

FEASIBILITY AND PRE-FEASIBILITY STUDIES FOR AUGMENTATION OF THE WESTERN CAPE WATER SUPPLY SYSTEM

Heritage Considerations

Prepared for

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Summary

This initial study has revealed that levels of existing heritage information are variable. While a great deal has been written about the Wit River area and Bain's Kloof, information with respect to the Voelplei and Swartland areas is moderate. Heritage information with respect to the Kogelberg Mountains and the Steenbras dam is very limited.

The preliminary study has established that Steenbras Dam and surrounds contains structures and cultural landscape elements that are protected, and will pose certain development challenges. Similarly the Wit River scheme is set within a heritage rich context that could result in development restrictions. Schemes for the augmentation of the Voelplei dam remain relatively un-restricted.

Most of the activities of the proposed schemes will trigger section 38 of the National Heritage Resources requiring that a full HIA is completed as part of the EIA process.

CONTENTS

1. Introduction	4
1.1 Terms of reference	4
2. Palmiet Transfer Scheme - Lower Steenbras Dam	6
2.1 Preliminary heritage statement	6
2.2 Expansion of the upper Steenbras Dam	7
2.3 Upper Campanula Dam	7
2.4 Preliminary identification of key heritage issues	7
3. Augmentation of the Voelvlei Dam	10
3.1 Preliminary heritage statement	10
3.2 Berg River Weir and Pump Station	11
3.3 Raising of the Voelvlei Dam and expanding associated infrastructure	11
3.4 Key heritage issues	13
3.5 References	14
4. The Upper Wit River Diversion	16
4.1 Preliminary heritage statement	16
4.2 The proposed Wit River Diversion	17
4.3 Doolhof	17
4.4 Key heritage issues	18
5. Concluding Statement	20

1. Introduction

Tim Hart of the Archaeology Contracts Office of the University of Cape Town was appointed by Ninham Shand Consulting in the capacity of heritage consultant to advise on the feasibility and pre-feasibility studies with respect to the expansion of the Western Cape Water Supply System. To date the team has participated in site visits to areas affected by changes that involve:

- Expansion of the Palmiet transfer scheme
- Augmentation of the Voelvlei dam, and further phases of augmentation
- Molenaars River Diversion
- Michells Pass Diversion and diversion scheme
- Upper Wit River Diversion and Dam

This study is part of the pre-feasibility phase and answers to the terms of reference indicated below. This is essentially a review of existing sources and the state of information with respect to heritage. The study has tried to anticipate which areas are most sensitive and identifies those elements of the project that may pose “problems” in heritage terms. This literature review is divided into three sections and should be read in conjunction with the document by Western Cape Water Consultants titled “Background reading to potential surface water development options” of January 2009.

1.1 Terms of reference

For purposes of completing the baseline study, the terms of reference required the Archaeology Contracts office to:

- Undertake a literature review of existing information for each of the potential augmentation options;
- Conduct a site visit to the six potential augmentation option schemes;
- Compile a brief literature review and key issues report
- Attend a specialist workshop; and
- identify further information requirements to ensure that the schemes are investigated to an appropriate level during the Environmental Impact Assessment

- Compile a baseline report (incorporating the literature review and key issues) which would form part of the preliminary report that would inform the augmentation selection process;

2. Palmiet Transfer Scheme - Lower Steenbras Dam

2.1 Preliminary heritage statement

During the early 20th century Cape Town was experiencing severe water insecurity as the various springs around Table Mountain, the reservoirs in the city and the Table Mountain dams were failing to keep up with demand. Wall (2008) argues that the lack of security of supply was responsible for motivating the various small municipalities that made up "the city" to merge to pool resources and co-ordinate a solid initiative to alleviate the problem. The Steenbras Dam was enabled as a result of the combined effort. Construction commenced in 1919 and was completed by 1921. The structure, along with the Cape Town Grain elevator would have been the first structures in the country to benefit from the bulk supply of locally made Portland Cement (first produced at the De Hoek site at Piketberg) (Worth 2001). The dam was a triumph of colonial engineering. It was landscaped with flowering gums, and a botanical garden constructed below the dam wall – apparently beauty of the area found favour with General Jan Christian Smuts, who was keen amateur botanist

The dam itself is a local industrial heritage resource forming a collective cultural landscape of colonial enterprise – present in the area today is not only the dam (the original was raised in 1957), but the associated stone cottages, gardens and no doubt many other elements. Similarly the forestry area is a characteristic landscape with historical values that will need to be explored.

