

**PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT
PROPOSED WATER PIPELINE AND POWERLINE CABLE
WEST COAST NATIONAL PARK**

Prepared for

SOUTH AFRICAN NATIONAL PARKS

By

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Executive summary

South African National Parks (SANParks) requested that the Agency for Cultural Resource Management conduct a Phase 1 Archaeological Impact Assessment for a proposed water pipeline and powerline cable, including bulk infrastructure, in the West Coast National Park, in the Western Cape Province.

The proposed water pipeline, connecting to a proposed reservoir at Padkamp near the Geelbek Intersection, will be located in the alignment of the old road that runs alongside the western shore of the Langebaan Lagoon, till Kraalbaai, a distance of 15.8 km.

The proposed underground cable will run from the existing Duinepos Electrical Transformer east of the historic Geelbek Farm, through natural veld to the Padkamp borehole and from Padkamp will run alongside the tar road to the West Coast entrance gate at the R27, a distance of about 10.0 km.

The receiving environment is currently zoned Indeterminate.

The extent of the proposed development (a linear development exceeding more than 300 m in length) falls within the requirements for an archaeological impact assessment as required by Section 38 of the South African Heritage Resources Act (No. 25 of 1999).

The aim of the study is to locate and map archaeological heritage sites and remains that may be negatively impacted by the planning, construction and implementation of the proposed project, to assess the significance of the potential impacts and to propose measures to mitigate against the impacts.

According to Dr A. Jerardino of Heritage Western Cape, completion of the 'Notification of Intent to Develop' checklist is not required, as both the pipeline and powerline cable will be located underground.

Except for some very thin, dispersed and mostly disturbed scatters of shellfish remains located alongside the Posberg fence line at Kraalbaai, and in open spaces among bush and scrub immediately west of the parking area at Kraalbaai, no other pre-colonial archaeological heritage remains were located in the proposed pipeline route.

No archaeological heritage remains were located in the proposed powerline route from the Duinebos Electrical Transformer to the West Coast entrance gate.

A single, fossilised white sand mussel shell (or similar type of bivalve) was located among a pile of excavated calcrete in the highly degraded, proposed reservoir site, at Padkamp near the Geelbek intersection. The site is currently used as a work camp and plant site and is in a severely disturbed and altered condition.

The Phase 1 Archaeological Impact Assessment has identified no significant impacts to pre-colonial archaeological material that will need to be mitigated prior to the proposed development activities.

Excavations for the proposed connecting pipeline may, however, expose or uncover human burials in the soft dune sands alongside the Postberg fence boundary at Kraalbaai.

Palaeontological (or fossil) heritage remains may also be exposed or uncovered from the underlying calcrete deposits during excavations for the proposed pipeline.

With regard to the proposed construction of a water pipeline and powerline cable (including associated bulk infrastructure) in the West Coast National Park, the following recommendations are made.

- Excavations for the proposed connecting pipeline at Kraalbaai must be monitored by a professional archaeologist.
- Given the known palaeontological importance of the calcrete deposits in the study area, the excavation trench for the proposed pipeline from Padkamp to Kraalbaai must also be inspected by a professional palaeontologist during the Construction Phase of the project.
- Should any human remains be disturbed, exposed or uncovered during earthworks for both the pipeline and powerline cable, these should immediately be reported to the South African Heritage Resources Agency (Mrs Mary Leslie @ 021 462 4502).

1. INTRODUCTION

1.1 Background and brief

South African National Parks (SANParks) requested that the Agency for Cultural Resource Management conduct a Phase 1 Archaeological Impact Assessment for a proposed water pipeline and powerline cable, including associated infrastructure, in the West Coast National Park, in the Western Cape Province.

The proposed pipeline, connecting to a proposed reservoir at Padkamp near the Geelbek Intersection, will be located in the alignment of the old road that runs alongside the western shore of the Langebaan Lagoon, till Kraalbaai, a distance of 15.8 km.

A proposed underground cable will run from the existing Duinepos Electrical Transformer east of the historic Geelbek Farm, through natural veld to the Padkamp borehole and from Padkamp will run alongside the tar road to the West Coast entrance gate at the R27, a distance of just over 10.0 km.

The receiving environment is currently zoned Indeterminate.

The extent of the proposed development (a linear development exceeding more than 300 m in length) falls within the requirements for an archaeological impact assessment as required by Section 38 of the South African Heritage Resources Act (No. 25 of 1999).

According to Dr A. Jerardino, Senior Heritage Officer Heritage Western Cape, completion of a 'Notification of Intent to Develop' checklist is not required, as both the water pipeline and powerline cable will be located underground.

