Archaeological Investigation of the Proposed Development of Klip-Kruisfontein Bulk Water Supply Reservoir (Feeder and Bulk Supply Pipelines) on Portions of the Farm Klip-Kruisfontein 708-JR.

For

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Executive Summary

The Zwartkoppies Mountain range, of which the farm Klipfontein forms part, is well known for its high concentration of stone walled Late Iron Age settlements.

The stone-walled Late Iron Age (AD 1640 – AD 1830s) settlement recorded during the survey is protected by the South African Heritage Resources Act (NHRA) (Act no. 25 of 1999) and is highly significant due to its scientific value and potential contribution to the current debates in archaeology.

In this regard the following is mitigation measures are proposed:

- The position of the reservoir must be reconsidered. A possible solution is to position it between the hillocks on the eastern side of Road M17.
- If no alternative can be found, a Phase 2 Archaeological Assessment must be conducted of Site 1 which will consist of site detailed site survey, test excavations (i.e. test trenches), analyses of material and extensive report. These finding must be submitted to the South African Heritage Resources Agency (SAHRA) to obtain, if approved, a destruction permit.

No Stone Age artefacts, features or associated knapping sites were found during the survey of the area.

Please also note:

- It should be kept in mind that archaeological deposits usually occur below ground level. Should archaeological artefacts or skeletal material be revealed in the area during construction activities, such activities should be halted, and a university or museum notified in order for an investigation and evaluation of the find(s) to take place (***cf.* NHRA (Act No. 25 of 1999)**, Section 36 (6)).

1. Introduction

The Archaeology Contracts Unit (UNISA) conducted an investigation, focussing on the archaeological and historical remains that may be affected by the proposed Klip-Kruisfontein (Phase 3) bulk water supply reservoir and pipelines (feeder and bulk) on portions of the farm Klip-Kruisfontein 708-JR, Soshanguve. This report forms part of an EIA and was requested by Gintar Tech (Pty) Ltd.

The aim of this investigation is, therefore, to locate, identify and document visible archaeological artefacts, structures (including graves) and settlements of cultural significance in the proposed area of development.

2. Nature of development

The proposed development that was investigated in the EIA process, consists of the following components:

- The construction of the Klipfontein Reservoir (15 MI)
- Feeder pipeline (600mm) from Rand Water to Klipfontein Reservoir
- Supply pipeline (900 – 500mm) from the Klipfontein Reservoir to the Klip-Kruisfontein area.

The connection point to the Rand Water pipe is on portion 16 of the Farm Klip-Kruisfontein 708-JR.The proposed new feeder pipelines travels through portions 39, 77, 132, 101 and 8/R of the Farm Klip-Kruisfontein 708-JR. The pipelines (feeder and supply) will be installed along the eastern side of Road M17. The feeder pipeline will then cross the M17 Road after ±1,5 km, by means of a pipe jacking at portion 223 of the farm Klip-Kruisfontein 708-JR. It will then travel along portions 198, 200 of the Farm Klip-Kruisfontein 708-JR up to the proposed position of the 15MI Klipfontein Reservoir on top of the koppies at portion R/162 of the Farm Klip-Kruisfontein 708-JR. The reservoir is on the western side of the M17 Road. The supply pipeline that feeds off the reservoir will then follow the same route as the feeder pipeline down to the intersection of the M17 Road from where distribution will take place.

3. Terms of Reference

The terms of reference of this survey are as follows:

* Provide a detailed description of all archaeological artefacts, structures (including graves) and settlements
* Estimate the level of sensitivity/importance of the archaeological remains within the area
* Assess the significance of the impact of the proposed development on the archaeological remains within the area
* Propose possible mitigation measures provided that such action is necessitated by the development activities

4. Definitions and Approach

- Archaeological remains can be defined as human-made objects, which reflect past ways of life, deposited on or in the ground.

- All archaeological remains, artificial features and structures older than 100 years and historic structures older than 60 years are protected by the relevant legislation, in this case the **National Heritage Resources Act (NHRA) (Act No. 25 of 1999)**. The Act makes an archaeological impact assessment as part of an EIA and EMPR mandatory. No archaeological artefact, assemblage or settlement (site) may be moved or destroyed without the necessary approval from the **South African Heritage Resources Agency (SAHRA)**. Full cognisance is taken of this Act in making recommendations in this report.

