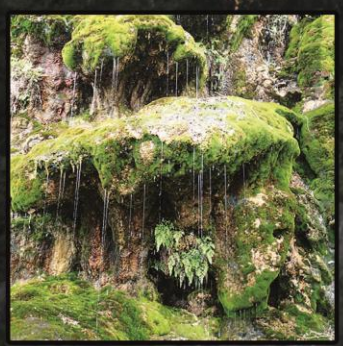
Taung Skull World Heritage Site

Heritage Management Plan

Improvement of Visitor Facilities, Site Infrastructure and
Heritage Conservation Measures at the Taung Skull World Heritage Site

DOCUMENT FOR COMMENT
JULY 2015





Document for Comment

Taung Skull World Heritage Site

Heritage Management Plan

Improvement of Visitor Facilities, Site Infrastructure and Heritage Conservation Measures at the Taung Skull World Heritage Site

July 2015

Vision for the Taung Skull World Heritage Site[1]

To ensure that the World Heritage and other multiple natural and cultural values of the Taung Skull World Heritage Site are understood, conserved, protected, respected and shared by all.

[1] From: The Integrated Management Plan (IMP) for the Taung Skull World Heritage Site 2010 - 2015.

Project Name
Improvement on Visitor Facilities, Site Infrastructure and Heritage Conservation Measures at the Taung Skull World Heritage Site

World Heritage Property Name
Taung Skull Fossil Site
Taung, North West Province, South Africa

Management Authority
Department of Rural, Environment and Agricultural Development (READ)
North West Provincial Government of South Africa

Project Proponent
Department of Rural, Environment and Agricultural Development (READ)
North West Provincial Government of South Africa

Publication Date
July 2015

External Review
Dr David Morris from the McGregor Museum in Kimberley and Dr Otsile Ntsoane from Tshwane have been engaged to conduct an external review on the documents.

Table of Contents

List of Figures

List of Tables

Acronyms

CHRS	Cultural Heritage Resources Survey
CMP	Conservation Management Plan
FHSSA	The Fossil Hominid-bearing Sites of South Africa
HCO	Heritage Control Officer
HIA	Heritage Impact Assessment
HMP	Heritage Management Plan
KPA	Key Performance Area
IMP	Integrated Management Plan
LED	Local Economic Development
NHRA	National Heritage Resource Act
OUV	Outstanding Universal Value
READ	Rural, Environment and Agricultural Development of the North West Province of South Africa
SAHRA	South African Heritage Resource Agency
TSWHS	Taung Skull World Heritage Site
UNESCO	United Nations Educational, Scientific and Cultural Organisation
VIA	Visual Impact Assessment
WHL	World Heritage List
WHS	World Heritage Site

Non-technical Summary

The Heritage Management Plan (HMP) describes the management and mitigation measures that are to be implemented in order to address the heritage impacts of the proposed '*Improvement on Visitor Facilities, Site Infrastructure and Heritage Conservation Measures at the Taung Skull World Heritage Site'*. These measures are required in order to ensure that the negative heritage impacts are minimised and/or prevented and positive heritage impacts are enhanced, as far as is possible.

This HMP further provides development guidelines, specifically in terms of site specific and/or activity specific planning and design, and also makes provision for compliance monitoring, stipulating applicable standards and timeframes where relevant. The HMP also identifies specific people to undertake specific tasks, allocates responsibility and accountability, and provides for verification of the effective implementation of the Heritage Management Objectives, as identified in the over-arching Integrated Management Plan (IMP) for the Taung Skull World Heritage Site 2010 - 2015.

The HMP is also compiled to span specific time-bound IMP's and focuses on practical and specific monitoring and measurement of activities that may have a detrimental heritage impact. Also described in this document are the specific control methods that will be implemented in the case of any specific action or process that may threaten the Outstanding Universal Value (OUV) of the site, as well as any risk that may harm the Integrity and/or Authenticity of the TSWHS.

Any potential future maintenance activities that may be necessary within the life-cycle of any activity or project within the Core Are or Buffer Zone, for instance in response to normal wear and tear, weathering, damage, fire etc., must be conducted in accordance with the provisions of this HMP. Any changes / expansions to the use of the site and / or any of its facilities may require further approval from SAHRA and must be conducted in accordance with the provisions of this HMP and any subsequent and SAHRA approved amendments.

It is recommended that all works on the site (planning and design, construction, rehabilitation, operational, maintenance and decommissioning phases) be monitored by the Site Archaeologist on a weekly basis, or as needed basis, and as per the requirements of the Heritage Management Plan. Outcomes are to be systematically recorded, with assistance being requested by specialists and others, when needed.

The recommendations emerging bring attention to pertinent and current issues at the TSWHS, as related to the various project components considered. The actions required to address impacts can be taken and require continued support to an already active planning and implementation effort by the Management Authority. The following recommendations are made:

1. All construction activities on the site should be monitored and audited during the construction period. This can be conducted by the Site Officer or an adequately qualified and independent Heritage Control Officer (HCO).

2. The option to establish a camping area within the Core Area is removed from the Conceptual Development Plan and an alternative location for such a camping facility is explored. A possible alternative site for the establishment of a camping area is at Thomeng Falls, yet taking into full cognisance that this area has very sensitive wetlands that need to be better managed.

3. The proposed project components 1 to 11 are recommended for approval, as they will lead to the general improvement of management on the Taung Skull WHS and stimulate local economic development, as well as improve visitor experience and safety. Mitigation measures must however be implemented and conservation measures at sensitive heritage sites requires detailed planning.

4. The proposed project components 1 to 11 are recommended for approval, as they will lead to the general improvement of management on the Taung Skull WHS and stimulate local economic development, as well as improve visitor experience and safety. Mitigation measures must however be implemented.

5. Detailed plans should be compiled for conservation measures at the heritage sites, as a top priority and be implemented before visitors are allowed access to the sites.

6. Some of the existing buildings earmarked for reuse have stood derelict for years. Their structural integrity must be checked by structural engineers and confirmed during the planning and design phase.

7. The nightscape should be protected through the design of all lighting on the TSWHS as low-level, down-facing dim lighting, as far as is possible and without compromising safety.

8. Mitigation and enhancement measures are detailed in a Heritage Management Plan that can deal with planning, design, construction, rehabilitation, operational and maintenance phases of the project. All management and mitigation measures should be implemented to effectively manage heritage resources from user damage.

9. The Conceptual Development Plan for the site was compiled in 2003 and should be reviewed and consolidated to reflect current ideas and intentions of the Management Authority. Such a revised site development plan would be best consolidated together with key and local stakeholders.

10. Further management interventions that are required are policies and strategies that address the issues related to the proposed and steady increase in visitation and usage of the site:
    i) Safety Strategy and Emergency Strategy;
    ii) Built Landscape Management Strategy;
    iii) Research Policy Strategy;
    iv) Visitor Management Strategy; and
    v) Interpretation Strategy.

11. Mapping of the heritage resources be compiled into a GIS database, for ease of access and to enhance planning, management and interpretation at the site.

12. No activities on the site should interfere or be in conflict with the intangible heritage related to the TSWHS.

13. The Research Committee established by READ at the provincial level for heritage sites within the North West Province should consider research management issues for the TSWHS, and a sub-committee can be formed where site specific matters need to be dealt with in detail.

14. A Built Landscape Conservation Manual should be complied to guide specific management requirements for the restoration of historic buildings and other significant cultural forms within the TSWHS. This will be of particular importance to historic buildings falling within the Buffer Zone. The 1st step in this process would be the mapping of the existing historic buildings in the Buffer Zone.

15. In the short term, all derelict buildings should be demarcated as 'off limits' and no visitors should be allowed to enter such buildings, until restoration has been completed, or the buildings have been deemed safe to enter. Such permission should be granted by a qualified safety professional.

16. In the long term, the built landscape should be restored and maintained in its authentic form, in order to enhance the integrity of the site and protect the Outstanding Universal Value. It is recommended that adequately qualified heritage architects and landscape architects are involved in the revision of the site master plan, as well as the design and restoration of all historic buildings and landscapes in the Core Area.

17. A revised Annual Operational Plan should be compiled for the site to put further focus on an already identified list of tasks that need to be completed. Such a plan typically should contain Key Performance Areas (KPAs), Annual Performance Targets, etc. and monitoring and evaluation of current projects should form part of it.

Where details are lacking, impact assessment can be conducted in the future, specific onsite management of impacts of approved projects can be managed with the Heritage Management Plan and through consulting with a qualified advisor, as necessary.

Content

The Heritage Management Plan is placed amongst the various management documents for the Taung Skull World Heritage Site (TSWHS) and introduced as a practical document that provides guidelines for all phases of any activities on the TSWHS. The Heritage Impact Assessment is summarised and impacts are listed in the Heritage Impact Statement. The monitoring of mitigation measures is highlighted as the core purpose of the HMP. The site is described to make any user of the document aware of the Outstanding Universal Value (OUV) of this site and mitigation measures are presented in each specific project phase, being the planning and design phase, the construction and rehabilitation phase, the operation and maintenance phase, and the decommissioning phase. Recommendations are provided to aid the further establishment and management of the TSWHS.

PART ONE: THE HERITAGE MANAGEMENT PLAN

1. Background

The Taung Skull Fossil Site was designated as a National Heritage Site in 2002. It is also inscribed on the World Heritage List (WHL) forming part of serial World Heritage Site (WHS), together with Sterkfontein, Swartkrans, Kromdraai and Environs, and Makapan Valley fossil hominid sites in South Africa, together named the Fossil Hominid-bearing Sites of South Africa (FHSSA). Taung Skull WHS was added to the serial nomination, together with Makapan Valley and inscribed on United Nations Educational, Scientific and Cultural Organisation (UNESCO) World Heritage List under criterion iii) and vi) in 2005, showing the site:

iii. *to bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared; and*

vi. *to be directly or tangibly associated with events or living traditions, with ideas, or with beliefs, with artistic and literary works of outstanding universal significance.*

As the Management Authority for the Taung Skull World Heritage Site (TSWHS), the Department of Rural, Environment and Agricultural Development (READ) is the promoter of improving visitor facilities at the site, so that it can be experienced and enjoyed by more and more South Africans and international visitors alike. The project under assessment involves improvements to existing visitor facilities, site infrastructure and heritage site conservation measures. These proposals come from a process of project and development planning for the TSWHS over many years, and all projects under application fall in line with previous conceptual level site planning and land use zoning, as detailed in the Integrated Management Plan 2010 - 2015.

The Taung Skull World Heritage Site referred to as the 'site' in this report, falls on the property 'Remainder of Taung 894 HN' and has the following WHS property characteristics, as detailed in Table 1.

Table 1: Taung Skull WHS Properties

Name **Location**	**Criteria**	**Coordinates**	**Area**	**Date Inscribed**
Taung Skull Fossil Site Taung, North West Province, South Africa	(iii) (vi)	27° 37' 10" S 24° 37' 59" E	Property: 58.742905 Ha Buffer Zone: 3387 Ha	2005

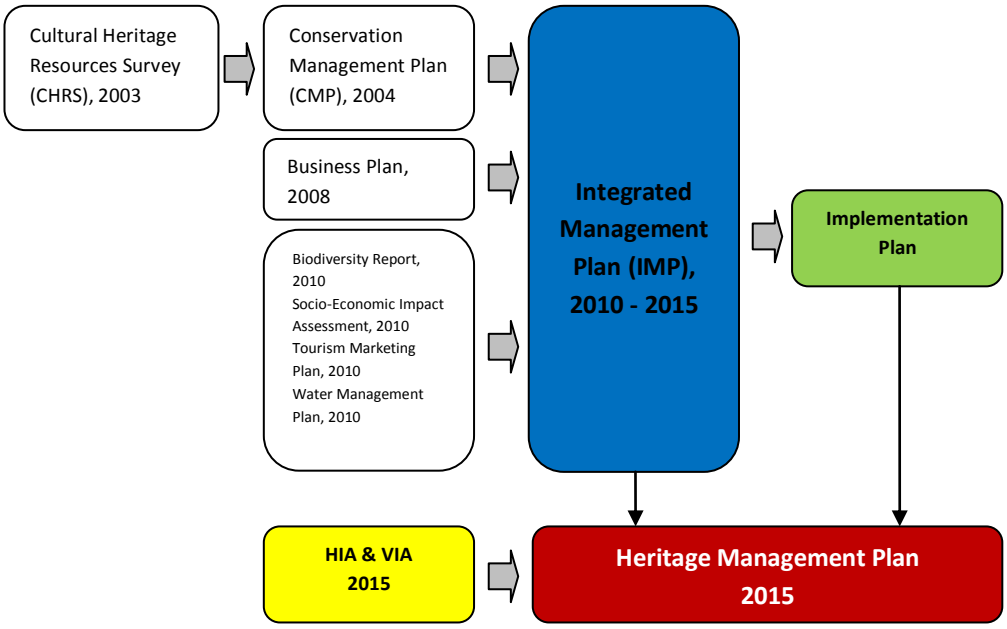
Visitor management and the development of visitor facilities at any WHS is no easy task, and local stakeholder and community support will need to form the basis of all attempts at stimulating the local economy. Creating realistic expectations amongst the local community of the risks, scale and likely economic impacts is also important. Much planning has however occurred and the local community want to now see improved project implementation.

