ARCHAEOLOGICAL IMPACT ASSESSMENT THE PROPOSED UPGRADING OF THE KWV UPINGTON EFFLUENT MANAGEMENT FACILITY NORTHERN CAPE PROVINCE

Prepared for:

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Executive summary

ACRM was commissioned to conduct an Archaeological Impact Assessment for the proposed upgrading of the KWV Upington Effluent Management Facility, on Erf 5410 in Upington, in the Northern Cape.

The existing facility is located about 3kms north of the Upington industrial area and about 7kms west of the airport. The facility currently treats industrial effluent generated from the KWV and OWK winery operations. Volumes of effluent have recently increased which do not conform to standards set aside by the Department of Water Affairs.

The proposed development therefore entails upgrading the existing system with the aim of treating the waste water to irrigation standards (as opposed to evaporation). Various scenarios are being explored, including reed bed treatment.

The proposed upgrading will take place within an existing footprint area covering about 40ha in extent. It is estimated that more than 90% of the site is already very severely degraded and has been dramatically transformed.

In terms of Section 38 (1) (c) (iii) of the National Heritage Resources Act 1999 (Act 25 of 1999), an AIA of the proposed project is required if the footprint area of the development is more than 5000m².

The AIA forms part of the Environmental Impact Assessment (EIA) process that is being conducted by EnviroAfrica cc.

The aim of the study is to identify and map archaeological heritage that may be impacted by the proposed project, to assess the significance of the potential impacts and to propose measures to mitigate the impacts.

A fairly random foot survey of the relatively undisturbed portions of the site was undertaken and the following observations were made:

Twenty-two artefacts were counted and mapped with a hand held GPS unit. These, comprised three Early Stone Age implements, including two large cores, and nine Middle Stone Age flakes, blades, cores and flaked chunks. One double sided hammerstone was also found, while the remainder of the lithics comprised chunks and retouched and/or utilized flakes, of which some may be Later Stone Age. No formal tools such as handaxes, points, scrapers or adzes, and no organic remains such as pottery or ostrich eggshell were found.

The very small numbers and isolated context in which they were encountered means that the archaeological remains on Erf 5410 have been rated as having low (Grade 3C) significance.

The results of the study indicate that the proposed development will not have an impact of great significance on these and potentially other archaeological remains.

The following recommendations are made:

1. No further archaeological mitigation is required.

2. In the unlikely event of any unmarked human burials/remains or ostrich eggshell water flask caches being exposed during construction activities, these must immediately be reported to the archaeologist (Jonathan Kaplan 082 321 0172), or the South African Heritage Resources Agency (Att Ms Katie Smuts 021 462 4502). Burials, etc. must not be removed or disturbed until inspected by the archaeologist.

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1. INTRODUCTION

ACRM was requested to conduct an Archaeological Impact Assessment (AIA) for the proposed upgrading of the KWV Upington Effluent Management Facility, on Erf 5410 in Upington (Khara Hais Local Municipality), in the Northern Cape (Figures 1 & 2).

Since 1985 KWV Distillery and OWK Wines have been disposing their industrial effluent (via an underground pipeline) into large evaporation ponds. Volumes of wastewater have recently increased which do not conform to standards set aside by the Department of Water Affairs.

The proposed development therefore entails upgrading the existing pond system with the aim of treating the wastewater to irrigation standards (as opposed to evaporation). Various scenarios are being explored, including reed bed treatment. Proposed activities will take within the existing ponds, and no new ponds or infrastructure is envisaged.

The AIA forms part of the Environmental Impact Assessment (EIA) process that is being conducted by EnviroAfrica.

2. HERITAGE LEGISLATION

The National Heritage Resources Act (Act No. 25 of 1999) makes provision for a compulsory Heritage Impact Assessment (HIA) when an area exceeding 5000 m² is being developed. This is to determine if the area contains heritage sites and to take the necessary steps to ensure that they are not damaged or destroyed during development.

