

PHASE 1 ARCHAEOLOGICAL HERITAGE IMPACT ASSESSMENT OF THE PROPOSED UPGRADING OF THE NEW BOREHOLES AND WATER PIPELINES IN WILGERKLOOF ON THE FARM WANHOOP NO. 19, EDEN MUNICIPALITY, WESTERN CAPE PROVINCE.

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Note: This report follows the minimum standard guidelines required by the South African Heritage Resources Agency for compiling Archaeological Heritage Phase 1 Impact Assessment (AHIA) reports.

SUMMARY

Purpose of the study

To conduct a Phase 1 Archaeological Heritage Impact Assessment of the proposed upgrading of the new boreholes and water pipelines in Wilgerkloof on the Farm Wanhoop No. 19, Eden Municipality, Western Cape Province; to evaluate the importance of the archaeological heritage sites, the potential impact of the development and to make recommendations to minimize possible damage to these sites.

The investigation

The investigation was conducted in Wilgerkloof on the Farm Wanhoop from borehole 1 upstream along the proposed pipeline routes to boreholes 4 and 5. No archaeological sites/materials were found because the pipelines either follow the streambed (or close to) or gravel tracks. There are no buildings older than 60 years or any graves along the pipeline routes.

Cultural sensitivity

The area investigated is of low cultural sensitivity and development may proceed. It is highly unlikely that any archaeological or historical material would be located during development, but material may be exposed after the top soil is removed, for example human remains.

Recommendations

If any concentrations of archaeological material are exposed during construction, it should be reported immediately to Heritage Western Cape so that a systematic and professional investigation can be undertaken. Sufficient time should be allowed to remove/collect such material.

PROJECT INFORMATION

Status

The report is part of an Environmental Impact Assessment.

The type of development

The upgrading of two new boreholes and water pipeline in Wilgerkloof on the Farm Wanhoop. The Farm Wanhoop is located in the Eden District Municipality in the Western Cape Province and the water from the new boreholes will be piped to Willowmore, which is located in the Eastern Cape Province, some 35 km north of the development.

The Developer

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Terms of reference

The original proposal was to conduct a Phase 1 Archaeological Heritage Impact Assessment of the proposed upgrading of the new boreholes and water pipelines in Wilgerkloof on the Farm Wanhoop No. 19, Eden Municipality, Western Cape Province; to describe and evaluate the importance of the archaeological heritage sites, the potential impact of the development and to make recommendations to minimize possible damage to these sites.

BRIEF ARCHAEOLOGICAL BACKGROUND

Literature/research review

Little is known about the archaeology of the drier inland areas north of the eastern extension of the Cape Fold belt, because no systematic research has been conducted there. However, more general information is available for the adjacent Cape Mountains which can be extended to the Wanhoop area, which is located in and next to the foot hills of these mountains.

The oldest evidence of the early inhabitants are large stone tools made from river cobbles, called handaxes and cleavers (also known as the Acheulian Industry), which can be found throughout the region, usually near water sources such as rivers, springs or wetlands. These stone tools belong to a time period known as the Earlier Stone Age and date between approximately 1,4 million and 250 000 years old.

The Acheulian handaxes and cleavers were replaced by the so-called flake and blade industries of the Middle Stone Age (MSA). This time period, between 250 000-30 000 years ago, witnesses the emergence of the first anatomically modern humans by approximately 120

000 years ago. These long pointed flakes and blades are found throughout the region, also at Wanhoop. Unfortunately these open-air occurrences are difficult to date, and few caves and shelters in the region have well-preserved MSA deposits for dating.

Some 25 000 years ago the MSA gave way to the Later Stone Age (LSA), a time period marked by large scale technological changes. The period between 20 000 and 14 000 years ago experienced extremely cold climatic conditions which created favourable conditions for grassland expansion, which in turn gave rise to large herds of grazing animals. The mammal remains from archaeological sites indicate that there were several large grazing animal species living on the grassland, for example giant buffalo, giant hartebeest and the Cape horse. After 14 000 years ago the climate started to warm up again and caused the previously exposed grassland to disappear, causing the extinction of many of these grassland species. Between 10 000 and 8 000 years ago the terrestrial environment became more closed (bushier) giving rise to small browsing territorial animals that lived in small groups or pairs.

The LSA is characterised by several 'new' technological innovations while other cultural artefacts became more common, such as rock art. New microlithic stone tool types (some fixed to handles with mastic) emerged along with bows and arrows, containers (such as tortoise shell bowls and ostrich eggshell flasks which were sometimes decorated), decorative items and bone tools. For the first time people were buried in caves and shelters and often these burials are associated with grave goods and marked by painted stones.

Excellent preservation of organic material in some caves and shelters yielded remarkable botanical artefacts, such as digging sticks (4 500 years old), fire sticks (5 800), decorated wooden sticks (9 200) and almost complete mummified human remains dating to some 2 000 years ago. Other interesting features are 'storage pits' (hollows lined with plant material) which were used to store seeds for later use, and 'postholes' (often with post still *in situ*) (Binneman 1993, 1997, 1998, 1999, 2000).