Graham Ross has identified the Steenbras Pass of the Kogelberg mountains as being highly spectacular and one of the more significant in the Cape. Built in the early 1930's the pass, like the dam and environs enjoys the statutory protection of the National Heritage Resources Act (25) of 1999 as these structures are all greater than 60 years of age.

The archaeology of the Kogelberg area has not been well described. The most well known areas are the Howhoek and Sir Lowries pass areas which are known for their status as early wagon routes, and before that were well known to indigenous people (Brook Simons 1999). No San rock paintings have been recorded from the upper areas and to date and very few archaeological sites have been found inland of the immediate coast, the archaeology of which has been well documented.. Admittedly the level of information available is poor and

limited to a few surveys carried out by Kaplan (2002) Hart and Orton (2006) and more recently Webley (2009). These studies identified moderate scatters of Stone Age material in the fruit growing lands and very few structures greater than 60 years of age.

2.2 Expansion of the upper Steenbras Dam.

This option was discussed during the team fieldtrip. Being a recent structure the concerns raised above with respect to the lower Steenbras Dam does not apply, however the requirements of section 38 of the National Heritage Resources Act will apply meaning that a heritage impact assessment will be required if expansion is envisaged. There are no previous specific studies with respect to the heritage that could be impacted by this activity. Significant restrictions to this option are not anticipated.

2.3 Upper Campanula Dam

The construction of a small dam (alternative 1) at this locality could result in impacts to as yet untransformed land implying that there is a possibility of impacts to pre-colonial heritage. No surveys have been carried out in the immediate area, however given that very little has been found thus far, serious restrictions in terms of heritage are not anticipated. Like wise the proposed canal/ pipe system to the Kogelberg dam is unlikely to be problematic.

The construction of a weir (alternative 2) for the same reasons as alternative 1 is considered not to pose a significant heritage risk.

2.4 Preliminary identification of key heritage issues

The lower Steenbras Dam, associated structures, some buildings and roads are protected in terms of the National Heritage Resources Act (section 34). This means that a comprehensive Heritage Impact Assessment will be required, furthermore possible development restrictions may be requested by Heritage Western Cape.

Significant archaeological sites are unlikely to be impacted in the inundation zone (dominated by commercial forestry) however the area will need to be subject to archaeological and palaeontological assessment as part of the full heritage impact assessment.

- Raising of the lower Steenbras dam will result in the potential destruction of the 1921 historic dam wall, a number of historic buildings, associated structures and cultivated landscape. A full heritage impact assessment will be required. This will need to include the built environment, landscape, archaeology, palaeontology.
- The second option, namely the raising of the upper Steenbras Dam has much less significant implications with respect to heritage, however the project will require an HIA to be included within the EIA process.
- The construction of a small dam or weir at Campanula is unlikely to have serious heritage implications. An HIA will be required.
- The above statement is issued without the benefit of any directly relevant prior studies which means that full heritage surveys will be necessary in the context of any future EIA's that may be necessary.

HIA requirements:

Archaeology

Industrial archaeology

Palaeontology

Cultural Landscape

Built environment

References

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Worth, D, 2001. A conservation Plan for the Cape Town Grain Elevator. Unpublished document produced for the Victoria and Alfred waterfront Company.

3. Augmentation of the Voelvlei Dam

3.1 Preliminary heritage statement

Aspects of this proposed scheme take place in an area (namely the Swartland, Tulbach Valley and surrounding mountains) that has been subject to moderate research, hence the heritage sensitivity of the proposed scheme can be described with some confidence. In some instances site specific information is already available.

The Voelvlei dam is a very large earth walled structure built in the late 20th century. It does not occupy any particular river valley; however it is fed through a system of canals and diversions. Augmentation of this system will involve increasing the capacity of these facilities to optimise water resources that can be obtained from winter flooding. Since the Voelvlei dam is a recent structure (less than 60 years of age), it and its associated infrastructure are not protected by heritage legislation, however some of the proposed augmentation measures involve land and areas that could be sensitive in heritage terms.

