

ARCHAEOLOGICAL IMPACT ASSESSMENT

PROPOSED UPGRADE OF THE KOMMAGAS WATER SUPPLY SYSTEM ON PORTION 5 AND REM. OF FARM KOMMAGAS 200 NORTHERN CAPE

SAHRA Case ID: 14268

Prepared for:

ENVIROAFRICA CC

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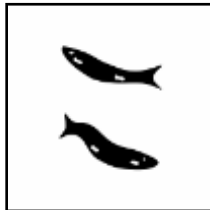
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Executive summary

1. Introduction

ACRM was appointed by Enviroafrica, on behalf of the Nama Khoi Local Municipality to conduct an Archaeological Impact Assessment (AIA) for the proposed upgrade of the Kommagas Water Supply System in Kommagas, near Springbok in the Northern Cape.

The increase in demand for housing in Komaggas has led to an increased demand for drinking water. The proposed project aims to upgrade the existing water supply system of Komaggas in order to meet this need.

The project comprise of the following components:

- Refurbishment of existing boreholes
- Construction of a 1.5Ml concrete water reservoir in Komaggas
- Refurbishment of the existing water main from Buffelsrivier to Kommagas
- Construction of new water pipelines between boreholes
- Construction of electricity supply lines to the new boreholes
- Refurbishment of existing pump stations

The specialist archaeological study forms part of a wider Heritage Impact Assessment (HIA) requested by the South African Heritage Resources Agency (*SAHRA Case Id: 14268*), which includes a Palaeontological Impact Assessment (PIA).

Enviroafrica is the appointed independent Environmental Assessment Practitioner responsible for facilitating the Environmental Impact Assessment (EIA) process for Environmental Authorisation.

2. Aim

The overall purpose of the study is to assess the sensitivity of archaeological resources that might be impacted by proposed construction activities, to determine the potential impacts on such resources, and to avoid and/or minimise such impacts by means of management and/or mitigation measures.

3. Constraints and limitations

There were no constraints associated with the study. Access to the project area was easy and archaeological visibility was good.

4. Findings

A field assessment was undertaken on the 26th February 2020, in which the following observations were made.

A small number of isolated Middle Stone Age tools were recorded during the field assessment.

Previous archaeological assessments undertaken in the same area, has also noted the low density of archaeological resources in the surrounding landscape.

4.1 Grading of archaeological resources

The small numbers, isolated and disturbed context in which they were found, mean that the archaeological remains have been rated as having *LOW* (Grade IIIC) significance.

4.2 Graves/graveyards

No graves or typical grave features were encountered during the field assessment.

5. Anticipated impacts

The field study has identified no significant impacts to pre-colonial archaeological heritage that will need to be mitigated prior to proposed construction activities commencing.

The study has shown that no important archaeological resources will be impacted by proposed Kommagas Water Supply Project.

6. Conclusion

While it is possible that proposed construction activities may impact on archaeological resources, it is likely that these resources will have low archaeological significance. The nature of the proposed development also requires minimal surface disturbance and excavations.

The overall impact significance of the proposed Kommagas Water Supply Project on archaeological heritage is assessed as *LOW* and therefore there are no objections to the development proceeding.

7. Recommendations:

1. No mitigation of archaeological resources is required is required prior to construction activities commencing.
2. If any unmarked human burials, or ostrich eggshell caches for example, are uncovered during construction activities then work in the immediate area should be halted. The find would need to be reported to the heritage authorities and will require inspection by a professional archaeologist.
3. The above recommendations must be included in the Environmental Management Plan (EMP) for the proposed development.

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1. INTRODUCTION

ACRM was appointed by Enviroafrica, on behalf of the Nama Khoi Local Municipality to conduct an Archaeological Impact Assessment (AIA) for the proposed Kommagas Water Supply System on Portion 5 and Rem. of Farm No. 200 in Kommagas in the Northern Cape (Figures 1 & 2).

Kommagas is a small town located about 45kms south west of Springbok on the R355 to Kleinzee. The increase in demand for housing in Komaggas has led to an increased demand for drinking water. The proposed project aims to upgrade the existing water supply system of the town in order to meet this need.