For most of the past 20 000 years San hunter-gatherers lived in the cave rock shelters of the region and many still display paintings along the walls. In general the paintings are not well-preserved and appear to be of a similar 'style' throughout the region with the dominant colours being red and maroon, and red with black, with yellow and white being present to a lesser degree.

The first real change in the socio-economic landscape came some 2 000 years ago when Khoi pastoralists settled in the region. They were the first food producers in this area and introduced domesticated animals (sheep, goats and cattle) and ceramic vessels to the region. Not long after their arrival, the first Europeans rounded the Cape and greatly altered the prehistoric socio-economic landscape.

References

- Binneman, J.N.F. & Hall, S.L. 1993. The context of four painted stones from the Eastern Cape. *Southern African Field Archaeology* 2:89-95.
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- Binneman, J.N.F. 1999. Results from a test excavation at Groot Kommandokloof Shelter in the Baviaanskloof/Kouga region, Eastern Cape Province. *Southern African Field Archaeology* 8:100-107.
- Binneman, J.N.F. 2000. Results from two test excavations in the Baviaanskloof Mountains, Eastern Cape Province. *Southern African Field Archaeology* 9:81-92.

Museum/University databases and collections

The Albany Museum in Grahamstown houses collections and information from the region.

Relevant impact assessments:

Binneman, J. 2008. Phase 1 archaeological heritage impact assessment of the proposed construction of a water pipeline on the farm Wanhoop No. 19, Baviaans Municipality, Western Cape Province. Prepared for Anton Bok Aquatic Consultants cc. Port Elizabeth.

DESCRIPTION OF THE PROPERTY

Area surveyed

Location data

Farm Wanhoop No. 19, Baviaans Municipality, Eden Municipality, Western Cape Cape.

The Farm Wanhoop is approximately 35 km south of Willomore. It is situated along the north facing foothills of the Baviaanskloof Mountains and is used for general agricultural activities, stock grazing and game farming. The immediate environment is natural open mountain and valley veld which consists mainly of low shrubs, bushes and grass (Map 1-3). Two new boreholes (boreholes 4 and 5) were drilled in Wilgerkloof. Borehole 4 (33.30.625E; 23.31.585S) is situated approximately 450 m south of Borehole 1 as the crow flies, next to a small dry side stream. Borehole 5 (33.30.278E; 23.31.461S) is situated some 1,2 km north-east of borehole 1 on top of the ridge overlooking the Wilgerkloof. From these two boreholes the water will be piped to, and connected to the existing pipeline at borehole 1 (33.30.429E; 23.31.722S), which is situated at the entrance to Wilgerkloof (Maps 2-5). Both pipelines will follow existing tracks and will convert in the riverbed near Borehole 1, from where it will follow the dry riverbed to the existing pipeline.

Map

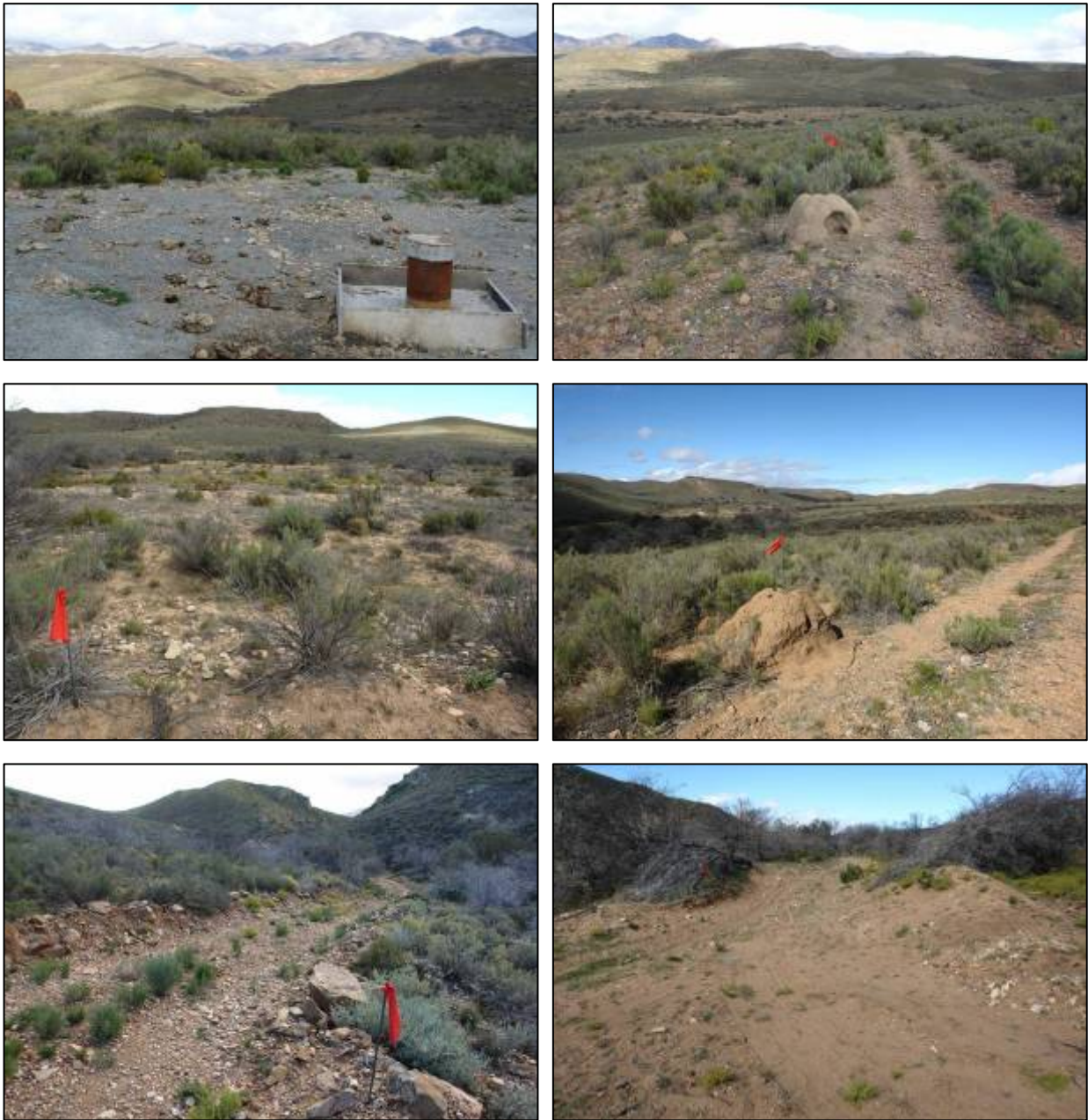
1:50 000 - 3323 BC Willomore (east).

