



CTS HERITAGE

HERITAGE SCREENER

CTS Reference Number:	CTS17_154
HWC Reference:	
Client:	EnviroAfrica
Date:	16 April 2018
Title:	Proposed Development of the Houdenbek Dams, Western Cape
Recommendation by CTS Heritage Specialists:	RECOMMENDATION: The heritage resources within the area proposed for the development have not been adequately surveyed yet - As it is unlikely that the proposed development will impact on significant heritage resources, it is recommended that a Heritage Impact Assessment be conducted for Harmony Dam that focuses on impacts to archaeological heritage resources.

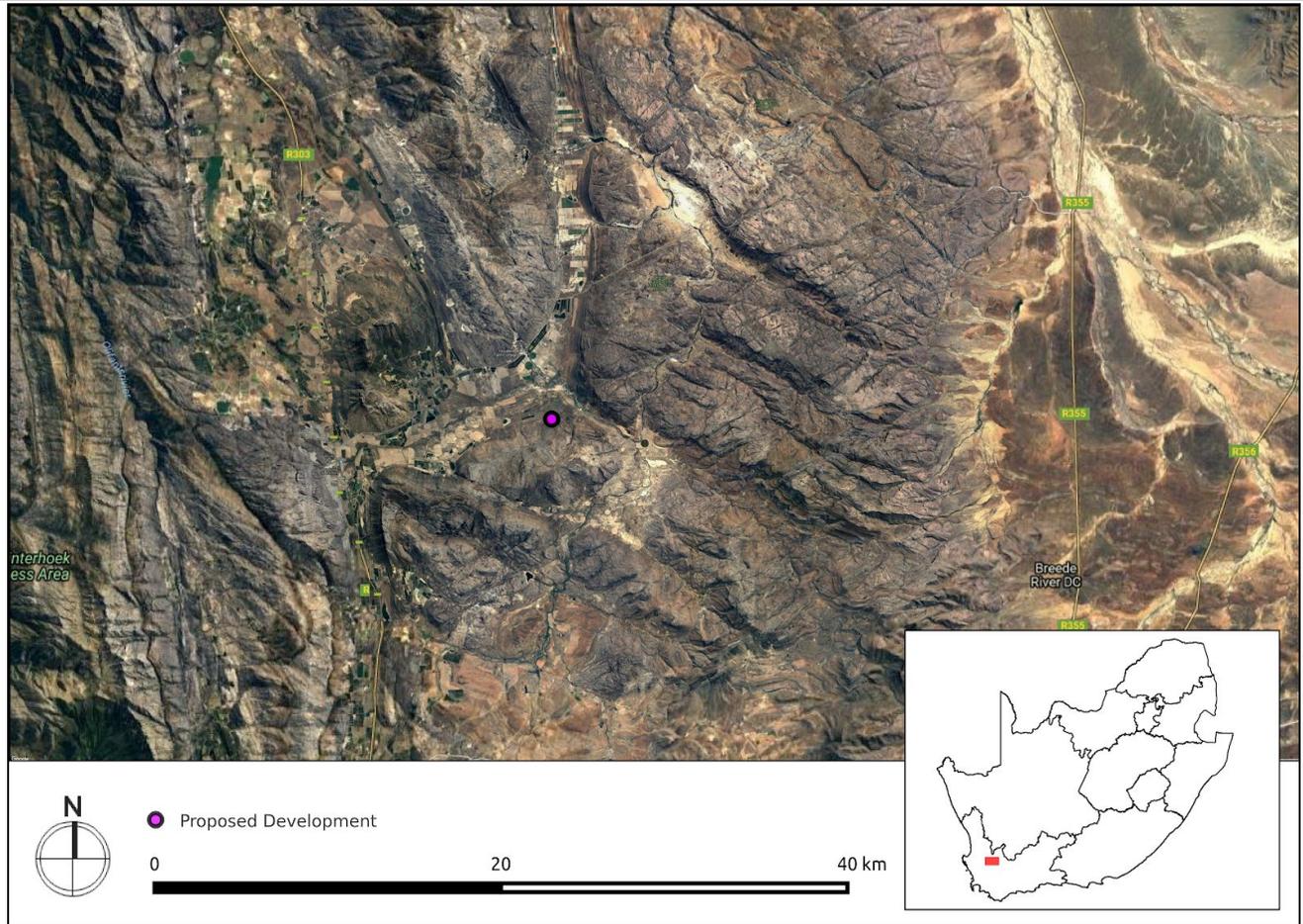


Figure 1a. Satellite map indicating the location of the proposed development in the Western Cape Province

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1. Proposed Development 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.

