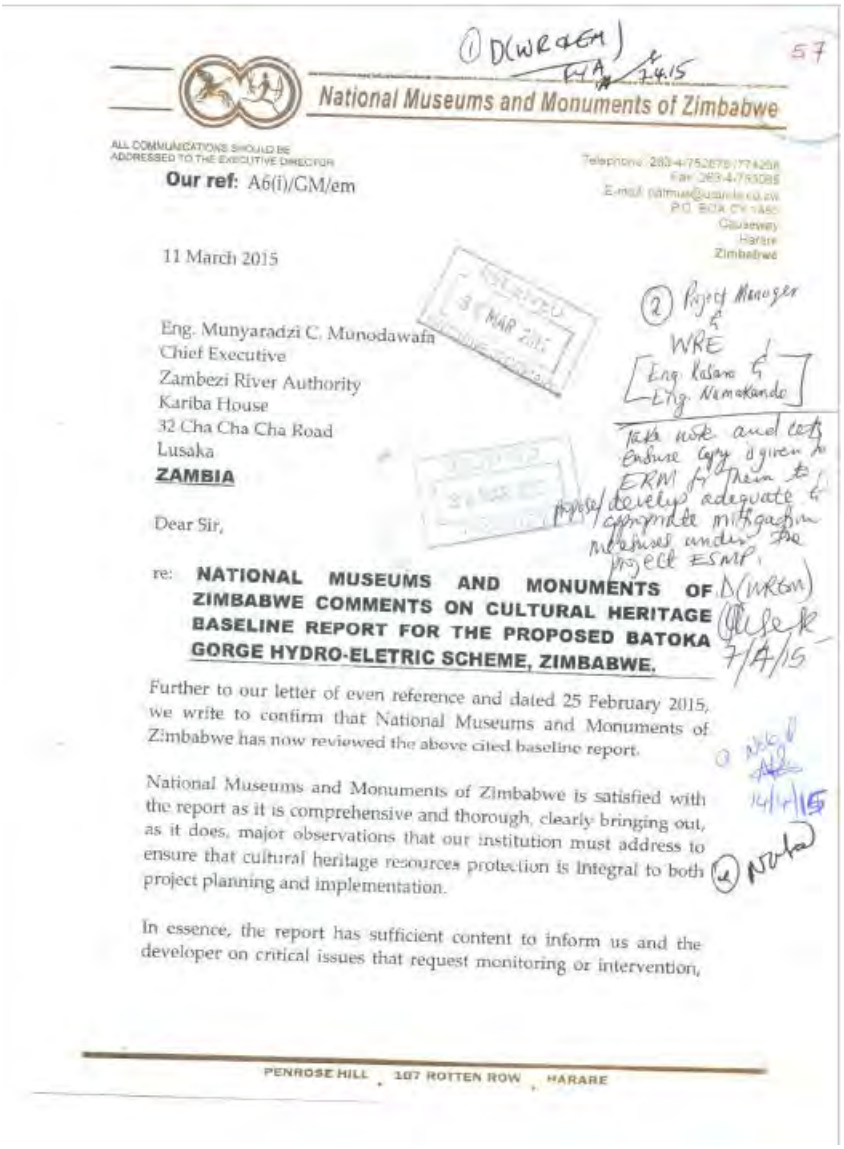
Annex L

Cultural Heritage Report Zimbabwe

L1 PROOF OF SUBMISSION OF CULTURAL HERITAGE REPORT TO THE NATIONAL MUSEUM AND MONUMNETS OF ZIMBABWE



National Museums and Monuments of Zimbabwe

ALL COMMUNICATIONS SHOULD BE ADDRESSED TO THE EXECUTIVE DIRECTOR

Our ref: A6(i)/GM/em

11 March 2015

Eng. Munyaradzi C. Munodawafa
Chief Executive
Zambezi River Authority
Kariba House
32 Cha Cha Cha Road
Lusaka
ZAMBIA

Dear Sir,

re: **NATIONAL MUSEUMS AND MONUMENTS OF ZIMBABWE COMMENTS ON CULTURAL HERITAGE BASELINE REPORT FOR THE PROPOSED BATOKA GORGE HYDRO-ELETRIC SCHEME, ZIMBABWE.**

Further to our letter of even reference and dated 25 February 2015, we write to confirm that National Museums and Monuments of Zimbabwe has now reviewed the above cited baseline report.

National Museums and Monuments of Zimbabwe is satisfied with the report as it is comprehensive and thorough, clearly bringing out, as it does, major observations that our institution must address to ensure that cultural heritage resources protection is integral to both project planning and implementation.

In essence, the report has sufficient content to inform us and the developer on critical issues that request monitoring or intervention,

PENROSE HILL , 107 ROTTEN ROW , HARARE

especially for us, given our mandate to conduct appropriate mitigation where heritage resources are under threat.

The assessment identified 91 archaeological sites. Of these sites the majority were assessed to be of negligible significance and *"worthy of further investigations"*. The sites were deemed to have scientific value as they represent the full variety of the sites in the project area (p.152) and as such their mitigation will ensure a proper record of the cultural heritage of the Batoka project footprint before likely destruction.

- The assessment also affirmed the major significance of Chemapato hill site as previously highlighted by earlier assessments. This is a living heritage site and will require appropriate mitigations measures.

- Please note that mitigation can only be carried out by the National Museums and Monuments of Zimbabwe and our team will require to scope and cost the work upon which a budget will be produced and forwarded to yourselves.

Important to also note is that should other heritage occurrences of a significant nature that are not covered in the impact assessment report come to our attention, the developer will be expected to take all appropriate mitigation or such other necessary conservation interventions as prescribed by ourselves.

Your assistance and cooperation to save our heritage is greatly appreciated.

Sincerely

G. Mahachi (Dr.)
EXECUTIVE DIRECTOR

TANGIBLE CULTURAL HERITAGE REPORT – BATOKA GORGE HYDRO-ELECTRIC SCHEME, ZIMBABWE

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1.1 SUMMARY

A Cultural Heritage Assessment of the proposed Batoka Gorge Hydro-Electric Scheme (HES) project on the Zambezi River, including both archaeological and palaeontological investigations, was carried out on the Zimbabwean side from 15th to 24th August 2014. The objective was to both update earlier 1993 and 1998 heritage assessments to the standard now required by National Museums and Monuments of Zimbabwe, as well as investigating additional areas identified as part of the proposed development footprint where this has changed.

No sites of palaeontological interest were located. 91 Archaeological sites are recorded in this report - either sites recorded previously or 55 new ones located during the current field reconnaissance. Relevant mitigation procedures are proposed for those sites considering their importance to the Cultural Heritage in this part of Zimbabwe. This includes a reassessment of those sites documented previously. Most of the sites are ephemeral or disturbed: as such they have limited social and academic significance. Relevant mapping and excavation is suggested for several key sites providing a future reference point in our understanding of the Cultural Heritage of the Victoria Falls area. The importance of the Living Traditional site of Chemapato Hill is reaffirmed. Where additional work is required on the part of the Project Proponent this is outlined.

1.2 PROJECT DESCRIPTION

The Zambezi River Authority (ZRA) is considering developing the proposed Batoka Gorge Hydro-Electric Scheme (HES) on the Zambezi River. This bilateral project between Zambia and Zimbabwe includes the construction of a concrete gravity arch dam that will provide up to 800 MW of electrical power each for Zambia and Zimbabwe with a total capacity of 1600 MW. The proposed Scheme is located approximately 50km downstream of the Victoria Falls within the province of Matabeleland North and in the Hwange Rural District, *Figures 1 and 2*.

The following are the key components of the proposed Batoka HES Project:

- A 181m high dam wall and water impoundment upstream toward Victoria Falls World Heritage Site. The maximum height of the reservoir is tentatively set at 762m above mean sea level at which stage the reservoir surface area will cover approximately 25.6 km^2.

- Powerhouses shall be constructed on each riverbank below the proposed dam wall.

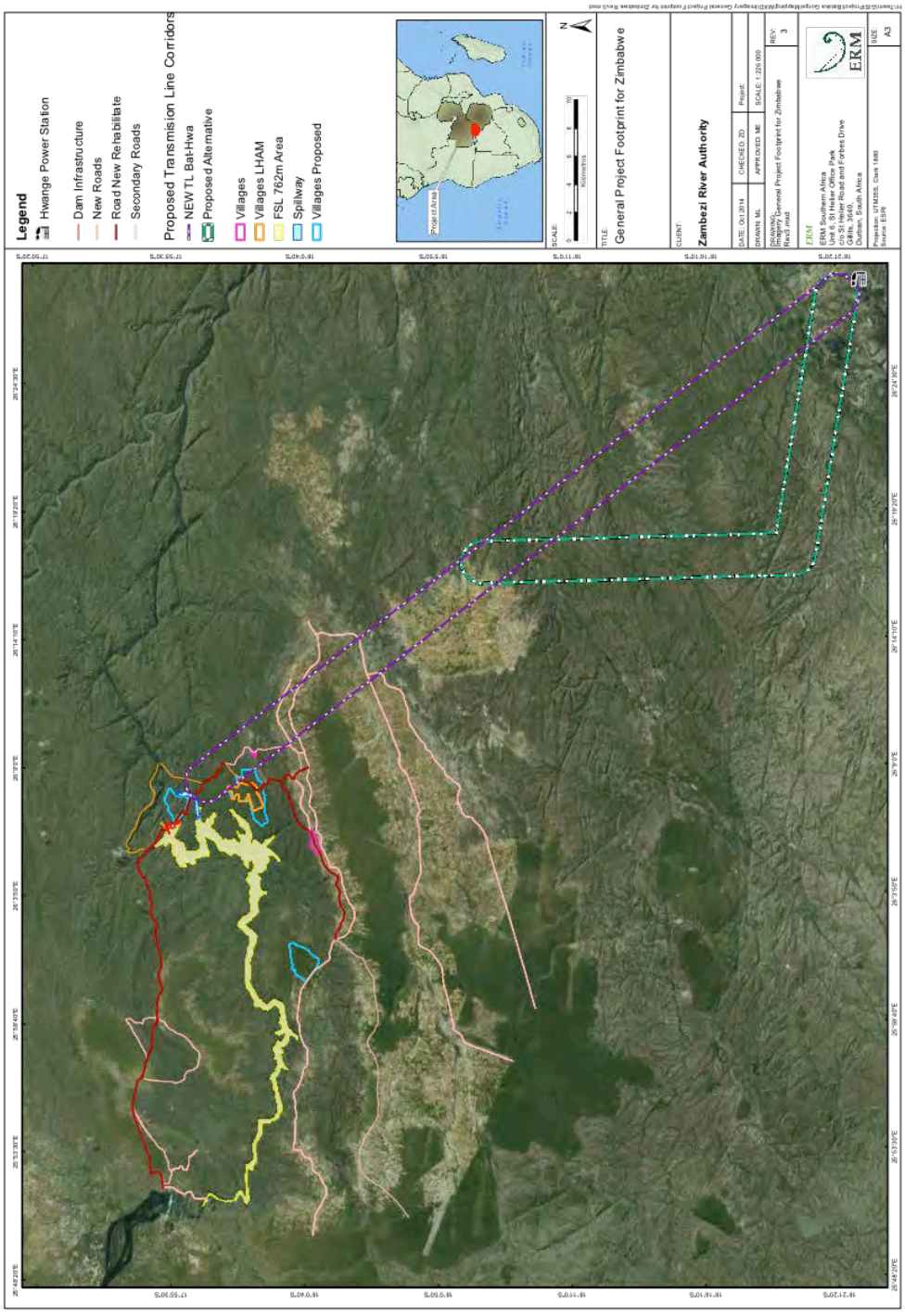
- In Zimbabwe the proposed transmission lines shall comprise 2 x 70km 330kV lines running in parallel and sharing a common right-of-way to the existing Zimbabwe Power Company (ZPC) Hwange 330 kV substation. An alternative, taking advantage of the existing A8 national road for the reasons of cheaper construction and future maintenance, deviates

approximately 30km from the starting point. It heads directly south towards the A8 motorway and thence to Hwange.

- Access roads shall be developed to access the site, either upgrading of existing roads and/or construction of new roads.

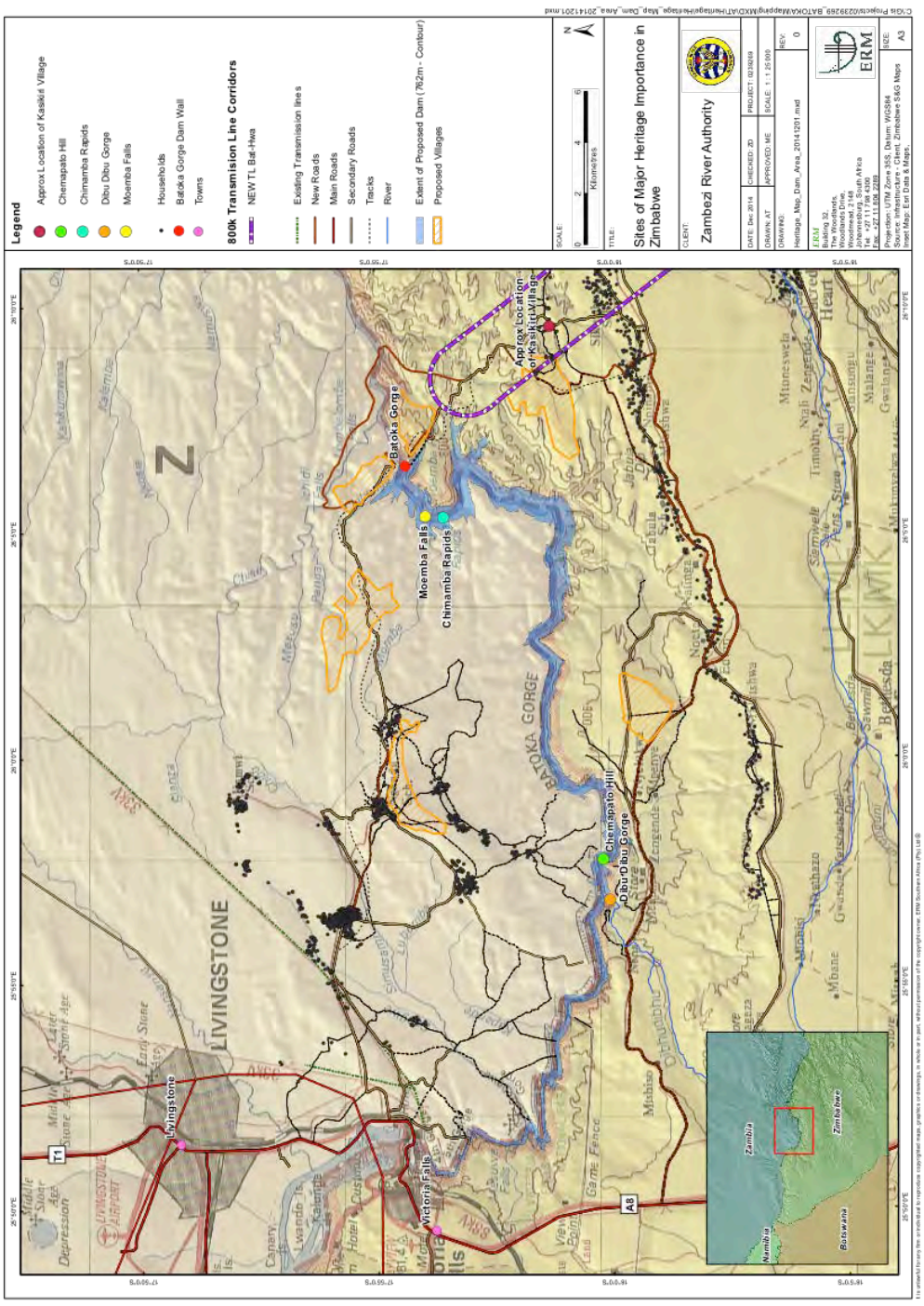
- Other ancillary infrastructure shall include quarries; a spoils/dumping area, construction and batching camps and a residential area consisting of permanent staff housing and associated facilities.

Figure 0.1 *Key Components of Proposed Batoka HES Project in Zimbabwe*



Source: ERM, 2014

Figure 0.2 *More Detailed Map of Key Components of Proposed Batoka HES Project in Zimbabwe*



Source: ERM, 2014

1.3 *TERMS OF REFERENCE*

The following Terms of Reference were issued on the 5th August 2014 and guided this study:

- *Field visit to confirm and adequately document sites previously recorded as well as potential new sites located during field visit*
- *Site visit to include baseline data collection for dam site and some ancillary infrastructure (ie, dam wall, power houses, spillway, inundation area, construction camp, permanent villages, switch yard and access roads). Footnote = Depending on the extent of the dam site and ancillary infrastructure areas, additional scope may be required. Any additional scope will be agreed between the Consultant and ERM and is subject to additional contractual arrangements.*
- *Desk top study level (preliminary assessment of the cultural heritage database and information from available studies) for the provisional transmission line routes*
- *Reporting and impact assessment*
- *Chance Find procedure*
- *Briefing of Zambian team (ie, discussions with Zambian Specialist) Footnote = Zambia data will be gathered by Zambian Specialist. No field time, site visits or data gathering trips to Zambia are included for the Consultant. No contingency has been included for documenting sites of intangible cultural significance following report back from sociological surveys.*
- *Review of terms of reference for Zambian team*
- *Review of Zambian report*

At this stage, the archaeological scope of work for the Transmission lines is omitted, although it is recognised that this scope will need to be added. This scope will be added once a more defined transmission line route can be provided by the feasibility study engineers and an archaeological assessment can be undertaken. It is recognised that any archaeological finds might result in further minor alignment adjustments to the proposed transmission line routes and hence desk top involvement will be sought initially. This additional scope will be agreed between the Consultant and ERM and is subject to additional contractual arrangements.

1.4 OBJECTIVES

The purpose of this investigation of the Cultural Heritage resources on the Zimbabwean side of the proposed Batoka HES was to comply with the legal requirements of the National Museums and Monuments of Zimbabwe (NMMZ) Act Chapter 25 (11), supported by various Statutory Instruments. The most recent additional legislation, Statutory Instrument 143 of 2011, must be read in conjunction with the institutional recommendations contained in a 1998 NMMZ publication entitled 'Archaeological Impact Assessments: Guidelines for Planning Authorities and Developers'[2].

This national legislation and related body of operational recommendations grant the NMMZ authority over all sites and structures of cultural, specified scientific, historical, archaeological and palaeontological significance. They set standards for reporting, evaluation and notification. This report seeks to comply with these requirements, as well as seeking NMMZ guidance on the

[2] NMMZ, 1998

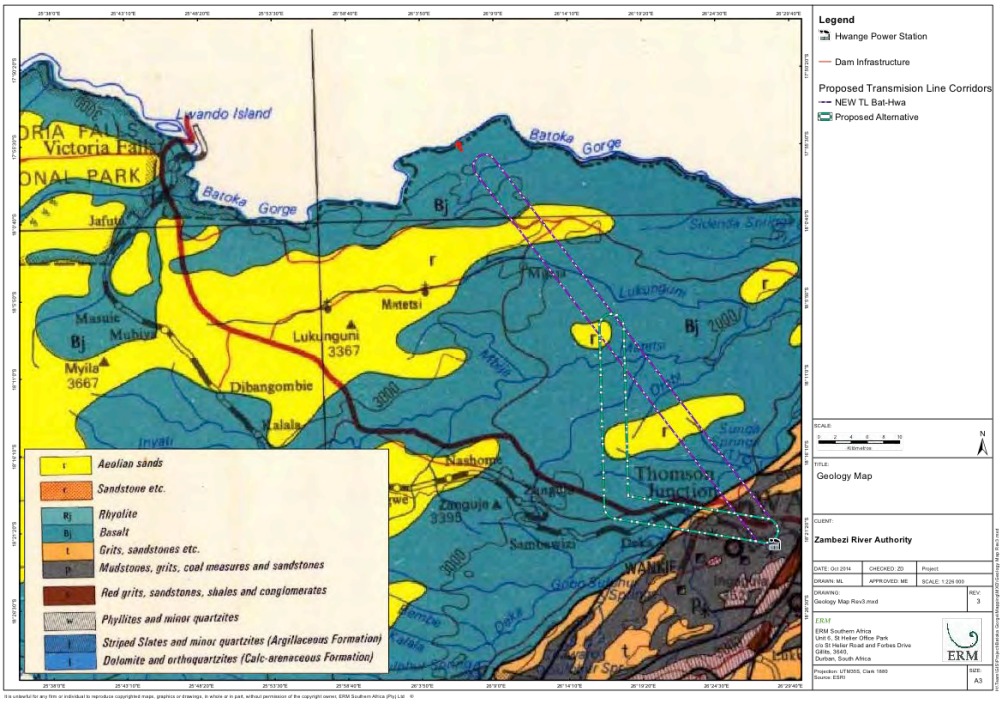
conclusions offered as well as the proposed mitigation procedures recommended.

1.5 HERITAGE CONTEXT

1.5.1 Simplified Geology of the Dam Project Area

To understand the Cultural and Palaeontological Heritage of the Project Area it is necessary to have a general knowledge of the basic geology of the general Victoria Falls landscape[3]. It is on this, and often directed by it, that the heritage signature exists, *Figure 3.*

Figure 0.3 Simplified Regional Geology of the Batoka HES Project, Zimbabwe



Source: ERM, 2014

The underlying Karroo Series Basalt dates to about 180 million years ago. It results from a repeated series of lava extrusions. Between these eruptions there were periods of sedimentation and it is in these lenses of sandstone that fossil remains may occur. Although not known locally, such remains have been found nearby in Lake Kariba Basin where the same geological sequence occurs[4]. The potential for finding these palaeontological sites has been raised in previous investigations, but as yet nothing has been found.

Being volcanic the basalt itself does not contain fossils, but it does include scattered amygdaloidal deposits of agate and quartz, *Figure 4.* From these as

[3] Clark, 1950 and 1952; Bond and Clark, 1954; Moore, 2013
[4] Bond, 1973; Darlington Munyikwa (Deputy Executive Director NMMZ) cited in 1993 and 1998 ESIA reports

well as secondary alluvial deposits derived from the same origin, Stone Age people would fashion lithic artefacts.

Figure 0.4 ***Typical Basalt found in the Batoka HES Project Area showing Internal Structure.***

Source: RSB, 2014

The basalt forms both sides of the Batoka Gorge as well as constituting the dominant landsurface of the Project Area. Generally soils are shallow or have been stripped bare by geomorphological surface processes – surface wash, soil and talus creep and fluvial incision. Away from the deeply incised Batoka Gorge, harder layers of basalt form ridges or plateaux. Where the rock is softer or brecciated, the basalt has decayed to form plains of deep deposits of granular rubble or finer dark soils, *Figure 5.* The process of seasonal alternate wetting and drying causes these soils to have a distinctive self-churning character. This process mixes the soil and is of considerable importance to sites of Cultural Heritage:

- Distinct cultural assemblages are often mixed instead of retaining their original stratigraphic sequence.

- The process causes larger stones/artefacts to move upward through the soil to accumulate at the surface, while at the same time winnowing smaller stones and artefacts downward. This disturbance of the original cultural assemblages distorts site integrity, destroying the spatial and temporal associations of artefacts so limiting their interpretative value.

Figure 0.5 Typical Basalt Soil found in the Batoka HES Project Area (Kasikiri village)

Source: RSB, 2014

Scattered linear intrusions of calcite are also present in the basalt, *Figure 6*. In some places these have weathered and given rise to secondary calcium carbonate deposits. These have in some instances formed thick calcrete deposits or have accumulated as significant travertine deposits around springs, along waterways and at waterfalls and rapids, *Figure 7*. While the current reconnaissance found nothing of interest in these deposits, their importance in containing fossil remains cannot be understated. Most often there are plant remains but animal bones may also become imbedded. The well-known South African Hominin[5] fossil site of Taung is of such origin.

Figure 0.6 Calcite Intrusion in Basalt near Batoka HES Proposed Dam Wall

Source: RSB, 2014

[5] Early human ancestors

Figure 0.7 Secondary Calcium Carbonate Deposit on tributary of Dibu Dibu Stream

Source: RSB, 2014

The Kalahari Sand Formation is comparatively recent in origin and overlies the basalt in many places. It is a relic of an extensive palaeo-lake and palaeo-dune system that were once a feature of this part of the world. The formation consists of more than sand:

- The basal Silicified Limestone is grey to yellowish-brown or mottled. In places this 'flint-like' rock has been subject to localised replacement of the carbonates by silica to form chalcedony, *Figure 8.* This material may contain fossil gastropods or fine filaments of the fossilized plant *Chara.* The chalcedony appears to have been a raw material of choice of the Middle Stone inhabitants of the region.

Figure 0.8 Modified Basal Limestone (Chalcedony), Basal Kalahari Sand Formation

Source: RSB, 2014

- Overlying this unit are the Pipe Sandstone beds. These varying from poor to highly silicified sandstone with a characteristic weathering pattern exhibiting numerous, interlocking, hollow tubes thought to result from secondary solution facilitated by microbial activity. The Pipe Sandstones often form distinct scarps on the lower margins of the palaeo-dunes, while it persists as a resistant rubble that caps many basalt ridges, *Figure 9*. Fossil plant remains and gastropods are reported, while there are many trace fossils – small linear tubes created by burrowing crustaceans at the time that these deposits were formed[6].

- The upper levels of the Pipe Sandstone give way to a poorly consolidated, iron-enriched rubble that grades into the overlying red sands. Described as Carstone, *Figure 10,* this ferruginous deposit was used by past inhabitants as a source of iron for smelting.

- Overlying this are the remains of the Kalahari palaeo-dunes. A thick deposit of red sand, these wind-lain deposits have been subject to extensive bioturbation that has destroyed any internal sedimentary structure. The

[6] Bond, 1973; Moore, 2013

sands can be many metres deep. It some places they have subsequently been reworked by both wind and or water resulting in white sand where the iron coating has been removed from the original sandgrains. The same processes have affected many of the natural gravels and stone tools present, polishing them to a glossy finish. *Figure 11* compares five polished artefacts with two fresh, unpolished ones of the same raw material.

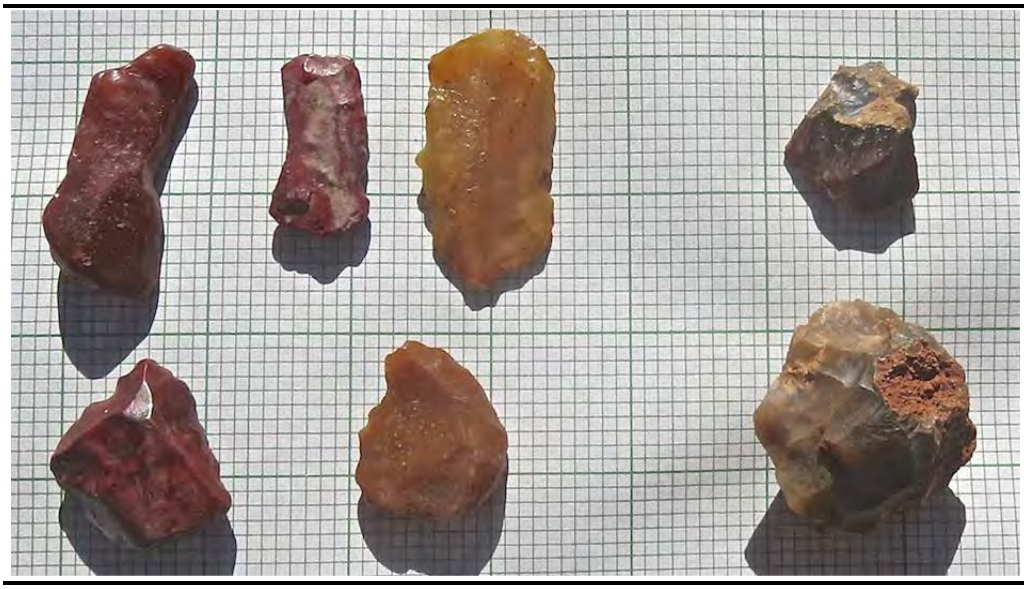
Figure 0.9 Typical Surface Exposure of Pipe Sandstone, Kalahari Sand Formation

Source: RSB, 2014

Figure 0.10 Carstone, Kalahari Sand Formation

Source: RSB, 2014

Figure 0.11 ***Polished Stone Artefacts (left) associated with the Reworking of the Kalahari Sand Formation, Site 16 Gorges Lodge***



Source: RSB, 2014

Alluvial deposits of waterworn pebbles occur along the Zambezi River and its major tributaries, *Figure 12*. In some cases these consist entirely of chalcedony pebbles, although basalt and agate also occur. The 'Old Gravels' occur at different heights above the Zambezi River and along the margins of the Batoka Gorge. They are witness to the previous position of the river before its incision to the current position. These gravels have attracting past human attention as a source of raw material for the manufacture of stone tools.

These 'older gravels' are largely restricted to the Zambian side reflecting the southward erosion of the Zambezi and subsequent greater deposition on the north bank. Early Stone Age lithics as well as occasional fossil animal bones have been recovered from them. The 'Younger Gravels' are found on both sides of the River but are not as extensive. They are mainly associated with the tributaries of the Zambezi and are associated with later Middle Stone lithics.

Figure 0.12 Typical Surface Exposure of 'Younger Gravels' perched above Zambezi River, Gorges Lodge

Source: RSB, 2014

The backward erosion of the Victoria Falls and the origin of the Batoka Gorge have been subject to considerable academic debate, although there is increasing consensus that it results from cyclical erosion cycles of the evolving Zambezi River increasing or loosing erosive capacity through river capture. While not in itself a prominent topographical feature, the Chimamba Rapids[7] just upstream of the proposed Batoka Gorge dam is considered an important knickpoint in the evolution of this unique river system[8].

1.5.2 Archaeological Heritage

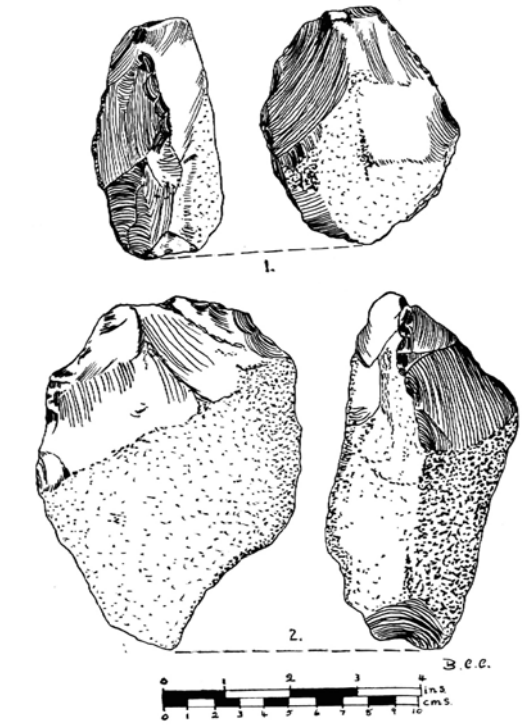
The Victoria Falls and Livingstone areas are well known in terms of their archaeological heritage. Most work has been conducted on the north bank of the Zambezi River out of the Livingstone Museum in Zambia. It is likely that the archaeological footprint on the south bank in Zimbabwe is similar. The following is a brief summary of the known archaeological history.

