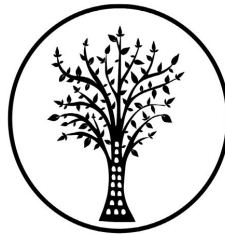


# ARCHAEOLOGICAL SPECIALIST STUDY

In terms of Section 38(8) of the NHRA for a

## **Proposed Development of the Houdenbek Dams, Western Cape**

Prepared by



CTS HERITAGE

In Association with

**EnviroAfrica**

And

**ACRM**

November 2018



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## THE INDEPENDENT PERSON WHO COMPILED A SPECIALIST REPORT OR UNDERTOOK A SPECIALIST PROCESS

I Jenna Lavin, as the appointed independent specialist hereby declare that I:

- act/ed as the independent specialist in this application;
- regard the information contained in this report as it relates to my specialist input/study to be true and correct, and
- do not have and will not have any financial interest in the undertaking of the activity, other than remuneration for work performed in terms of the NEMA, the Environmental Impact Assessment Regulations, 2010 and any specific environmental management Act;
- have and will not have no vested interest in the proposed activity proceeding;
- have disclosed, to the applicant, EAP and competent authority, any material information that have or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required in terms of the NEMA, the Environmental Impact Assessment Regulations, 2010 and any specific environmental management Act;
- am fully aware of and meet the responsibilities in terms of NEMA, the Environmental Impact Assessment Regulations, 2010 (specifically in terms of regulation 17 of GN No. R. 543) and any specific environmental management Act, and that failure to comply with these requirements may constitute and result in disqualification;
- have ensured that information containing all relevant facts in respect of the specialist input/study was distributed or made available to interested and affected parties and the public and that participation by interested and affected parties was facilitated in such a manner that all interested and affected parties were provided with a reasonable opportunity to participate and to provide comments on the specialist input/study;
- have ensured that the comments of all interested and affected parties on the specialist input/study were considered, recorded and submitted to the competent authority in respect of the application;
- have ensured that the names of all interested and affected parties that participated in terms of the specialist input/study were recorded in the register of interested and affected parties who participated in the public participation process;
- have provided the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not; and
- am aware that a false declaration is an offence in terms of regulation 71 of GN No. R. 543.

Jenna Lavin

**Signature of the specialist**

CTS Heritage

**Name of company**

1 November 2018

**Date**



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## EXECUTIVE SUMMARY

This application is for the proposed Harmony and Toeka dam project. The water for the proposed Toeka and Harmony dams will be used for the irrigation of a new fruit orchard development on the property. The areas selected for the 75 ha orchards will be on legally disturbed land which has been ploughed in the last 10 years and as such, is not subject to EA.

### ***Toeka Dam***

No archaeological resources were located during a fairly brief field assessment of the proposed Toeka Dam. There is barely any surface stone covering the site, which comprises a severely transformed landscape. The only surface stone noted was layered or packed alongside sections of some of the drainage channels which cut through the site. No archaeologically modified stone was found.

No mitigation for the Toeka Dam is required. There is no objection to the proposed establishment of this dam.

### ***Harmony Dam***

Well preserved rock art was located in a large, ± 120m long sandstone overhang/shelter located on the eastern bank of the small, unnamed perennial stream. Large numbers (several thousand) of Later Stone Age (LSA) lithics, including chips, chunks, modified and unmodified flakes were counted, on the weathered gritty floodplain sands immediately in front of the shelter. Both bladelet and cylindrical cores were found, including miscellaneous retouched pieces and at least two adzes. Several miscellaneous grindstone pieces and a hammerstone were also counted. No scrapers, backed pieces, ostrich eggshell, beads, or pottery was found. The majority of the lithics are in very fine grained lydianite/indurated shale, but tools in silcrete, quartz and CCS were also seen. One re-used Middle Stone Age (MSA) quartzite flake was found.

At least a dozen medium sized rocks, seemingly intentionally placed were identified on the floodplain sands in front of the shelter. These may have been used as small seats/'chairs' where flaking/knapping took place. The density of artefactual stone is very high around some of these rocks. A limited number of stone artefacts (flakes and chunks), and some bone was also noted inside the shelter/overhang on a very shallow (possibly leached) sandy, ashy' deposit on surface bedrock. A very weathered fragment of marine shellfish was also found, suggesting contact with the coast more than 200kms away.

The Harmony Dam footprint must be redrawn or shifted to a smaller footprint north of the rock outcrop, or an expanded footprint further to the north, so as to completely avoid the rock outcrop/sandstone shelter (Harmony 1 & Harmony 2). The Harmony Dam can proceed as long as the full supply level is lowered to protect the important archaeological resources. Alternatively, the proposed Harmony Dam site must be located in a new area entirely, however this new area must also be assessed for impacts to significant archaeological heritage. It is recommended that a Heritage Agreement in terms of section 42 of the NHRA be signed between the landowner and HWC to ensure that this significant archaeological site is protected and conserved.



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## 1. INTRODUCTION

### 1.1 Background Information on Project

This application is for the proposed Harmony and Toeka dam project. The water for the proposed Toeka and Harmony dams will be used for the irrigation of a new fruit orchard development on the property. The areas selected for the 75 ha orchards will be on legally disturbed land which has been ploughed in the last 10 years and as such, is not subject to EA.

