

**HERITAGE IMPACT ASSESSMENT: PROPOSED BERG RIVER - VOELVLEI
AUGMENTATION SCHEME, GOUDA, WESTERN CAPE**

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

Case Number: 16062004AS0922E

Prepared for:
Samantha Gerber
Nemai Consulting
Tel: 011 781 1740

On behalf of:
Department of Water and Sanitation

January 2017



Prepared by:

Lita Webley & David Halkett
ACO Associates cc
8 Jacobs Ladder
St James

Email: lita.webley@aco-associates.com
Tel: 0217064104
Fax: 0866037195

EXECUTIVE SUMMARY

Site Name: Voëlvlei Dam, Drakenstein Local Municipality, Western Cape

Location: Pipeline options from the Voëlvlei Dam to the Berg River, with some access roads through the farm Sonquas Drift to a proposed pump station and weir on the Berg River.



Locality Plan

Description of Proposed Development: The Berg River-Voëlvlei Augmentation Scheme will allow the Department of Water and Sanitation to transfer approximately 23 million m³ per annum from the Berg River in the winter months to the existing Voëlvlei Dam, to augment the dam.

Comment of the Heritage Authority (Heritage Western Cape)

A Notice of Intent to Develop was submitted to HWC. In their response, dated 30 September 2016 (but only received by the Nema Consulting on the 27 October 2016), HWC state:

“You are hereby notified that since there is no reason to believe that the proposed water distribution lines and associated infrastructure will impact on heritage resources, no further action under Section 38 of the National Heritage Resources Act (Act 25 of 1999) is required”.

Due to delays in the receipt of the response to the NID, this HIA was completed for inclusion in the EIA report, although not required by HWC.

Heritage Resources Identified

- Some Early Stone Age artefacts were found in a pile of rocks on the edge of a wheatfield on the farm Goudklip 648/1. They are not in context and of low significance;
- The Elandsberg Nature Reserve, which is a Provincial Heritage Site (PHS), is located to the south of the Voëlvlei Dam.

Anticipated Impacts on the Heritage Resources

- While stone artefacts may be encountered during the construction of the pipeline, they are likely to be of low significance and no mitigation is required;
- No impacts are expected on the Elandsberg Nature Reserve PHS.

Conclusions

It is concluded that the proposed development will have low impacts on the heritage resources of the area.

Recommendations

With respect to the three alternative potential discharge options for the pipeline into the dam, all three options are acceptable from a heritage perspective, but Option 2, which follows existing infrastructure will have the least impact on below ground resources.

With regard the two road alternatives, both alternatives are acceptable.

It is recommended that the development may proceed.

If any heritage resources (particularly graves) are uncovered during construction, then work must stop, and Heritage Western Cape (Tel: 021 483 9685) must be notified.

Author and Date

Lita Webley

ACO Associates

GLOSSARY

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

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

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

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

Heritage Western Cape: The heritage authority in the Western Cape Province.

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

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

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

National Estate: The collective heritage assets of the Nation

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

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

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

Acronyms

| | |
|------|-------------------------------------|
| DEA | Department of Environmental Affairs |
| ESA | Early Stone Age |
| GPS | Global Positioning System |
| HIA | Heritage Impact Assessment |
| HWC | Heritage Western Cape |
| LSA | Late Stone Age |
| MSA | Middle Stone Age |
| NHRA | National Heritage Resources Act |

Archaeologists/Heritage Specialists

Lita Webley is an archaeologist (PhD from the University of Cape Town 1992) with ACO Associates cc and has been conducting Heritage Impact Assessment and archaeological specialist studies in the Western Cape, Northern Cape and Eastern Cape Provinces since 1996. She is a member of the Archaeology, Palaeontology and Meteorites Committee and the Impact Assessment Committee of Heritage Western Cape (HWC), the Provincial Heritage Resources Authority. She is accredited as a Principal Investigator by the Association of Southern African Professional Archaeologists (ASAPA) CRM section as follows:

- Principal Investigator: Stone Age, Shell Middens and Colonial Period; and
- Field Director: Grave Relocations.