In terms of the National Heritage Resources Act, 1999, as well the World Heritage Site Act, 1999, approvals from both the South African Heritage Resource Agency (SAHRA) and UNESCO are required for any alterations and maintenance on the site. This Heritage Management Plan (HMP) provides a guideline for such activities, covering all the project phases in the project life-cycle, including planning and design, construction, rehabilitation and decommissioning. The area is governed by the Greater Taung Local Municipality, as well as the Baphuduhucwana Tribal Authority.

2. Placing the Heritage Management Plan

The Heritage Management Plan (HMP) is placed amongst various management documentation for the Taung Skull WHS. The HMP is the net that catches all the detail during implementation, and ensures that implementation of the various project phases is well monitored and aligned with broader level planning and, agreements put in place during the approval stage of planning, and all the related conditions of approval.

Figure 1: Document Map placing the Heritage Management Plan



The HMP must also remain adaptive to change and continuously monitor impacts, mitigate such and feed back into the planning process.

3. Introduction

This Heritage Management Plan (HMP) describes the management and mitigation measures that are to be implemented in order to address the heritage impacts of the proposed '*Improvement on Visitor Facilities, Site Infrastructure and Heritage Conservation Measures at the Taung Skull World Heritage Site'*. These measures are required in order to ensure that the negative heritage impacts are minimised and/or prevented and positive heritage impacts are enhanced, as far as is possible.

This HMP further provides development guidelines, specifically in terms site specific and/or activity specific planning and design, and also makes provision for compliance monitoring, stipulating applicable standards and timeframes where relevant. The HMP also identifies specific people to undertake specific tasks, allocates responsibility and accountability, and provides for verification of the effective implementation of the Heritage Management Objectives, as identified in the over-arching Integrated Management Plan (IMP) for the Taung Skull World Heritage Site 2010 - 2015.

The HMP is also compiled to span specific time-bound IMP's and focuses on practical and specific monitoring and measurement of activities that may have a detrimental heritage impact. Also described in this document are the specific control methods that will be implemented in the case of any specific action or process that may threaten the Outstanding Universal Value (OUV) of the site, as well as any risk that may harm the Integrity and/or Authenticity of the TSWHS.

This HMP must be seen as a 'living document' and can be updated and/or amended at such time that it becomes clear that additional guidelines and/or requirements are necessary.

Any potential future maintenance activities that may be necessary within the life-cycle of any activity or project within the Core Are or Buffer Zone, for instance in response to normal wear and tear, weathering, damage, fire etc., must be conducted in accordance with the provisions of this HMP. Any changes / expansions to the use of the site and / or any of its facilities may require further approval from SAHRA and must be conducted in accordance with the provisions of this HMP and any subsequent SAHRA approved amendments.

This HMP should form part of all contract documentation related to implementation, operation, decommissioning and rehabilitation on the site.

The HMP is only as good as its implementation, and for this monitoring and auditing of impacts is required, for which provisions are made in Section 6.

4. Heritage Impact Assessment

A Heritage Impact Assessment (HIA) has been conducted on the project in accordance with international norms and standards and abides by the principles of heritage management that conforms to UNESCO requirements. The steps followed in the impact assessment, include the following:

- Status quo review;
- Consolidation of baseline data;
- Defining the project description;
- Inclusion of specialist studies;
- Participatory impact assessment conducted with involved stakeholders;
- Monitoring, evaluation, learning and intervention orientated heritage management planning; and
- Strategic evaluation determining detailed planning, intervention and implementation.

A two-tier assessment was conducted, firstly at a general level to identify the key heritage impact areas and where further investigation was required. Secondly a more in-depth assessment focussed on higher negative impact areas, or 'red flags' to highlight and identify ways and means to avoid negative impacts, and where not possible, to mitigate against and offset against the negative impacts.

The proposed project will have impacts both positive and negative. There is a tendency to see impacts as primarily physical and visual. While visual impacts are often very sensitive, a broad approach is needed as outlined in the ICOMOS Xi'an Declaration. Impacts take many forms – they may be **direct and indirect**; **cumulative**, **temporary and permanent**; **reversible or irreversible**, **visual**, **physical**, **social and cultural**, **even economic**. These need to be considered during any Heritage Impact Assessment (HIA) and Visual Impact Assessment (VIA). In addition, the anticipated impacts of both the construction and operation stages of the proposed development should also be assessed, since there are often different types of impacts.

Criteria considered to assess the impact of a specific activity includes the heritage value, nature of the impact, extent, duration, intensity, probability, confidence, severity, significance and timing. These criteria are used to assess and score the impact across all criteria, for each proposed activity, for both the construction and operational phases of the project. Impact assessment also has to consider assumptions, gaps and uncertainties in information, stakeholder inputs, the need and desirability of a project or activity and the consideration of alternatives.

5. Heritage Impact Statement

The impacts related to the proposed project in the upgrading of facilities and infrastructure, as well as the implementation of conservation measures at selected sensitive sites, is required. The most acceptable means to achieving such are considered within the various phases that the project components are in. A detailed impact assessment across all the proposed project components highlights both positive and negative impacts during the project phases that need to be managed accordingly.

The recommendations and mitigation measures proposed, once implemented, will reduce unnecessary negative impacts to heritage resources and thus the integrity of the site. Mitigation is also intended to enhance positive impacts resulting from further development of the site, and detail how to best manage ongoing operational and maintenance tasks.

The impacts related to the proposed project in the upgrading of facilities and infrastructure, as well as the implementation of conservation measures at selected sensitive sites, is required. A detailed impact assessment across all the proposed project components highlights both positive and negative impacts during the project phases that need to be managed accordingly.

The recommendations and mitigation measures proposed, once implemented, will reduce unnecessary negative impacts to heritage resources and thus the integrity of the site. Mitigation is also intended to enhance positive impacts resulting from further development of the site, and detail how to best manage ongoing operational and maintenance activities.

1. The No Go option is assessed in order to provide a reference for the evaluations of impacts. It is clear that to not do anything further at the TSWHS would be detrimental to the site as a whole. Intervention is clearly required to allow the site to fulfil its potential as a unique WHS and profound visitor experience.

2. Archaeological impacts can be significant, if sites and visitor access are not well managed. With mitigation and proper site management, these impacts can be reduced. The impacts are deemed insignificant and will enhance sensitive heritage sites, if planned and managed effectively.

3. Palaeontological impacts can be significant, if sites and visitor access are not well managed. With mitigation and proper site management, these impacts can be reduced. The impacts are deemed insignificant and will enhance sensitive heritage sites, if planned and managed effectively.

4. Impacts on specific heritage sites, like Equus Cave, require urgent conservation measures. Further detailed planning of conservation measures is required and this will enhance the heritage value of each of the sites.

5. Visual impacts can be significantly negative, as related to the parking area south of the New Town Buxton road. This area falls within a highly visual landscape and receptivity towards additional infrastructure will be very low and needs careful planning. The possibility of higher negative visual impacts here, as well as around the Memorial Site, calls for the visual landscape to be well managed.

6. Ecological impacts related to the use of the Thomeng Waterfall area is to be noted. This area is of conservation importance and represents not only a rare and unique wetland habitat within a contrasting and relatively dry landscape, yet is also a unique natural formation that makes this wetland site of high conservation importance and interest. The placement of infrastructure must be very well planned, and the close placement of the ablution facility to the wetland area, does pose a pollution risk, which can be avoided if well managed. Of greater importance are the management of this ablution facility and the use of the broader Thomeng Waterfall area. Parking areas will certainly reduce vehicle impacts close to the wetland area. Recent inspection shows littering and direct physical damage to the wetland area through close vehicle access. The ecological impacts here can be high and need to be well managed, with a no-go barrier demarcated and put in place.

7. Socio-economic impacts are all round positive as related to the further development of the site, as it will stimulate the local economy. Expectations and hopes on the scale and extent of economic opportunity available, or that would be made available, through the development of the site, would need to be realistically positioned and communicated, else such would have negative impacts.

Mitigation measures are proposed to best avoid, and if not possible, minimise the negative impacts, while enhancing the use of heritage resources to also ensure positive impacts. Cumulative impacts must also be considered.

Social Impacts

The socio-economic study conducted during the EIA process concludes that improvement to visitor facilities will have an improvement on the surrounding socio-economic context.

Archaeological Impacts

Archaeological impacts on the site can be minimised through the implementation of conservation measures at the sensitive heritage sites, and by ensuring that visitors are accompanied by a guide when on the site.

Palaeontological Impacts

Palaeontological impacts on the site can be minimised through the implementation of conservation measures at the sensitive heritage sites, and by ensuring that visitors are accompanied by a guide when on the site.

Visual Impacts

The visual landscape attributes to the Authenticity and Integrity of the site and visual impacts are an important factor in the design and development of the site. The involvement of professional heritage architects ensures the site is restored with integrity, and the reuse of existing buildings requires top priority, as opposed to the construction of new buildings.

Cumulative Impacts

The very purpose of improving visitor facilities and infrastructure at the site is to improve visitor experience and site interpretation, while curbing the degradation of the site. The cumulative impacts refer to additional impacts, which even if acceptable if considered in isolation, would together with the existing impacts, exceed the threshold of acceptability and cause harm to the cultural landscape.

Cumulative impacts that need attention are related to the state of buildings on the site, which are in dire need of restoration. Allowing the built environment to fall into a state of further disrepair would result in a significant negative cumulative impact on the site.

Another cumulative impact of significance includes the socio-economic impacts related to the site and its current state of operation. Currently the site is marginally functional, and improvements are required to enhance and stimulate the local economy.

A significant cumulative impact that needs attention is related to visitor impacts. The impacts of visitors to the site can be both positive and negative. A key negative cumulative impact is allowing visitors free access across the site, and this should not be allowed, especially with higher visitation numbers. A direct impact that is likely to result is the increased removal of fossils from the site, as is reported on other fossil sites. Visitor access needs to be tightly managed and through a well setup guiding system can ensure that visitors are accompanied and do not remove heritage resources.

Ongoing management is going to be required at the site to ensure that visual impacts are continuously managed. No significant cumulative impacts, over and above those already considered in the impact assessment, are foreseen at this stage of the assessment process, as long as visitor management on the site is improved. Alternatively cumulative impacts can be significant, if visitors are not well managed and have unguided access to the site.

6. Monitoring of Mitigation and Enhancement Measures

A primary purpose of the Heritage Management Plan (HMP) is to ultimately monitor impacts, as related to the impacts of any specific activity and/or project on the site. The HMP provides guidelines for the systematic monitoring of activities and/or projects, in relation to the Management Objectives of the site, as well as the specific mitigation measures identified during the impact assessment process. Additional criteria that require monitoring may also be revealed during implementation, for instance, and can easily be incorporated into the monitoring framework for the different project phases.

It is recommended that all works on the site (planning and design, construction, rehabilitation, operational, maintenance and decommissioning phases) be monitored by the Site Archaeologist on a weekly basis, or as needed basis, and as per the requirements of the Heritage Management Plan. Outcomes are to be systematically recorded, with assistance being requested by specialists and others, when needed. Mitigation measures specific to each of the project phases are detailed in Part Four to Part Seven of the HMP. Specific provisions regarding monitoring and auditing include:

a. The Site Officer of READ or an adequately qualified and independent Heritage Control Officer (HCO) should monitor activities on a weekly basis during the construction phase. Quarterly, bi-annual or annual audits, as directed by SAHRA and/or READ, can be conducted on activities in the operational or decommissioning phase.

b. The Site Officer has the authority to stop works that do not comply with management plans and approvals, and can direct that Method Statements (refer to Appendix 1) be completed and approved by READ prior to commencement of activities.

c. The Site Officer has the authority to issue fines and penalties for non-compliance incidents, in collaboration and agreement with SAHRA, and as determined appropriate for any specific activity in the Core Area, or in exceptional cases, in the Buffer Zone.

d. The Site Officer or HCO is responsible for the keeping of all documents, method statements, monitoring checklists, photographs and other records related to any specific activity, to be handed over and kept on the site once the activity and/or project phase has been completed and the audit report has been submitted to the competent authority.

7. Future Project and Activities

The Heritage Management Plan (HMP) must also make provision for future activities and projects, yet unplanned, as well as for the regular maintenance of existing facilities on the site. Such provisions are allowed for in Part Four: Planning and Design Phase, as well as Part Six: Operation and Maintenance Phase.