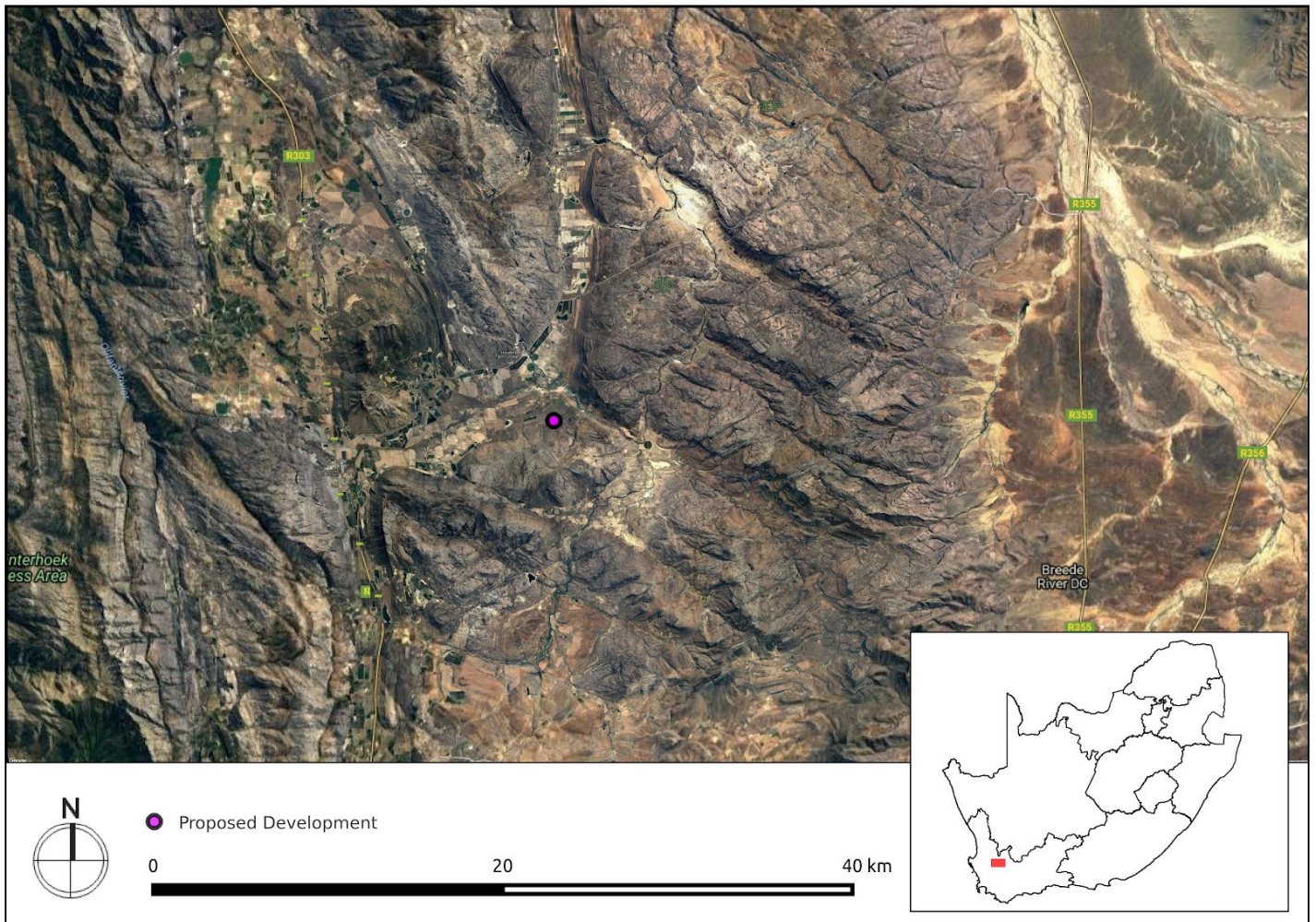


Figure 1.1: Close up satellite image indicating proposed location of development

### 1.2 Description of Property and Affected Environment

#### *Toeka Dam*

The site for the proposed Toeka Dam comprises old agricultural land. According to Mr Hein Juries (pers. comm.) of the Farm Sandrivier, the proposed dam site has lain fallow for about 2 years, but prior to that (for at least 25 years), the entire area was planted out with apple orchards. And before that, according to Mr Juries, onions were grown on the site. Remnants of old apple orchards can be seen in the north eastern sector and are also evident on GoogleEarth. This site is therefore already severely transformed.





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The proposed development site is located in wide, level valley, and covered in dense natural grasses, weeds, sporadic bushes and a few trees. There is barely any surface stone covering the subject property, which is on a substrate of weathered quartzitic sands. Existing infrastructure comprises farm fencing and fence poles. Several old gravel tracks cross the site. At least 4 deep drainage channels (for runoff), have been excavated on the property. There is also some erosion in the north western portion, where a number of deep soil pits have been excavated, where the proposed dam wall will be constructed. There are no significant landscape features on the proposed development site.

### ***Harmony Dam***

The proposed 5ha site is located at the foot of narrow, deeply wooded/vegetated kloof. The steep, east facing rocky slopes are covered in dense Protea trees, while mostly Fynbos vegetation covers the steep west facing slopes. A small perennial stream cuts through the middle of kloof, either side which is covered in very thick riparian vegetation, on a substrate of fairly loose, but gritty, weathered floodplain sands. The northern portion of the proposed dam site, above the proposed dam wall, comprises old agricultural lands. A long, prominent, sandstone overhang/shelter (a significant landscape feature) is located on the eastern bank of the stream.