The aim of the study is to locate, identify and map archaeological remains that may be negatively impacted by the planning, construction and implementation of the proposed project, and to propose measures to mitigate against the impact.

2. TERMS OF REFERENCE

The terms of reference for the archaeological study were:

- to determine whether there are likely to be any archaeological sites of significance in the proposed pipeline and powerline route, as well as the site for the proposed water reservoir;
- to identify and map any sites of archaeological significance within the proposed routes and reservoir site;
- to assess the sensitivity and conservation significance of archaeological sites within the proposed routes and reservoir site;
- to assess the status and significance of any impacts resulting from the proposed development, and
- to identify mitigatory measures to protect and maintain any valuable archaeological sites that may exist within the proposed routes and reservoir site.

3. THE STUDY SITE

A locality map is illustrated in Figure 1.

The study site is located in the West Coast National Park, on the Farm Stofbergfontein No. 265, about 130 kms north of Cape Town on the R27

An aerial photograph of the study area and the proposed pipeline route is illustrated in Figure 2.

An aerial photograph of the study area and the proposed powerline cable route is illustrated in Figure 3.

The route for the proposed pipeline, which comprises a 90 mm High Density Poly Ethylene pipeline, will transport water from a concrete reservoir at Padkamp near the Geelbek intersection (Figures 4 & 5), and in the alignment of the old road that runs alongside the western shore of the Langebaan Lagoon (Figures 6-8, 11 & 13), passing alongside the villages of Churchhaven (Figure 9) and Stofbergfontein (Figure 10).

A take-off point at Preekstoel (Figure 12) will provide water to six 10 000 litre Poly tanks placed behind the top of a sand dune to provide the necessary height for water pressure to the proposed new ablution facilities at Preekstoel (see report by Kaplan 2005). The pipeline will then continue alongside the tar road till Kraalbaai, where two more 10 000 litre storage tanks will be located behind a sand dune near the Postberg Nature Reserve fence line, to provide water for the proposed new ablution facilities at Kraalbaai (Figure 14 and Kaplan 2006 in prep.). The distance of the pipeline is 15.8 kms

An 11 kV high voltage electrical cable will also most likely be placed inside the same pipeline trench (Francois Marais Project Manager West Coast National Park, pers. comm.).

The route for the proposed underground cable will run from the existing Duinepos Electrical Transformer east of Geelbek Farm, through thick natural veld to Padkamp near the Geelbek intersection (Figures 15 & 16), a distance of 3.5 km. From Padkamp, the electrical cable will run right alongside the tar road, till the West Coast Entrance gate near the R27, a distance of about 6.6 km (Figures 17-20).