- Cognisance will also be taken of the **Minerals Act (Act No 50 of 1991)** and the **National Environmental Management Act (Act No 107 of 1998)** when making any recommendations.

- Human remains older than 60 years are protected by the **National Heritage Resources Act**, with reference to Section 36. Human remains that are less than 60 years old are protected by the **Human Tissue Act (Act 65 of 1983 as amended)**.

- Cultural resources are non-renewable.

- With reference to the evaluation of sites, the certainty of prediction is definite, unless stated otherwise.

- The guidelines as provided by the **NHRA (Act No. 25 of 1999)** in Section 3, with special reference to subsection 3, and the Australian ICOMOS Charter (also known as the Burra Charter) are used when determining the cultural significance or other special value of archaeological or historical sites.

- It should be kept in mind that archaeological deposits usually occur below ground level. Should archaeological artefacts or skeletal material be revealed in the area during construction, such activities should be halted, and a university or museum notified in order for an investigation and evaluation of the find(s) to take place (***cf.*** **NHRA (Act No. 25 of 1999)**, Section 36 (6)).

- A copy of this report will be lodged with the **South African Heritage Resources Agency (SAHRA)** as stipulated by the National Heritage Resources Act (NHRA) (Act No. 25 of 1999), Section 38 (subsection 4).

5. Methodology

5.1 Literature Study

Various archaeological and ethnographic sources were consulted to compile a concise cultural framework of the area under investigation.

5.2 Maps and Other Sources

The proposed development was localised by using a 1:10 000 Orthophoto Map, which indicates the location of the various components (see Map 1). Background and additional information of the project was supplied during a briefing visit on 18 October 2005. The

orientation and location of the sites were determined by using a Global Positioning System (GPS)[1] correlated with the detailed survey maps of the area.

5.3 Fieldwork

An on-site investigation was conducted on 18 October 2005. Utilising the road system the whole area was extensively surveyed by vehicle and on foot. Emphasis was placed on indications of significant historical and archaeological settlements and structures (including graves).

6. Area Description

The region is characterized, first, by open planes towards the north, which probably form part of a large drainage system (soils are mostly clayish cotton soils) and secondly, by extensive rocky outcrops and hillocks towards the south.

From the onset it was clear that most of the areas south of Soshanguve Extensions 10, 12 and 13 have been extensively disturbed by the installation of various forms of infrastructure (roads, sewage system, etc.). Informal houses have also been erected in some areas. As a result, all possible surface features or structures of archaeological or historical value have been removed (see Photo 1).

7. Chronological Framework

PERIOD	APPROXIMATE DATE
Early Stone Age	more than c. 2 million years ago - c. 250 000 years ago
Middle Stone Age	c. 250 000 years ago - c. 25 000 years ago
Later Stone Age (Includes San Rock Art)	c. 25 000 years ago - c. AD 200 (up to historic times in certain areas)
Early Iron Age	c. AD 400 - c. AD 1025
Late Iron Age (Stone-walled sites)	c. AD 1025 - c. AD 1820s (c. AD 1640 - c. AD 1820s)
Historic Period (Farms with Title Deeds)	1860 – present

8. Archaeological and Ethnohistorical Context

8.1 Stone Age Sequence

Large concentrations of Early Stone Age (ESA) sites are usually located on the flood plains of perennial rivers and may date to over 2 millions years ago. These ESA open sites may contain, firstly, scatters of stone tools and second, large concentrated deposits which range

[1] According to the manufacturer a standard deviation is to be expected when determining the location of sites. However, care has been taken to correlate the reading with the topography and to obtain a low dilution of precision (DOP) before plotting sites on a map. The datum point is WGS 84.

from pebble tool choppers to core tools such as handaxes and cleavers. The early hominids who made these stone tools, did not actively hunt.

Middle Stone Age (MSA) sites also occur on flood plains but are in many cases associated with rock shelters (overhangs). Sites usually consist of large concentrations of knapped stone flakes such as scrapers, points and blades. They may have been hafted but organic materials do not always preserve. Limited drive hunting activities are associated with this period.

