

**ARCHAEOLOGICAL IMPACT ASSESSMENT
OF 10 BORROW PITS AND FIVE NEW QUARRIES
FOR THE PROPOSED UPGRADING OF THE
GRAVEL ROAD BETWEEN
GARIES AND HONDEKLIPBAAI
NORTHERN CAPE**

Prepared for:

ENVIROLOGIC

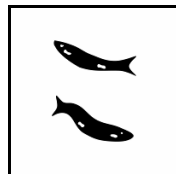
Att: Mr Gert Pretorius
PO Box 3731
Tyger Valley
7536

E-mail gpec12@telkomsa.net

Client:

**NORTHERN CAPE PROVINCIAL ADMINISTRATION:
DEPARTMENT OF ROADS AND PUBLIC WORKS**

By



Jonathan Kaplan

Agency for Cultural Resource Management

5 Stuart Road
Rondebosch
7700

Ph/Fax: 021 685 7589

Mobile: 082 321 0172

E-mail: acrm@waccess.co.za

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Executive summary

The Agency for Cultural Resource Management was commissioned to undertake an Archaeological Impact Assessment of 10 existing borrow pits and five proposed new quarries intended for the planned upgrading of the gravel road between Garies and Hondeklipbaai in the Namaqualand region of the Northern Cape.

The proposed project entails the upgrading of the DR2963 road from the N7 for about 11 kms towards Klipfontein, the upgrading of the OG120 road for about eight kms towards the MR739 (Garies-Hondeklipbaai Road) and the upgrading of the MR739 from the OG120/MR739 intersection for a distance of about 54 kms towards Hondeklipbaai. The upgrading of the main gravel 1.5 km access road in Hondeklipbaai to link up with Wag Wy Street is also planned.

There will be no widening of the actual existing roads, and upgrading will take place within the existing road alignments. Horizontal alignments will only be changed where the design demands it. The width of road will be 8 m and the road reserve 25 m.

Existing storm water structures will be replaced with concrete pipes and pre-fabricated concrete portals. Where needed, guardrails will be erected and gabion mats constructed to protect the road prism.

Road material (for fill) will be sourced from five proposed new quarries in close proximity to the affected roads, and from 10 existing borrow pits that occur alongside MR739. All material will be crushed and blended on site.

New access roads to three of the proposed new quarries will need to be constructed, while existing access roads to the other quarry sites will be upgraded.

The proposed new quarries will not exceed 1.5 ha in extent.

In terms of the Environmental Management Plan (EMP), the borrow pits and quarries will be rehabilitated, once sufficient volumes of source material has been quarried.

A three-day archaeological study took place in which the following findings were made:

- Borrow Pit 1: No archaeological remains were found in BP 1.
- Borrow Pit 2: No archaeological remains were found in BP 2.
- Borrow Pit 3: No archaeological remains were found in BP 3.
- Borrow Pit 4: One possible flaked quartz chunk was found in BP 4.
- Borrow Pit 5. One round quartzite core and flake were found in BP 5
- Borrow Pit 6. One large round quartzite core, one Middle Stone Age silcrete flake, one silcrete chunk, and a handful of 19th Century Annular Ware, and Blue and White porcelain were found in BP 6.

Archaeological study proposed upgrade of the gravel road between Garies and Hondeklipbaai

- Borrow Pit 7. No archaeological remains were found in BP 7.
- Borrow Pit 8. No archaeological remains were found in BP 8.
- Borrow Pit 9. One silcrete chunk and one re-used Middle Stone Age side/end scraper was found in BP 9.
- Borrow Pit 10. One silcrete flake, several isolated and dispersed quartz flakes, and a few fragments of Blue and White porcelain were found in BP 10.
- Quarry A: One quartz flake and two quartz chunks were found in the proposed footprint area.
- Quarry B: No archaeological remains were found in the proposed footprint area.
- Quarry C: One silcrete Later Stone Age flake was found in the proposed footprint area.
- Quarry D: No archaeological remains were found in the proposed footprint area.
- Quarry E: Three weathered pieces of ostrich eggshell, one LSA silcrete flake and chunk, one quartz flake, one quartz chunk, one quartz crystal and one quartzite hammerstone were found in the proposed footprint area.

