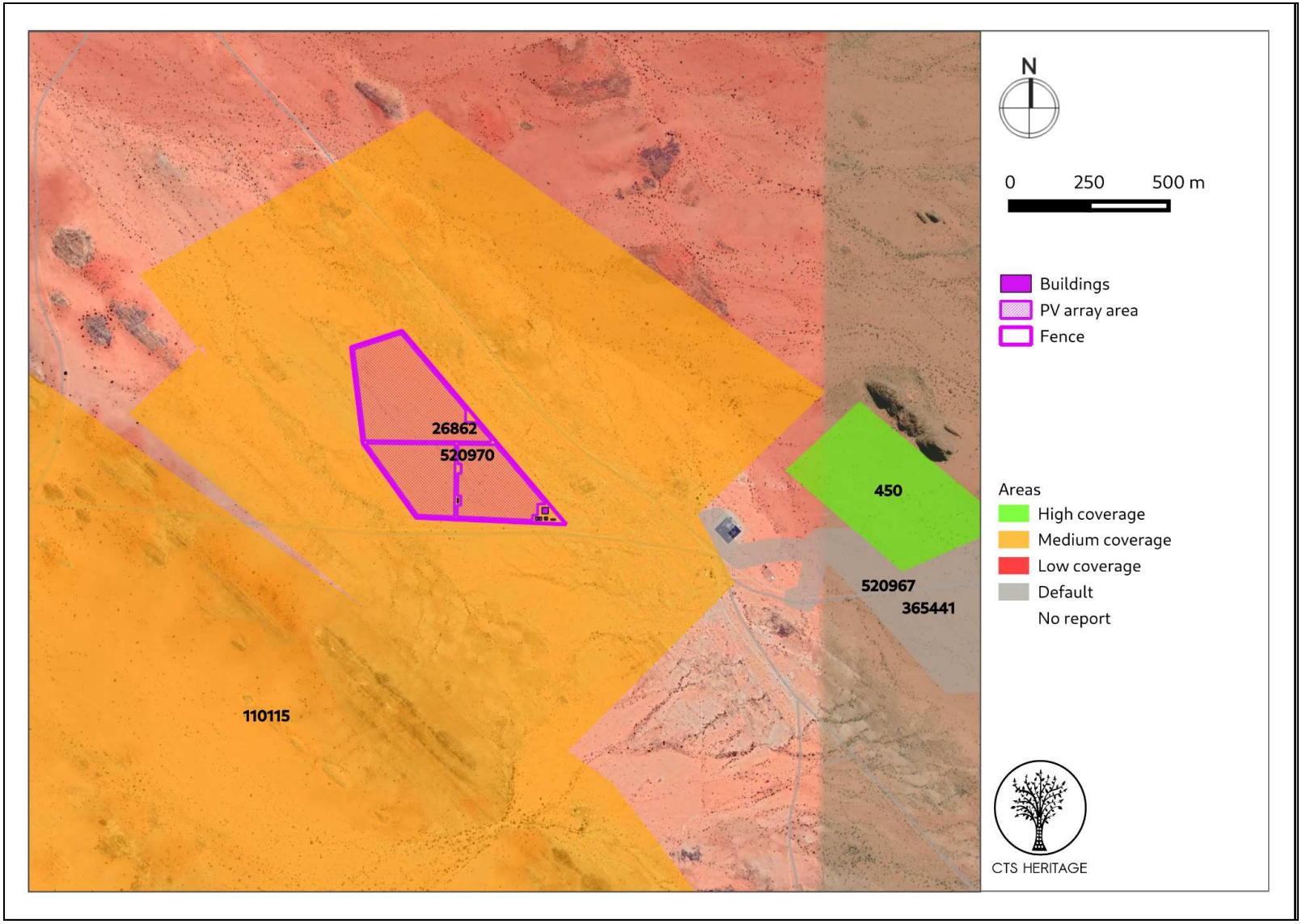


Figure 2.3. Previous HIAs Map. Previous Heritage Impact Assessments covering the proposed development area with SAHRIS NIDS indicated. Please see Appendix 2 for a full reference list.

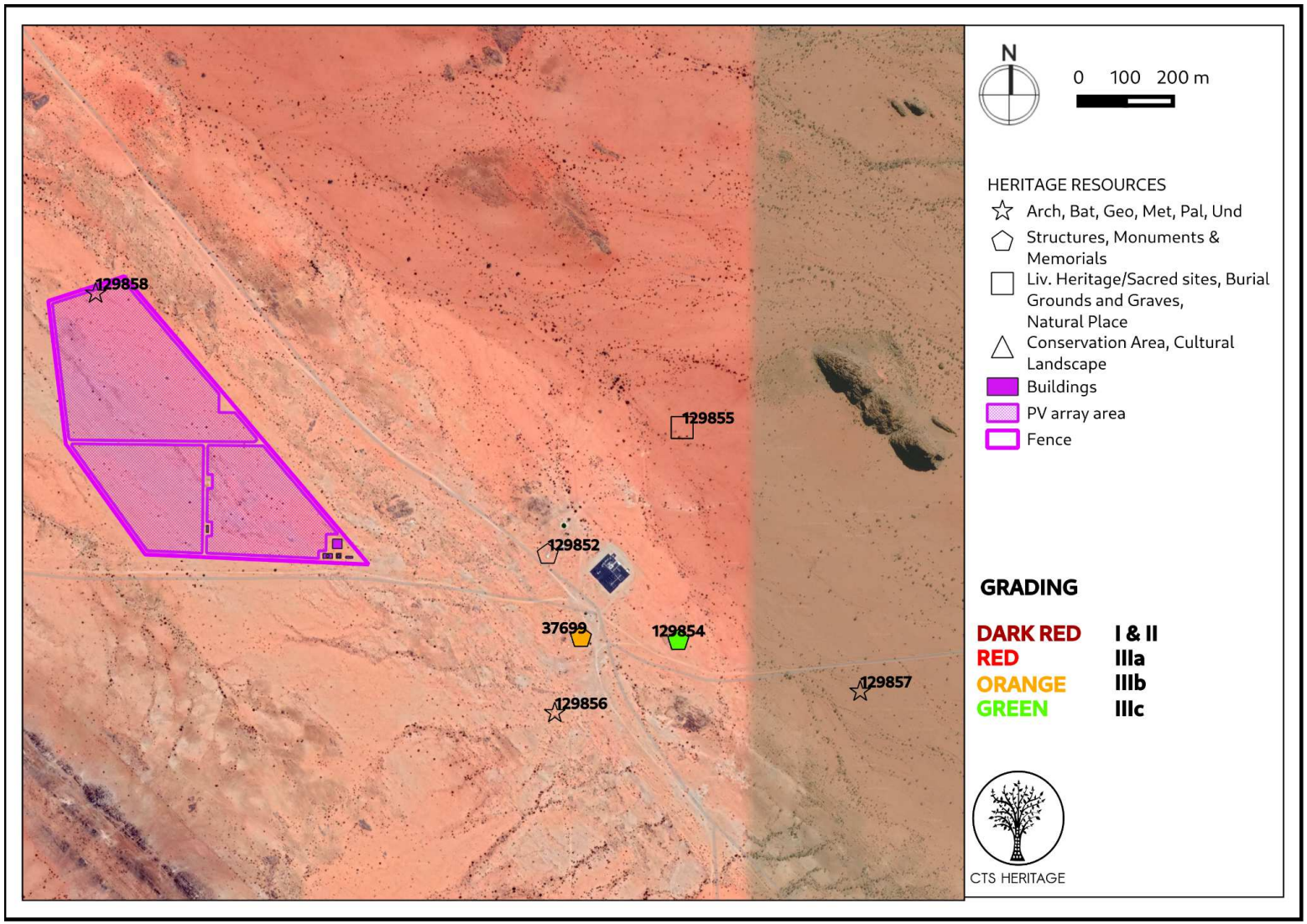


Figure 2.4. Heritage Resources Map. Heritage Resources previously identified within the study area, with SAHRIS Site IDs indicated in the insets below. Please See Appendix 4 for full description of heritage resource types.

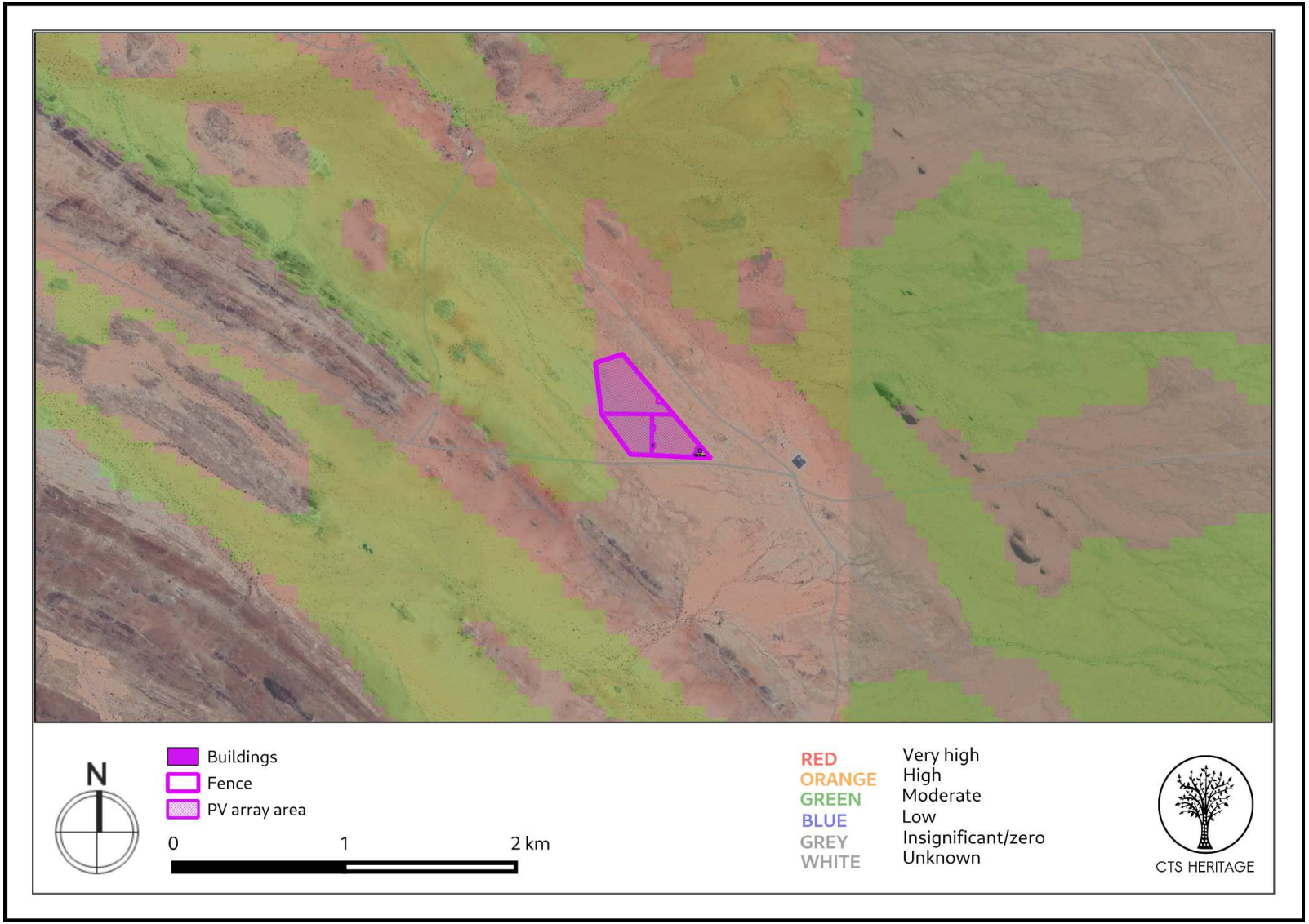


Figure 3.1: Palaeontological sensitivity of the proposed development area (zero sensitivity)

4. IDENTIFICATION OF HERITAGE RESOURCES

4.1 Summary of findings of Specialist Reports

Archaeology

An archaeologist conducted an assessment of the area proposed for development in May 2023. The area proposed for the solar PV facility is surrounded by electrical infrastructure and is within a region of very high aridity. However, the Orange River is located about 13km away and hunter-gatherers have utilised the availability of water and left a relatively consistent presence of material throughout the area. Stone artefacts are thinly but even spread across the level plain but cluster where small outcrops occur such as those at observation 001. The previous surveys by Morris (2017) and Smith (2012) are still relevant as the area has not been developed and the conditions are very much the same as those which were experienced when the first surveys for this development took place. Artefacts made from jasperlite, quartzites, quartz and hornfels can be found spanning the MSA through the LSA with general densities increasing the closer one moves towards the Orange River and around prominent outcrops.

Figure 5.1 View of the substation near the Skuitdrift werf

Figure 5.2 View from a small granite outcrop near the southeast corner of the study site.

Figure 5.3 View of the granite outcrop offering views over the entire study site.

Figure 5.4 Typical landscape photo showing Kalahari sands, sparse vegetation and the occasional thorn tree.

Figure 5.5 View of patchy grassland and thorn trees at the site

Figure 5.6 View looking northeast across the study area.