The Stone Age

The Victoria Falls was one of the first places in Central Africa where stone tools were identified in the opening years of the Twentieth Century[9]. The earliest tools are assigned to the Olduwan Tradition. They date to between 1.7 to 1.4 million years before present (BP). These simple, facetted cobblestones are found in secondary contexts in the older alluvial gravels of the Zambezi River, *Figure 13.*

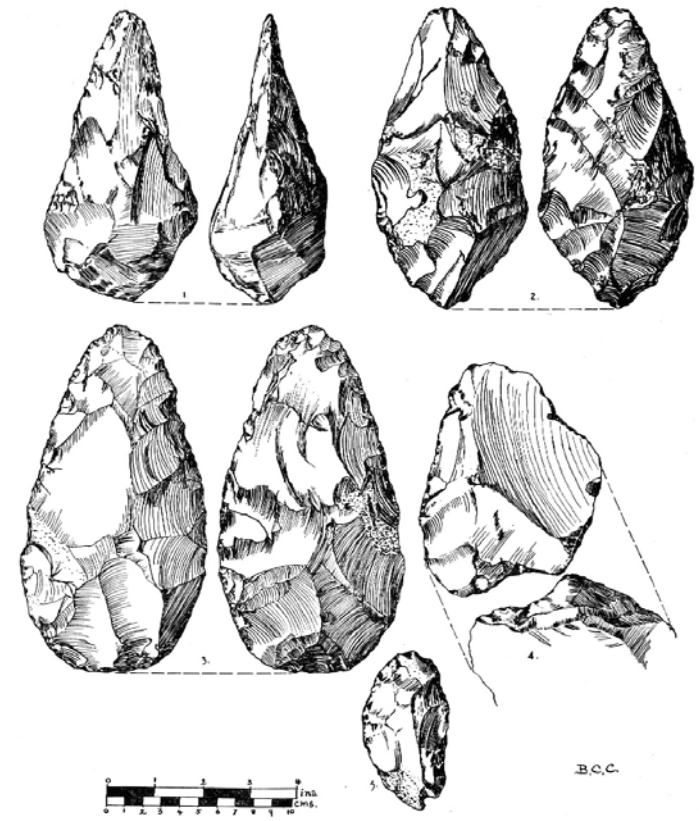
[7] The name derives from its local Tonga onomatopoeic name Chomoomba, the Ground Hornbill (Moore, 2103: 7).
[8] Lamplugh, 1907: 151; Clark, 1950: 124; Moore and Cottrill 2010; Moore, 2013: 7-8
[9] Molyneux, 1905; Lamplugh, 1906

Figure 0.13 Olduwan Tradition Artefacts, Older Gravels, Zambezi River



Source: Clark, 1950: 67

Figure 0.14 Acheulean Tradition Artefacts, Maramba River, Livingstone



Source: Clark, 1950:76

More common are the characteristic tools of the succeeding Acheulean Tradition of the Early Stone Age. Pear-shaped handaxes and straight-edged

cleavers are diagnostic tool forms, *Figure 14.* Dating to between 1.4 million to 300,000 years ago, these tools have been found both in secondary contexts in the alluvial gravels where they occur as isolated tools, as well as in localised concentrations of several hundred. The latter sites are probably the result of home-based or factory activities[10]. Most of the known Acheulean sites occur on the Zambian side of the River. This accords with the shifting geomorphological processes in the area. Those sites that may have existed on the Zimbabwean side have probably been destroyed, eroded away as the Zambezi River shifts southward. A particularly important Acheulean site was excavated as a tourist display near Songwe Point in Zambia[11].

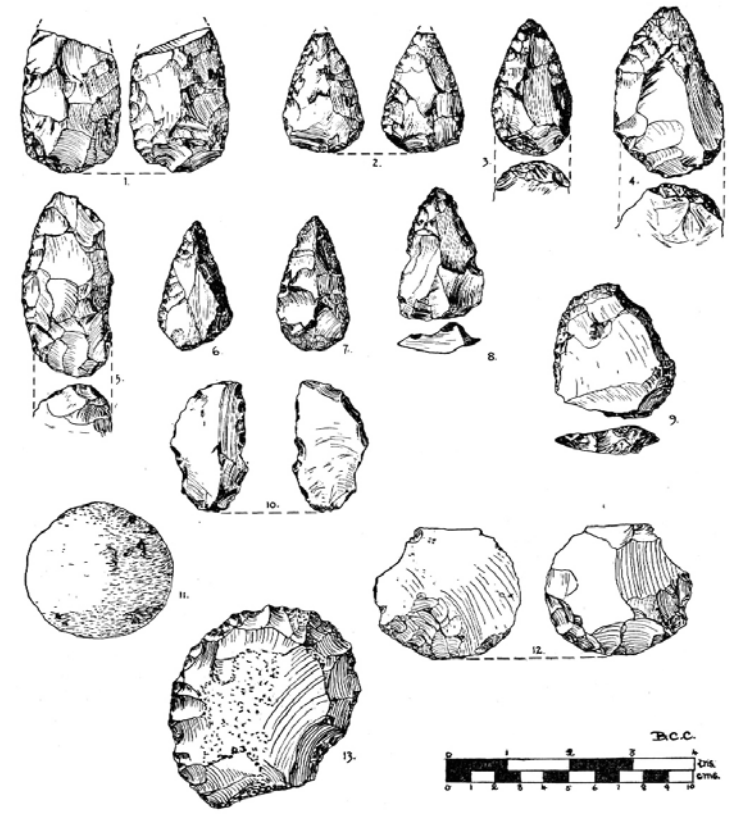
The Bembezi or Sangoan Tradition (300,000 to 200,000 years BP) represents a later refinement of the lithic tools to smaller, pointed handaxes with the adoption of a more skilled flaking technique. These tools and those of the following Middle Stone Age (dating to between 200,000 to 35,000 years BP) are common throughout the region. The earliest tools in the Charama Tradition are chunky and irregular, but they become more refined with time. There are several temporal and regional variations in the Middle Stone Age with the Bambata Tradition the most common in the Victoria Falls area.

It appears that these early hunter-gatherer communities favoured this part of the Zambezi Valley. Their use of the characteristic Levallois flaking technique, large pyramidal cores, flakes with multi-facetted striking platforms and several standard formal tool forms makes for easy identification of these lithic assemblages. Triangular points, large rectangular blades and chunky scrapers are diagnostic tool forms, *Figure 15.* These groups are likely to have consisted of roaming bands that followed the larger plains game during their season migrations, hunting being their principle economic sustenance. In Zimbabwe, their archaeological signature is found almost everywhere as diffuse, isolated pieces. Localised concentrations, where not the result of secondary geomorphological processes, reflect home-base or factory accumulations.

[10] Clark, 1950, 1952, 1955, 1975 and 1990; Mitchell, 2002

[11] This site is now again covered following the destruction of this community run resort by fire.

Figure 0.15 ***Characteristic Middle Stone Age Artefacts from various locations in and around Livingstone, Zambia***



Source: Clark, 1950:100

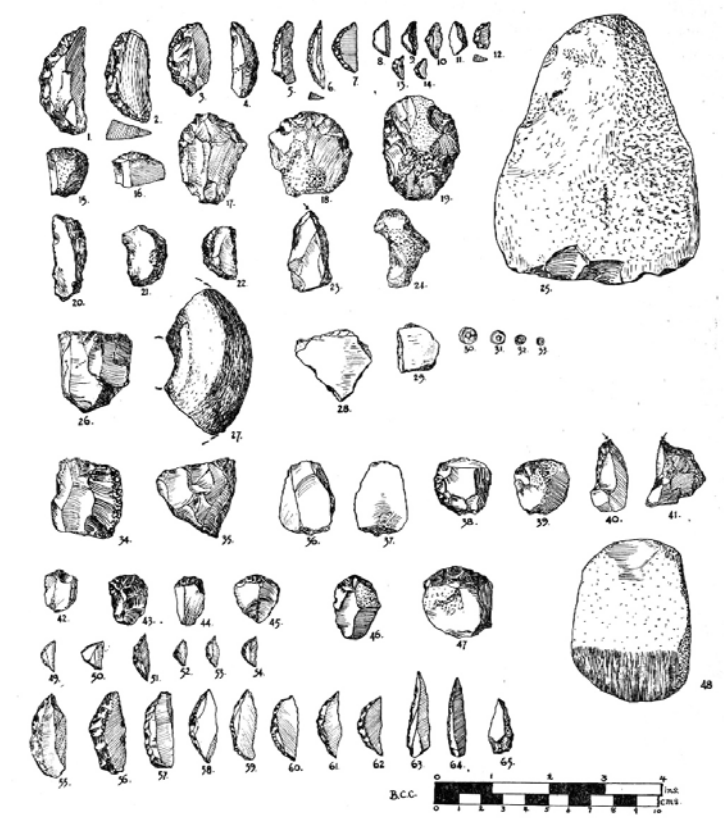
About 40,000 years ago a new lithic tradition emerged. These assemblages date from 35,000 to recent historic times, although most predate 1,000 AD. The Late or Later Stone Age is characterised by very small lithic artefacts. These microlithic tools were components in larger tools made from organic material, the latter rarely survives. Bladelets, small retouched tools and thumbnail scrapers are diagnostic tool forms, while cores show multiple parallel flaking or are smaller pyramidal forms, *Figure 16.* The earliest assemblages combine several characteristic Middle Stone Age tool forms. These Tshangula Tradition sites are poorly understood and it is possible that these assemblages are in fact mixed deposits rather than it being a discrete tradition. Later assemblages have been lumped into regional variations of the 'Wilton Techno-Industrial complex'. The local Zambezi Wilton requires further research in the light of research elsewhere in the country which shows significant change through time.

In space these sites may overlap with that of the earlier Middle Stone Age sites, but are more often they are found in locations closer to the margins of the Zambezi and on local high points, especially where there are small natural rock overhangs[12]. Their smaller extent reflects the more limited band structure of these communities. They were somewhat more sedentary, exploiting

[12] The main references for the Stone Age in this area are the work of Clark 1950, 1952,, 1955 and 1975. A revision of his interpretations, especially the dating of the sequence can be found in recent summaries of our current understanding of the Stone Age sequence in Zimbabwe in Walker and Thorp 1997; Burrett 1998; and Bandama, 2013

smaller territories and placing a greater value on plants and small game as principle foods[13].

Figure 0.16 ***Late Stone Age Artefacts, Zambezi River Valley***



Source: Clark, 1950:110

Farming Community Sites

This archaeological entity was previously been termed the 'Iron Age' but this term has been dropped given incorrect associations being made with different communities and different times in the archaeological sequences in Europe and the Indian Subcontinent[14].

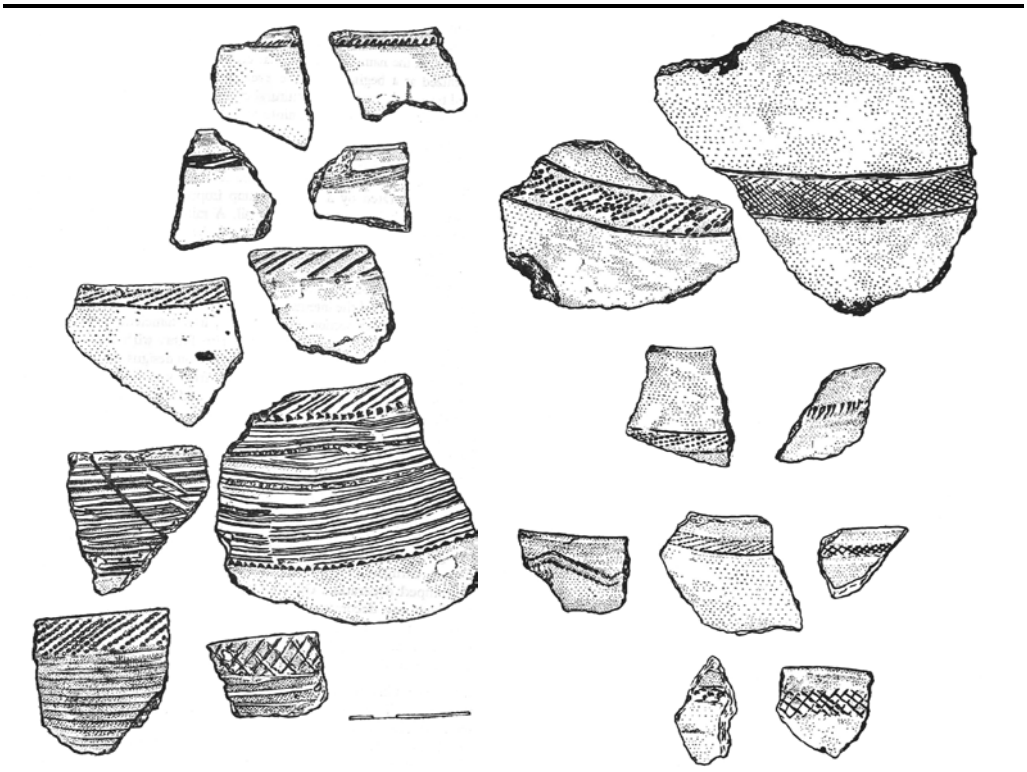
Research suggests that crop cultivation, the building of permanent village settlements and the working of iron and copper, appear as a cultural package in the opening years of the First Millennium AD. Studies of the remains of these settlements and the changing sequence of pottery decoration have been conducted along the Zambia side of the Zambezi River, *Figure 17*. A few isolated records suggest that similar sites exist to south of the River, although there has been little systematic investigation to date.

The earliest Farming Community villages date to 200 AD. Assigned to the Shongwe Tradition, the earliest groups were scattered pioneers who occupied large, centralised villages built away from the Zambezi and adjacent to large

[13] Bandama 2013; Burrett 1998; Mitchell 2002
[14] Pwiti, 1996

marshy areas (*dambos*) that lie between the palaeo-dunes[15]. These first groups were gradually replaced or more likely evolved into the current Tonga-speaking communities who traditionally occupied this area. The archaeological record in Zambia suggests that the Toka-Leya have been present in this area since at least the Sixteenth Century AD.

Figure 0.17 ***The Farming Community Pottery Sequence for Southern Province, Zambia. (Early Farming Community- left; Later Farming Community – right)***



Source: Vogel 1971a: 18, 22

1.6 METHODOLOGY

The preparation of the Cultural Heritage report comprised three components. The Project Baseline Determination consisted of an initial desktop review of earlier Cultural Heritage assessments as well as literature review. This was followed by a ten-day field visit to the Batoka HES Project Area located in Zimbabwe. A subsequent desktop review of the proposed transmission lines was undertaken using Google Earth.

1.6.1 General Desktop Review of Project Study Area

Based on a generalised plan of the project proposals the records of the Archaeological Survey of Zimbabwe were checked. These are housed in the Zimbabwe Museum of Human Sciences, Harare. This was to understand if there were any known archaeological sites, as well as to get a general

[15] The most important work is that of Vogel, 1971a, 1971b, 1975a, 1975b). Phillipson 1975 provides as useful simplified discussion for the general public

understanding of the regional Cultural Heritage Baseline. *Table 1* records this information.

Table 0.1 ***Archaeological Sites Already Appearing in the Database of the Archaeological Survey of Zimbabwe, Museum of Human Sciences, Harare***

Map	Museum Number	Grid Reference	Site Name	Cultural Association
1725 D4	**Victoria Falls**			
	1725:DD:01	LL-77-13	Masvi River	Stone Age
	1725:DD:02	LL-77-14	Victoria Falls National Park	Stone Age
	1725:DD:03	LL-77-16	Victoria Falls National Park	Middle Stone Age
	1725:DD:04	LL-77-17?	Victoria Falls	Stone Age
	1725:DD:05	LL-77-18	Victoria Falls	Stone Age
	1725:DD:06	LL-78-13	Masvi River	Middle Stone Age
	1725:DD:07	LL-78-16	Victoria Falls	Stone Age
	1725:DD:08	LL-75-14	Victoria Falls National Park	Stone Age
	1725:DD:09	LL-76-14	Victoria Falls National Park	Stone Age
	1725:DD:10	LL-79-13	Masue Confluence	Stone Age
	1725:DD:11	LL-79-16	Victoria Falls Area	Stone Age
	1725:DD:12	LL-78-19	Victoria Falls	Stone Age
	1725:DD:13	LL-739-104	Cummings Farm	Stone Age
	1725:DD:14	LL-83-10	Victoria Falls National Park	Stone Age
	1725:DD:15	LL-78-13	Masue River	Early Farming Community
	1725:DD:16	LL-80-20	Victoria Falls	Late Farming Community
	1725:DD:17	LL-77-15	Victoria Falls National Park	Early Farming Community
	1725:DD:18	LL-774-194	Big Tree	Middle Stone Age/Early Farming Community
	1725:DD:19	LL-7702-1869	Victoria Falls	Late Farming Community
	1725:DD:20	LL-78-15	Victoria Falls	Late Farming Community
	1725:DD:21	LL-76-19	Dales Kopje	Stone Age
1726 C3	**Batoka Gorge**			
	NIL			
1825 B2	**Vic Falls Airport**			
	1825:BB:01	LL-70-08	Victoria Falls	Early Stone Age
	1825:BB:02	LL-82-09	Shara	Farming Community
1826 A1	**Lukunguni**			

	1826:AA:01	MK-08-82	Lobangwe	Middle Stone Age
	1826:AA:02	LK-99-83?	Matetsi River	Middle Stone Age
1826 A2	**Ombi River**			
	NIL			

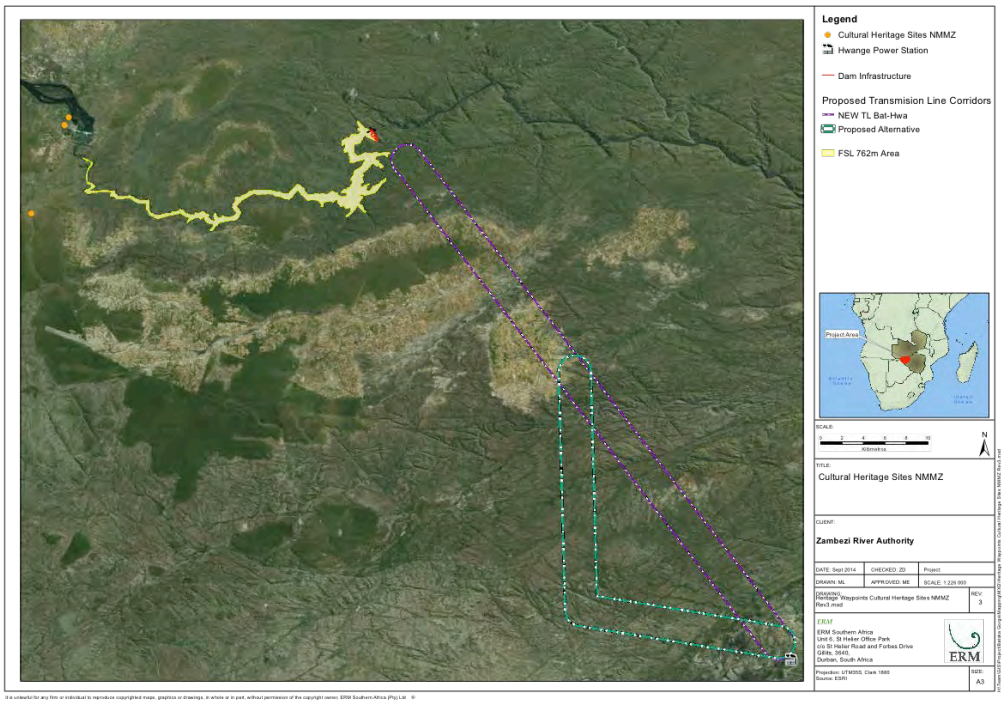
In comparison to other areas of Zimbabwe only a small number of sites were confirmed. The known Cultural Baseline reflecting limited archaeological research on the ground rather than being a true indicator of past human endeavour. '*An examination of the current state of our archaeological knowledge of northwestern Zimbabwe reveals that little is known because most of the region is archaeologically unexplored'* [16].

The sites mentioned in the NMMZ records are largely in and around Victoria Falls town. Most were recorded as simple 4-figure grid references, that provide approximations of position rather than actual site locations. In the 1940s when most were recorded, detailed national 1:50,000 topographical maps were not yet available. *Figure 18* maps only those sites in the NMMZ records for which we have more accurate 6-figure grid references. It does not include sites recorded in earlier field studies covering the Batoka HES. Most of the sites recorded are described as undiagnostic Stone Age remains. This reflects the lithic interests of early archaeologists then based at Livingstone Museum. A variety of additional published sources were also consulted in an effort to understand the Cultural Heritage Baseline[17].

[16] Ncube, 2004: 2

[17] This includes the seminal works of J. Desmond Clark (1950, 1952, 1955, 1975) on the Stone Age sites of this area and a variety of other authors on the subsequent Farming Community sites of the last 2,000 years. Formally known as the Iron Age, the latter archaeological phase includes baseline works by Fagan, Phillipson and Daniels (1969); Phillipson (1975); and Vogel (1971a, 1971b, 1977a, 1975b); and Huffman (1989). The summary of Zimbabwean Palaeontology by Geoffrey Bond (1973) was also consulted, as were the historical accounts of Mubitana (1975) and Ncube (2004) and recent geological interpretations by Moore and Cottrill (2010), Moore (2013). A number of additional, shorter articles were consulted as shown in the reference Section 1.11 to this report

Figure 0.18 ***Previous Confirmed Cultural Heritage Sites, Archaeological Survey of Zimbabwe, Museum of Human Sciences, Harare (Yellow Dots)***



Source: ERM, 2014

The previous Environmental and Social Impact Assessment (ESIA) reports, listed below, were then reviewed. They cover to some extent the Cultural Heritage resources of part of the Project Area and show increasing recognition of the importance of Heritage research and a greater thoroughness in field assessment and reporting. In reviewing these reports several gaps in the Cultural Heritage Baseline were identified.

The 1982 Preliminary Assessment

In 1981, the Zimbabwean Natural Resources Board commissioned a 'Preliminary Assessment of the Environmental Implications of the Batoka Gorge and Mupata Gorge sites'[18]. This report, the first of its kind in Zimbabwe, predated local legislation and was restricted, in the case of the Batoka Scheme, to the area to be inundated by the proposed water reservoir.

The author, R.F. Du Toit, based his Cultural Heritage assessment on secondary sources and provided generalised statements on the regional occurrence of stone tools in the alluvial gravels of the Zambezi River[19]. No specific heritage sites were cited and he concluded that there would be negligible heritage impact as the archaeology lies above the proposed waterline. There is no mention of palaeontology.

Arising from this report an IUCN workshop was held in Victoria Falls in 1992. While accepting Du Toit's findings as valid, '*well done within the limits of its*

[18] Du Toit, 1982
[19] Du Toit, 1982: 180-1

preliminary nature'[20], the participants called for additional field-based assessment. A heritage specialist from the Zimbabwean government was not represented at the workshop. However, Dr N.M. Katanekwa from the Zambia National Heritage Conservation Commission did offer relevant comments on behalf of the discipline.

The IUCN Workshop called for actual field reconnaissance and the integration of the heritage information into the technical planning process. The participants identified a very real gap in Zimbabwean record. They also raised concerns about possible palaeontological remains and sites of sacred and intangible cultural importance. Possible conflict with the recently declared World Heritage Site of Victoria Falls and its Gorges and the UNESCO World Heritage Site Convention was raised, although this was not interrogated to any degree.

The 1993 Intermediate Assessment

In 1992 ZRA commissioned the Batoka Joint Venture Consultants to carry out a technical and general environmental study of the Batoka Gorge HES. It was recognised that this was '*an intermediate stage*' appraisal and that it was not a full ESIA.[21] It was intended to expand on Du Toit's baseline study, although its scope and area of coverage was limited and no mitigation procedures were recommended. In concluding its authors called for '*a more comprehensive EIA* (to) *include further studies which will compensate for this lack of data*'[22].

The Cultural Heritage consultant/s are unknown, but in line with their TOR their report is brief and spatially restricted[23]. The archaeological history of the region is summarised, although with errors. Most of the sites mentioned were captured from the Archaeological Survey of Zimbabwe, as unconfirmed sites appearing on the Zimbabwe Surveyor General's 1:50,000 map (Victoria Falls 1725 D4), or come from what appear to be limited areas established through interviewing local people rather than extensive personal observation, *Figure 19.* Of the eleven sites located in the field many are outside of the actual Batoka Project Footprint. No precise grid references for these sites are given in the 1993 report, although these were later established in the 1998 investigation. This suggests that at least some of the investigating team were the same.

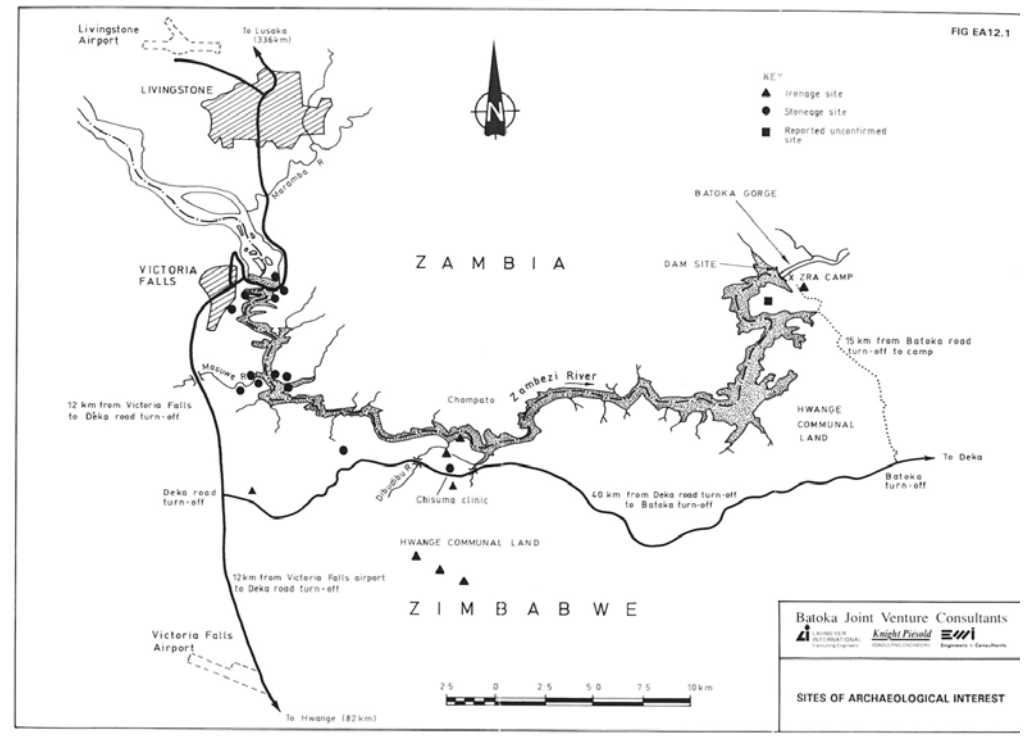
While mention is made of palaeontological resources, it is unclear if this discipline was investigated in the field. The comments may reflect office-based enquiry rather than fieldwork.

The spatial coverage of the 1993 report was inadequate and its discussion was based largely on secondary, unconfirmed data. However, one site was justifiably given prominence. Chemapato Hill is an isolated hillock on the Zimbabwean side of the Batoka Gorge. It has important Living Heritage

[20] IUNC, 1992: point 1.0
[21] ZRA, 1993, Section 7.1
[22] ZRA, 1993, Section 7.1
[23] ZRA, 1993, Vol. 4. Section EA12

associations. Although no grid reference was given, the site was correctly mapped and a brief description of the cultural remains provided. The sacred nature of the hill, its associated artefacts and their importance to the nearby residents was highlighted.

Figure 0.19 Cultural Heritage Sites reported in 1993 ESIA



Source: ZRA, 1993

While limited in extent, the 1993 Cultural Heritage report was always intended as '*a preliminary archaeological survey of the Batoka Gorge'*[24]. The consultants called for a more comprehensive reconnaissance, pointing out that not only the dam wall and area of inundation require investigation, but also all auxiliary infrastructural and township developments.

The 1998 ESIA

Following the recommendations of the 1993 Intermediate Assessment, further environmental and social assessments were undertaken, beginning September 1997. These '*additional or further studies'*[25] included archaeology and palaeontology.

The consultancy team was drawn from the Archaeology section of the History Department, University of Zimbabwe (Harare) and from NMMZ[26]. Dr D. Munyikwa of NMMZ compiled the palaeontology component. Extensive field reconnaissance and community engagement were carried out, adding 31 new sites to the Zimbabwean archaeological record, as shown in *Table 2* and *Figure 20*. The team reaffirmed four sites cited in the 1993 report, providing the

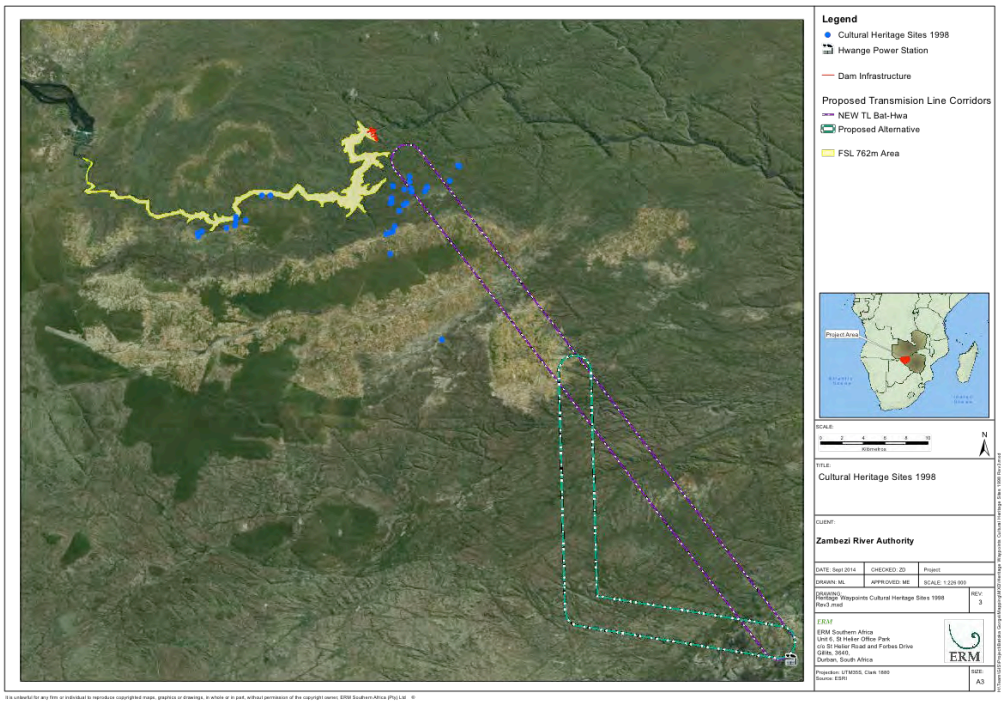
[24] ZRA, 1993 Vol. 4. Section EA12, point EA12.2
[25] ZRA, 1998 Vol. 4a. Background and Summary, Point 1
[26] Email from Dr G. Mahachi, Executive Director, NMMZ, dated 13th May 2014

necessary grid references. They reaffirmed earlier observations that most heritage sites lie above the intended level of water inundation and were thus not threatened by the construction of the Batoka HES. Their investigations of the proposed auxiliary developments on the other hand revealed many new sites and a set of proposed mitigation procedures appears in their report. These proposals have not as yet been implemented by the Project Proponent.