PART TWO: THE TAUNG SKULL WORLD HERITAGE SITE

The site context is drawn from field investigations and the management documents for the Taung Skull WHS, being led by the Integrated Management Plan 2010-2015. This document itself draws from the Conservation Management Plan 2007, as well as the Cultural Heritage Survey 2003, showing that the site is well researched, with further research and discovery opportunity in the future.

8. Site Locality

The Taung Skull World Heritage Site is located in the south-western part of the North West Province in Ward 12 of the Greater Taung Local Municipality. Situated within the Dr Ruth Segomotsi Mompati District Municipality, the site lies approximately 10 kilometres (km) north of the provincial boundary of North West Province and Northern Cape Province, approximately 15 km south-west of Taung, and approximately 12 km from the N18 National Road (refer to Figure 1).

The TSWHS lies to the eastern side of the village of Buxton and contains a section of the Thabasikwa River valley that drops off the escarpment of the Ghaap Plateau. The closest town is Taung, which is approximately 25 km from the site *via* the N18, R372 and a rural road. The closest airport to the site is Kimberley, which is approximately 150 km from the site. The provincial capital is Mafikeng which is approximately 240 km from the site.

The TSWHS is in fair proximity to the N18, which links the Northern Cape with Vryburg and Mafikeng in the North West Province, but is not regarded as a national road that is used by many tourists. This emphasises the fact that the TSWHS is *'off the beaten track'*. As such the rural location of the site can also be used as an advantage to escape the rapid pace of modern living and reflect on the origins of humankind.

9. Outstanding Universal Value of Taung Skull WHS

The Outstanding Universal Value[2] (OUV) of any WHS, shows how the site is unique and of universal importance. The Fossil Hominid Sites of Sterkfontein, Swartkrans, Kromdraai and Environs include the serial listing of the Makapan Valley and Taung Skull Fossil Site. Collectively these sites have produced abundant scientific information on the evolution of modern humans over the past 3.5 million years. They constitute a vast reserve of scientific information, with enormous potential.

These hominid sites contain within their deposits all of the key interrelated and interdependent elements in their palaeontological relationships. Alongside and predating the hominid period of occupation is a sequence of fossil mammals, micro-mammals and invertebrates which provide a window onto faunal evolution, palaeobiology and palaeoecology stretching back into the Pliocene.

[2] The description of the Outstanding Universal Value is sourced from the Integrated Management Plan (IMP) for the Taung Skull World Heritage Site 2010 - 2015.

This record has come to play a crucial role in furthering our understanding of human evolution and the appearance of modern human behaviour.

The fossil evidence contained within these sites proves conclusively that the African continent is the undisputed Cradle of Humankind.

UNESCO Criteria iii) and vi)

The Fossil Hominid Sites of Sterkfontein, Swartkrans, Kromdraai and Environs were inscribed on the World Heritage List in 1999 under Cultural criteria (iii) and (vi). In justifying these criteria, the World Heritage Committee noted that the Sterkfontein, Taung and Makapan Valley areas contains an exceptionally large and scientifically significant group of fossil sites that are especially rich in hominid fossils that throw light on the development of the earliest ancestors of humankind. They constitute a vast and concentrated reserve of palaeo-archaeological fossils of outstanding scientific significance that provide a comprehensive record of human evolution.

Integrity/Authenticity

The Fossil Hominid Sites of Sterkfontein, Swartkrans, Kromdraai and Environs, Makapan Valley and Taung Fossil Site comprise of separate components that are situated in different provinces and each has a buffer zone. Collectively these components contain the necessary evidence of sites where abundant scientific information on the evolution of modern humans over the past 3.5 million years was uncovered. Furthermore, the nominated serial site covers an area big enough to constitute a vast reserve of scientific information, with enormous potential. Management of each site is guided by the World Heritage Convention Act (Act No 49 of 1999); the National Environmental Protected Areas Act (Act No 57 of 2003); the National Environmental Management Act (No 107 of 1998), and the National Environmental Management Biodiversity Act (Act No 10 of 2004). There are also site management plans for each of the sites as well as monitoring and evaluation programmes for each.

As regards authenticity, the sites contain within their deposits all of the key interrelated and interdependent elements in their natural palaeontological relationships. Thus, the breccia representing the cave fillings contains the fossilised remains of hominids, their lithicultural remains (from about 2.0 million years onwards), fossils of other animals, plants and pollen, as well as geochemical and sedimentological evidence of the conditions under which each member of the deposits was laid down. They represent a succession of palaeo-ecosystems.

It is clear that the value of the Taung Skull cultural landscape is rich and holds opportunity for research and discovery, as well as local economic development and education. The universal value of the Taung Skull Fossil Site should be well understood by all stakeholders involved in the planning and improvement of visitor facilities and infrastructure on the site.

10. Site Description

From the heritage point of view, the geographically described TSWHS is best defined through archaeological and palaeontological description, of sites bearing witness to millions of years of common human history, and witness to Africa undoubtedly being the Cradle of Humankind.

Current Site Description

The Integrated Management Plan (IMP) for the Taung Skull WHS, for the period 2010 to 2015, is the leading heritage management document for the site, in which the site is described generally and in more specific detail.

General Site Description[3]

The Taung Skull Fossil Site is situated within a vast abandoned limestone quarry (the Buxton Lime Works), excavated into a series of ancient tufa deposits, which have formed along the flank of the Ghaap Escarpment, just west of the Harts River, 17 km south-west of the town of Taung in the North West Province of South Africa. The famous Taung Child Skull, named as a new species at the time, *Australopithecus africanus*, was blasted by Lime Workers from a pink stony breccia fissure filling in the oldest of the tufa deposits, the Thabaseek Tufa, in 1924.

The Core Area boundary of TSWHS includes the entire Buxton Lime Works Area (refer to Existing Site Plan), because there remain numerous other fossiliferous deposits, some of them as yet unexplored, within the fenced area defining the quarry. The diagram of the Proclamation Area and the 41 beacons, defining its outline, are presented on the Site Boundary map. The size of the Core Area is 58.7429 hectares (ha), and includes the full extent of the former lime works, together with the associated lime-burning kilns, industrial buildings and mine compound. The entire Core Area falls within the Remainder of the property Taung 894 HN, and is on state-owned land, which falls under the sphere of influence of the Greater Taung Municipality and the Baphuduhucwana Tribal Authority.

The Buffer Zone surrounding the Core Area is 3,383 ha in extent, and includes other archaeological sites which fall outside the boundary of the Core Area (refer to Buffer Zone Map). The Buffer Zone partly includes the settlements of New Town, Norlim, Draaihoek, Mokassa, Lokammona, Tamasikwa, as well as other villages in closely proximity, being Takaneng and Thomeng. This Buffer Zone preserves the rural ambience and setting of the Taung Skull Fossil Site by preventing undesirable land use, which may impact on the Integrity and Authenticity of the site, as described through its Outstanding Universal Value. The Buffer Zone is state-owned land which falls under the sphere of influence of the Greater Taung Municipality and the Baphuduhucwana Tribal Authority.

[3] The General Site Description is sourced from the Integrated Management Plan 2010 - 2015.

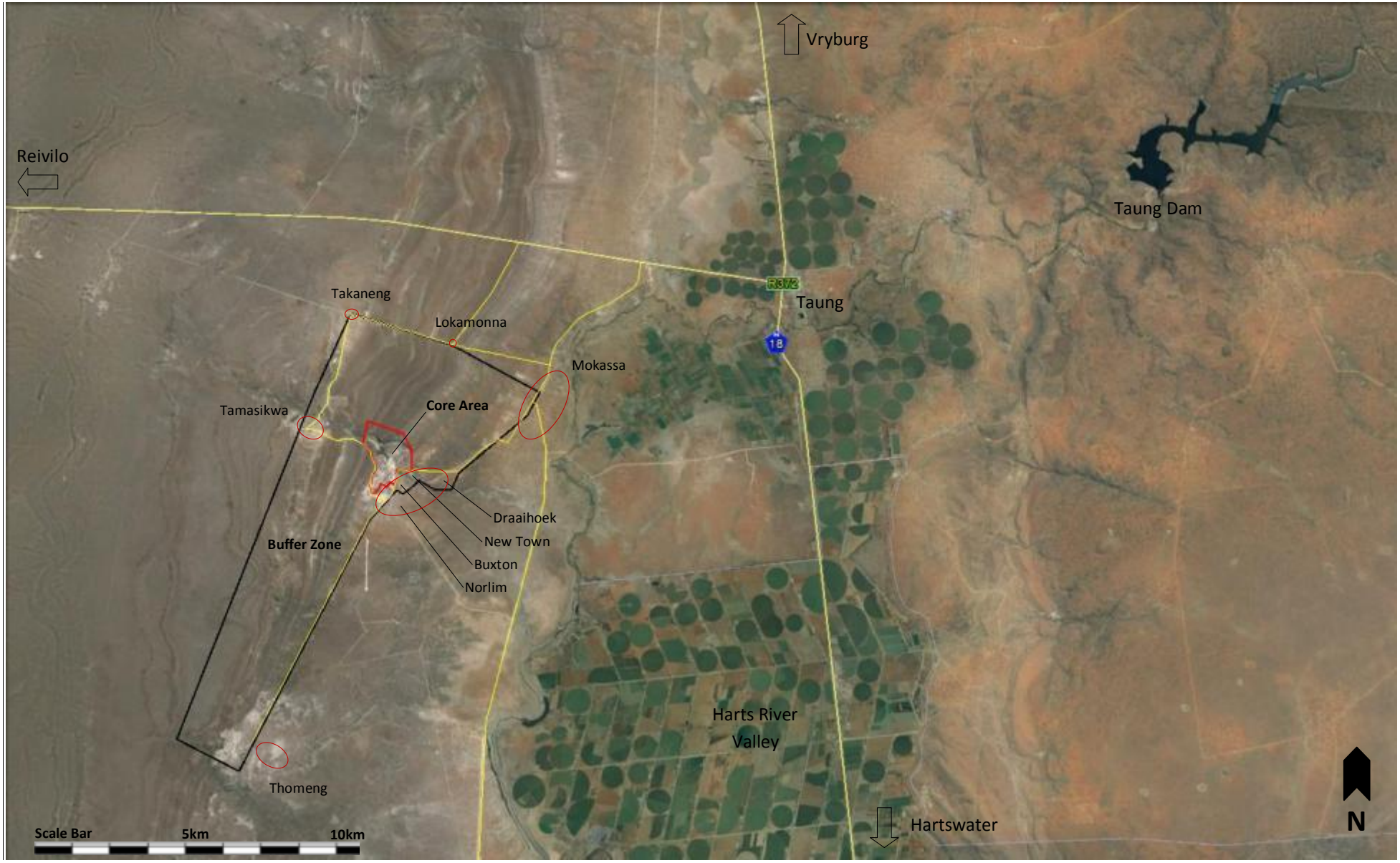


Figure 2: Locality Diagram of Core Area and Buffer Zone with roads to Villages and Taung

Detailed Site Descriptions

The sites of palaeontological and archaeological importance have detailed descriptions, while other sites of heritage significance within the Core Area remain to be further described.

Sites of Palaeontological Importance[4]

The Taung Skull Fossil Site at the Buxton Lime Works is best known for the 1924 discovery of the type specimen of *Australopithecus africanus*. The remains of the facial skeleton and endocranial cast of this early hominid child were the first fossils to confirm Darwin's assertions in 1859 that human ancestry probably could be traced to Africa. The discovery inspired 80 years of exploration and excavation in Africa, yielding hundreds of fossils from southern, eastern, and central Africa that trace the evolution of humans and their ancestors for as much as 6 million years.

The tufa accretions of the Buxton Lime Works are riddled with fossil sites sampling the Pliocene and Pleistocene fauna, dating back several million and hundreds of thousands of years. Most of these sites have not been excavated, and thus have potential for future research to investigate long term ecological changes in an area at the edge of the Ghaap Escarpment.

The Taung Skull discovery site comprises two localities near the monument cairn, each of which has multiple deposits. The Hrdlička deposits have yielded primarily *cercopithecid* fossils, along with a sampling of numerous other species. The Dart deposits are somewhat older, and have been postulated to be the remains of the cave infill from which the *Australopithecus* fossil came.

The main palaeontological sites are Hrdlička Deposits, Dart Deposits, Tobias Pinnacle Deposit, Berger Cave Complex, Lucky Moon Cave, LSN Cave, Innominate Cave, Quinney Cave, Cut-Through Alley, Black Earth Cave, Peabody's Equus Site, Equus Cave, Blom Cave, Satan Cave, Alcove Cave, Oxland Large Mammal Site and Acacia Cave[5].