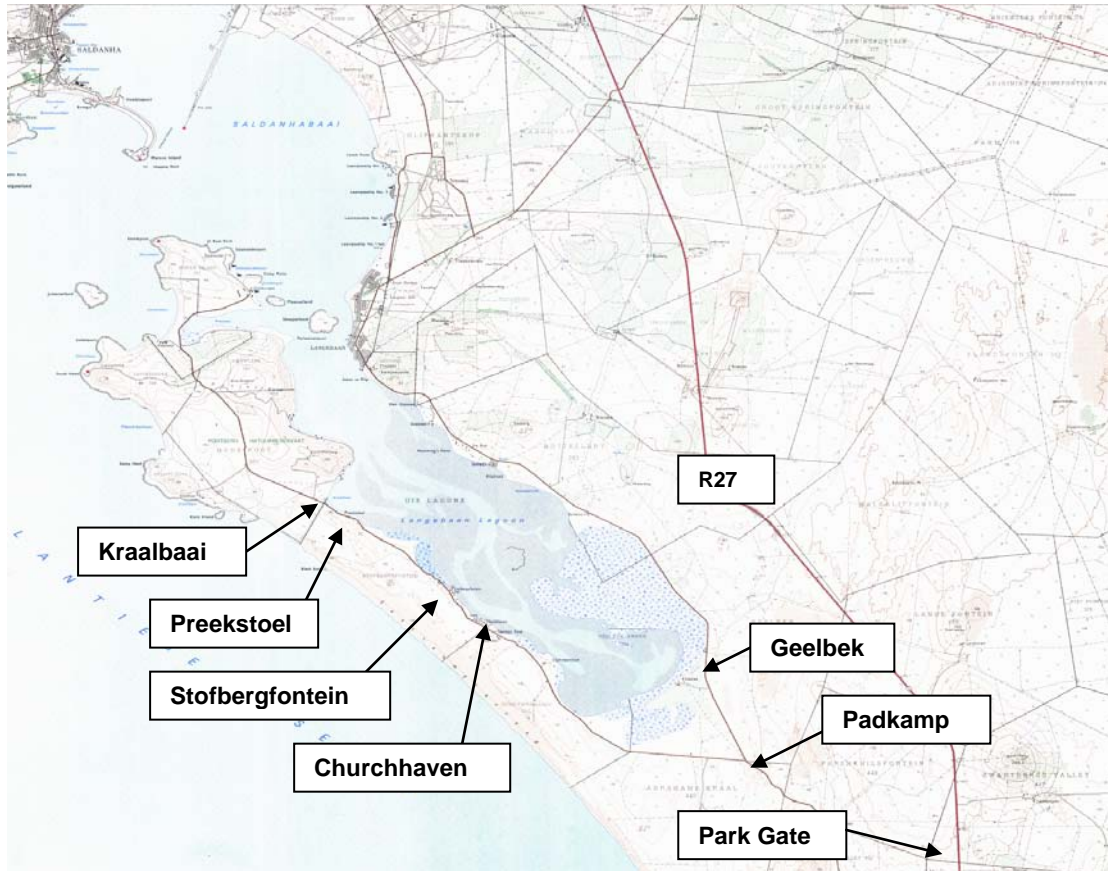


Figure 1. Site locality (3317 BB Saldanha Bay) illustrating place names along the proposed pipeline and powerline routes.



Figure 2. Aerial photograph of the study area. The yellow line indicates the route that the pipeline will take from 'Padkamp' near Geelbek, to the proposed rest camp site at Kraalbaai, a distance of 15.8 km.

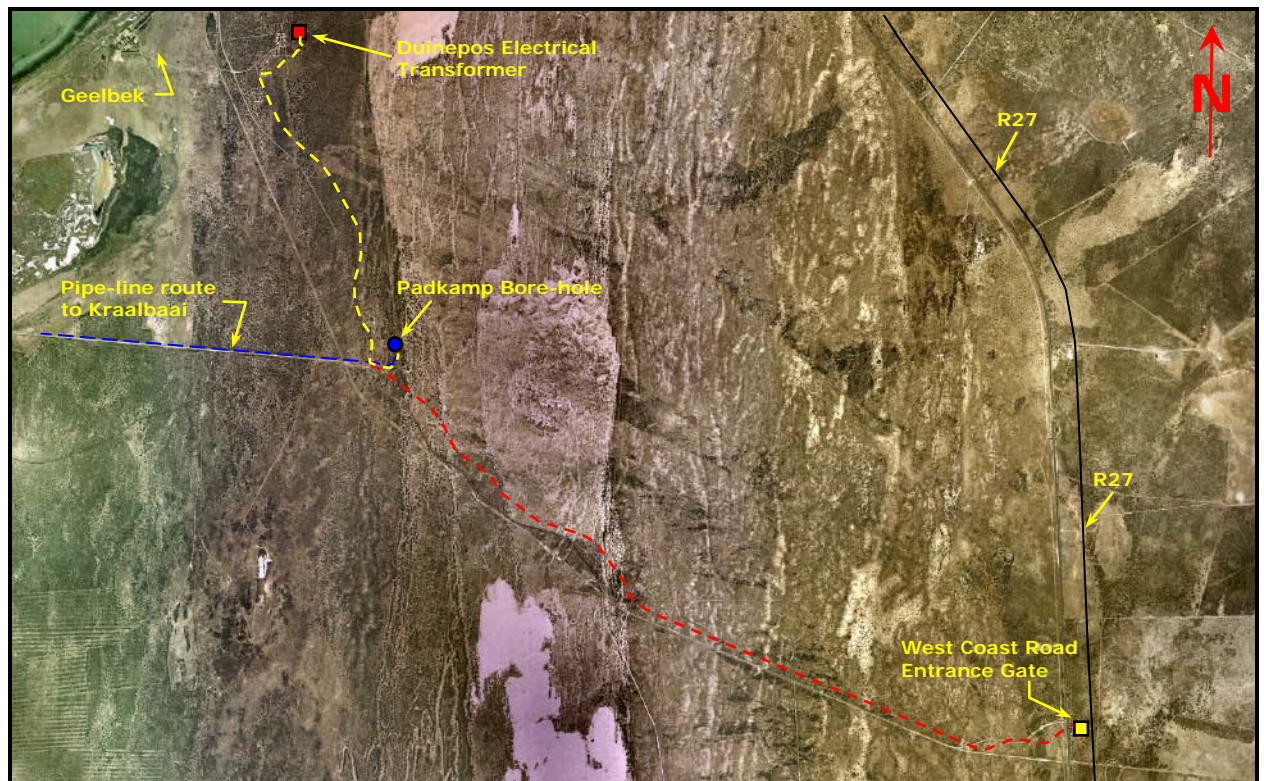


Figure 3. Aerial photograph of the study area illustrating the route for the Low Voltage Electrical Cable from the Duinepos Transformer to the West Coast entrance gate.