Sites dating to the Late Stone Age (LSA) occur primarily in rock shelters (though open sites have been recorded in the northern Cape). Well protected deposits in shelters allow for stable conditions that result in the preservation of organic materials such as wood, bone, hearths, ostrich egg shell beads and even bedding material. By using San (Bushman) ethnographic data a better understanding of this period is sometimes possible. South African rock art is also associated with this period.

8.2 Iron Age Sequence

In the northern regions of South Africa at least three settlement phases, which pertain to prehistoric agropastorists, have been distinguished for the **Early Iron Age** (EIA). The first phase of the Early Iron Age is known as **Happy Rest**, representative of the Western Stream of migrations, and dates to AD 400 - AD 600. The second phase, known as **Diamant,** is dated to AD 600 - AD 900. The third phase, characterised by herringbone-decorated pottery of the **Eiland** tradition, is regarded as the final expression of the Early Iron Age (EIA) and occurs over large parts of the North West Province, Northern Province, Gauteng and Mpumalanga. This phase has been dated to about AD 900 - AD 1200. These sites are usually located on low-lying spurs close to water.

The **Late Iron Age** (LIA) settlements are characterised by stone-walled enclosures situated on defensive hilltops. This occupation phase has been linked to the arrival of the Northern Sotho, Tswana and Southern Ndebele (Nguni–speakers) in the region dated from the sixteenth to seventeenth centuries AD. The terminal LIA is represented by late 18th/early 19th century settlements with multichrome Moloko pottery, commonly attributed to the Sotho. This correlates with oral traditions about various people who sought refuge in the mountains during the processes of disruption in the northern interior of South Africa, caused during the so-called *difaqane* (or *Mfecane*). Mzilikazi, the leader of a Zulu regiment, to whom this period of disruption is attributed, reached the Pretoria-area during the early 1820s.

8.3 Ethnographic Sequence

According to ethnographic evidence the Bakgatla baga Mmakau, a Tswana-speaking group, settled at Gammakau in Sjambok's location on the farm Hoekfontein 432JQin the Odi District (Breutz 1989:348; also see Van Schalkwyk *et al* 2000:63). The farms Hoekfontein 432JQ and Klipfontein fall generally within the Bakgatla baga Mmakau's sphere of influence.

9. Description of Sites

The Zwartkoppies Mountain range is well known for its high concentration of stone walled Late Iron Age settlements. Occupation is even traced back to the AD 1400s to a place in the area called Mabyanamatswana (see Breutz 1989). On the farm Hoekfontein, situated to the

west of the farm Klipfontein an archaeological impact assessment revealed an extensive Late Iron Age settlement. This investigation was prompted when multiple graves were exposed when excavations were done for a pipeline on the farm Hoekfontein. Mitigation measures (i.e. rescue exactions) are ongoing. It is important to note that intensive archaeological research has been conducted on a Late Iron Age settlement on the farm Klipfontein for the last few years (i.e. Site 1). During this ongoing scientific research project several excavations have been completed and the site has also been surveyed.

9.1 Site 1

The site is a very extensive stone walled Late Iron Age settlement that is draped across mountainous areas and foothills on the farm Klipfontein. Of relevance here are the various stone walls, terrace walls and midden deposits that were recorded on the eastern periphery of the hillocks on the farm Klipfontein (Map 1).

Evidence suggests at least two different occupational phases for the site, one phase dating to AD 1664 and AD 1667 (most probable dates) and the other to a later phase in the late nineteenth and early twentieth centuries. The second occupation phase is extremely important as it indicates contact between Early Settlers and Late Iron Age communities, a temporal phase with minimal archaeological evidence. As such the site provides an ideal opportunity to study this period. Furthermore, the settlement is also orally associated with the Bakgatla baga Mmakau. These aspects make this site highly significant. The site is also used for teaching university and school students about archaeology, and to expose them to excavation techniques. An excavation permit from the South African Heritage Resources Agency (SAHRA) has been issued for archaeological research which is being conducted by a Masters student at the University of South Africa.