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Figure 1.2: Close up satellite image indicating proposed location of development

## 2. METHODOLOGY

### 2.1 Purpose of Archaeological Study

The purpose of this archaeological study is to satisfy the requirements of section 38(8), and therefore section 38(3) of the National Heritage Resources Act (Act 25 of 1999) in terms of impacts to archaeological resources.

### 2.2 Summary of steps followed

- An archaeologist conducted a survey of the site and its environs on 24 October 2018 to determine what archaeological resources are likely to be impacted by the proposed development.
- The identified resources were assessed to evaluate their heritage significance in terms of the grading system outlined in section 3 of the NHRA (Act 25 of 1999).
- Alternatives and mitigation options were discussed with the Environmental Assessment Practitioner.

### 2.3 Constraints & Limitations

No constraints or limitations were experienced.

## 3. HISTORY AND EVOLUTION OF THE SITE AND CONTEXT

While there have been no archaeological field assessments completed in the immediate vicinity of the proposed dams, the kloofs to the east of the proposed developments have been thoroughly surveyed by eCRAG, the eastern Cederberg Rock Art Group, for rock art sites (Map 2a). Five rock art sites have been identified within the 10km inclusion zone for this project. While these sites are very significant, it is unlikely that the proposed development of these dams will impact on significant rock art in this area as the underlying geology for the dams falls within the shales of the Gydo and Witpoort Formations. All the rock art sites documented thus far in the area have been made on outcrops of sandstone. The only other known heritage sites within the 10km inclusion zone are two Provincial Heritage Sites (old National Monuments). None of these known heritage resources will be impacted by the proposed development.

The proposed Harmony Dam will be created through the establishment of a 270m wall standing 13m high along an existing stream. Once established, the Harmony Dam is anticipated to cover approximately 5ha in extent and have a capacity of 250 000m<sup>3</sup>. This is the smaller of the two dams and lies in an existing stream. The proposed Toeka Dam will be created through the establishment of a 636m wall standing 14m high along an existing stream. Once established, the Toeka Dam is anticipated to cover approximately 35ha in extent and have a capacity of 2 000 000m<sup>3</sup>. The proposed Toeka Dam will be located in an area that has previously been cultivated (see Figure 1d and 5b) and as such, it is very unlikely that this proposed development will impact on significant *in situ* archaeological resources.

Both proposed farm dams will not significantly alter the character of the surrounding cultural landscape as they are situated on existing cultivated farmland. The walls for the dams will be created by shallow excavations of topsoil in the footprint of the dams.