The specialist archaeological study forms part of a wider Heritage Impact Assessment (HIA) requested by the South African Heritage Resources Agency (*SAHRA Case Id: 14268*), which includes a desktop Palaeontological Impact Assessment (Pether 2020).

Enviroafrica is the appointed independent Environmental Assessment Practitioner responsible for facilitating the Environmental Impact Assessment (EIA) process for Environmental Authorisation.



Figure 1. 1:250 000 Locality map (Map Sheet No. 2916. Chief Directorate: National Geo-Spatial Information).



Figure 2. Google satellite map illustrating the project area in relation to Springbok. The two villages affected by the project are Kommagas and Buffelsrivier

2. THE DEVELOPMENT PROPOSAL

The proposed project comprises the following components (Figures 3-6):

- Refurbishment of existing boreholes
- Construction of a 1.5 Ml concrete water reservoir adjacent the existing reservoir in Komaggas (Figure 4)
- Refurbishment of existing water main from Buffelsrivier to Kommagas (brown, magenta, orange & blue lines)
- Construction of new water pipelines between boreholes (green lines in Figures 5 & 6).
- Construction of electricity supply lines to the new boreholes
- Refurbishment of existing pump stations

New steel pipelines 150mm in diameter will be constructed above ground on small concrete plinths (same as the existing pipelines), and new Upvc pipelines 160mm in diameter will be buried underground. All the boreholes have already been excavated.



Figure 3. Kommagas Water Supply Project: Proposed infrastructure



Figure 4. Kommagas Water Supply Project: Proposed new infrastructure



Figure 5. Kommagas Water Supply Project: Proposed new infrastructure



Figure 6. Kommagas Water Supply Project: Proposed new infrastructure

3. HERITAGE LEGISLATION

The National Heritage Resources Act (NHRA No. 25 of 1999) protects archaeological and palaeontological sites and materials, as well as graves/cemeteries, battlefield sites, public monuments and buildings, structures and features over 60 years old. The South African Heritage Resources Agency (SAHRA) administers this legislation nationally, with Heritage Resources Agencies acting at provincial level.

According to the Act (Sect. 35), it is an offence to destroy, damage, excavate, alter or remove from its original place, or collect, any archaeological, palaeontological and historical material or object, without a permit issued by the South African Heritage Resource Agency (SAHRA) or applicable Provincial Heritage Resources Agency.

Notification of SAHRA is required for proposed developments exceeding certain dimensions (Sect. 38), upon which they will decide whether or not the development must be assessed for heritage impacts (an HIA) that may include an assessment of archaeological (a AIA) or palaeontological heritage (a PIA).

Section 38 (1) (a) of the Act also stipulates that any person constructing a powerline, pipeline or road, or similar linear development or barrier exceeding 300m in length is required to notify the responsible heritage resources authority, who will in turn advise whether an impact assessment report is needed before development can take place.

4. TERMS OF REFERENCE

The terms of reference for the study were to:

- Identify and map archaeological resources that might be impacted by proposed development activities;
- Assess the sensitivity of archaeological within the proposed study area;
- Assess the significance of any impacts resulting from the proposed development, and
- Identify measures to protect any valuable archaeological resources that may exist within the study area.

5. DESCRIPTION OF THE RECEIVING ENVIRONMENT

The study area is mainly used for small stock grazing and, apart from the villages of Buffelsrivier and Kommagas the only infrastructure present consists of sparsely distributed farm houses, farm tracks, fences and a number of stock posts within the Komaggas Reserve. The roads are mostly gravelled. An existing Eskom servitude runs alongside the tarred road between Buffelsrivier and Kommagas, while construction of the new 22kv powerline to Kommagas substation is currently under way. The Kornavlei Mine is located alongside the R355 to Kleinzee, just before the intersection at the turn off to Buffelsrivier.

With regard to the proposed project, most of the existing infrastructure (e. g. pipelines, boreholes, reservoirs & pump stations) are all already in place (Figures 7-49).