There is a large quantity of stonewalling found depicting cattle kraals, living areas and passageways on the site, with a number of terraces leading up to the top of the saddle, where one of the main living areas can be seen (Photo 1). The surface of the site is littered with pottery, clay from hut floors, some hut floors are clearly visible, bone, slag, lower grinding stones and smooth river stones for rubbing floors. A number of burials have also been found, especially in the area for the proposed development as Tswana-speaking people buried their dead in middens and cattle kraals.

The proposed reservoir and associated feeder and bulk supply pipeline will have a definite impact on these archaeological remains.

9.2 Site 2

The site consists of a modern house, which shows signs of being vandalised. No other structures were recorded in association with the house (Photo 2). The site is fenced off. The trajectory of the proposed pipeline is just north of the house and, as such, no impact is foreseen (Map 1).

10. Recommendations

No Stone Age artefacts, features or associated knapping sites were found during the survey of the area.

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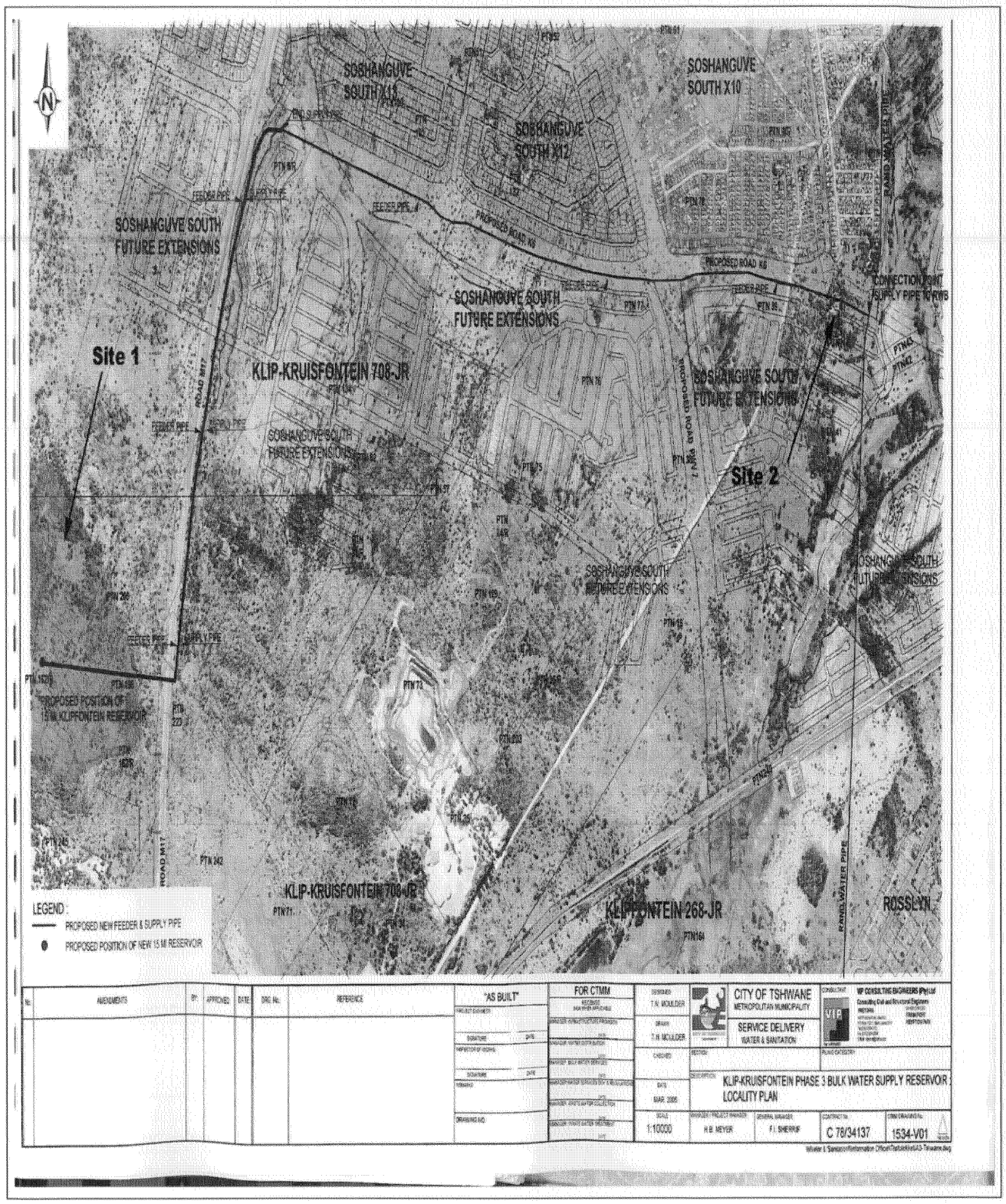
13. Summary of Sites