2. Application References

Name of relevant heritage authority(s)	Heritage Western Cape
Name of decision making authority(s)	Department of Environment and Development Planning

3. Property Information

Latitude / Longitude	-32.9976 / 19.4491
Erf number / Farm number	Houdenbek 415
Local Municipality	Witzenberg Local Municipality
District Municipality	Cape Winelands District Municipality
Previous Magisterial District	Boland
Province	Western Cape
Current Use	Agriculture
Current Zoning	Agriculture
Total Extent	2125.46 ha

4. Nature of the Proposed Development

Total Surface Area	Harmony dam is proposed to be approximately 5ha in extent and Toeka Dam is proposed to be 35ha in extent
Depth of excavation (m)	NA
Height of development (m)	Harmony dam wall will be 13m high and Toeka Dam wall will be 14m high
Expected years of operation before decommission	NA

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5. Category of Development

Triggers: Section 38(8) of the National Heritage Resources Act	X
Triggers: Section 38(1) of the National Heritage Resources Act	
1. Construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier over 300m in length.	
2. Construction of a bridge or similar structure exceeding 50m in length.	
3. Any development or activity that will change the character of a site-	
a) exceeding 5 000m ² in extent	X
b) involving three or more existing erven or subdivisions thereof	
c) involving three or more erven or divisions thereof which have been consolidated within the past five years	
4. Rezoning of a site exceeding 10 000m ²	
5. Other (state):	

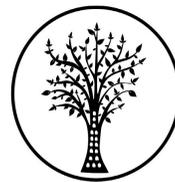
6. Additional Infrastructure Required for this Development

It is proposed that for the Harmony Dam, a wall of 270m will be constructed 13m high to create the dam. For the Toeka Dam, a wall of 636m will be constructed 14m high to create the dam.

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7. Mapping (please see Appendix 3 and 4 for a full description of our methodology and map legends)



Figure 1b. Overview Map. Satellite image (2017) indicating the proposed development area in its immediate context.



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Figure 1c. Overview Map. Satellite image (2017) indicating the proposed development area for Harmony Dam in its immediate context.

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 Toeka Dam

100 0 100 m



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Figure 1d. Overview Map. Satellite image (2017) indicating the proposed development area for Toeka Dam in its immediate context.