ACO Associates cc has no financial or other interest in the proposed development and will derive no benefits other than fair remuneration for consulting services provided.

David Halkett (BA, BA Hons, MA (UCT)) is an Archaeologist and Member of the Association of Professional Archaeologists of Southern Africa (ASAPA) and accredited with Principal Investigator status. He has been working in heritage management for 23 years and has considerable experience in impact assessments with respect to a broad range of archaeological and heritage sites in the Northern Cape.

SPECIALIST DECLARATION

I, Lita Webley, declare that –

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have potential of influencing – any decision to be taken with respect to the application by the competent authority; and – the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offense in terms of regulation 71 and is punishable in terms of section 24F of the Act.

Signature of specialist



Specialist Field: Archaeology and Heritage

Name of Company: ACO Associates

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1. INTRODUCTION

ACO Associates cc was appointed by Nema Consulting on behalf of the client, the Department of Water and Sanitation (DWS), to undertake a Heritage Impact Assessment for the proposed augmentation of the Voëlvlei Dam from the Berg River, in the Drakenstein Local Municipality, Western Cape (Figure 1). Three alternative pipeline options have been proposed which will discharge into the dam. The pipeline will cross under the R44, and run to a pump station on the Berg River.



Figure 1: The location of the Voëlvlei Dam with respect to the towns of Gouda and Riebeeck Kasteel in the Drakenstein Local Municipality. The Voëlvlei Nature Reserve, which is a Provincial Heritage Site, is outlined in red to the south of the dam.

1.1 Socio-economic need for the Development

The Western Cape Water Supply System (WCWSS) serves the City of Cape Town (CCT), surrounding urban centres and irrigators. It consists of infrastructure components owned and operated by both the CCT and the DWS. In 2007, the Western Cape Reconciliation Strategy Study was commissioned by the DWS to determine future water requirements for a 25 year planning horizon. The Study investigated a number of options and found that whilst 556 million m³ per annum would be available from 2007, the estimated water requirement in 2011 would be 560 million m³/a, with the implication that the system supply will then be fully utilised and thus additional interventions will thus be required.

Based on the above, DWS identified the need for augmentation of the WCWSS by 2019 and proceeded with pre-feasibility and feasibility studies into potential surface water development options.

1.2 Alternatives

Initially six options were assessed at a pre-feasibility level of detail:

- Expansion of the Palmiet transfer scheme
- Augmentation of the Voelvlei dam, and further phases of augmentation
- Molenaars River Diversion
- Michells Pass Diversion and diversion scheme
- Upper Wit River Diversion and Dam

These options were then prioritized to identify the two most viable options. These were:

- Berg River-Voelvlei Augmentation Scheme (also known as the First Phase Augmentation of Voelvlei Dam); and
- Breede-Berg Transfer Scheme (also known as the Michell's Pass Diversion Scheme).

Ultimately, the Feasibility Study found that the Berg River-Voelvlei Augmentation Scheme option was the most favourable surface water intervention and as such the Department of Water and Sanitation proposes to implement this scheme which involves the transfer of approximately 23 million m³ per annum from the Berg River in the winter months to the existing Voelvlei Dam.

Hart (2009) of ACO Associates cc, formed part of the specialist team which conducted a feasibility and pre-feasibility study for the augmentation of the WCWSS in 2009, and his conclusions underpin this report.

1.3 Project Description

The project components include the following:

- A low level weir, abstraction works and 4 m³/s raw water pump station on the Berg River;
- A rising main pipeline from the Berg River to Voelvlei Dam; and
- A potential new summer release connection at the existing Swartland WTW to facilitate summer releases into the Berg River for environmental requirements thus eliminating the need to utilize the existing canal from which water losses occur.

All the infrastructure and activities that require environmental authorisation need to be assessed as part of the EIA. In this regard, the following associated infrastructure was identified:

- Abstraction works;
- Rising main pipeline and pump station;
- Diversion weir;
- Access roads during construction;
- Access roads during operation; and
- Construction camp (footprint).