Table 0.2 Cultural Heritage Sites Recorded in the 1998 ESIA Report

Map	UTM reading	Cultural Association	Site name
1993 Survey			
	897-102	Farming Community	Chemapato
	895-083	Middle Stone Age	Chisuma I
	894-086	Middle or Late Stone Age	Chisuma II
	898-088	Middle Stone Age	Chisuma III
1998 Survey			
	089-114	Late Farming Community	
	074-114	Middle Stone Age	
	075-115	Middle Stone Age	
	075-119	Middle & Late Stone Age	
	086-112	Middle & Late Stone Age	
	107-126	Multi-component site	
	106-125	Late Farming Community	
	094-124	Multi-component site	
	093-128	Multi-component site	
	087-127	Late Stone Age	
	076-130	Middle Stone Age	
	092-134	Middle Stone Age	
	074-067	Multi-component site	Ncube Muuyu
	070-085	Farming Community site	Mpinami
	074-087	Late Farming Community	
	076-088	Late Farming Community	Mpinami
	138-148	Middle & Late Stone Age	
	137-149	Middle Stone Age	
	129-135	Middle Stone Age	
	885-101	Middle Stone Age	Gorges Lodge
	092-139	Middle Stone Age	
	108-129	Multi-component site	
	082-107	Middle Stone Age	
	078-092	Late Stone Age	Mpinami
	921-091	Late Stone Age	Ayelukwa
	992-093	Middle Stone Age	Ayelukwa
	930-098	Middle & Late Stone Age	Shearwater
	939-098	Late Stone Age	
	122-987	Middle Stone Age	
	962-121	Late Farming Community	
	954-121	Late Stone Age	

Figure 0.20 ***Cultural Heritage Sites located and confirmed in the 1998 ESIA (indicated as Blue Dots)***



Source: ERM, 2014

Although the 1998 report was comprehensive and several areas were investigated, there is still a need to update the 1998 assessment with photographic records and full location references taken by GPS. These are standards now required by NMMZ. New auxiliary development is now being proposed and it was necessary to re-evaluate the statements of significance and mitigation recommendations.

The palaeontological investigation, while finding nothing of significance, required reaffirmation.

1.6.2 Field Reconnaissance

Following the review of relevant literature and the previous Cultural Heritage studies, additional field reconnaissance was conducted, accompanied by the local project ecologist[27]. The purpose of this new work was to:

- Where possible to revisit the sites already recorded to provide precise GPS readings and to collect additional information on context and content of the sites. It was necessary to update the existing reports with digital images of site setting and the material present to conform to NMMZ standards.

[27] It must be noted that this field reconnaissance covered only the survey and verification process. There were no collections of artefacts or excavations. These lie outside of current permissible investigation. They are additional mitigation procedures that can be considered only once feedback is received from NMMZ. The Project Proponent is obliged to fund this additional work if NMMZ deem it necessary. The Project Proponent is however free to choose either private consultants or work with NMMZ employees

- To investigate spatial gaps in the Project Footprint including areas west of the Gorges Lodge, east of Kasikiri village, and in the vicinity of the actual dam wall and its associate works.

- To investigate and make comments on the newly identified locations for project auxiliary infrastructure and its alternatives. As per the ESIA process, this provides preliminary comment to assist the project engineers in evaluating the alternative options.

- To understand the likely impact of the proposed transmission lines to Hwange and its alternative route. Knowing the local geology, topography, ecology and social conditions through initial field reconnaissance, would enable the consultant to use Google Earth to make relevant remote sensing observations.

- To review the 1998 mitigation recommendations. It was deemed important to understand if the procedures and costs suggested were still relevant in light of the integrity and significance of the sites concerned.

- To collect material for the compilation of a Chance Finds Management Plan (CFMP) for the Project Proponent and its subcontractors.

Before commencing, general maps of the envisaged Project Footprint were obtained and all known sites were overlaid. This allowed the area to be evaluated as to likely sensitivity of having, or equally important not having, sites of Cultural Heritage. Given the general absence of reported sites, the decisions were based largely on the consultant's past experience of ecological and topographical combinations suited to human habitation. Broadly speaking the following areas identified were categorised as follows:

Areas of likely HIGH Cultural Sensitivity

- Areas along the major tributaries of the Zambezi River with access to surface water and fertile soils.
- Chemapato Hill and adjacent land.
- The Chimamba Rapids and Moemba Falls.

Areas of likely MEDIUM Cultural Sensitivity

- The plateau surfaces adjacent to the southern edge of Batoka Gorge.

- Along the minor tributaries of the Zambezi River.
- The margins of the Kalahari Sand palaeo-dunes, often associated with water seepage and cultivatable soils.

Areas of likely LOW Cultural Sensitivity

- The broken country north of the Kasikiri community.
- The broken country southeast of Jambezi Business Centre toward Hwange town.
- The steep, near vertical slopes of the Batoka Gorge.
- The crests of the Kalahari Sand palaeo-dunes.

The proposed infrastructure of the Batoka HES was superimposed onto these areas. This includes the dam wall, spillway, roads and residential settlement alternatives; and the proposed transmission line to Hwange Power Station. Several areas of high and medium sensitivity were highlighted for priority investigation.

The field reconnaissance was undertaken from 15th to 24th August 2014. It involved pedestrian transects and snap samples taken at various points pre-identified on the relevant maps and Google Earth images, as well as additional points noted while driving between these points. Efforts were also made to revisit previously recorded sites. As the work progressed initial plans were modified as it became difficult to locate many of the sites reported due to limited access and the time available.

All sites located were recorded on a handheld GPS using the Zimbabwean standard, ie UTM based on the global positioning system ARC 1950 Clarke 1880. These readings provide for accurate mapping on the Zimbabwean Surveyor-General's 1:50,000 topographical maps[28]. Photographs were taken of select artefacts and the site setting. No material was collected in line with NMMZ regulations[29].

Site significance is not always easy to evaluate in the field and in an effort to quantify the procedure and remove idiosyncratic bias, the consultant based his evaluations on a quantitative scheme shown in *Box 1.*

[28] These maps are the basis of the system used in the Archaeological Survey of Zimbabwe. It must be emphasised that the ARC 1950 and WGS84 references are not identical and cannot be juxtaposed.

[29] It must be noted that while permissible in other country's Zimbabwean heritage legislation does not permit any tampering with sites and artefacts without written approval from NMMZ. This means that surface collections and "shovel tests" are not permitted and were not part of the reconnaissance.

Box 0.1 Criteria Used for Field Evaluation

Measuring site significance.

Criteria

Score one point for each of the following if true, zero if not. No half marks.

1. Integrity of site – is it intact, are materials essentially in situ?

2. Are there a variety of different features present?

3. Is there a good depth of deposit and/or amount of archaeological material present?

4. Is it unique or are there many examples of this type of site?

5. Does it have a meaningful contribution to future research?

6. Has it any social associations?

7. Has it potential ecotourism?

Significance

Add up the above scores and measure the significance of the site against the following:

0-1 = no significance. This category generally applied to isolates, i.e. scatters of <5 artefacts.

2 = low significance. Suggest surface collection during Phase 2 Mitigation.

3 = medium significance. Requires subsequent excavation in Phase 2 Mitigation.

4-5 = high significance. Site needs thorough documentation – Phase 3 Research.

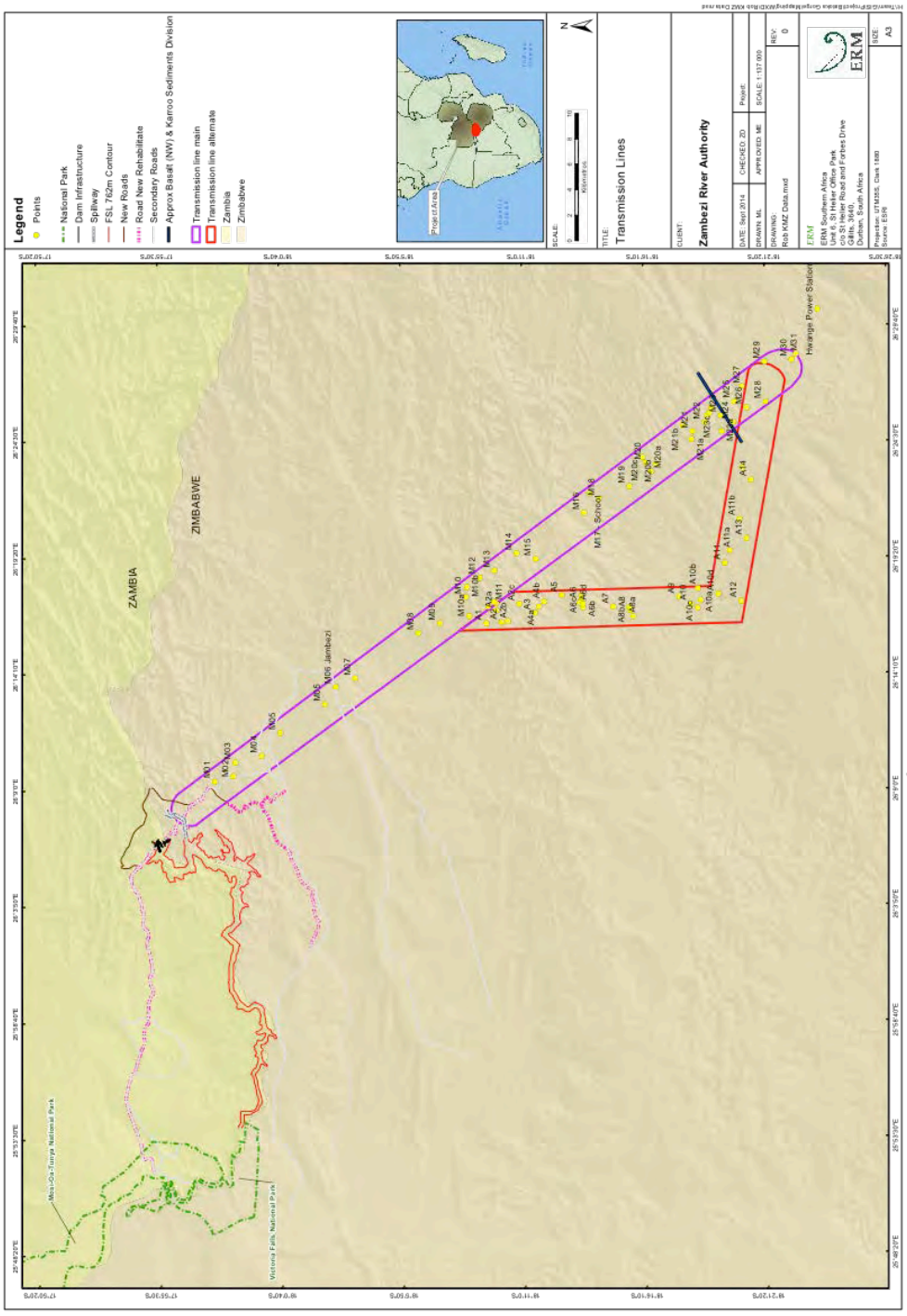
6-7 = very high significance. Site should not be developed. Preserve.

1.6.3 Desktop Review of Transmission Lines

It is necessary to review the likelihood of possible Cultural Heritage resources along the two proposed electricity transmission lines linking the Batoka HES to the Hwange Power Station, *Figure 21.* A desktop review was carried out in order to provide an overview and assist the project engineers in assessing the transmission lines route options. A comprehensive Cultural Heritage Impact Assessment of the two proposed transmission line routes has not been undertaken. Given the proposed power rating of the transmission lines, the final route chosen must be assessed in accordance with EMA requirements. This requires additional on the ground reconnaissance and a separate Cultural

Heritage report will need to be compiled and submitted to NMMZ and EMA for approval.

Figure 0.21 ***Points of Possible Cultural Heritage Interest along the Proposed Transmission Lines as Identified on Google Earth (indicated as Red and Yellow Dots)***



Source: ERM, 2014

The desktop review involved checking along the overlay of the proposed transmission line routes on Google Earth to locate points of possible heritage significance, both tangible and intangible. This identification of possible hotspots was based on personal experience; prior field reconnaissance observations; and looking closely at all areas near rivers, alluvial soil, existing

populated areas, plateaux features and local seeps. Access to surface water in this dry area is particularly important, both historically and now. Where noted, these points were highlighted as places of possible heritage significance, *see Appendix 1.* The red dots are places of particular concern.

Potential archaeological sites were highlighted. This is based on the premise that previous habitation often alters local soil conditions and vegetation cover, this makes them visible from above, although the actual artefacts may not be seen[30]. Possible intangible sites were also noted. The spiritual importance of local waterfalls, rapids and pools of water to the local Nambya and Tonga communities was taken into consideration. There are several such sites that function as ritual centres elsewhere in the Hwange District. While they have no physical cultural attributes, their intangible value is immense.

All possible heritage sites were marked on the Google Earth image as places to be best avoided. The project engineers were advised to take a route with the least possible impact.

Although not obvious at this scale of remote sensing, it was stressed that isolated trees, such as baobabs, often have local ritual importance. In addition small, centralised community cemeteries would also not appear on the Google Earth imagery. These sites will only be identified during actual field reconnaissance once the actual route has been chosen.

Other ESIA work recently undertaken by the consultant indicates that NMMZ will require a fully independent assessment of the route of these transmission lines. An in-house assessment by the Zimbabwe Power Corporation (ZPC) or any of its affiliates would not be sufficient. This point must be reaffirmed by ZRA in any future correspondence with NMMZ.

1.6.4 Assumptions and limitations

The emphasis in this research has been on tangible Cultural Heritage. This includes[31]:

- archaeology;
- palaeontology; and
- historical sites.

Sites of Intangible Heritage as defined in the International Finance Corporation (IFC) Performance Standard 8 where not investigated. This aspect is being covered by the social consultants in the ESIA team. Only in the case of the site of Chemapato Hill, a known site of Living Cultural Heritage, were local stakeholders engaged, see Section 1.7.4.

The current field reconnaissance was based on generalised maps of the proposed project development and alternative sites. These are not at the same scale as those of the Zimbabwe Surveyor-General. It was therefore not

[30] cf Denbow 1979

[31] ERM, Impact Assessment Standard v1.0, Annex B – 5. Cultural Heritage

possible to define the exact boundaries of the proposed developments on the ground. It is assumed that the areas investigated are close as possible to the proposed footprint.

The field reconnaissance took into consideration the current proposed Project Footprint. However, given that the design proposals are still being finalised and that alternatives are being considered in terms of construction and power generation, some areas may not have been covered in the current footprint investigated. Given the site-specific nature of tangible Cultural Heritage it is possible that additional sites may be destroyed without documentation and evaluation. As with the transmission lines, any further proposals must be subject to additional survey of these areas.

Despite the intention to revisit all of the sites previously recorded this proved difficult for reason of time restraints, a lack of clarity on the marked anti-personnel mine fields, and a problem with the previous readings. The sites in the 1998 report were given as 6-figure grid references. These proved too rough to allow for quick location. In addition it is unclear as to what global position system was originally used to map these sites. Many of those reported, where mapped on the relevant 1:50,000 maps or Google Earth fall in unlikely positions such as in the Zambezi River itself or on the Zambian north bank. After several abortive attempts it was decided that this objective be put aside. It was deemed better to locate and understand new sites, assessing the current proposed footprint that is more extensive than on previous occasions.

At the time of the field reconnaissance surface visibility was good as most areas were relatively free of moribund plant cover. The heritage remains were thus relatively easily to identify. However in some locations this was not the case. In several streambeds the previous season's grass cover remained thick, while uncultivated sections of the Kalahari Sand palaeo-dunes were often well vegetated and heritage sites were difficult to identify.

Given the time limitations not all areas could be visited. The southern margins of the gorge were covered in detail, as were the Kalahari Sand palaeo-dunes in areas of proposed roads and residential settlement. However, additional post-ESIA investigations of other areas is still required. These include:

Figure 0.22 Cave in the North Face of the Batoka Gorge near Tiata Lodge, Zambia

Source: RSB, 2014

- The **Batoka Gorge** itself is an area of particular concern. It was not fully explored, although investigated to a limited extent at the proposed site of the dam wall as well as near Gorges Lodge in Zimbabwe at the western end of the intended reservoir. In both cases the relief was steep and there was no sign of past human habitation. It is likely that these areas were simply too steep and lacking in resources to have supported past settlement.

  This absence may be real but there remains a strong possibility that heritage sites may have been missed along the greater length of the Gorge. The consultant is aware of scattered, shallow caves along the lower slopes in some areas of brecciated basalt. *Figure 22* shows one such example on the opposite Zambian bank. None of these potential sites were investigated during our reconnaissance. While they may have been scoured out during times of flood, it is possible that traces of heritage may still exist, including rock art, Stone Age deposits and sites of burial and intangible importance.

- Similar cave-like features occur in some of the tributary gorges. For instance in the Dibu Dibu Gorge a 'sacred leopard[32]' is said to take up residence periodically in such overhangs, see *Figure 2*. Unfortunately they could not be accessed. As they will be lost will inundation, they require further investigation.

[32] It is likely that there is a resident leopard that uses the gorge as part of its range, especially as a large troop of baboons has resident in the riparian fringe in the gorge

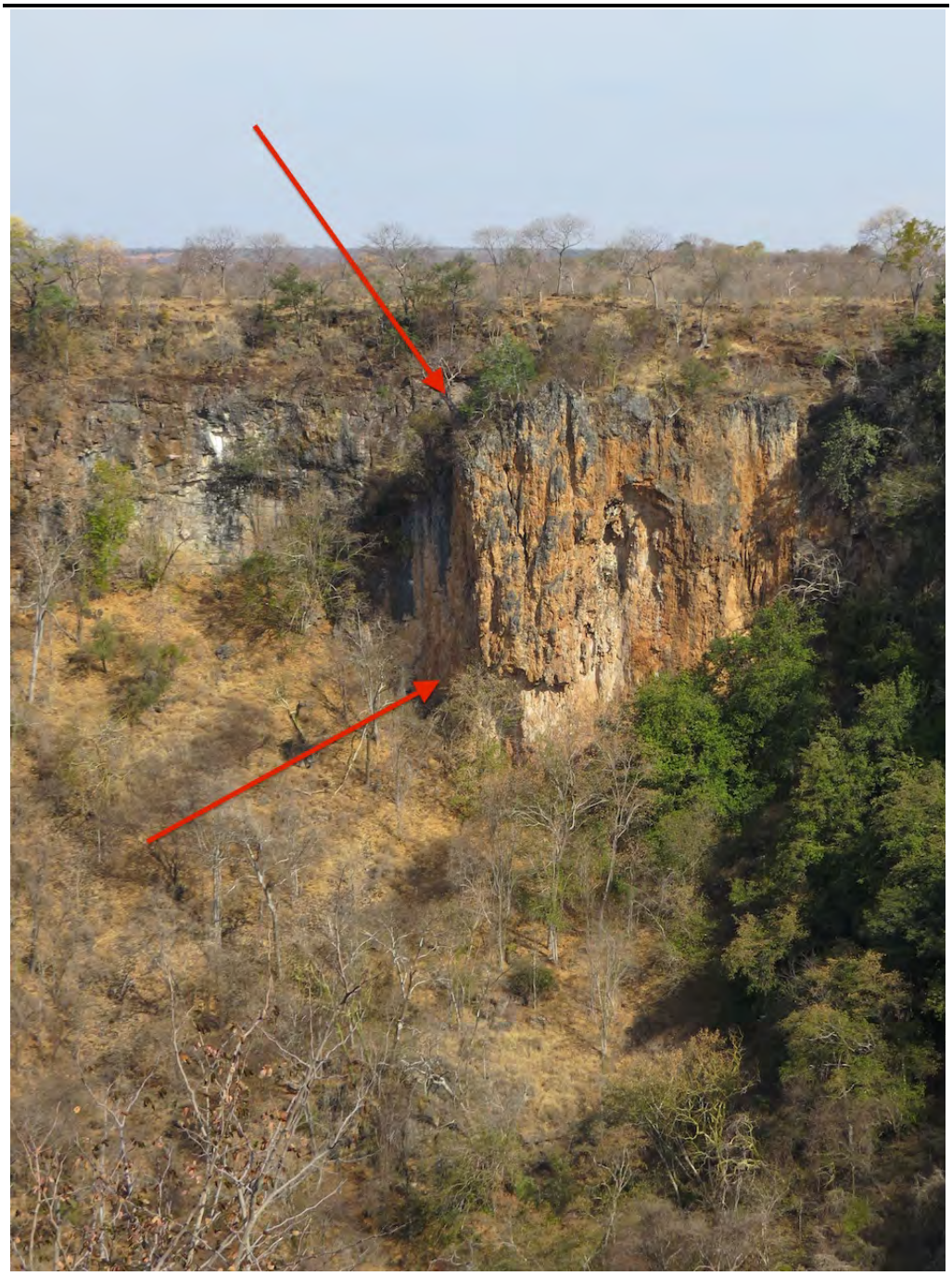
- In the same Dibu Dibu Gorge there is an extensive travertine deposit that may include fossils, *Figure 23*. Unfortunately the steep valley slopes and crumbly geology prevented investigation. Similar travertine deposits, although possibly not as extensive as that in the Dibu Dibu Gorge, were noted in other tributary gorges.

- As yet unrecorded heritage sites may exist beside the rapids of the Zambezi River, its many pools and on scattered islands. These may result from fishing activities or be associated with intangible values. It is known that the local Toka-Leya and Nambya communities believe such features to be spiritual places where the ancestors and spirits of nature are consulted or placated[33]. For this reason it was hoped to investigate the Moemba (Mwemba) Falls and Chimamba Rapids. This was not possible. The relief was too steep and such a visit would have severely limited time to investigate the general Project Footprint. To understand these and other features along and inside the Batoka Gorge, a water-based investigation is required.

- The remote area west of the village of Kasikiri is without tracks and is heavily dissected, see *Figure 2*. The many plateaux, natural seeps and islands in the Zambezi River (especially once it turns sharply northward) are places of potential heritage interest. The lack of access would have required additional days walking and camping on site. It must however be assessed prior to any development, subject to additional post-ESIA reports.

[33] Ncube 2004: 24-27

Figure 0.23 Particularly Extensive Travertine Deposit at the Head of Dibu Dibu Gorge



Source: RSB, 2014

Of particular concern, and an issue not resolved before the field reconnaissance, is the issue of anti-personnel landmines. These were laid north of what is now known as Kasikiri village during the Rhodesian Civil War. The Consultants were informed that there were three lines, all now unmarked and the mines remain a potential threat to humans and animals. While the Zimbabwe National Army (ZNA) has done some work removing them, it was uncertain if this has been completed. Indeed there is still a ZNA tented base camp nearby (at the time unoccupied) as well warning signs, *Figures 24 and 71.* Furthermore there were two types of mines: plastic and metal. The plastic ones, as opposed to the metal ones, are not easily identified and removed, many possibly still exist. In addition soil processes are known to move the mines from their original point of burial. More than seventy

mines were located by the ZNA in 2013, in an area on the outskirts of Victoria Falls town which is believed to have been cleared on three separate occasions.

Figure 0.24 Mine Field Danger Sign on roadside north of Kasikiri Village

Source: RSB, 2014

Feedback both before and during the field reconnaissance was not conclusive. No prior guarantees were obtained from ZNA at the time of the field reconnaissance and therefore it was deemed unsafe to proceed in this area. As a result, although there are plans to develop this area, it was not adequately investigated. The reconnaissance was restricted to along existing, well-worn paths used by the local people[34]. Once ZNA guarantees and assistance in the field are received, it is recommended that the entire area of the proposed residential settlement is investigated.

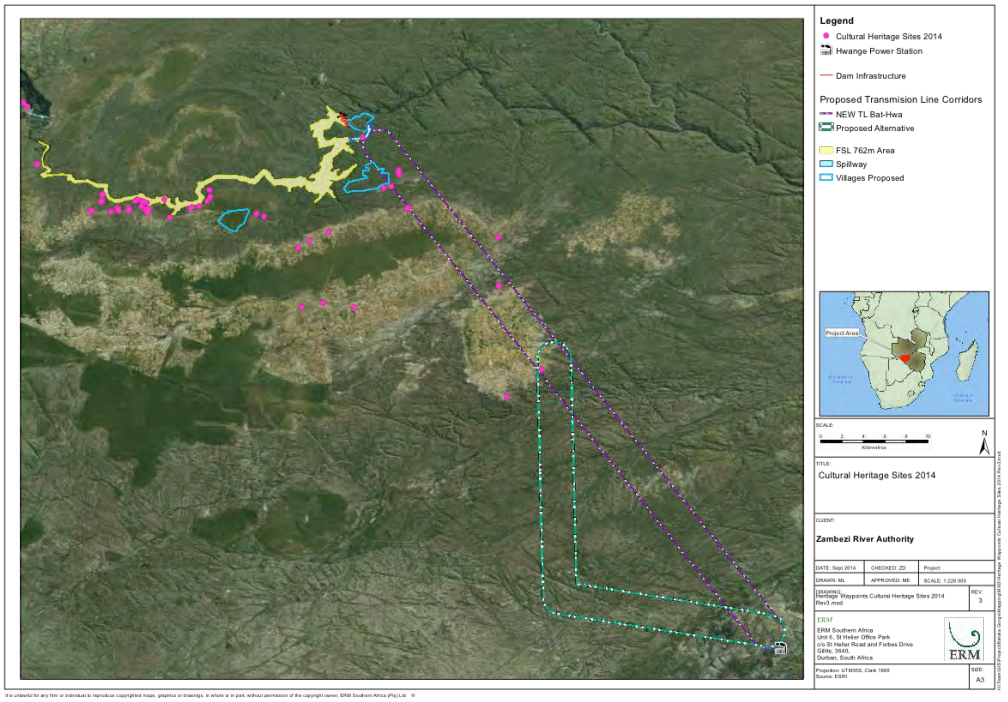
[34] It would seem that the 1998 team also traversed distinct lines in the minefield area. They may have had members of the ZNA accompanying them along similar pathways

1.7 CULTURAL HERITAGE BASELINE, ZIMBABWE

1.7.1 General Review of Project Study Area

The current investigation located 55 additional heritage sites, *Figure 25*. Most are on the slopes adjacent to the proposed dam, with others along the various roads for which the engineers required investigation before their deciding on the best routes to be redeveloped.

Figure 0.25 Cultural Heritage Sites Located in the Current Investigation (indicated as Pink Dots)

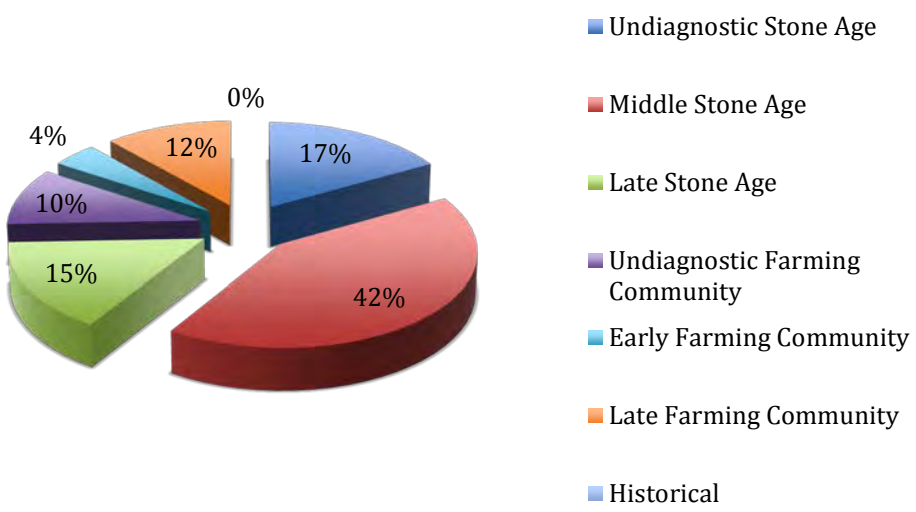


Source: ERM, 2014

Before describing the individual sites located, several comments can be made about the heritage signature of the proposed Batoka HES Project Area. These are generalised observations on the cultural landscape that allow some understanding of the potential impacts of the project:

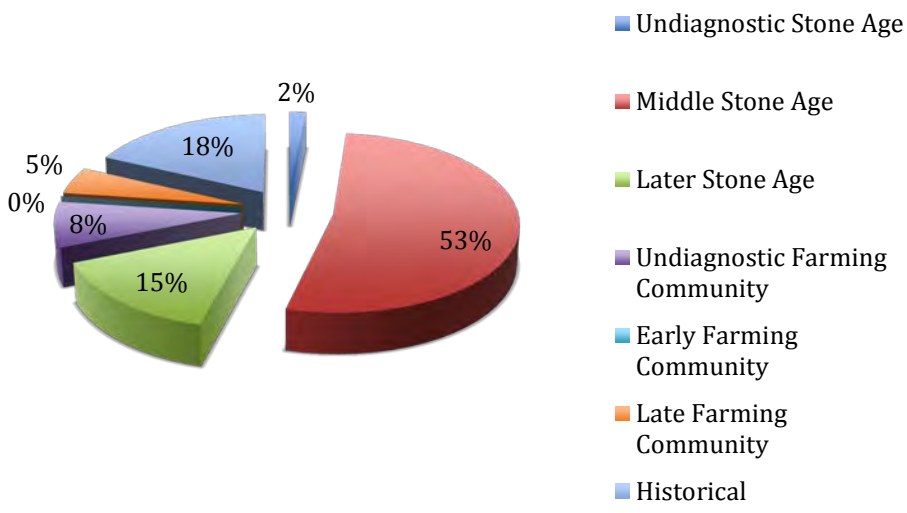
- The variety of sites recorded in the current reconnaissance is comparable to that previously known. *Figures 26-27* compare the current work with the combined records from NMMZ as well as earlier investigations. The same general pattern is evident. The differences result from the inclusion of 'historical' sites as an additional category in the current reconnaissance, and fewer undiagnostic Stone Age sites given a greater effort to identify their cultural association.