Sites of Archaeological Importance[6]

Intermittent fieldwork over the past six decades at the TSWHS has shown that it was occupied by Stone Age peoples for a fair portion of the past hundred or more millennia, with arguably the four most important of the dozen known localities there, being as follows:

- Witkrans Cave has yielded Middle Stone Age artefacts and associated large mammal bones including two to three undescribed modern human molars, all dated to the last 89 000 years ago. This site falls outside the Core Area of the TSWHS. It is however included in the Buffer Zone.

[4] The description of 'Sites of Palaeontological Importance' is sourced from the Integrated Management Plan 2010 - 2015.
[5] The Cultural Heritage Resource Survey of 2004 provides a comprehensive list of currently documented and widely known and specific sites within Taung Skull WHS that are currently being research by a variety of institutions, including the University of Witwatersrand, whom were involved in the initial identification and naming of *Australopithecus africanus,* the African Ape of Southern Africa.
[6] The description of 'Sites of Archaeological Importance' is sourced from the Integrated Management Plan 2010 - 2015.

- Black Earth Cave, where one of the three strata yielded a large fossil mammal fauna including two modern human fragments that may be as old as or even earlier than those of the Witkrans.
- Equus Cave where the deposits produced a vast 30 000 large mammal samples. Identification representing 48 species, including modern human pieces, reflects its use for over 30 millenia as a brown hyena maternity den.
- Power House Cave, where Later Stone Age artefacts and associated large mammal bones relate to an occupation between 3 700 and 2 000 years ago. Schematic rock paintings here and at other sites in the area may be more recent.

Figure 3: North view of Dart's Pinnacle (left) and Hrdlička's Pinnacle (right)

Sites of Mining, Historical or Other Cultural Heritage Importance[7]

The Norlim Quarry at Buxton preserves a number of significant mining cultural imprints, in the form of a mining village *ghost town*, relics of lime-burning kilns and other mining infrastructure. These all add to site ambience and can be used to demonstrate the significance of mining activities in the history of liberating the fossil story from its entombment in the limestone tufas.

The value of the story of Buxton and the discovery of the Taung Child, which was a radical shift in thinking into the origins of humans at the time, can now in terms of UNESCO Criteria vi), bring attention to the living cultural heritage amongst the people of the area, which presents a particular authenticity related to rural living over the ages. Other heritage layers and attributes now need further description, and through further research the history of sacred sites and oral traditions, for instance, can be further described and incorporated into the site history.

[7] The description of 'Sites of Mining Historical or Other Cultural Heritage Importance' is sourced from the Integrated Management Plan 2010 - 2015.

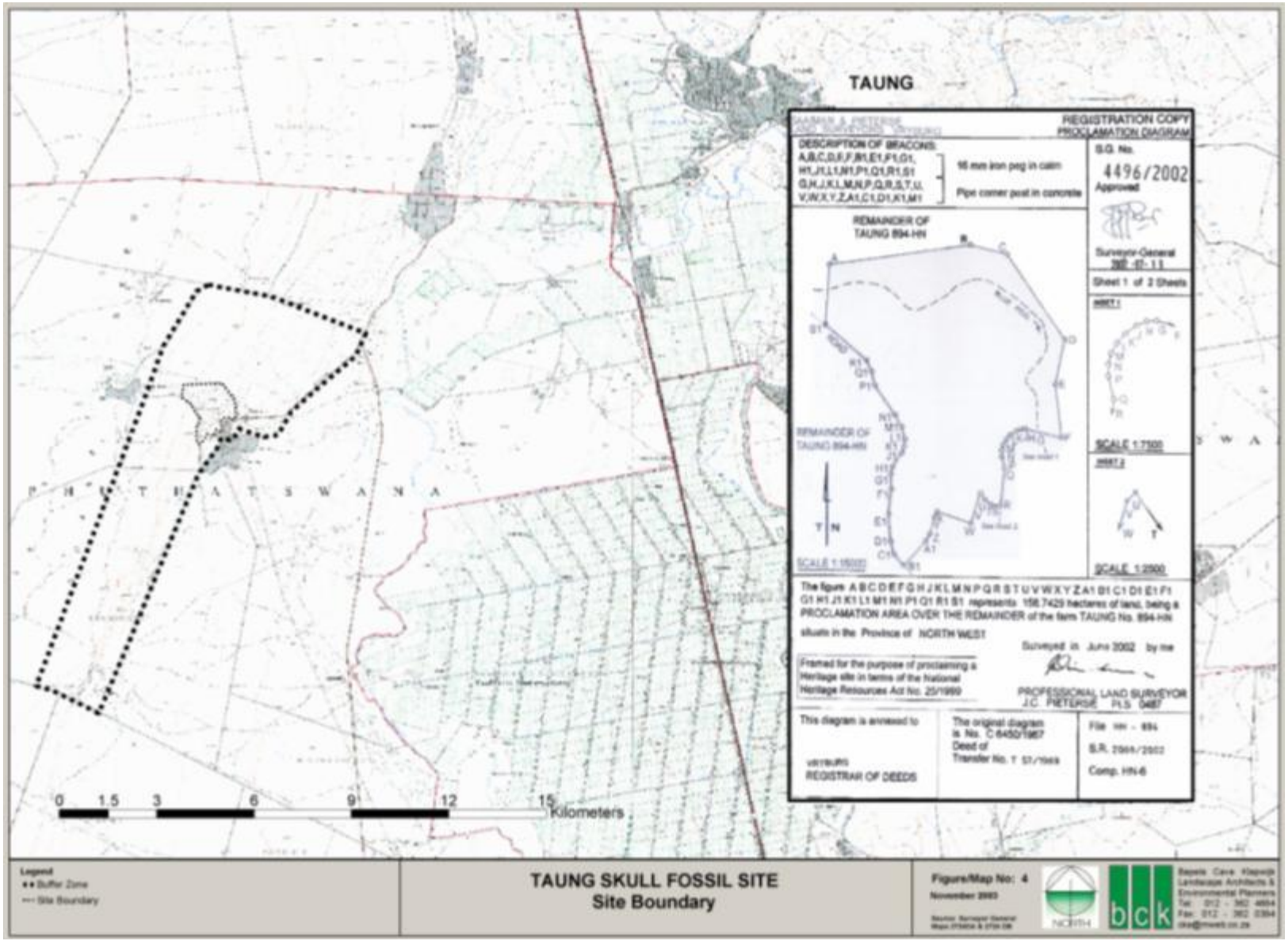


Figure 4: Site Boundary

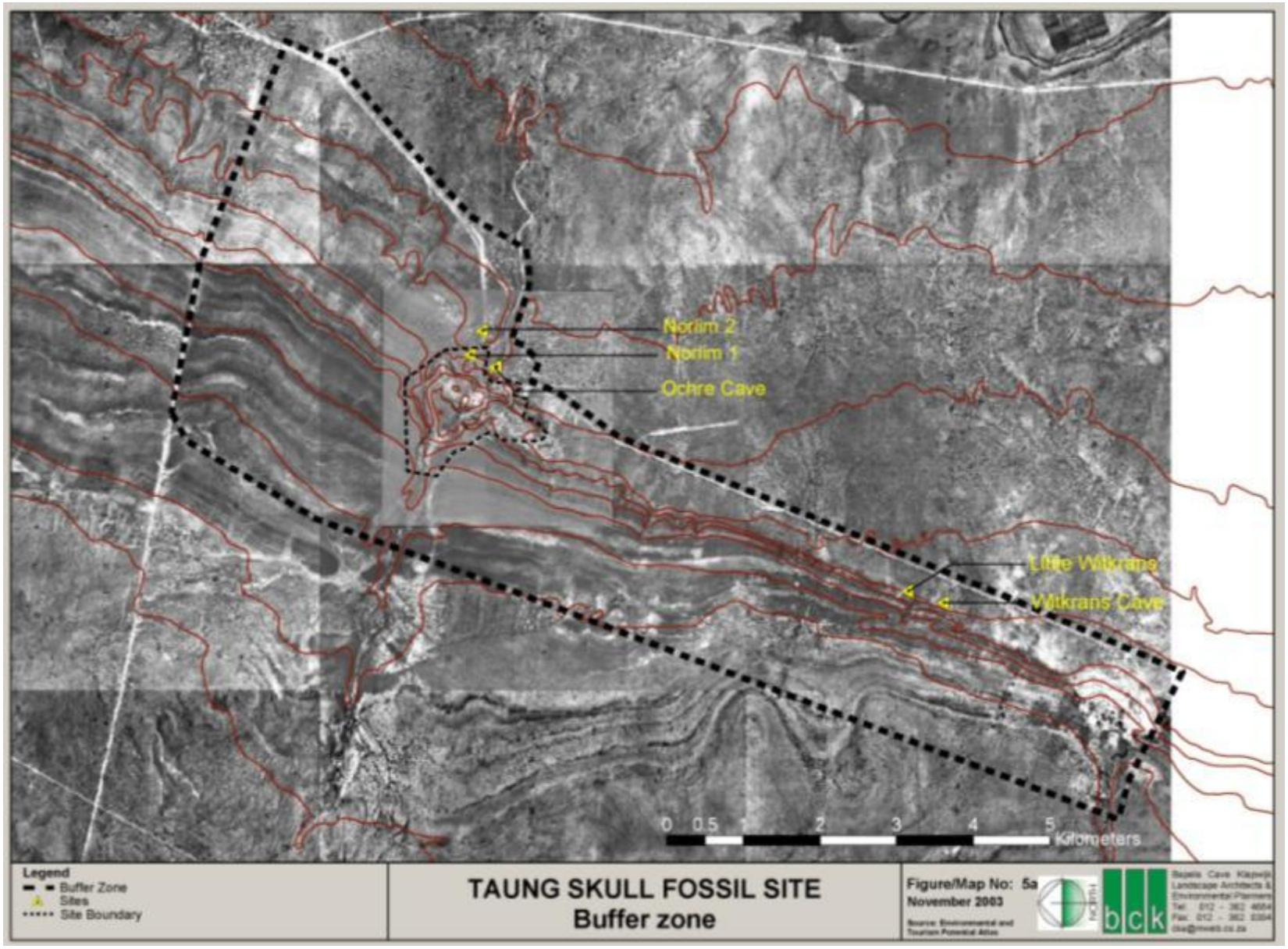


Figure 5: Buffer Zone

11. The Cultural Landscape

A cultural landscape[8] is a landscape designed, improved or at least affected by human activity, whether deliberately or not. In other words, a cultural landscape refers to tangible human modifications of a natural environment and the intangible meanings associated with that modified landscape, like memories, traditions and stories.

The *Application for Inclusion on the World Heritage List* describes the Taung Skull Fossil Site as a cultural landscape that encapsulates not only remains from proto-human *Australopithecine* times over three million years ago, but from various segments of the Earlier, Middle and Late Stone Ages to the present. Cultural landscapes typically tend to be layered, reflecting a range of activities over time and the connection of *'past, present and future are seamlessly connected'* (O'Hare 1997:47). The TSWHS is no exception and provides rich layered tapestries of people, objects, events and times that provides the site a specific texture and weave.

Examination and appreciation of the different heritage layers and their interrelationships ultimately brings a deeper understanding and appreciation of the universal significance of the Taung Skull WHS. The palaeontology and archaeology of the site has tremendous value and also provides a profound context for the practice of local belief systems, rituals and traditions, by local villagers. The TSWHS can be represented through a framework of various interconnected tangible and intangible heritage layers, as listed in Table 3 below, with a variety of interpretive themes related to each.

Table 2: Heritage Layers comprising an Interpretation of the Cultural Landscape

	Heritage Layers	Interpretative Theme
1.	Palaeontology and Palaeo-anthropology	The Southern African Ape and Cradle of Humankind.
2.	Archaeology and African Origins	The common genetic root all people have with the aboriginal Khoisan people of Southern Africa.
3.	Geology and Geomorphology	Interesting geological formations related to tufa limestone deposits and natural freshwater rivers.
4.	Natural Habitat	The value of the natural environment and the need to use natural resources sustainably and rehabilitate natural habitat.
5.	Mining History	How miners came to and lived in Buxton for the commercial mining of limestone for the gold mining industry in the Witwatersrand.
6.	Architectural Setting	Varying living patterns in the landscape from organic rural settlement patterns and building methods of Norlim, Draaihoek, Mokassa, Lokammona, Thomeng, Tamasikwa and Takaneng, to colonial and industrial mining buildings that have been built in Buxton and New Town.
7.	Visual Landscape	Spectacular wide open viewscapes at Dart's Pinnacle and the Hrdlička's Pinnacle, as well as other views in or bordering the Core Area and Buffer Zone.
8.	Scared Sites, Local Legends, Rituals and Traditional Practices	The use of sacred sites in living local traditions and practises, in which for instance, local people regularly gather sacred healing water from Blue Pools.