Two alternative access roads to the pump station (Figure 2), and three alternative potential discharge options for the pipeline into the dam are illustrated (Figure 3).



Figure 2: The various infrastructural components of the project are illustrated in this map. There are two road options (red and turquoise) and the blue line indicates the preferred pipeline alternative to the Voëlvele Dam.



Figure 3: Indicates the various alternative pipeline discharge options (Option 1 = red, Option 2 = green, Option 3 = blue is the preferred option) into the Voëlvele Dam.

2. TERMS OF REFERENCE

The Terms of Reference (ToR) were to undertake a Phase 1 Heritage Impact Assessment in accordance with the South African Heritage Resources Act (No. 25 of 1999).

- The identification and mapping of all heritage resources in the area affected, as defined in Section 2 of the National Heritage Resources Act, 1999, including archaeological sites on or close (within 100 m) of the proposed development.
- An assessment of the significance of such resources in terms of the heritage assessment criteria as set out in the regulations.
- An assessment of the impact of development on such heritage resources.
- Identify heritage resources to be monitored.
- Suggest suitable mitigation measures to address the identified impacts.
- Provide recommendations regarding the alternatives provided from a heritage perspective.
- Compile a report that reflects the above and includes appropriate mapping. Ensure that the report complies with Appendix 6 of GN No. R982 (2014), as part of the Environmental Impact Assessment (EIA) Report.
- Prepare a sensitivity map (GIS-based), based on the findings of the study.
- Present findings at the public meeting (if necessary).

3. LEGISLATIVE BACKGROUND

While the National Department of Environmental Affairs (DEA) is the decision making authority acting in terms of the National Environmental Management Act (Act 107 of 1998) (NEMA) and the EIA Regulations (2014), they must ensure that the evaluation of the statutorily defined broad range of heritage resources fulfils the requirements of the relevant heritage resources authority in terms of Section 38 (3) of the National Heritage Resources Act (Act 25 of 1999) (NHRA) and that any comments and recommendations of the relevant heritage resources authority with regard to proposed development have been taken into account prior to the granting of the consent.

This report is conducted in terms of Section 38 (8) of the NHRA.

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)).

Below is an overview of those sections of the legislation which are relevant to this project.

3.1 Archaeology and Palaeontology (Section 35(4))

No person may, without a permit issued by HWC, destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite.

Archaeological is defined as: “material remains resulting from human activity which is in a state of disuse and is in or on land and which is older than 100 years, including artefacts, human and hominid remains and artificial features and structures”.

Palaeontological is defined as: “any fossilised remains or fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial use, and any site which contains such fossilised remains or trace”.

3.2 Burial Grounds and Graves (Section 36(3))

No person may, without a permit issued by the South African Heritage Resources Authority (SAHRA), destroy damage, alter, exhume or remove from its original position or otherwise disturb any grave or burial ground older than 60 years, which is situated outside a formal cemetery administered by a local authority.

3.3 Grading

The significance of heritage resources is assessed according to the grading criteria established by NHRA.

Table 1: Grading of Heritage Resources

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

A Notice of Intent to Develop was submitted to HWC. In their response, dated 30 September 2016 (but only received by the Nema Consulting on the 27 October 2016), HWC state:

“You are hereby notified that since there is no reason to believe that the proposed water distribution lines and associated infrastructure will impact on heritage resources, no further action under Section 38 of the National Heritage Resources Act (Act 25 of 1999) is required”.



Our Ref: HM/DRAKENSTEIN/GOUDA/ VARIOUS PORTIONS OF FARM DOORNBOOM 199, FARM 201, FARM HALF GEWAAGD 73, FARM SONQUAS DRIFT 647 & 648, VOGEL VALLEY 207, TULBURGH ROAD 412 & 441 & ZONQUASDRIFT 1129
Case No.: 16062004AS0922E
Enquiries: Andrew September
E-mail: andrew.septembers@westerncape.gov.za
Tel: 021 483 9543
Date: 30 September 2016