Figure 0.26 *Cultural Heritage Sites previously known by Cultural Category*



Source: RSB, 2014

Figure 0.27 *Cultural Heritage Sites located in the Current Investigation by Cultural Category*

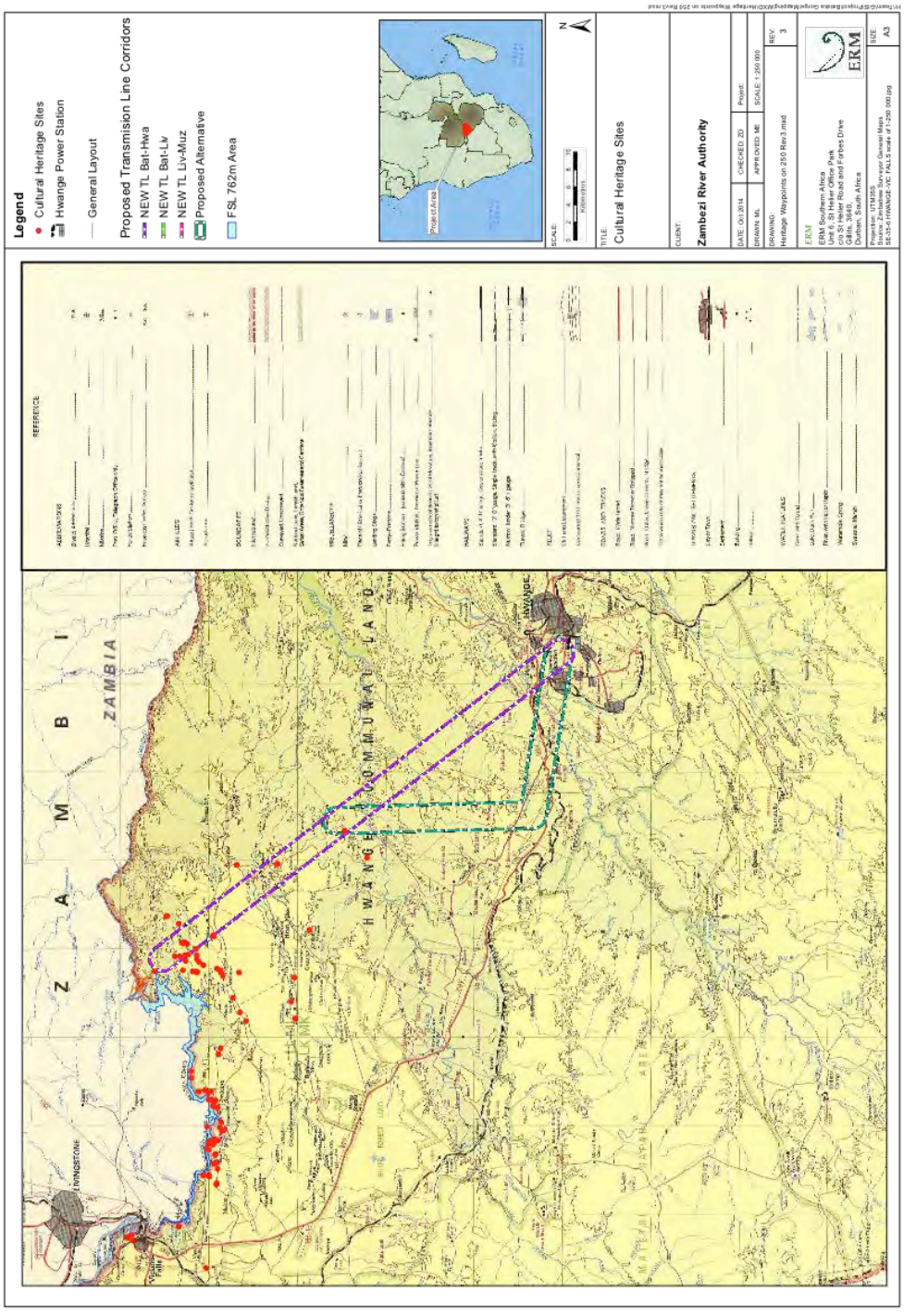


Source: RSB, 2014

- *Figure 28* shows the location of all the sites of the combined records, both the current reconnaissance and all earlier reports. Most of the sites identified have limited academic and cultural significance. The present communities have no direct link to the Stone Age communities and such sites would be of little interest to them. In addition, most of sites are no longer intact and their original contextual associations have been destroyed. Natural post-depositional geomorphological processes such as surface wash, soil creep and the self-churning nature of the local basalt soil

have disturbed many of them. More recent agricultural activities involving land clearance and tilling have also had a significant, destructive impact.

Figure 0.28 Combined Cultural Heritage Sites Located in the Batoka HES Investigations



Source: ERM, 2014

- Areas of steep and broken relief appear to have been avoided. This topography may have been deemed unsuitable for habitation while it has a limited ecological carrying-capacity. There is little chance, even in the past, that the broken areas near the proposed Batoka Gorge dam and southeast

of the village of Jambezi[35] would have supported a large enough wildlife biomass to attract regular hunter-gather/forager occupation[36]. They are also unsuited to grazing hence unattractive to subsequent Farming Communities. Today these areas are still sparsely occupied for the very same reasons. Other than isolated patches of alluvium along major streams and sites of spiritual significance, these areas have little in the way of Cultural Heritage resources.

- The vast majority of sites recorded date from the Stone Age, in particular Middle Stone Age (MSA).

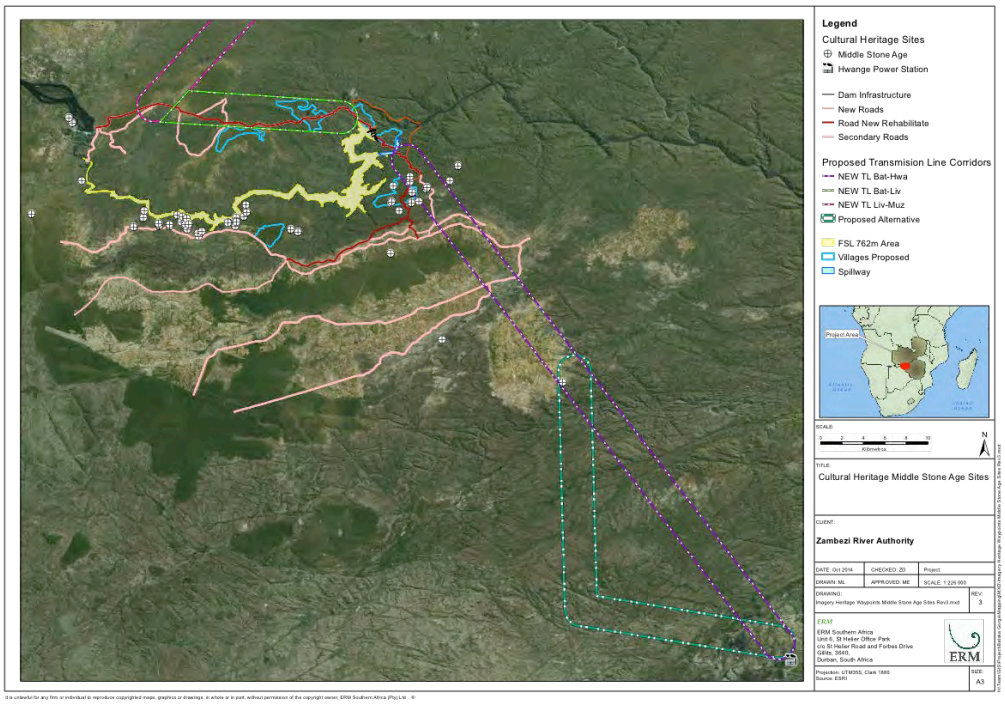
- Most of the Stone Age sites are located in the open basalt plains and low ridges towards Victoria Falls. The Waterfall, the River and its associated natural resources attracted these communities. The current reconnaissance reaffirms earlier observations first documented in the 1940s[37]. Stone Age sites are present, but with less frequently, in the more dissected country toward the proposed Batoka Gorge dam site and on the route to Hwange Power Station. They are found on the margins of the Kalahari Sand exposures, where most are scattered factory sites exploiting outcrops of the suitable raw material found in the lower strata of this Formation. Few sites occur on the Sands themselves. This may result from post-depositional bioturbation rather than an original absence of occupation – ie the material may have sunk deep into the sand and is therefore not longer visible[38].

- No diagnostic Early Stone Age (ESA) artefacts have been recorded on the Zimbabwe side although they are known in Zambia. This probably reflects the preferential accumulation of alluvial gravels on the north bank as the Zambezi River shifts slowly southward through lateral erosion. If such sites were once present to the south of the River they have probably been subsequently eroded.

- Middle Stone Age sites are widespread, found across a variety of landscapes, *Figure 29.* While they are found within the natural alluvial gravels, MSA material is also found elsewhere, unlike the ESA material. There is a greater incidence of MSA sites on the open basalt plains south of the Gorge and on northern slopes of the adjacent basalt ridges in Zimbabwe. This pattern may represent the repeated use of this specific environmental setting, but there is also a strong possibly that this is the result of post-depositional movement and reaccumulation.

[35] This village lies 19km southeast of the proposed Batoka HES dam wall along the likely transmission line route to Hwange.
[36] The historical observations of various Nineteenth and early Twentieth Century travellers and missionaries who passed through the area would testify that there was little in the way of wild animals and even fewer local inhabitants, cf Roberts 2009; Tabler 1960; Varian 1953
[37] Clark 1950, 1952, 1955, 1975; Bond and Clark 1954
[38] cf Brooks and Yellen 1987

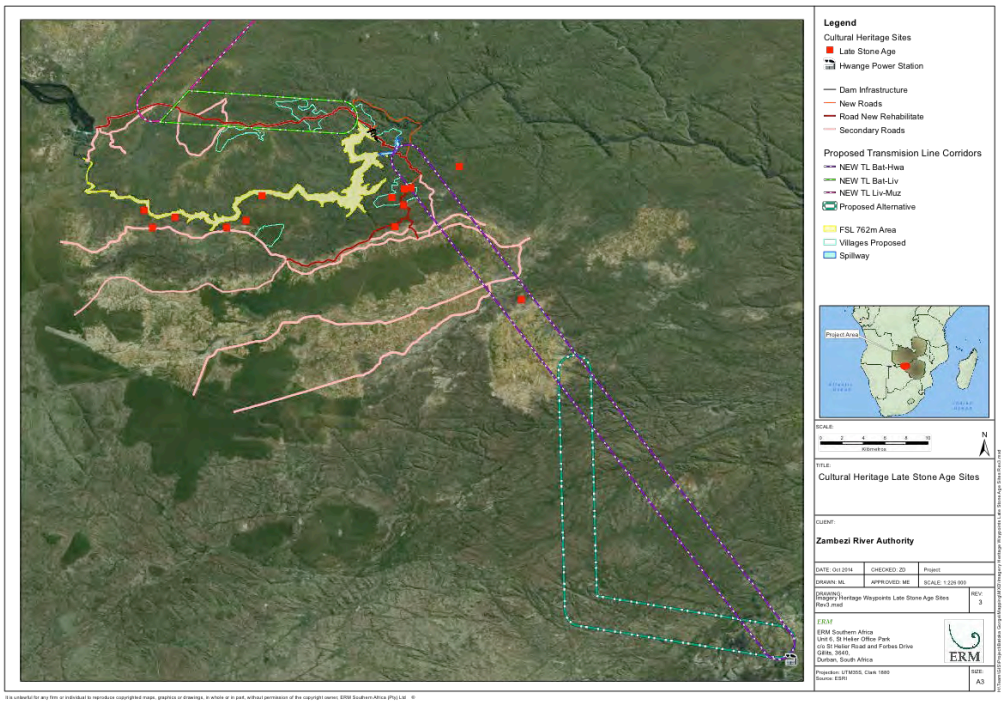
Figure 0.29 ***Middle Stone Age Cultural Heritage Sites Located in the Current Investigation (indicated as White Dots)***



Source: ERM, 2014

- Late Stone Age (LSA) sites also occur, although fewer in number reflecting the shorter duration of this cultural phase. Their distribution overlaps that of the MSA, although several occur closer to tributary streams and the edge of the Batoka Gorge, *Figure 30*. This subtly different distribution may reflect a dissimilar site preference, although possibly it also reflects post-depositional processes. Smaller LSA artefacts are more easily displaced and lost. As such LSA sites in the deeper and better-developed basalt soils where the MSA appears to predominate may have been destroyed by surface erosion and soil movement. On the other hand, LSA material in the shallow soils on the margin of the Batoka Gorge would have had a better chance of survival.

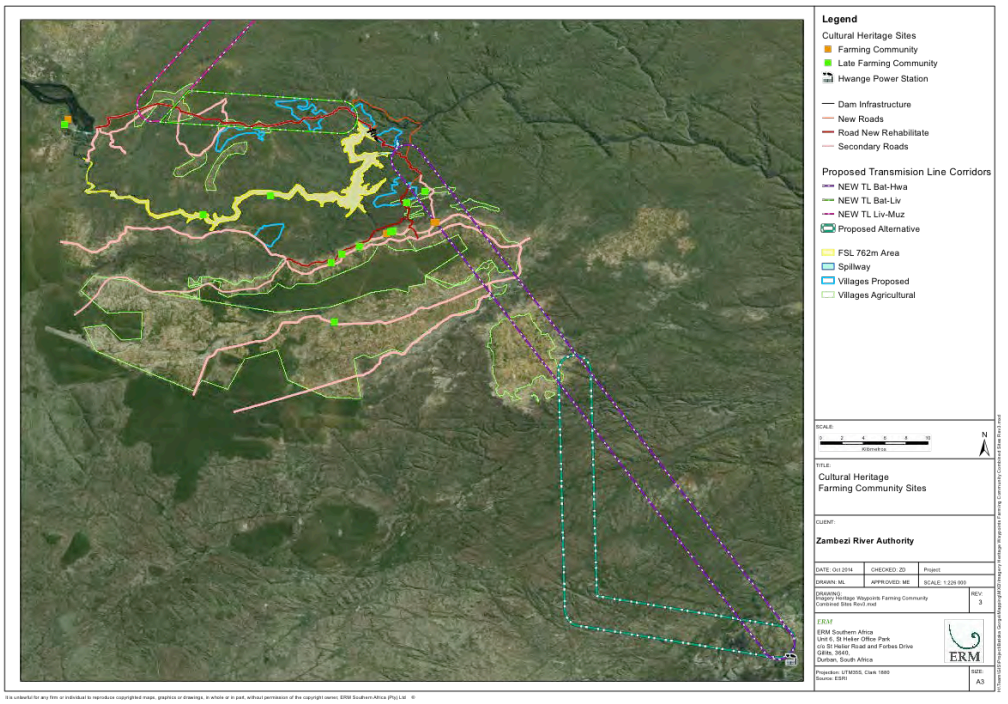
Figure 0.30 *Late Stone Age Cultural Heritage Sites Located in the Current Investigation (indicated as Red Squares)*



Source: ERM, 2014

- At several sites there are 'polished' Stone Age artefacts. This glossy surface sheen and loss of flake scar margins is the result of wind and water action, *Figure 11.* Known since the earliest archaeological reports, these glossy tools are likely to be largely secondary accumulations and are of limited cultural significance.

Figure 0.31 ***Farming Community Cultural Heritage Sites Located in the Current Investigation (indicated as Green and Brown Squares)***



Source: ERM, 2014

- Farming Community sites are generally distributed away from the edge of the Batoka Gorge. They are mostly associated with the margins or crest of the palaeo-dunes of Kalahari Sand, *Figure 31.* This locational preference may reflect the choice of deeper, more easily tilled soils as well as the local presence of water that seeps from the margins of these palaeo-dunes. The exceptions discovered are an iron-smelting site and the ritual Chemapato Hill, both isolated on the edge of the Gorge. This is in line with Tonga traditions. Iron smelting with its social norms which symbolically link it to procreation, is conducted away from villages and eyes of women. The isolated site located would allow this[39].

- The pattern of Farming Community sites found along the dunes conforms to that already recorded in the literature - small, scattered villages dependent on a 'slash-and-burn economy' which has resulted in shallow, diffuse settlement debris[40].

- Efforts to relocate an Early Farming Community settlement near the 'Big Tree' in Victoria Falls were unsuccessful. It was hoped to understand this regional element of heritage footprint which is otherwise unrepresented in the current investigation. In contrast it is fairly common on the Zambian bank.

- In this District alluvial and colluvial gravels are often used for road preparation and repair resulting in many stone tools being displaced to

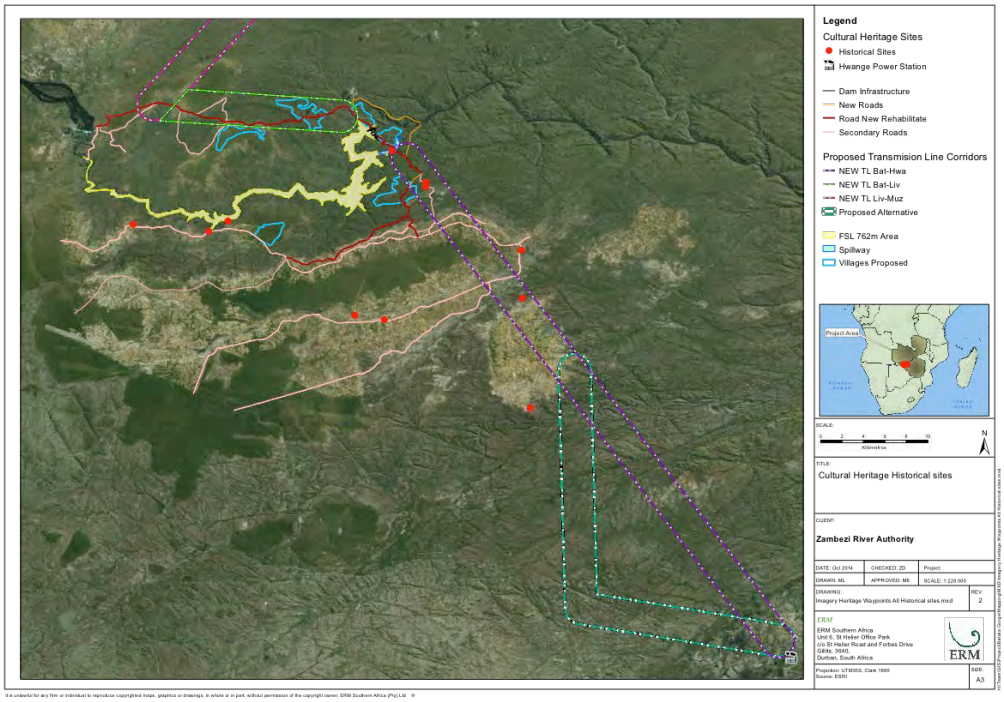
[39] While slag has been recorded in several of the village sites, this is probably the residue of secondary smithing rather than primary smelting (cf Huffman 1998)
[40] Vogel, 1971a, 1975b

secondary contexts in and along the margins of the roads. These artefacts were not recorded. However, the practice could result in future damage to the Cultural Heritage resources in the area. The appointed developers are likely to extract similar materials for the proposed widening of existing roads and the construction of new ones. All extraction must be subject to additional investigation and have an Environmental Management Plan in place.

- There appears to be an association of Farming Community sites and baobab trees. In the case of larger, older trees these may have been selected as sites for ritual activity. This is in line with known Toka-Leya and Nambya traditions[41]. Alternatively these trees, especially those medium-sized baobabs, may have become established later from seeds deposited during occupation. Whatever the association these trees are places best avoided in development.

- Historical sites, those sites located during fieldwork of the recent colonial and post-colonial period, are found across the proposed Project Area, reflecting the increased population and scattered landuse that has emerged with the advent of colonisation, *Figure 32.*

Figure 0.32 ***Historical Cultural Heritage Sites Located in the Current Investigation (indicated as Red Dots)***



Source: ERM, 2014

- Chemapato Hill, contrary to the conclusions of the 1998 Report, is an important site with living and intangible heritage associations for the local Toka-Leya community, see Section 1.7.4.

[41] Ncube 2004:27-38

1.7.2 Review of Specific components of Project

The following areas are all located in Zimbabwe.

Dam wall - site, powerhouse, spillway, and access roads

This area of dissected basalt with steep sided valleys and razor-backed ridges was partially investigated and little of interest was found. It is rough country, and would have had in the past, as it does now, a low biomass productivity. There is likely to be minimal Cultural Heritage present.

No additional sites were found in this area. The single 'Late Stone Age flake' mentioned in the 1993 report is believed to be of no relevance. Found on the airstrip it is probably either an isolated occurrence or more probably in secondary context having being brought in as part of the surface gravel used for construction. The 'unconfirmed site' on the plateau west of the airstrip is outside of the Project Footprint and was not investigated[42]. The only site located was a recent historical one dating from the 1993 engineering survey. The cement beacon, together with nearby debris from a Landrover is of no further significance.

The vicinity of the proposed dam wall had nothing of significance. The rapids may once have been used as fishtraps through the addition of what are, possibly, rough stone walls built around the pools from natural alluvial cobbles, *Figure 33.* Similar fishtraps are known elsewhere on the Zambezi River and its major tributaries.

[42] The 1993 report cites local community representatives mentioning this heritage site but it was not visited. Time and funds again precluded investigation.

Figure 0.33 Possible Fishtraps in the Rapids at the Site of the Batoka HES Dam Wall

Source: RSB, 2014

Without water-based investigations on the River, access to the Chimamba Rapids and Moemba Falls was not possible these points were not checked. It appears that they are better accessed from the water or from the Zambian side. Further research from the Zambian side of the River, coming down one of the less steep tributaries may find sites of significance.

The area has limited palaeontological importance as no sandstone lenses were noted in the basalt. However, as stressed in earlier reports, these sedimentary deposits may be exposed during future building operations. They will be discussed in the separate CFMP booklet. Near the proposed spillway weathering of a calcite body has given rise to an extensive secondary 'limestone deposit' around a natural spring, *Figure 34*. While no fossils were seen in the dense calcrete-like deposit, this location is best avoided during future building operations (Grid Reference *ARC 1950 reading* = 35K 0407768 8016303).

Figure 0.34 ***Secondary Limestone/Travertine Deposit at Spring near the proposed Site of the Batoka HES Dam wall***

Source: RSB, 2014

The area intended for development of the spillway was investigated and was found free of Cultural Heritage remains. The project engineering team has suggested that the rock extracted along this route and a small adjacent hill will provide ample building material for the actual dam wall. Given the extent of construction it is likely that additional areas will be quarried for the building aggregate. But, these sites have not as yet been identified and thus assessed. Any additional sites should be subject to further heritage surveys ahead of extraction. The same applies to all gravel extraction pits along the roads leading to the site, be they new sites to be opened or existing ones to be extended, as well as any sites used for dumping of spoil (waste rock and other debris) generated during the construction process. This report does not cover these sites.

The inundation area

Once built, the Batoka HES will flood the Gorge back toward the Victoria Falls. The water will be confined largely to inside the Gorge regardless of which of the final construction options is chosen. Although access to some areas of the Gorge was limited, the investigations that were possible found no sites of interest in the Gorge. The few isolated artefacts appear to have fallen from the crest where most of the known heritage sites are located. As such there will be limited impact. However as already indicated there are caves, islands and waterfalls that still require investigation. This is best achieved through a water-based investigation, ie suitable canoes or rafts launched below Victoria Falls and journeying downstream to the inundation area and to

the intended point of water discharge below the proposed dam wall. It is recommended that the Project Proponent undertake this additional assessment and submit relevant reports for approval to both EMA and NMMZ before construction commences.

With the filling of the reservoir rock movements on the slopes of the Gorge may expose sandstone lenses in the basalt. These could contain potential fossiliferous deposits. Where this happens it is desirable that the final appointed regulatory authority must advise NMMZ. The CFMP booklet will cover this eventuality.

Of particular concern are the travertine deposits that occur at points along the margins of the Batoka Gorge and its major tributaries. The deposit at the head of the larger arm of the Dibu Dibu Gorge is particularly well developed, *Figure 23.* These secondary deposits may include fossilised plant or animal debris. They are potentially important palaeontological sites and it is necessary that they are investigated further before inundation. Given their chemical and physical structure, with flooding they will deteriorate rapidly. This investigation will require proper mountaineering safety equipment and trained personnel[43]. Follow-up reports should be compiled and submitted to NMMZ for approval and comment.

The Proposed Residential Settlements

Of particular concern are the footprints of the residential settlements planned for the both the temporary construction staff of the Batoka HES and those permanently employed in its subsequent operations. These locations, more than previous proposals, will have an extensive Cultural Heritage impact as they will cover large areas suited to past human habitation.

The original 1993 Lahimaeier-Piesold-EMI plan identified a single location west of Kasikiri. New plans provided by the current engineers, Studio Pietrangeli, have expanded this area as well as adding two alternative sites. Field based observations suggest that the original location is still the best as it has fewer current and future challenges. Although neither of the alternatives have much in the way of Cultural Heritage, their ecological and safety impact render them less desirable.

Notwithstanding the limitations caused by the potential threat of anti-personnel mines in the area north of Kasikiri[44], several sites have been recorded within and around this settlement footprint, see Figure 2. Being an open, better-watered valley it attracts occupation, both in past as it does now. This point probably marks the historical northward limit of most human settlement in the region, the terrain beyond being too rough.

[43] There is no one in Zimbabwe with experience in late Quaternary fossil sites, although there are many specialists in South Africa where similar deposits are studied. It may be necessary for specialists to be engaged from a reputable institution such as the University of the Witwatersrand and the Tswane Museum.

[44] The current reconnaissance located only a few of these sites, as the consultant was not able to get clarity on the landmine threat in time for field research, the area was deemed unsafe for entry.

Most of the sites that fall in the proposed settlement near Kasikiri village were previously recorded in the 1998 survey. The current investigation added only a few. The majority of the sites in this area are small and disturbed. As such they have very limited heritage significance. Their destruction, if NMMZ should agree, would present no further difficulty as they have already been recorded. Those sites deemed more important and requiring additional investigation are discussed later, see Section 1.11.

It must be noted that the assessed site significance in this proposed settlement area near Kasikiri is based solely on the limited descriptions contained in the 1998 report. The accuracy of description and the current site integrity have not been verified. The 1998 report has some inconsistencies in the various tables that describe the sites Cultural associations and locations are sometimes confused. The mitigation procedures suggested in 1998 are assumed to remain relevant, despite the time lapse. Should this location be chosen as the project settlement site for Zimbabwe, the Project Proponent should require an additional, detailed investigation of this area to be undertaken. This requires precise details of the area to be developed, its access roads and all ancillary infrastructure including waste disposal areas, water and sewage works, and water extraction pipelines from the Zambezi River. Post-ESIA survey of this area should be submitted to both EMA and NMMZ for approval.

The Access Roads

The current engineers' proposals provide for the widening of several existing roads and tracks, as well as building two new sections of road. The field reconnaissance found several sites along these routes identified, although few of any of significance. Most sites are small and should NMMZ agree their destruction might be permitted.

The new roads include:

- A small section north of Kasikiri. This was not investigated as it was here that the Landmine warning sign was encountered.

- The much longer construction route east of the proposed dam site linking Zimbabwe to Zambia by way of a new bridge or crossing. Limits on field reconnaissance prevented investigation of this route, while precise details as to its position and nature were not provided prior to field reconnaissance. Inspection on Google Erath suggest that this road will require extensive grading given the nature of the terrain, while any bridge construction will result in localised disturbance and aggregate extraction is likely.

In both cases, these new roads require post-ESIA investigation and reporting.

'Borrow pits' or gravel extraction pits remain of particular concern. Aggregate will be required in road construction or rehabilitation. They already exist along the current track that has been built since the project was first initiated,

Figure 35. Additional pits will be required and existing pits may be extended. Their location is presently unknown and their impact cannot be assessed. Borrow pits and gravel and sand extraction are specified in Zimbabwe's EMA legislation and would be covered by the NMMZ Act. When the plans for the roads are finalised further investigation of these actual locations will be required as well as gaining approval from NMMZ.

Figure 0.35 Existing Borrow Pits on Road to the Dam Wall Site Illustrating the Damage Caused

Source: RSB, 2014

The Transmission Lines

As the route of these lines has not as yet been finalised a generalised, remote sensing overview of the proposals was compiled based on Google Earth. therefore, this 'assessment' is not an ESIA. The final route and its actual on the ground footprint must be investigated - subject of another, separate ESIA.