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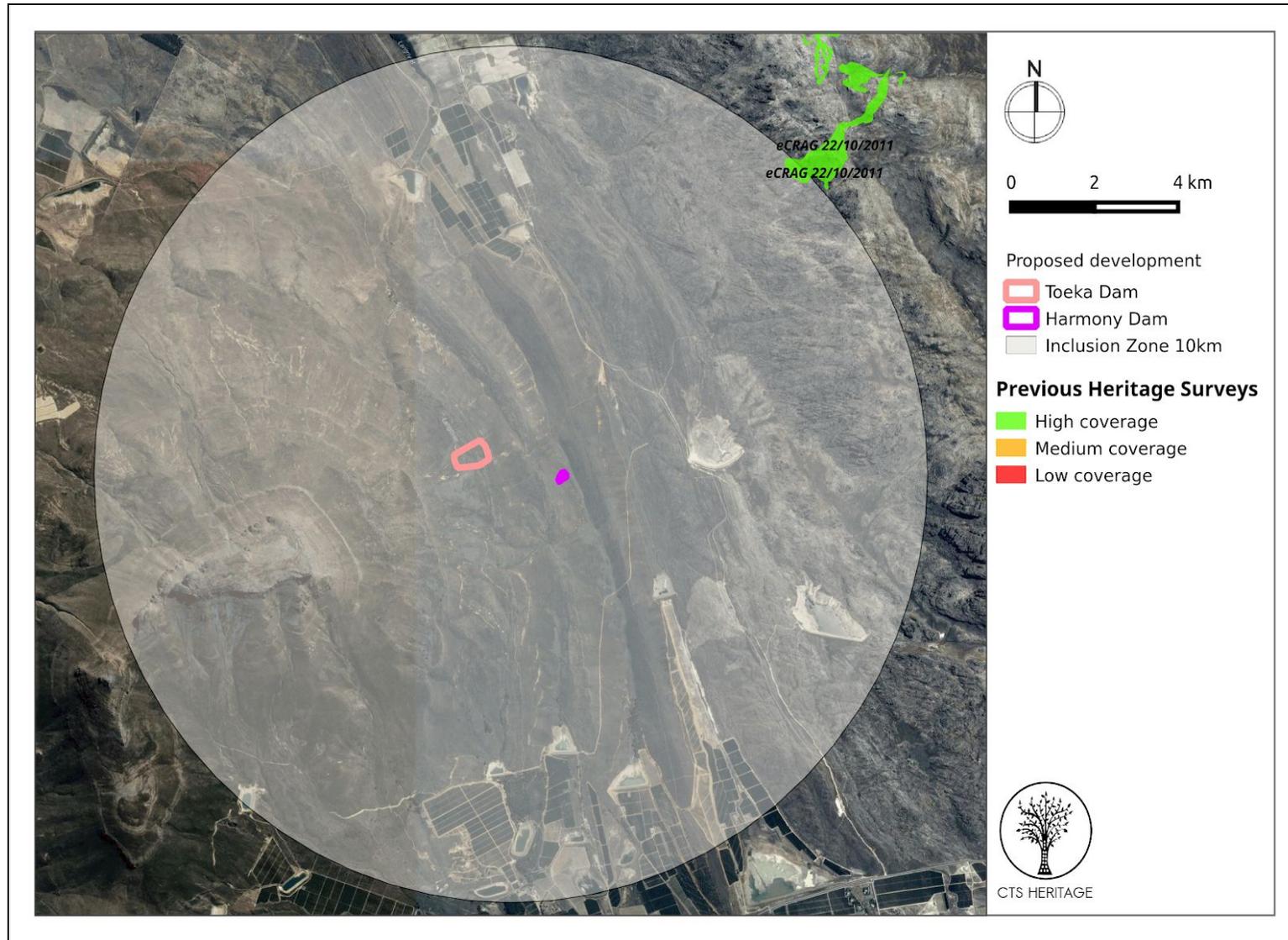


Figure 2a. Previous HIAs map. Previous Heritage Impact Assessments surrounding the proposed development area within 10kms, with SAHRIS NIDS indicated (please see Appendix 2 for full reference list).