It is important to note that since the archaeologist undertook the baseline study in November 2011 the footprint area for the five new quarry sites has been modified. While the modifications are mostly quite minor, new footprint areas for Quarry D and Quarry E have been identified. It is, however, the archaeologist opinion, that a search of the new footprint areas, which are less 1.5 ha in extent, is not required, nor justified, since the findings have shown that the archaeological sensitivity of each of the quarry sites is very low.

No graves or cemeteries occur in any of the proposed new quarries or borrow pits.

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

Indications are that each of the borrow pits and proposed new quarry's is suitable for re-use and quarrying, and that there will be no negative archaeological impacts.

It is maintained that the receiving environment is not a sensitive archaeological landscape.

While there may be initial negative visual impacts with regard to Quarry D and E, in terms of the Environmental Management Plan (EMP), the proposed new quarries will all be rehabilitated.

Archaeological study proposed upgrade of the gravel road between Garies and Hondeklipbaai

With regard to the proposed upgrading of the gravel road between the N7 and Hondeklipbaai, the following recommendations are therefore made:

- No archaeological mitigation is required.
- The 10 borrow pits are suitable for re-use.
- The proposed new quarries are suitable for quarrying.
- In the unlikely event of any unmarked human burials or ostrich eggshell caches being uncovered during quarrying operations, these must immediately be reported to the archaeologist, or the South Africa Heritage Resources Agency (Att: Ms Mariagrazia Galimberti 021 462 4502).

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1. INTRODUCTION

1.1 Background and brief

Enviro Logic, on behalf of the Northern Cape Provincial Administration: Department of Roads and Public Works, requested that the Agency for Cultural Resource Management conduct an Archaeological Impact Assessment (AIA) of 10 existing borrow pits and five new quarries, intended for the upgrading of the gravel road between Garies (alongside the N7) and Hondeklipbaai (on the coast) in the Namaqualand region of the Northern Cape (Figures 1 & 2).

The proposed project entails the upgrading of the DR2963 road from the N7 for about 11 kms towards Klipfontein, the upgrading of the OG120 road for about eight kms towards the MR739 (Garies-Hondeklipbaai Road) and the upgrading of the MR739 from the OG120/MR739 intersection for about 54 kms towards Hondeklipbaai. The upgrading of the main gravel access road in Hondeklipbaai to link up with Wag Wy Street is also envisaged.

There will be no widening of the actual existing roads, and upgrading will take place within the existing road alignments. Horizontal alignments will only be changed where the design demands it. The width of road will be 8 m and the road reserve 25 m. MR739 crosses several seasonal streams and some are located inside the 1:100 year flood line of the Spoeg River.

Existing storm water structures will be replaced with concrete pipes and pre-fabricated concrete portals. Where needed, guardrails will be erected and gabion mats constructed to protect the road prism.

Road material will be sourced from five new quarry sites in close proximity to the affected roads, and 10 existing borrow pits that occur alongside the MR739. All material will be crushed and blended on site.

New access roads to Quarries B, D and E will need to be constructed, while existing access roads to Quarries A and C will be upgraded.

The proposed new quarries, at Swartrug, Klipfontein, Leliefontein, Avontuur and Baksteenhoek will not exceed more than 1.5 ha in extent.

In terms of the Environmental Management Plan (EMP), the borrow pits and quarries will be fenced and rehabilitated, once sufficient volumes of source material has been utilized.

2. LEGAL FRAMEWORK

Section 38 (1) of the National Heritage Resources Act (Act No. 25 of 1999) makes provision for a compulsory Heritage Impact Assessment (HIA) when an area exceeding 5000 m² is being developed. This is to determine if the area contains heritage sites and to take the necessary steps to ensure that they are not damaged or destroyed during development.