Figure 5.7 View of the study site

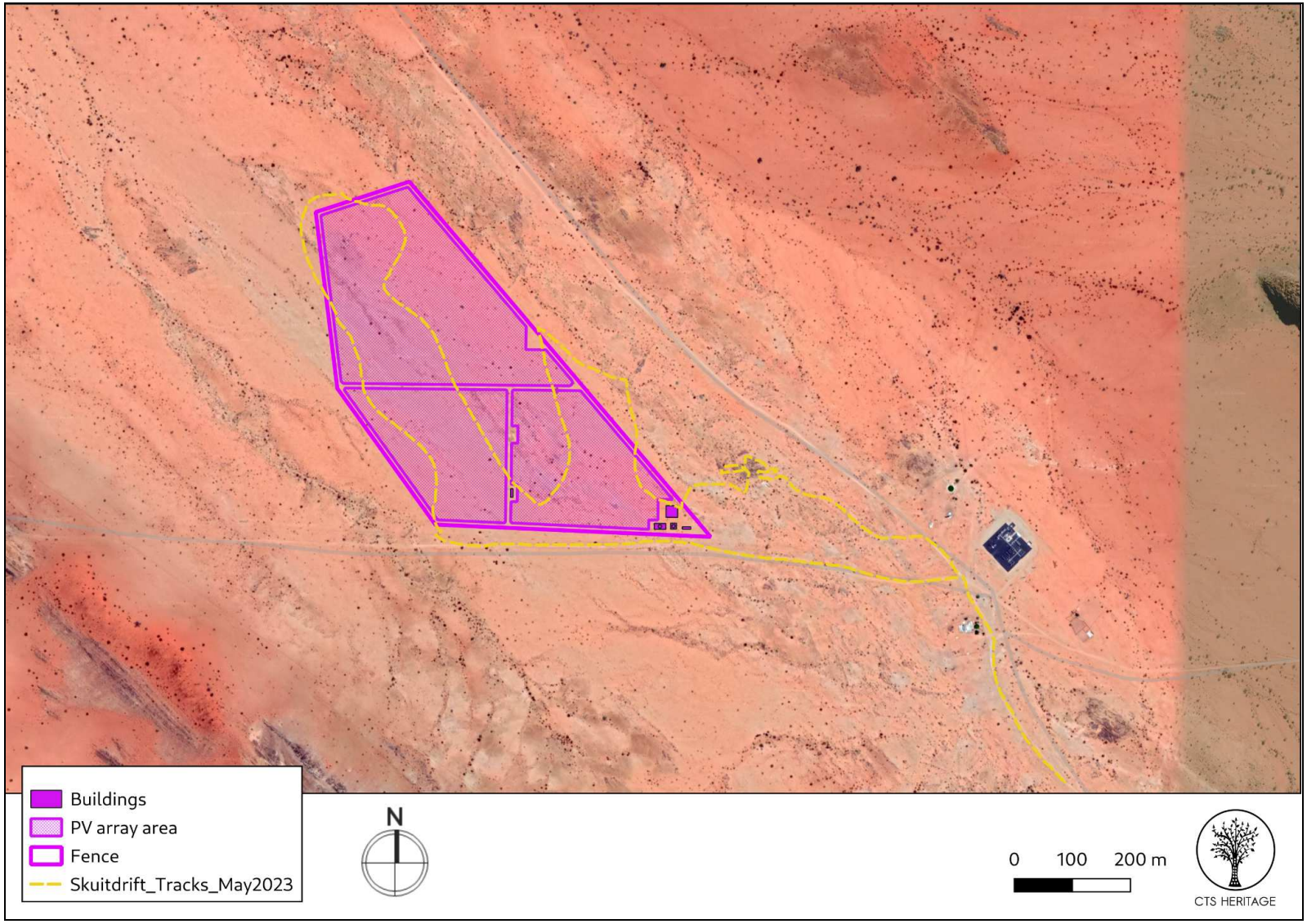


Figure 4. Track paths of archaeologist during the field assessment

4.2 Heritage Resources identified

The area proposed for the PV development was surveyed by Smith in 2012, by Morris in 2017 and again in 2023 by CTS Heritage. The results of all three field assessments are reflected in the table below and in Figure 7.

Table 2: Observations identified during the field assessment completed in 2023, 2017 (by Morris) and 2012 (by Smith)

Site Name	Description	Type	Period	Density	Co-ordinates		Grading	Mitigation
001	Various quartzite and quartz cores, flakes near granite outcrop	Artefacts	MSA, LSA	30+	-28.610721	19.769158	NCW	NA
Extracted sites from David Morris 2017								
2017/1	Jaspilite flake	Artefacts	MSA	0 to 5	-28.60655556	19.76213889	NCW	NA
2017/2	Quartzite flake	Artefacts	MSA	0 to 5	-28.60761111	19.76219444	NCW	NA
2017/3	Jaspilite flake and nearby flaked river-rolled pebble	Artefacts	MSA	0 to 5	-28.60916667	19.76327778	NCW	NA
2017/4	Quartz flake	Artefacts	MSA	0 to 5	-28.60708333	19.76208333	NCW	NA
2017/5	Two quartz flakes	Artefacts	MSA	0 to 5	-28.60708333	19.76336111	NCW	NA
2017/6	Flaked river-rolled pebble	Artefacts	MSA	0 to 5	-28.60769444	19.76144444	NCW	NA
2017/7	Flaked river-rolled pebble	Artefacts	MSA	0 to 5	-28.60825	19.76105556	NCW	NA
2017/8	Jaspilite flake	Artefacts	MSA	0 to 5	-28.60813889	19.76122222	NCW	NA
2017/9	Quartzite flake	Artefacts	MSA	0 to 5	-28.60858333	19.76219444	NCW	NA
2017/10	Quartzite flake	Artefacts	MSA	0 to 5	-28.60913889	19.76191667	NCW	NA
2017/11	Jaspilite flake	Artefacts	MSA	0 to 5	-28.61036111	19.76377778	NCW	NA
2017/12	Quartzite flake broken	Artefacts	MSA	0 to 5	-28.61066667	19.76447222	NCW	NA
2017/13	Jaspilite manuport with edge damage and one flake Removal	Artefacts	MSA	0 to 5	-28.61083333	19.76544444	NCW	NA
2017/14	Jaspilite flake	Artefacts	MSA	0 to 5	-28.61097222	19.76538889	NCW	NA
2017/15	Quartzite flake	Artefacts	MSA	0 to 5	-28.61119444	19.76583333	NCW	NA
2017/16	Quartz flake	Artefacts	MSA	0 to 5	-28.60877778	19.76538889	NCW	NA
Extracted sites from Smith 2012								
133	Skuitdrift Farmhouse	Structure	Historic	n/a	-28.61262458	19.77275133	IIIC	NA
134	MSA quartzite core	Artefacts	MSA	0 to 5	-28.61454833	19.77209922	NCW	NA
135	MSA quartz flake	Artefacts	MSA	0 to 5	-28.61626192	19.76544911	NCW	NA
137	Crystal quartz & hornfels flake	Artefacts	MSA	0 to 5	-28.60509161	19.75338972	NCW	NA
138	Quartz core/scraper + flakes	Artefacts	MSA	0 to 5	-28.60128244	19.75015011	NCW	NA
155	Onderveld Farmhouse	Structure	Modern	n/a	-28.59561586	19.75386589	NCW	NA
156	Quartz core + few chips	Artefacts	MSA	0 to 5	-28.60029331	19.7627405	NCW	NA
157	Quartz flake + scraper	Artefacts	MSA	0 to 5	-28.60103442	19.76476094	NCW	NA
158	Scattered quartz flakes & core	Artefacts	MSA	0 to 5	-28.59948914	19.76769622	NCW	NA
159	Hornfels flake	Artefacts	MSA	0 to 5	-28.60190322	19.77156328	NCW	NA

161	Thin scatter of quartz pieces	Artefacts	MSA	0 to 5	-28.60190297	19.77156103	NCW	NA
164	Thin scatter of quartz pieces	Artefacts	MSA	0 to 5	-28.60580358	19.77294628	NCW	NA
168	Huge surface scatter of quartz	Artefacts	MSA	30+	-28.57641703	19.7345285	NCW	NA
De Kock 2012								
026	AP Nel grave, 1962	Graves/Burial Grounds	Modern	n/a	-28.60911111	19.77486111	IIIA	NA


Figure 6.1: Observation 001


Figure 6.2: Observation 001

4.3 Mapping and spatialisation of heritage resources

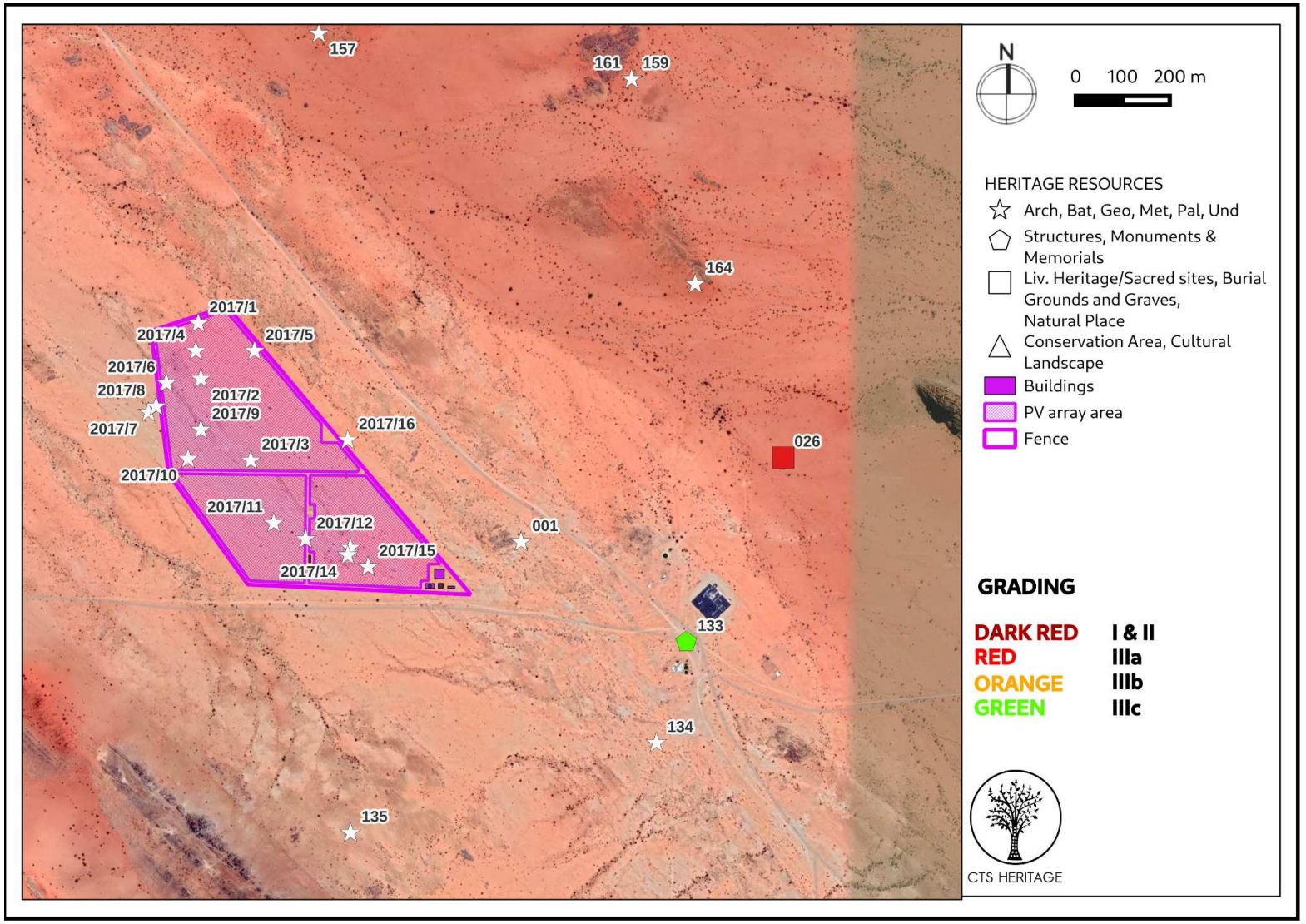


Figure 7: Heritage resources in the vicinity of the proposed development

5. ASSESSMENT OF THE IMPACT OF THE DEVELOPMENT

5.1 Assessment of impact to Heritage Resources

Based on the assessment completed, the area proposed for development has a low archaeological sensitivity and it is not foreseen that the proposed development will impact on significant archaeological heritage. The only archaeological observations identified during the field assessment of the area proposed for development in 2023 were determined to be not conservation-worthy. Other sites of known heritage significance identified by others (De Kock, 2012, Smith, 2012 and Morris, 2017) are located well away from the proposed development area and no impact is anticipated.

According to the letter of recommendation for exemption from further heritage studies completed by Almond (2012), “The above report indicates that the proposed development site is underlain by ancient Precambrian basement rocks (Schuitdrift Gneiss) that are approximately two to one billion years old and entirely unfossiliferous (Almond & Pether 2008). The report furthermore indicates that while alluvial gravels of the Orange River of Miocene and younger age are locally highly fossiliferous, these are highly unlikely to be found in the study area. The palaeontological sensitivity of the Skuitdrift solar plant study area is accordingly assessed as VERY LOW. As such, it is recommended that no further palaeontological studies be required in this instance.” This recommendation remains appropriate and is reiterated in this assessment.

Table 4.1 Impacts of the proposed development to heritage resources

NATURE: The construction phase of the project will require excavation, which may impact on heritage resources if present.				
		Without Mitigation		**With Mitigation**
MAGNITUDE	**M (3)**	No heritage resources of significance were identified within the development footprint, however some were identified within the broader area	**M (3)**	No heritage resources of significance were identified within the development footprint, however some were identified within the broader area
DURATION	**H (5)**	Where an impact to a resource occurs, the impact will be permanent.	**H (5)**	Where an impact to resources occurs, the impact will be permanent.
EXTENT	**L (1)**	Localised within the site boundary	**L (1)**	Localised within the site boundary
PROBABILITY	**L (1)**	It is unlikely that significant heritage resources will be impacted	**L (1)**	It is unlikely that significant heritage resources will be impacted
SIGNIFICANCE	**L**	(3+5+1)x1=9	**L**	(3+5+1)x1=9
STATUS		Neutral		Neutral
REVERSIBILITY	**L**	Any impacts to heritage resources that do occur are irreversible	**L**	Any impacts to heritage resources that do occur are irreversible
IRREPLACEABLE LOSS OF RESOURCES?	**L**	Unlikely	**L**	Unlikely
CAN IMPACTS BE MITIGATED		Yes		Yes
MITIGATION: - Should any evidence of archaeological sites or remains (e.g. remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils or other categories of heritage resources be found during the proposed development, SAHRA APM Unit (Natasha Higgitt/Phillip Hine 021 462 5402) must be alerted. - If unmarked human burials are uncovered, the SAHRA Burial Grounds and Graves (BGG) Unit (Mimi Seetelo 012 320 8490), must be alerted immediately as per section 36(6) of the NHRA. A professional archaeologist must be contracted as soon as possible to inspect the findings. A Phase 2 rescue excavation operation may be required subject to permits issued by SAHRA.				
RESIDUAL RISK: Should any significant resources be impacted (however unlikely) residual impacts may occur, including a negative impact due to the loss of potentially scientific cultural resources.				

5.2 Cumulative Impacts

Cumulative impact in terms of heritage was assessed by reviewing the renewable energy facilities that are proposed within 20km of the proposed development area and includes the previously assessed and authorised renewable energy facilities that fall within the development area assessed in this HIA.

At this stage, there is the potential for the cumulative impact of numerous proposed solar energy facilities and their associated infrastructure to negatively impact the cultural landscape due to a change in the landscape character from natural wilderness to semi-industrial, however, due to the remoteness of the area the impact on the experience of the cultural landscape is not foreseen to be significant.