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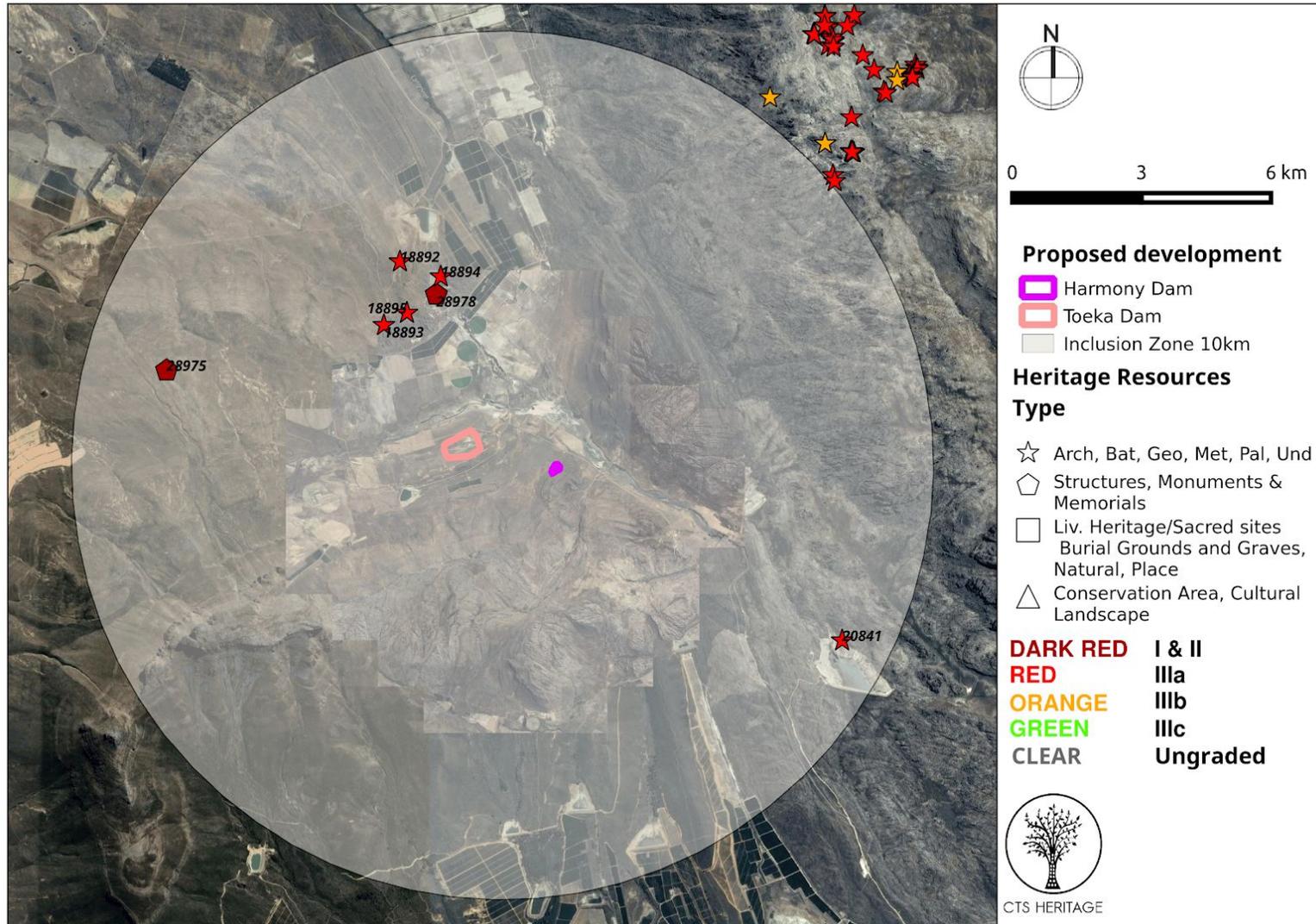


Figure 3a. Heritage Resources Map. Heritage resources previously identified in and near the study area, with SAHRIS Site IDs indicated (see Figure 3b for inset). See Appendix 4 for full description of heritage resource types.