[8] A **cultural landscape**, as defined by the World Heritage Committee, is the 'cultural properties [that] represent the combined works of nature and of man.'

The current narrative related to the TSWHS, is the story of the Taung Child and the fossilised skull found here in 1924. The palaeontological and archaeological aspects of the site are well documented and researched. There is however much more to explore in the TSWHS and many more discoveries to be made. The interesting and rich geology of the site provides a specific point of interest amongst all people interested in rocks and fossils, and these resources must be carefully guarded and protected. The link to the mining history of the town has been documented, yet requires more attention, and including focus on the intricate linkages to urban design, architecture and visual landscape. Further research related to the site can be done through creating local opportunities for local people to be trained in conducting research and documenting heritage.

Tangible heritage like the pinnacles at the fossil discovery site, the caves and sites with old fossils, the natural setting and river, the rocks and buildings constructed, and many more, are all linked to the stories that provide meaning to this physical heritage symbol of global importance. Through understanding the story or narrative of the site, so it gathers meaning for and value to any visitor. All the heritage layers have been well identified in the IMP 2010, and now require further research, management, development and interpretation.

12. Status Quo on Heritage Resources and Attributes

The various tangible and intangible heritage layers contain a multitude of heritage resources and attributes, all intricately linked, and providing an interpretation of the history and value of the TSWHS. These are catalogued in Status Quo Report. The heritage resources and attributes are grouped according to the proposed heritage layers, which can inform the mapping of the cultural landscape by stakeholders. These layers can be mapped individually or in a multi-layered manner, to deepen understanding and interpretation of the TSWHS.

As far as the built environment goes, many existing buildings are at various stages of disrepair, and an inventory has been compiled of all the buildings in the Core Area (Refer to Appendix 4.2). As confirmed through meeting with MashBane Rose, the appointed heritage architects, and as indicated in the renovation plans under preparation by this firm, the structural integrity of buildings on the site seems to be retained and buildings can be utilised. The structural integrity of all buildings must however be checked prior to the design phase.

It is clear from the site history focuses on the mining history as related to the discovery of the Taung Child Skull was what makes this site of universal and outstanding value and is thus inscribed as a WHS. There is a rich diversity to local traditions, pre-mining history and sacred sites like Blue Pools, Thomeng Falls and Ochre Cave, for instance. Now a deeper understanding of the TSWHS needs to be sought together with local stakeholders from Buxton, Norlim, New Town, Draaihoek, Mokassa, Lokammona, Tamasikwa, Thomeng and Takaneng located in, or alongside, the Buffer Zone. The history of the site is best broadened and deepened together with stakeholders, local and from further afield.

The successful operation of the TSWHS is dependent on the improvement of visitor facilities, yet the protection of heritage resources and attributes remains of paramount importance. The nature of the site demands that projects be planned and implemented in a sensitive manner so as to enhance

heritage values. The project under assessment is certainly required as facilities on the site are not yet adequately developed. Heritage conservation measures must however be put in place, to avoid the further degradation of sensitive heritage sites. Intangible heritage[9] related to the TSWHS is of great value, its documentation and preservation must be strengthened and no activities on the site, now or in the future, should interfere or be in conflict with it.

13. The Built Landscape and Historic Buildings

The built landscape in the form of historic buildings, places of worship and local community natural treasures, in and around the TSWHS and including the mining village of Buxton fall within the Buffer Zone of the TSWHS. This historic mining village represents a significant portion of the mining history and is thus intimately connected to the TSWHS and in itself needs to be protected and maintained, both as a village and specifically all the individual buildings and elements within the village settlement. Some of the houses are currently being used as residences, while others have fallen into disrepair.

Alterations and maintenance of historic buildings **within the Core Area** of the Taung Skull World Heritage Site (TSWHS) falls under the responsibility of the Management Authority, being the Department of Rural, Environment and Agricultural Development (READ) of the North West Provincial Government of South Africa.

Alteration and maintenance of historic buildings **within the Buffer Zone** of the Taung Skull World Heritage Site (TSWHS) is the responsibility of the property owner, but the Management Authority also has a responsibility here, being the Department of Rural, Environment and Agricultural Development (READ) of the North West Provincial Government of South Africa.

Residents of historic buildings in the Buffer Zone have previously expressed the desire for guidance on how the buildings should be maintained. READ has responded by providing support and guidance, in that no physical alterations should be undertaken on these historic buildings. READ has also offered to assist the residents in these buildings, when faced with maintenance issues. The proper and realistic management of existing buildings through a restoration programme and with guidance from a 'built landscape conservation manual' would go a long way to steering the future management of the built landscape. As such, a conservational manual needs to be put in place.

All buildings older than 60 years are protected under the National Heritage Resources Act and require permits before any alterations and/or maintenance can be conducted on the heritage resources. The value of heritage property, if well maintained, can improve with time, especially when placed alongside a prominent attraction, like the TSWHS. In order to protect existing historic buildings, it is necessary to make use of them to stop physical degradation and vandalism.

Restoration of historic building(s) may require the presence of a heritage architect, particularly if restoration is significant, and it is important to engage heritage architects in any large scale

[9] Intangible heritage needs to be fully explored in the revision of the IMP for the TSWHS, due in 2015/16.

refurbishment or adaptation for reuse of the built environment, such as is currently the case with Mashabane Rose, involved with restoration of buildings within the Core Area.

Restoration is based on respect for the existing fabric and should involve the least possible physical intervention. It is better to preserve the historic fabric than to restore it, better to restore than to reconstruct (rebuild) and better to reconstruct than to adapt, with the understanding that certain developments will be necessary to sustain use. Floor plans ideally should not be altered unless there is very good reasons to do so, as floor plan reflect the historic use of any particular building. Minimal intervention is recommended.

The authentic fabric and meaning associated with a building and/or site is that which are considered to be original and true in relation to the significance of the site. This comprises all layers of accumulated memory and fabric on the building and/or site. The authenticity of historic buildings in the mining town should be preserved as far as possible.

Restoration and/or conservation requires the maintenance of all existing and culturally significant visual settings, like the form, scale, mass and grain of buildings and open spaces, colour, texture and material. Activities on and around the site should not adversely affect the visual setting and qualities of the site.

The interiors, wall coverings fittings and finishes present in the building constitute a part of its original fabric and should not be altered or removed without the relevant permission. All provisions of minimal intervention also apply to the interior of buildings.

A Built Landscape Conservation Manual should be complied to guide specific management requirements for the restoration of historic buildings and other significant cultural forms within the TSWHS. This will be of particular importance to historic buildings falling within the Buffer Zone. The 1st step in this process would be the mapping of the existing historic buildings in the Buffer Zone.

In the short term, all derelict buildings should be demarcated as ‘off limits’ and no visitors should be allowed to enter such buildings, until restoration has been completed, or the buildings have been deemed safe to enter. Such permission should be granted by a qualified safety professional.

In the long term, the built landscape should be restored and maintained in its authentic form, in order to enhance the integrity of the site and protect the Outstanding Universal Value. It is recommended that adequately qualified heritage architects and landscape architects are involved in the revision of the site master plan, as well as the design and restoration of all historic buildings and landscapes in the Core Area.

PART THREE: THE PROJECT

14. Status of Planning at TSWHS

Much planning has been done on the Taung Skull WHS over the years and culminated in the Conceptual Site Development Plan dated 2003 (Refer to Figure 5). The use zones shown in the Site Zoning Plan of 2003 (Refer to Figure 6) indicate areas for tourism use and areas for research. The safety risks associated with the use of the TSWHS certainly needs to be considered and built into any more detailed planning and use of the site. An immediate response plan is also required to put in place an emergency response mechanism.

The improvements underway and proposed have heritage not only negative but also positive impacts, as assessed in the HIA Report, also detailing the associated impacts and best-practise management measures required to best manage heritage impacts in this WHS. The various project components related to the *Improvement on Visitor Facilities, Site Infrastructure and Heritage Conservation Measures at the Taung Skull World Heritage Site*, and status of planning on each, are described in Table 4 below.

Table 3: Status of Planning on Various Project Components

No.	Project Component Name	Level of Planning	Project Status
1	Protection of the core area/fence	Detailed	Site handed over
2	The ablution block- picnic site	Detailed	Site handed over
3	The ablution block-Thomeng Waterfalls	Detailed	Site handed over
4	The road to Thomeng (roads infrastructure)	Detailed	Site handed over
5	The miners compound (restoration)	Detailed	Tender drawings
6	The mine manager's office (restoration)	Detailed	Tender drawings
7	The Power House Complex (restoration)	Detailed	Tender drawings
8	Parking and entrance area	Layout plans	Conceptual
9	Protection of sensitive and dangerous sites: Safety on the site, as well as conservation of Hrdlička's Fossil Site, Equus Cave, Black Earth Cave, and Oxland Large Mammal Site.	Concept	Conceptual
10	Trails and signage	Layout	Design stage
11	Memorial site	Layout	Tender drawings
12	Boom Gate and Security Shelter at Thomeng	Concept	Design guidelines
13	Historical Buildings in the Buffer Zone	Concept	Design guidelines
14	Museum and Amphitheatre	Concept	Design guidelines
15	Restaurant	Detailed	Tender drawings
16	Auditorium	No plans available	Design guidelines
17	Revamping of the Kiln area	No plans available	Design guidelines

All of the projects components described above fall within the development framework for the site, and contribute towards achieving the Strategic Objectives of the IMP, all aimed at ensuring the effective use and enjoyment of the site by all visitors, leaving not only a positive experience, but also a lasting learning experience.