5.3 Site Sensitivity Verification

According to the DFFE Screening Tool analysis, the development area has MODERATE levels of sensitivity for impacts to palaeontological heritage and VERY HIGH levels of sensitivity for impacts to archaeological and cultural heritage resources. The results of this assessment in terms of site sensitivity are summarised below:

- The cultural value of the broader area has limited significance in terms of its mining and agricultural history (LOW)
- Some significant archaeological resources were identified within the broader area (MODERATE)
- No highly significant palaeontological resources were identified within the development area, and while alluvial gravels of the Orange River of Miocene and younger age are locally highly fossiliferous, these are highly unlikely to be found in the study area (LOW)

As per the findings of this assessment, and its supporting documentation, the outcome of the sensitivity verification disputes the results of the DFFE Screening Tool for Palaeontology - this should be LOW - and disputes the results of the screening tool for archaeology and cultural heritage - this should be considered to be MODERATE. This evidence is provided in the body of this report and in the appendices.

5.4 Statement on environmental processes impacting on archaeological and palaeontological heritage

Archaeological and palaeontological heritage resources reflect the environments of the deeper past and are unlikely to change significantly in as short a geological time span as 10 years. Some changes to heritage resources may result from processes of erosion and deflation but, in this particular ecological setting, would likely represent heavily disturbed contexts and consequently would be of limited scientific/heritage value.

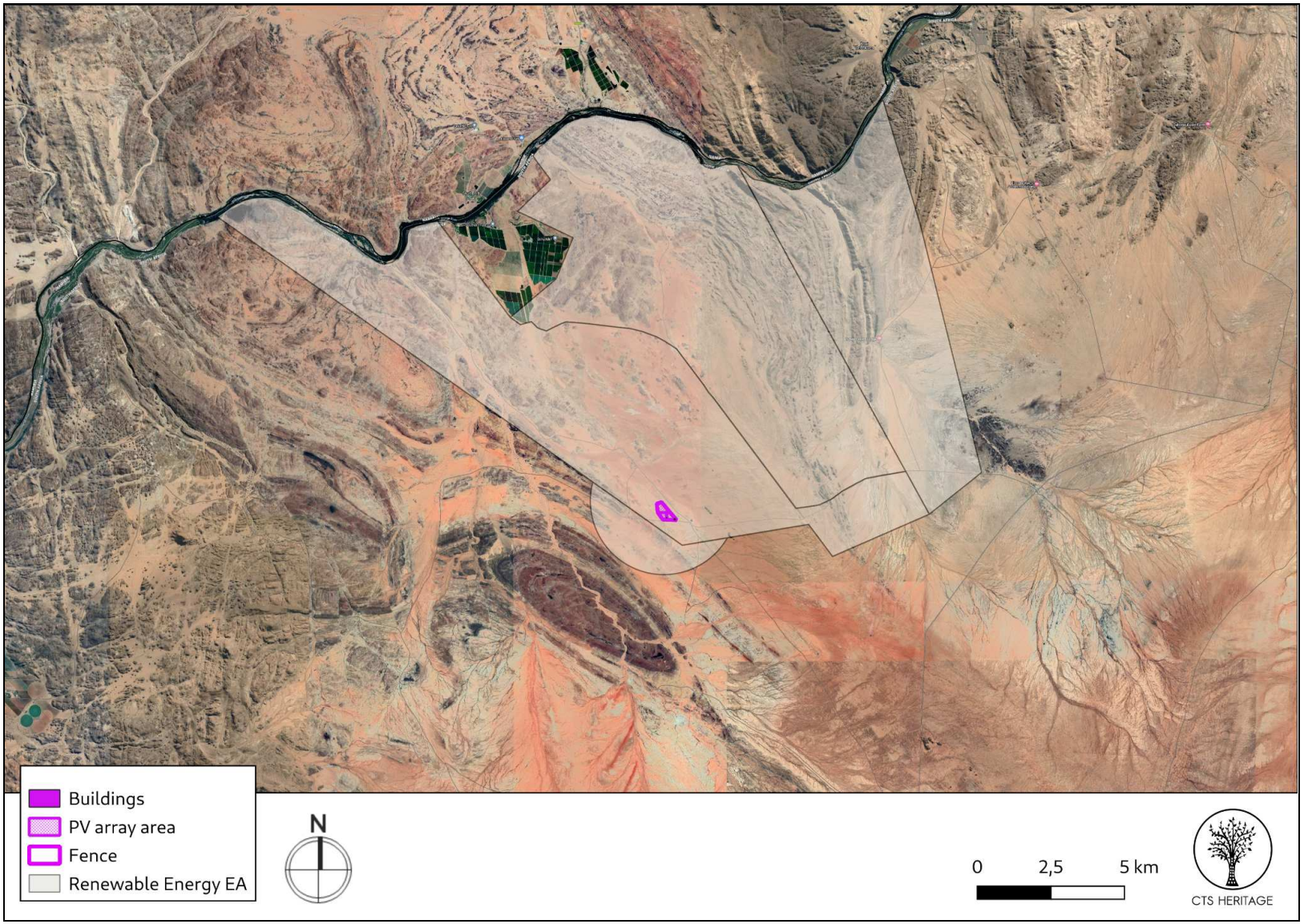


Figure 8: Approved REF projects within 20km of the proposed development area

5.5 Validity Extension

In SAHRA's response to the 2012 HIA, they note that:

"*SAHRA supports the recommendations of the archaeologist and requires that:*

- *The sensitive areas near the koppies should be avoided during construction activities; a 50m buffer zone should be observed around the koppies to ensure their protection. The Environmental Control Officer should be made aware of the presence of archaeological resources there so that their safeguarding during construction can be ensured.*
- *Even though the grave is younger than 60 years, it is recommended that a buffer zone of at least 20m is respected around it.*

As the likely impact of the development on heritage resources beyond the area of the koppies is likely to be low, the SAHRA Archaeology, Palaeontology and Meteorites Unit has no objection to the development (in terms of the archaeological and palaeontological components of the heritage resources) on condition that, if any new evidence of archaeological sites or artefacts, palaeontological fossils, graves or other heritage resources are found during development, construction or mining, SAHRA and an archaeologist and/or palaeontologist, depending on the nature of the finds, must be alerted immediately."

In their subsequent comment (2019), SAHRA notes that:

The SAHRA Archaeology, Palaeontology and Meteorites (APM) Unit supports the results of the specialist and the conditions provided in the EMPr. The recommendations of the specialist and the following conditions must be included in the EMPr:

- *The Final EMPr must be submitted to SAHRA for record purposes;*
- *If any evidence of archaeological sites or remains (e.g. remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils or other categories of heritage resources are found during the proposed development, SAHRA APM Unit (Natasha Higgitt/Phillip Hine 021 462 5402) must be alerted. If unmarked human burials are uncovered, the SAHRA Burial Grounds and Graves (BGG) Unit (Thingahangwi Tshivhase/Mimi Seetelo 012 320 8490), must be alerted immediately as per section 35(3) and 36(6) of the NHRA. A professional archaeologist or palaeontologist, depending on the nature of the finds, must be contracted as soon as possible to inspect the findings. If the newly discovered heritage resources prove to be of archaeological or palaeontological significance, a Phase 2 rescue operation may be required subject to permits issued by SAHRA*

SAHRA would also recommend that the conditions provided for the management of impacts to heritage resources provided in the Skuitdrift 1 EMPr also be included in the Skuitdrift 1 EMPr. These include:

- *Areas required to be cleared during construction must be clearly marked in the field to avoid unnecessary disturbance of adjacent areas (which will not be surveyed in detail by a heritage specialist);*
- *Contractors 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. All staff should also be familiarised with procedures for dealing with heritage objects/sites;*
- *A heritage specialist must be appointed to familiarise all staff and contractors with procedures for dealing with heritage objects/sites;*
- *Project employees and any contract staff must maintain, at all times, a high level of awareness of the possibility of discovering heritage sites;*
- *In the event that fossils resources are discovered during excavations, immediately stop excavation in the vicinity of the potential material. Mark (flag) the position and also spoil that may contain fossils. Inform the site foreman, the EO and the ECO. EO to inform the developer, the developer contacts the standby archaeologist and/or palaeontologist. EO to describe the occurrence and provide images by email.*

In light of the above, there is no heritage objection to granting the extension to the validity to develop the Khoi-Sun PV Facility and grid connection based on the current site conditions on condition that the recommendations made in the original HIA completed for this project (De Kock et al, 2012) are adhered to.

6. RESULTS OF PUBLIC CONSULTATION

The public consultation process will be undertaken by the EAP during the EIA. No heritage-related comments have been received to-date. SAHRA is required to comment on this HIA and make recommendations prior to the granting of the Environmental Authorisation.

7. CONCLUSION

Based on the assessment completed, the area proposed for development has a low overall heritage sensitivity and it is not foreseen that the proposed development will impact on significant heritage resources.

No significant heritage resources that were identified during this or the previous assessment (2012 and 2017) will be negatively impacted by the proposed development. Therefore, there is no objection, from a heritage perspective, to the proposed extension of the EA for this proposed development.

8. RECOMMENDATIONS

There is no objection to the proposed extension of the EA for this development on heritage grounds and the following is recommended:

- The recommendations included in De Kock (2012) and Morris (2017) are implemented
- Should any evidence of archaeological sites or remains (e.g. remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils or other categories of heritage resources be found during the proposed development, SAHRA APM Unit (Natasha Higgitt/Phillip Hine 021 462 5402) must be alerted.
- If unmarked human burials are uncovered, the SAHRA Burial Grounds and Graves (BGG) Unit (Mimi Seetelo 012 320 8490), must be alerted immediately as per section 36(6) of the NHRA. A professional archaeologist must be contracted as soon as possible to inspect the findings. A Phase 2 rescue excavation operation may be required subject to permits issued by SAHRA.
- The above recommendations must be included in the Environmental Management Plan (EMP) for the project

9. REFERENCES

Heritage Impact Assessments				
Nid	**Report Type**	**Author/s**	**Date**	**Title**
448	HIA Phase 1	Stefan de Kock	01/04/2012	DRAFT PHASE ONE INTEGRATED HERITAGE IMPACT ASSESSMENT COMPILED IN TERMS OF SECTION 38(8) OF THE NATIONAL HERITAGE RESOURCES ACT, 1999 (ACT 25 OF 1999) PROPOSED 10MW SOLAR FACILITY: PORTION (45HA) OF THE FARM SKUITDRIFT 426, KENHARDT DISTRICT, NORTHERN CAPE PROVINCE
450	AIA Phase 1	Andrew B Smith	01/04/2012	ARCHAEOLOGICAL REPORT Proposed 10MW Solar Facility on Farm 426 Skuitdrift, Northern Cape Province
451	Palaeontological Specialist Reports	John E Almond	01/03/2012	RECOMMENDED EXEMPTION FROM FURTHER PALAEONTOLOGICAL STUDIES & MITIGATION: PROPOSED 10 MW SOLAR FACILITY ON FARM SKUITDRIFT 426, KENHARDT DISTRICT, NORTHERN CAPE
26862	HIA Phase 1	Stefan de Kock	01/03/2012	PROPOSED KHOI-SUN DEVELOPMENT (75MW SOLAR PROJECT): PORTION (425HA) OF THE FARM SKUITDRIFT 426, KENHARDT DISTRICT, NORTHERN CAPE PROVINCE
27027	AIA Phase 1	Andrew B Smith	04/07/2012	ARCHAEOLOGICAL REPORT Proposed 75MW Solar Facility on Farm 426 Skuitdrift, Northern Cape Province
27071	PIA Desktop	John E Almond	01/03/2012	RECOMMENDED EXEMPTION FROM FURTHER PALAEONTOLOGICAL STUDIES & MITIGATION: PROPOSED 75 MW SOLAR FACILITY ON FARM SKUITDRIFT 426, KENHARDT DISTRICT, NORTHERN CAPE
110115	HIA Phase 1	Jayson Orton, Lita Webley	28/01/2013	HERITAGE IMPACT ASSESSMENT FOR PROPOSED GRANITE PROSPECTING NEAR POFADDER, NORTHERN CAPE
365441	HIA Phase 1	Stefan de Kock	06/04/2012	Phase One Integrated Heritage Impact Assessment for the Proposed 10MW Solar Facility: Portion (45ha) of the Farm Skuitdrift 426, Kenhardt District, Northern Cape Province
365442	Palaeontological Specialist Reports	John E Almond	06/04/2012	Recommended Exemption from Further Palaeontological Studies & Mitigation: Proposed 10 MW Solar Facility on Farm Skuitdrift 426,Kenhardt District, Northern Cape
365445	Archaeological Specialist Reports	Andrew B Smith	06/04/2012	Archaeological Report for the Proposed 10MW Solar Facility on Farm 426, Skuitdrift, Northern Cape Province

CTS HERITAGE

APPENDICES

APPENDIX 1: Heritage Screening Assessment

CTS HERITAGE

HERITAGE SCREENER

CTS Reference Number:	**CTS23_115**
SAHRA Case No.	**202 and 13468**
Client:	**Savannah**
Date:	**May 2023**
Title:	**Proposed extension of the EA granted for the proposed development of the Khoi-Sun Solar Farm near Kenhardt in the Northern Cape**