Samantha Gerber
PO Box 1673
Sunninghil
2157
samantha@nemo.co.za

RESPONSE TO NOTIFICATION OF INTENT TO DEVELOP: FINAL
In terms of Section 38(8) of the National Heritage Resources Act (Act 25 of 1999) and the Western Cape Provincial Gazette 6061, Notice 298 of 2003

NOTIFICATION OF INTENT TO DEVELOP: PROPOSED UPGRADE OF BULK WATER DISTRIBUTION INFRASTRUCTURE ON VARIOUS PORTIONS OF FARM DOORNBOOM 199, FARM 201, FARM HALF GEWAAGD 73, FARM SONQUAS DRIFT 647 & 648, VOGEL VALLEY 207, TULBURGH ROAD 412 & 441 & ZONQUASDRIFT 1129, GOUDA, DRAKENSTEIN, CAPE WINELANDS, SUBMITTED IN TERMS OF SECTION 38(8) OF THE NATIONAL HERITAGE RESOURCES ACT (ACT 25 OF 1999)

CASE NUMBER: 16062004AS0922E

The matter above has reference.

Heritage Western Cape is in receipt of your application for the above matter received on 22 September 2016.

You are hereby notified that, since there is no reason to believe that the proposed water distribution lines and associated infrastructure will impact on heritage resources, no further action under Section 38 of the National Heritage Resources Act (Act 25 of 1999) is required.

However, should any heritage resources, including evidence of graves and human burials, archaeological material and paleontological material be discovered during the execution of the activities above, all works must be stopped immediately and Heritage Western Cape must be notified without delay.

This letter does not exonerate the applicant from obtaining any necessary approval from any other applicable statutory authority.

HWC reserves the right to request additional information as required.

Should you have any further queries, please contact the official above and quote the case number.

Yours faithfully

Mxolisi Dlamuka
Chief Executive Officer, Heritage Western Cape

www.westerncape.gov.za/cas

Street Address: 111, Victoria Road, Cape Town, 8001 • Postal Address: Private Bag 11117, Cape Town
• Tel: +27 (0)21 4543055 • Email: cas@westerncape.gov.za
Street Address: 111, Victoria Road, Cape Town, 8001 • Postal Address: Private Bag 11117, Cape Town, 8001

This HIA was commissioned because of delays in receiving a comment to the NID. It addresses all aspects of heritage, as specified in Section 38(3) of the NHRA.

4. METHODOLOGY AND LIMITATIONS

4.1 Literature Survey

A survey of available literature was carried out during the Scoping process to assess the general heritage context of the area. A background search of other Cultural Resource Management (CRM) projects in the area was made via the South African Heritage Resources Information Systems (SAHRIS) database. A few impact assessments have been conducted in proximity to the proposed facility. The following CRM reports provide valuable information on the heritage resources of the area and were consulted:

- Hart, T. 2009. Feasibility and Pre-feasibility studies for augmentation of the Western Cape Water Supply System;
- Orton, J. 2010. Heritage Impact Assessment for the proposed Gouda Wind Energy facility, Tulbagh Magisterial District, Western Cape;
- Orton, J. & Webley, L. 2013. Heritage Walk down for the proposed power line for the Gouda Wind Energy facility, Tulbagh Magisterial District, Western Cape;
- Orton, J. & Fleur, W. 2013. Archaeological Mitigation at the Proposed Gouda Wind Energy Facility, Tulbagh Magisterial District, Western Cape.

4.2 Field Survey

The polygon of the proposed development was provided to ACO Associates. The area was surveyed by Lita Webley and David Halkett on 14 October 2016. Our tracks were recorded by means of Garmin GPS devices and all sites were digitally recorded (Figure 7).

4.3 Assumptions

- We did not cover all the proposed pipeline alternatives but assume that impacts will not differ significantly across the study area;
- It is further assumed, that archaeological material in ploughed fields has been extensively disturbed, and are no longer in their original context. They have lost much of their heritage significance; and
- Collections of ESA material have been made in the Gouda area by Orton & Fleur (2013) and these adequately inform on the ESA history of the area.