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

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

Figure 1. Locality Map

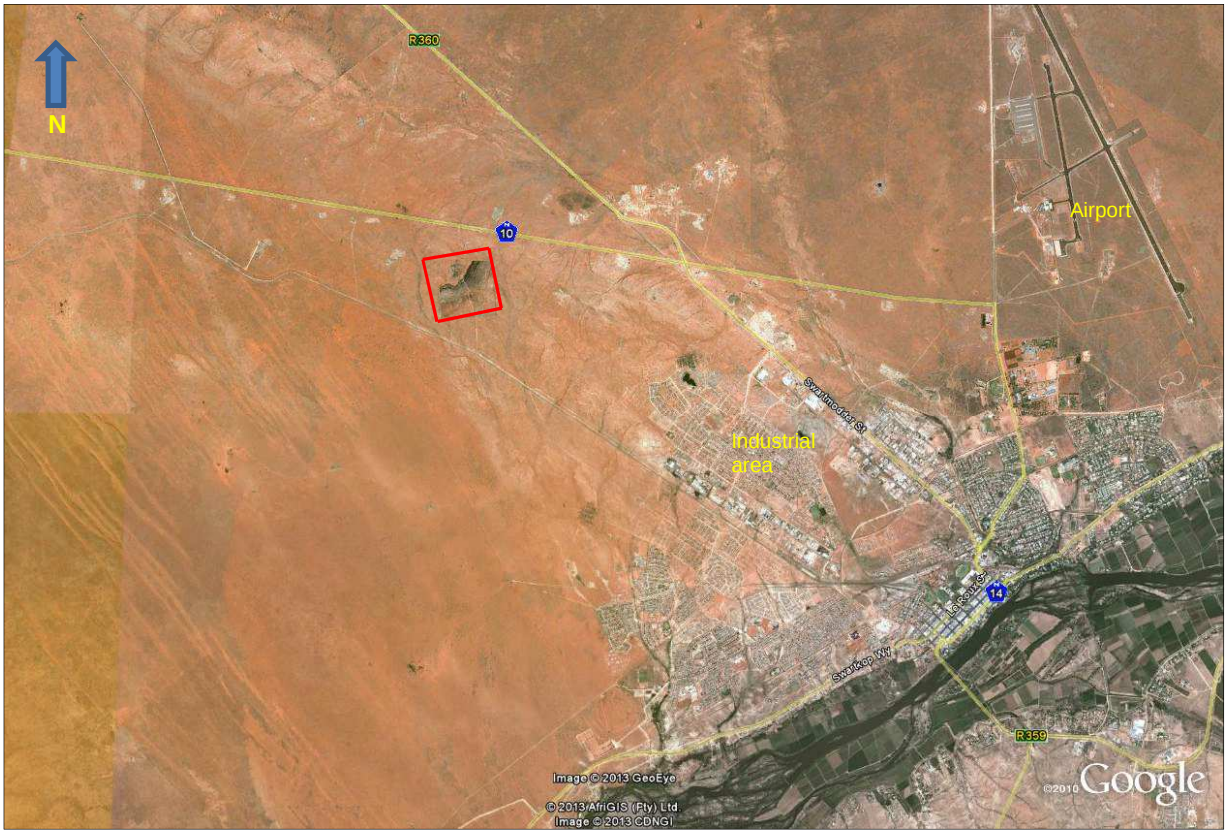

Figure 2. Google aerial photograph indicating the location site of the existing KWV facility (red square)

3. TERMS OF REFERENCE

The terms of reference for the archaeological study were to:

- Determine whether there are likely to be any important archaeological resources that may potentially be impacted by the proposed project;
- Indicate any constraints that would need to be taken into account in considering the development proposal;
- Identify potentially sensitive archaeological areas, and
- Recommend any further mitigation action.

4. DESCRIPTION OF THE AFFECTED ENVIRONMENT

The proposed site is located about 3kms north of the Upington industrial area and about 7kms west of the airport. The ± 40ha site, which is fenced off, is a flat, featureless landscape, sloping slightly to the south. It is estimated that more than 90% of the footprint area is highly degraded and has been already dramatically transformed by the current activities taking place on the site. Many of the evaporation ponds are filled with foul smelling wastewater and sludge, while others are empty and have not been used for a while. There are patches of relatively undisturbed land across the southern and south western portion of the property and in the northwest. The northern portion is severely degraded (Figures 3-10). Apart from gravel access roads, there is no other infrastructure on the proposed site. Surrounding land use comprises vast tracts of vacant land.

Figure 3. Google photograph of the existing facility

Figure 4. View of the site facing south

Figure 5. View of the site facing south. Note the empty ponds in the background.

Figure 6. View of the site facing south

Figure 7. View of the site facing east

Figure 8. View of the site facing north. Dry evaporation ponds

Figure 9. View of the site facing north.

Figure 10. View of the site facing north

Figure 11. View of the site facing north taken from the southern boundary

5. STUDY APPROACH

5.1 Method of survey

A fairly brief, random, survey of the facility was undertaken on 31 January 2013. A GPS track path was also created (refer to Figure 18 in Appendix II). All archaeological occurrences documented during the study were mapped using a hand-held Garmin Oregon 300 GPS unit set on the map datum WGS 84. A desk top study was also done.

5.2 Constraints and limitations

Apart from the overpowering odour of the ponds, there were no constraints or limitations associated with the study. Overall, archaeological visibility was good.

5.3 Identification of potential risks

Based on the results of the study, there are no archaeological risks associated with the proposed development. The footprint area is already very severely degraded.