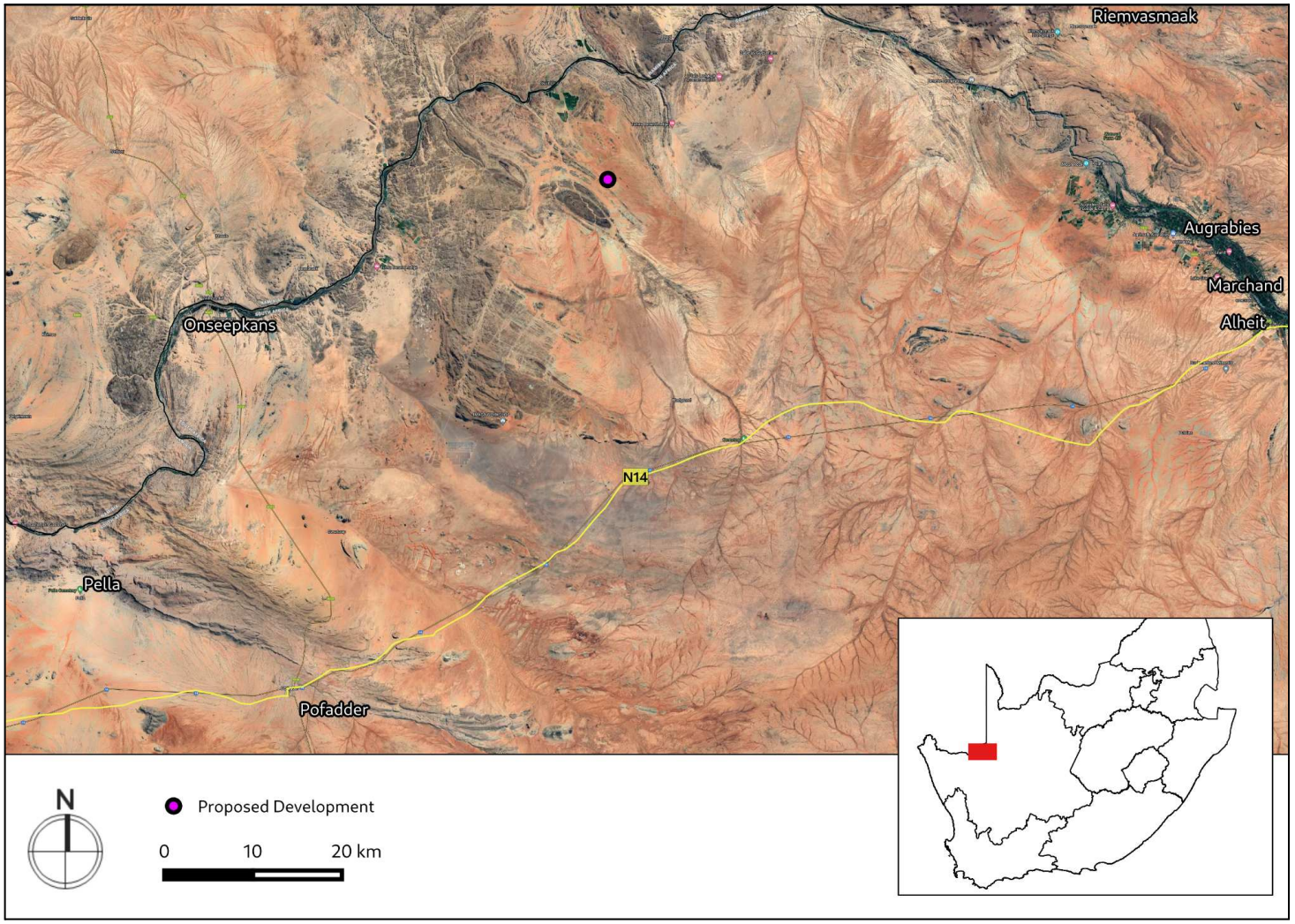


Figure 1a. Satellite map indicating the location of the proposed development in the Northern Cape

CTS HERITAGE

1. Proposed Development Summary

The proposed Khoi-Sun Development is to consist of solar photovoltaic panels with a feed-in capacity of 75MW (megawatts) Alternating Current (AC) / >90MW Direct Current (DC), as well as associated infrastructure, which will include:

- On-site substation
- Auxiliary buildings (administration / security, workshop, storage and ablution)
- Inverters, transformers and internal electrical reticulation (underground cabling);
- Access and internal roads network;
- Overhead electrical transmission line (to connect to existing Schuitdrift Substation)
- Rainwater tanks
- Perimeter Fencing

2. Application References

Name of relevant heritage authority(s)	SAHRA
Name of decision making authority(s)	DFFE

3. Property Information

Latitude / Longitude	28°36'34.64"S 19°45'50.77"E
Erf number / Farm number	A portion of Farm 426, Skuitdrift, Northern Cape
Local Municipality	Khai-Garib
District Municipality	Kenhardt
Current Zoning	Agriculture

4. Nature of the Proposed Development

Total Area	Approximately 250ha
Depth of excavation (m)	<3m
Height of development (m)	Main equipment: Up to 4m

CTS HERITAGE

5. Category of Development

x	**Triggers: Section 38(8) of the National Heritage Resources Act**
	Triggers: Section 38(1) of the National Heritage Resources Act
	1. Construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier over 300m in length.
	2. Construction of a bridge or similar structure exceeding 50m in length.
	3. Any development or activity that will change the character of a site-
x	a) exceeding 5 000m^2 in extent
	b) involving three or more existing erven or subdivisions thereof
	c) involving three or more erven or divisions thereof which have been consolidated within the past five years
	4. Rezoning of a site exceeding 10 000m^2
	5. Other (state):

6. Additional Infrastructure Required for this Development

NA

7. Mapping (please see Appendix 3 and 4 for a full description of our methodology and map legends)

Figure 1b. Overview Map. Satellite image (2022) indicating the proposed development area.

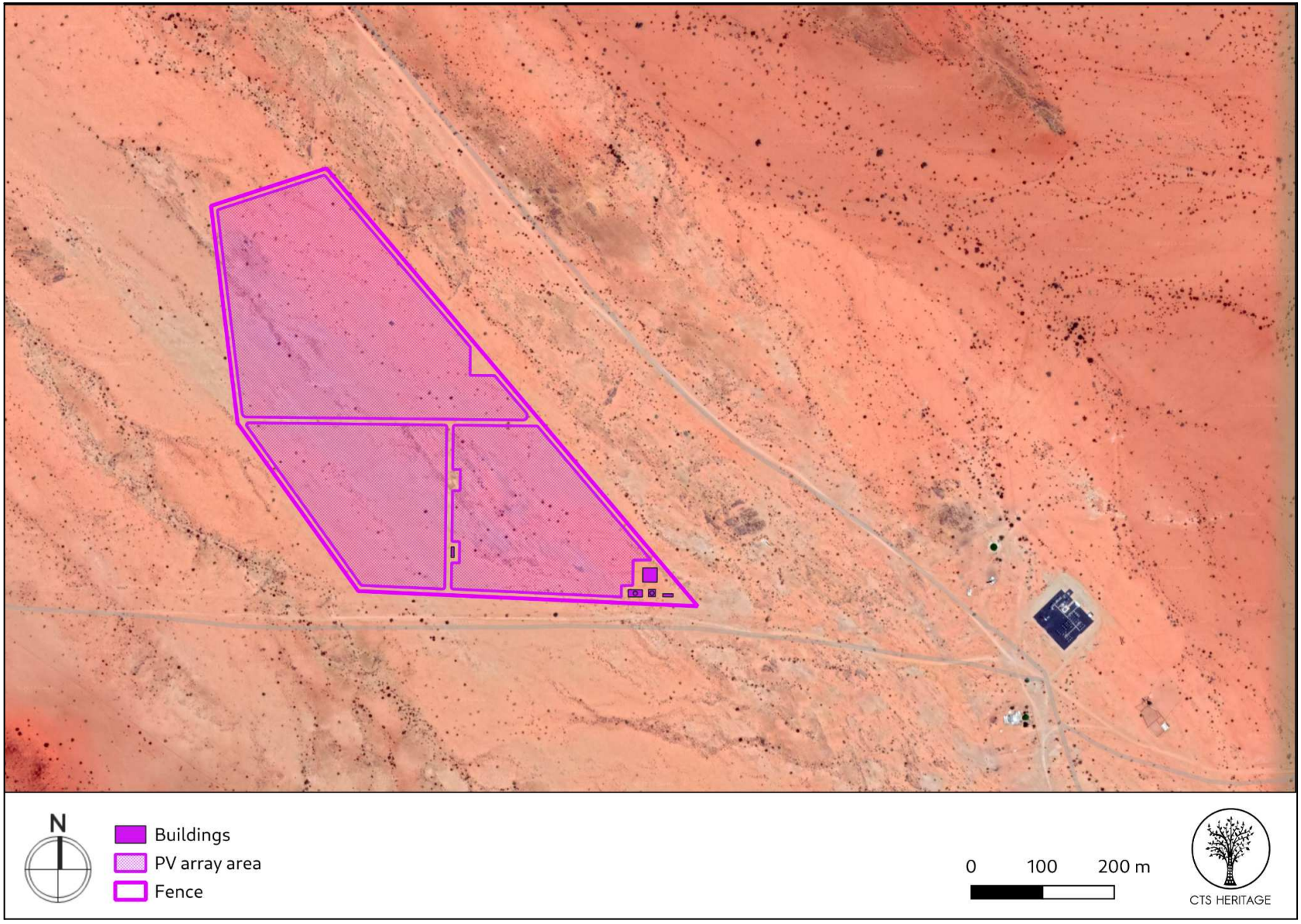


Figure 1c. Overview Map. Satellite image (2022) indicating the proposed development area in the Northern Cape.

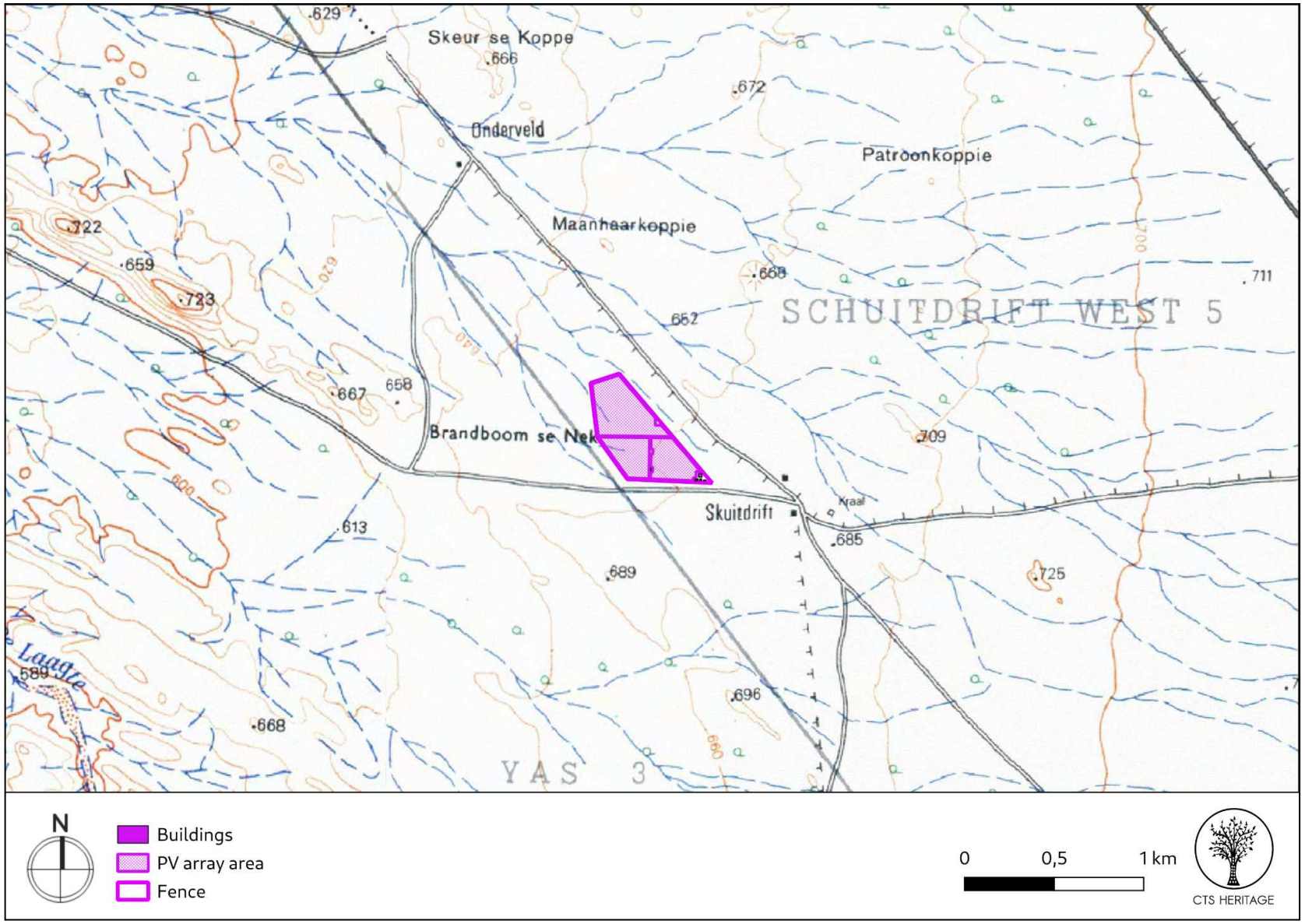


Figure 1d. Overview Map. Extract from the 1:50 000 Topo map indicating the proposed development area.

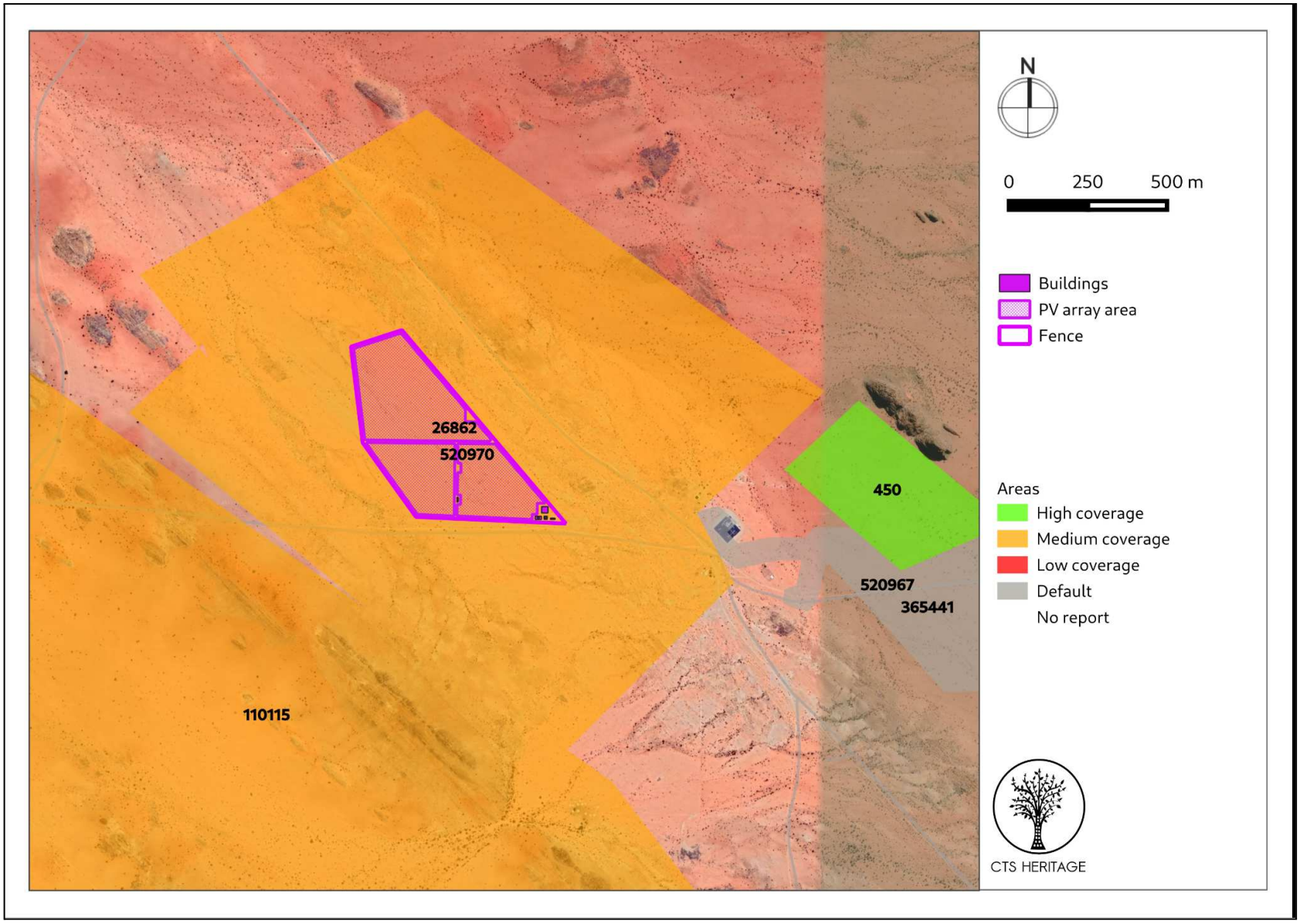


Figure 2a. Previous HIAs Map. Previous Heritage Impact Assessments covering the proposed development area with SAHRIS NIDS indicated. Please see Appendix 2 for a full reference list.