Figure 4. View of Padkamp (the reservoir site) facing north.



Figure 5. View of Padkamp and pipeline route facing east. Note the pump house in the left of the plate.



Figure 6. View of the route facing north west



Figure 7. View of the route facing north west



Figure 8. View of the route facing north. The Lagoon is to the right of the plate.



Figure 9. view of the route facing north. Churchhaven is the distance



Figure 10. View of the route facing south east. Stofbergfontein is in the distance



Figure 11. View of the route facing north just before the tar road



Figure 12. View of the route facing north. Preekstoel is in the distance



Figure 13. View of the route facing south.



Figure 14. View of Kraalbaai facing north.



Figure 15. View of the powerline route facing north, taken from the Geelbek intersection.



Figure 16. View of the powerline route facing south, taken from the Duinepos Electrical Transformer.



Figure 17. View of the powerline route facing north taken from the Park gate.



Figure 18. View of the powerline route facing north, taken from the Park Gate.



Figure 19. View of the powerline route facing north, taken from the Park Gate.



Figure 20. View of the powerline route facing north west, taken from the Park Gate.

4. APPROACH TO THE STUDY

4.1 Method of survey

The approach followed in the archaeological study entailed a vehicle and foot survey of the proposed pipeline and powerline routes, including the proposed concrete reservoir at Padkamp.

The steep cliffs alongside the pipeline route, as well as calcrete exposed during construction of the old road, were all searched for archaeological and fossil remains.

Where the proposed powerline cable between Padkamp and Park Gate runs alongside intersected dunes these areas were also searched for archaeological and fossil remains.

A desktop study was undertaken.

The site visit and assessment took place on the 24th of February and 01 March 2006.

4.2 Constraints and limitations

There were no constraints or limitations associated with the proposed project, although the proposed powerline route from Duinepos to Padkamp is at times covered in thick (sometimes impenetrable) veld, resulting in low archaeological visibility.

5. A BRIEF OVERVIEW OF THE ARCHAEOLOGICAL SIGNIFICANCE OF THE WEST COAST NATIONAL PARK

A desk-top study undertaken on behalf of the Department of Environment Affairs and Tourism (Kaplan 1993) established that many sites occur on the western shore of the Langebaan Lagoon, at Postberg, Kreefbaai, Kraalbaai and Stofbergfontein. A recent study has also located well preserved shell midden deposits, stone tools and pottery at Preekstoel (Kaplan 2005) and Kraalbaai (Kaplan 2006 in prep.).

A number of Later Stone Age and Middle Stone Age surface sites with faunal remains have also been mapped in the deflation bays of the Geelbek Dune system, about 1.5 km east of the Duinepos Electrical Transformer, at the southern most point of the Lagoon (Conard et al 1999).

Archaeological excavations have also been conducted in the Posberg Nature Reserve (Smith et al 1992:36), which gives a broad picture of aboriginal material culture and economic remains within the past 1000 years in the area.

Excavations at Oudepost I, a 17th century Dutch colonial outpost at Kraalbaai has also provided evidence for interaction between soldiers at the small garrison and local Khoi pastoralists more than 300 years ago (Schrire 1992).

More recently, 120 000 year old footprints were discovered in ancient fossil dunes at Kraalbaai (Roberts 1996), among the oldest modern human footprints in the world.

It is also well established that vertebrate fossils and archaeological occurrences in the Langebaan Limestone (calcrete) formations and associated deposits in the region are extremely valuable sources of information on the sedimentary, chronological, palaeoenvironmental and palaeoecological context of the development of modern human behaviour during the Middle Stone Age¹ (MSA) and perhaps even the Early Stone Age² (ESA) (Avery 1997).

The reasons for the abundance of fossil archaeological and palaeontological remains in the Langebaan area is in part related to the highly calcareous character of the aeolianites (fossil dunes) and shallow marine sediments. Bones and implements are readily preserved by the rapid carbonate cementation of the strata in which they become entombed.

¹ A term referring to the period between 200 000 and 20 000 years ago.