Site No	Site Type	Position	Significance	Impact	Significance of Impact
1	Late Iron Age Main area of settlement	25°36'11.0"S 28°02'11.3"E 25°36'17.0"S 28°02'00.1"E	High	High	High
2	House	25°35'47.3"S 28°04'01.5"E	Low	None	None

Bibliography

Breutz, P.-L. 1989. *History of the Batswana*. Ramsgate

Van Schalkwyk, J.A., Pelser, A.J. & Teichert, F. 2000. Archaeological investigation of a Late Iron Age Tswana settlement on the farm Hoekfontein 432JQ, Odi 1 District, North West Province. *Research by the National Cultural History Museum*. Vol. 9. pp. 58-64.


SOSHANGUVE SOUTH X11
SOSHANGUVE SOUTH X10
SOSHANGUVE SOUTH X12
SOSHANGUVE SOUTH FUTURE EXTENSIONS
Site 1
Site 2
KLIP-KRUISFONTEIN 708-JR
PROPOSED ROAD K6
PROPOSED ROAD K7
CONNECTION JOINT SUPPLY PIPE TO KW6
FEEDER PIPE
SUPPLY PIPE
ROAD M17
PROPOSED POSITION OF 15 Ml KLIPFONTEIN RESERVOIR
KLIP-KRUISFONTEIN 708-JQ
KLIPFONTEIN 268-JR
ROSSLYN
FANG WATER PIPE
LEGEND :
PROPOSED NEW FEEDER & SUPPLY PIPE
PROPOSED POSITION OF NEW 15 Ml RESERVOIR
CITY OF TSHWANE
METROPOLITAN MUNICIPALITY
SERVICE DELIVERY
WATER & SANITATION
KLIP-KRUISFONTEIN PHASE 3 BULK WATER SUPPLY RESERVOIR : LOCALITY PLAN
C 78/34137
1534-V01

Map 1.