Archaeological study proposed upgrade of the gravel road between Garies and Hondeklipbaai

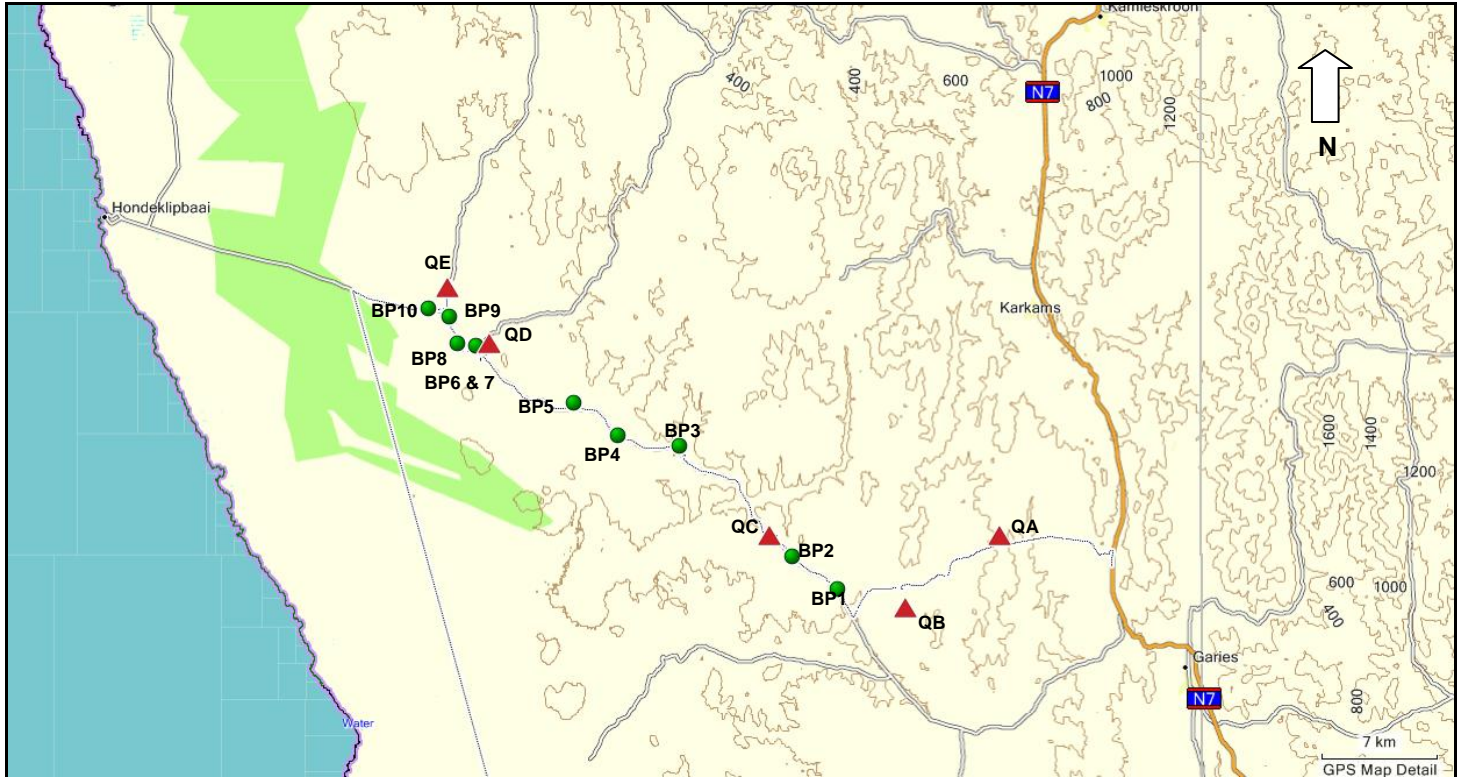


Figure 1. Locality map illustrating position of the 10 existing borrow pits and five proposed new quarries.