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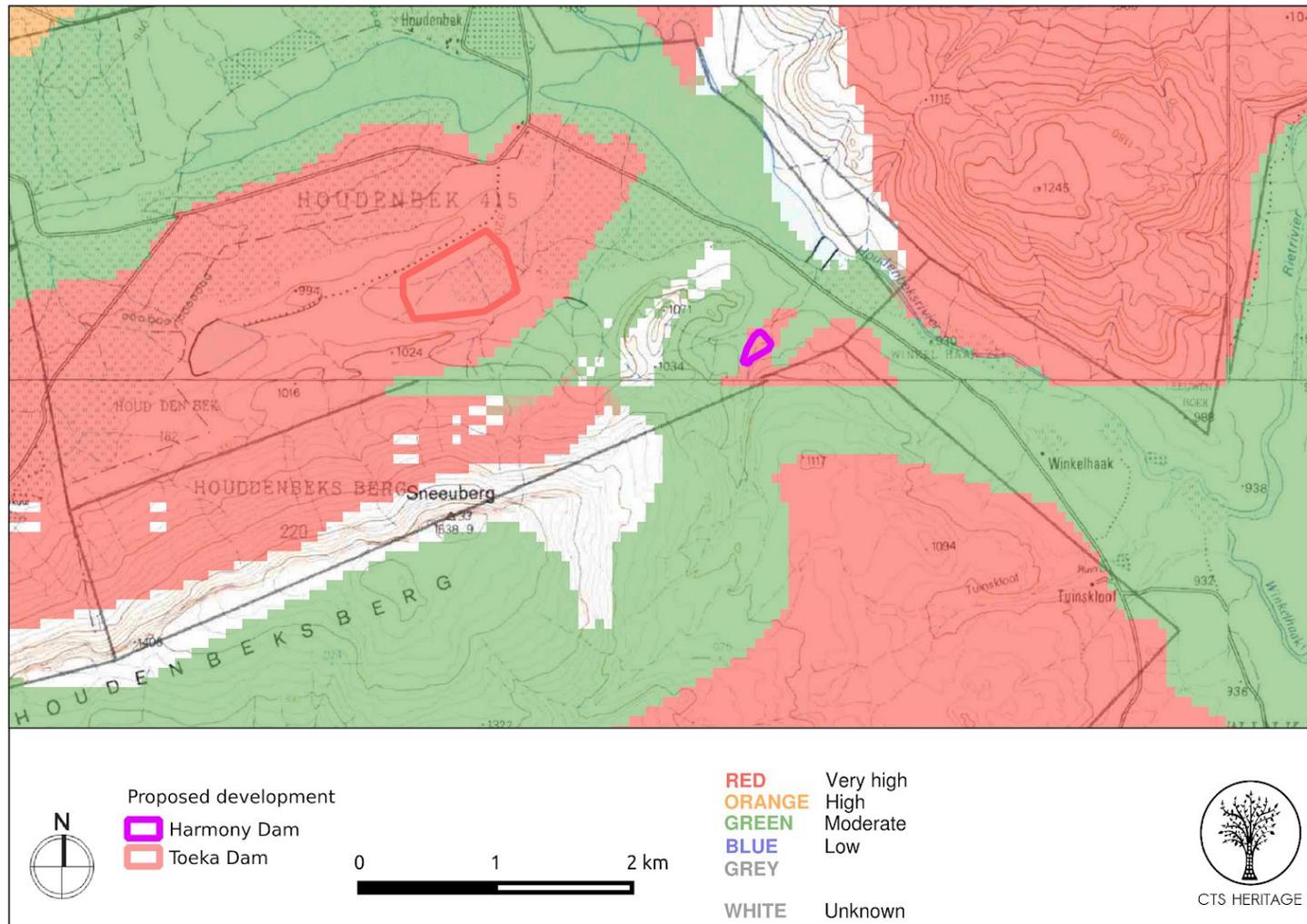


Figure 4. Palaeosensitivity Map, indicating very high fossil sensitivity underlying the study area. See Appendix 3 for full guide to the legend.

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Figure 5a and 5b. Landscape Map, indicating the location of the proposed (a) Harmony Dam and (b) Toeka Dam

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8. Heritage statement and character of the area

This application is for the proposed Harmony and Toeka dam project on Farm Houdembek 415, Witzenberg Municipality. 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.

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 (Map 3a). 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 000m³. 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 000m³. 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 the proposed Harmony and Toeka Dams fall within areas of very high palaeontological sensitivity (Map 4a). The proposed Harmony Dam lies within the Witpoort Formation. This formation is known for diverse lagoonal biota of fish (placoderms, acanthodians, sharks, several subgroups of bony fish, lampreys *etc*), arthropods (*eg* eurypterids), rich vascular plant flora (lycopods, progymnosperms *etc*), seaweeds, charophytes, low diversity trace assemblages, including *Spirophyton*. The proposed Toeka Dam lies within the Gydo Formation. This formation is part of the Ceres Sub-group and is known for diverse shelly invertebrate biotas dominated by brachiopods, echinoderms, trilobites and molluscs (with several other minor groups), diverse trace fossils, rare fish remains (acanthodians, placoderms, sharks, bony fish) & primitive vascular plants (psilophytes, lycopods); microfossils.