4.4 Limitations

We were unable to access alternative pipeline discharge Option 1 (Figure 3), which enters the Voëlvlei Dam to the north. This is not considered a significant limitation as no heritage resources were identified along Options 2 and 3.

5. ENVIRONMENTAL ATTRIBUTES

5.1 Palaeontology

The study area is underlain by deposits of the Malmesbury Group (low-lying) and Cape Supergroup (mountains). According to Almond & Pether (2008), the Malmesbury Group is of low palaeontological significance with no fossils recorded to date. The SAHRIS Palaeo sensitivity map indicates that the area is of low sensitivity, and only a protocol for dealing with fossil finds is recommended (Figure 4).



Figure 4: The SAHRIS Palaeo sensitivity map indicates that the pipeline route will run through the blue area on the map which is considered to have low sensitivity. The green area along the Berg River is considered to have moderate sensitivity and a desktop study is required for developments along the river.

5.2 Archaeological Background

During a walk-down for a powerline option for the Gouda Wind Energy Facility, Orton & Webley (2013) recorded a number of scatters of ESA artefacts, both close to the Berg River and also on open hills away from the water. During their mitigation of four scatters of ESA scatters and one of Later Stone Age artefacts on the Gouda WEF, Orton & Fleur (2013) observed that the ESA hand-axes were made largely through retouch of three edges and the vast majority lacked a high degree of symmetry. The LSA site is dominated by scrapers and with no pottery present, is therefore probably older than 2000 years. Archaeological mitigation has therefore already been conducted in the area, and a suitable sample of material collected for analysis.

An informal archaeological survey of the Voëlvlei Dam was conducted by Smith in the 1980s (Smith pers comm). He did not identify any significant heritage sites in the vicinity of the water body. He did, however, identify a rock shelter with archaeological deposit on the mountain slopes *above* the dam, and this was excavated and reported in Smith *et al* (1991). It is not anticipated that the pipeline will intersect any significant archaeological material, most of the land being ploughed fields.

5.3 Historical Background

The Voëlvlei Dam originated as a large natural depression in which water collected from the mountains to the east of the dam (Figures 1 and 5). It is situated on land which belonged to

the Walters family from as early as 1734. The land was expropriated in 1948 for the Bergriver Irrigation Scheme. Hart (2009) in his feasibility study pointed out that the Voëlvei Dam was built in 1971 and it, with its associated infrastructure, is therefore not protected by heritage legislation. The three pipeline options commence at the Voëlvei Dam, to the north of the Elandsberg Nature Reserve. The reserve, with the historic farm houses of Bosplaas and Bartholomeus Klip (Figure 1), as well as the graveyard, situated on the Farm 1749/RE and 1749/1, were declared a PHS (Grade II) in September 2015. However, they are at least 12 km south of the proposed pipeline and will not be impacted.