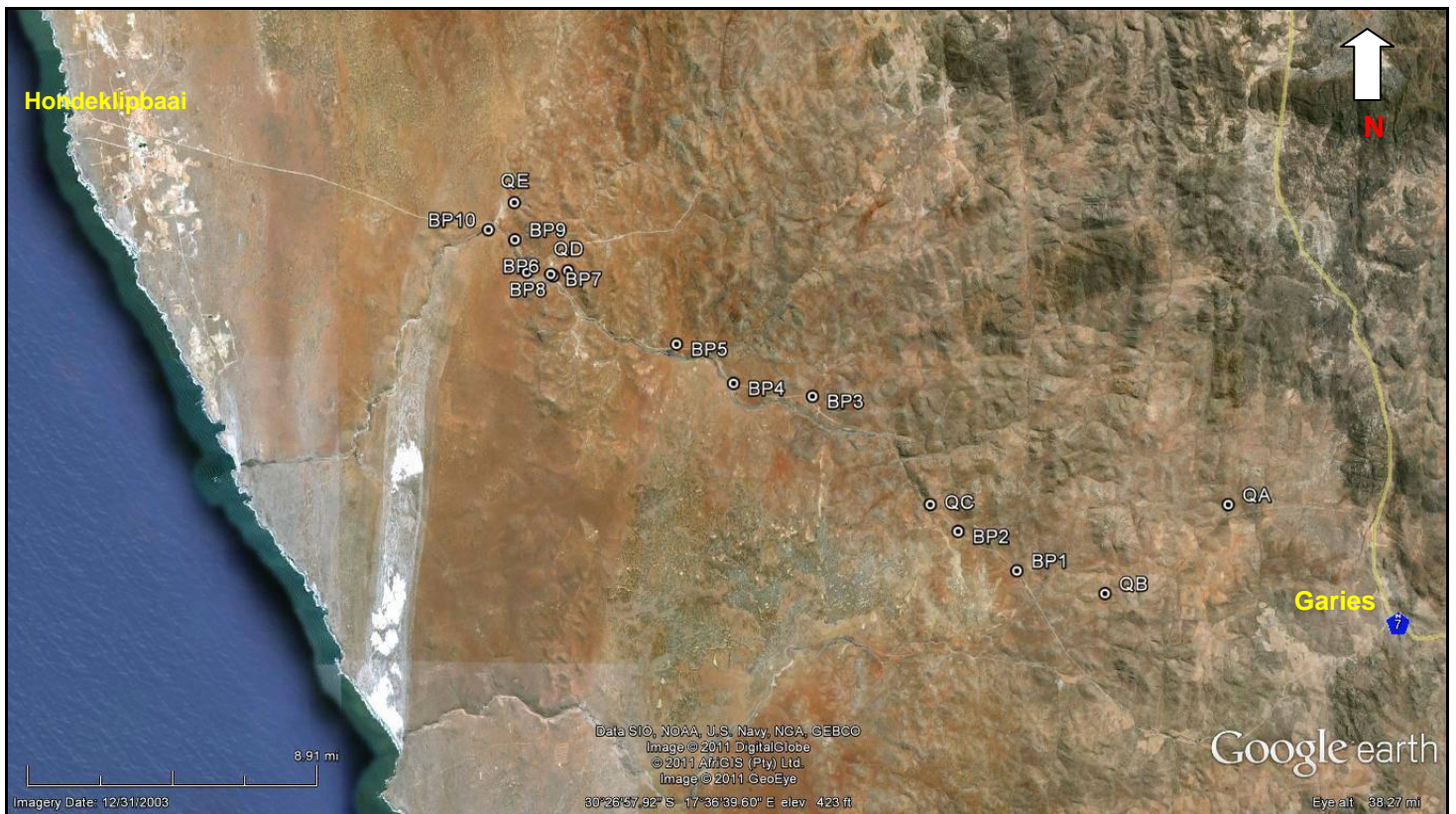


Figure 2. Figure 20. Google aerial photograph illustrating the location sites of the 10 existing borrow pits (BP1-BP10) and the proposed five new quarries (QA-QE)

3. TERMS OF REFERENCE

The terms of reference for the archaeological study were:

- To identify and map any archaeological remains that occur within the borrow pits and proposed new quarries;
- To assess the sensitivity and conservation significance of archaeological remains within the borrow pits and proposed new quarries;
- To assess the status and significance of any impacts resulting from the proposed quarrying of road material, and
- To identify measures to protect and maintain any valuable archaeological sites or remains that may exist within the borrow pits and proposed new quarries.

4. STUDY APPROACH

4.1 Method

Each of the 10 borrow pits and the proposed five new quarries were searched for archaeological remains.

All archaeological occurrences documented during the study were mapped using a Garmin Oregon 300 GPS unit, set on the map datum wgs 84.

The site visit and assessment took place between the 13th and 15th November, 2011.