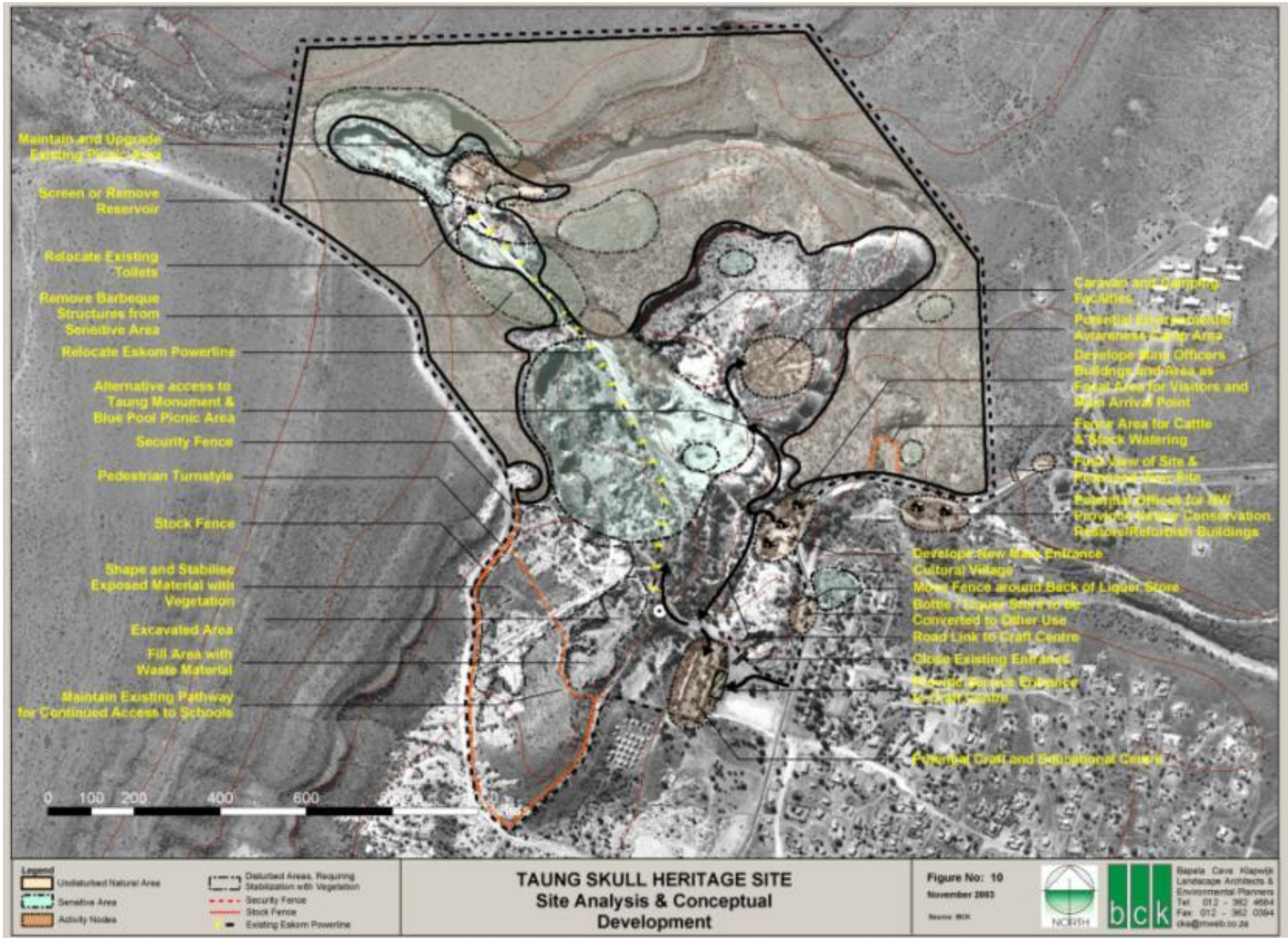


Figure 6: Conceptual Site Development Plan

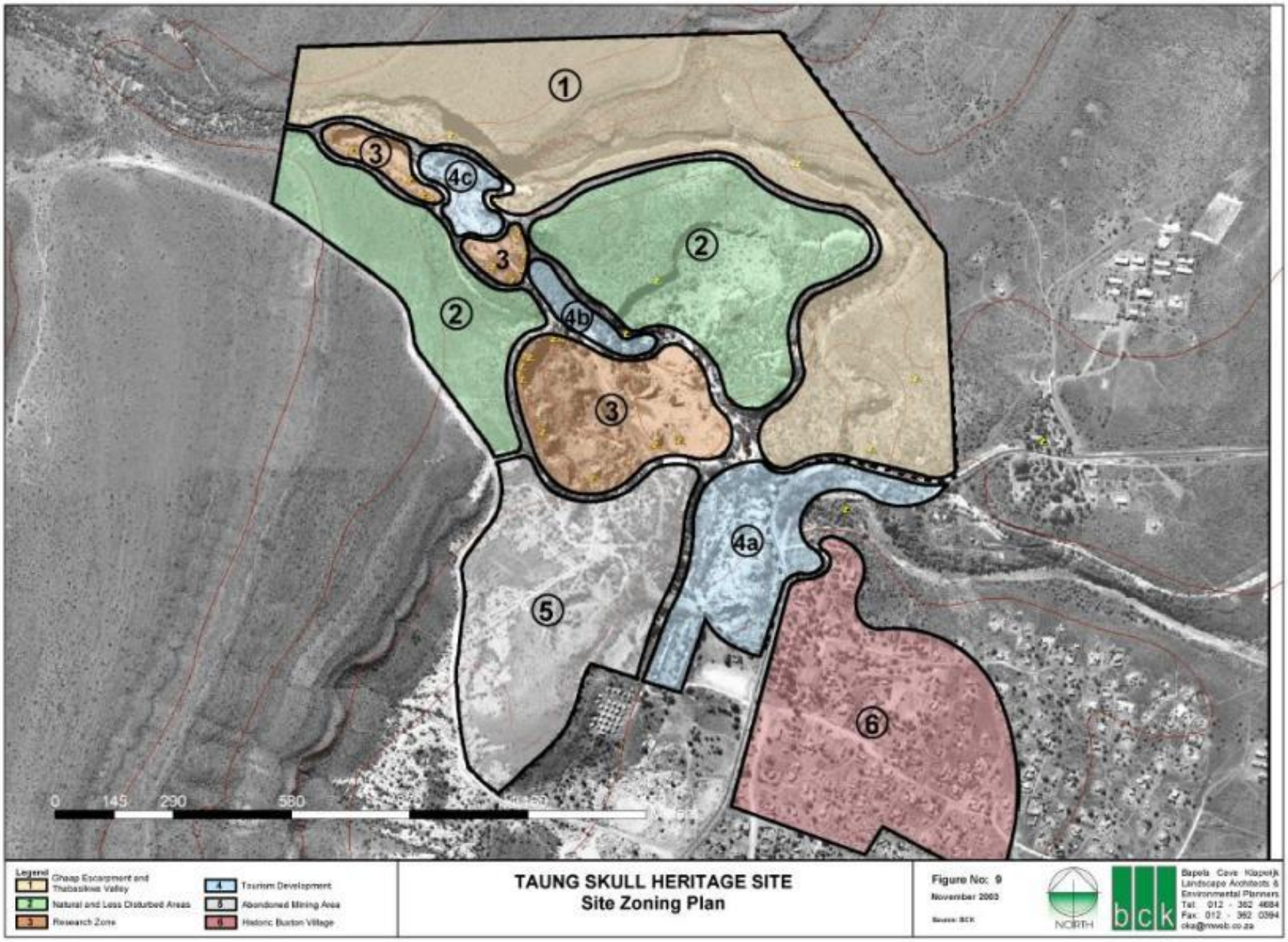


Figure 7: Site Zoning Plan

15. Current Project Description

Improvement on Visitor Facilities, Site Infrastructure and Heritage Conservation Measures at the Taung Skull World Heritage Site includes amongst others, upgrades to roads, fences, and the construction of ablution facilities, as well as the restoration of buildings as part of the creation of a new entrance for the site at the Mine Manager's Office. All components, including parking areas, facilities and security at Thomeng are described in the table below.

Table 4: Project Components and Physical Attributes

No.	Project Component Name	Component Description	Related Infrastructure	Footprint/Scale
1.	Protection of the core area/fence	Fence to be constructed around the core area to replace the existing fence in parts.	New fence replaces previous and existing fence, in part along the boundary of the core area. The previous fence did not exist for the entire extent of the core boundary line.	**Approximately 2,600m^2** (6.39 km, with trench width of 400mm on average).
2.	The ablution block - picnic site	The ablution facility at the picnic site is under upgrade.	Septic tank system and water supply lines. Electricity line also within close proximity.	**Approximately 30m^2** (5m x 6m building)
3.	The ablution block - Thomeng Waterfalls	The ablution facility at Thomeng Waterfall is to be constructed. Concrete floor slab has been cast.	Septic tank system and water supply lines.	**Approximately 50m^2** (5m x 10m building)
4.	The road to Thomeng (roads infrastructure)	The road to Thomeng is being upgraded.	Stormwater protection measures across the road. Solid waste management during and after construction.	**Approximately 66,000m^2** (7.611 km x 8m road works and parking in Thomeng)
5.	The miners compound (restoration)	Restoration works on the building and surrounding built environment.	Water, solid waste, sewerage, electricity, telephone.	**Approximately 1,200m^2** (200m x 60m wide)
6.	The mine manager's office (restoration)	Restoration works on the building and surrounding built environment.	Water, solid waste, sewerage, electricity, telephone.	**Approximately 2,800m^2** (35m x 80m wide)
7.	The Power House Complex (restoration)	Restoration works on the building and surrounding built environment.	Water, solid waste, sewerage, electricity, telephone, roads, stormwater and parking.	**Approximately 1,400m^2** (35m x 40m wide)
8.	Parking and entrance area	New entrance area to be created at the Mine Manager's Office and surrounds, making allowance for a parking area. A flyover bridge is also proposed.	Roads, solid waste, stormwater, traffic impact, pedestrian safety and most screened location for parking.	**Approximately 3,000m^2** (60m x 50m wide)
9.	Protection of sensitive and dangerous sites: Hrdlička's Fossil Site, Equus Cave, Black Earth Cave, and Oxland Large Mammal Site.	Safety protection measures as recommended under separate consultation. Heritage site protection measures including the construction of paths, information panels, stairs, railing and other signage.	Interpretation signage, benches, paths, fencing and stone barricade walls. Protection measures in heritage sites as per specialist recommendation. Solid waste management.	**Approximately 240m^2** (6 sites x 40m^2 each)

No.	Project Component Name	Description	Related Infrastructure	Footprint/Scale
10.	Trails and signage	Trails have been laid out and mapped, with signage being placed along each. Signs have been put in place on steal pegs and trees. The signage can be reviewed and replaced.	Toilet facilities, waste management, safety infrastructure to prevent hikers entering unstable quarry site.	**Approximately 5km** of trails with no trail building.
11.	Memorial site	The Memorial Site is proposed for an upgrade to include wheel-chair access, a lookout point over Buxton, and access to Hrdlička's Fossil Site through walkway, signage and railing to assist with visitor management.	Paths, solid waste management, parking layout, signage and information boards.	**Approximately 3,000m^2** (65m x 45m wide)
12.	Boom Gate and Security Shelter at Thomeng	The placement of a boom gate and shelter to control and monitor access at the Thomeng Waterfalls.	Roads, yet on existing. Solid waste management.	**Approximately 20m^2** (4m x 5m building with boom gate)
13.	Historical Buildings in the Buffer Zone	The restoration of historical building in the Buffer Zone.	No additional infrastructure to what is already in place.	**Existing development footprint.**
14.	Museum and Amphitheatre	The construction of a museum through the reuse of existing buildings and infrastructure.	Water, solid waste, sewerage, electricity, telephone, roads, stormwater and parking.	**Existing development footprint.**
15.	Restaurant	The establishment of a restaurant in the shed alongside the Mine Manager's House.	Water, solid waste, sewerage, electricity, telephone, roads, stormwater and parking.	**Approximately 200m^2**
16.	Auditorium	No plans available.	-	-
17.	Revamping of the Kiln area	No plans available.	-	-

Although the Heritage Management (HMP) must deal with the 17 specific project components, it must also deal with broader usage issues, as well as projects and activities that are either as yet unplanned, or for which further information planning information was outstanding at the time of the HIA.

The following sections of the HMP make allowance for management considerations during specific project phases, being the planning and design phase, the construction and rehabilitation phase, the operation and maintenance phase, and the decommissioning phase.

PART FOUR: PLANNING AND DESIGN PHASE

General and project specific mitigation measures relevant to the planning and design phase are detailed below.

16. General Measures

General measures are provided for the planning and design phase of existing and future projects.

Table 5: General Measures: Planning and Design

No.	General Measures: Planning and Design
7.1	The project and/or activity must be aligned with the most recent IMP and fall in line with the most recent Conceptual Development Plan.
7.2	The project and/or activity must undergo the necessary Heritage Impact Assessment and Visual Impact Assessment process and be approved by SAHRA and also be compliant with all other relevant legislation.
7.3	The project and/or activity must follow all other relevant plans and guidelines formally or informally adopted by the Management Authority, and be supported by the Management Authority.
7.4	Safety of users is of primary importance and all activities must be planned and implemented according to the safety guideline study conducted by KPRM Holdings in 2015.
7.5	An alternative location to establishing a camping area within the Core Area is explored. A possible alternative site for the establishment of a camping area is at Thomeng Falls, yet taking into full cognisance that this area has very sensitive wetlands that need to be better managed.
7.6	The structural integrity of all existing buildings must be checked and confirmed during the planning and design phase.
7.7	The nightscape should be protected through the design of all lighting on the TSWHS as low-level, down-facing dim lighting, as far as is possible and without compromising safety.
7.8	The planning of camping areas and the size of such areas should be carefully considered so as to avoid significant negative heritage and environmental impacts.

17. Project Specific Measures

Project specific measures are provided for the planning and design phase of current project components.

Table 6: Project Specific Measures: Planning and Design

No.	Project Component Name	Project Specific Measures: Planning and Design
5	The miners compound (restoration)	a. Make use of existing infrastructure and landscape so as to blend all proposed infrastructure into the visual and physical landscape. b. Renovate all buildings and infrastructure to retain the historic architectural fabric and narrative. c. All signage for the TSWHS should be designed, and be placed in a low key manner, so as to avoid any negative impacts on the visual landscape. d. Architectural design for the restoration of the built landscape should incorporate detailed inputs and supervision from a heritage architect during the design and renovation phase of the project.
6	The mine manager's office	a. Make use of existing infrastructure and landscape so as to blend all proposed infrastructure into the visual and physical landscape.