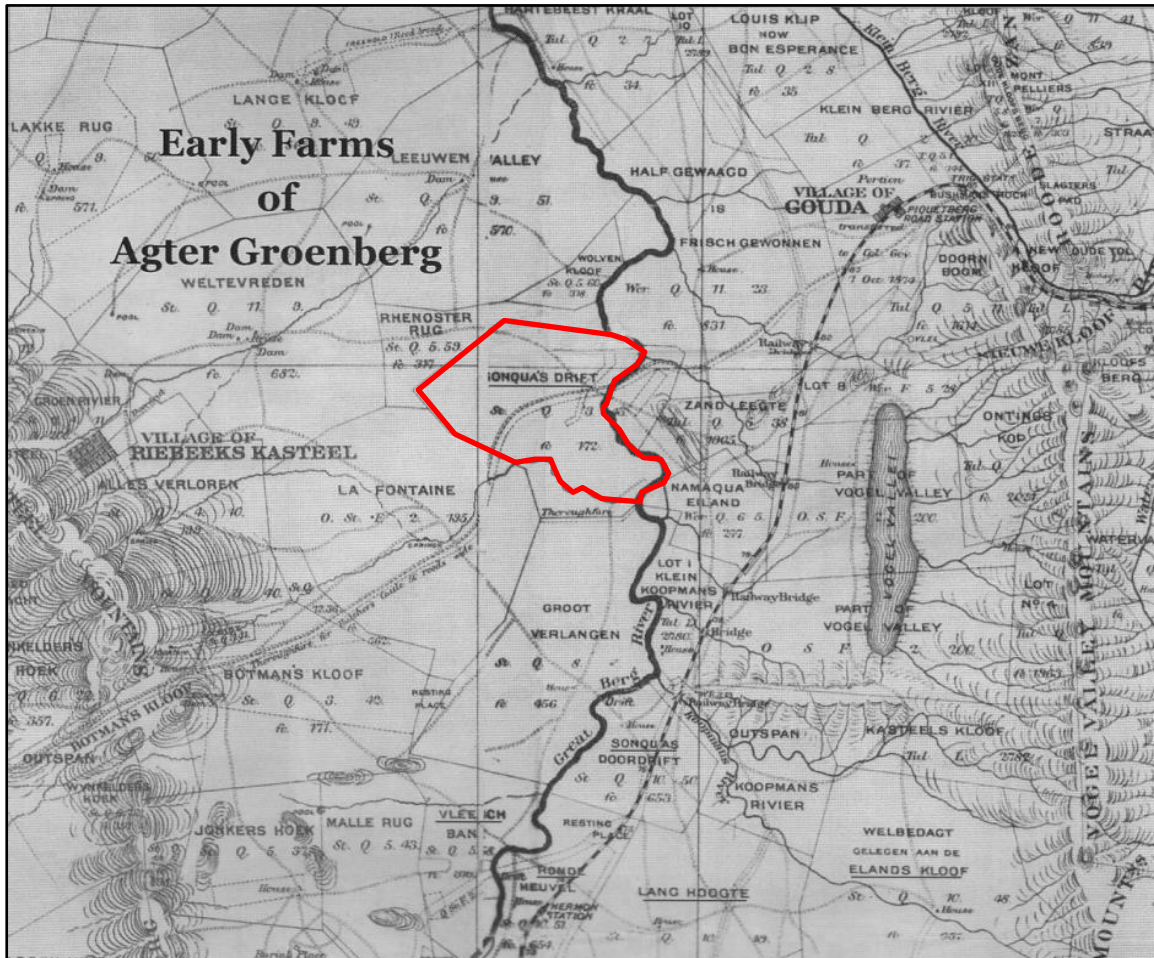


Figure 5: This map, from the 1890's, indicates that there was a large water body in the Vogel Valley, the precursor of the Voëlvei Dam. Between it and the river, lie the farms Namaqua Eiland and Zand Leegte. The historic Sonquas Drift is located across the Berg River (Athiros & Turner 2011).

The proposed pipeline option will follow the existing Voelvei Dam outlet canal to the Berg River, immediately north of the original Sonquas Drift crossing. The original wagon track from Riebeek Kasteel to Gouda crossed the Berg River at Sonquas Drift (Figure 6). The farm may have been granted to a Dirk Coetzee as early as 1718 (S.G. 19/1718), and by 1816 was owned by a Jacobus Redelinghuis (S.G. 180/1816) (Figure 6). However, the historic farmhouse of Sonquas Drift, is located to the south of the road, and will not be impacted.