ARCHAEOLOGICAL INVESTIGATION

Methodology

The investigation was conducted on foot. The two pipeline routes were investigated from the new boreholes to the existing pipeline at borehole 1. The surrounding cliffs at borehole 1 were previously investigated for possible rock art and the river gorges for archaeological sites and material. No rock art or any other archaeological sites/materials were found. However, occasional weathered quartzite Middle Stone Age stone tools were found in the river gravels on the banks of the streams outside Wilgerkloof. These were in secondary context and of low cultural significance (Binneman 2008).

The pipeline from Borehole 5 follows the track downhill through open natural veld, then crosses the riverbed and continues to follow the track along the side of hill to the riverbed where it converges with the pipeline from borehole 4 (some 1,5 km) (Figs 1-6). The route from borehole 4 (some 600 m) also follows a track along the side of the ridge to the riverbed where it joins the pipeline from borehole 5 (Figs 7-12). From the convergence the pipeline runs in the dry river bed for some 180 m). No archaeological sites/materials were found at any of the pipeline routes.



Figs 1-6. General view of borehole 5 (top left), the route downhill to the riverbed (top right), the crossing of the dry riverbed (middle left), route along the southern bank of the stream (middle right and bottom left) and the area in the streambed where the pipeline from borehole 5 converge with the pipeline from borehole 4. The route of the pipeline is marked by the red flags .



Figs 7-12. Figs 7-12. General view of borehole 4 (top left), the route downhill to the riverbed (top right and middle left), the area in the streambed where the pipelines from borehole 4 converge with the pipeline from borehole 5 (middle right) and the joint pipeline route to borehole 1 and the existing pipeline (bottom). The route of the pipeline is marked by the red flags .

RECOMMENDATIONS

1. If any concentrations of archaeological material are exposed during construction, all work in that area should cease and it should be reported immediately to the nearest museum/archaeologist or to the South African Heritage Resources Agency, so that a systematic and professional investigation can be undertaken. Sufficient time should be allowed to remove/collect such material (See Appendix B for a list of possible archaeological sites that maybe found in the area).

Conclusions

Although the surrounding Cape Fold Mountains are rich in archaeological heritage sites, the Wilgekloof area is relatively poor in cultural material. Apart from the Middle Stone Age stone tools found in the general Wanhoop area, it is unlikely that any other archaeological or historical heritage remains of any value will be found *in situ* or be of any contextual value. However, material may be exposed after the top soil is removed (i.e. human remains).

GENERAL REMARKS AND CONDITION

Note: This report is a phase 1 archaeological heritage impact assessment/investigation only and does not include or exempt other required heritage impact assessments (see below).

The National Heritage Resources Act (Act No. 25 of 1999, section 35) (see Appendix A) requires a full Heritage Impact Assessment (HIA) in order that all heritage resources, that is, all places or objects of aesthetics, architectural, historic, scientific, social, spiritual linguistic or technological value or significance are protected. Thus any assessment should make provision for the protection of all these heritage components, including archaeology, shipwrecks, battlefields, graves, and structures older than 60 years, living heritage, historical settlements, landscapes, geological sites, palaeontological sites and objects.