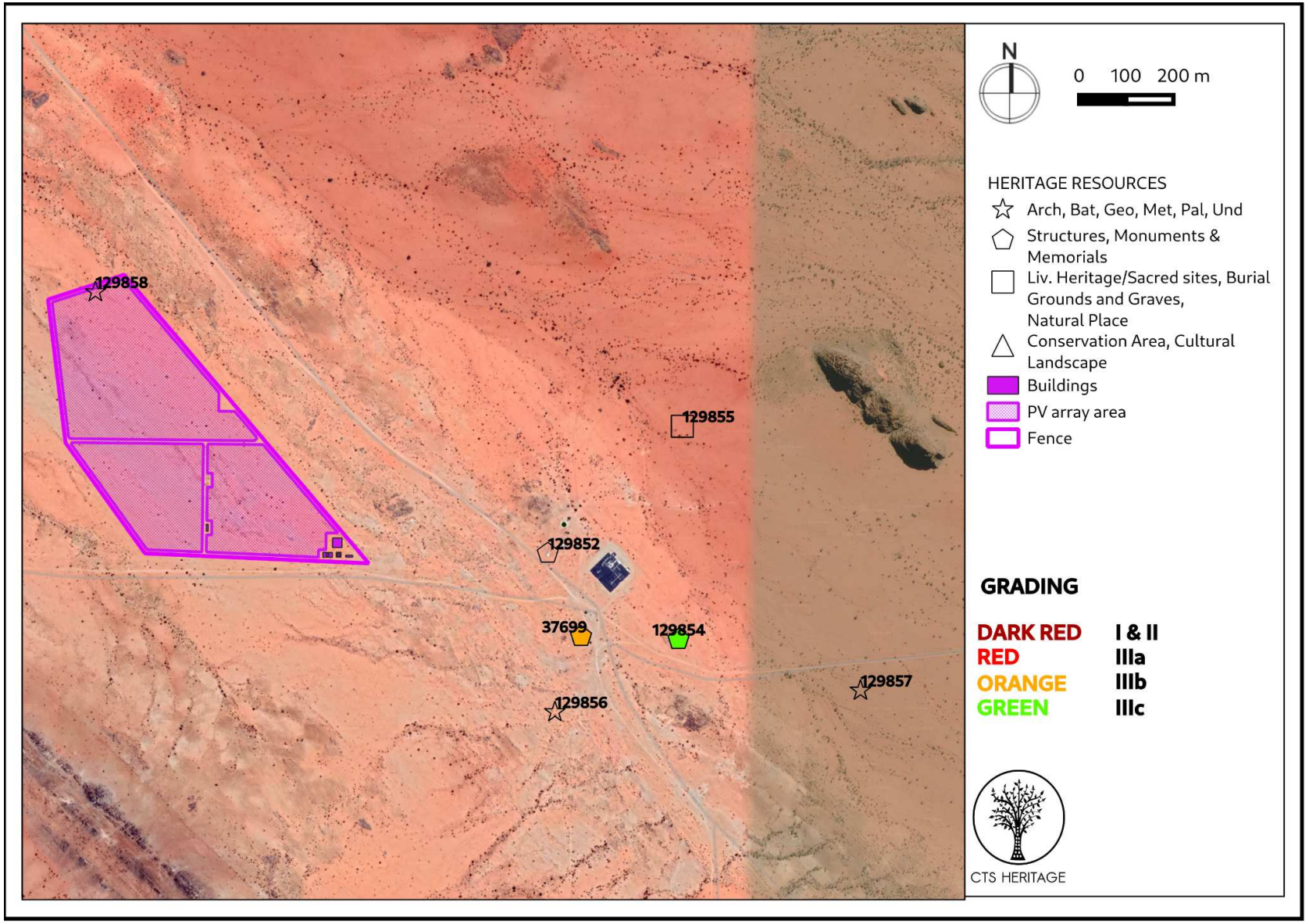


Figure 3. Heritage Resources Map. Heritage Resources previously identified within the study area, with SAHRIS Site IDs indicated in the insets below. Please See Appendix 4 for a full description of heritage resource types.

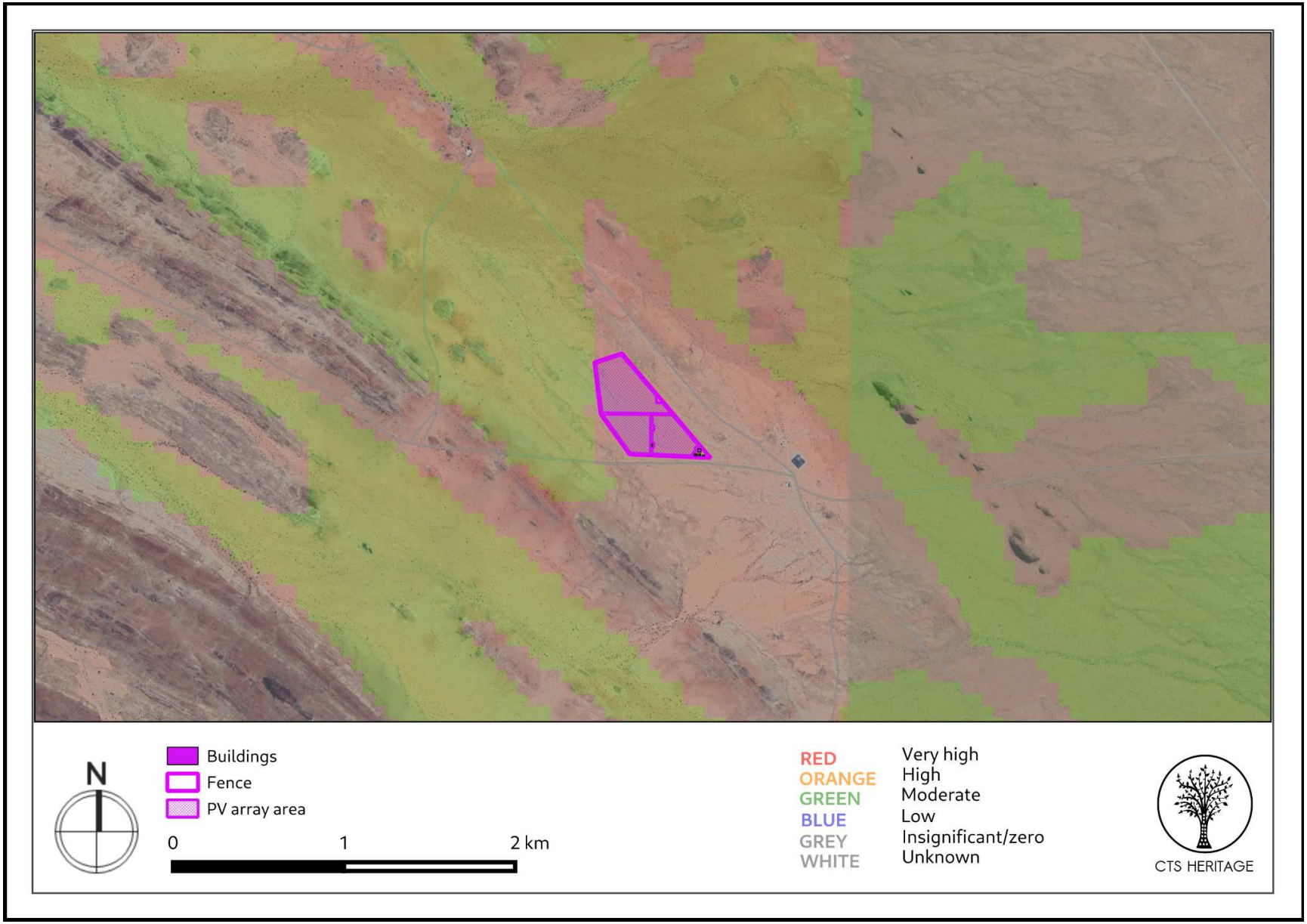


Figure 4a. Palaeosensitivity Map. Indicating fossil sensitivity underlying the study area. Please See Appendix 3 for a full guide to the legend.

8. Desktop Heritage Assessment

Background
The original Environmental Authorisation for the Khoi-Sun PV Facility and grid connection was granted in 2013. The area proposed for the PV Facility is located north of Kenhardt in the Northern Cape The area proposed for the PV Facility and grid connection was assessed for impacts to heritage resources by De Kock et al. (2012, SAHRIS Case ID 202). This desktop assessment refers extensively to this work.

Cultural Landscape and Built Environment Heritage
According to Gaigher (2012, SAHRIS ID 34135), prior to colonial settlement, this area was occupied by the Korana who had been forced to the outskirts of the Cape Colony along the Gariep River. In 1868, colonial forces were sent to deal with the conflicts arising with the Korana. The colonial forces set up camp beneath a camelthorn tree and with time the town of Kenhardt developed from under this tree, becoming a municipality in 1909. When this area was eventually settled by colonists, war broke out between the colonial settlers and the Korana, who were then dispursed upon their defeat. Kenhardt has for a long time been the most remote settlement in the Northern Cape.

The area between Kenhardt and Brandvlei has previously been described as “a huge landscape of nothingness”, however this is misleading as this area was occupied for thousands of years by the Korana and their ancestors. Evidence of this is available in the distribution of stone age artefacts across the landscape, the rock engravings known from this area located on dolerite boulders that occur throughout the region between Kenhardt, Brandvlei and Vanwyksvlei. as well as in the accounts of Khoe and San culture available from the interviews by Bleek and Lloyd with /Xam men from the Kenhardt district (Deacon, 1997; Beaumont and Vogel, 1989; Skinner, 2017). Deacon (1997) notes that “the symbolism (of the /Xam) tends to be earth-bound in linking people to the land through ritual. The importance of the landscape can also be seen in the personification of geographical features through myths and legends that explain their form. As I have suggested elsewhere, rock art enhanced this symbolic linkage by marking those landscape features that were used in rituals over many generations”.

According to Deacon (1997), “The landscape of the Upper Karoo where the /Xam lived appears to the stranger to be flat, and indeed the /Xam who lived between Kenhardt and Vanwyksvlei called themselves the "Flat Bushmen". To find one's way it is often necessary to climb a vantage point and such points are offered by dolerite dykes that snake across the plains.” Such a dolerite outcrop is located in the eastern section of the proposed development area (Figure 4b). According to Deacon (1997), these dolerite outcrops may have provided protection from the wind and scatters of artefacts can be found there confirming that people made use of them. Furthermore, Deacon (1997) posits that these dolerite hills were strongly culturally linked to rain-making activities, and may have played a role in men’s initiation.

In his assessment, Do Kock (2012) notes that “The proposed development site is located within a flat, arid landscape bound by a series of low granite hills to the northeast. Soils were found to be sandy and overgrown with sparse vegetation including grass and low-growing shrubs interspersed. As illustrated with the recent aerial photograph, a narrow gravel road (also the main access road on the farm) traverses the site – continuing further northwest/ parallel to the western property boundary towards the Orange River. The existing Skuitdrift substation and a cellular mast are directly southwest of the site. From this substation a 33kV overhead line leads to the west while a 132kV overhead line leads to the east (Blouputs). No buildings, ruins or any other structure were noted on the proposed development site. The existing Skuitdrift farmstead, just north of the site boundary, is not older than 60 years. A small building complex, including a much-altered farmstead and outbuildings older than 60 years, a modern labourer’s cottage and agricultural building (most likely older than 60 years) were noted directly south- west of the site (i.e. also just outside proposed development site boundary).”

Archaeology
The area proposed for development was assessed for impacts to archaeological heritage by Smith (2012) and again by Morris (2017). Smith’s assessment notes that “only around the number of koppies that exist on the farm was any material of significance found. The conclusions are that the flat, open country has low archaeological significance, but the koppies need to be avoided by any construction teams and their vehicles. It is suggested that a ‘buffer zone’ of 50m extending around the base of each koppie would be adequate protection of

the archaeological sites. There appear to be no other inhibitors to the solar facility from an archaeological perspective." Smith (2012) goes on to note that "The only artefact concentrations of any note are around the base of the koppies on the footprint. It is recommended that in the installation of the solar panels that an area around each koppie is designated as a 'buffer zone' (perhaps 50m.) and no tracks be built through the buffer zone. From an archaeological perspective the open terrain is of low significance, as there is little cultural material to be found. With the proviso of the 'buffer zones' around the koppies, there is no other archaeological impediment to the solar facility going ahead. Based on results of the current study it is recommended that: • It is recommended that in the installation of the solar panels that an area around each koppie is designated as a 'buffer zone' (perhaps 50m.) and no tracks be built through the buffer zone."

Morris completed a walkdown of the development area in 2017. He notes that "Based on previous experience in the area (including Smith 2012), it is estimated that any terrain close to hills or rocky features, particularly sandy spots near sheltering rocks, may tend to have traces of precolonial Stone Age occupation/activity. No such features occur on the actual footprint of the proposed development. While places in the open plains have been found to have sparsely scattered artefacts (such as at Konkoonsies near the Paulputs Substation site – Morris 1999a), these areas are expected to be less significant. An exception to this is where rocky outcrops at the surface on the plains provide places where water pools exist after rains. Such places often attracted people in the past with traces of this including artificial grinding grooves in the bedrock and ample evidence of stone artefacts and pottery… Colonial era sites or features within the study area include farm infrastructure, and a grave site beyond the footprint that was noted by De Kock (2012)." Morris (2017) concludes that "The lack of topographical features such as rocky outcrops, major watercourses, or dunes, suggested on the basis of prior experience of the archaeology of the region that the development footprint was not likely to be rich in archaeological traces of major significance."