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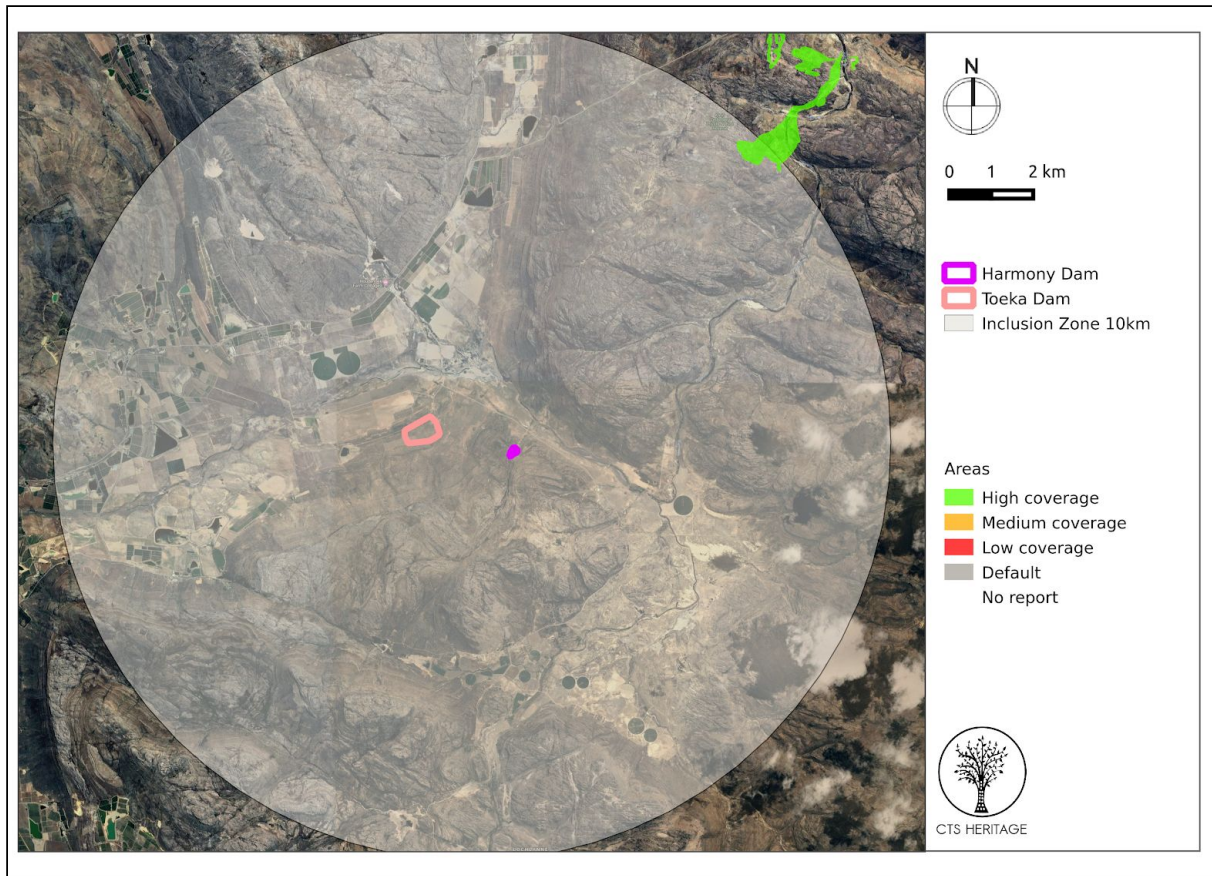
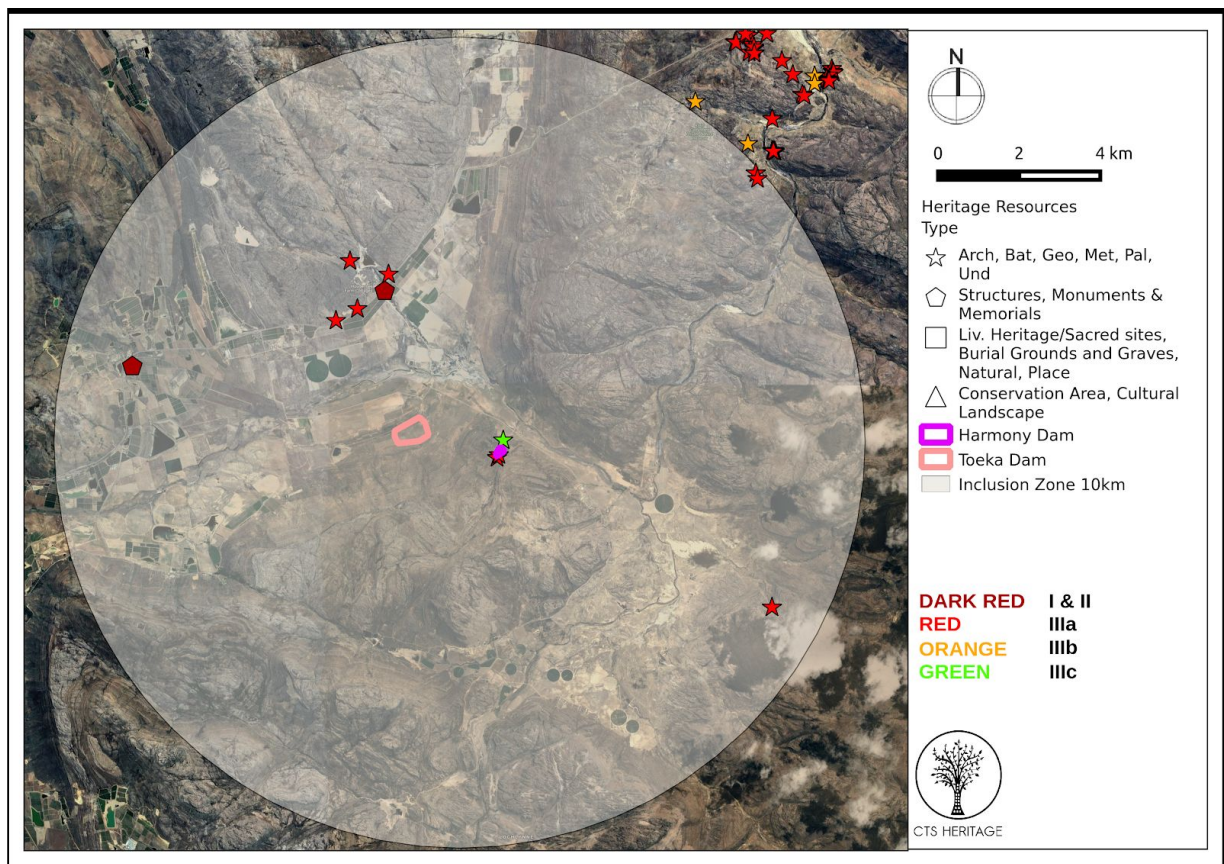


Figure 2: Close up satellite image indicating proposed location of development in relation to heritage studies previously conducted







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Figure 3. Heritage Resources Map. Heritage Resources previously identified in and near the study area, with SAHRIS Site IDs indicated

#### 4. IDENTIFICATION OF HERITAGE RESOURCES

##### 4.1 Field Assessment

The walls for the dams will be created by shallow excavations of topsoil in the footprint of the dams. From an archaeological perspective, the area designated for the Toeka Dam has already been heavily cultivated and no rock art outcrops fall within this zone.

As anticipated, no archaeological resources were identified at the site proposed for the Toeka Dam. Significant rock art was identified at the site proposed for the Harmony Dam (Grade IIIA).



Figure 4.1: Contextual Images - Toeka Dam drainage



Figure 4.2: Contextual Images - Toeka Dam fencing and old apple orchard





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Figure 4.3: Contextual Images - Toeka Dam panoramic facing south



Figure 4.4: Contextual Images - Toeka Dam panoramic facing south east



Figure 4.5: Contextual Images - Toeka Dam panoramic facing south east





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Figure 4.6: Contextual Images - Toeka Dam panoramic facing north

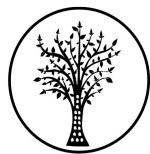


Figure 4.7: Contextual Images - Harmony Dam views



Figure 4.8: Contextual Images - Harmony Dam panoramic indicating Harmony Shelter





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Figure 4.7: Contextual Images - Harmony Dam view from dam wall