It must be emphasised that the conclusions and recommendations expressed in this archaeological heritage sensitivity investigation are based on the visibility of archaeological sites/features and may not therefore, reflect the true state of affairs. Many sites/features may be covered by soil and vegetation and will only be located once this has been removed. In the event of such finds being uncovered, (such as during any phase of construction work), archaeologists must be informed immediately so that they can investigate the importance of the sites and excavate or collect material before it is destroyed. The onus is on the developer to ensure that this agreement is honoured in accordance with the National Heritage Act No. 25 of 1999.

It must also be clear that Archaeological Specialist Reports (AIAs) will be assessed by the relevant heritage resources authority. The final decision rests with the heritage resources authority, which should grant a permit or a formal letter of permission for the destruction of any cultural sites.

APPENDIX A: brief legislative requirements

Parts of sections 35(4), 36(3) and 38(1) (8) of the National Heritage Resources Act 25 of 1999 apply:

Archaeology, palaeontology and meteorites

35 (4) No person may, without a permit issued by the responsible heritage resources authority—

- (a) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;
- (b) destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;
- (d) bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites.

Burial grounds and graves

36. (3) (a) No person may, without a permit issued by SAHRA or a provincial heritage resources authority—

- (a) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;
- (b) destroy, damage, alter, exhume, 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; or
- (c) bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation equipment, or any equipment which assists in the detection or recovery of metals.

Heritage resources management

38. (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorized as –

- (a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
- (b) the construction of a bridge or similar structure exceeding 50m in length;
- (c) any development or other activity which will change the character of the site –
 - (i) exceeding 5000m² in extent, or
 - (ii) involving three or more erven or subdivisions thereof; or
 - (iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or
 - (iv) the costs of which will exceed a sum set in terms of regulations by SAHRA, or a provincial resources authority;
- (d) the re-zoning of a site exceeding 10 000m² in extent; or
- (e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must as the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

APPENDIX A: IDENTIFICATION OF ARCHAEOLOGICAL FEATURES AND MATERIAL FROM INLAND AREAS: guidelines and procedures for developers

1. Caves and shelters

Often these features were inhabited by people in the past, such as the San and KhoiSan, and contain valuable archaeological deposits. These deposits and remains such as stone artefacts, bone, pot shards and ornaments are protected by legislation and must not be damaged by digging or collected. Contact the nearest archaeologist for information and advise regarding the protection and conservation of these features.

2. Rock art - paintings and engravings

Rock paintings are often found in caves, rock shelters and also in the open on boulders. They are easy to recognize and must be treated with care. No water or any other substances must be applied to the paintings. Rock engravings are pictures scratched, scraped and pecked into the dark surface of rocks with sharp objects to expose the lighter under surface. Contact the nearest archaeologist to provide information and advice regarding the protection and conservation of rock art.

3. Human Skeletal material

Human remains, whether the complete remains of an individual buried during the past, or scattered human remains resulting from disturbance of the grave, should be reported. In general human remains are buried in a flexed position on their side, but are also found buried in a sitting position with a flat stone capping. Developers are requested to be on alert for the possibility of uncovering such remains.

4. Freshwater mussel middens

Freshwater mussels are found in the muddy banks of rivers and streams and were collected by people in the past as a food resource. Freshwater mussel shell middens are accumulations of mussel shell and are usually found close to rivers and streams. These shell middens frequently contain stone tools, pottery, bone, and occasionally human remains. Shell middens may be of various sizes and depths, but an accumulation which exceeds 1 m² in extent, should be reported to an archaeologist.

5. Large stone cairns

They come in different forms and sizes, but are easy to identify. The most common are roughly circular stone walls (mostly collapsed) and may represent stock enclosures, remains of wind breaks or cooking shelters. Others consist of large piles of stones of different sizes and heights and are known as *isisivane*. They are usually near river and mountain crossings. Their purpose and meaning is not fully understood, however, some are thought to represent burial cairns while others may have symbolic value.