Palaeontology

According to the SAHRIS Palaeosensiitvity Map (Figure 4), the area proposed for development is underlain by sediments of zero and moderate palaeontological sensitivity. According to the letter of recommendation for exemption from further heritage studies completed by Almond (2012), "The above report indicates that the proposed development site is underlain by ancient Precambrian basement rocks (Schuitdrift Gneiss) that are approximately two to one billion years old and entirely unfossiliferous (Almond & Pether 2008). The report furthermore indicates that while alluvial gravels of the Orange River of Miocene and younger age are locally highly fossiliferous, these are highly unlikely to be found in the study area. The palaeontological sensitivity of the Skuitdrift solar plant study area is accordingly assessed as VERY LOW. As such, it is recommended that no further palaeontological studies be required in this instance." This recommendation remains appropriate and is reiterated in this assessment.

Statement on environmental processes impacting on archaeological and palaeontological heritage

Archaeological and palaeontological heritage resources reflect the environments of the deeper past and are unlikely to change significantly in as short a geological time span as 10 years. Some changes to heritage resources may result from processes of erosion and deflation but, in this particular ecological setting, would likely represent heavily disturbed contexts and consequently would be of limited scientific/heritage value.

Validity Extension

In SAHRA's response to the 2012 HIA, they note that:

"*SAHRA supports the recommendations of the archaeologist and requires that:*

- *The sensitive areas near the koppies should be avoided during construction activities; a 50m buffer zone should be observed around the koppies to ensure their protection. The Environmental Control Officer should be made aware of the presence of archaeological resources there so that their safeguarding during construction can be ensured.*
- *Even though the grave is younger than 60 years, it is recommended that a buffer zone of at least 20m is respected around it.*

As the likely impact of the development on heritage resources beyond the area of the koppies is likely to be low, the SAHRA Archaeology, Palaeontology and Meteorites Unit has no objection to the development (in terms of the archaeological and palaeontological components of the heritage resources) on condition that, if any new evidence of archaeological sites

or artefacts, palaeontological fossils, graves or other heritage resources are found during development, construction or mining, SAHRA and an archaeologist and/or palaeontologist, depending on the nature of the finds, must be alerted immediately."

In their subsequent comment (2019), SAHRA notes that:
The SAHRA Archaeology, Palaeontology and Meteorites (APM) Unit supports to results of the specialist and the conditions provided in the EMPr. The recommendations of the specialist and the following conditions must be included in the EMPr:

- *The Final EMPr must be submitted to SAHRA for record purposes;*
- *If any evidence of archaeological sites or remains (e.g. remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils or other categories of heritage resources are found during the proposed development, SAHRA APM Unit (Natasha Higgitt/Phillip Hine 021 462 5402) must be alerted. If unmarked human burials are uncovered, the SAHRA Burial Grounds and Graves (BGG) Unit (Thingahangwi Tshivhase/Mimi Seetelo 012 320 8490), must be alerted immediately as per section 35(3) and 36(6) of the NHRA. A professional archaeologist or palaeontologist, depending on the nature of the finds, must be contracted as soon as possible to inspect the findings. If the newly discovered heritage resources prove to be of archaeological or palaeontological significance, a Phase 2 rescue operation may be required subject to permits issued by SAHRA*

SAHRA would also recommend that the conditions provided for the management of impacts to heritage resources provided in the Skuitdrift 1 EMPr also be included in the Skuitdrift 1 EMPr. These include:

- *Areas required to be cleared during construction must be clearly marked in the field to avoid unnecessary disturbance of adjacent areas (which will not be surveyed in detail by a heritage specialist);*
- *Contractors 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. All staff should also be familiarised with procedures for dealing with heritage objects/sites;*
- *A heritage specialist must be appointed to familiarise all staff and contractors with procedures for dealing with heritage objects/sites;*
- *Project employees and any contract staff must maintain, at all times, a high level of awareness of the possibility of discovering heritage sites;*
- *In the event that fossils resources are discovered during excavations, immediately stop excavation in the vicinity of the potential material. Mark (flag) the position and also spoil that may contain fossils. Inform the site foreman, the EO and the ECO. EO to inform the developer, the developer contacts the standby archaeologist and/or palaeontologist. EO to describe the occurrence and provide images by email.*

In light of the above, there is no heritage objection to granting the extension to the validity to develop the Khoi-Sun PV Facility and grid connection based on the current site conditions on condition that the recommendations made in the original HIA completed for this project (De Kock et al, 2012) are adhered to.

CTS HERITAGE

APPENDIX 1

List of heritage resources within proximity to the development area

Site ID	Site no	Full Site Name	Site Type	Grading
37699	SKUIT001	Skuitdrift 001	Building	Grade IIIb
37701	SKUIT002	Skuitdrift 002	Stone walling, Building	Grade IIIc
129852	2819DB/Solar/Farm Skuitdrift 426/Site 023	Labourer's cottage	Structures	Ungraded
129853	2819DB/Solar/Farm Skuitdrift 426/Site 024	Farmstead	Structures	Ungraded
129854	2819DB/Solar/Farm Skuitdrift 426/Site 025	Outbuilding	Structures	Ungraded
129855	2819DB/Solar/Farm Skuitdrift 426/Site 026	Grave	Burial Grounds & Graves	Ungraded
129856	2819DB/Solar/Farm Skuitdrift 426/Site 134	Stone artefacts	Artefacts	Ungraded
129857	2819DB/Solar/Farm Skuitdrift 426/Site 1.	Archaeological site	Artefacts	Ungraded
129858	2819DB/Solar/Farm Skuitdrift 426/Site 2017/1	Stone artefacts	Artefacts	Ungraded

CTS HERITAGE

APPENDIX 2

Reference List with relevant AIAs and PIAs

Heritage Impact Assessments				
Nid	**Report Type**	**Author/s**	**Date**	**Title**
448	HIA Phase 1	Stefan de Kock	01/04/2012	DRAFT PHASE ONE INTEGRATED HERITAGE IMPACT ASSESSMENT COMPILED IN TERMS OF SECTION 38(8) OF THE NATIONAL HERITAGE RESOURCES ACT, 1999 (ACT 25 OF 1999) PROPOSED 10MW SOLAR FACILITY: PORTION (45HA) OF THE FARM SKUITDRIFT 426, KENHARDT DISTRICT, NORTHERN CAPE PROVINCE
450	AIA Phase 1	Andrew B Smith	01/04/2012	ARCHAEOLOGICAL REPORT Proposed 10MW Solar Facility on Farm 426 Skuitdrift, Northern Cape Province
451	Palaeontological Specialist Reports	John E Almond	01/03/2012	RECOMMENDED EXEMPTION FROM FURTHER PALAEONTOLOGICAL STUDIES & MITIGATION: PROPOSED 10 MW SOLAR FACILITY ON FARM SKUITDRIFT 426, KENHARDT DISTRICT, NORTHERN CAPE
26862	HIA Phase 1	Stefan de Kock	01/03/2012	PROPOSED KHOI-SUN DEVELOPMENT (75MW SOLAR PROJECT): PORTION (425HA) OF THE FARM SKUITDRIFT 426, KENHARDT DISTRICT, NORTHERN CAPE PROVINCE
27027	AIA Phase 1	Andrew B Smith	04/07/2012	ARCHAEOLOGICAL REPORT Proposed 75MW Solar Facility on Farm 426 Skuitdrift, Northern Cape Province
27071	PIA Desktop	John E Almond	01/03/2012	RECOMMENDED EXEMPTION FROM FURTHER PALAEONTOLOGICAL STUDIES & MITIGATION: PROPOSED 75 MW SOLAR FACILITY ON FARM SKUITDRIFT 426, KENHARDT DISTRICT, NORTHERN CAPE
110115	HIA Phase 1	Jayson Orton, Lita Webley	28/01/2013	HERITAGE IMPACT ASSESSMENT FOR PROPOSED GRANITE PROSPECTING NEAR POFADDER, NORTHERN CAPE

365441	HIA Phase 1	Stefan de Kock	06/04/2012	Phase One Integrated Heritage Impact Assessment for the Proposed 10MW Solar Facility: Portion (45ha) of the Farm Skuitdrift 426, Kenhardt District, Northern Cape Province
365442	Palaeontological Specialist Reports	John E Almond	06/04/2012	Recommended Exemption from Further Palaeontological Studies & Mitigation: Proposed 10 MW Solar Facility on Farm Skuitdrift 426,Kenhardt District, Northern Cape
365445	Archaeological Specialist Reports	Andrew B Smith	06/04/2012	Archaeological Report for the Proposed 10MW Solar Facility on Farm 426, Skuitdrift, Northern Cape Province

CTS HERITAGE

APPENDIX 3 - Keys/Guides

Key/Guide to Acronyms

AIA	Archaeological Impact Assessment
DARD	Department of Agriculture and Rural Development (KwaZulu-Natal)
DEFF	Department of Environmental, Forestry and Fisheries (National)
DEADP	Department of Environmental Affairs and Development Planning (Western Cape)
DEDEAT	Department of Economic Development, Environmental Affairs and Tourism (Eastern Cape)
DEDECT	Department of Economic Development, Environment, Conservation and Tourism (North West)
DEDT	Department of Economic Development and Tourism (Mpumalanga)
DEDTEA	Department of economic Development, Tourism and Environmental Affairs (Free State)
DENC	Department of Environment and Nature Conservation (Northern Cape)
DMR	Department of Mineral Resources (National)
GDARD	Gauteng Department of Agriculture and Rural Development (Gauteng)
HIA	Heritage Impact Assessment
LEDET	Department of Economic Development, Environment and Tourism (Limpopo)
MPRDA	Mineral and Petroleum Resources Development Act, no 28 of 2002
NEMA	National Environmental Management Act, no 107 of 1998
NHRA	National Heritage Resources Act, no 25 of 1999
PIA	Palaeontological Impact Assessment
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resources Information System
VIA	Visual Impact Assessment

Full guide to Palaeosensitivity Map legend

	RED:	VERY HIGH - field assessment and protocol for finds is required
	ORANGE/YELLOW:	HIGH - desktop study is required and based on the outcome of the desktop study, a field assessment is likely
	GREEN:	MODERATE - desktop study is required
	BLUE/PURPLE:	LOW - no palaeontological studies are required however a protocol for chance finds is required
	GREY:	INSIGNIFICANT/ZERO - no palaeontological studies are required
	WHITE/CLEAR:	UNKNOWN - these areas will require a minimum of a desktop study.

CTS HERITAGE

APPENDIX 4 - Methodology

The Heritage Screener summarises the heritage impact assessments and studies previously undertaken within the area of the proposed development and its surroundings. Heritage resources identified in these reports are assessed by our team during the screening process.

The heritage resources will be described both in terms of **type**:

- Group 1: Archaeological, Underwater, Palaeontological and Geological sites, Meteorites, and Battlefields
- Group 2: Structures, Monuments and Memorials
- Group 3: Burial Grounds and Graves, Living Heritage, Sacred and Natural sites
- Group 4: Cultural Landscapes, Conservation Areas and Scenic routes

and **significance** (Grade I, II, IIIa, b or c, ungraded), as determined by the author of the original heritage impact assessment report or by formal grading and/or protection by the heritage authorities.

Sites identified and mapped during research projects will also be considered.

DETERMINATION OF THE EXTENT OF THE INCLUSION ZONE TO BE TAKEN INTO CONSIDERATION

The extent of the inclusion zone to be considered for the Heritage Screener will be determined by CTS based on:

- the size of the development,
- the number and outcome of previous surveys existing in the area
- the potential cumulative impact of the application.

The inclusion zone will be considered as the region within a maximum distance of 50 km from the boundary of the proposed development.

DETERMINATION OF THE PALAEONTOLOGICAL SENSITIVITY

The possible impact of the proposed development on palaeontological resources is gauged by:

- reviewing the fossil sensitivity maps available on the South African Heritage Resources Information System (SAHRIS)
- considering the nature of the proposed development
- when available, taking information provided by the applicant related to the geological background of the area into account

DETERMINATION OF THE COVERAGE RATING ASCRIBED TO A REPORT POLYGON

Each report assessed for the compilation of the Heritage Screener is colour-coded according to the level of coverage accomplished. The extent of the surveyed coverage is labeled in three categories, namely low, medium and high. In most instances the extent of the map corresponds to the extent of the development for which the specific report was undertaken.

Low coverage will be used for:

- desktop studies where no field assessment of the area was undertaken;
- reports where the sites are listed and described but no GPS coordinates were provided.
- older reports with GPS coordinates with low accuracy ratings;
- reports where the entire property was mapped, but only a small/limited area was surveyed.
- uploads on the National Inventory which are not properly mapped.

Medium coverage will be used for

- reports for which a field survey was undertaken but the area was not extensively covered. This may apply to instances where some impediments did not allow for full coverage such as thick vegetation, etc.
- reports for which the entire property was mapped, but only a specific area was surveyed thoroughly. This is differentiated from low ratings listed above when these surveys cover up to around 50% of the property.

High coverage will be used for

- reports where the area highlighted in the map was extensively surveyed as shown by the GPS track coordinates. This category will also apply to permit reports.

RECOMMENDATION GUIDE

The Heritage Screener includes a set of recommendations to the applicant based on whether an impact on heritage resources is anticipated. One of three possible recommendations is formulated:

(1) The heritage resources in the area proposed for development are sufficiently recorded - The surveys undertaken in the area adequately captured the heritage resources. There are no known sites which require mitigation or management plans. No further heritage work is recommended for the proposed development.

This recommendation is made when:

- enough work has been undertaken in the area
- it is the professional opinion of CTS that the area has already been assessed adequately from a heritage perspective for the type of development proposed

(2) The heritage resources and the area proposed for development are only partially recorded - The surveys undertaken in the area have not adequately captured the heritage resources and/or there are sites which require mitigation or management plans. Further specific heritage work is recommended for the proposed development.

This recommendation is made in instances in which there are already some studies undertaken in the area and/or in the adjacent area for the proposed development. Further studies in a limited HIA may include:

- improvement on some components of the heritage assessments already undertaken, for instance with a renewed field survey and/or with a specific specialist for the type of heritage resources expected in the area
- compilation of a report for a component of a heritage impact assessment not already undertaken in the area

- undertaking mitigation measures requested in previous assessments/records of decision.

(3) The heritage resources within the area proposed for the development have not been adequately surveyed yet - Few or no surveys have been undertaken in the area proposed for development. A full Heritage Impact Assessment with a detailed field component is recommended for the proposed development.

Note:
The responsibility for generating a response detailing the requirements for the development lies with the heritage authority. However, since the methodology utilised for the compilation of the Heritage Screeners is thorough and consistent, contradictory outcomes to the recommendations made by CTS should rarely occur. Should a discrepancy arise, CTS will immediately take up the matter with the heritage authority to clarify the dispute.

