

PROPOSED PAULSHOEK BULK WATER SUPPLY, KAMIESBERG LOCAL MUNICIPALITY, NAMAKWA DISTRICT MUNICIPALITY, NORTHERN CAPE



BASIC ASSESSMENT REPORT **for comment**

JANUARY 2019

**PROPOSED PAULSHOEK BULK WATER
SUPPLY, KAMIESBERG LOCAL
MUNICIPALITY, NAMAKWA DISTRICT
MUNICIPALITY, NORTHERN CAPE**

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EXECUTIVE SUMMARY

Introduction

A proposed bulkwater supply system is proposed at Paulshoek, on Remainder of Farm Leliefontein 614. The Kamiesberg Municipality faces numerous challenges in terms of sustainable provision of water which puts significant pressure on the limited available water resources. Paulshoek currently has only one borehole that is operational. One additional borehole was drilled whereby the quality is not adequate for human consumption.

The new borehole was tested and the quantity of water that can be abstracted over the long term for use was found to be sufficient. The water quality was also tested and found to be unfit for long-term human consumption due to high levels of dissolved salts posing health related problems

The Kamiesberg Municipality is proposing to install a Reverse Osmosis water desalination plant and associated infrastructure to augment the supply of portable water to the town of Paulshoek. This additional water will be provided through the existing water distribution system.

The following proposed developments:

- Equipment of existing boreholes and equipment for additional boreholes,
- construction of a 228Kl clean water storage reservoir,
- installation of pipelines (maximum diameter of 160mm and maximum flow rate of 3l/sec.),
- construction of a Water Treatment Works (desalination plant) with a capacity of 180 kl/day operated over a period of 8 hours per day.
- 0.8 ha evaporation ponds (waste brine). Approximately 45kl/day of wastewater/effluent will be produced per day, which will be stored in the evaporation ponds. The evaporation ponds have a brine capacity designed for 20years. The evaporation ponds will be equipped with leak detections systems.

Environmental Requirements

The National Environmental Management Act (NEMA, Act 107 of 1998), as amended, makes provision for the identification and assessment of activities that are potentially detrimental to the environment and which require authorisation from the competent authority based on the findings of an Environmental Assessment. NEMA is a national act, which is enforced by the Department of Environmental Affairs (DEA). According to the regulations of Section 24(5) of NEMA, authorisation is required for the following:

Government Notice R327 (Listing Notice 1):

Activity 27: The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for;

- (i) the undertaking of a linear activity; or
- (ii) maintenance purposes undertaken in accordance with a maintenance management plan.

Government Notice R324 (Listing Notice 3):

Activity 12: The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.

Site Description

- Vegetation

The site would historically have been covered in Namaqualand Klipkoppe Shrubland (Least Threatened).

Both proposed sites overlaps already disturbed footprints located in a disturbed form of Namaqualand Blomveld (the result of continual overgrazing over a very long period of time). At present only very hardy unpalatable species remains at both sites.

From a botanical point of view, both sites overlaps disturbed open sandy areas, that can be described as degraded. Although both sites can be considered for development, Site 2 is floristically in slightly better shape (slightly less disturbed) than Site 1 and it overlaps a small seasonal drainage line (in its south-western corner) which will add to its potential significance. In both cases the development footprint should stay within the already disturbed sandy footprints, and away from the small drainage line.

- Freshwater

There are no watercourses (streams or wetlands) on the preferred site (Site 1), or within 32m of Site 1. The closest watercourse is a small ephemeral stream located approximately 50m south of the site. The proposed development on Site 1 is therefore expected to have no direct impacts on this watercourse.

- Heritage

The proposed development will not negatively impact on any significant archaeological resources, however the proposed pipeline runs alongside rock art site PLSK1 (grade IIIB). It is recommended that site PLSK1 be formally recorded. PLSK1 must not be impacted by the proposed development and a 20m buffer around the site must be implemented.