1.7.3 Results of Current Fieldwork

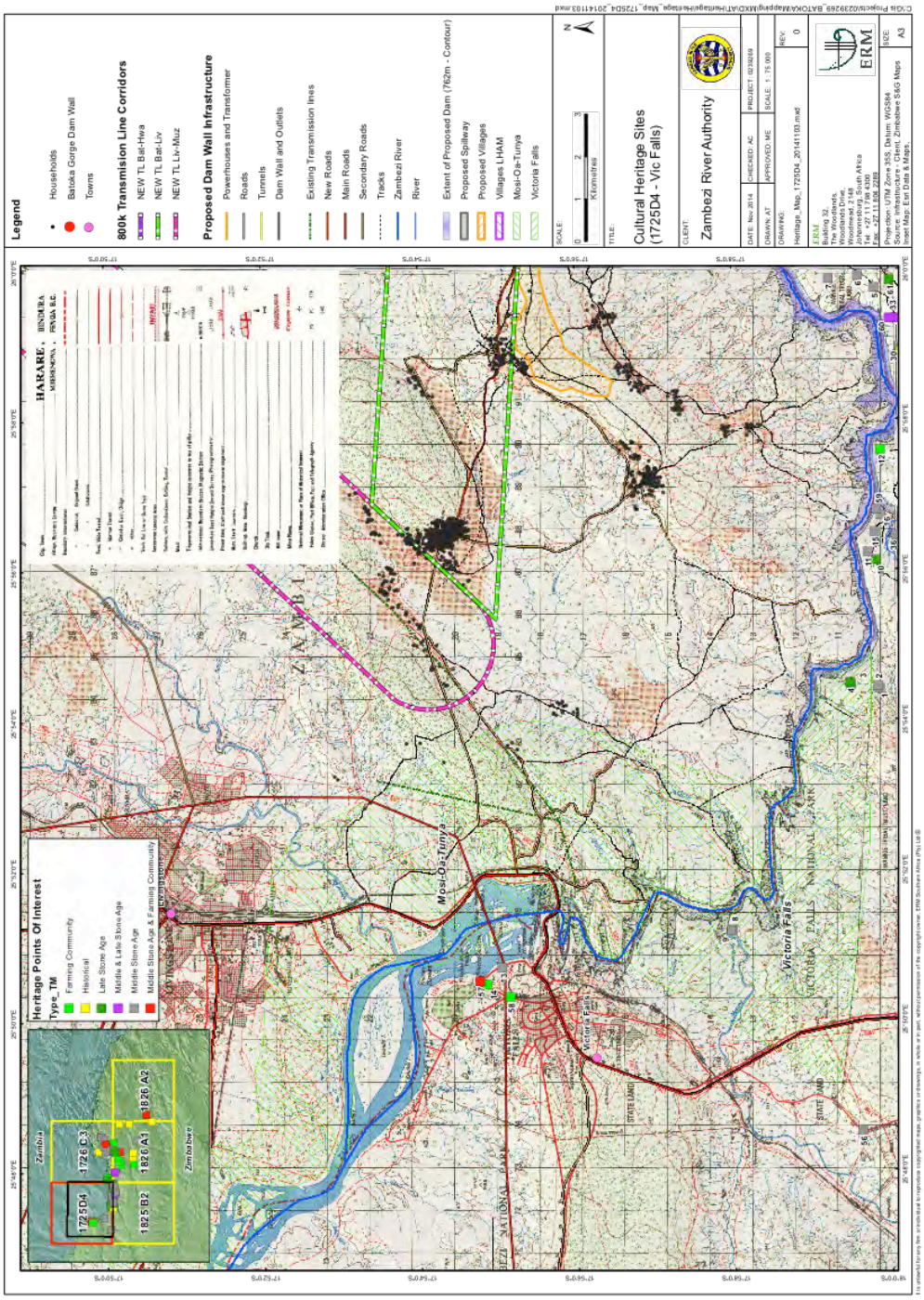
The following section lists the sites located during the current field reconnaissance. It provides a description of each location, its cultural assemblage, an assessment of site integrity and an evaluation its significance both from community and/or academic importance. Most sites are not individually named as they are archaeological occurrences with little prior interest to the local residents. Annotated versions of the relevant Surveyor-General topographical maps show the location of the sites.

The list that follows is laid out according to the relevant Topographical maps and is numbered sequentially. *Figures 36, 66, 78, 115, 143* show the number of sites located on each map and their cultural affinity.

1725 D4 Victoria Falls

Sixteen new sites were located on this map, Figure 36.

Figure 0.36 Cultural Heritage Sites Located on the Map 1725 D4 Victoria Falls



Source: ERM, 2014

1. 2014 Fieldwork Site Number = B22

Archaeological Site = Middle Stone Age (Bambata Tradition), *Figures 37-38*
ARC 1950 GPS reading = 35K 0384299 8010004
Description = Concentration of MSA lithics on basalt valley floor near stream. Cores and flakes largely of chalcedony, but also a few items of white vein-quartz. One characteristic triangular flake of brown chalcedony and an end-side scraper of a similar material. A few tools show signs of secondary 'polish'. Wind and water erosion at the time of the reworking of the Kalahari Sands may also have impacted site integrity.
Site Integrity = Artefacts are in secondary contexts due to mixing by underlying basalt self-churning soils.
Field Assessed Site Significance = 1

Figure 0.37 Setting of Site 1 – Middle Stone Age

Source: RSB, 2014

Figure 0.38 Select Artefacts of Site 1 – Middle Stone Age, Bambata Tradition

Source: RSB, 2014

2. 2014 Fieldwork Site Number = B23

Archaeological Site = Middle Stone Age (Bambata Tradition), *Figures 39-40.*

ARC 1950 reading = 35K 0384361 8010061

Description = Concentration of MSA lithics on basalt valley floor at base of low basalt ridge. Cores and flakes, mostly of chalcedony but with a few of white vein-quartz. Two side scrapers and a small but broken triangular MSA point. The last manufactured from yellow chalcedony. Some of the artefacts show signs of secondary 'polish'.

Site Integrity = There does, however seem to be some depth to the deposit, while the presence of smaller lithic pieces suggests that the assemblage has not been too distorted by the effects of the basalt self-churning soils. Wind and water erosion at the time of the reworking of the Kalahari Sands may have impacted site integrity to some extent.

Field Assessed Site Significance = 2

Figure 0.39 Setting of Site 2 – Middle Stone Age

Source: RSB, 2014

Figure 0.40 Select Artefacts of Site 2 – Middle Stone Age, Bambata Tradition

Source: RSB, 2014

3. 2014 Fieldwork Site Number = B24

Archaeological Isolate = Middle Stone Age (Unknown Tradition), *Figures 41-42*

ARC 1950 reading = 35K 0384379 8010690

Description = Diffuse scatter of MSA lithics amongst boulders of low basalt outcrop. Mainly flakes largely of chalcedony, with several showing signs of 'polish'.

Site Integrity = Isolated artefacts scattered by post-depositional geomorphological surface processes.

Field Assessed Site Significance = 0

Figure 0.41 Setting of Site 3 – Middle Stone Age

Source: RSB, 2014

Figure 0.42 Select Artefacts of Site 3 – Middle Stone Age, Unknown Tradition

Source: RSB, 2014

4. 2014 Fieldwork Site Number = B25

Archaeological Site = Late Stone Age (Wilton Tradition), *Figures 43-44*

ARC 1950 reading = 35K 0384430 8010714

Description = Local concentration of LSA lithics in open area towards the edge of Batoka Gorge. Characteristic cores and flakes largely of chalcedony, but also of white vein-quartz and agate. Formal tools include thumbnail scarper and backed bladelets. One small piece of haematite.

Site Integrity = There is the potential for intact cultural deposit, although these artefacts are being scattered and winnowed by localised accelerated surface wash caused by the open, unvegetated surface. This may have reduced the integrity of the assemblage.

Field Assessed Site Significance = 2

Figure 0.43 Setting of Site 4 – Late Stone Age

Source: RSB, 2014

Figure 0.44 Select Artefacts of Site 4 – Late Stone Age, Zambezi Variant of the Wilton Tradition

Source: RSB, 2014

5. 2014 Fieldwork Site Number = B31

Archaeological Site = Middle Stone Age (Charama Tradition?), *Figures 45-46*

ARC 1950 reading = 35K 0393709 8010167

Description = Scatter of MSA lithics on talus-strewn slope of fragmented Pipe Sandstone spread over weathered basalt. Large number of cores with few flakes present suggesting it is a factory rather than occupational site. Artefacts largely of chalcedony, but also white vein-quartz and dolerite.

Site Integrity = Artefacts are in secondary contexts due to mixing by post-depositional geomorphological surface processes.

Field Assessed Site Significance = 0

Figure 0.45 Setting of Site 5 – Middle Stone Age

Source: RSB, 2014

Figure 0.46 Select Artefacts of Site 5 – Middle Stone Age, possibly Charama Tradition

Source: RSB, 2014

6. 2014 Fieldwork Site Number = B32

Archaeological Site = Middle Stone Age (Charama Tradition?), *Figures 47-48*

ARC 1950 reading = 35K 0393995 8010552

Description = MSA lithics on flat basalt exposure adjacent to a stream. Diffuse scatter of chalcedony cores and flakes.

Site Integrity = Artefacts have been impacted by post-depositional geomorphological surface processes and there is little cultural deposit remaining intact.

Field Assessed Site Significance = 1

Figure 0.47 Setting of Site 6 – Middle Stone Age

Source: RSB, 2014

Figure 0.48 Select Artefacts of Site 6 – Middle Stone Age, possibly Charama Tradition

Source: RSB, 2014

7. 2014 Fieldwork Site Number = B33
Archaeological Site = Middle Stone Age (Charama Tradition), *Figures 49-50*
ARC 1950 reading = 35K 0393918 8011239

Description = Thin rubble of natural pebbles overlying shallow basalt bedrock adjacent to stream. Most pebbles not rounded so must represent colluvial residue. Diffuse scatter of MSA lithics mixed with this natural deposit. These consist of chalcedony cores with only a few flakes. This may represent either secondary accumulation or a factory site. Many pieces, both natural and human artefacts, show signs of 'polish'.

Site Integrity = Artefacts have been impacted by post-depositional geomorphological surface processes and there is little deposit remaining intact.

Field Assessed Site Significance = 1

Figure 0.49 Setting of Site 7 – Middle Stone Age

Source: RSB, 2014

Figure 0.50 Select Artefacts of Site 7 – Middle Stone Age, Charama Tradition

Source: RSB, 2014

8. 2014 Fieldwork Site Number = B48

Archaeological Site = Middle Stone Age (Tradition unknown), *Figures 51-52*

ARC 1950 reading = 35K 0378619 8013478

Description = Scatter of MSA lithics associated with a natural perched alluvial gravel above the edge of the Batoka Gorge near the confluence of the Masue and Zambezi Rivers. It is adjacent to the Masue Waterfall. The basalt bedrock is shallow and there are numerous small and rounded basalt boulders combined with rounded chalcedony pebbles. This site has been previously described[45] and it appears in the Museum Survey records as 1725:DD:06. Lithics consist mainly of cores with only a few flakes. This suggests that it is either a manufacturing site or it has been impacted by post-depositional geomorphological surface processes that have removed most of the smaller flakes.

Site Integrity = Artefacts are probably in secondary contexts. The deposit is so shallow as render this site of limited academic interest.

Field Assessed Site Significance = 1

[45] Clark, 1950: 56-7

Figure 0.51 Setting of Site 8 – Middle Stone Age

Source: RSB, 2014

Figure 0.52 Select Artefacts of Site 8 – Middle Stone Age, Unknown Tradition

Source: RSB, 2014

9. 2014 Fieldwork Site Number = B49

Archaeological Site = Middle Stone Age (Tradition unknown), *Figures 53-54*

ARC 1950 reading = 35K 0378574 8013498

Description = Scatter of MSA lithics associated with a natural perched alluvial gravel above the edge of the Batoka Gorge near the confluence of the

Masue and Zambezi Rivers. It is adjacent to the Masue Waterfall. The basalt bedrock is shallow and there are numerous small and rounded basalt boulders combined with rounded chalcedony pebbles. This site has been previously described[46] and it appears in the Museum Survey records as 1725:DD:06. Lithics consist mainly of cores with only a few flakes. This suggests that it is either a manufacturing site or it has been impacted by post-depositional geomorphological surface processes that have removed most of the smaller flakes.

Site Integrity = Artefacts are probably in secondary contexts. The deposit is so shallow as render this site of limited academic interest.

Field Assessed Site Significance = 1

Figure 0.53 Setting of Site 9 – Middle Stone Age

Source: RSB, 2014

[46] Clark, 1950:56-7

Figure 0.54 Select Artefacts of Site 9 – Middle Stone Age, Tradition unknown

Source: RSB, 2014

10. 2014 Fieldwork Site Number = B52

Archaeological Site = Late Stone Age (Possibly Tshangula Tradition), *Figures 55-56*

ARC 1950 reading = 35K 0387315 8010101

Description = Localised concentration of characteristic LSA lithics in open area set within well-established Mopane Woodland near the edge of the Dibu Dibu Gorge. In an area of shallow basalt soil there are several distinctive LSA cores and flakes made from a variety of raw materials including clear vein-quartz, agate, and to a lesser extent chalcedony which appears to be more common in MSA assemblages. No formal LSA tools noted and this description is based solely on manufacturing technique. This could imply an early date, possibly MSA-LSA transition that has been termed Tshangula lithics.

Site Integrity = Artefacts have been concentrated by surface wash but the site integrity is possibly still reasonably good and there may be some depth remaining to this deposit.

Field Assessed Site Significance = 2

Figure 0.55 Setting of Site 10 – Late Stone Age

Source: RSB, 2014

Figure 0.56 Select Artefacts of Site 10 – Late Stone Age, Possibly Tshangula Tradition

Source: RSB, 2014

11. 2014 Fieldwork Site Number = B54

Archaeological Isolate = Middle Stone Age (Bambata Tradition?), *Figures 57-58*

ARC 1950 reading = 35K 0387504 8010301

Description = Several MSA flakes of chalcedony on a flat area along side a low basalt ridge near the edge of the Batoka Gorge. All lithics show signs of 'polish'.

Site Integrity = These artefacts are in secondary contexts having been dispersed by post-depositional geomorphological surface processes.

Field Assessed Site Significance = 0

Figure 0.57 Setting of Site 11 – Middle Stone Age

Source: RSB, 2014

Figure 0.58 Select Artefacts of Site 11 – Middle Stone Age, possibly Bambata Tradition

Source: RSB, 2014

12. 2014 Fieldwork Site Number = B55

Archaeological Site = Later Farming Community Site of Chemapato Hill. For further discussion see Section 1.7.4.

ARC 1950 reading = 35K 0389915 8010002

Description = A very significant site with both tangible and intangible value. By definition a Living Heritage Site, this flat-topped hill lies on the edge of the Zimbabwean side of the Batoka Gorge. It was clearly once part of the same upper landsurface but has been separated by erosion along a

prominent fault line that has created the gap in between[47]. Access to the site is difficult as the slopes are steep and covered in loose basalt gravel. The use of ropes was required to get access, being accompanied by a member of the local community who had been asked to obtain clearance. This site is mentioned in both the 1993 and 1998 Cultural Heritage assessments. A large number of clay pottery vessels are on the site, as well many sherds of other broken vessels and grinding-stones. The 1998 report mentions an iron arrowhead near the northwestern end but this was not located.

Site Integrity = The site is intact, although it has recently been disturbed by animal digging, probably baboon, as well as unlawful wood cutting of hard wood species for curio carving. This matter has been raised with local authorities.

Field Assessed Site Significance = 6

13. 2014 Fieldwork Site Number = B56

Archaeological Site = Middle Stone Age (Tradition unknown), *Figures 59-60*

ARC 1950 reading = 35K 0377710 8018875

Description = Diffuse scatter of MSA lithics on the edge of a Kalahari Sand palaeo-dune near the banks of the Zambezi River above Victoria Falls. Variety of cores and flakes of chalcedony and white vein-quartz. No formal tools noted and this description is based only on manufacture technique.

Site Integrity = Artefacts are in disturbed secondary contexts. An old gravel track crosses the site at this point. The consultant believes that these artefacts may be associated with road gravel brought in rather than being an intact human signature.

Field Assessed Site Significance = 0

[47] This line of rock weakness can be seen on Google Earth

Figure 0.59 Setting of Site 13 – Middle Stone Age

Source: RSB, 2014

Figure 0.60 Select Artefacts of Site 13 – Middle Stone Age, Tradition unknown

Source: RSB, 2014

14. 2014 Fieldwork Site Number = B58

Archaeological Site = Undiagnostic Farming Community, *Figures 61-62*

ARC 1950 reading = 35K 0377322 8019234

Description = On the Kalahari Sand palaeo-dune was a diffuse scatter of undiagnostic pottery sherds together with a number of pieces of slag, including some fairly large fragments. It is likely that an iron smelting

furnace was somewhere in the area, possibly associated with the nearby large baobab. NMMZ records indicate an Early Farming Community site in this area.

Site Integrity = Artefacts are in disturbed contexts due to animal action – burrowing and elephant tracks.

Field Assessed Site Significance = 0

Figure 0.61 Setting of Site 14 – Undiagnostic Farming Community Site

Source: RSB, 2014

Figure 0.62 Select Artefacts of Site 14 – Undiagnostic Farming Community Site

Source: RSB, 2014

15. 2014 Fieldwork Site Number = B62

Archaeological Site = Middle Stone Age (Bambata Tradition), *Figures 63-64*

ARC 1950 reading = 35K 0387988 8010141

Description = Diffuse scatter of MSA lithics in flat area of soil and gravel over shallow basalt bedrock. The cores and flakes are largely of chalcedony, but one core of agate. No formal tools and description based on manufacturing technique. Several pieces have 'polish'.

Site Integrity = The artefacts have been scattered across wide area by post-depositional geomorphological surface processes and are in secondary contexts. There is little or no cultural deposit remaining.

Field Assessed Site Significance = 1

Figure 0.63 Setting of Site 15 – Middle Stone Age

Source: RSB, 2014

Figure 0.64 Select Artefacts of Site 15 – Middle Stone Age, Bambata Tradition

Source: RSB, 2014

16. 2014 Fieldwork Site Number = B63

Archaeological Site = Middle Stone Age (Bambata Tradition), *Figures 11 and 65*

ARC 1950 reading = 35K 0388370 8009987

Description = Several MSA lithics have been exposed in roadway which has been graded into a perched alluvial gravel near the edge of Dibu Dibu Gorge. Besides natural rounded cobbles, there are numerous chalcedony cores and flakes, many of which show 'polish'. These natural gravels may

have attracted human interest as a source of raw material but the absence of small artefacts that these lithics are either part of the gravels or that the deposits have been winnowed by post-depositional geomorphological surface processes. This site was recorded in the 1998 report.

Site Integrity = The artefacts are probably in secondary contexts and have been further mixed by recent road making activity and other construction works at Gorges Lodge.

Field Assessed Site Significance = 1

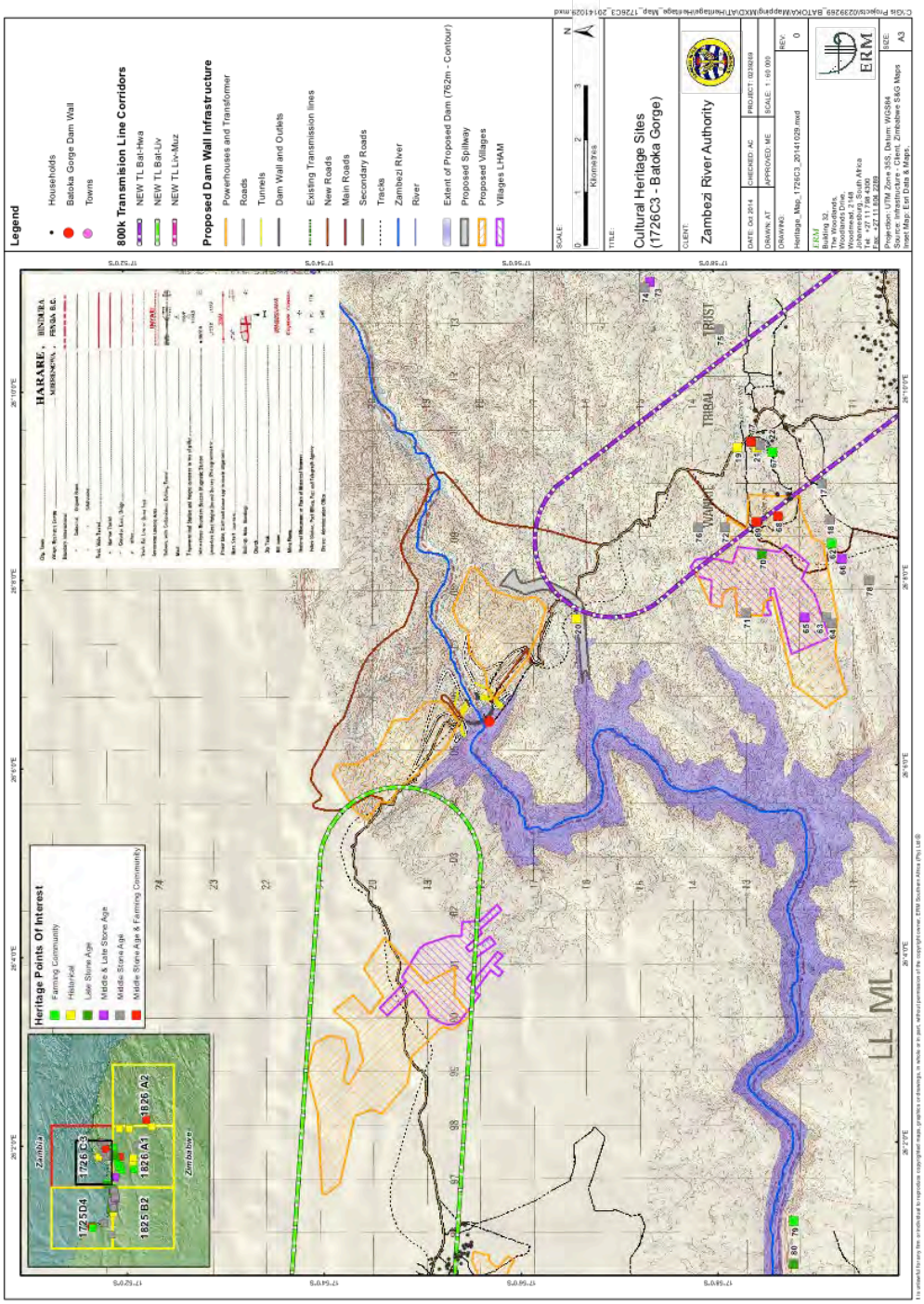
Figure 0.65 Setting of Site 16 – Middle Stone Age

Source: RSB, 2014

1726 C3 Batoka Gorge

Six new sites were located on this map, *Figure 66.*

Figure 0.66 Cultural Heritage Sites Located on the Map 1726 C3 Batoka Gorge



Source: ERM, 2014

17. 2014 Fieldwork Site Number = B10

Archaeological Isolate = Middle Stone Age (Tradition unknown), *Figures 67-68*
ARC 1950 reading = 35K 0410028 8011567
Description = Isolated chalcedony core on pathway through pass in weathered basalt ridge. Description based on manufacture technique.
Site Integrity = This artefact lay on the surface of a modern path and will have been disturbed by both natural and human activity.
Field Assessed Site Significance = 0

Figure 0.67 Setting of Site 17 – Middle Stone Age

Source: RSB, 2014

Figure 0.68 Select Artefacts of Site 17 – Middle Stone Age, Tradition unknown

Source: RSB, 2014

18. 2014 Fieldwork Site Number = B12

Archaeological Isolate = Middle Stone Age (unknown Tradition), *Figures 69-70*

ARC 1950 reading = 35K 0409343 8011427

Description = Diffuse scatter weathered chalcedony cores and flakes over a wider area of undulating weathered basalt at the base of extensive east-

west trending basalt ridge. Descriptions based solely on manufacture technique and core form.

Site Integrity = The artefacts have been scattered in secondary contexts across wide area by post-depositional geomorphological surface processes. There is little or no cultural deposit.

Field Assessed Site Significance = 0

Figure 0.69 Setting of Site 18 – Middle Stone Age

Source: RSB, 2014

Figure 0.70 Select Artefacts of Site 18 – Middle Stone Age, Tradition unknown

Source: RSB, 2014

19. 2014 Fieldwork Site Number = B41

Archaeological Site = Historical (1970s mine field), *Figures 24 and 71*

ARC 1950 reading = 35K 0410696 8013160

Description = This marks the anti-personnel mine field that dates from the 1970s. The point referenced is that of a sign at side of road indicating danger. This area consists of several low, parallel basalt ridges, now unoccupied and well vegetated which suggests that the mines remain a threat to local people and livestock. See also discussion in *Section 1.6.4.*

Figure 0.71 Setting of Site 19 – Historical, 1970s Anti-Personal Mine Field

Source: RSB, 2014

20. 2014 Fieldwork Site Number = B42

Archaeological Site = Historical (1993 Survey), *Figures 72-73*

ARC 1950 reading = 35K 0407484 8016173

Description = This point was marked with a 1993 Survey Peg No. 311. It is near the proposed dam wall and lies in a dissected area of steep relief which shows no other signs of past habitation. The peg is a numbered metal stake set in concrete. Nearby is a scatter of what appear to be rusty Land Rover parts that may date from this time.

Site Integrity = Site intact but of no significance.

Field Assessed Site Significance = 0

Figure 0.72 Setting of Site 20 – Historical, 1993 Survey Beacon

Source: RSB, 2014

Figure 0.73 Select Features of Site 20 – Historical 1993 Survey Beacon and Debris

Source: RSB, 2014

21. 2014 Fieldwork Site Number = B44
Archaeological Site = Historical (1970s homestead), *Figures 74-75*
ARC 1950 reading = 35K 0410690 8012795

Description = On flat crest of basalt ridge within the anti-personnel mine field are the remains of several homesteads. These were abandoned in the 1970s when the mines were laid, the residents being relocated elsewhere by the Rhodesian Authorities. That these villages have still not been reoccupied is clear testimony to the continuing threat of the anti-personnel mines. The remains consist of round and rectangular buildings of sun baked brick and pole and *dhaka*. Fragments of 'modern' glass and metal were also noted.

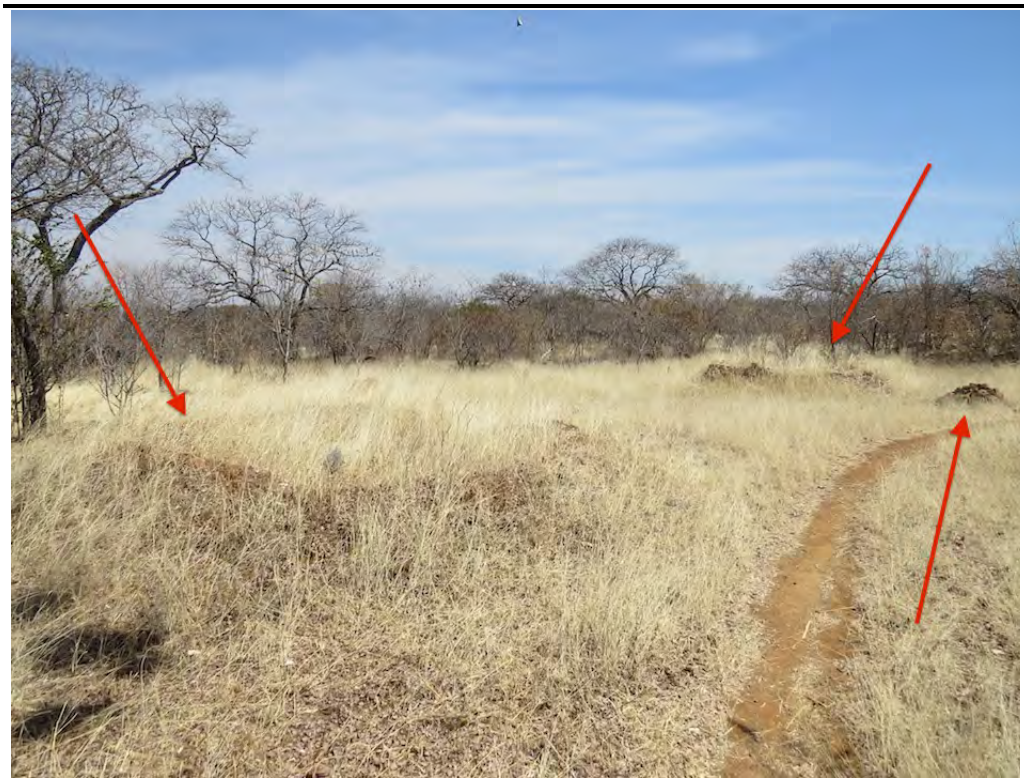
Site Integrity = Sites intact but of limited academic interest.

Field Assessed Site Significance = 1

Figure 0.74 Setting of Site 21 – Historical Homestead

Source: RSB, 2014

Figure 0.75 Select Features of Site 21 – Historical Homestead



Source: RSB, 2014

22. 2014 Fieldwork Site Number = B45

Archaeological Site = Middle Stone Age (Tradition unknown), *Figures 76-77*

ARC 1950 reading = 35K 0410731 8012745

Description = Diffuse scatter of MSA lithics on a low basalt ridge. The artefacts include cores and flakes of chalcedony and basalt. No formal tools were present and description is based on manufacture technique.

Site Integrity = The shallow soil of the site appears to have been disturbed by the former residents of the housing mentioned in the site recorded above. Some of the flakes may in fact be relatively modern. Site is now overgrown.

Field Assessed Site Significance = 0

Figure 0.76 Setting of Site 22 – Middle Stone Age

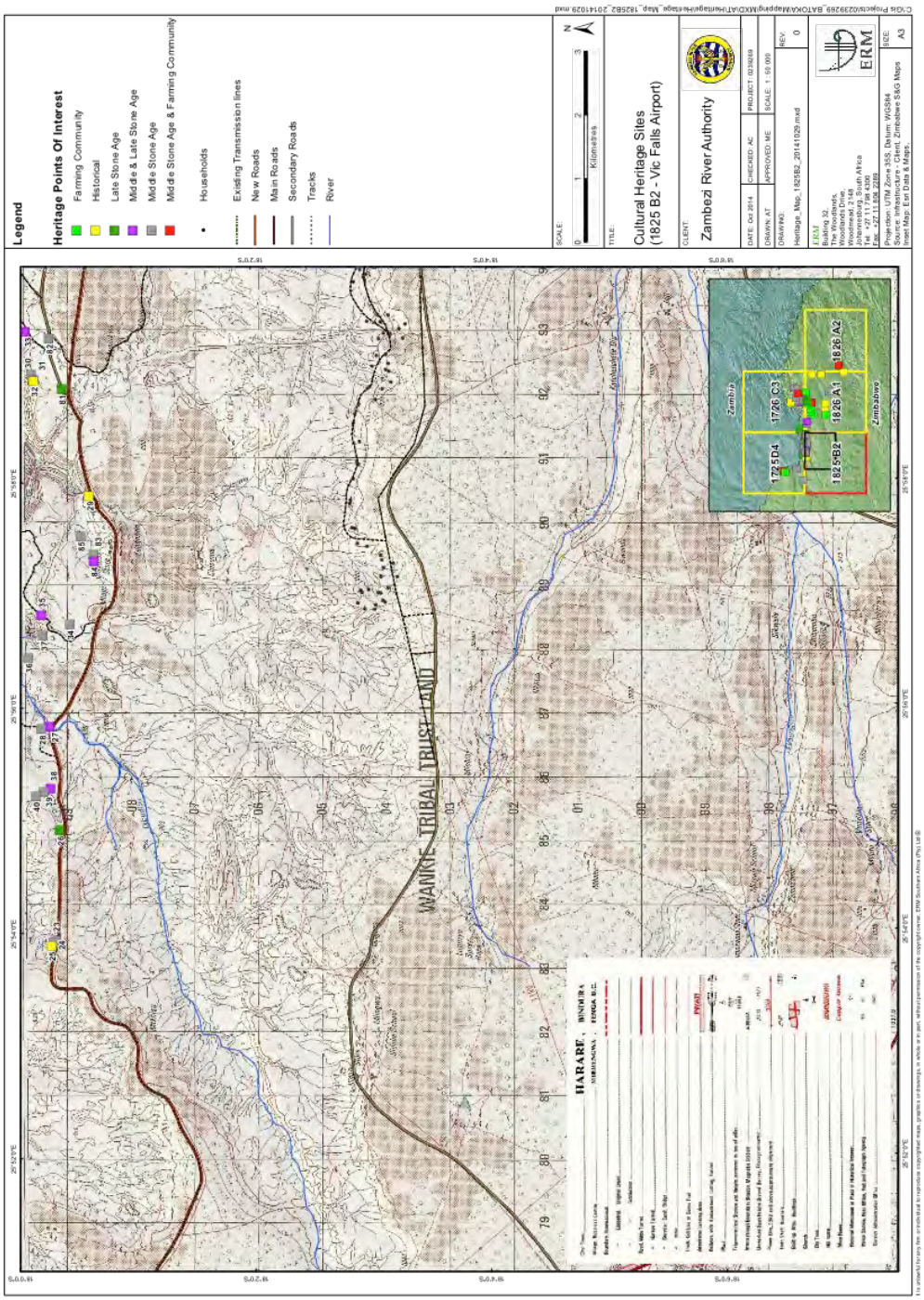
Source: RSB, 2014

Figure 0.77 Select Artefacts of Site 22 – Middle Stone Age, Tradition unknown

Source: RSB, 2014

Eighteen new sites were located on this map, ***Figure 78***.