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. As the establishment of these proposed dams will not require any excavation into fossiliferous bedrock, it is unlikely that significant palaeontological resources will be impacted by the proposed development. From an archaeological perspective, the area designated for the Toeka Dam has already been heavily cultivated, no rock art outcrops fall within this zone and surface archaeological material which may be found there is not *in situ*. We therefore do not recommend further heritage studies for the Toeka Dam. However, a possible outcrop falls within the Harmony Dam which may contain archaeological resources such as rock art. It is therefore recommended that a Heritage Impact Assessment be conducted for Harmony Dam that focuses on impacts to archaeological heritage resources.

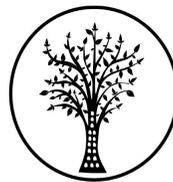
RECOMMENDATION:

The heritage resources within the area proposed for the development have not been adequately surveyed yet - As it is unlikely that the proposed development will impact on significant heritage resources, it is recommended that a Heritage Impact Assessment be conducted for Harmony Dam that focuses on impacts to archaeological heritage resources.

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APPENDIX 1

List of heritage resources within the 5km Inclusion Zone

Site ID	Site no	Full Site Name	Site Type	Grading
28975	9/2/021/0009	Boplaas, Ceres District	Building	Old National Monument
28978	9/2/021/0012	Excelsior, Ceres District	Building	Old National Monument
18892	MRG1	Morgenster 1	Rock Art, Artefacts, Deposit	Grade IIIa
18893	MRG2	Morgenster 2	Rock Art, Artefacts	Grade IIIa
18894	MRG3	Excelsior A	Rock Art	Grade IIIa
18895	MRG4	Excelsior C	Rock Art	Grade IIIa
20841	WINKEL1	Winkelhaaks 1	Rock Art	Grade IIIa

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APPENDIX 3 - Keys/Guides

Key/Guide to Acronyms

AIA	Archaeological Impact Assessment
DARD	Department of Agriculture and Rural Development (KwaZulu-Natal)
DEA	Department of Environmental Affairs
DEADP	Department of Environmental Affairs and Development Planning (Western Cape)
DEDEAT	Department of Economic Development, Environmental Affairs and Tourism (Eastern Cape)
DEDECT	Department of Economic Development, Environment, Conservation and Tourism (North West)
DEDT	Department of Economic Development and Tourism (Mpumalanga)
DEDTEA	Department Of economic Development, Tourism And Environmental Affairs (free State)
Denc	Department Of Environment And Nature Conservation (northern Cape)
DMR	Department of Mineral Resources
Gdard	Gauteng Department Of Agriculture And Rural Development (gauteng)
HIA	Heritage Impact Assessment
Ledet	Department Of Economic Development, Environment and Tourism (Limpopo)
MPRDA	Mineral and Petroleum Resources Development Act, no 28 of 2002
NEMA	National Environmental Management Act, no 107 of 1998
NHRA	National Heritage Resources Act, no 25 of 1999
PIA	Palaeontological Impact Assessment
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resources Information System
VIA	Visual Impact Assessment

Full guide to Palaeosensitivity Map legend

	RED:	VERY HIGH - field assessment and protocol for finds is required
	ORANGE/YELLOW:	HIGH - desktop study is required and based on the outcome of the desktop study, a field assessment is likely
	GREEN:	MODERATE - desktop study is required
	BLUE/PURPLE:	LOW - no palaeontological studies are required however a protocol for chance finds is required
	GREY:	INSIGNIFICANT/ZERO - no palaeontological studies are required
	WHITE/CLEAR:	UNKNOWN - these areas will require a minimum of a desktop study.

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APPENDIX 4 - Methodology

The Heritage Screener summarises the heritage impact assessments and studies previously undertaken within the area of the proposed development and its surroundings. Heritage resources identified in these reports are assessed by our team during the screening process.

The heritage resources will be described both in terms of **type**:

- Group 1: Archaeological, Underwater, Palaeontological and Geological sites, Meteorites, and Battlefields
- Group 2: Structures, Monuments and Memorials
- Group 3: Burial Grounds and Graves, Living Heritage, Sacred and Natural sites
- Group 4: Cultural Landscapes, Conservation Areas and Scenic routes

and **significance** (Grade I, II, IIIa, b or c, ungraded), as determined by the author of the original heritage impact assessment report or by formal grading and/or protection by the heritage authorities.