6. Stone artefacts

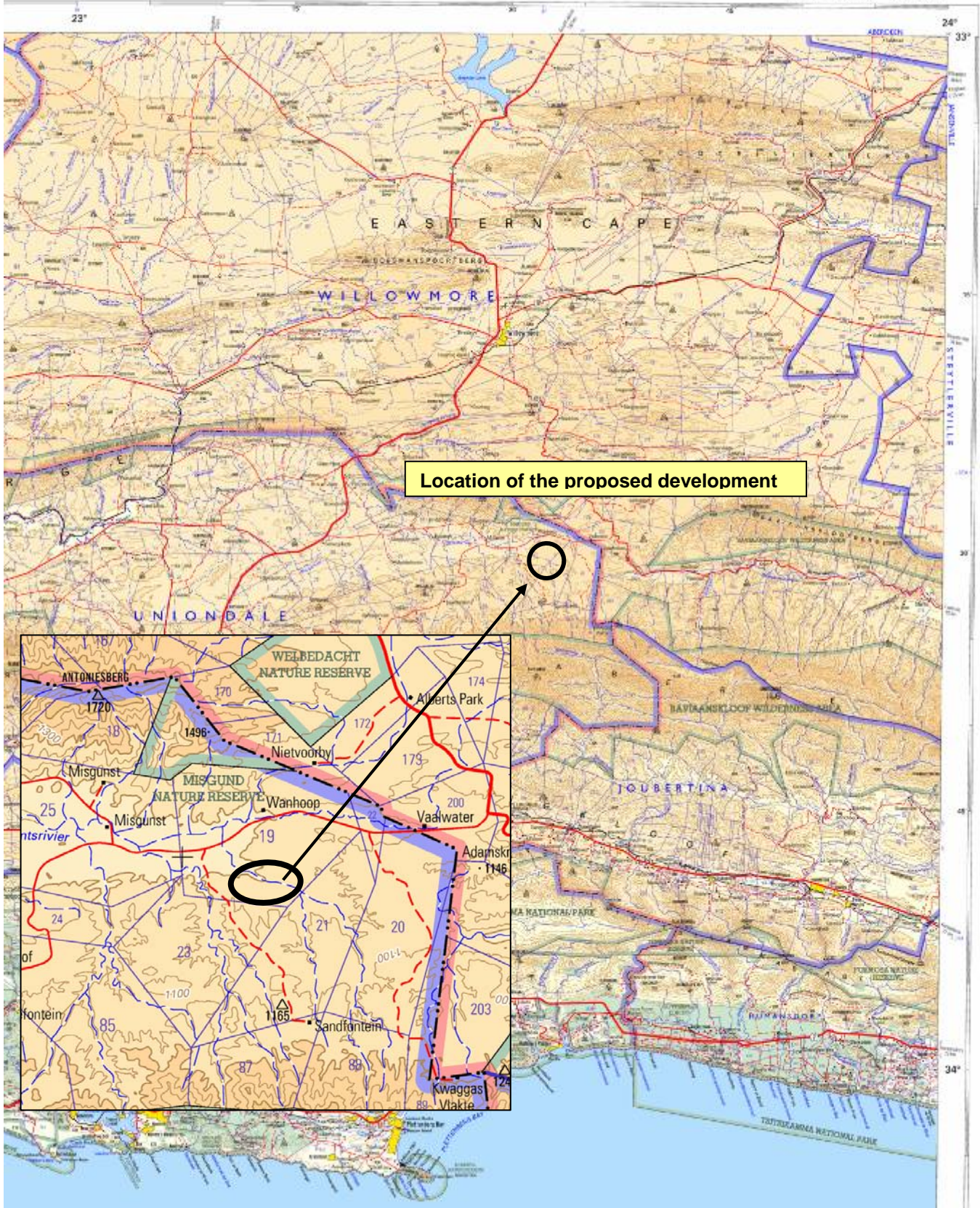
These are difficult for the layman to identify. However, large accumulations of flaked stones which do not appear to have been distributed naturally should be reported. If the stone tools are associated with bone