Figure 0.78 Cultural Heritage Sites Located on the Map 1825 B2 Victoria Falls Airport



Source: ERM, 2014

23. 2014 Fieldwork Site Number = B01

Archaeological Isolate = Undiagnostic Stone Age (possibly Middle Stone Age), *Figures 79-80*

ARC 1950 reading = 35K 0383479 8009182

Description = Undiagnostic Stone Age scatter consisting of chalcedony and quartz flakes within gravelly slope debris consisting of fragments of Pipe Sandstone and Carstone.

Site Integrity = Site has been impacted by post-depositional geomorphological surface processes and the artefacts are in secondary contexts.

Field Assessed Site Significance = 0

Figure 0.79 Setting of Site 23 – Undiagnostic Stone Age

Source: RSB, 2014

Figure 0.80 ***Select Artefacts of Site 23 – Undiagnostic Stone Age, possibly Middle Stone Age***

Source: RSB, 2014

24. 2014 Fieldwork Site Number = B02

Archaeological Site = Middle Stone Age (Charama Tradition), *Figures 81-82*

ARC 1950 reading = 35K 0383422 8009221

Description = Scatter of MSA lithics on small plateau overlooking seasonal stream. The site is covered with fragments of chalcedony, natural exposure of the basal layers of the Kalahari Sands sequence. The numerous cores of chalcedony and the conspicuous absence of smaller artefacts suggest that this was a manufacturing site or it has been subject to severe post-depositional processes.

Site Integrity = the deposit is shallow and it is thought that the site has been impacted by post-depositional geomorphological surface processes leaving the artefacts in secondary contexts.

Significance evaluation = 1

Figure 0.81 Setting of Site 24 – Middle Stone Age

Source: RSB, 2014

Figure 0.82 Select Artefacts of Site 24 – Middle Stone Age, Charama Tradition

Source: RSB, 2014

25. 2014 Fieldwork Site Number = B03

Archaeological Site = Historical ('recent' homestead), *Figures 83-84*

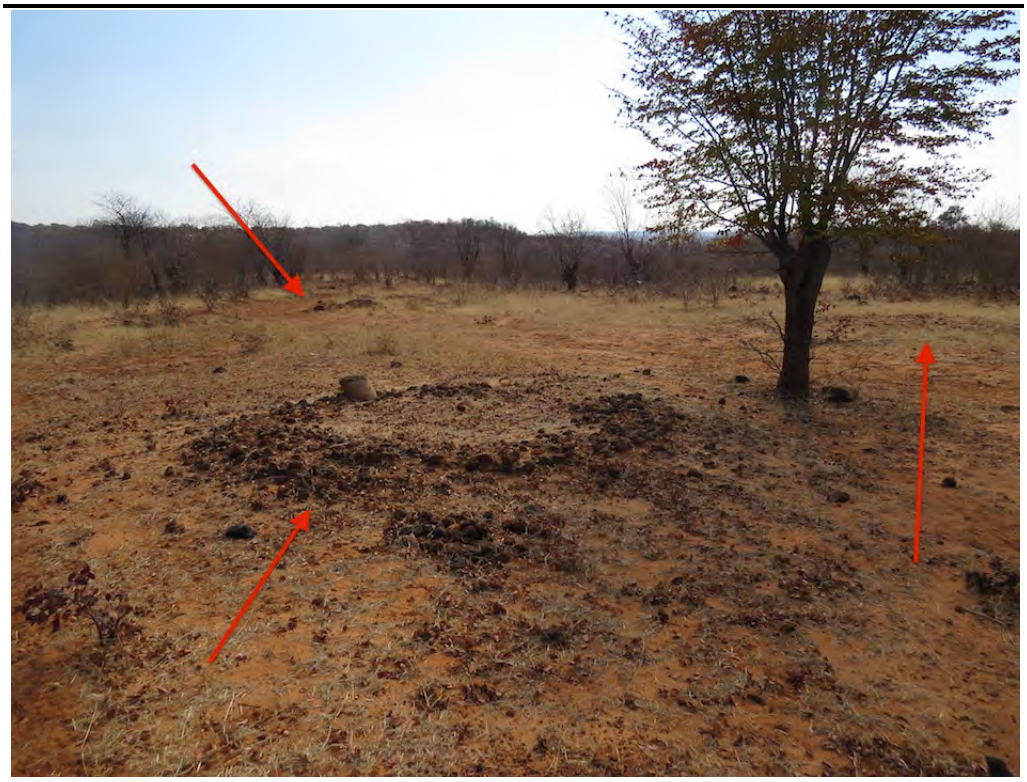
ARC 1950 reading = 35K 0383376 8009256

Description = On small basalt plateau adjacent to seasonal stream were the remains of several rectangular buildings of an old homestead. Scattered glass and metal debris suggest a fairly recent abandonment.

Site Integrity = Site intact but of little academic interest.

Field Assessed Site Significance = 1

Figure 0.83 *Setting and features of Site 25 – Historical Homestead*



Source: RSB, 2014

Figure 0.84 *Select Artefacts of Site 25 –Historical Homestead*

Source: RSB, 2014

26. 2014 Fieldwork Site Number = B04
Archaeological Site = Late Stone Age (Tradition unknown), *Figures 85-86*
ARC 1950 reading = 35K 0385188 8009128

Description = Scatter of LSA lithics covering a wide area on top of a flat plateau of weathered basalt. The artefacts include both cores and flakes manufactured from white and clear quartz, agate and chalcedony. No formal tools noted and description is based only on manufacture technique.

Site Integrity = The site has been impacted by post-depositional geomorphological surface processes leaving the artefacts in secondary contexts.

Field Assessed Site Significance = 1

Figure 0.85 Setting of Site 26 - Late Stone Age

Source: RSB, 2014

Figure 0.86 Select Artefacts of Site 26 – Late Stone Age, Tradition unknown

Source: RSB, 2014

27. 2014 Fieldwork Site Number = B05

Archaeological Site = Middle and Late Stone Age (possibly Tshangula Tradition), *Figures 87-88*

ARC 1950 reading = 35k 0386813 8009284

Description = Localised scatter of MSA and LSA lithics on a low terrace consisting of weathered basalt on the eastern bank of the Dibu Dibu River. Artefacts include chalcedony and quartz cores and flakes. Formal tool include LSA thumbnail scraper and a larger, more general side scraper that could be of MSA origin. This site may represent the transitional Tshangula Tradition between these two cultural phases. The association may however also result from post-depositional processes.

Site Integrity = A reasonable archaeological deposit appears to be present and excavation may be able to understand the origin of this assemblage.

Field Assessed Site Significance = 2

Figure 0.87 Setting of Site 27 – Middle and Late Stone Age

Source: RSB, 2014

Figure 0.88 Select Artefacts of Site 27 – Middle and Late Stone Age, possibly Tshangula Tradition

Source: RSB, 2014

28. 2014 Fieldwork Site Number = B06

Archaeological Site = Middle Stone Age (Bambata Tradition), *Figures 89-90*
ARC 1950 reading = 35k 03866770 8009414
Description = Scatter of MSA lithics on a low terrace of basalt on the western bank of the Dibu Dibu River. The artefacts include chalcedony and quartz cores and flakes. One characteristic MSA side scraper.
Site Integrity = This site has been intensely cultivated in the past and most stones collected and piled as waste debris. Any cultural deposit will have been destroyed.
Field Assessed Site Significance = 1

Figure 0.89 Setting of Site 28 – Middle Stone Age

Source: RSB, 2014

Figure 0.90 Select Artefacts of Site 28 – Middle Stone Age, Bambata Tradition

Source: RSB, 2014

29. 2014 Fieldwork Site Number = B07

Archaeological Site = Historical (1970s homestead), *Figure 91*

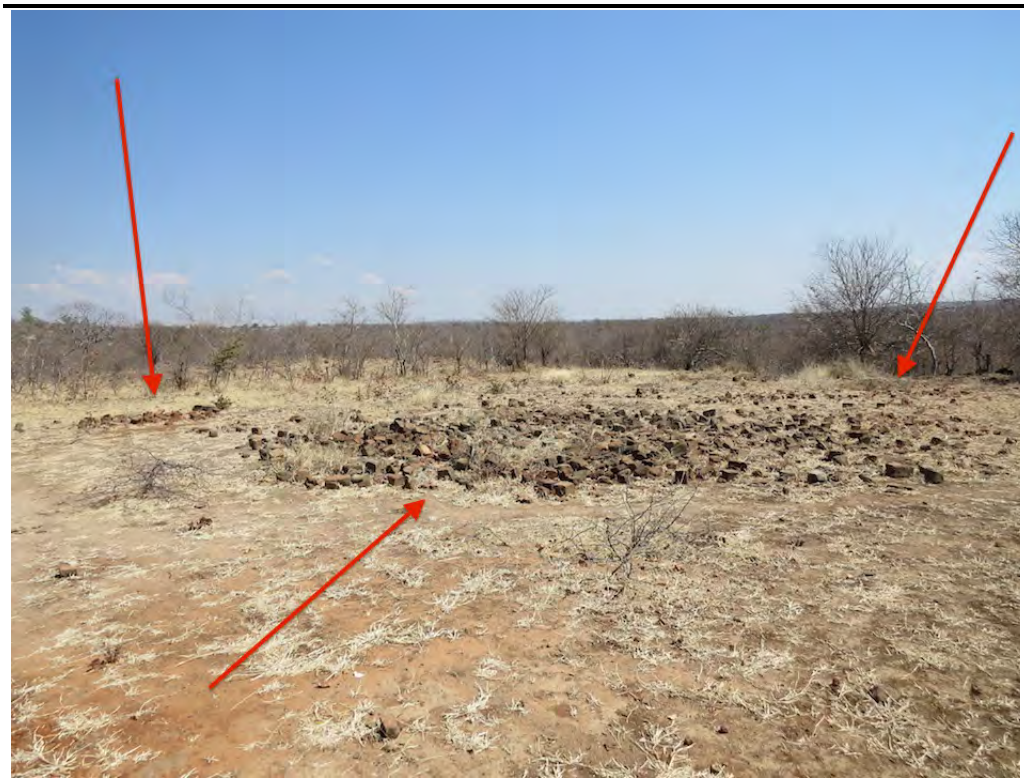
ARC 1950 reading = 35K 0390434 8008669

Description = On basalt plateau overlooking the edge of the Batoka Gorge are the remains of a homestead of rectangular and round houses of pole and *dhaka*, together with other 'modern' glass and metal debris. It was said that it was abandoned in the 1970s when the residents were forcibly relocated elsewhere by the Rhodesian Authorities.

Site Integrity = Site intact but of no further academic interest.

Field Assessed Site Significance = 1

Figure 0.91 Setting and Features of Site 29 – Middle Stone Age



Source: RSB, 2014

30. 2014 Fieldwork Site Number = B26

Archaeological Isolate = Mixed Middle Stone Age, *Figures 92-93*

ARC 1950 reading = 35K 0392341 8009581

Description = Fluvial concentration of typical MSA lithics in streambed.

Site Integrity = The artefacts are in secondary contexts having been eroded and accumulated by the stream. The site is of no real academic interest.

Field Assessed Site Significance = 0

Figure 0.92 Setting of Site 30 – Middle Stone Age

Source: RSB, 2014

Figure 0.93 Setting of Site 30 – Middle Stone Age, Fluvially Mixed Assemblage

Source: RSB, 2014

31. 2014 Fieldwork Site Number = B27

Archaeological Site = Middle Stone Age (Tradition unknown), *Figures 94-95*

ARC 1950 reading = 35K 0392248 8009546

Description = On small plateau overlooking the side of Batoka Gorge and associated with a perched alluvial gravel overlying shallow basalt bedrock. Within this there is a scatter of MSA lithics, both flakes and cores manufactured of chalcedony. Given that most of the peddles in the alluvium are of the same material, this may be a factory site with the MSA people taking advantage of the natural source of raw material. The absence of smaller artefacts suggests that it has been subject to severe post-depositional geomorphological surface processes leaving the artefacts in secondary contexts.

Site Integrity = There is no real cultural deposit and the lithics are probably in secondary contexts.

Field Assessed Site Significance = 0

Figure 0.94 Setting of Site 31 – Middle Stone Age

Source: RSB, 2014

Figure 0.95 Select Artefacts of Site 31 – Middle Stone Age, Tradition unknown

Source: RSB, 2014

32. 2014 Fieldwork Site Number = B28

Archaeological Site = Historical (1970s homestead?), *Figure 96*

ARC 1950 reading = 35K 0392224 8009541

Description = On the edge of the Batoka Gorge in an open area are the remains of rectangular homestead. Site has no other cultural remains and it is difficult to interpret as it is possibly not a residential structure.

Site Integrity = The site is intact but of no further academic interest.

Field Assessed Site Significance = 1

Figure 0.96 Setting and features of Site 32 – Historical Homestead

Source: RSB, 2014

33. 2014 Fieldwork Site Number = B30

Archaeological Site = Middle and Late Stone Age (Bambata and Wilton or Tshangula Traditions), *Figures 97-100*

ARC 1950 reading = 35K 0393009 8009669

Description = This site is on the south side of low basalt ridge that is parallel to the edge of the Batoka Gorge and separated from it by this higher ground. In a local flat, open area is a concentration of lithic remains deriving from of both the MSA and LSA. Cores and flakes are present as well as several formal tools – backed bladelets and thumbnail scrapers of LSA origin and several chalcedony blades and larger scrapers that appear to be from the MSA. There are a variety of raw materials including white and clear vein-quartz, agate, and chalcedony. One large flaked artefact manufactured from thick green bottle glass, may be part of the LSA assemblage and suggests occupation closer to the historical period. These were the remaining San communities who were known to be in the region until just prior to colonisation.

Site Integrity = Although partially deflated and impacted from wash from the adjacent dirt track, there may exist cultural deposit worthy of further investigation.

Field Assessed Site Significance = 2

Figure 0.97 Setting of Site 33 – Middle and Late Stone Age

Source: RSB, 2014

Figure 0.98 Select Artefacts of Site 33 – Middle and Late Stone Age

Source: RSB, 2014

Figure 0.99 *Select Artefacts of Site 33 – Middle and Late Stone Age*

Source: RSB, 2014

Figure 0.100 ***Select Artefacts of Site 33 – Late Stone Age Scraper made from Historical Bottle Glass. Important Late Precolonial Evidence.***

Source: RSB, 2014

34. 2014 Fieldwork Site Number = B35

Archaeological Isolate = Middle Stone Age (Tradition unknown), *Figures 101-102*

ARC 1950 reading = 35K 0388414 8008973

Description = In flat area of self-churning basalt soils is a scatter of lithic artefacts, mainly cores of chalcedony with flakes conspicuous in their absence. One large flaked piece may be ESA but as there are no other diagnostic remains of this earlier period one cannot be sure of this added cultural association.

Site Integrity = It is likely that all artefacts are in secondary contexts due to the geomorphological processes peculiar to these basalt soils and thus the site is of little academic interest.

Field Assessed Site Significance = 0

Figure 0.101 Setting of Site 34 – Middle Stone Age

Source: RSB, 2014

Figure 0.102 Select Artefacts of Site 34 – Middle Stone Age, Tradition unknown

Source: RSB, 2014

35. 2014 Fieldwork Site Number = B36

Archaeological Site = Middle and Late Stone Age (Bambata and Wilton Traditions), *Figures 103-104*

ARC 1950 reading = 35K 0388560 8009421

Description = Diffuse scatter of lithic remains on slight ridge/interfluve marking the edge of an extensive plain of self-churning basalt soils and the Dibu Dibu Gorge to the west. The artefacts comprise mainly of chalcedony MSA pieces, including one typical side scraper, but in addition there are a few LSA pieces manufactured from white vein-quartz. The later include a characteristic thumbnail scraper.

Site Integrity = This area has been partially deflated and the assemblages have been mixed by post-depositional geomorphological surface processes leaving the artefacts in secondary contexts.

Field Assessed Site Significance = 1

Figure 0.103 Setting of Site 35 – Middle Stone Age

Source: RSB, 2014

Figure 0.104 ***Select Artefacts of Site 35 – Middle and Late Stone Age, Bambata and Wilton Traditions***

Source: RSB, 2014

36. 2014 Fieldwork Site Number = B50

Archaeological Site = Middle Stone Age (Bambata and possibly Charama Traditions), *Figures 105-106*

ARC 1950 reading = 35K 0387894 8009625

Description = On the flat basalt surface adjacent to a stream are a number of chalcedony cores and flakes scattered across a wide area. There were no formal tools and description is based on manufacture technique only. Several of the artefacts show signs of 'polish'.

Site Integrity = The site has been impacted by post-depositional geomorphological surface processes leaving the artefacts in secondary contexts.

Field Assessed Site Significance = 1

Figure 0.105 Setting of Site 36 – Middle Stone Age

Source: RSB, 2014

Figure 0.106 Select Artefacts of Site 36 – Middle Stone Age, Bambata and possibly Charama Traditions

Source: RSB, 2014

37. 2014 Fieldwork Site Number = B51

Archaeological Site = Middle Stone Age (possibly Charama Tradition), *Figures 107-108*

ARC 1950 reading = 35K 0388244 8009390

Description = Local flat area on top of a low basalt ridge near the head of the smaller Dibu Dibu Gorge are a number of MSA-type chalcedony cores and flakes. Only a few flakes are present but there appears to be cultural deposit and may be of further interest.

Site Integrity = Site is well vegetated and seem not to be subject to post-depositional geomorphological surface processes. The site may have research potential as there may be intact deposit.

Field Assessed Site Significance = 2

Figure 0.107 Setting of Site 37 – Middle Stone Age

Source: RSB, 2014

Figure 0.108 Select Artefacts of Site 37 – Middle Stone Age, Possibly Charama Tradition

Source: RSB, 2014

38. 2014 Fieldwork Site Number = B59

Archaeological Site = Middle and Late Stone Age (Bambata and Wilton Traditions), *Figures 109-110*

ARC 1950 reading = 35K 0385846 8009277

Description = Flat area on side of low basalt ridge with widespread scatter of lithic artefacts including cores, flakes and formal tools. The latter includes LSA thumbnail scrapers and retouched bladelets. The larger pieces are assumed to be MSA based merely on manufacture technique although no MSA tool forms were noted. A variety of raw materials were present including chalcedony, agate and grey vein-quartz.

Site Integrity = Although this site has been impacted by surface processes to some degree and by recent woodcutting activities, there appears to be intact cultural deposit that may have academic interest.

Field Assessed Site Significance = 2

Figure 0.109 Setting of Site 38 – Middle and Late Stone Age

Source: RSB, 2014

Figure 0.110 Select Artefacts of Site 38 – Middle and Late Stone Age, Wilton and possibly Bambata Traditions

Source: RSB, 2014

39. 2014 Fieldwork Site Number = B60

Archaeological Site = Middle Stone Age (Bambata Tradition), *Figures 111-112*

ARC 1950 reading = 35K 0385793 8009378

Description = On the sloping northern edge of basalt ridge is a diffuse scatter of MSA lithics consisting of cores and flakes manufactured from chalcedony. Formal tools noted include a side scraper and a notched scraper. Several artefacts show signs of 'polish'.

Site Integrity = surface scatter impacted by surfaces processes and artefacts are in secondary contexts. No deposit.
Field Assessed Site Significance = 1

Figure 0.111 Setting of Site 39 – Middle Stone Age

Source: RSB, 2014

Figure 0.112 Select Artefacts of Site 39 – Middle Stone Age, Bambata Tradition

Source: RSB, 2014

40. 2014 Fieldwork Site Number = B61
Archaeological Site = Middle Stone Age (Bambata Tradition), *Figures 113-114*
ARC 1950 reading = 35K 0385720 8009503

Description = On flat crest of basalt ridge covered with weathered residue of Pipe Sandstone and basal chalcedony is a diffuse scatter of MSA cores and flakes made of chalcedony. Given the raw material present and the general absence of smaller flakes this may be factory rather than a occupational site.

Site Integrity = the site has been impacted to by post-depositional geomorphological surface processes and artefacts are in secondary contexts.

Field Assessed Site Significance = 1

Figure 0.113 Setting of Site 40 – Middle Stone Age

Source: RSB, 2014

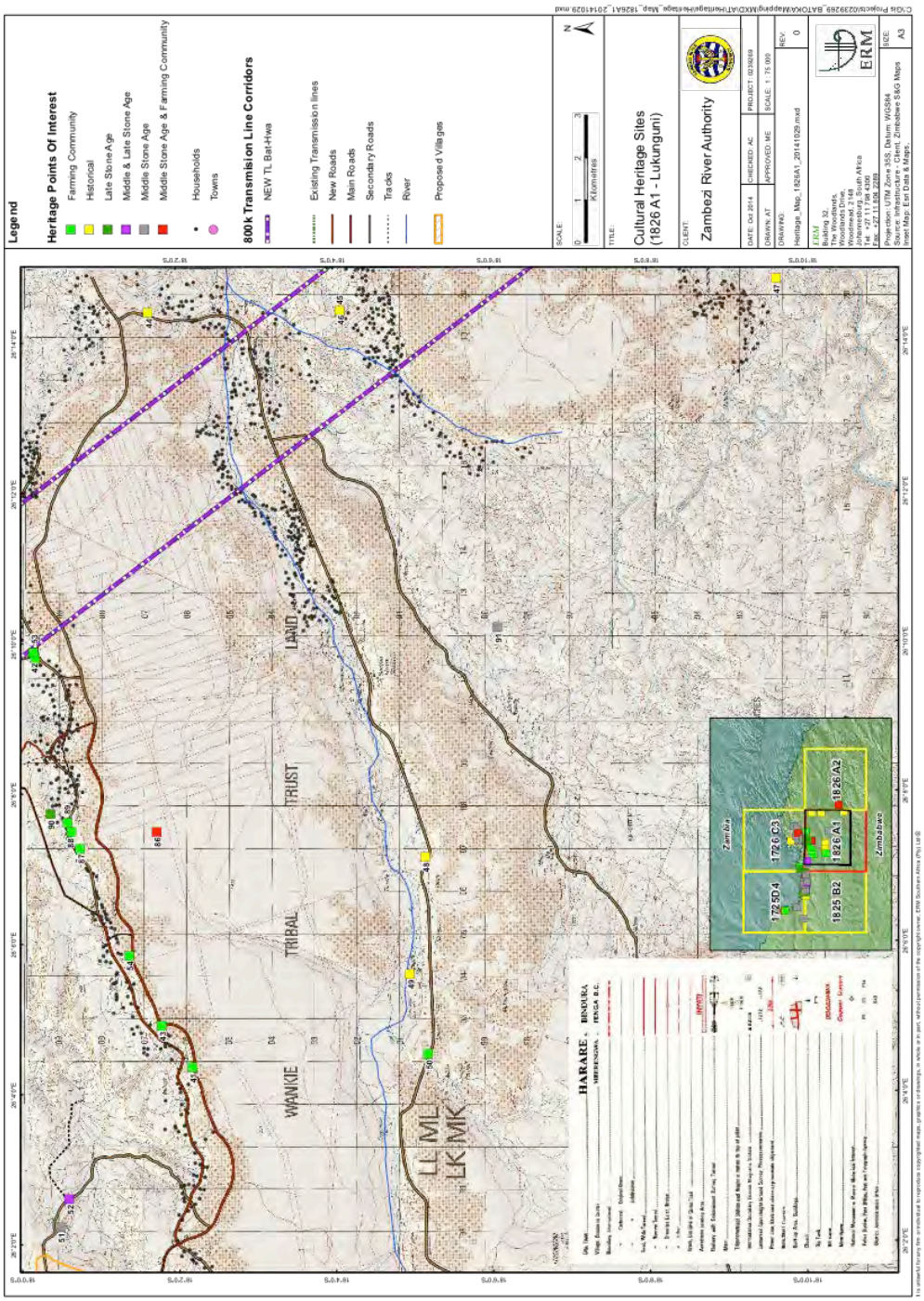
Figure 0.114 Select Artefacts of Site 40 – Middle Stone Age

Source: RSB, 2014

1826 A1 Lukunguni

Fourteen new sites were located on this map, *Figure 115.*

Figure 0.115 Cultural Heritage Sites Located on the Map 1826 A1 Lukunguni



Source: ERM, 2014

41. 2014 Fieldwork Site Number = B08

Archaeological Site = Late Farming Community (Village Site), Figures *116-118*

ARC 1950 reading = 35K 0401848 8005866

Description = This site lies on the northern edge of the crest of the Kalahari Sand palaeo-dune. It consists of a scatter of Late Farming Community debris including pottery fragments (some decorated), slag from iron smelting and pole-impressed *dhaka* from built structures. This old village site shows up as a blackened layer visible in the sides of several erosion gulleys that have cut back into the site from the northern side. It is possible

that these are old cattle tracks in which surface was has been concentrated hence the erosion.

Site Integrity = The whole area has been intensively cultivated and it is possible that most of the cultural remains have been disturbed. However as the deposit noted in the erosion gulleys seems fairly deep, the lower portions may be intact and worthy of further investigation.

Field Assessed Site Significance = 2

Figure 0.116 Setting of Site 41 – Farming Community Village Site

Source: RSB, 2014

Figure 0.117 Select Artefacts of Site 41 – Farming Community Village Site, Pottery Sherds

Source: RSB, 2014

Figure 0.118 ***Select Artefacts of Site 41 – Farming Community Village Site, Iron Working Debris***

Source: RSB, 2014

42. 2014 Fieldwork Site Number = B09

Archaeological Site = Undiagnostic Farming Community (Village site?), *Figures 119-120*

ARC 1950 reading = 35K 0411466 8009552

Description = On crest of the Kalahari Sand palaeo-dune and associated with baobab in an open cultivated field is a sparse scatter of Farming Community debris including undiagnostic pottery fragments and slag from iron smelting. This site may relate to the nearby one record as Site 53 (B46).

Site Integrity = The whole area has been intensively cultivated and it is likely that the cultural remains have been disturbed and are now in secondary contexts.

Field Assessed Site Significance = 1

Figure 0.119 Setting of Site 42 – Farming Community, possibly Village Site

Source: RSB, 2014

Figure 0.120 Select Artefacts of Site 42 – Farming Community, possibly Village Site, Iron Slag and Pottery Sherds

Source: RSB, 2014

43. 2014 Fieldwork Site Number = B11

Archaeological Site = Late Farming Community (possibly village site), *Figures 121-122*

ARC 1950 reading = 35K 0402839 8006582

Description = Site lies on the crest of the Kalahari Sand palaeo-dune facing northward and is associated with several small baobabs in cultivated field. Consists of a diffuse scatter of Farming Community debris including pottery fragments (some decorated) and slag from iron smelting.

Site Integrity = The area has been intensively cultivated for a number of years, including we were told mechanical ploughing. The cultural remains have there probably been thoroughly disturbed and are now in secondary contexts.

Field Assessed Site Significance = 1

Figure 0.121 ***Setting of Site 43 – Farming Community, possibly Village Site***

Source: RSB, 2014

Figure 0.122 ***Select Artefacts of Site 43 – Farming Community, possibly Village Site, Iron Slag and Pottery Sherds***

Source: RSB, 2014

44. 2014 Fieldwork Site Number = B13

Archaeological Site = Historical (1970s homestead?), *Figure 123*

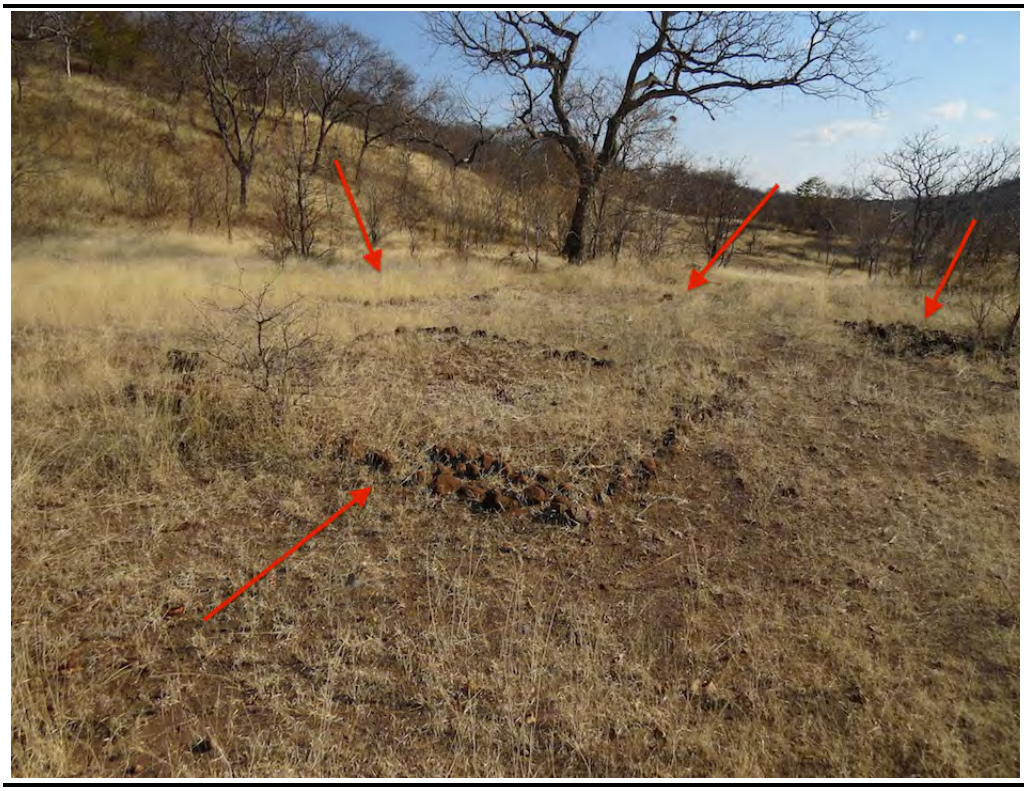
ARC 1950 reading = 35K 0419591 8006911

Description = At the foot of north–facing slope of basalt are the remains of an old homestead. Marked by several rectangular and round foundations, it is associated with 'modern' glass and metal fragments. It is possible that this is one of the many homesteads in this area abandoned in the 1970s during the Civil War.