The archaeological heritage of the Berg River has been described by a number of researchers; however formal publications on the built environment of the area are rather scarce.

The Berg River runs mainly through the Swartland – an area of high agricultural potential was likely to have been frequented by Khoekhoen pastoral communities since 2000 years ago. The soils of the Swartland have a far better carrying capacity than those of the Cape Fold Belt mountains which means that early stock farmers would have enjoyed better success raising herd of domestic cattle and fat tailed sheep (Hart 1987, Smith et al 1991). Hart carried out the first formal archaeological surveys of the Berg River Valley in the Gouda-Porterville area in 1983 and found that the ploughed fields contained numerous archaeological sites relating to the Early and Middle Stone Age (now confirmed by numerous subsequent heritage surveys), but found very few sites that could relate to the Khoekhoen herders who were historically known to frequent the area. He concluded that it was likely that herder sites were very ephemeral as these groups of people were highly mobile and that sheet erosion and deep ploughing had destroyed much of the evidence. Since Hart's initial work, various archaeologists have found evidence of large but highly ephemeral archaeological sites on the Vredenberg Painsinsula and Swartland. Kaplan in various reports

has justified the low significance of such sites by arguing that they are very thin on the ground and have been disturbed. Smith (2008) has disagreed with this point of view by suggesting that such ephemeral Late Stone Age sites are possibly the only known vestiges of Khoekhoen herder groups and has urged deeper investigation of such sites, especially if they are going to be impacted by development activities. Smith's point of view is worthy of consideration as the term "significance" does not simply relate to the condition of an archaeological site, but involves various other critical values (rarity, representivity, research potential etc). Recent work by Arthur (2008) and Fauvelle-Aymar et al (2006) supports the highly ephemeral nature of Khoekhoen heritage.

The built environment of the Swartland has never been subject to any detailed surveys or conservation studies apart from a few heritage management driven surveys, despite the fact that colonial settlement of these areas burgeoned after 1704. Free burghers began to penetrate the interior initially trading with Khoekhoen but eventually taking over traditional grazing lands (Cornel and Malan 2006) Winter (2006) has conducted studies at mission settlement of Saron with specific reference to the Leiwater system established by the mission settlement, the degeneration of which has been blamed on the Kaapsekanal transporting water to the Voelvllei Dam. To date the heritage surveys that have taken place are limited to the urban centres and not the rural areas, however many historic buildings have been informally observed in this area.

3.2 Berg River Weir and Pump Station

The construction of a pump station and water pipe line at Spes Bona will involve minimal impacts at the proposed pump station site. The proposed pipeline will traverse transformed agricultural land. There are no specific studies applicable to the area, however there is a good chance that the activity will affect disturbed scatters of Early and Middle Stone age material as well as ephemeral potential Khoekhoen sites of the kind described by Hart, Smith, and others. The same applies to any other associated infrastructure in this area. Impacts however are not expected to be so significant as not to be possible to mitigate.

3.3 Raising of the Voelvllei Dam and expanding associated infrastructure

An informal archaeological survey of the Voelvllei dam area was conducted by Smith in the 1980's (pers comm.). He did not identify any significant heritage sites in the immediate

vicinity of the water body, but identified a rock shelter with archaeological deposits on the mountain slopes above the dam. This was excavated and the archaeological sequence examined and described (Smith et al 1991). The shelter contained deposits that spanned the late Holocene with evidence of both San hunter gatherer and Khoekhoen influence after 2000 years ago.

According to Smith (pers com) the raising of the dam wall will not affect this site and is unlikely to affect many others, however a comprehensive heritage survey will need to be done if the proposed capacity increase is envisaged. Pipe line routes and other infrastructure will traverse transformed agricultural land. There are no specific studies applicable to the area, however there is a good chance that the activity will affect disturbed scatters of Early and Middle Stone age material as well as ephemeral potential Khoekhoen sites of the kind described by Hart, Smith, and others. The status of the built environment in the area is presently un-described.