² A term referring to the period between 2 million and 200 000 years ago.

6. LEGISLATIVE REQUIREMENTS

6.1 The National Heritage Resources Act (Act No. 25 of 1999)

...the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development exceeding 300 m in length, requires an archaeological impact assessment in terms of Section 38 of the National Heritage Resources Act (No. 25 of 1999).

6.1.1 Structures (Section 34 (1))

No person may alter or demolish any structure or part of a structure, which is older than 60 years without a permit issued by the South African Heritage Resources Agency (SAHRA), or Heritage Western Cape.

6.1.2 Archaeology (Section 35 (4))

No person may, without a permit issued by the SAHRA or Heritage Western Cape, destroy, damage, excavate, alter or remove from its original position, or collect, any archaeological material or object.

6.1.3 Burial grounds and graves (Section 36 (3))

No person may, without a permit issued by SAHRA or Heritage Western Cape, 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.

7. RESULTS OF THE IMPACT ASSESSMENT

7.1 Pipeline from Padkamp to Kraalbaai.

A thin, very dispersed and disturbed scatter of fragmented shellfish was located on loose wind blown sands alongside the Posberg fence line at Kraalbaai (GPS reading S 33° 08 648 E 18° 01 347) at the northern end of the proposed route (refer to Figure 1). The shellfish is dominated by Scutellastra and Cymbula species as well as some Black Mussel (Choromytilus meridionalis). No stone flakes or other cultural items were located.

Several scatters of mainly fragmented shellfish (including some whole shell) and a few stone flakes were also noted on unconsolidated white sands in open spaces surrounded by thick bush and scrub near the bottom of the fence line, and north west of the existing parking lot at Kraalbaai (GPS reading 33° 08 556 S° 18 01 380 and Figure 21 & 22). The shellfish is dominated by Scutellastra and Cymbula species as well as some Black Mussel (Choromytilus meridionalis). Some large whole shell (Scutellastra argenvillei & S. granularis) also occurs, while smaller amounts of S. cochlear, C. granatina, C. miniata, and Alikreukel were noted. No pottery or other cultural items were found. It is important to note that the above remains **will not** be impacted by the proposed pipeline (my emphasis).

Several small footpaths and/or animal tracks cut through the thick bush west of the parking area. Dumping of building related rubble, including glass, bottles, rusted metal and plastic piping, is also very widespread and visible in the surrounding veld.

Dune-mole rat activity and larger animal burrowing also occurs. These and other archaeological remains have been reported elsewhere (Kaplan 2006 in prep.).

The above remains all occur in a fairly disturbed and degraded context.

The archaeological heritage remains have been graded low local significance.



Figure 21. Scattered shell fish remains north west of the parking lot at Kraalbaai.



Figure 22. The parking lot at Kraalbaai

7.2 Powerline from Duinepos to West Coast Gate.

No archaeological heritage remains were located in the proposed powerline route from the Duinepos Electrical Transformer to the West Coast gate.

7.3 Fossil finds

A complete, fossilised white sand mussel (or similar type of bivalve) was located among a pile of calcrete at the highly degraded proposed reservoir site at Padkamp (refer to Figure 1). The site is currently used as a work camp and plant site and is in a severely disturbed and altered condition (refer to Figure 4). Spoil dumps and rubble from old earthworks and excavations are highly visible in the surrounding area.

8. IMPACT STATEMENT

The impact of the construction of a proposed pipeline and powerline (and associated infrastructure) in the West Coast National Park, on important archaeological heritage remains is likely to be low.

Human burials may, however, be exposed or uncovered from soft dune sands near Kraalbaai during excavations for the proposed pipeline.

Fossil remains may also be intersected or exposed in the underlying calcrete deposits during excavations for the proposed pipeline, and may possibly be encountered during excavations for the proposed powerline cable.

9. RECOMMENDATIONS

With regard to the proposed construction of a water pipeline and powerline cable (including associated bulk infrastructure) in the West Coast National Park, the following recommendations are made.

- Excavations for the proposed pipeline at Kraalbaai must be monitored by a professional archaeologist.
- Given the known palaeontological importance of the calcrete deposits in the study area, the excavation trench for the proposed pipeline from Padkamp to Kraalbaai, must be inspected by a professional palaeontologist during the Construction Phase of the project.
- Should any human remains be disturbed, exposed or uncovered during earthworks for both the pipeline and powerline cable, these should immediately be reported to the South African Heritage Resources Agency (Mrs Mary Leslie @ 021 462 4502).

10. REFERENCES

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