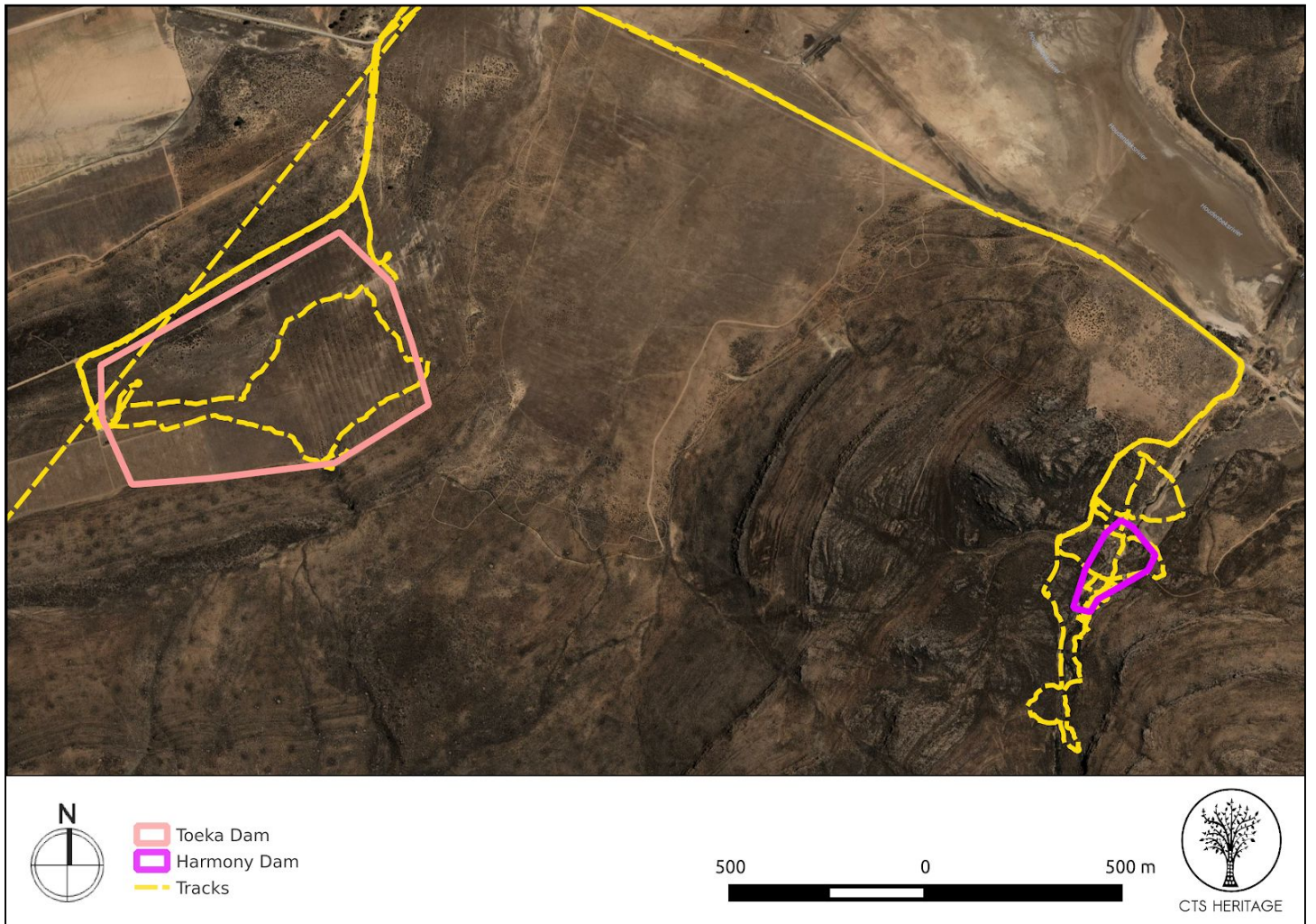


Figure 5: Overall track paths of foot survey





## 4.2 Archaeological Resources identified

### ***Toeka Dam***

No archaeological resources were located during a fairly brief field assessment of the proposed Toeka Dam. There is barely any surface stone covering the site, which comprises a severely transformed landscape. The only surface stone noted was layered or packed alongside sections of some of the drainage channels which cut through the site. No archaeologically modified stone was found.

### ***Harmony Dam***

Well preserved rock art was located in a large,  $\pm 120\text{m}$  long sandstone overhang/shelter located on the eastern bank of the small, unnamed perennial stream. Large numbers (several thousand) of Later Stone Age (LSA) lithics, including chips, chunks, modified and unmodified flakes were counted, on the weathered gritty floodplain sands immediately in front of the shelter. Both bladelet and cylindrical cores were found, including miscellaneous retouched pieces and at least two adzes. Several miscellaneous grindstone pieces and a hammerstone were also counted. No scrapers, backed pieces, ostrich eggshell, beads, or pottery was found. The majority of the lithics are in very fine grained lydianite/indurated shale, but tools in silcrete, quartz and CCS were also seen. One re-used Middle Stone Age (MSA) quartzite flake was found.

At least a dozen medium sized rocks, seemingly intentionally placed were identified on the floodplain sands in front of the shelter. These may have been used as small seats/'chairs' where flaking/knapping took place. The density of artefactual stone is very high around some of these rocks.

A limited number of stone artefacts (flakes and chunks), and some bone was also noted inside the shelter/overhang on a very shallow (possibly leached) sandy, ashy' deposit on surface bedrock. A very weathered fragment of marine shellfish was also found, suggesting contact with the coast more than 200kms away.