	(restoration)	b. Renovate all buildings and infrastructure to retain the historic architectural fabric and narrative. c. All signage for the TSWHS should be designed, and be placed in a low key manner, so as to avoid any negative impacts on the visual landscape. d. Architectural design for the restoration of the built landscape should incorporate detailed inputs and supervision from a heritage architect during the design and renovation phase of the project.
7	The Power House Complex (restoration)	a. Make use of existing infrastructure and landscape so as to blend all proposed infrastructure into the visual and physical landscape. b. Renovate all buildings and infrastructure to retain the historic architectural fabric and narrative. c. All signage for the TSWHS should be designed, and be placed in a low key manner, so as to avoid any negative impacts on the visual landscape. a. Architectural design for the restoration of the built landscape should incorporate detailed inputs and supervision from a heritage architect during the design and renovation phase of the project.
8	Parking and entrance area	a. Make use of existing infrastructure and landscape so as to blend all proposed infrastructure into the visual and physical landscape, north of the existing road. b. Design all infrastructure to blend into existing landscape. c. All signage for the TSWHS should be designed, and be placed in a low key manner, so as to avoid any negative impacts on the visual landscape. d. Architectural design for the restoration of the built landscape should incorporate detailed inputs from a heritage architect. e. Provide adequate control in all parking areas established in the TSWHS.
9.	Protection of sensitive and dangerous sites: Safety on the site.	a. The specialist study on safety and security on the site will be making important recommendations on how to improve safety on the site, and should be attended as a top priority. b. Make use of existing infrastructure and landscape so as to blend all proposed infrastructure into the visual and physical landscape. c. All signage for the TSWHS should be designed, and be placed in a low key manner, so as to avoid any negative impacts on the visual landscape.
9a.	Conservation of Hrdlička's Fossil Site.	a. Detailed plans be drawn up and circulated for comment and approval. b. Hrdlička's Fossil Site can also be a site that visitors can experience. c. The construction of a simple stone demarcated path and rim platform at the fossil site would work well. d. A 'Stay on the Boardwalk' sign should be included onto the boardwalk up to the site, as connected to the pathways and signage in the larger memorial site. e. A narrow boardwalk can be constructed into the excavation site, for 2 or 3 people to enter at a time, with interpretation signage placed on the structure and restricting reach to any fossils. This platform can be placed on adjustable feet and can be removable, to allow future excavation. f. A barrier can be placed all along the edge of the platform to avoid visitor from reaching to the fossils and an interpretation sign can also be constructed at the fossils. g. The sign for this site should be changed to 'Palaeontological Site'.
9b.	Conservation of Equus Cave.	a. Detailed plans be drawn up and circulated for comment and approval. b. Equus Cave is fragile and vulnerable site and should be carefully managed. c. The current fence and gate should be retained, with the gate kept locked at all times. d. Access should only be provided with a well trained and TSWHS accredited guide. e. Information signs and stone benches can be considered at entrance, outside the fenced area, with the fence being retained in the current position. f. Access to the site can be done in small groups of 3 or 4 people at a time. g. Entrance to the site can be preceded by a 30min interpretation session preparing one to enter the sensitive and fenced area. h. Access can be better managed through the construction of wooden steps and a small platform along the edge and rim of the cave. Such structures provide manageable access that can be anchored with adjustable leg supports, and provide a position at which small groups can view the site. i. Interpretation signage can be placed at the edge of the platform, as well as strategic points like the entrance, to further allow the visitor to understand the site fully. j. This site can be named the 'Equus Cave' and a 'No touching and taking' policy should be implemented.
9c.	Conservation of	a. Detailed plans be drawn up and circulated for comment and approval. b. Black Earth Cave needs to have access restricted, through the construction of a rock

	Black Earth Cave.	barricade to prevent visitors from entering the site. c. A safety warning sign should be placed, clearly stating that no access is permitted. d. The experience of the cave however needs not be lost due to a lack of access. Information boards can provide an even better understanding of the site, enriching the experience of the site, this going a long way to making the shaded areas under the Acacia trees more inviting. e. Stone bench seating can easily be placed here and this low impact suggestion will go well in a relatively harsh and exposed quarry landscape.
9d.	Conservation of Oxland Large Mammal Site.	a. Detailed plans be drawn up and circulated for comment and approval. b. The Oxland Large Mammal Fossil Site is far more robust and accepting of visitation, yet certainly again not without a recognised local heritage guide. c. Again only small groups of 3 or 4 should be allowed access to the site at a time, accompanied by the guide. d. This site can be named the 'Oxland Large Mammal Fossil Site'. e. A 'No touching and taking' policy should be implemented. f. Stone benches can easily be placed at the entrance in the shade of the Pepper tree, allowing for an interpretation discussion of the site to prepare one for entering the site. g. Appropriate interpretation signage should also most certainly be provided at the base of the site in the shaded area.
11	Memorial site	a. Minimal invention into landscape so as to maintain authenticity of the site, thus blending activities and minimal facilities into the visual and physical landscape. b. Design low-impact infrastructure that is placed low to the ground and does not detract from scenic vistas. Smaller pavilion structure to be considered to reduce visual intrusion into the landscape. c. Wheelchair access to the Memorial at Dart's and Hrdlička's Pinnacles. d. Effective information and waste management required. e. Stone packing along path boundary for delineation, with stone sourced from a single approved area by the Site Archaeologist.
12	Boom Gate and Security Shelter at Thomeng	a. Architectural design, materials use and colours to align with existing design themes in the TSWHS. b. Minor infrastructure to be located in manner that is naturally screened and of low visual impact. c. Site Archaeologist to provide input on archaeological and paleontological impacts while locating the position.
13	Historical Buildings in the Buffer Zone	a. Guideline on maintenance and renovation of existing buildings in the Buffer Zone required. b. Requirement for and purpose of a Built Environment Management Plan to be established.
14	Museum and Amphitheatre	a. Alternative location of the new museum making use of existing buildings, like the Locomotive Maintenance Shed. b. Design guideline inputs on visual impacts, safety and reuse of existing buildings and infrastructure. c. Minimal invention into landscape so as to maintain authenticity of the site, thus blending activities and minimal facilities into the visual and physical landscape. d. Make use of existing buildings for the museum and interpretation centre. e. All signage for the TSWHS should be designed, and be placed in a low key manner, so as to avoid any negative impacts on the visual landscape.
15	Restaurant	a. Detailed design according to specific architectural fabric of shed alongside Mine Managers House. b. Good waste management must be implemented.
16	Auditorium	a. Inputs into design and operational matters can be provided.
17	Revamping of the Kiln area	b. Inputs into design and operational matters can be provided. c. This area could also be left as is, providing interpretation signage and a path through the area, for guided tours.

PART FIVE: CONSTRUCTION AND REHABILITATION PHASE

General and project specific mitigation measures relevant to the construction and rehabilitation phase are detailed below.

18. General Measures

General measures are provided for the construction and rehabilitation phase of existing and future projects.

Table 7: General Measures: Construction and Rehabilitation

No.	General Measures: Construction and Rehabilitation
9.1	Put in place a Disaster and Emergency Response Plan immediately.
9.2	All construction activities must be regularly monitored on a weekly basis, or as necessary, by the Site Archaeologist, and/or any other qualified person with a recognised heritage training, to monitor and report on construction and rehabilitation activities, and report back to the Management Authority and SAHRA, as per relevant approvals, the HMP and approved Method Statements.
9.3	All heritage impacts that are identified during any project phase should be highlighted monitored and incorporated into current and future activities, so as to avoid and/or mitigate the impact.

19. Project Specific Measures

Project specific measures are provided for the construction and rehabilitation phase of current project components.

Table 8: Project Specific Measures: Construction and Rehabilitation

No.	Project Component Name	Project Specific Measures: Construction and Rehabilitation
1	Protection of the core area/fence	a. The removal of the old fence foundation with plastic enclosed, as well as other builder's rubble, to an appropriate waste disposal site that meets high standards for water management. b. The planting of trees for visual screening of the new fence where needed, appropriate and when funds are available.
2	The ablution block- picnic site	a. Proper security and effective waste management during construction. b. Recognition must be given to the fact the ablution facility is in close proximity to the sacred Blue Pools site, and effective pollution management is thus of critical importance.
3	The ablution block-Thomeng Waterfalls	a. Proper security and effective waste management during construction. b. Specific attention of capacity and overflow capacity calculations for the septic tank system, as constructed within a broader sensitive ecological and wetland area. c. Adequate cleaning and maintenance required to reduce pollution risks. d. The proposed water tower must be placed to reduce visual intrusion and avoid skyline intrusion.
4	The road to Thomeng (roads infrastructure)	a. Finishing of stormwater management structures in stone and concrete, in keeping with the architectural theme of the TSWHS. b. Tidying up of road works bulk soils in a visually pleasing manner and including rehabilitation.

PART SIX: OPERATION AND MAINTENANCE PHASE

General and project specific mitigation measures relevant to the operation and maintenance phase are detailed below.

20. General Measures

General measures are provided for the operation and maintenance phase of existing and future projects.

Table 9: General Measures: Operation and Maintenance

No.	General Measures: Operation and Maintenance
11.1	Put in place a Disaster and Emergency Response Plan immediately.
11.2	All heritage impacts that are identified during any project phase should be highlighted monitored and incorporated into current and future activities, so as to avoid and/or mitigate the impact.

21. Project Specific Measures

Project specific measures are provided for the operation and maintenance phase of current project components.

Table 10: Project Specific Measures: Operation and Maintenance

No.	Project Component Name	Project Specific Measures: Operation and Maintenance
2	The ablution block- picnic site	a. Proper security and effective waste management during operation. b. Recognition must be given to the fact the ablution facility is in close proximity to the sacred Blue Pools site, and effective pollution management is thus of critical importance.
3	The ablution block-Thomeng Waterfalls	a. Proper security and effective waste management during operation. b. Specific attention of capacity and overflow capacity calculations for the septic tank system, as constructed within a broader sensitive ecological and wetland area. c. Adequate cleaning and maintenance required to reduce pollution risks.
9	Protection of sensitive heritage sites.	a. Hrdlička's Fossil Site, Equus Cave and Oxland Large Mammal Site are accessible to visitors, once heritage conservation measures are successfully in place. b. All access to the listed sensitive heritage sites above with a recognised and qualified heritage guide only. c. No access to other heritage sites on within the Core Zone and Buffer Zone permitted, except in the case of locals making use of sacred sites. d. Work with local users of sacred and other sensitive sites to identify improved management measures, on an ongoing basis.
10	Trails and signage	a. Hikes to be guided, with exception of organised hiking groups, who must sign off to the use of a hiking code. b. Trail pamphlet and code of conduct for hiking in TSWHS. c. All signage for the TSWHS should be designed, and be placed in a low key manner, so as to avoid any negative impacts on the visual landscape.

PART SEVEN: DECOMMISSIONING PHASE

General and project specific mitigation measures relevant to the decommissioning phase are detailed below.

22. General Measures

General measures are provided for the decommissioning phase of existing and future projects.

Table 11: General Measures: Decommissioning

No.	General Measures: Decommissioning
13.1	All decommissioning activities require prior approval from SAHRA.

23. Project Specific Measures

Project specific measures are provided for the decommissioning phase of current project components.

Table 12: Project Specific Measures: Decommissioning

No.	Project Component Name	Project Specific Measures: Decommissioning
2	The ablution block- picnic site	a. Decommissioning of previous ablution facility to be further considered from a visual perspective, and only if the building cannot be used effectively.

PART EIGHT: RECOMMENDATIONS

The recommendations bring attention to pertinent and current issues at the TSWHS, as related to the various project components considered. The actions required to address impacts can be taken and require continued support to an already active planning and implementation effort by the Management Authority. The following recommendations are made:

1. All construction activities on the site should be monitored and audited during the construction period. This can be conducted by the Site Officer or an adequately qualified and independent Heritage Control Officer (HCO).

2. The option to establish a camping area within the Core Area is removed from the Conceptual Development Plan and an alternative location for such a camping facility is explored. A possible alternative site for the establishment of a camping area is at Thomeng Falls, yet taking into full cognisance that this area has very sensitive wetlands that need to be better managed.

3. The proposed project components 1 to 11 are recommended for approval, as they will lead to the general improvement of management on the Taung Skull WHS and stimulate local economic development, as well as improve visitor experience and safety. Mitigation measures must however be implemented and conservation measures at sensitive heritage sites requires detailed planning.

4. The proposed project components 1 to 11 are recommended for approval, as they will lead to the general improvement of management on the Taung Skull WHS and stimulate local economic development, as well as improve visitor experience and safety. Mitigation measures must however be implemented.

5. Detailed plans should be compiled for conservation measures at the heritage sites, as a top priority and be implemented before visitors are allowed access to the sites.

6. Some of the existing buildings earmarked for reuse have stood derelict for years. Their structural integrity must be checked by structural engineers and confirmed during the planning and design phase.

7. The nightscape should be protected through the design of all lighting on the TSWHS as low-level, down-facing dim lighting, as far as is possible and without compromising safety.

8. Mitigation and enhancement measures are detailed in a Heritage Management Plan that can deal with planning, design, construction, rehabilitation, operational and maintenance phases of the project. All management and mitigation measures should be implemented to effectively manage heritage resources from user damage.

9. The Conceptual Development Plan for the site was compiled in 2003 and should be reviewed and consolidated to reflect current ideas and intentions of the Management Authority. Such a

revised site development plan would be best consolidated together with key and local stakeholders.

10. Further management interventions that are required are policies and strategies that address the issues related to the proposed and steady increase in visitation and usage of the site:
    i) Safety Strategy and Emergency Strategy;
    ii) Built Landscape Management Strategy;
    iii) Research Policy Strategy;
    iv) Visitor Management Strategy; and
    v) Interpretation Strategy.

11. Mapping of the heritage resources be compiled into a GIS database, for ease of access and to enhance planning, management and interpretation at the site.