5.4 Results of the desk top study

Not much archaeological work has been done in Upington, apart from an AIA for two small borrow pits on the northern bank of the Orange River near Uap, where small numbers of Later Stone Age implements were found (Kaplan 2008). About 35 mainly Middle Stone Age tools, of which 85% are in banded iron stone were also recorded during an AIA for the proposed upgrading of the Louisevale Road oxidation ponds a few kms south of the Orange River (Kaplan 2013a). Relatively large numbers of tools, assigned mainly to the Middle Stone Age, were documented during a study for a proposed solar energy farm in Keimoes about 30kms south west of Upington (Kaplan 2012a), while similar types of tools were encountered during a study for a large low cost housing project (Kaplan 2013b).

6. FINDINGS

Twenty-two artefacts were counted and mapped with a hand held GPS unit (refer to Table 2 in Appendix I). These, comprised three Early Stone Age implements, including two large cores (827 & 832), and nine Middle Stone Age flakes, blades, cores and flaked chunks. One double sided hammerstone (823) was also found, while the remainder of the lithics comprised chunks and retouched and/or utilized flakes in banded ironstone, silcrete, quartz, quartzite and indurated shale, of which some may also be Later Stone Age. No formal tools such as handaxes, points, scrapers or adzes, and no organic remains such as pottery or ostrich eggshell were found.

A collection of tools documented during the study are illustrated in Figures 12-17.

6.1 Significance of the archaeological remains

The very small numbers and isolated context in which they were found, means that the archaeological remains have been rated as having low (Grade 3C) significance.

Figure 12. ESA flake (822). Scale is in cm

Figure 13. Hammerstone (823). Scale is in cm

Figure 14. ESA core (827). Scale is in cm

Figure 15. ESA core (832) Scale is in cm

Figure 16. Collection of tools. Scale is in cm

Figure 17. Collection of tools. Scale is in cm

7. ASSESSMENT OF IMPACTS

In the case of the proposed upgrading of the KWV Upington Effluent Management Facility, it is expected that some archaeological impacts may occur during the construction phase of the project, but that the overall impact on important archaeological resources will be very low (Table 1).

Potential impacts on archaeological heritage	
Extent of impact:	Site specific
Duration of impact;	Permanent
Intensity	Low
Probability of occurrence:	Probable
Significance without mitigation	Low
Significance with mitigation	Negative
Confidence:	High

Table 1. Assessment of archaeological impacts.

8. CONCLUSION

The upgrading of the KWV Effluent Management Facility on Erf 5410 in Upington will have a very limited impact on the archaeological heritage. It is estimated that more than 90% of the site is already dramatically transformed and proposed upgrading will mostly take place within already highly disturbed areas on the property.

9. RECOMMENDATIONS

With regard to the proposed upgrading of the KWV Upington Effluent Management Facility, the following recommendations are made:

1. No further archaeological mitigation is required.

2. Should any unmarked human burials/remains or ostrich eggshell water flask caches be uncovered, or exposed during construction activities, these must immediately be reported to the archaeologist (Jonathan Kaplan 082 321 0172), or the South African Heritage Resources Agency (Att Ms Katie Smuts 021 462 4502). Burials must not be removed or disturbed until inspected by the archaeologist.

10. REFERENCES

Kaplan, J. 2013a. Archaeological Impact Assessment proposed upgrading of the Louisevale Road Waste Water Treatment Facility in Upington, Northern Cape Province. Report prepared for EnviroAfrica. ACRM.

Kaplan, J. 2013b. Archaeological Impact Assessment proposed low cost housing development Keimoes A & B, Northern Cape. Report prepared for EnviroAfrica. ACRM

Kaplan, J. 2012. Agency for Cultural Resource Management, the proposed Keren Energy Keimoes Solar Energy Plant on Erf 666, Keimoes, Northern Cape. Report prepared for EnviroAfrica. ACRM.

Kaplan, J. 2008. An archaeological assessment of two borrow pits alongside DR3321 Uap, Northern Cape Province. Report prepared for Van Zyl Environmental Consultants. ACRM.

Appendix I

Spreadsheet of waypoints and description of archaeological finds

Name of Site	Name of Farm	Lat/Long	Finds
	Erf 5410, Upington		
822		S28 25.292 E21 10.766	Large weathered ESA indurated shale flake
823		S28 25.279 E21 10.789	Double sided hammerstone
824		S28 25.207 E21 10.791	Small iron stone chunk
825		S28 25.278 E21 10.758	MSA retouched and utilized cobble flake
826		S28 25.299 E21 10.755	Large quartzite MSA flake
827		S28 25.204 E21 10.692	Large weathered Indurated shale ESA core
828		S28 25.195 E21 10.689	MSA quartzite flake
829		S28 25.207 E21 10.552	Chunky MSA quartz flake
830		S28 25.026 E21 10.435	Snapped indurated shale MSA flake/blade
831		S28 25.028 E21 10.431	Silcrete flake, & quartzite MSA flake
832		S28 25.044 E21 10.412	Large indurated shale ESA core
833		S28 25.056 E21 10.381	Banded ironstone flaked cobble/core
834		S28 24.996 E21 10.385	Small quartzite blade
835		S28 24.988 E21 10.388	Banded ironstone retouched/utilized cortex flake, & small nicked/utilized bladelet
836		S28 24.964 E21 10.378	Flat iron stone core, & MSA quartz blade
837		S28 24.941 E21 10.404	Broken, utilized and retouched MSA blade
838		S28 24.941 E21 10.410	Utilized/retouched chunk
839		S28 24.942 E21 10.465	Weathered indurated shale MSA disc core/chunk