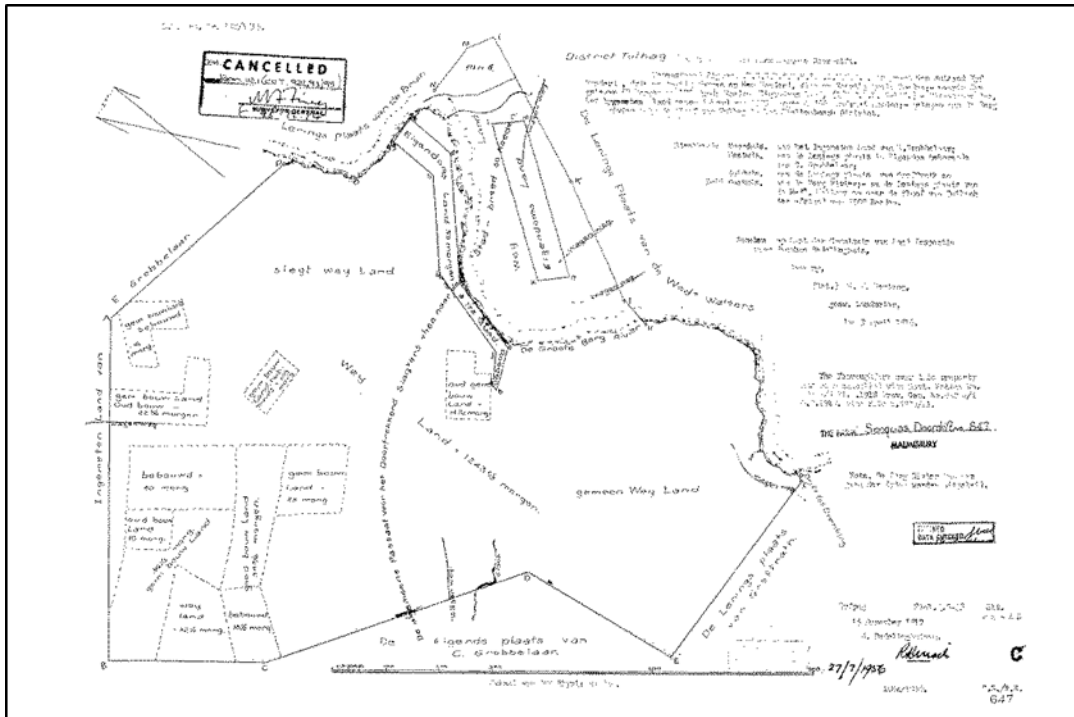


Figure 6: A map from the Surveyor General (S.G. 180/1816) of the farm Sonquas Doordrift.

5.4 Cultural Landscape and Scenic Routes

The landscape of the land between the Voëlvlei Dam and the Berg River comprises the wheat lands of the Swartland. To the south of the Voelvrei Dam is the Elandsberg Nature Reserve, an area of “outstanding biodiversity value”. It was declared a Natural Heritage Site in 1988 in recognition of having the largest single remnant of West Coast renosterveld vegetation.

The R44 runs past the Voëlvlei Dam, while the pipeline will run under the road and will not be visible. The R44 has not been identified as a scenic route by Winter & Oberholzer (2013).

6. FINDINGS

The area was surveyed by Lita Webley and David Halkett on 14 October 2016. Our tracks were recorded by means of Garmin GPS devices and all sites were digitally recorded (Figure 7).



Figure 7: Our field assessment tracks are shown in blue.

Photographs illustrating the study area are included below.



Figure 8: The position of Option 3 on the Voëlvlei Dam.



Figure 9: The Sonquas Drift crossing on the Berg



Figure 10: View of the wheatfields through which the pipeline and access roads will cross.



Figure 11: The position of the summer release outlet station on the banks of the Berg River.



Figure 12: The position of the pump station and weir on the Berg River

6.1 Archaeology

The majority of the study area is under wheat fields and there are no visible archaeological traces. A single heap of rocks, on the edge of a field and close to the Berg River and the location of the pump station and weir, produced a collection of ESA artefacts, including a single handaxe.



Figures 13 & 14: The collection of ESA stone tools and a handaxe found in a heap of stones at the edge of a wheat field on the farm Sonquas Drift 648/1 in proximity to the proposed pump station and weir.

6.2 Built Environment

One of the two access roads to the proposed pump station and weir on the Berg River, will run along the northern boundary of the farm Sonquas Drift 648/1 (Figure 2). The property has been described and graded by CK Rumboldt & Partners (2014) as part of their Swartland Rural Heritage Survey as having a grading of IIIB. Although not officially endorsed by HWC, the grading of the buildings on the farm is an indication of their significance. However, the access road will run at least 600m to the north-west and south-west of the farm house and no impacts will occur.



Figure 15: The derelict house and adjoining barn, on the werf Sonquas Drift 648/1 which are described as having Grade IIIB significance.