Figure 7. Pipeline in Kommagas



Figure 8. Pipeline in Kommagas



Figure 9. Pipeline from Kommagas to Buffelsrivier



Figure 10. Pipeline from Kommagas to Buffelsrivier



Figure 11. Pipeline from Kommagas to Buffelsrivier



Figure 13. Pipeline from Kommagas to Buffelsrivier



Figure 12. Pipeline from Kommagas to Buffelsrivier



Figure 14. Pipeline from Kommagas to Buffelsrivier



Figure 15. Refurbished borehole/pipeline route to BH KG19-DT5



Figure 17. pipeline route to BH KG19-DT5



Figure 16. Pipeline route to BH KG19-DT5



Figure 18. BH KG19-DT5



Figure 19. Pipeline route to BH KG19-DT1



Figure 21. BH KG19-DT1



Figure 20. Pipeline route to BH KG19-DT1



Figure 22. Arrow indicates Balancing Reservoir No. 3



Figure 23. Balancing Reservoir No. 3 in the distance



Figure 25. Pipeline from Kommagas to Buffelsrivier



Figure 24. Pipeline from Kommagas to Buffelsrivier



Figure 26. Pipeline from Kommagas cross the road (under the culvert) to Buffelsrivier



Figure 27. Pipeline from Kommagas to Buffelsrivier

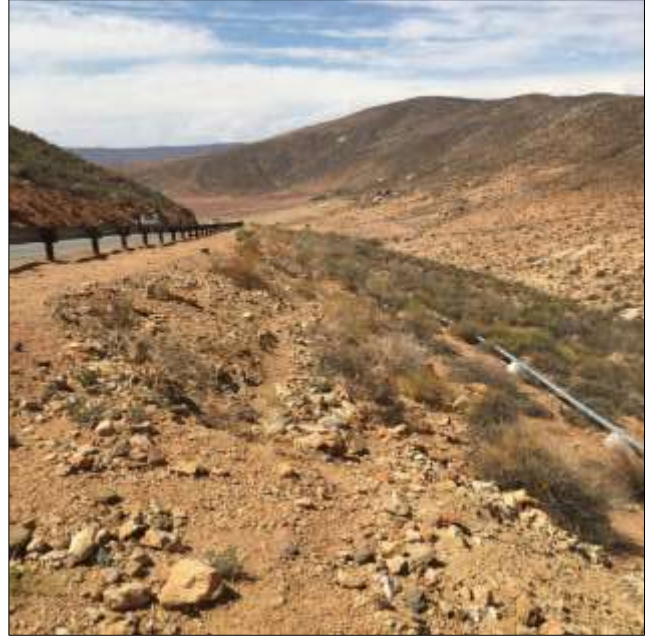


Figure 29. Pipeline from Kommagas to Buffelsrivier



Figure 28. Pipeline from Kommagas to Buffelsrivier



Figure 30. Voorberg Pump Station & Reservoir No. 2



Figure 31. Proposed pipeline route from Kommagas to Buffelsrivier



Figure 34. Proposed pipeline route from Kommagas to Buffelsrivier



Figure 32. Proposed pipeline route from Kommagas to Buffelsrivier. Note the Eskom servitude



Figure 35. Proposed pipeline route from Kommagas to Buffelsrivier



Figure 33. Proposed pipeline route from Kommagas to Buffelsrivier. Note the Eskom servitude



Figure 36. Proposed pipeline route from Kommagas to Buffelsrivier



Figure 37. Proposed route from Kommagas to Buffelsrivier



Figure 40. Proposed route from Kommagas to Buffelsrivier



Figure 38. Proposed route from Kommagas to Buffelsrivier



Figure 41. Proposed route from Kommagas to Buffelsrivier



Figure 39. Proposed pipeline route from Kommagas to Buffelsrivier



Figure 42. Proposed route from Kommagas to Buffelsrivier



Figure 43. View from the Kwaddas pump station and reservoir to Buffelsrivier



Figure 45. Proposed pipeline route to Buffelsrivier



Figure 44. Proposed pipeline route to Buffelsrivier



Figure 46. Proposed pipeline route to Buffelsrivier



Figure 47. Proposed pipeline route to Buffelsrivier



Figure 48. Proposed pipeline route to Buffelsrivier



Figure 49. View facing east from the Buffelsrivier Reservoir to the village of Buffelsrivier

6. STUDY APPROACH

6.1 Method

The purpose of the study is to assess the sensitivity of archaeological resources in the study area, to determine the potential impacts on such resources, and to avoid and/or minimize such impacts by means of management and/or mitigation measures.