Sites identified and mapped during research projects will also be considered.

DETERMINATION OF THE EXTENT OF THE INCLUSION ZONE TO BE TAKEN INTO CONSIDERATION

The extent of the inclusion zone to be considered for the Heritage Screener will be determined by CTS based on:

- the size of the development,
- the number and outcome of previous surveys existing in the area
- the potential cumulative impact of the application.

The inclusion zone will be considered as the region within a maximum distance of 50 km from the boundary of the proposed development.

DETERMINATION OF THE PALAEOLOGICAL SENSITIVITY

The possible impact of the proposed development on palaeontological resources is gauged by:

- reviewing the fossil sensitivity maps available on the South African Heritage Resources Information System (SAHRIS)
- considering the nature of the proposed development
- when available, taking information provided by the applicant related to the geological background of the area into account

DETERMINATION OF THE COVERAGE RATING ASCRIBED TO A REPORT POLYGON

Each report assessed for the compilation of the Heritage Screener is colour-coded according to the level of coverage accomplished. The extent of the surveyed coverage is labeled in

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three categories, namely low, medium and high. In most instances the extent of the map corresponds to the extent of the development for which the specific report was undertaken.

Low coverage will be used for:

- desktop studies where no field assessment of the area was undertaken;
- reports where the sites are listed and described but no GPS coordinates were provided.
- older reports with GPS coordinates with low accuracy ratings;
- reports where the entire property was mapped, but only a small/limited area was surveyed.
- uploads on the National Inventory which are not properly mapped.

Medium coverage will be used for

- reports for which a field survey was undertaken but the area was not extensively covered. This may apply to instances where some impediments did not allow for full coverage such as thick vegetation, etc.
- reports for which the entire property was mapped, but only a specific area was surveyed thoroughly. This is differentiated from low ratings listed above when these surveys cover up to around 50% of the property.

High coverage will be used for

- reports where the area highlighted in the map was extensively surveyed as shown by the GPS track coordinates. This category will also apply to permit reports.

RECOMMENDATION GUIDE

The Heritage Screener includes a set of recommendations to the applicant based on whether an impact on heritage resources is anticipated. One of three possible recommendations is formulated:

(1) The heritage resources in the area proposed for development are sufficiently recorded - The surveys undertaken in the area adequately captured the heritage resources. There are no known sites which require mitigation or management plans. No further heritage work is recommended for the proposed development.

This recommendation is made when:

- enough work has been undertaken in the area
- it is the professional opinion of CTS that the area has already been assessed adequately from a heritage perspective for the type of development proposed

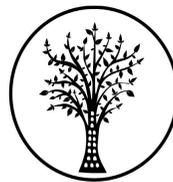
(2) The heritage resources and the area proposed for development are only partially recorded - The surveys undertaken in the area have not adequately captured the heritage resources and/or there are sites which require mitigation or management plans. Further specific heritage work is recommended for the proposed development.

This recommendation is made in instances in which there are already some studies undertaken in the area and/or in the adjacent area for the proposed development. Further studies in a limited HIA may include:

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- improvement on some components of the heritage assessments already undertaken, for instance with a renewed field survey and/or with a specific specialist for the type of heritage resources expected in the area
- compilation of a report for a component of a heritage impact assessment not already undertaken in the area
- undertaking mitigation measures requested in previous assessments/records of decision.

(3) The heritage resources within the area proposed for the development have not been adequately surveyed yet - Few or no surveys have been undertaken in the area proposed for development. A full Heritage Impact Assessment with a detailed field component is recommended for the proposed development.

Note:

The responsibility for generating a response detailing the requirements for the development lies with the heritage authority. However, since the methodology utilised for the compilation of the Heritage Screeners is thorough and consistent, contradictory outcomes to the recommendations made by CTS should rarely occur. Should a discrepancy arise, CTS will immediately take up the matter with the heritage authority to clarify the dispute.

The compilation of the Heritage Screener will not include any field assessment. The Heritage Screener will be submitted to the applicant within 24 hours from receipt of full payment. **If the 24-hour deadline is not met by CTS, the applicant will be refunded in full.**

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