3.3.1 Upper Molenaars Diversion

Previous surveys have been carried out in this area for a proposed dam on the Molenaars River (Halkett and Hart 1994) revealed that the Molenaars Valley in the Du Toits Kloof Mountains is rich in San rock art with painting occurring in unlikely places such as on the sides of large boulders. The findings of this study are directly applicable to both location options for the proposed upper Molenaars diversion. The proposed activity which will involve construction of sumps in the river bed and pump stations at two alternative locations is considerably more limited than a dam and are unlikely to result in impacts to San rock painting sites as the activity will not result in a rise in water level, however this will need to be verified through field survey. The pipeline route to Wemmershoek dam (26km) will need to be subject to a full HIA study. Changes to the capacity of the Paapenkuils pump station at the Brandvlei Dam are unlikely to cause any impacts in terms of heritage, however almost nothing is known of the heritage of this locality.

3.3.2 The Mitchells Pass Diversion

Construction of a 10 m high weir on the Dwars River at Mitchells pass will result in the inundation of 15 hectares of landscape. This actual location has not been subject to any previous surveys however being situated in a river valley on the edge of the Cape Fold Belt

mountains invokes the possibility of the presence of San Rock Paintings (depending on suitable rock faces being present) and open scatters on the river bank). There are no built environment elements in this landscape, however the area is of scenic significance. The envisaged canal from the proposed weir to the Boontjies River crosses mainly transformed agricultural land. This was country side favoured by Khoekhoen herders which means that there is a possibility of encountering ephemeral Late Stone Age material in the ploughed fields of the Tulbach Valley. The cultural landscape elements of the Tulbach Valley are important, furthermore the residents of the area are evidently highly sensitised to heritage issues as demonstrated by the highly contested proposal of Eskom to erect power lines over this landscape (Patrick et al 2009). Any HIA for this area must take into cognisance the visual and landscape impacts of any development in this area. The weir in the Klein Berg River will remain unchanged.

In general terms the Voelvlei schemes are felt to have relatively low impacts in heritage terms as they are conservative in terms of the invasion and flooding of landscape and have a relatively small disturbance footprint.

3.4 Key heritage issues

Future EIA processes will need to address: -

- The disturbance of archaeological sites on the shale derived soils of the Berg River Valley – especially Early and Middle Stone Age sites in agricultural land, ephemeral Khoekhoen sites in the agricultural areas.
- The possibility of inundation of San Rock painting sites at the Molenaars pump station sites as well as at the Mitchells pass diversion.
- Baseline information gathering on built environment will be necessary.
- The sensitive qualities of the Tulbach Valley cultural landscape.

HIA requirements:

Archaeology

Palaeontology

3.5 References

Arthur, C. 2008. The Khoekhoen of the Breede River, Swellendam: an archaeological and historical landscape study. Unpublished M.Phil Thesis, UCT.

Fauvelle-Aymar, F-X., Sadr, K., Bon, F. & Gronenborn, D. 2006. The visibility and invisibility of herders' kraals in southern Africa, with reference to a possible early contact period Khoikhoe kraal at KFS 5, Western Cape. *Journal of African Archaeology* 4 (2): 253-271.

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4. The Upper Wit River Diversion

4.1 Preliminary heritage statement

This scheme involves the diversion of water from the Wit River at Bains Kloof over the watershed into the Pombers River to supply a proposed new dam in the Doolhof area in the Wellington wine lands below the Bainskloof Mountains. This area is generally sensitive in heritage terms as it is the site of the Bains Kloof Pass which is a declared site, the historic canal over the saddle known as Gawie se Water while the proposed new dam is to be located at Doolhof in the Bovlei district, which in itself is an historic farm in an important cultural landscape. The Wit River was previously the site of a proposed dam which was eventually rejected for environmental reasons. The findings of the heritage study by Halkett and Hart (1994) apply, as well as material in more recent publications.

Built in 1853, Bains Kloof Pass named after the famous road builder is a provincial heritage site and was previously a declared National Monument under the old National Monuments Act of 1969 (as amended). The pass has enormous local significance – it features on a multitude of tourism related web sites and has been the subject of numerous articles and several books (Ross 2006, Steytler and Nieumeyer 2003).