The significance of archaeological remains was assessed in terms of their content and context. Attributes considered in determining significance include artefact and/or ecofact types, rarity of finds, exceptional items, organic preservation, potential for future research, density of finds, and the context in which archaeological traces occur.

A field assessment was undertaken on the 26th February 2020. The survey was carried out by both vehicle and foot. The position of identified archaeological resources, were plotted using a hand held GPS device set on the map datum wgs 84. A track path of the survey was also captured.

A desktop study was carried out to assess the heritage context surrounding the proposed development site. The literature survey included unpublished commercial reports sourced primarily from the South African Heritage Resources Information System (SAHRIS).

6.2 Constraints and limitations

There were no constraints or limitations associated with the study. Access to the area was easy and archaeological visibility was generally very good.

6.3 Identification of potential risks

The results of the field study, as well as information generated from the literature survey, indicate that the proposed Kommagas Water Supply Project will not impact on important archaeological resources.

6.4 Archaeological context

Very little archaeological work has taken place in Kommagas and Buffelsrivier. Dreyer (2002) completed a walk down survey of a number of borrow pits utilized for the upgrade of the DR2955 between Kommagas and Springbok. Nine borrow pits were assessed by him and of these, only one yielded a few MSA flake tools, about 1km from the Buffels River. A large portion of Remainder of Farm 200 was also surveyed by Hilary Deacon in 2004 for a proposed prospecting application. This survey did not reveal any archaeological sites that would be impacted by proposed prospecting activities (Deacon 2004). Van Pletzen-Vos & Rust (2011) recorded a few MSA artefacts of low significance on the western and northern outskirts of Komaggas during an assessment for a proposed new cemetery.

Low, medium and high density scatters of LSA tools, ostrich eggshell and pottery were recorded by Orton (2017) during a HIA undertaken for the proposed Kap Vley Wind Energy Facility (WEF) near Komaggas, but these were mostly located in wind deflated areas at high elevations, between 7 and 20kms west of the village.

Research conducted by Dewar (2006), Halkett (2002), Morris and Webley (2004) has shown that parts of Namaqualand were occupied by Early Stone Age (ESA) people more than a million years ago. However, the greatest number of sites are those which relate to the ancestors of modern San (hunter gatherers) and Khoekhoen (Herders) which date to the last 4-5000 years (Webley 1992), although work conducted by Orton (2007) suggests there is much variety in age, with some sites being only a few hundred years old.

In more recent historic times, the interior of Namaqualand was occupied by the Little Namaqua, a Khoekhoen pastoralist group who herded sheep and cattle and lived in temporary encampments of mat houses. They are known to have moved seasonally with their livestock and historical reports indicate that they may have followed a transhumance cycle between the Kamiesberg in the summer months and the Sandveld in the winter months that may also have included the area around Komaggas (Webley 1992).

Since the Little Namaqua had no clearly defined territorial boundaries, it was easy for the colonial Trekboers to settle in the area. The earliest loan farms were granted after 1750 and the Little Namaqua eventually retreated to so-called “reserves” such as Leliefontein, Steinkopf, Kommaggas, Concordia and the Richtersveld (Webley & Halkett 2010).

7. RESULTS

Trackpaths and waypoints of archaeological resources recorded during the study are illustrated in Figures 50 & 51).

A spreadsheet of waypoints and description of finds is indicated in Table 1.