### **Description of rock art**

Two distinct painted 'panels' were found, approximately 70m apart on the walls of the sandstone overhang.

- Harmony 1 (S32° 59.966' E19° 27.697')

Comprises a large panel ( $\pm 12\text{m}$  wide) that includes mostly symbolic/non-representational art, including concentric circles of dots, vertical lines of connected dots, and floating 'ghost like' human forms, all in red ochre. Some of these forms appear to have 'fish tails'. At least one faint human figure is identifiable. The art is mostly well preserved, but some is also quite faded. Multiple trance metaphors are present.

- Harmony 2 (S32° 59.928' E19° 27.727')

Comprises 3 attenuated human figures (30cm long), carrying sticks and possibly quivers, facing a crack/curve in the wall (portal to the underworld). One distinct hook headed figure can be seen. The leg of one of the male figures (possibly with an infibulated penis) is 'touching' the head of a small eland to the right. The head of the eland is painted in white ochre, which has almost faded away.



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Some smudged art (possibly a palette) is located on a very smooth, pitted, slab of sandstone immediately below the above painting, and at least one very faded human figure connected by long red streamers/lines to 2 indeterminate antelopes can also be seen.

It is interesting that there is such a wide, 'dead' space between these two very distinct collections of imagery and it remains to be seen whether the symbolic art is older (or more recent) than the representational art.

The rock art sites (Harmony 1 & Harmony 2), together with the occupation (possibly aggregation) site and associated high density of artefactual remains, have been graded as having high (IIIA), local archaeological significance.

- Harmony 3 (S32° 59.733' E19° 27.795')

Several stone flakes of low (Grade IIIC) significance scattered on soft sands surrounding a prominent outcrop. This site is located outside of the study area.

**Table 2: Artefacts identified during the field assessment within the dam area**

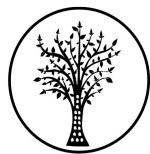
Point ID	Site No	Site Name	Description	Co-ordinates	Grading	Mitigation
514306	HMY1	Harmony 1	Rock art site	S32° 59.966' E19° 27.697'	Grade IIIA	Dam must be moved
514308	HMY2	Harmony 2	Rock art site	S32° 59.928' E19° 27.727'	Grade IIIA	Dam must be moved
514310	HMY3	Harmony 3	Artefacts	S32° 59.733' E19° 27.795'	Grade IIIC	None

#### 4.3 Selected photographic record



**Figure 6.1 and 6.2 Harmony Shelter**





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Figure 6.3 and 6.4 Harmony Shelter