The overall palaeontological impact significance of the proposed Bulk Water Supply System development on the Remainder of Leliefontein 614 near Paulshoek, Namaqualand region of the Northern Cape, is considered to be VERY LOW. This is because the study area is underlain by unfossiliferous metamorphic basement rocks (granite-gneisses *etc*) and / or mantled by superficial sediments of low palaeontological sensitivity while the development footprint is very small.

Need and Desirability

Kamiesberg Municipality faces numerous challenges in terms of sustainable provision of water which put significant pressure on the limited available water resources. Paulshoek currently has only one borehole that is operational. One additional borehole was drilled whereby the quality is not adequate for human consumption.

The Kamiesberg Municipality is proposing to install a Reverse Osmosis water desalination plant and associated infrastructure to augment the supply of portable water to the town of Paulshoek. This additional water will be provided through the existing water distribution system.

The project will also create work opportunities during the construction phase of the development.

Conclusion

The overall environmental impact is expected to be Very Low (negative) to Insignificant, with the following mitigation measures proposed:

Botanical

- All construction must be done in accordance with an approved construction and operational phase Environmental Management Plan (EMP), which must include these recommendations.
- A suitably qualified Environmental Control Officer must be appointed to monitor the construction phase in terms of the EMP and any other conditions pertaining to specialist studies.
- Site 1 should be the preferred site, with Site 2 as an alternative. Please note that during the site visit the author also identified a further potential option immediately to the east of the existing reservoir site (Refer to point 3 in Figure 8), which can also be considered (as it also shows the same disturbance footprint as encountered at Site 1).
- Impacts on the small drainage line near the south-western corner of Site 2 should be avoided as it should be easy to fit the proposed evaporation ponds within the disturbed footprint without impacting on this feature.
- An application must be made to DENC for a flora permit in terms of the NCNCA with regards to impacts on species protected in terms of the act.
- Search & rescue operation must be implemented for individual plants that might be impacted as recommended in Table 3 (Page 21).
- Access must be limited to routes approved by the ECO.
- Before any work is done the site and access routes must be clearly demarcated (with the aim at minimal width/smallest footprint). The demarcation must include the total footprint necessary to execute the work, but must aim at minimum disturbance.
- Lay-down areas or construction sites must be located within already disturbed areas or areas of low ecological value (e.g. near the existing reservoir site) and must be pre-approved by the ECO.
- Indiscriminate clearing of any area outside of the construction footprint must be avoided.
- All areas impacted as a result of construction must be rehabilitated on completion of the project.
 - This includes the removal of all excavated material, spoil and rocks, all construction related material and all waste material.
 - It also included replacing the topsoil back on top of the excavation as well as shaping the area to represent the original shape of the environment.
- An integrated waste management approach must be implemented during construction.
 - Construction related general and hazardous waste may only be disposed of at Municipal approved waste disposal sites.
 - All rubble and rubbish should be collected and removed from the site to a suitable registered waste disposal site.

Heritage

- The proposed development will not negatively impact on any significant archaeological resources, however it is recommended that site PLSK1 be formally recorded.
- PLSK1 must not be impacted by the proposed development and a 20m buffer around the site must be implemented.
- There is no heritage objection to the proposed development and neither site is preferred from a heritage perspective. It is recommended that, pending the exposure of significant new fossils during development, exemption from further specialist palaeontological studies and mitigation be granted for this development.
- There are no objections on palaeontological heritage grounds to authorisation of the proposed bulk water supply development. Should any substantial fossil remains (e.g. vertebrate bones and teeth, shells, calcretised burrows) be encountered during excavation, however, these should be reported to SAHRA for possible mitigation by a professional palaeontologist (Contact details: Dr Ragna Redelstorff, SAHRA, P.O. Box 4637, Cape Town 8000. Tel: 021 202 8651. Email: rredelstorff@sahra.org.za).

It is therefore recommended that this application be authorised with the necessary conditions of approval as described throughout this BAR.