It is important to note that since the archaeologist undertook the baseline study in November 2011 the footprint area for the five new quarry sites has been modified. While the modifications are mostly quite minor, new footprint areas for Quarry D and Quarry E have been identified. It is, however, the archaeologist opinion, that a search of the new footprint areas, which are less 1.5 ha in extent, is not required, nor justified, since the findings have shown that the archaeological sensitivity of each of the quarry sites is very low.

4.2 Constraints and limitations

There were no constraints or limitations associated with the study. Access to each of the borrow pits, and the proposed new quarry sites was easy, and while Quarry A and BP 3 were covered in quite dense natural veld, overall, archaeological visibility was mostly very good.

4.3 Identification of potential risks

Based on the results of the study, there are no archaeological risks associated with the proposed project.

It is very unlikely, but unmarked human remains or buried ostrich eggshell caches may be uncovered or exposed during quarrying activities.

5. DESCRIPTION OF THE AFFECTED ENVIRONMENT

5.1 BP 1 (S 30 31.145 E 17 45.540)

BP 1 is located directly alongside (i.e. north of) MR739 - Garies-Hondeklipbaai Road (Figures 3 & 4). Material will be re-used from the borrow pit, while additional fill will be exploited from the western and northern edges. There are no significant landscape features on the proposed site. The receiving environment is very, degraded. There are numerous small tracks and 2 x 2 tracks that intersect the site and trampling and overgrazing by cattle and goats is heavy. Surrounding land use is vacant land/grazing.



Figure 3. Google aerial photograph of BP 1



Figure 4. Borrow Pit 1. View facing north east

5.2 BP 2 (S 30 30.100 E 17 43.727)

BP 2 is located directly alongside (i. e. north of) MR739. Existing material and spoil dumps from the borrow pit will be used for fill, and a small section to the north will be cut back for new gravel (Figures 5-7). There are no significant landscape features on the proposed site, although an outcropping of granite does occur about 150 m to the northwest. The surrounding area is heavily trampled and degraded, and the south western slopes are eroded and sheet washed. There are several old tracks and roads that intersect the borrow pit and the surrounding area. Surrounding land use is vacant land/grazing.



Figure 5. Google aerial photograph of BP 2



Figure 6. BP 2. View facing south west



Figure 7. BP 2. View facing south

5.3 BP 3 (S 30 26.517 E 17 39.264)

BP 3 is located alongside (i. e. north) of MR739 and partly within a dry river bed. Fill material will be sourced from the borrow pit, and new material will be exploited from the northern and north eastern edges, which are covered in fairly thick veld and ground cover (Figures 8-10). The surrounding area has been quite heavily trampled and grazed and there are several 2 x 2 tracks that intersect the area.



Figure 8. Google aerial photograph of BP 3



Figure 9. BP 3. View facing north east



Figure 10. BP 3. View facing south

5.4. BP 4 (S 30 26.171 E 17 36.840)

BP 4 is located directly alongside (i. e. north of) MR739. Existing gravel will be sourced from the borrow pit and new fill material will be exploited from the western, northern and north eastern edges (Figures 11-13). The receiving environment is covered in natural veld and some ground cover, but there are patches of open ground in places. There are no significant landscape features on the proposed site. There are several small tracks that intersect the site and a small dry stream cuts through the western portion of the borrow pit, that discharges into the Spoeg River south of the road. Surrounding land use is vacant land/grazing.



Figure 11. Google aerial photograph of BP 4



Figure 12. BP 4. View facing south west



Figure 13. BP 4. View facing south east

5.5 BP 5 (S 30 25.129 E 17 35.086)

BP 5 is located directly alongside (i. e. north of) MR739. Existing fill will be sourced from the borrow pit and new material will be exploited from around the edges of the pit (Figures 14-16). The receiving environment in the north and north east is covered in natural veld. In the south, the receiving environment is degraded and is quite heavily overgrazed. There are several small tracks that intersect this portion of the site, as well as around the perimeter of the borrow pit in the north. A, long deep trench (possibly a diamond prospecting trench) has been excavated to the south east of the borrow pit. Surrounding land use is vacant land/grazing.