12. No activities on the site should interfere or be in conflict with the intangible heritage related to the TSWHS.

13. The Research Committee established by READ at the provincial level for heritage sites within the North West Province should consider research management issues for the TSWHS, and a sub-committee can be formed where site specific matters need to be dealt with in detail.

14. A Built Landscape Conservation Manual should be complied to guide specific management requirements for the restoration of historic buildings and other significant cultural forms within the TSWHS. This will be of particular importance to historic buildings falling within the Buffer Zone. The 1st step in this process would be the mapping of the existing historic buildings in the Buffer Zone.

15. In the short term, all derelict buildings should be demarcated as 'off limits' and no visitors should be allowed to enter such buildings, until restoration has been completed, or the buildings have been deemed safe to enter. Such permission should be granted by a qualified safety professional.

16. In the long term, the built landscape should be restored and maintained in its authentic form, in order to enhance the integrity of the site and protect the Outstanding Universal Value. It is recommended that adequately qualified heritage architects and landscape architects are involved in the revision of the site master plan, as well as the design and restoration of all historic buildings and landscapes in the Core Area.

17. A revised Annual Operational Plan should be compiled for the site to put further focus on an already identified list of tasks that need to be completed. Such a plan typically should contain Key Performance Areas (KPAs), Annual Performance Targets, etc. and monitoring and evaluation of current projects should form part of it.

18. Where details are lacking, impact assessment can be conducted in the future, specific onsite management of impacts of approved projects can be managed with the Heritage Management Plan and through consulting with a qualified advisor, as necessary.

References

DACERD, 2003. *Cultural Heritage Resources Survey of the Taung Skull National Heritage Site.* Document submitted to SAHRHA by Bapela Cave Klapweijk on behalf of DACERD.

DACERD, 2004. *Conservation Management Plan for the Taung Skull National Heritage Site.* Document submitted to SAHRHA by Bapela Cave Klapweijk on behalf of DACERD.

DACERD, 2004. *Nomination Dossier for the Taung Skull World Heritage Site.* Document submitted to UNESCO.

DACERD, 2008. *Business Plan for the Taung Skull World Heritage Site.* Department of Agriculture, Conservation and Environment of the North West Province.

DACERD, 2010. *Integrated Management Plan for the Taung Skull World Heritage Site 2010 - 2015.* Document compiled by Reza Williams Business Consulting on behalf of DEACERD and submitted to UNESCO.

DACERD, 2010. *Biodiversity Report for the Taung Skull World Heritage Site.* Document compiled by D Euston-Brown on behalf of Reza Williams Business Consulting on behalf of DEACERD and submitted to UNESCO.

DACERD, 2010. *Socio-Economic Impact Assessment for the Taung Skull World Heritage Site.* Document compiled by Nassar Ahmed Omar on behalf of Reza Williams Business Consulting on behalf of DEACERD and submitted to UNESCO.

DACERD, 2010. *Tourism Marketing Plan for the Taung Skull World Heritage Site.* Document compiled by Reza Williams Business Consulting on behalf of DEACERD and submitted to UNESCO.

DACERD, 2010. *Water Management Plan for the Taung Skull World Heritage Site.* Document compiled by Reza Williams Business Consulting on behalf of DEACERD and submitted to UNESCO.

O'Hare, D. 1997. *Tourism and Small Coastal Settlements: a cultural landscape approach for urban design*. Unpublished PhD thesis. Oxford Brookes University.

UNESCO Johannesburg Declaration 2002. *'World Heritage in Africa and Sustainable Development*'. Declaration from the UNESCO and ICOMOS conference in Johannesburg, 2002.

Glossary

Authenticity and Integrity	Authenticity and Integrity are aspects of related to the quality of heritage that may be protected within a World Heritage Site or other heritage site. Such heritage may date from a specific period of time relevant to the significance of the site. A site may not be intact, but it could still be authentic. A ruin with most of its fabric missing, for example, may be authentic because it has not been overlaid or distorted by subsequent layers. Memory and documentation can also be authentic (although not necessarily accurate), because it derives from the period under study or from someone who had direct experience of an event. For conservation purposes, neither authenticity nor integrity may be adversely affected.
Australopithecus africanus	The African Ape of Southern Africa, a new name given to the discovery by Dr Raymond Dart in 1924, as a result of the discovery of the Taung Child Skull Fossil at the subsequently named Dart Pinnacle, in Buxton Quarry.
Breccia	A specific kind of rock found within tufa. It is made up of calcrete – a mix of sand, gravel, clay, bones and other material cemented together by calcium carbonate. This rock forms in cavitous areas that occur or occurred in tufa in the past. These holes or caverns are then filled with loose material such as bones, pebbles and sediment and with time become cemented in the same matrix of calcium carbonate. Mineworkers referred to this material as 'impure limestone' and the Taung Skull was blasted out of this kind of rock during mine operations in 1924.
Bioturbation	The burrowing by small mammals, insects and termites that disturb archaeological deposits.
Cercopithecus fossils	A fossil grouping related to old world primate fossils linking to the origins of humankind and Apes from Africa.
Chert	A rock type that is a fine-grained silica-rich sedimentary rock that may contain small fossils. It varies greatly in colour, from white to black, but most often manifests as gray, brown, greyish brown and light green to rusty red. Its colour is an expression of trace elements present in the rock, and both red and green are most often related to traces of iron in its oxidized and reduced forms respectively.
Hyracium	Rock rabbit dung deposits that contain valuable information of the past.
Koekepanne	Small rail trolleys used in the mine for the transport of limestone.
Palynology	The study of the fossil pollens.
Paranthropus	A genus of extinct hominids that were bipedal and probably descended from the *Australopithecus* hominids 2.7 million years ago. Members of this genus are characterised by robust craniodental anatomy, including gorilla-like sagittal cranial crests, which suggest strong muscles of mastication, and broad, grinding herbivorous teeth. However, *Paranthropus* skulls lack the transverse cranial crests that are also present in modern gorillas.

Phragmites beds	A common reed that grows in river beds and proliferates when water has been nutrient enriched. Also an effective reed when used in the bio-purification of freshwater systems.
Phytoliths	A rigid, microscopic structure made of silica, found in some plant tissues and persisting after the decay of the plant. These plants take up silica from the soil, whereupon it is deposited within different intracellular and extracellular structures of the plant. Phytoliths come in varying shapes and sizes and it commonly refers to siliceous plant remains.
Outstanding Universal Value	Outstanding universal value means cultural and/or natural significance, which is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity. As such, the permanent protection of this heritage is of the highest importance to the international community as a whole.
Restoration	The act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period. The limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a restoration project[10].
Sangomas	Traditional healers in South Africa that practice traditional African medicine. They fulfil different social and political roles in the community, including divination, healing physical, emotional and spiritual illnesses, directing birth or death rituals, finding lost cattle, protecting warriors, counteracting witches, and narrating the history, cosmology, and myths of their tradition. These healers are effectively South African shamans who are highly revered and respected in a society in which tradition lives and in which illness is believed to be caused by witchcraft, pollution (contact with impure objects or occurrences, recognised in the form of taboos) or through neglect of ones the ancestors.
Speleothems	Cave deposits or formations that are a secondary form of mineral deposit formation in a cave. Speleothems are formed in limestone caves and consist of stalagmites and stalactites, as well as flowstone, for instance.
Stromatolites	Or stromatoliths, a mattress strata or rock, are layered bio-chemical accretionary structures formed in shallow water by the trapping, binding and cementation of sedimentary grains by biofilms (microbial mats) of microorganisms, especially cyanobacteria. Stromatolites provide ancient records of life on Earth within the fossil remains of which might date from more than 3.5 billion years ago.
Toponyms	The study of the history and root associations of place names. Many place names provide insight into the history of a certain place or object, as well as a certain link in time back to a specific event, cultural ritual and/or group of people, for example.
Tufa	Massive deposits formed over millions of years by the precipitation of calcium carbonate rich water flows. Water percolating through the dolomite of the

[10] Defined by the National Park System restoration guideline for historic buildings in the United States of America.

Ghaap Plateau allows it to build up the chemicals necessary for the precipitation of tufa. This process is still happening, and the river provides a modern analogue of tufa formation. It is interesting to note that filamentous algae and mosses growing on the edge of pools are important in facilitating the precipitation process.

APPENDICES

Appendix 1: Heritage Method Statement

Appendix 2: Heritage Monitoring Checklist

Appendix 3: Heritage Monitoring Monthly Report Framework

Appendix 4: Heritage Audit Report Framework

Appendix 1: Heritage Method Statement

If the space provided is insufficient then attach additional sheets.

WHAT:	Activity				
WHO:	Site Foreman / contact person:			Signature:	
	Contractor:			Signature:	
	Submitted to (e.g. READ):		Approved by:		
	Date Submitted on:		Date Approved:		
WHEN:	Date works start		Date works complete		
	Rehabilitation period:		Programme restrictions (critical path, season restrictions etc.)		
	Split work Phasing:	Item		start date	end date
	Phase 1				
	Phase 2				
WHERE	Area of works – submit plan or sketch if appropriate – stockpile, detention ponds, boundaries / restriction of works, special heritage features or mitigation works, landscape features, sensitive sites, etc:				
HOW:	Route / site layout pegged:	Date available to inspect		Inspection persons required:	
	Landscape concerns: (Specify items/details not covered in HMP. Refer to HMP items if required.)				
	Existing features & services affected (e.g. paths, curbing, water, electricity, etc.)				
	Sensitive heritage sites (archaeological, paleontological, etc.)				
	Sensitive visual landscape				
	Method/s of avoiding impacts				
	Method/s of mitigating impacts				
	Restricted areas (describe, No-Go areas, etc.)				

HOW	General Landscape: (specify items/details not covered in HMP. Refer to HMP items if required.)
(cont.)	Access routes and delivery routes:
	Machinery to be used:
	Earthworks & dust control:
	Concrete works:
	Storm-water control:
	Stockpiles of material:
	Refuse / rubble:
	Water quality – pumping, source & discharge points, settlement, filtration, duration, etc:
	Hydrocarbon control measures:
	I&AP notifications:
	Fire / emergency contingencies:
Special conditions / mitigation measures (e.g. high sensitivity sites and features, etc.):	
Comments:	

Appendix 2: Heritage Monitoring Checklist

Activity Description:			
Completed By and Position:		**Date:**	
No.	**Monitoring Checklist Items**	**Response**	**Who is Responsible?**
1.	Does the activity require SAHRA approval?		
2.	Has the activity been approved by SAHRA?		
3.	Has the activity been approved by READ?		
4.	Have all the conditions of approval been complied with?		
5.	Does the activity comply with the provisions of the HMP?		
6.	Has a Method of Activity Form been completed by the contractor/proponent and accepted by the TSWHS Site Office?		
7.	Are there any significantly negative heritage impacts associated to the activity?		
8.	Should the activity proceed?		
9.	Are there previous compliance issues and have they been remedied?		
10.	Is it necessary to issue a 'work stop order' on the activity?		
11.	How can the activity be improved to reduce negative impacts?		
12.	How can the activity be improved to enhance positive impacts?		
	Additional Notes and Comments		
	Required Actions		
1.			
2.			
3.			
4.			
5.			
6.			

Appendix 3: Heritage Monthly Report Framework

The following Heritage Audit Framework can be used to report on activities once they have been completed:

1. Title
2. Official Reference Number
3. Project Name
4. Project Phase
5. Activity Start Date
6. Monitoring Inspection Dates
7. Related Approvals and Management Plan/s
8. Conditions of Approval
9. Introduction
10. Monthly Compliance Statement
11. Specific Non-Compliance Issues and Remedies
12. Fines/Penalties Statement
13. Resulting Impacts (Positive and Negative)
14. Recommendations
15. Appendix 1: Monthly Photographs
16. Appendix 2: Heritage Monitoring Checklist/s

Appendix 4: Heritage Audit Report Framework

The following Heritage Audit Framework can be used to report on activities once they have been completed:

1. Title
2. Official Reference Number
3. Project Name
4. Project Phase/s
5. Activity Start and End Dates
6. Monitoring Inspection Dates
7. Final Audit Inspection Date
8. Related Approvals and Management Plan/s
9. Conditions of Approval
10. Introduction
11. Compliance Statement
12. Specific Non-Compliance Issues and Remedies
13. Fines/Penalties Statement
14. Resulting Impacts (Positive and Negative)
15. Recommendations
16. Appendix 1: Before, During and After Photographs
17. Appendix 2: Related Approvals
18. Appendix 3: Heritage Method Statement
19. Appendix 4: Heritage Monitoring Checklists

Report compiled by EcoAfrica Environmental Consultants (Pty) Ltd
for the Department of Rural, Environmental and Agricultural Development (READ)
of the North West Provincial Government of South Africa.

EcoAfrica