Site Integrity = The site is intact but is of limited academic interest.

Field Assessed Site Significance = 1

Figure 0.123 Setting of Site 44 – Historical, Possibly 1970s Homestead



Source: RSB, 2014

45. 2014 Fieldwork Site Number = B15

Archaeological Site = Late Stone Age (Wilton Tradition), *Figures 124-125*

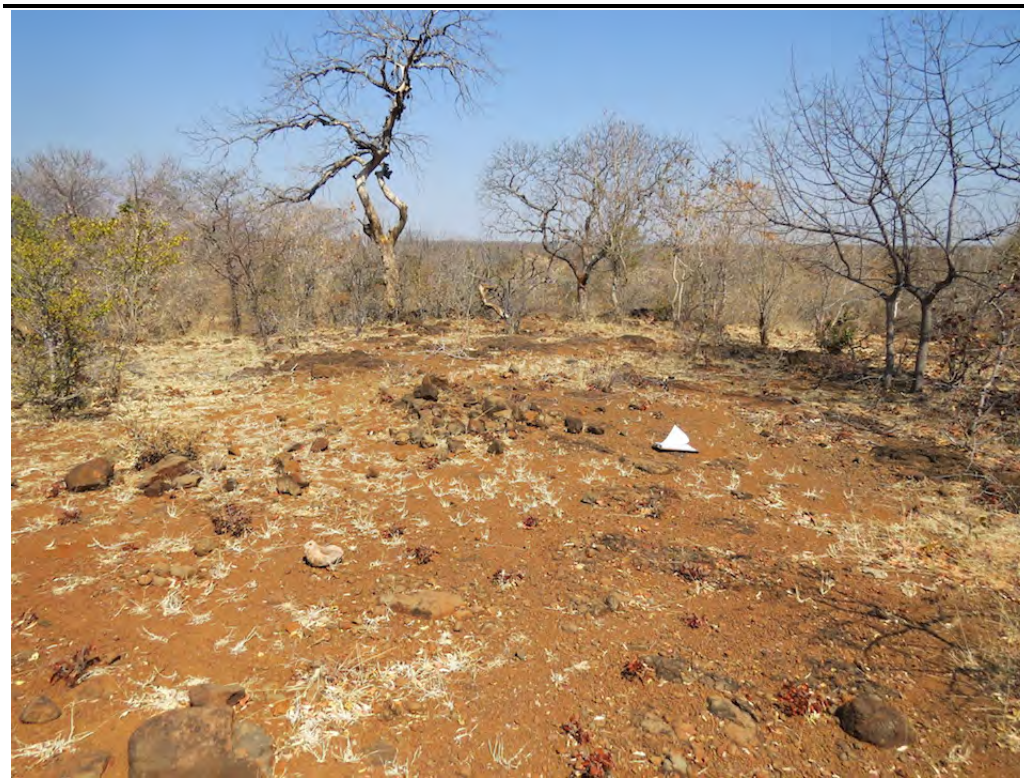
ARC 1950 reading = 35K 0419608 8002404

Description = On flat crest of basalt ridge adjacent to a stream are the remains of a LSA occupational site. The artefacts include typical cores, flakes and formal tools in chalcedony, agate and quartz. The formal tools include thumbnail scarpers, a segment and several backed bladelets.

Site Integrity = This site has a shallow deposit while it appears to have been disturbed by the more recent activities associated with the adjacent old homestead - see site 46 listed below.

Field Assessed Site Significance = 1

Figure 0.124 Setting of Site 45 – Late Stone Age



Source: RSB, 2014

Figure 0.125 Select Artefacts of Site 45 – Late Stone Age, Zambezi Variant of the Wilton Tradition

Source: RSB, 2014

46. 2014 Fieldwork Site Number = B16

Archaeological Site = Historical (old homestead), *Figure 126*

ARC 1950 reading = 35K 0419657 8002406

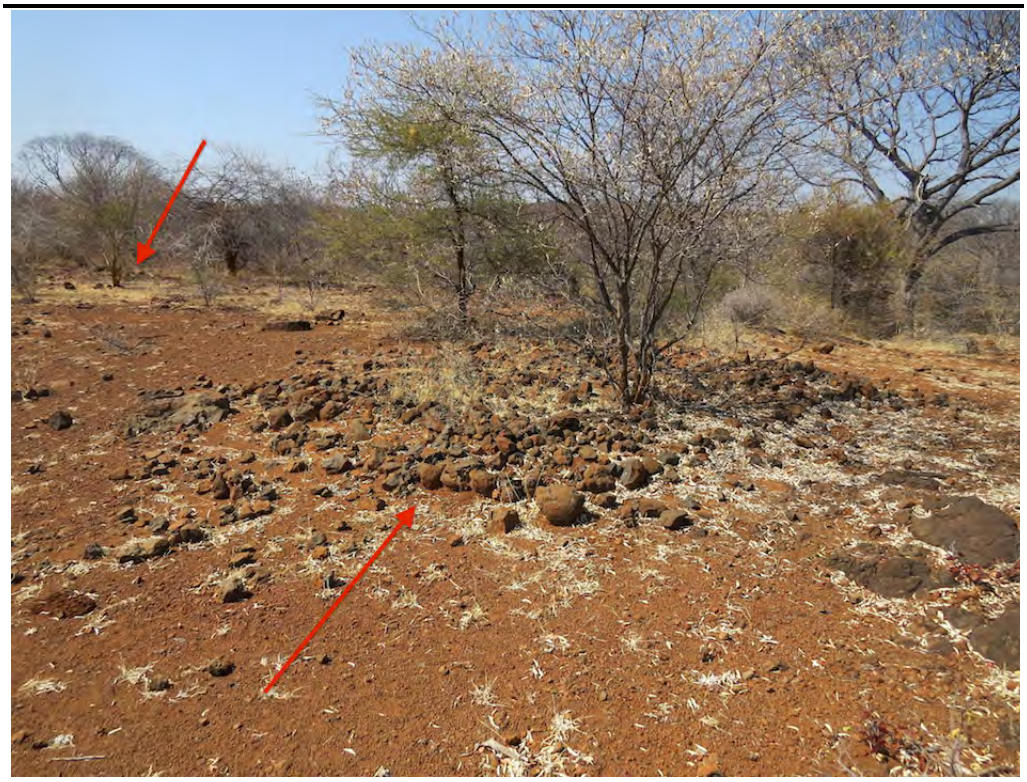
Description = On flat area on the crest of basalt ridge and adjacent to a seasonal stream are the remains of a more recent homestead. The rectangular and rounded structural foundations are marked by numerous basalt cobbles.

Recent metal and glass fragments suggest it was occupied in the not too distant past.

Site Integrity = The site is intact but is of limited academic interest.

Field Assessed Site Significance = 1

Figure 0.126 Setting of Site 46 – Historical Homestead



Source: RSB, 2014

47. 2014 Fieldwork Site Number = B18

Archaeological Site = Historical (old homestead), *Figure 127*

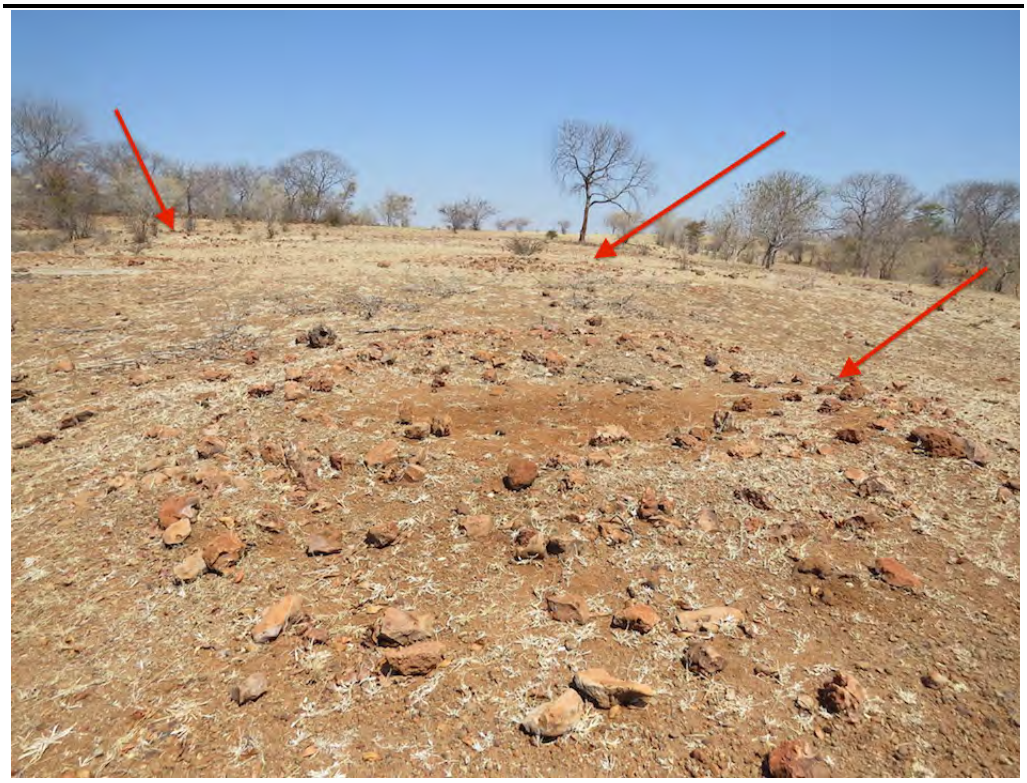
ARC 1950 reading = 35K 0420399 7992151

Description = Site lies on the crest of basalt ridge overlooking a formally important road leading south towards Hwange. It is the remains of a more recent homestead consisting of several rectangular and rounded foundations that are marked by numerous fragments of Pipe Sandstone and pieces of pole-impressed *dhaka*. The associated ashy middens contain recent metal and glass fragments while a coin that was located dates to 1986 suggesting the site is a modern but isolated homestead, abandoned fairly recently.

Site Integrity = This site is intact but is of limited academic interest.

Field Assessed Site Significance = 1

Figure 0.127 Setting of Site 47 – Historical Homestead



Source: RSB, 2014

48. 2014 Fieldwork Site Number = B19

Archaeological Site = Historical (recent cemetery), *Figures 128-129*

ARC 1950 reading = 35K 0406807 8000392

Description = On the northern side of Kalahari Sand palaeo-dune and in between modern occupied homesteads is an area of relatively intact Baikaea Woodland. This undisturbed patch is a local community cemetery which accounts for the area being left uncultivated and not exploited for firewood fuel. Eight grave mounds were noted, many of them associated with pierced vessels left for the deceased. One recent grave with earth still fresh, suggests that this cemetery is still functional. The photographs show difficult it is to see such features – there four graves shown.

Site Integrity = The site is intact and should not be disturbed in any manner as it will offend the community. This example shows the need for on-the-ground reconnaissance of all proposed developments that are associated with this project. It highlights the inability of remote sensing using Google Erath to identify sites of possible importance. This cemetery lies in the route of the proposed transmission lines but does not show up on the Google Image. Without thorough ground truthing the project engineers have incorrectly assumed that this is merely undeveloped land.

Field Assessed Site Significance = 5+

Figure 0.128 Setting of Site 48 – Historical Cemetery, two graves indicated

Source: RSB, 2014

Figure 0.129 Select Artefacts of Site 48 – Historical Cemetery, two graves indicated

Source: RSB, 2014

49. 2014 Fieldwork Site Number = B20
Archaeological Site = Historical (1970s cattle sales pens), *Figure 130*
ARC 1950 reading = 35K 0404065 8000755

Description = In valley between two palaeo-dunes of Kalahari Sand are the remains of a former government cattle sales pen. Consisting of steel poles and associated structural debris it is now abandoned.

Site Integrity = Site is intact but is of limited academic interest.

Field Assessed Site Significance = 1

Figure 0.130 Setting of Site 49 – Historical, Cattle Sales Pens

Source: RSB, 2014

50. 2014 Fieldwork Site Number = B21

Archaeological Site = Late Farming Community (possibly village site), *Figures 131-132*

ARC 1950 reading = 35K 0402172 8000325

Description = Occupying the flat crest of the Kalahari Sand palaeo-dune and associated with six small baobabs of the same age growing in cultivated fields is a diffuse scatter of Farming Community debris including pottery fragments (some decorated) and slag from iron smelting.

Site Integrity = The area has been intensively cultivated for a number of years and the cultural remains have been disturbed and are now in secondary contexts.

Field Assessed Site Significance = 1

Figure 0.131 Setting of Site 50 – Farming Community, possibly Village Site

Source: RSB, 2014

Figure 0.132 Select Artefacts of Site 50 – Farming Community, possibly Village Site, Iron Slag and Pottery Sherds

Source: RSB, 2014

51. 2014 Fieldwork Site Number = B38

Archaeological Site = Middle Stone Age (Bambata Tradition), *Figures 133-136*

ARC 1950 reading = 35K 0398107 8008964

Description = On low basalt ridge on the margins of a Kalahari Sands palaeo-dune is a concentration of chalcedony rubble from the base of the Kalahari Sands sequence. These natural chunks appear to have attracted the attention of MSA people. This factory or manufacturing rather than

occupational site as can be seen from several, intact knapping locations where individuals in the past sat and worked the stone. Present are many cores, flakes and worked chunks of chalcedony. There are few formal tools but a classic MSA triangular point of yellow chalcedony was noted, as were several blades. These appear to be too large to be of LSA origin and are more typical of the MSA.

Site Integrity = despite erosion in places the cultural deposit of this site seems to be intact. It is an important site that certainly requires further investigation through excavation and mapping.

Field Assessed Site Significance = 5

Figure 0.133 Setting of Site 51 – Middle Stone Age

Source: RSB, 2014

Figure 0.134 ***Select Artefacts of Site 51 – Middle Stone Age, Bambata Tradition Factory Site***

Source: RSB, 2014

Figure 0.135 ***Select Artefacts of Site 51 – Middle Stone Age, Bambata Tradition Factory Site. Note Characteristic Triangular Point***

Source: RSB, 2014

Figure 0.136 Select Artefacts of Site 51 – Middle Stone Age, Bambata Tradition Factory Site

Source: RSB, 2014

52. 2014 Fieldwork Site Number = B39

Archaeological Site = Middle and Late Stone Age (possibly both Bambata and Wilton Traditions), *Figures 137-138*

ARC 1950 reading = 35K 0398760 8008751

Description = Extensive area of deflated sodic soils associated with stream. Across the exposed surface are the scattered of Stone Age material from several periods. Now mixed are MSA and LSA cores and flakes. Most are of chalcedony but there are some of white vein-quartz quartz and of agate.

Site Integrity = This area is subject to severe surface wash during the rains and in times of stream flow. This has eroded the overlying soil down to the white sodic subsoil/decayed and gleyed bedrock. The archaeological remains are now in secondary contexts having been derived from the overlying soil and nearby. They are now mixed and of little academic interest.

Field Assessed Site Significance = 1

Figure 0.137 Setting of Site 52 – Middle and Late Stone Age in Deflated Area of Sodic Soils

Source: RSB, 2014

Figure 0.138 Select Artefacts of Site 52 – Middle and Stone Late Age, Possibly both Bambata and Wilton Traditions in mixed contexts

Source: RSB, 2014

53. 2014 Fieldwork Site Number = B46

Archaeological Site = Undiagnostic Farming Community (village site), *Figures 139-140*

ARC 1950 reading = 35K 0411594 8009603

Description = On crest of the Kalahari Sand palaeo-dune and associated with a young baobab growing in a cultivated field is a scatter of Farming Community debris including undiagnostic pottery fragments, slag from iron smelting and pole impressed-dhaka. This site may be merely an extension of the diffuse scatter already described as Site 42 (B09).

Site Integrity = The entire area has been intensively cultivated and it appears that the cultural remains have been disturbed and are now in secondary contexts.

Field Assessed Site Significance = 1

Figure 0.139 Setting of Site 53 – Farming Community Village Site

Source: RSB, 2014

Figure 0.140 Select Artefacts of Site 53 – Farming Community Village Site, Iron Slag, pottery sherds and Pole-Impressed Dhaka

Source: RSB, 2014

54. 2014 Fieldwork Site Number = B47

Archaeological Site = Late Farming Community (possibly village site), *Figures 141-142*

ARC 1950 reading = 35K 0404485 8007352

Description = On the northern edge of the Kalahari Sand palaeo-dune and in a cultivated field is a scatter of Late Farming Community debris including pottery fragments (some decorated) and slag from iron smelting.

Site Integrity = The whole area has been intensively cultivated and the cultural remains have been disturbed. They are now in secondary contexts and of little further academic interest.

Field Assessed Site Significance = 1

Figure 0.141 Setting of Site 54 – Farming Community, possibly Village Site

Source: RSB, 2014

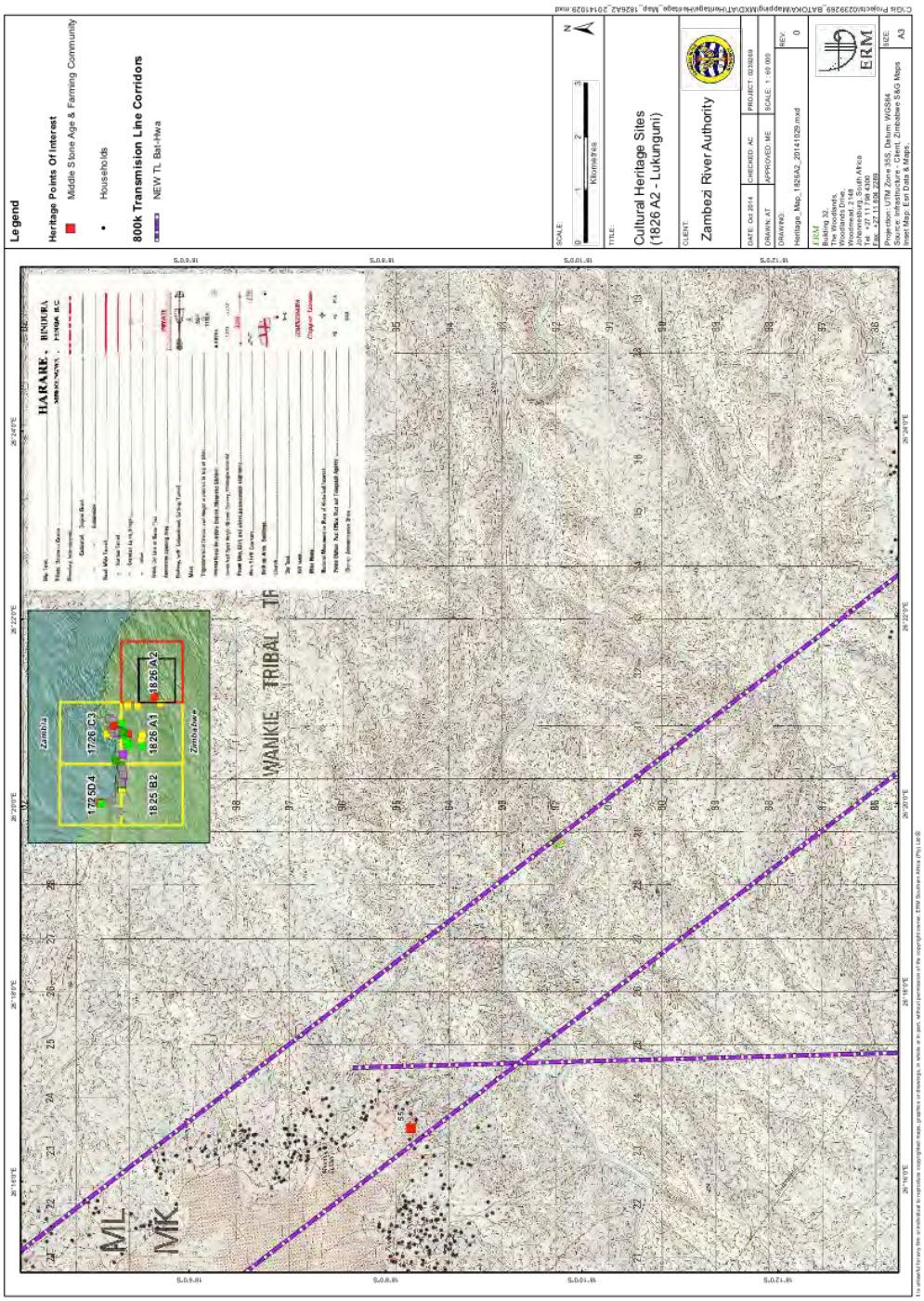
Figure 0.142 ***Select Artefacts of Site 54 – Farming Community, possibly Village Site, Iron Slag and pottery sherds***

Source: RSB, 2014

1826 A2 Ombi River

One new site was located on this map, *Figure 143*.

Figure 0.143 Cultural Heritage Sites Located on the Map 1826 A2 Ombi River



Source: ERM, 2014

55. 2014 Fieldwork Site Number = B17

Archaeological Site = Middle Stone Age and Undiagnostic Farming Community, *Figures 144-145*

ARC 1950 reading = 35K 0423446 7994728

Description = On the edge of the Kalahari Sand palaeo-dune and associated with a large baobab in a cultivated field is a scatter of MSA flakes manufactured of chalcedony. Only one core was noted and most are flakes. Given the local absence of this raw material, this may represent a occupational site. There were also a number of fragments of iron smelting

slag that derive from a more recent, unassociated Farming Community period.

Site Integrity = The entire area has been intensively cultivated and the cultural remains have been disturbed and are now in secondary contexts.

Field Assessed Site Significance = 1

Figure 0.144 Setting of Site 55 – Middle Stone Age Site together with later Farming Community Debris

Source: RSB, 2014

Figure 0.145 Select Artefacts of Site 55 – Middle Stone Age Artefacts and Farming Community Village Iron Slag

Source: RSB, 2014

1.7.4 Chemapato Hill

The site of Chemapato Hill was discussed in some detail in both the 1993 and 1998 reports. It is described above as Site 12. It is a prominent flat-topped hill set off the edge of the Zimbabwean side of the Batoka Gorge and overlooking 'Rapid 21', *Figures 146-147*. Access is extremely difficult, being a scramble up a steep cleft on its southern face. The other edges are near vertical cliff faces. A further difficulty is the loose basalt scree over which one climbs which could be likened to walking on marbles. Security ropes were necessary to make the field assessment.

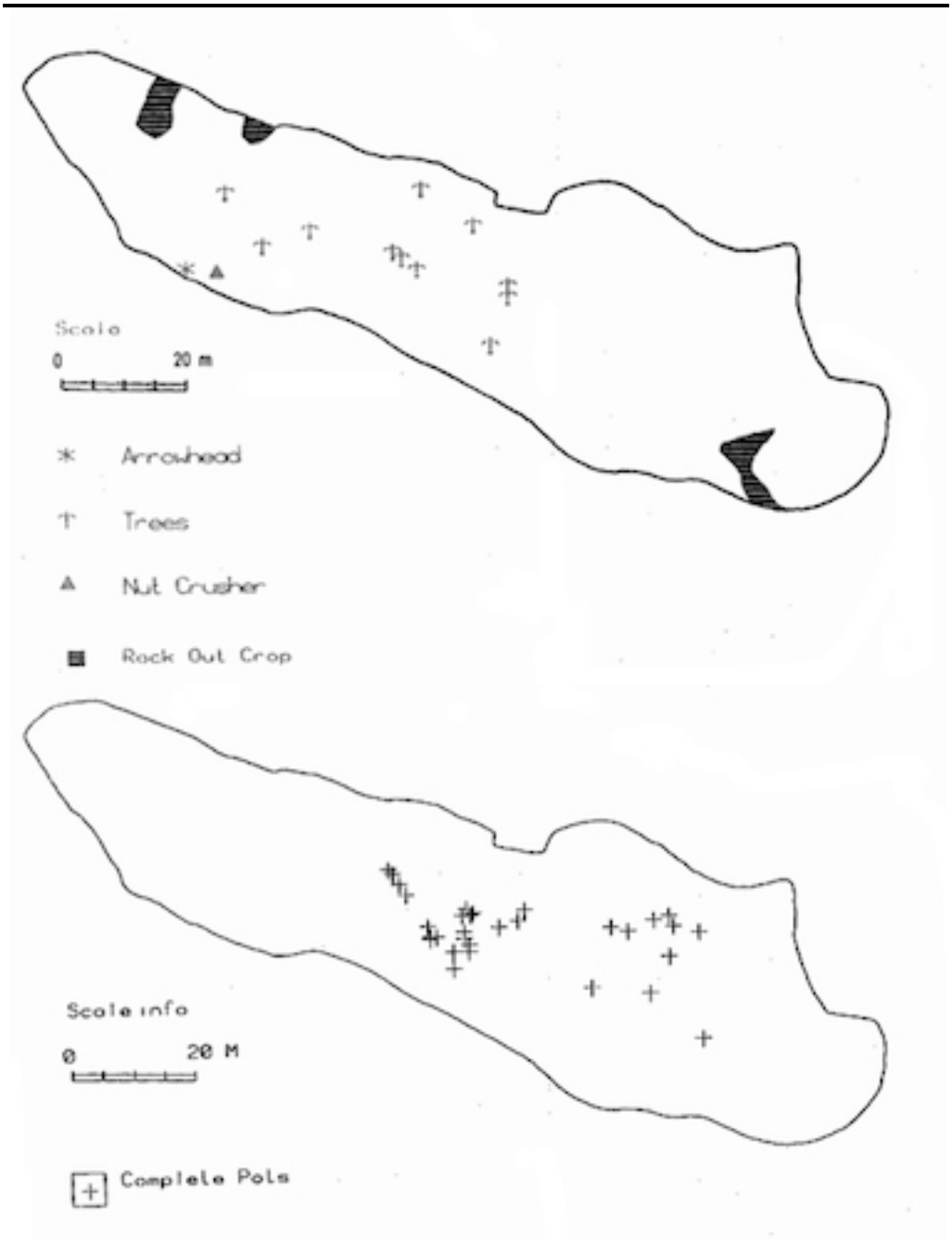
Figure 0.146 Site 12 - Chemapato Hill from the Zimbabwean edge of Batoka Gorge

Source: RSB, 2014

Figure 0.147 Site 12 - 'Rapid 21' in the Zambezi River below Chemapato Hill (on right side)

Source: RSB, 2014

Figure 0.148 1998 Maps of Cultural Material on Site 12 – Chemapato Hill



Source: ZRA,1998

The site was mapped during the 1998 investigation, *Figure 148*. It is flat topped with a thin soil cover. There are a number of large basalt boulders and evidence of the 'Younger Gravels' – fluvially derived pebble beds associated with the evolution of the palaeo-Zambezi River, *Figure 149*. In places of deeper soil there is a dense thicket of Grewia bushes with scattered trees. *Figures 150-151.* A surprisingly dense, moribund grass cover is a reflection of the site's inaccessibility to domestic livestock which have overgrazed much of the adjacent Zimbabwean bank.

Figure 0.149 ***Site 12 - Chemapato Hill Soil Cover, Basalt Cobbles, 'Younger Gravels' and pottery sherds.***

Source: RSB, 2014

Figure 0.150 ***Site 12 - Chemapato Hill, Natural Vegetation Cover on Eastern Side. Note pot in middle ground***

Source: RSB, 2014

Figure 0.151 Site 12 - Site 12 - Chemapato Hill, Natural Vegetation Cover at Centre of Hill

Source: RSB, 2014

Scattered across its flat top, most especially at the centre is a unique archaeological signature, *Figures 152-163.* There are many clay vessels of various sizes, but mostly large 'pots' of the type used traditionally to carry and store liquids. Most of the vessels are decorated with incised lines or blocks of graphite or red ochre colouring. This decoration is similar to that found in Zambia and is associated with Tonga-speaking communities[48]. Most have their bases broken. The consultant counted 52 whole or near whole vessels[49], together with many sherds from others. The decoration is mostly in the area of the neck and shoulder and consists of incision and comb stamping. Chevron bands of colour as well as pendant triangles and diamonds extend in some cases down on to the body of several vessels. An unusual circular pattern on the body of one vessel is divided into alternative segments of colour, *Figure 155*. As pointed out in the 1998 report, the absence of soot associated with domestic use and the high level of decoration all point to a specialist use of the site.

[48] Huffamn 1989.

[49] The 1998 team report 61 vessels.

Figure 0.152 Site 12 – Whole Pots on Chemapato Hill

Source: RSB, 2014

Figure 0.153 Site 12 – Whole Pots on Chemapato Hill

Source: RSB, 2014

Figure 0.154 Site 12 – Whole Pots on Chemapato Hill

Source: RSB, 2014

Figure 0.155 Site 12 – Whole Pots on Chemapato Hill

Source: RSB, 2014

Figure 0.156 Site 12 – Whole Pots on Chemapato Hill

Source: RSB, 2014

Figure 0.157 Site 12 – Whole Pots on Chemapato Hill

Source: RSB, 2014

Figure 0.158 Site 12 – Whole Pots on Chemapato Hill

Source: RSB, 2014

Figure 0.159 Site 12 – Whole Pots on Chemapato Hill

Source: RSB, 2014

Figure 0.160 Site 12 – Whole Pots on Chemapato Hill

Source: RSB, 2014

Figure 0.161 Site 12 – Whole Pots on Chemapato Hill

Source: RSB, 2014

Figure 0.162 Site 12 – Broken Pots on Chemapato Hill

Source: RSB, 2014

Figure 0.163 Site 12 – Broken Pots on Chemapato Hill

Source: RSB, 2014

The iron arrowhead described in the 1998 report and nearby 'nutcrusher' were not relocated, although several handheld upper grindstones were identified, *Figure 164a.* A number of flattened fragments of Pipe Sandstone, which are out of geological context, must have been brought in by human agency, *Figure 164b.* Some of the natural basalt boulders also show signs of wear through rubbing/grinding. These are not grindstones such as those used in the preparation of food or skins, but were probably for crushing and grinding indigenous nuts or tobacco.