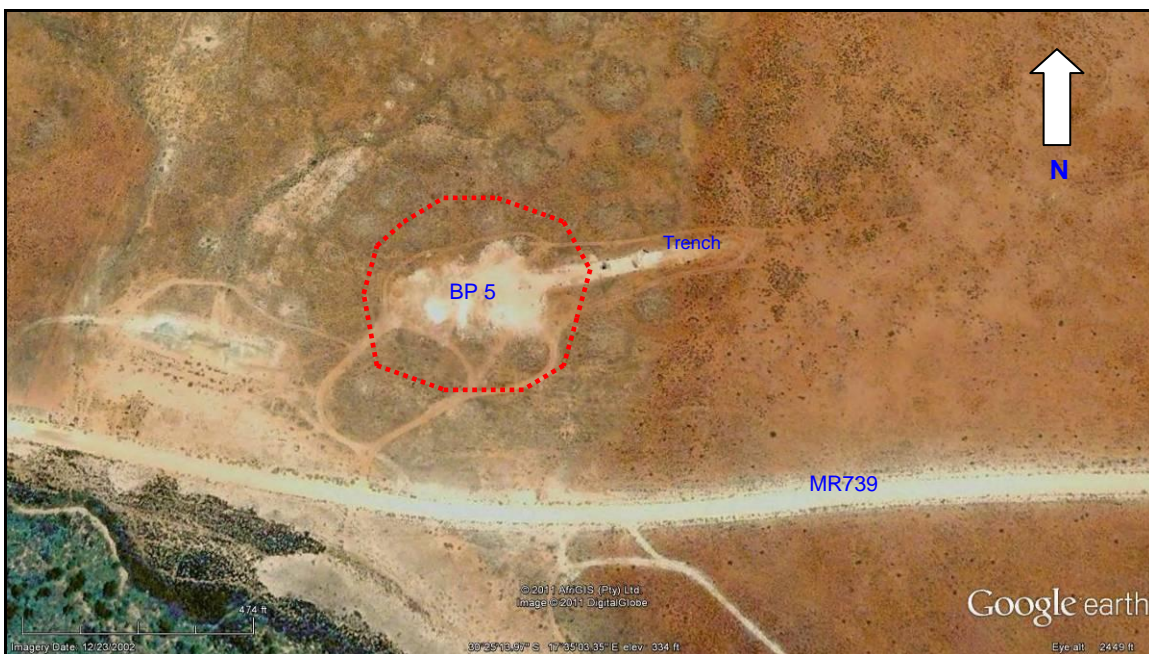


Figure 14. Google aerial photograph of BP 5



Figure 15. BP 5. View facing north east



Figure 16. BP 5. View facing south west

5.6 BP 6 (S 30 23.306 E 17 31.302) & BP 7 (S 30 23.265 E 17 31.222)

BP 6 and BP 7 are situated directly adjacent each other, alongside (i. e. north of) MR739. The large borrow pits have been extensively exploited and new fill material will be cut back along the very steep ridge line across the northern portion of the site, which is covered in *Restio* grasses, succulent veld and ground cover, with open compact patches of red brown soils occurring in places. The very steep eastern slopes are covered in round river quartzite cobbles (Figures 17-19).



Figure 17. Google aerial photograph of Borrow Pit 6 and 7



Figure 18. BP 6. View facing west



Figure 19. BP 7. View facing east

5.7 BP 8 (S 30 23.210 E 17 30.487)

BP 8 is located alongside (i. e. north of) MR739, just before the intersection with OG120. The borrow pit has been extensively exploited and new material will be cut back from the north and north eastern edge of the quarry. Substantial volumes of existing fill will also be used from the borrow pit (Figures 20 & 21). The south eastern slopes are heavily eroded and sheet washed. There is a small concrete reservoir about 100 m to the north east of the pit. A small dry stream intersects the site in the west, and discharges into the Spoeg River which is located south of the road. Surrounding land use is vacant/grazing.



Figure 20. Google aerial photograph of BP 8



Figure 21. BP 9. View facing south west

5.8 BP 9 (S 30 22.346 E 17 30.124)

BP 9 is located directly alongside (i. e. north) of MR739. The borrow pit has been extensively exploited and new fill material will be excavated from the north and north eastern edges (Figures 22-24). There are several modern farm buildings that occur to the south east of the quarry. The Spoeg River is located south of the road. Surrounding land use is vacant land/grazing.



Figure 22. Google aerial photograph of BP 9



Figure 23. BP 9. View facing south west



Figure 24. BP 9. View facing south west