Figure 6.5 Rock art from Harmony Shelter and 6.6 D-Stretch

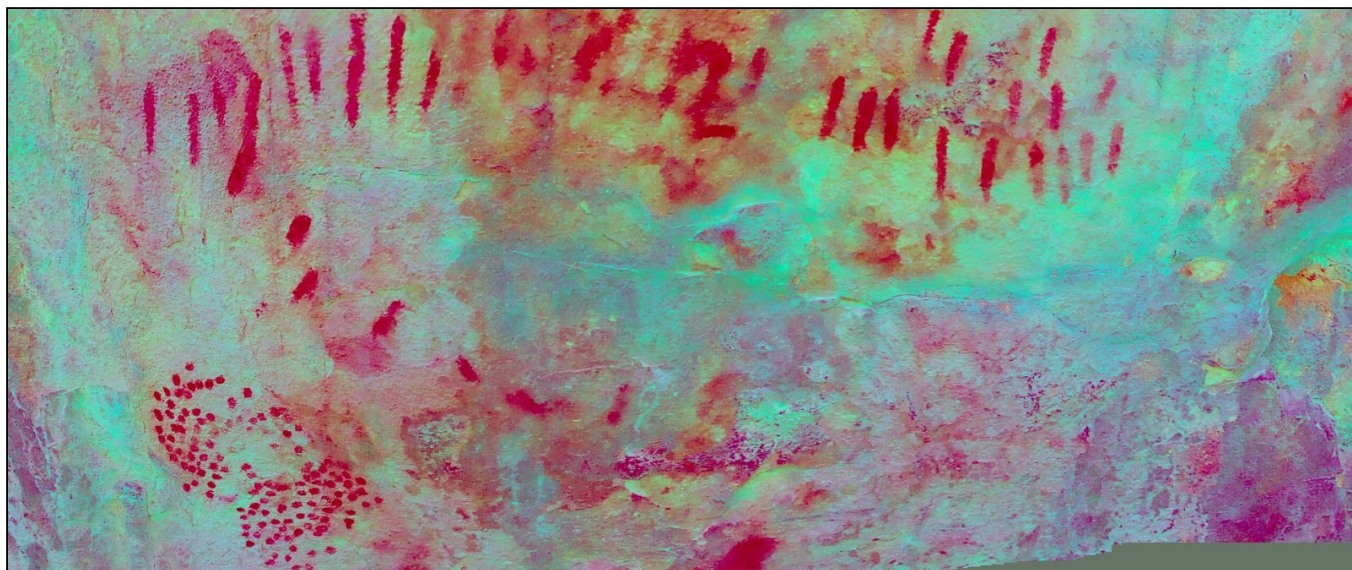


Figure 6.7 Panel from Harmony Shelter





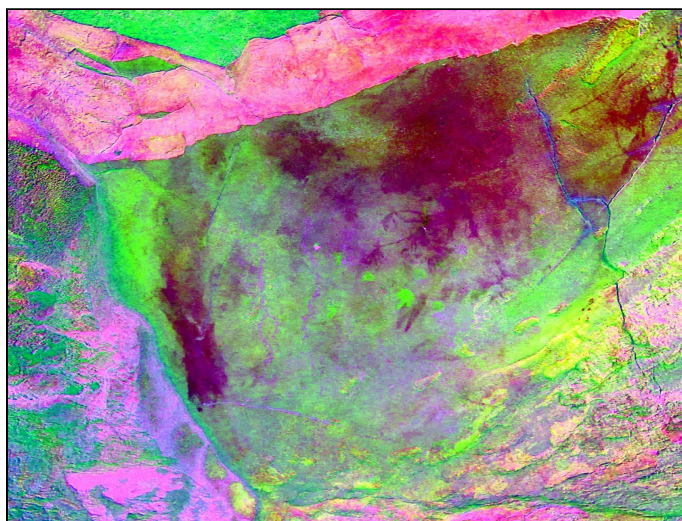
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6.8 Panel from Harmony Shelter D-Stretch



6.9 Rock art from Harmony Shelter and 6.10 D-Stretch



6.11 Rock art on smooth slab below panel and 6.12 D-Stretch





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## 5. ASSESSMENT OF THE IMPACT OF THE DEVELOPMENT

### 5.1 Assessment of impact to Archaeological Resources

#### *Toeka Dam*

This area is not a sensitive archaeological landscape. No archaeological resources were found on the site which is an old apple orchard and has been extensively cultivated in the past.

#### *Harmony Dam*

Rock art sites (Harmony 1 & Harmony 2) including associated archaeological resources (i.e. high density stone artefacts) and *in-situ* archaeological deposit have, collectively been rated as having *high* (Grade IIIA) (local) archaeological significance. Facing west, in shadow, and protected by vegetation the rock art/imagery is well preserved and comprises both representational art (Harmony 2) and highly symbolic art (Harmony 1). There is no graffiti, and only minimal percolation of natural salts from behind the painted surfaces. **Construction of the proposed Harmony Dam and full supply level will have a severe, negative impact on the archaeological resource.** Full supply level flags have been placed immediately in front of the sandstone shelter, a mere 2-3 meters from the wall of the shelter.

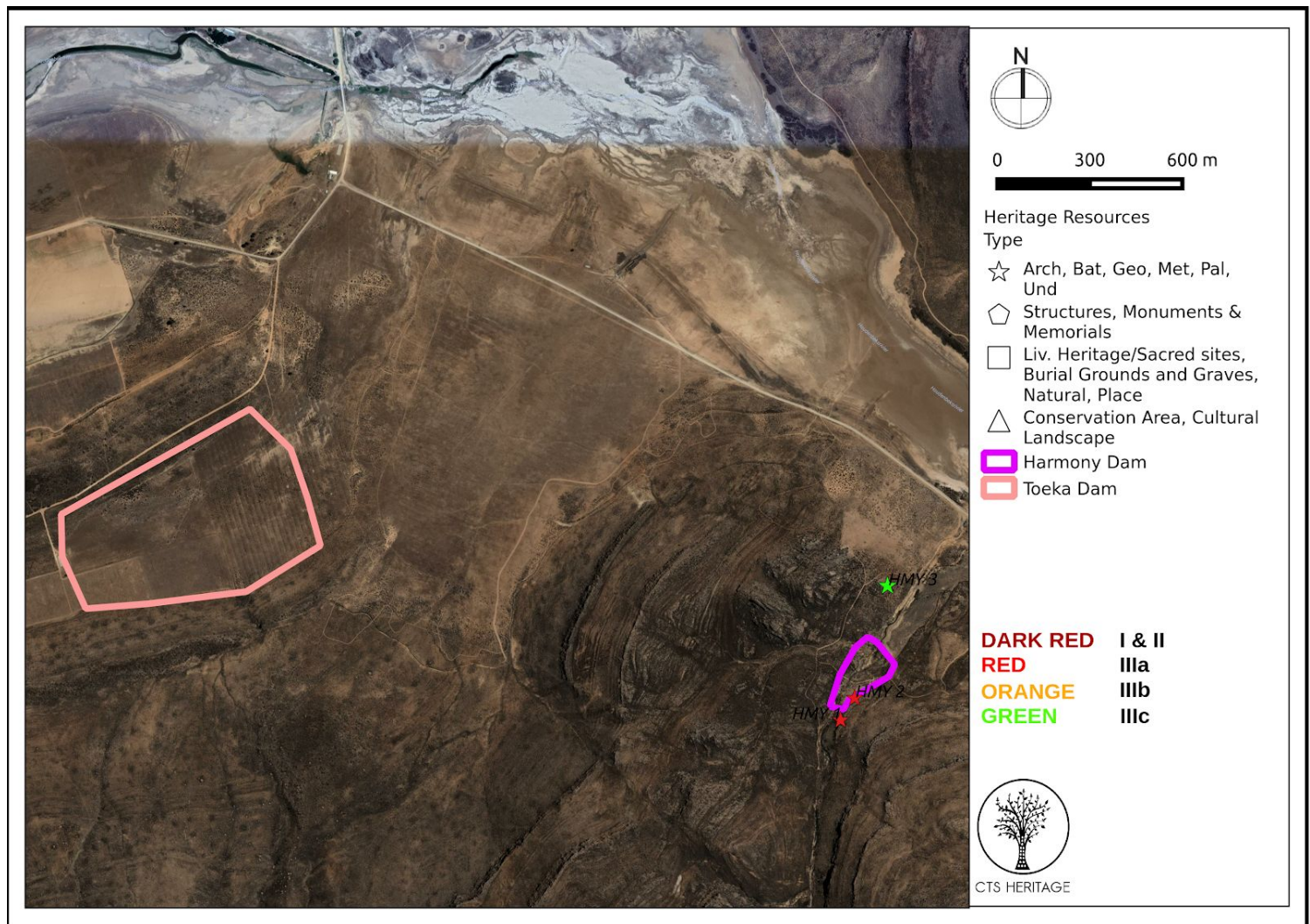


Figure 7.1: Map of heritage resources identified during the field assessment relative to the proposed development