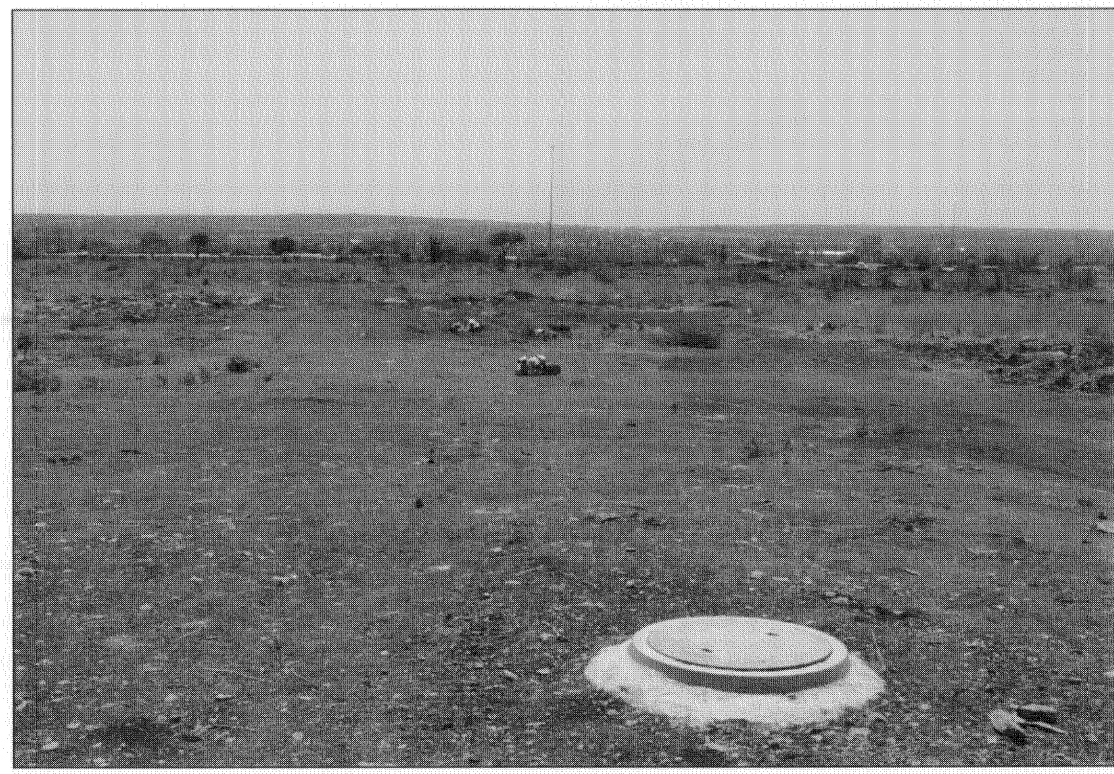


Photo 1.

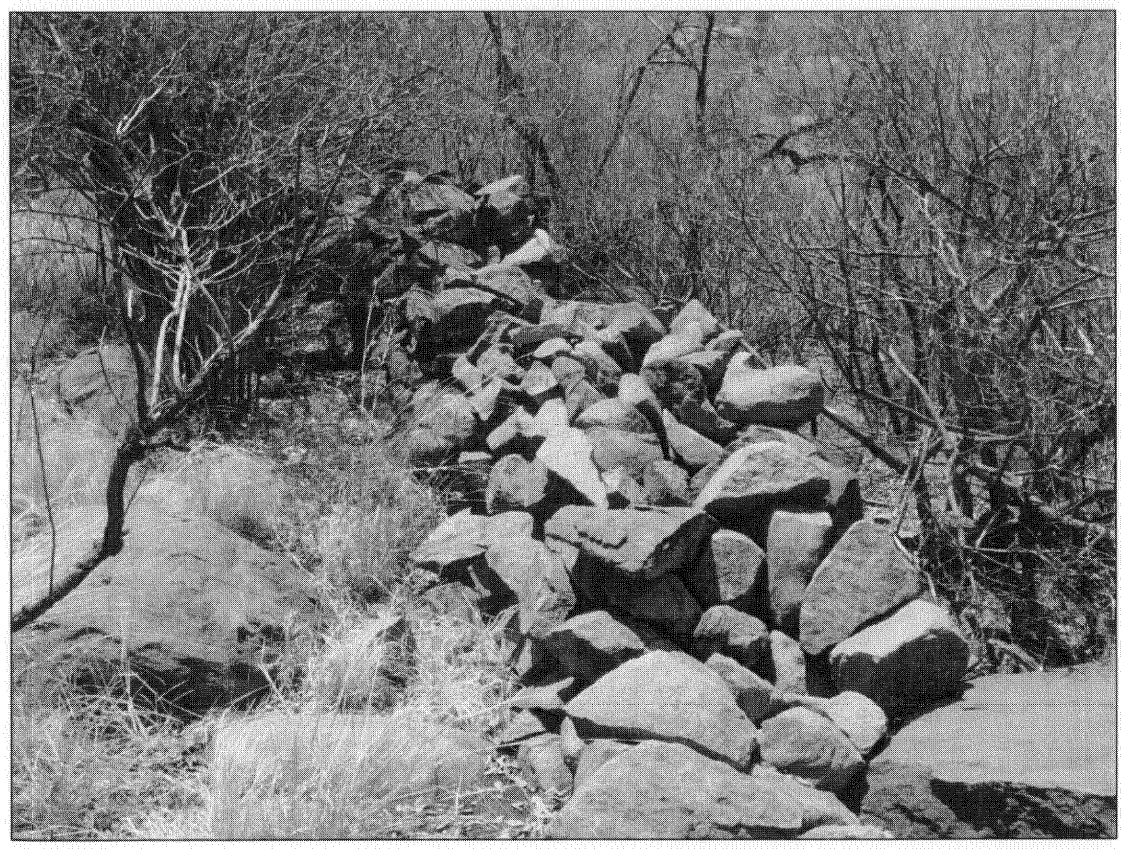


Photo 2.