There is already an existing diversion in the Wit River that dates from the 19th century (circa 1860). Farmers in the Bovlei area who were experiencing water shortages commissioned the construction of Gawie se Water – a deep cutting across the saddle between Bains Kloof Pass and the Wit River to divert water into the Kromme River for irrigation purposes. This early work of engineering functions to this day, but has undergone a number of modifications over time.

Early Stone Age scatters have been documented by Halkett and Hart (1994) in the upper Wit River Valley, while san rock painting sites are known in the Bains Kloof area. Hence the study area comprising of the proposed Doolhof Dam, Gawie se Water contains an abundance of heritage resources, which combined with the spectacular scenery make for a sensitive heritage context.

4.2 The proposed Wit River Diversion

This scheme sees the construction of a weir on the Wit River, the channelling of water through the saddle and down into the Bovlei Valley were a dam is proposed to be built in the Doolhof area.

This history of the Wit River area, Bains Kloof Pass and Gawie se Water is depicted in the Wellington Museum, a number of web sites but is perhaps best described by Steytler and Nieuwmeyer (2003). Gawie se Water is a remarkable deep cut through solid rock completed in the 1860's with nothing more than hard labour and black blasting powder. The cut channels water across the watershed augmenting the flow of water through the Kromme River which runs through the Bovlei area of Wellington. Also describe in detail by Steytler and Nieuwmeyer (2003) is the history of Bains Kloof Pass, the Bains Kloof village, the Wit River disaster (commemorated by a public monument to children on a school outing who died in a flood in the early 20th century). Also described in detail is the history of the Hugo house, a large mansion which stood on the Wit River saddle. Built by a wealthy Paarl businessman the house was hardly completed when the owner died. The mansion lay abandoned for many years until it was demolished in the early 1980's after it was the scene of a brutal murder.

4.3 Doolhof

The proposed scheme involves increasing the volume of water diverted from the Wit River and the construction of a dam on the Kromme River at Doolhof farm. Tunneling through the saddle or deepening Gawie se Water is an issue that will require very careful heritage consideration given the high conservation status of Bains Kloof pass. Doolhof main house is described by Hans Fransen as an H - shaped homestead in the Wellington tradition. Doolhof was first established 1707 and is the uppermost farm in the Bovlei. The Bovlei context of the site is considered iconic in terms of the Winelands Cultural landscape (for more on this term see Todeschini (1994) and Todeschini and Pistorius, (2006)). Hence it is expected that the construction of a dam at Doolhof will result in a serious heritage impact. The construction of a dam at the second alternative further up the valley appears on first analysis to have less significant heritage implications as the property contains no historic structures.

4.4 Key heritage issues

The Wit River Diversion scheme would take place in an area of the Western Cape that is contextually sensitive which means that should any development be envisaged, heritage issues will have to be considered in the overall design. The proposed scheme straddles the edge of the Cape Winelands cultural landscape, the historic Bains Kloof as well as Gawie se Water which is of local heritage significance. Locating the dam further up the valley on the next farm, i.e. Riverlands, will avoid impacts to Doolhof and confine physical disturbance to areas of lower heritage sensitivity, however impacts to Gawie se Water may still occur.

- Doolhof farm which is a historic site is potentially threatened by the proposed activity, unless an alternative dam site is identified. It is possible that Heritage Western Cape will not support the demolition of this property given its context, age and built heritage.
- Any development proposals will need to be accompanied by a thorough HIA that considers cultural landscape issues, industrial archaeology, historical archaeology, palaeontology, built environment and intangible heritage.
- The local heritage authority is likely to request restrictions and strict conditions to development activities in the area.

HIA requirements:

Archaeology
Industrial archaeology
Palaeontology
Cultural Landscape
Built environment
Oral History

4.4.1 References

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5. Concluding Statement

Initial indications are that augmentation of the Voelvlei scheme is in heritage terms, the most acceptable. While none of the schemes are fatally flawed, the potential impacts to heritage that will result from both the Wit River and Steenbras Dam (Kogelberg) proposals will be significantly more difficult to mitigate.