remains, development should be halted immediately and archaeologists notified.

7. Fossil bone

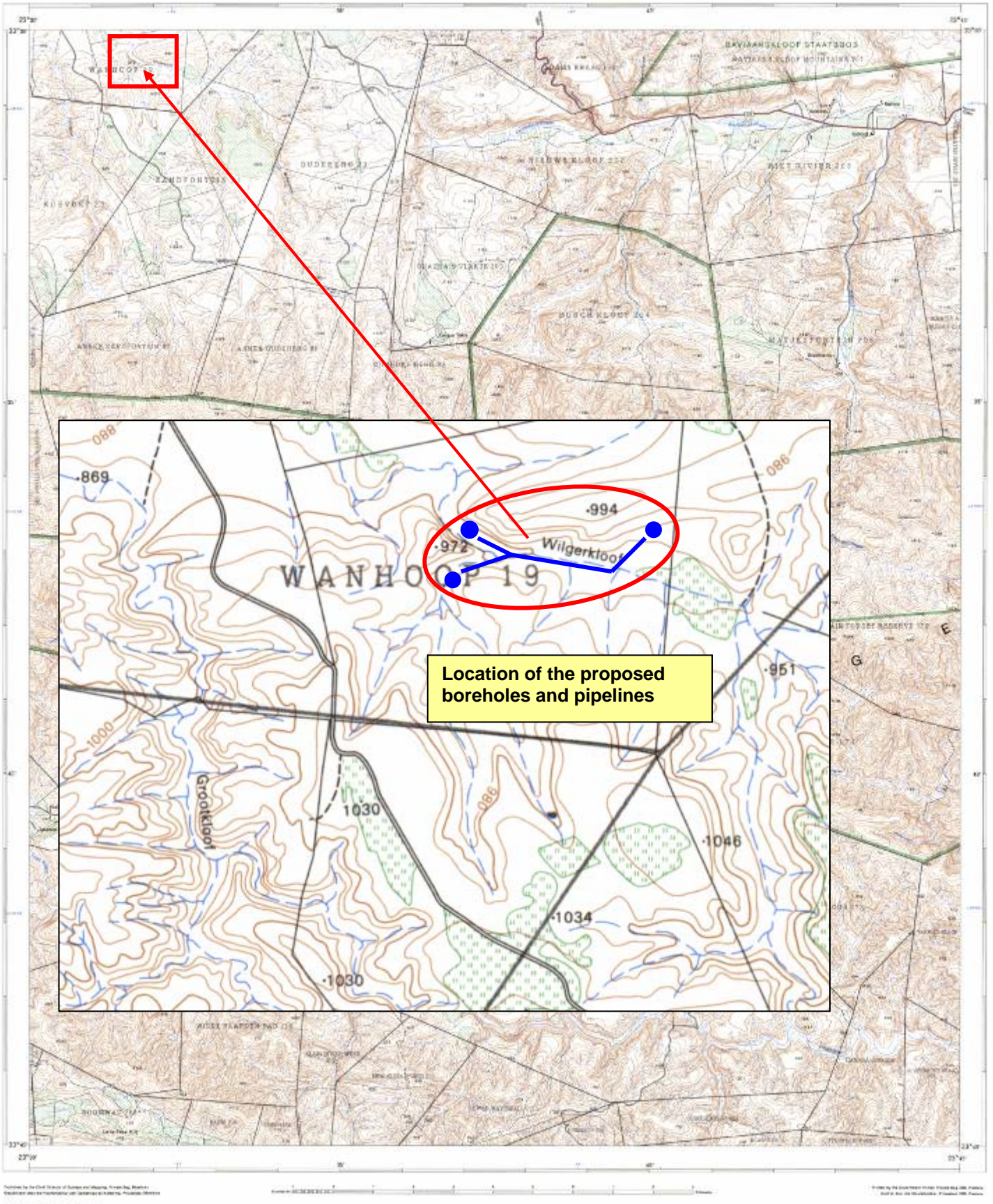
Fossil bones may be found embedded in geological deposits. Any concentrations of bones, whether fossilized or not, should be reported.