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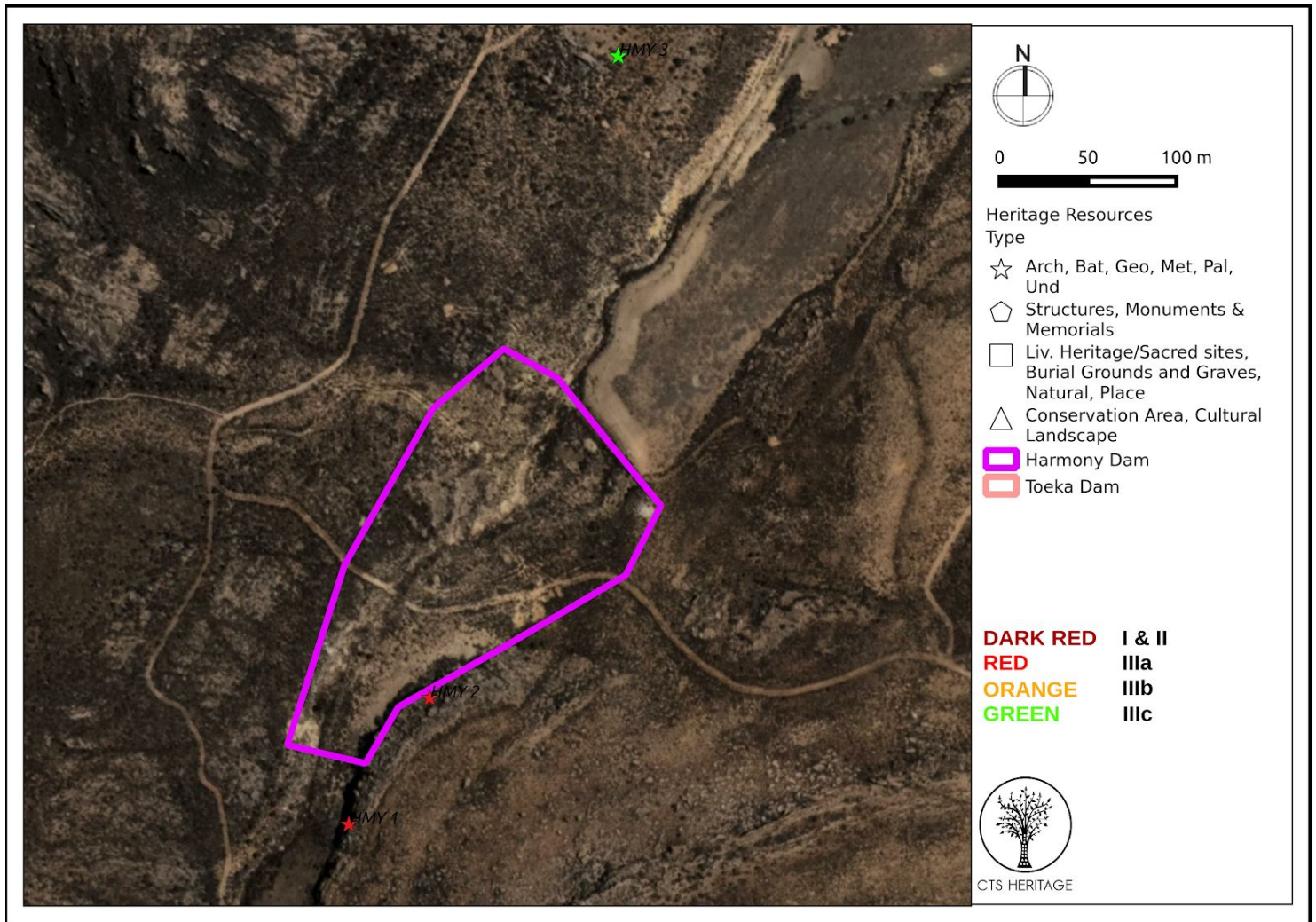


Figure 7.2: Map of heritage resources identified during the field assessment relative to the proposed development focussed on Harmony Dam

## 6. CONCLUSION AND RECOMMENDATIONS

### Toeka Dam

No mitigation required. There is no objection to the proposed establishment of this dam.

### Harmony Dam

The dam footprint must be redrawn or shifted to a smaller footprint north of the rock outcrop, or an expanded footprint further to the north, so as to completely avoid the rock outcrop/sandstone shelter (Harmony 1 & Harmony 2). The Harmony Dam can proceed as long as the full supply level is lowered to protect the important archaeological resources. Alternatively, the proposed Harmony Dam site must be located in a new area entirely, however this new area must also be assessed for impacts to significant archaeological heritage.

It is recommended that a Heritage Agreement in terms of section 42 of the NHRA be signed between the landowner and HWC to ensure that this significant archaeological site is protected and conserved.



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## 7. REFERENCES