APPENDIX 5 -Summary of Specialist Expertise

Jenna Lavin, an archaeologist with an MSc in Archaeology and Palaeoenvironments, and currently completing an MPhil in Conservation Management , heads up the heritage division of the organisation, and has a wealth of experience in the heritage management sector. Jenna's previous position as the Assistant Director for Policy, Research and Planning at Heritage Western Cape has provided her with an in-depth understanding of national and international heritage legislation. Her 8 years of experience at various heritage authorities in South Africa means that she has dealt extensively with permitting, policy formulation, compliance and heritage management at national and provincial level and has also been heavily involved in rolling out training on SAHRIS to the Provincial Heritage Resources Authorities and local authorities.

Jenna is a member of the Association of Professional Heritage Practitioners (APHP), and is also an active member of the International Committee on Monuments and Sites (ICOMOS) as well as the International Committee on Archaeological Heritage Management (ICAHM). In addition, Jenna has been a member of the Association of Southern African Professional Archaeologists (ASAPA) since 2009. Recently, Jenna has been responsible for conducting training in how to write Wikipedia articles for the Africa Centre's WikiAfrica project.

Since 2016, Jenna has drafted over 100 Heritage Impact Assessments throughout South Africa.

APPENDIX 2: Environmental Authorisation

environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

Private Bag X 447· PRETORIA · 0001· Fedsure Building · 315 Pretorius Street · PRETORIA
Tel (+ 27 12) 310 3911 · Fax (+ 2712) 322 2682

NEAS Reference: DEA/EIA/0000782/2011
DEA Reference: 12/12/20/2600
Enquiries: Jay-Jay Mpelane
Telephone: 012-310-3004 **Fax:** 012-320-7539 **E-mail:** Jmpelane@environment.gov.za

Ms Jade Feinberg
Khoi-Sun Development (Pty) Ltd
Suite 103
Dixon Street
CAPE TOWN
8001

Tel no: 021 418 3940
Fax no: 086 297 7280

PER FACSIMILE / MAIL

Dear Ms Feinberg

APPLICATION FOR ENVIRONMENTAL AUTHORISATION IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998: GN R. 543, 544, 545 AND 546: PROPOSED CONSTRUCTION OF THE KHOI-SUN SOLAR DEVELOPMENT ON A PORTION OF FARM 426 SKUITDRIFT, SIYANDA DISTRICT MUNICIPALITY, NORTHERN CAPE PROVINCE

With reference to the above application, please be advised that the Department has decided to accept the environmental impact report (EIR) dated March 2013 and grant authorisation. The environmental authorisation (EA) and reasons for the decision are attached herewith.

In terms of regulation 10(2) of the Environmental Impact Assessment Regulations, 2010 (the Regulations), you are instructed to notify all registered interested and affected parties, in writing and within 12 (twelve) days of the date of the EA, of the Department's decision in respect of your application as well as the provisions regarding the submission of appeals that are contained in the Regulations.

Your attention is drawn to Chapter 7 of the Regulations, which prescribes the appeal procedure to be followed. This procedure is summarised in the attached document. Kindly include a copy of this document with the letter of notification to interested and affected parties.

Should the applicant or any other party wish to appeal any aspect of the decision a notice of intention to appeal must be lodged by all prospective appellants with the Minister, within 20 days of the date of the EA, by means of one of the following methods:

By facsimile: 012 320 7561;
By post: Private Bag X447,
Pretoria, 0001; or
By hand: 2nd Floor, Fedsure Building, North Tower,
Cnr. Lilian Ngoyi and Pretorius Streets,
Pretoria.

If the applicant wishes to lodge an appeal, it must also serve a copy of the notice of intention to appeal on all registered interested and affected parties as well as a notice indicating where, and for what period, the appeal submission will be available for inspection, should you intend to submit an appeal.

Please include the Department *(Attention: Director: Integrated Environmental Authorisations)* in the list of interested and affected parties, notified through your notification letter to interested and affected parties, for record purposes.

Appeals must be submitted in writing to:

Mr Z Hassam Director: Appeals and Legal Review, of this Department at the above mentioned addresses or fax number. Mr Hassam can also be contacted at:

Tel: 012-310-3271
Email: AppealsDirectorate@environment.gov.za

The authorised activities shall not commence within twenty (20) days of the date of signature of the authorisation. Further, please note that the Minister may, on receipt of appeals against the authorisation or conditions thereof suspend the authorisation pending the outcome of the appeals procedure.

Yours sincerely

Mr Mark Gordon
Chief Director: Integrated Environmental Authorisations
Department of Environmental Affairs
Date: 26 June 2013

CC:	Ms Dale Holder	Cape Environmental Assessment cc	Tel: 044-874-0365	Fax: 044-874-0432
	Ms Anga Yaphi	Northern Cape: DENC	Tel: 054-332-2885	Fax: 054-331-1155
	Mr J Mackay	Kai-Garib Municipality	Tel: 054-431-6300	Fax: 086-576-5114 or Fax: 054-461-6401
	Mr S Malaza	Compliance Monitoring (DEA)	Tel: 012-310-3397	Fax: 012-320-5744

APPEALS PROCEDURE IN TERMS OF CHAPTER 7 OF THE NEMA EIA REGULATIONS, 2010 (THE REGULATIONS) AS PER GN R. 543 OF 2010 TO BE FOLLOWED BY THE APPLICANT AND INTERESTED AND AFFECTED PARTIES UPON RECEIPT OF NOTIFICATION OF AN ENVIRONMENTAL AUTHORISATION (EA)

APPLICANT	INTERESTED AND AFFECTED PARTIES (IAPs)
1. Receive EA from the relevant Competent Authority (the Department of Environmental Affairs [DEA]).	1. Receive EA from Applicant/Consultant.
2. Within 12 days of date of the EA notify all IAPs of the EA and draw their attention to their right to appeal against the EA in terms of Chapter 7 of the Regulations.	2. N/A.
3. If you want to appeal against the EA, submit a notice of intention to appeal within 20 days of the date of the EA with the Minister of Water and Environmental Affairs (the Minister).	3. If you want to appeal against the EA, submit a notice of intention to appeal within 20 days of the date of the EA. with the Minister of Water and Environmental Affairs (the Minister).
4. After having submitted your notice of intention to appeal to the Minister, provide each registered IAP with a copy of the notice of intention to appeal within 10 days of lodging the notice.	4. After having submitted your notice of intention to appeal to the Minister, provide the applicant with a copy of the notice of intention to appeal within 10 days of lodging the notice.
5. The Applicant must also serve on each IAP: • a notice indicating where and for what period the appeal submission will be available for inspection.	5. Appellant must also serve on the Applicant within 10 days of lodging the notice, • a notice indicating where and for what period the appeal submission will be available for inspection by the applicant.
6. The appeal must be submitted in writing to the Minister within 30 days after the lapsing of the period of 20 days provided for the lodging of the notice of intention to appeal.	6. The appeal must be submitted to the Minister within 30 days after the lapsing of the period of 20 days provided for the lodging of the notice of intention to appeal.
7. Any IAP who received a notice of intention to appeal may submit a responding statement to that appeal to the Minister within 30 days from the date that the appeal submission was lodged with the Minister.	7. An Applicant who received notice of intention to may submit a responding statement to the appeal to the Minister within 30 days from the date that the appeal submission was lodged with the Minister.

NOTES:

1. **An appeal against a decision must be lodged with:-**
   a) the Minister of Water and Environmental Affairs if the decision was issued by the Director- General of the Department of Environmental Affairs (or another official) acting in his/ her capacity as the delegated Competent Authority;
   b) the Minister of Justice and Constitutional Development if the applicant is the Department of Water Affairs and the decision was issued by the Director- General of the Department of Environmental Affairs (or another official) acting in his/ her capacity as the delegated Competent Authority;

2. **An appeal lodged with:-**
   a) the Minister of Water and Environmental Affairs must be submitted to the Department of Environmental Affairs;
   b) the Minister of Justice and Constitutional Development must be submitted to the Department of Environmental Affairs;

3. **An appeal must be:-**
   a) submitted in writing;
   b) accompanied by:
   - a statement setting out the grounds of appeal;
   - supporting documentation which is referred to in the appeal; and
   - a statement that the appellant has complied with regulation 62 (2) or (3) together with copies of the notices referred to in regulation 62.

environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

Environmental Authorisation

In terms of regulation 36 of the Environmental Impact Assessment Regulations, 2010

Construction of the Khoi-Sun Solar Development on a portion of Farm 426 Skuitdrift, Siyanda District Municipality, Northern Cape Province

Siyanda District Municipality

Authorisation register number:	*12/12/20/2600*
NEAS reference number:	*DEA/EIA/0000782/2011*
Last amended:	*First issue*
Holder of authorisation:	*Khoi-Sun Development (Pty) Ltd*
Location of activity:	*Northern Cape Province: within the jurisdiction of the Siyanda District Municipality near Upington.*

This authorisation does not negate the holder of the authorisation's responsibility to comply with any other statutory requirements that may be applicable to the undertaking of the activity.

Decision

The Department is satisfied, on the basis of information available to it and subject to compliance with the conditions of this environmental authorisation, that the applicant should be authorised to undertake the activities specified below.

Non-compliance with a condition of this authorisation may result in criminal prosecution or other actions provided for in the National Environmental Management Act, 1998 and the EIA regulations.

Details regarding the basis on which the Department reached this decision are set out in Annexure 1.

Activities authorised

By virtue of the powers conferred on it by the National Environmental Management Act, 1998 (Act 107 of 1998) and the Environmental Impact Assessment Regulations, 2010 the Department hereby authorises –

KHOI-SUN DEVELOPMENT (PTY) LTD

with the following contact details –

Ms Jade Feinberg
Khoi-Sun Development (Pty) Ltd
Suite 103
Dixon Street
Cape Town
8001

Tel: 021 418 3940
Fax: 086 297 7280
Cell: 083-645-0202
E-mail: j.feinberg@buildingenergy.it

to undertake the following activities (hereafter referred to as "the activity") indicated in Listing Notices 1, 2 and 3 (GN R. 544, 545 & 546):

Listed activities	**Activity/Project description**
GN R. 544 Item 1: (i) & (ii) The construction of facilities or infrastructure for the generation of electricity where: i. the electricity output is more than 10 megawatts but less than 20 megawatts; or ii. the output is 10 megawatts or less but the total extent of the facility covers an area in excess of 1 hectare.	Construction of Khoi-Sun Development with a maximum capacity of 75MW. The total area to be affected by the development will be approximately 210ha.
GN R. 544 Item 10: (i) The construction of facilities or infrastructure for the transmission and distribution of electricity - (i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts.	New overhead power line linking the proposed on-site substation/operation building to the existing Schuitdrift Substation.
GN R. 544 Item 11: (xi) The construction of: (xi) infrastructure or structures covering 50 square metres or more: where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.	The possible construction of roads/tracks & PV arrays across the on-site drainage systems. Stabilisation of stream/drainage line bed & banks may be required.
GN R. 544 Item 18: (i) The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 5 cubic metres from: (i) a watercourse;	The possible construction of roads/tracks & PV arrays across the on-site drainage systems. Stabilisation of stream/drainage line bed & banks may be required.
GN R. 544 Item 22: (i) & (ii) The construction of a road, outside urban areas, (i) with a reserve wider than 13,5 meters or, (ii) where no reserve exists where the road is wider than 8 metres.	Construction of access and internal roads for the solar facility for construction and operation phases outside the urban edge of Kai-Garib

Listed activities	Activity/Project description
GN R. 545 Item 1: The construction of facilities or infrastructure for the generation of electricity where the electricity output is 20 megawatts or more.	Khoi-Sun Solar Development will have a maximum capacity of 75MW.
GN R. 545 Item 8: The construction of facilities or infrastructure for the transmission and distribution of electricity with a capacity of 275 kilovolts or more, outside an urban area or industrial complex.	New overhead power line linking the proposed on-site substation/operation building to the existing Schuitdrift Substation.
GN R. 545 Item 15: Physical alteration of undeveloped, vacant or derelict land for residential, retail, commercial, recreational, industrial or institutional use where the total area to be transformed is 20 hectares or more.	Development of the Khoi-Sun Solar Development of approximately 210ha on vacant land, outside of the Kai-Garib urban edge.
GN R. 546 Item 4: (a) (ii) (gg) The construction of a road wider than 4 metres with a reserve less than 13,5 metres: **(a) In Northern Cape provinces:** ii. Outside urban areas, in: (gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve;	Construction of access and internal roads wider than 4 metres for solar facility, outside the Kai-Garib urban edge.
GN R. 546 Item 14: (a) (i) The clearance of an area of 5 hectares or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation, except where such removal of vegetation is required for: **a) In Northern Cape:** i. All areas outside urban areas.	Vegetation clearing for the Solar Panels and associated infrastructure: access road, cable trenches and on-site substation & axillary buildings etc. outside of the Kai-Garib urban edge. Solar Energy Plant to be constructed over an area approximately 210ha on private land. Intact vegetation to be avoided by solar facility as far as possible.

as described in the Environmental Impact Assessment Report (EIR) dated March 2013 at:

	Latitude	Longitude
Centre of the development envelope	28°36'20.94"S	19°45'48.86"E

- for the proposed construction of a 75MW Photovoltaic Solar Energy Facility (PVSEF) on the Farm 426 Skuitdrift within the jurisdiction of the Siyanda District Municipality near Upington, Northern Cape Province, hereafter referred to as "the property".

The infrastructure associated with the proposed Khoi-Sun Development includes:

- Solar photovoltaic panels with a feed-in capacity of 75MW (megawatts) Alternating Current (AC) / >90MW Direct Current (DC);
- Approximately 75 x inverter stations (built within transport containers of approximately 25m²);
- On-site substation (approximately 20m x 20m)(including a feed-in transformer to allow the generated power to be connected to Eskom's electricity grid);
- An overhead transmission power line to distribute the generated electricity from the on-site substation to the existing Schuitdrift Eskom Substation (approximately 200m to the south-east);
- Auxiliary buildings, including:
  - administration / office & security (gate house),
  - control room & workshop,
  - visitor centre,
  - ablution / change room and
  - Warehouse / storeroom.
- a laydown area of approximately 3ha;
- an internal electrical reticulation network (underground cabling);
- an access road and internal road / track network;
- 10 x 10kLt rainwater tanks; and
- Electrified parameter fencing around the solar facility.