8. Historical artefacts or features

These are easy to identify and include foundations of buildings or other construction features and items from domestic and military activities.



Map 1. General location of the proposed Wanhoop borehole and pipeline upgrade scheme.



Map 2. General location of the boreholes and pipeline routes (blue dots and lines), in Wilgerkloof on the farm Wanhoop.

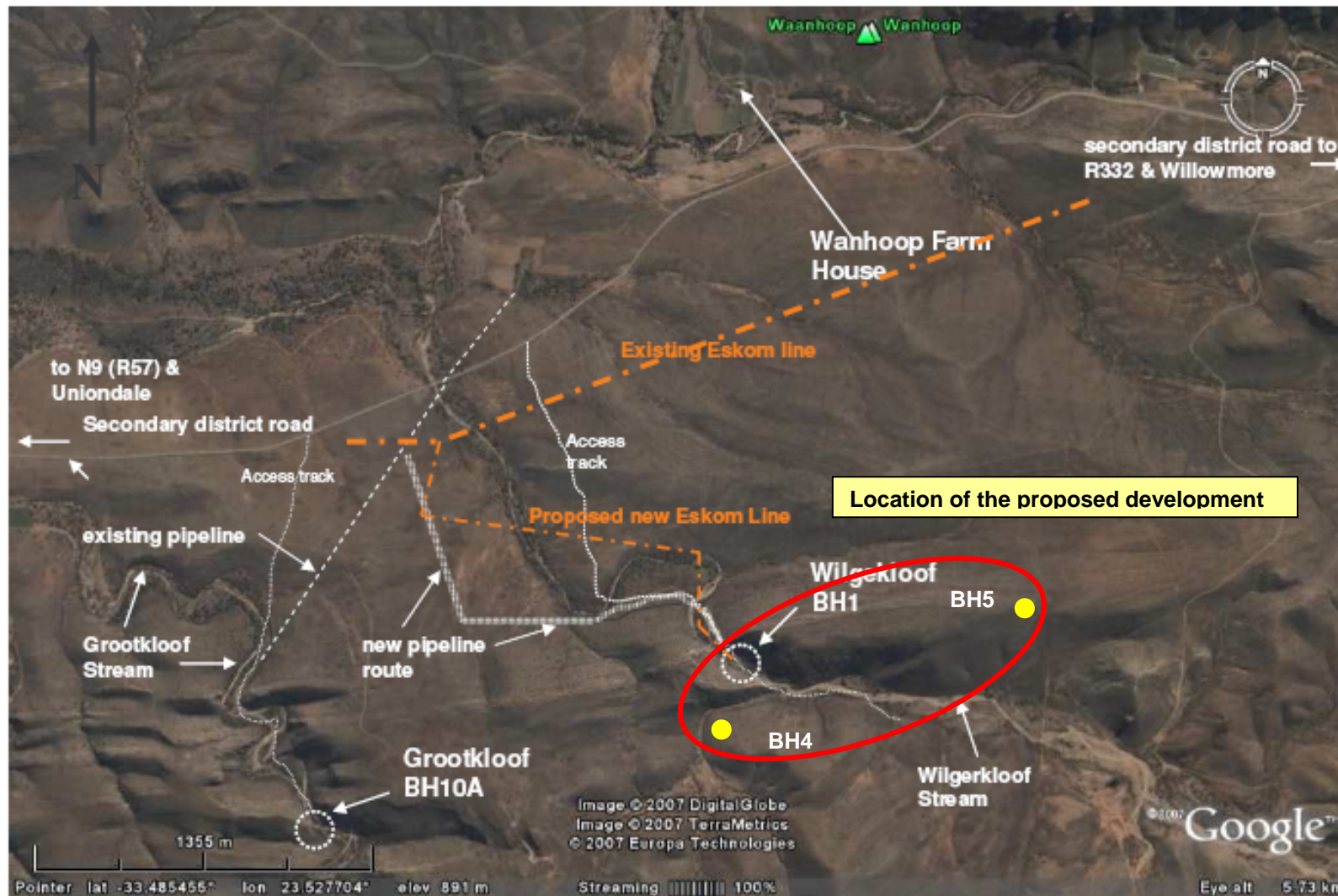
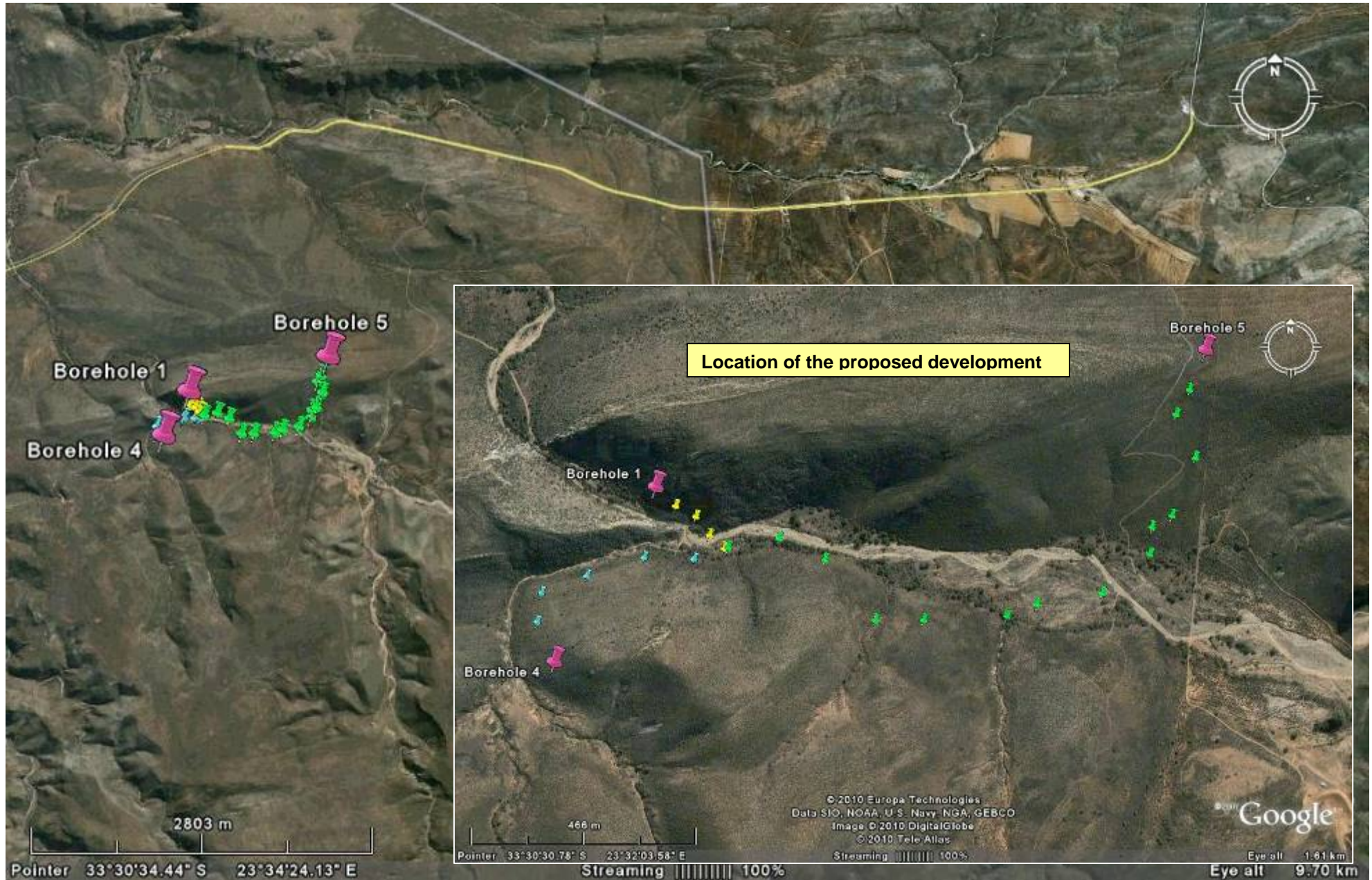
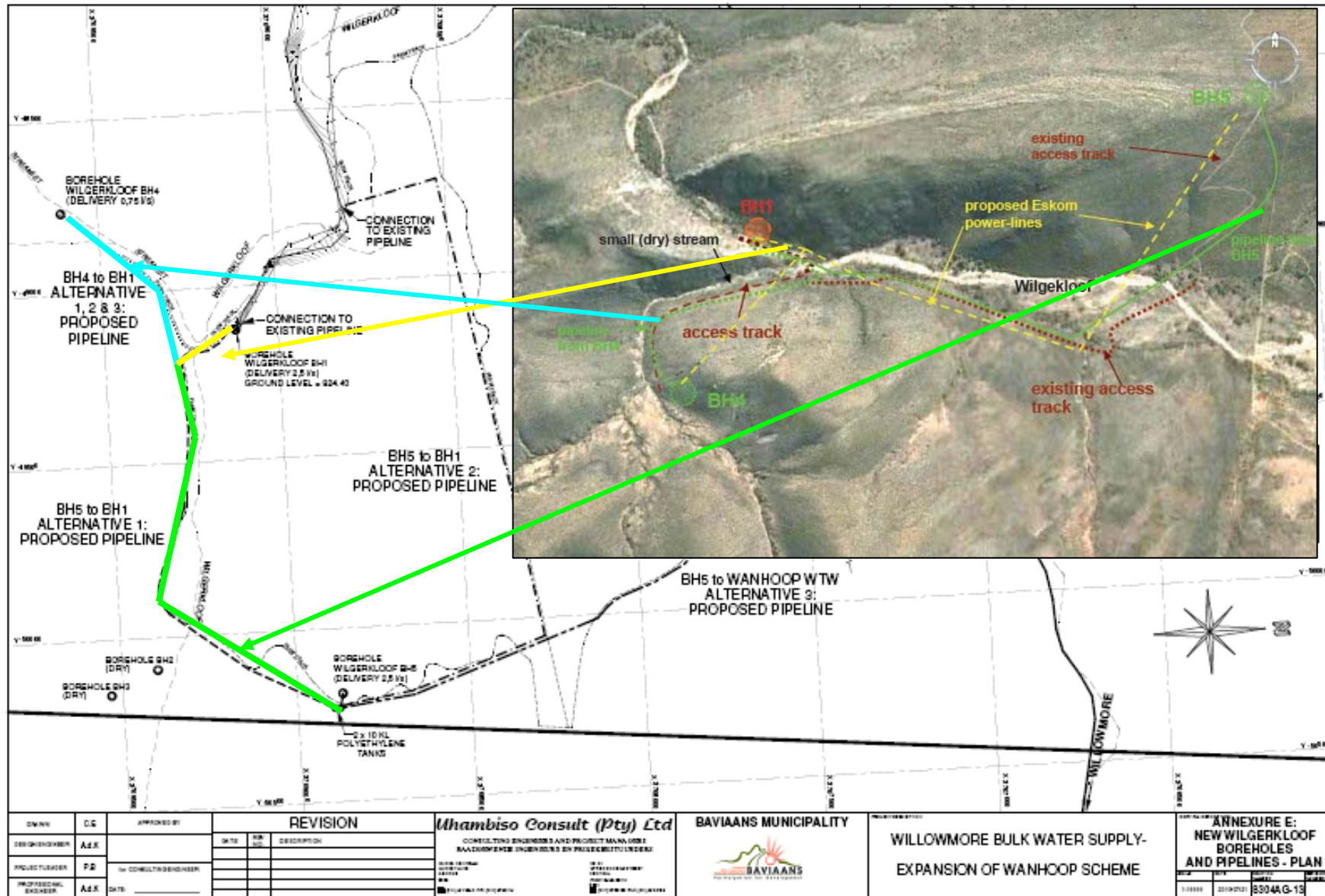


Figure B1. Site Plan (Google image) of Wanhoop Farm 19 showing location of 2 new boreholes (BH 10A in Grootkloof & BH1 in Wilgerkloof), new and existing pipe line, access roads and proposed Eskom line from the existing Eskom distribution line.

Map 3. Aerial view of the wider borehole and pipeline upgrade in Wilgerkloof on the farm Wanhoop (map courtesy of Anton Bok Aquatic Consultants cc). The red oval outlines the area of the current development and the yellow dots mark the boreholes.



Map 4. GPS locations of the borehole and pipeline upgrade in Wilgerkloof on the farm Wanhoop. The green pins mark the pipeline route from borehole 5 and the blue pins the pipeline route from borehole 4 to where they join the pipeline (yellow pins) to the existing pipeline.



Map 5. Plan of the Wilgerkloof borehole and pipeline upgrade on the farm Wanhoop (map courtesy of the developers). The green line marks the pipeline from borehole 5 and the blue line the pipeline from borehole 4. The yellow line marks the convergence of the two pipelines to the existing pipeline (insert map courtesy of Anton Bok Aquatic Consultants cc).