7. IMPACT ASSESSMENT

7.1 Impacts to Palaeontology

The pipeline route, through the wheatlands underlain by Malmesbury shales, is considered to have low palaeontological sensitivity and no impacts are expected. A protocol for dealing with fossil finds is required.

7.2 Impacts to Archaeology

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

The main cause of impacts to archaeological sites is direct, physical disturbance of the material itself and its context. The significance of an archaeological site is highly dependent on its geological and spatial context. Generally, impacts to archaeological sites are most severe during the construction period although indirect impacts may occur during the operational phase of the project.

Table 2: The potential impacts of the proposed pipeline options, access roads, pump station and weir on the archaeological resources of the area.

| | | |
|--|---------------------------|------------------------|
| Nature of Impact: Destruction of archaeological material, both above and below ground during the construction of the proposed project. | | |
| | Without Mitigation | With Mitigation |
| Extent | Local (1) | 1 |
| Duration | Permanent (5) | 5 |
| Magnitude | Minor (2) | 1 |
| Probability | Improbable (2) | 1 |
| Significance | Low (16) | 7 |
| Irreplaceable loss of resources? | No | No |
| Can impacts be mitigated? | N/A | N/A |
| Mitigation: If any heritage resources (particularly graves) are uncovered during construction, then work must stop, and HWC (Tel: 021 483 9685) must be notified. | | |
| Cumulative Impacts: Negligible | | |
| Residual Impacts: None | | |

With respect the ESA artefacts found on the edge of the wheatfields, these are of low significance (ungraded) and impacts are likely to be very low. No further mitigation is required (Table 2).

7.3 Impacts to Built Environment

The two alternative access roads through Sonquas Drift 648/1 and 648/2 will be used during construction of the pump station and weir on the Berg River, and more infrequently during the maintenance of these buildings.

Table 3: The potential impacts of the proposed pipeline options, access roads, pump station and weir on the built environment resources of the area.

| |
|---|
| Nature of Impact: Damage to historic buildings |
|---|

| | Without Mitigation | With Mitigation |
|---|---------------------------|------------------------|
| Extent | Local (1) | 1 |
| Duration | Permanent (5) | 5 |
| Magnitude | Minor (2) | 1 |
| Probability | Improbable (2) | 1 |
| Significance | Low (16) | 7 |
| Irreplaceable loss of resources? | No | No |
| Can impacts be mitigated? | N/A | N/A |
| Mitigation: None | | |
| Cumulative Impacts: Negligible | | |
| Residual Impacts: None | | |

It is not anticipated that there will be any impacts to the farmstead of Sonquas Drift 648/1.

7.4 Impacts to Cultural Landscape and Scenic Routes

The pipelines will be placed underground and once reburied and revegetated will not have lasting impacts on the landscape. Similarly, the access roads which are required for the construction of the pump station and weir (Goudklip 648/1) and the summer release outlet connection (Sonquas Doordrift 647/2) are gravel roads which run through farmlands and will not be visible.

The pump station and weir on Goudklip 648/1 and the summer release outlet connection on Sonquas Doordrift 647/2 are positioned on the banks of the Berg River, on private lands. They will not be visible and will have no impact on the Cultural Landscape.

8. CONCLUSIONS

It is concluded that the proposed development will have low impacts on the heritage resources of the area. Some ESA artefacts were found in a pile of rocks on the edge of a wheatfield. They are not of significance and no further mitigation is required. Similarly, one of the two access roads along the northern boundary of the farm Goudklip 648/1 but no impacts are expected.

9. RECOMMENDATIONS

With respect to the three alternative potential discharge options for the pipeline into the dam, all three options are acceptable from a heritage perspective, but Option 2, which follows existing infrastructure will have the least impact on below ground resources.

With regard the two road alternatives, both alternatives are acceptable.

It is recommended that the development may proceed.

If any heritage resources (particularly graves) are uncovered during construction, then work must stop, and HWC (Tel: 021 483 9685) must be notified.

10. REFERENCES

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