Conditions of this Environmental Authorisation

Scope of authorisation

1. The preferred site located on a portion of Farm 426 Skuitdrift with layout alternative 5 as described in the EIR dated March 2013 is approved.
2. Authorisation of the activity is subject to the conditions contained in this authorisation, which form part of the environmental authorisation and are binding on the holder of the authorisation.
3. The holder of the authorisation is responsible for ensuring compliance with the conditions contained in this environmental authorisation. This includes any person acting on the holder's behalf, including but not limited to, an agent, servant, contractor, sub-contractor, employee, consultant or person rendering a service to the holder of the authorisation.
4. The activities authorised may only be carried out at the property as described above.
5. Any changes to, or deviations from, the project description set out in this authorisation must be approved, in writing, by the Department before such changes or deviations may be effected. In assessing whether to grant such approval or not, the Department may request such information as it deems necessary to evaluate the significance and impacts of such changes or deviations and it may be necessary for the holder of the authorisation to apply for further authorisation in terms of the regulations.
6. This activity must commence within a period of three (3) years from the date of issue of this authorisation. If commencement of the activity does not occur within that period, the authorisation lapses and a new application for environmental authorisation must be made in order for the activity to be undertaken.
7. Commencement with one activity listed in terms of this authorisation constitutes commencement of all authorised activities.
8. The holder of an environmental authorisation must notify the competent authority of any alienation, transfer and change of ownership rights in the property on which the activity is to take place.

Notification of authorisation and right to appeal

9. The holder of the authorisation must notify every registered interested and affected party, in writing and within 12 (twelve) calendar days of the date of this environmental authorisation, of the decision to authorise the activity.
10. The notification referred to must –
    10.1. specify the date on which the authorisation was issued;
    10.2. inform the interested and affected party of the appeal procedure provided for in Chapter 7 of the Environmental Impact Assessment Regulations, 2010;

10.3. advise the interested and affected party that a copy of the authorisation will be furnished on request; and

10.4. give the reasons of the competent authority for the decision.

11. The holder of the authorisation must publish a notice –

11.1. informing interested and affected parties of the decision;

11.2. informing interested and affected parties where the decision can be accessed; and

11.3. drawing the attention of interested and affected parties to the fact that an appeal may be lodged against this decision in the newspaper(s) contemplated and used in terms of regulation 54(2)(c) and (d) and which newspaper was used for the placing of advertisements as part of the public participation process.

Management of the activity

12. The Environmental Management Programme (EMPr) submitted as part of the EIR dated March 2013 is hereby approved. This EMPr must be implemented and adhered to. The EMPr is amendable and must be implemented and strictly enforced during all phases of the project. It shall be seen as a dynamic document and shall be included in all contract documentation for all phases of the development when approved.

13. Changes to the EMPr, which are environmentally defendable, shall be submitted to this Department for acceptance before such changes could be effected.

14. The Department reserves the right to amend the EMPr should any impacts that were not anticipated or covered in the EIR dated March 2013 be discovered.

15. The provisions of the approved EMPr including recommendations and mitigation measures in the EIR dated March 2013 and specialist' studies shall be an extension of the conditions of this EA and therefore noncompliance with them would constitute noncompliance with the EA.

Environmental Control Officer (ECO) and duties

16. The holder of this authorisation must appoint an independent Environmental Control Officer (ECO) with experience or expertise in the field for the construction phase of the development. The ECO will have the responsibility to ensure that the conditions referred to in this authorisation are implemented and to ensure compliance with the provisions of the EMPr.

17. The ECO must be appointed before commencement of any authorised activity.

18. Once appointed, the name and contact details of the ECO must be submitted to the Director: Compliance Monitoring of the Department.

19. The ECO must remain employed until all rehabilitation measures, as required for implementation due to construction damage, are completed and the site is ready for operation.
20. The ECO must:
    20.1 Keep record of all activities on site, problems identified, transgressions noted and a schedule of tasks undertaken by the ECO.
    20.2 Keep and maintain a detailed incident (including spillage of bitumen, fuels, chemicals, or any other material) and complaint register on site indicating how these issues were addressed, what rehabilitation measures were taken and what preventative measures were implemented to avoid re-occurrence of incidents/complaints.
    20.3 Keep and maintain a daily site diary.
    20.4 Keep copies of all reports submitted to the Department.
    20.5 Keep and maintain a schedule of current site activities including the monitoring of such activities.
    20.6 Obtain and keep record of all documentation, permits, licences and authorisations such as waste disposal certificates, hazardous waste landfill site licences etc. required by this facility.
    20.7 Compile a monthly monitoring report.

Recording and reporting to the Department

21. The holder of this authorisation must keep all records relating to monitoring and auditing on site and make it available for inspection to any relevant and competent authority in respect of this development.
22. All documentation e.g. audit/monitoring/compliance reports and notifications, required to be submitted to the Department in terms of this authorisation, must be submitted to the Director: Compliance Monitoring at the Department.

Environmental audit report

23. The holder of the authorisation must submit an environmental audit report to the Department within 30 days of completion of the construction phase (i.e. within 30 days of site handover) and within 30 days of completion of rehabilitation activities.
24. The environmental audit report must:
    24.1 Be compiled by an independent environmental auditor;

24.2 Indicate the date of the audit, the name of the auditor and the outcome of the audit;

24.3 Evaluate compliance with the requirements of the approved EMPr and this environmental authorisation;

24.4 Include measures to be implemented to attend to any non-compliances or degradation noted;

24.5 Include copies of any approvals granted by other authorities relevant to the development for the reporting period;

24.6 Highlight any outstanding environmental issues that must be addressed, along with recommendations for ensuring these issues are appropriately addressed;

24.7 Include a copy of this authorisation and the approved EMPr;

24.8 Include all documentation such as waste disposal certificates, hazardous waste landfill site licences etc. pertaining to this authorisation; and

24.9 Include evidence of adherence to the conditions of this authorisation and the EMPr where relevant such as training records and attendance records.

Commencement of the activity

25. The authorised activity shall not commence within twenty (20) days of the date of signature of the authorisation.

26. An appeal under section 43 of the National Environmental Management Act (NEMA), Act 107 of 1998 (as amended), does not suspend an environmental authorisation or exemption, or any provisions or conditions attached thereto, or any directive, unless the Minister, MEC or delegated organ of state directs otherwise.

27. Should you be notified by the Minister of a suspension of the authorisation pending appeal procedures, you may not commence with the activity until such time that the Minister allows you to commence with such an activity in writing.

28. The holder of this authorisation must obtain a Water Use Licence from the Department of Water Affairs (DWA) prior to the commencement of the project should the holder impact on any wetland or water resource. A copy of the license must be kept by the ECO.

Notification to authorities

29. Fourteen (14) days written notice must be given to the Department that the activity will commence. Commencement for the purposes of this condition includes site preparation. The

notice must include a date on which it is anticipated that the activity will commence. This notification period may coincide with the Notice of Intent to Appeal period, within which construction may not commence.

Operation of the activity

30. Fourteen (14) days written notice must be given to the Department that the activity operational phase will commence.
31. The holder of this authorisation must compile an operational EMPr for the operational phase of the activity or alternatively, if the holder has an existing operational environmental management system, it must be amended to include the operation of the authorised activity.

Site closure and decommissioning

32. Should the activity ever cease or become redundant, the applicant shall undertake the required actions as prescribed by legislation at the time and comply with all relevant legal requirements administered by any relevant and competent authority at that time.

Specific conditions

33. Anti-collision devices such as bird flappers must be installed where power-lines crosses avifaunal corridors e.g. wetlands, roosting sites etc. The input of an avifaunal specialist must be obtained for the fitting of the anti-collision devices onto specific sections of the line once the exact positions of the towers have been surveyed and pegged.
34. Vegetation clearing must be kept to an absolute minimum. Mitigation measures must be implemented to reduce the risk of erosion and the invasion of alien species.
35. No exotic plants may be used for rehabilitation purposes. Only indigenous plants of the area may be utilised.
36. The holder of the authorisation must consult a lighting engineer to assist in the planning and placement of light fixtures in order to reduce the impacts associated with glare and light trespass.
37. A buffer zone of 50 metres must be established around the base of each koppie. No construction activities will be allowed within this buffer zone. The ECO should be made aware of the presence of archaeological resources there, so that their safeguarding can be ensured during construction.

38. A buffer zone of at least 20 metres must be established around graves that are younger than 60 years. No construction activities will be allowed within this buffer zone.
39. An integrated waste management approach must be implemented that is based on waste minimisation and must incorporate reduction, recycling, re-use and disposal where appropriate. Any solid waste shall be disposed of at a landfill licensed in terms of section 20 (b) of the National Environment Management Waste Act, 2008 (Act No. 59 of 2008). Copies of all waste disposal certificates must be kept on site.
40. Before the clearing of the site, the appropriate permits must be obtained from the Department of Agriculture, Forestry and Fisheries (DAFF) for the removal of plants listed in the National Forest Act 87 of 1998 and from the relevant provincial department for the destruction of species protected in terms of the specific provincial legislation.
41. Removal of alien invasive species or other vegetation and follow-up procedures must be in accordance with the Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983).
42. Vegetation clearing must be limited to the required footprint. Mitigation measures must be implemented to reduce the risk of erosion and the invasion of alien species.
43. Cleared alien vegetation must not be dumped on adjacent intact vegetation during clearing but should be temporarily stored in a demarcated area.
44. The applicant must ensure that all the "No-go" areas are clearly demarcated (using fencing and appropriate signage) before construction commences.
45. Construction activities must be restricted to demarcated areas to restrict impact on vegetation, birds and animals. Contractors and construction workers must be clearly informed of the no-go areas.
46. Roads must be designed so that changes to surface water runoff are avoided and erosion is not initiated.
47. Should any archaeological sites, artefacts, paleontological fossils or graves be exposed during construction work, work in the immediate vicinity of the find must be stopped, the South African Heritage Resources Agency (SAHRA) must be informed and the services of an accredited heritage professional obtained for an assessment of the heritage resources must be made.
48. Appropriate dust suppression techniques must be implemented on all exposed surfaces to minimise and control airborne dust. Such measures must include wet suppression, chemical stabilization, the use of a wind fence, covering surfaces with straw chippings and re-vegetation of open areas.

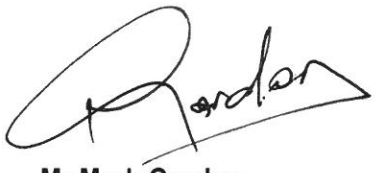
49. The holder of this authorisation must train safety representatives, managers and workers in workplace safety. All applicable safety standards and regulations, including for subcontractors must be enforced.
50. The EMPr must from part of the contract with the EPC Contractor appointed to construct the proposed facility, and must be used to ensure compliance with environmental specifications and management measures.
51. The holder of this authorisation must provide sanitation facilities within the construction camps and along the road so that workers do not pollute the surrounding environment. These facilities must be removed from the site when the construction phase is completed as well as associated waste to be disposed of at a registered waste disposal site.
52. The holder of this authorisation must take note that no temporary site camps will be allowed outside the footprint of the development area as the establishment of such structures might trigger a listed activity as defined in the Environmental Impact Assessment Regulations, 2010.
53. The holder of this authorisations, contractors and sub-contractors working on site must ensure that oil, fuel and chemicals are confined to specific and secured areas throughout the construction period. These materials must be stored in a bunded area with adequate containment for potential spills and leaks.

General

54. A copy of this authorisation and the approved EMPr must be kept at the property where the activity/ will be undertaken. The authorisation and approved EMPr must be produced to any authorised official of the Department who requests to see it and must be made available for inspection by any employee or agent of the holder of the authorisation who works or undertakes work at the property.
55. The holder of the authorisation must notify both the *Director: Integrated Environmental Authorisations* and the *Director: Compliance Monitoring* at the Department, in writing and within 48 (forty eight) hours, if any condition of this authorisation cannot be or is not adhered to. Any notification in terms of this condition must be accompanied by reasons for the non-compliance.
56. National government, provincial government, local authorities or committees appointed in terms of the conditions of this authorisation or any other public authority shall not be held responsible for any damages or losses suffered by the applicant or his successor in title in any instance where construction or operation subsequent to construction be temporarily or permanently stopped for reasons of non-compliance by the applicant with the conditions of authorisation as

set out in this document or any other subsequent document emanating from these conditions of authorisation.

Date of environmental authorisation: 26 June 2013.



Mr Mark Gordon

Chief Director: Integrated Environmental Authorisations

Department of Environmental Affairs

Annexure 1: Reasons for Decision

1. Information considered in making the decision

In reaching its decision, the Department took, *inter alia*, the following into consideration -

a) The information contained in the EIR dated March 2013;

b) The comments received from the Department of Water Affairs, the South African Heritage Resources Agency, the South African National Roads Agency SOC Limited, the Department of Agriculture, Forestry & Fisheries, the South African Square Kilometre Array, the Department of Agriculture, Land Reform & Rural Development, Eskom, the South African Civil Aviation Authority and interested and affected parties as included in the EIR dated March 2013;

c) Mitigation measures as proposed in the EIR dated March 2013 and the EMPr;

d) The information contained in the specialist studies contained within Appendix D of the EIR;

e) Findings of the site visit conducted on 30 April 2013; and

f) The objectives and requirements of relevant legislation, policies and guidelines, including section 2 of the National Environmental Management Act, 1998 (Act 107 of 1998).

2. Key factors considered in making the decision

All information presented to the Department was taken into account in the Department's consideration of the application. A summary of the issues which, in the Department's view, were of the most significance is set out below.

a) The findings of all the specialist studies conducted and their recommended mitigation measures.

b) The need for the proposed project stems from the provision of electricity to the national grid in terms of the Renewable Energy Independent Power Producers Procurement Programme (REIPPPP) and the provision of electricity from Independent Power Producers (IPPs) as required by the Department of Energy.

c) The EIR dated March 2013 identified all legislation and guidelines that have been considered in the preparation of the EIR dated March 2013.

d) The methodology used in assessing the potential impacts identified in the EIR dated March 2013 and the specialist studies have been adequately indicated.

e) A sufficient public participation process was undertaken and the applicant has satisfied the minimum requirements as prescribed in the EIA Regulations, 2010 for public involvement.

3. Findings

After consideration of the information and factors listed above, the Department made the following findings -

a) The identification and assessment of impacts are detailed in the EIR dated March 2013 and sufficient assessment of the key identified issues and impacts have been completed.

b) The procedure followed for impact assessment is adequate for the decision-making process.

c) The proposed mitigation of impacts identified and assessed adequately curtails the identified impacts.

d) The information contained in the EIR dated March is accurate and credible.

e) EMPr measures for the pre-construction, construction and rehabilitation phases of the development were proposed and included in the BAR and will be implemented to manage the identified environmental impacts during the construction process.

In view of the above, the Department is satisfied that, subject to compliance with the conditions contained in the environmental authorisation, the proposed activity will not conflict with the general objectives of integrated environmental management laid down in Chapter 5 of the National Environmental Management Act, 1998 and that any potentially detrimental environmental impacts resulting from the proposed activity can be mitigated to acceptable levels. The environmental authorisation is accordingly granted.