Table 2. Spreadsheet of waypoints and description of archaeological finds.

Appendix II

Track path and illustration of waypoints

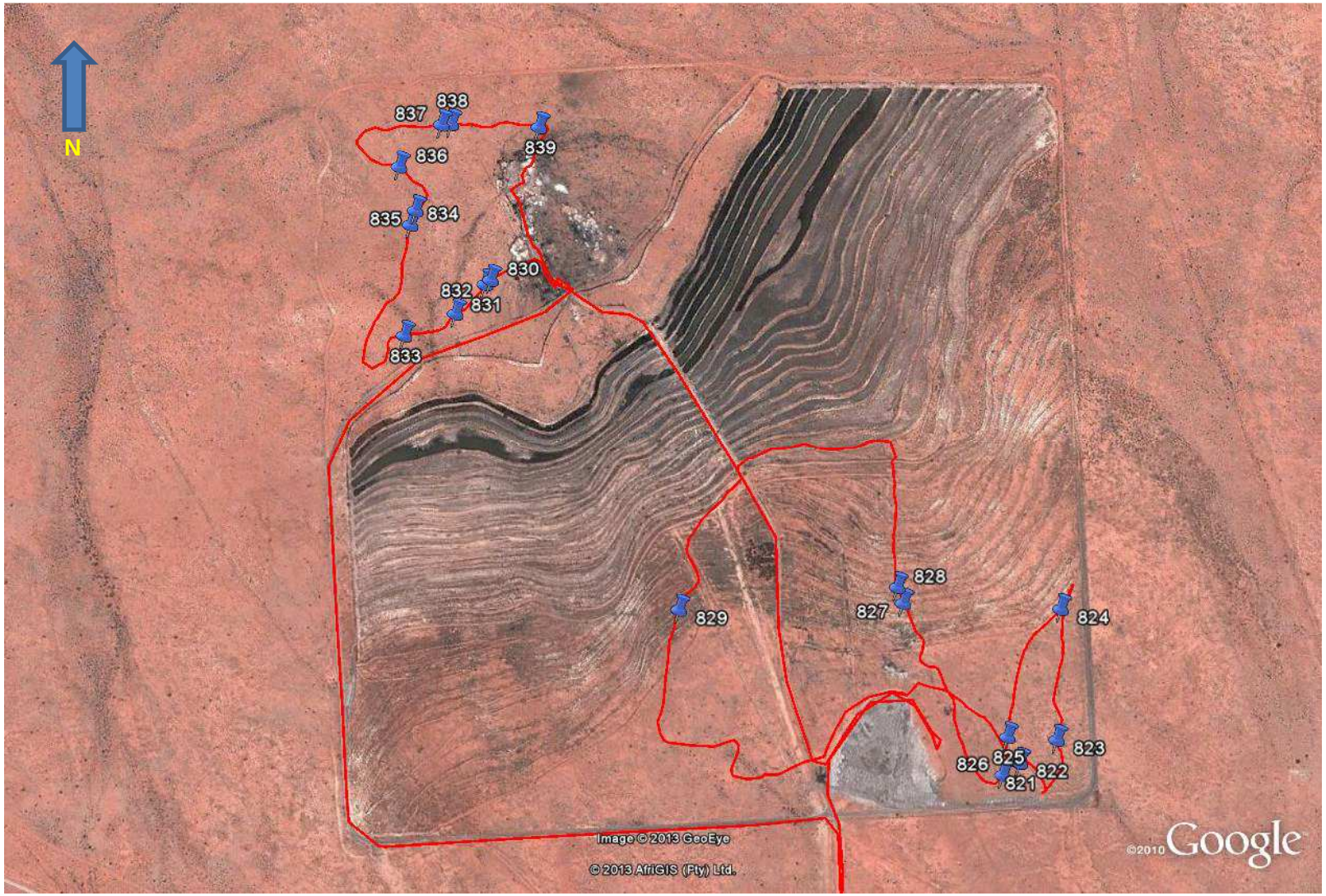

Figure 18. GPS trackpath and waypoints of archaeological finds