A small number of Middle Stone Age (MSA) tools were recorded during the field assessment. These include a MSA quartzite blade and flake (Waypoint 1519) in a highly degraded context, alongside the DR2955 between Kommagas and Buffelsrivier (Figures 52 & 53). A quartzite chunk/core, a possible hammerstone, and several MSA quartzite flakes and blade (Waypoint 1718) were found in a heavily transformed context in a, Eskom servitude, on the outskirts of Buffelsrivier (Figures 54 & 55). A MSA quartzite flake (Waypoint 2217) was found on a degraded slope close to the Kwaddas Reservoir, and a broken LSA silcrete flake (Waypoint 1919) was found on a sheet washed patch of ground alongside the gravel road just before on enters the village in Buffelsrivier (Figure 56).

Previous archaeological assessments undertaken in the vicinity of the proposed development, has also noted the low density of archaeological resources in the surrounding landscape (CTS Heritage 2016; Deacon 2004, Van Pletzen-Vos & Rust 2011; Dreyer 2002).



Figure 50. Track paths (in red) and waypoints of archaeological finds



Figure 51. Track paths (in red) and waypoints of archaeological finds

7.1 Grading

The small numbers, isolated and severely disturbed context, in which they were found, mean that the archaeological remains have been rated as having *low* (Grade IIIC) significance.

GPS Point	Name of Farm	Lat/Long	Description of finds	Grading	Mitigation
	Kommagas 200				
1519		S29° 39.986' E17° 33.146'	Single quartzite MSA flake & blade on degraded patch of ground alongside tarred road	Low IIIC	None required
1718		S29° 39.924' E17° 34.440'	Quartzite chunk/core, MSA quartzite flakes, indurated shale cortex flake, & hammerstone in transformed lands alongside tarred road	Low IIIC	None required
1819		S29° 39.884' E17° 34.177'	Large, fenced cemetery outside proposed pipeline route.	High	None required/ avoid
1919		S29° 40.297' E17° 35.540'	Broken MSA silcrete flake on sheet washed slope	Low IIIC	None required
2217		S29° 40.485' E17° 35.791'	Quartzite MSA flake	Low IIIC	None required

Table 1. Spreadsheet of waypoints and description of archaeological finds



Figure 52. Waypoint 1519. Context in which the remains were found.



Figure 54. Waypoint 1718. Context in which the remains were found



Figure 53. Tools from waypoint 1519. Ruler scale is in cm



Figure 55. Waypoint 1718. Scale is in cm



Figure 56. Waypoints 2217 & 1919. Ruler scale is in cm

7.2 Graves

No graves, or typical grave features such as stone cairns were encountered during the study. A large fenced off cemetery (Waypoint 1819) was noted to the north of the DR2955 a few kilometers before one enters the village of Buffelsrivier, outside the alignment of the proposed new pipeline (Figure 57).



Figure 57. Large, fenced off cemetery (Waypoint 1819) on the outskirts of Buffelsrivier.

8. IMPACT STATEMENT

The field study has identified no significant impacts to pre-colonial archaeological heritage that will need to be mitigated prior to proposed construction activities commencing.

The limited development footprint means that it is highly unlikely that significant archaeological heritage resources will be impacted by construction operations.

9. CONCLUSION

While it is possible that proposed construction may impact on archaeological resources, it is likely that these resources will have low archaeological significance.

The survey has shown that the archaeological landscape is dominated by a few isolated scatters of MSA lithics of *LOW* (Grade IIIC) archaeological significance.

The nature of the proposed development also requires minimal surface disturbance and excavations.

The overall impact significance of the proposed Kommagas Water Supply Project on archaeological heritage is assessed as *LOW* and therefore there are no objections, to the proposed activities proceeding.

10. RECOMMENDATIONS

With regard to the proposed upgrade of the Kommagas Water Supply System on Farm Kommagas 200, the following recommendations are made:

1. No mitigation of archaeological resources is required is required prior to construction activities commencing.
2. If any human burials, or ostrich eggshell caches, for example, are uncovered during construction activities then work in the immediate area should be halted. The find would need to be reported to the heritage authorities and will require inspection by a professional archaeologist.
3. The above recommendations must be included in the Environmental Management Plan (EMP) for the proposed development.

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