Figure 0.164 *Site 12 – Stone Artefacts on Chemapato Hill, Upper Grinding Stone of Basalt and Out of Contexts Fragment of Pipe Sandstone showing Ground Surface*

Source: RSB, 2014

Chemapato is an important site. The difficulty of access and its isolation from most other Farming Community and current residential sites indicate that it is a social site rather than one of habitation. Associated with Tonga-speaking communities, most probably the resident Toka-Leya, it is a site of great significance associated with living cultural traditions of rainmaking and appeasement of the spirits believed to reside in the Zambezi River. The guides who accompanied the consultant, after they first received permission from the site's 'guardians', confirm that the hill was once used annually by the Toka-Leya community, and more often during times of severe drought.

The recent descriptions of the ceremonies are similar to those mentioned in the 1998 report, although the recent guides insisted that all the local residents were involved, both Toka-Leya and others. The local spirit medium and site guardian guided the elders, especially women, to the site. They would take beer in specially prepared traditional clay vessels and a black goat. The beer was placed in a specially constructed shelter constructed of poles. The vessels were then smeared with ash from fires on the hilltop. This ash was pasted around the neck and across the body symbolically dividing it into four parts. The goat was then slaughtered to the spirit guardians and a night of ceremonial song and drumming ensued during which time the beer was consumed. After the ceremony the pots used were left on the site. The authors of the 1998 report stress that they were not broken and the current guides could not explain this feature. However, similar damage to vessels in sacred circumstances is a widespread tradition. Even today where vessels are left on burials they are purposefully broken in this manner.

This general Toka-Leya interpretation seems, in part, to conflict with the conclusions of the 1998 team. It appears that the family associations of the nearby resident Magomba family were not duely considered. The 1998 report describe the activities as an 'invented tradition' that provided the Magomba family direct economic advantage from tourists who used to exit the Gorge at this point after Whitewater Rafting. They describe Spiritual Medium Magomba as the "*self-proclaimed Traditional Custodian of the site*. While

accepting its spiritual associations, it appears that the 1998 team concluded that the site was only being used by those living in Zambia.

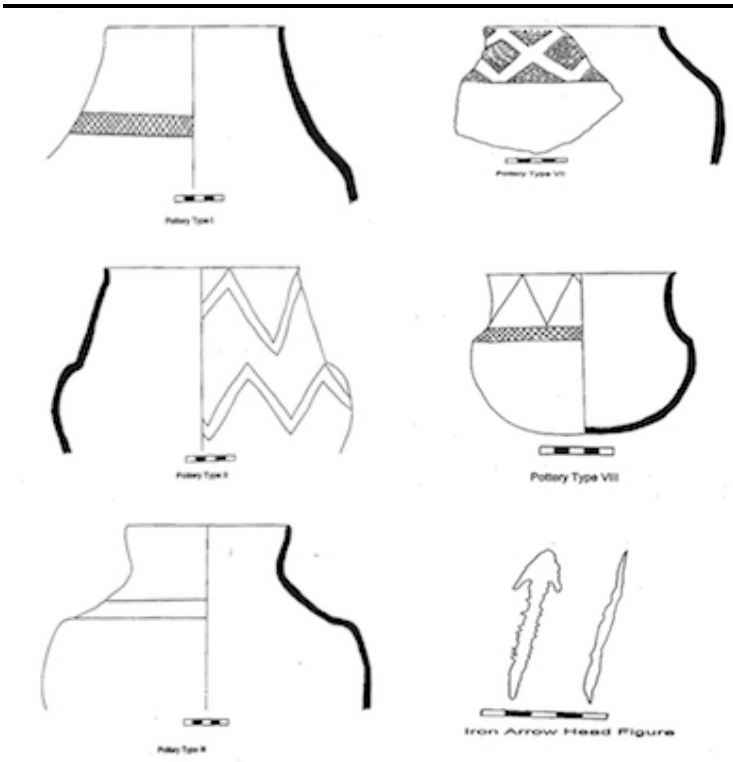
As a result, in the 1998 report the site's significance is not accurately presented. It does not take into consideration resident minority groups whose subculture was derived before the arrival of the Nambya (a Shona associated group) and the more recent Ndebele migrants who now dominate the local traditional political and social strata. In the 1998 report eight local traditional leaders where interviewed and their views are not necessarily representative of the users of the site. Most of these leaders are members of more recent migrant communities:

- Chief Shana;
- Headman Chisuma;
- Headman Mpinami;
- Spirit Medium Magomba;
- Spirit Medium Ncube; and
- Three others unnamed.

However, it is no longer an active site. The 1998 team believe with the death of the previous key Spirit Medium Mhande, that the ceremony moved to a more accessible site on the mainland. While not denying this observation, the consultant's guides suggested that it had more to do with Christianisation and the abandonment of previous 'pagan ceremonies'. The imposition of the international boundary between Zambia and Zimbabwe may have further broken regional Tonga ties, especially during the Rhodesian Civil War and military restrictions in the 1970s.

All of the pots illustrated in the 1998 report are still on the hill, *Figure 165*.

Figure 0.165 Site 12 – Artefacts Illustrated in 1998 Report on Chemapato Hill, Decorated Whole Pots and Iron Arrowhead



Source: ZRA 1998

There has been more recent damage to the site caused by baboons grubbing in the deposit and unlawful tree felling of various hardwood species for use in wood carving to the tourist industry, *Figure 166*. There appears to be a loss of respect for the site and its traditional values.

Figure 0.166 Site 12 – Recent Unsanctioned Tree Cutting on Chemapato Hill

Source: RSB, 2014

1.7.5 Previously Reported Sites

The section briefly summarises what is known about previously reported sites and the potential impact of the proposed project. It is assumed that the descriptions in the 1993 and 1998 ESIA reports are accurate. Mitigation procedures suggested in those reports have been reassessed and are included in *Sections 1.8-1.9.*

1725 D4 Victoria Falls

Six additional sites have been recorded on this map, *Figure 36*.

56. Museum Record 1725:DD:13
Archaeological Site = Middle Stone Age
ARC 1950 reading = 35K 0373900 8010400
Description = On Kalahari Sand palaeo-dune above the Victoria Falls.
Site Integrity = eroding
Field Assessed Site Significance = 1

57. Museum Record 1725:DD:18
Archaeological Site = Middle Stone Age and Early Farming Community
ARC 1950 reading = 35K 0377400 8019400
Description = On Kalahari Sand palaeo-dune above the Victoria Falls near the Big Tree.
Site Integrity = eroding

Field Assessed Site Significance = 1

58. Museum Record 1725:DD:19
Archaeological Site = Late Farming Community
ARC 1950 reading = 35K 0377020 8018690
Description = On Kalahari Sand palaeo-dune above the Victoria Falls. Remains of historical village of Toka-Leya chief. Outside Project Footprint
Site Integrity = eroding
Field Assessed Site Significance = 2 but lies outside Project Footprint.

59. 1998 Record 20
Archaeological Site = Middle Stone Age
ARC 1950 reading = 35K 0388500 8010100
Description = Lithic artefacts on basalt edge to Batoka Gorge.
Site Integrity = already disturbed.
Field Assessed Site Significance = 0

60. 1998 Record 27
Archaeological Site = Middle Stone Age and Late Stone Age
ARC 1950 reading = 35K 0393000 8009800
Description = Scatter of lithics on basalt plains beside the Batoka Gorge.
Site Integrity = eroding
Field Assessed Site Significance = 1

61. 1998 Record 28
Archaeological Site = Late Stone Age
ARC 1950 reading = 35K 0393900 8009800
Description = Lithic artefacts on basalt edge to Batoka Gorge.
Site Integrity = eroding
Field Assessed Site Significance = 1

1726 C3 Batoka Gorge

Nineteen additional sites have been recorded on this map, *Figure 66*. There were no previous NMMZ records.

62. 1998 Record 1
Archaeological Site = Late Farming Community
ARC 1950 reading = 35K 0408900 8011400
Pottery and fragments of pole impressed dhaka in cultivated field of basalt soil.
Site Integrity = eroding
Field Assessed Site Significance = 1

63. 1998 Record 2
Archaeological Site = Middle Stone Age
ARC 1950 reading = 35K 0407400 8011400
Description = Scatter of lithics on edge of low basalt ridge.
Site Integrity = eroding
Field Assessed Site Significance = 1

64. 1998 Record 3
Archaeological Site = Middle Stone Age
ARC 1950 reading = 35K 0407500 8011500
Description = Scatter of lithics on edge of low basalt ridge.
Site Integrity = eroding
Field Assessed Site Significance = 1

65. 1998 Record 4
Archaeological Site = Middle Stone Age and Late Stone Age
ARC 1950 reading = 35K 0407500 8011900
Description = Diffuse scatter of lithics on basalt plateau adjacent to stream.
Site Integrity = eroding
Field Assessed Site Significance = 1

66. 1998 Record 5
Archaeological Site = Middle Stone Age and Late Stone Age
ARC 1950 reading = 35K 0408600 8011200
Description = Small scatter of lithics on edge of low basalt ridge.
Site Integrity = already disturbed
Field Assessed Site Significance = 0

67. 1998 Record 7
Archaeological Site = Late Farming Community
ARC 1950 reading = 35K 0410600 8012500
Description = Localised scatter of pottery between stream and cultivated field.
Site Integrity = eroding. While not relocated this area is now intensely cultivated and the site may have been destroyed thus negating the mitigation procedures recommended in the 1998 report. Nonetheless it is important to investigate this site as no other Farming Community site has been identified for further scientific investigation.
Field Assessed Site Significance = 2 (?)

68. 1998 Record 8
Archaeological Site = Middle Stone Age and undiagnostic Farming Community
ARC 1950 reading = 35K 0409400 8012400
Description = A mixture of earlier lithics and more recent pottery and dhaka fragments on low basalt interfluve and probably within 1970s minefield.
Site Integrity = already disturbed
Field Assessed Site Significance = 0

69. 1998 Record 9
Archaeological Site = Middle Stone Age and undiagnostic Farming Community
ARC 1950 reading = 35K 0409300 8012800
Description = Mixture of pottery and lithics in old cultivated fields on low basalt interfluve and probably within 1970s mine field.
Site Integrity = already disturbed
Field Assessed Site Significance = 0

70. 1998 Record 10

Archaeological Site = Late Stone Age
ARC 1950 reading = 35K 0408700 8012700
Description = Small scatter of lithics on low basalt ridge.
Site Integrity = eroding
Field Assessed Site Significance = 1

71. 1998 Record 11
Archaeological Site = Middle Stone Age
ARC 1950 reading = 35K 0407600 8013000
Description = Eroded scatter of lithics on low basalt ridge.
Site Integrity = eroding
Field Assessed Site Significance = 1

72. 1998 Record 12
Archaeological Site = Middle Stone Age
ARC 1950 reading = 35K 0409200 8013400
Description = Concentration of lithics on eroded edge of basalt ridge. Possibly just out of 1970s minefield.
Site Integrity = eroding
Field Assessed Site Significance = 2

73. 1998 Record 17
Archaeological Site = Middle Stone Age and Late Stone Age
ARC 1950 reading = 35K 0413800 8014800
Description = Scatter of lithics on small hill overlooking deeply eroded stream. Well outside of Project Footprint.
Site Integrity = eroding
Field Assessed Site Significance = 1

74. 1998 Record 18
Archaeological Site = Middle Stone Age
ARC 1950 reading = 35K 0413700 8014900
Description = Diffuse scatter of lithics on small hill overlooking deeply eroded stream. Well outside of Project Footprint.
Site Integrity = eroding
Field Assessed Site Significance = 1

75. 1998 Record 19
Archaeological Site = Middle Stone Age
ARC 1950 reading = 35K 0412900 8013500
Description = Localised concentration of lithics in deeply incised valley. Possibly in secondary contexts and fluvially derived? Outside Project Area.
Site Integrity = eroding
Field Assessed Site Significance = 2 but lies OUTSIDE Project Footprint.

76. 1998 Record 21
Archaeological Site = Middle Stone Age
ARC 1950 reading = 35K 0409200 8013900
Description = Diffuse scatter of lithics on low basalt hill overlooking deeply eroded valley. Possibly just outside 1970s minefield.

Site Integrity = already disturbed
Field Assessed Site Significance = 0

77. 1998 Record 22
Archaeological Site = Middle Stone Age and Farming Community
ARC 1950 reading = 35K 0410800 8012900
Description = Mixture of pottery and lithics on edge of basalt ridge and probably within the 1970s minefield.
Site Integrity = already disturbed
Field Assessed Site Significance = 0

78. 1998 Record 23
Archaeological Site = Middle Stone Age
ARC 1950 reading = 35K 0408200 8010700
Description = Localised concentration of lithics on edge of basalt plateau and adjacent to stream.
Site Integrity = eroding
Field Assessed Site Significance = 2

79. 1998 Record 30
Archaeological Site = Late Farming Community
ARC 1950 reading = 35K 0396200 8012100
Description = Iron smelting debris near edge of Batoka Gorge.
Site Integrity = already disturbed.
Field Assessed Site Significance = 0

80. 1998 Record 31
Archaeological Site = Late Stone Age
ARC 1950 reading = 35K 0395400 8012100
Description = Diffuse scatter of lithics on basalt edge to Batoka Gorge.
Site Integrity = already disturbed
Field Assessed Site Significance = 0

1825 B2 Victoria Falls Airport

Five additional sites have been recorded on this map, *Figure 78.* The two NMMZ records are too generalised to locate on the map, being recorded in the 1940s.

81. 1998 Record 25

Archaeological Site = Late Stone Age
ARC 1950 reading = 35K 0392100 8009100
Description = Scatter of lithics on open basalt plateau next to Batoka Gorge.
Site Integrity = already disturbed
Field Assessed Site Significance = 0

82. 1998 Record 26

Archaeological Site = Middle Stone Age

ARC 1950 reading = 35K 0392200 8009300
Description = Diffuse scatter of lithics in intensely cultivated field at the margins of Kalahari Sand outcrop
Site Integrity = eroding
Field Assessed Site Significance = 1

83. 1998 Record 33

Archaeological Site = Middle Stone Age
ARC 1950 reading = 35K 0389500 8008300
Description = Diffuse scatter of lithics in disturbed contexts within the Chisuma village.
Site Integrity = already disturbed
Field Assessed Site Significance = 0

84. 1998 Record 34

Archaeological Site = Middle and Late Stone Age
ARC 1950 reading = 35K 0389400 8008600
Description = Scatter of lithics in open and disturbed area of shallow basalt soil and adjacent to stream.
Site Integrity = already disturbed
Field Assessed Site Significance = 0

85. 1998 Record 35

Archaeological Site = Middle Stone Age
ARC 1950 reading = 35K 0389800 8008800
Description = Scatter of lithics in open and disturbed area of shallow basalt soil and adjacent to stream.
Site Integrity = already disturbed
Field Assessed Site Significance = 0

1826 A1 Lukunguni

Six additional sites have been recorded on this map, *Figure 115*. The two NMMZ records are too generalised to locate on the map, being recorded in the 1940s.

86. 1998 Record 13

Archaeological Site = Middle Stone Age, undiagnostic Farming Community and 'Sacred baobab'
ARC 1950 reading = 35K 0407400 8006700
Description = Localised scatter of pottery and *dhaka* fragments as well as lithics associated with a large baobab on Kalahari Sand palaeo-dune. This tree is important as a place of spiritual intercession and offerings. Outside of Project Footprint.
Site Integrity = archaeological remains already disturbed but of great intangible value to local community who continue to use the site

Field Assessed Site Significance = 6

87. 1998 Record 14

Archaeological Site = undiagnostic Farming Community
ARC 1950 reading = 35K 0407000 8008500
Description = Localised scatter of pottery and iron working debris on northern edge of Kalahari Sand palaeo-dune.
Site Integrity = already disturbed
Field Assessed Site Significance = 0

88. 1998 Record 15

Archaeological Site = Late Farming Community
ARC 1950 reading = 35K 0407400 8008700
Description = Isolated scatter of iron working debris (slag) on eroded basalt below the northern edge of Kalahari Sand palaeo-dune.
Site Integrity = already disturbed
Field Assessed Site Significance = 0

89. 1998 Record 16

Archaeological Site = Late Farming Community
ARC 1950 reading = 35K 0407600 8008800
Description = Isolated scatter of iron working debris (slag) on eroded basalt below the northern edge of Kalahari Sand palaeo-dune.
Site Integrity = already disturbed
Field Assessed Site Significance = 0

90. 1998 Record 24

Archaeological Site = Late Stone Age
ARC 1950 reading = 35K 0407800 8009200
Description = Eroded basalt plateau adjacent to stream.
Site Integrity = eroding
Field Assessed Site Significance = 1

91. 1998 Record 29

Archaeological Site = Middle Stone Age
ARC 1950 reading = 35K 0412200 7998700
Description = Scatter of lithics on low ridge in a heavily dissected area of basalt ridges. Well outside Project Footprint.
Site Integrity = eroding
Field Assessed Site Significance = 1

1826 A2 Ombi River

There were no sites recorded in this map, either in the NMMZ records or in the previous investigations, *Figure 143.*

1.8 POTENTIAL IMPACTS OF THE PROPOSED DEVELOPMENT AND IMPACT ASSESSMENT PRIOR TO MITIGATION

Tangible Cultural Heritage is by nature a site-specific resource. The remains are particular to the context in which they are found. Developments such as the proposed Batoka HES project are likely to destroy or cause irreversible change to such sites through physical disturbance. Therefore, the Cultural Heritage Assessment process aims to minimise this destruction where possible, seek alternatives or recover the data should disturbance be inevitable. However, not all Cultural Heritage sites are of equal significance, or require the same degree of intervention.

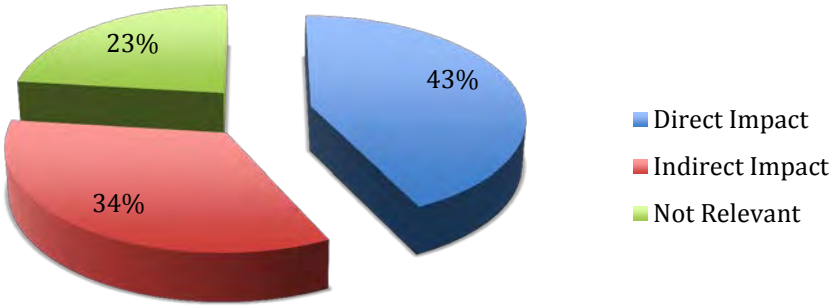
1.8.1 Potential Cultural Heritage Impact

Table 3 lists the various sites and how the proposed Batoka HES will impact them. Figures 167-168 show these relationships. Those shown in capitals are likely to be **directly impacted** by the project once construction commences. They are within or adjacent to the proposed developments. Some of these sites might be avoided where there is careful realignment of infrastructure such as roads, borrow pits and the transmission lines.

The other sites are likely to be **indirectly impacted** as they lie on the edge of Project Footprint. They will be impacted but this will probably come about through the action of other landusers who will be attracted to the area for purposes of residence, recreation and tourism. In this circumstance the Project Proponent is not directly responsible the required mitigation, although it may be directed to do so by NMMZ given the many other sites in the Project Area will be destroyed in construction, some of which may not as yet been recorded. It is recommended that authorities such as the Hwange Rural District Council, NMMZ and EMA should ensure that all other parties who are granted land are required to undertake their own ESIAs in accordance with Zimbabwean legislation.

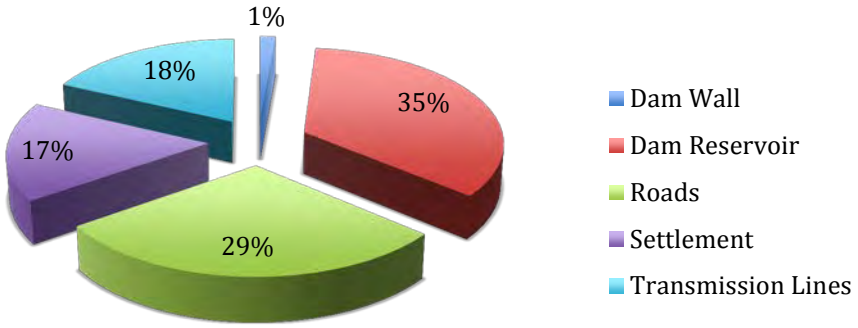
Twenty-one (21) of the 91 sites listed in *Sections 1.7.3 – 1.7.5* can be excluded from further discussion as they lie outside of the intended Project Footprint and the development alternatives. They were recorded so as to provide a wider understanding of the Cultural Heritage Baseline of the Project Area indicating what may be present. This includes several sites of significance – a community cemetery; a 'sacred baobab'; and several larger, intact archaeological sites. The existence of these nearby features should be considered and avoided as much as possible as the project engineers finalise the actual routes and footprint of the intended roads and transmission lines.

Figure 0.167 Sites Recorded and Directness of Likely Impact



Source: RSB, 2014

Figure 0.168 Sites Recorded and Cause of Likely Impact



Source: RSB, 2014

Table 0.3 Cultural Heritage Impact

Map No.	Site No.	Impact	Cause of Impact
1725 D4	**Vic Falls**		
	1	Indirect	Dam
	2	Indirect	Dam
	3	Indirect	Dam
	4	Indirect	Dam
	5	Indirect	Dam
	6	Indirect	Dam
	7	Indirect	Dam
	8	Not Relevant	
	9	Not Relevant	

	10	Indirect	Dam
	11	Indirect	Dam
	12	DIRECT	DAM
	13	Not Relevant	
	14	Not Relevant	
	15	Indirect	Dam
	16	Indirect	Dam
	56	Not Relevant	
	57	Not Relevant	
	58	Not Relevant	
	59	Indirect	Dam
	60	Indirect	Dam
	61	Indirect	Dam
1726 C3	**Batoka Gorge**		
	17	DIRECT	TRANSMISSION LINES
	18	DIRECT	SETTLEMENT
	19	DIRECT	TRANSMISSION LINES
	20	DIRECT	DAM WALL
	21	DIRECT	TRANSMISSION LINES
	22	DIRECT	TRANSMISSION LINES
	62	DIRECT	SETTLEMENT
	63	DIRECT	SETTLEMENT
	64	DIRECT	SETTLEMENT
	65	DIRECT	SETTLEMENT
	66	DIRECT	SETTLEMENT
	67	DIRECT	TRANSMISSION LINES
	68	DIRECT	SETTLEMENT
	69	DIRECT	SETTLEMENT
	70	DIRECT	SETTLEMENT
	71	DIRECT	SETTLEMENT
	72	DIRECT	TRANSMISSION LINES
	73	Not Relevant	
	74	Not Relevant	
	75	Not Relevant	
	76	DIRECT	TRANSMISSION LINES
	77	DIRECT	TRANSMISSION LINES
	78	Not Relevant	
	79	Indirect	Dam
	80	Indirect	Dam
1825 B2	**VF Airport**		
	23	DIRECT	ROAD
	24	DIRECT	ROAD
	25	DIRECT	ROAD
	26	Indirect	Road
	27	DIRECT	ROAD
	28	Indirect	Road
	29	DIRECT	ROAD
	30	Indirect	Dam
	31	Indirect	Dam
	32	Indirect	Dam
	33	Indirect	Dam
	34	Not Relevant	
	35	Indirect	Dam
	36	Indirect	Dam
	37	Indirect	Dam

	38	Indirect	Road
	39	Indirect	Road
	40	Indirect	Road
	81	DIRECT	ROAD
	82	Indirect	Dam
	83	DIRECT	ROAD
	84	Not Relevant	
	85	Not Relevant	
1826 A1	**Lukunguni**		
	41	DIRECT	ROAD
	42	DIRECT	ROAD
	43	DIRECT	ROAD
	44	Not Relevant	
	45	DIRECT	TRANSMISSION LINES
	46	DIRECT	TRANSMISSION LINES
	47	Not Relevant	
	48	Not Relevant	
	49	Not Relevant	
	50	Not Relevant	
	51	Indirect	Settlement
	52	Indirect	Settlement
	53	DIRECT	ROAD & TRANSMISSION LINES
	54	DIRECT	ROAD & TRANSMISSION LINES
	86	Not Relevant	
	87	DIRECT	ROAD
	88	DIRECT	ROAD
	89	DIRECT	ROAD
	90	DIRECT	ROAD
	91	Not Relevant	
1826 A2	**Ombi River**		
	55	DIRECT	TRANSMISSION LINES

1.8.2 Cultural Heritage Impact Significance

Those sites both directly and indirectly impacted can be rated according to magnitude and sensitivity of impact. Magnitude refers to the extent that the site may be impacted in terms of area that will be damaged and changes to current access to the site. Sensitivity considers the site's uniqueness; its local/national/international significance; the community values that it carries; and its scientific importance in terms of research potential. *Table 4* combines these attributes to provide a 'Rating Significance' from which relevant mitigation proposals are established[50]. This rating is shown in *Figure 169.*

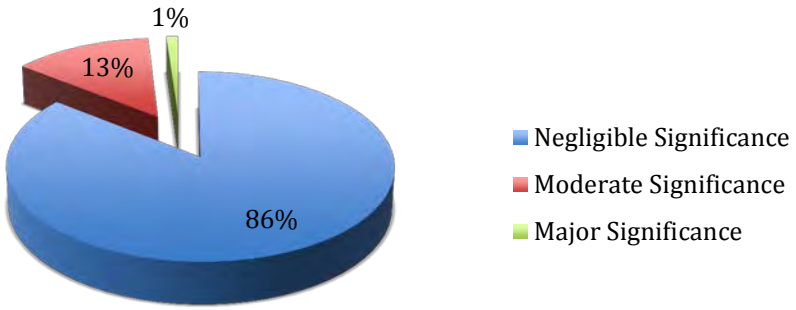
[50] The results of this procedure are similar to the system of Field Assessed Site Significance outlined earlier in Section 1.5.2

Table 0.4 Means by which to Determine Cultural Heritage Site significance[51]

			Cultural Heritage Site Sensitivity		
			Low	Medium	High
Definitions			**Defining Characteristic(s):** Site is not specifically protected under local, national, or international laws or treaties; Site can be moved to another location or replaced by a similar site, or is of a type that is common in surrounding region; site has limited or no cultural value to local, national, or international stakeholders; and/or site has limited scientific value or similar information can be obtained at numerous sites. (Replicable Cultural Heritage)	**Defining Characteristic(s):** Site is specifically or generically protected by local or national laws but laws allow for mitigated impacts; Site can be moved or replaced, or data and artefacts recovered in consultation with stakeholders; Site has considerable cultural value for local and/or national stakeholders; and/or Site has substantial scientific value but similar information can be obtained at a limited number of other sites. (Non-replicable Cultural Heritage)	**Defining Characteristic(s):** Site is protected by local, national, and international laws or treaties; Site cannot be moved or replaced without major loss of cultural value; Legal status specifically prohibits direct impacts or encroachment on site and/or protection zone; Site has substantial value to local, national, and international stakeholders; and/or Site has exceptional scientific value and similar site types are rare or non-existent. (Critical Cultural Heritage)
Magnitude of Impact	Negligible	No discernible change in the physical condition, setting, or accessibility of the site.	Negligible	Negligible	Negligible
	Small	Small part of the site is lost or damaged, resulting in a loss of scientific or cultural value; Setting undergoes temporary or permanent change that has limited effect on the site's perceived value to stakeholders; Stakeholder/public or scientific access to site is temporarily impeded; and/or Historic building suffers minor, reparable, structural damage.	Negligible	Minor	Moderate
	Medium	A significant portion of the site is lost or damaged, resulting in a loss of scientific or cultural value; Setting undergoes permanent change that permanently diminishes the site's perceived value to stakeholders; Site becomes inaccessible for the life of the Project to stakeholders including traditional users or researchers; and/or Historic building suffers major structural damage that is not reparable.	Minor	Moderate	Major
	High	The entire site is damaged or lost, resulting in a nearly complete or complete loss of scientific or cultural value; Setting is sufficiently impact to cause site to lose nearly all or all cultural value or functionality; Site becomes permanently inaccessible to stakeholders including traditional users or researchers; and/or Historic building suffers major structural failure.	Moderate	Major	Major

[51] ERM , 2012, Annex B – 5: p. 15

Figure 0.169 Sites Recorded and Their Rated Significance



Source: RSB, 2014

The majority of the sites located are of negligible significance. They are small and in many cases disturbed. This disturbance is both natural and/or cultural and the original context of the artefacts has been lost. These sites are not directly specified under local Zimbabwean legislation and they appear to hold no social value. The sites are without additional scientific value as many similar sites exist in the area and the loss of these examples would not hinder future research - the data is replicable elsewhere outside of the Project Footprint.

Twelve (12) of the sites are of moderate significance and are worthy of further investigation. They are sites with archaeological deposit and there are indications of limited disturbance. While none appear to have current cultural significance, these sites have scientific value as they represent the full variety of sites in the Project Area. As such their excavation by an appointed Cultural Heritage expert will ensure a proper record of the Cultural Heritage of the Batoka HES footprint before likely destruction.

One site is of major significance. Chemapato Hill has been previously highlighted as one of the most significant Cultural Heritage sites in the Project Area. It is likely that it will not be destroyed but rising water will transform the hill into a peninsular. It is unlikely that the hill would become an island as the land separating the hill from the main edge of the Gorge is expected to remain above the level of intended inundation. This change in setting will lead to increased visits by non-residents and may attract boat mooring and sightseers. This new traffic has the potential to destroy the fragile remains that are found on the hilltop. Artefacts may be removed by visitors who lack an appreciation of the contextual importance of these relics, while trampling and recreational fires may do considerable damage.

1.9 MITIGATION MEASURES AND ASSESSMENT OF IMPACT SIGNIFICANCE AFTER MITIGATION MEASURES

No mitigation recommendations are provided for those sites outside of the Project Footprint. It is assumed that their current settings will not alter to any significant degree. Neither are mitigation recommendations made for those sites with negligible significance even though they may fall within the Project Footprint. It is assumed that NMMZ will permit the destruction of the latter without further investigation.

Of the 13 documented sites of moderate and major significance, only six lie within the actual Project Footprint and as such require mitigation[52]. Mitigation procedures include:

- Initial mapping to record what artefacts are present, their distribution, their context and to identifying any topographical associations. Sometimes this may involve controlled surface collection.

- Based on these maps the heritage specialist will select representative places to excavate, recovering the artefacts under scientific procedures. Careful field notes must be taken and the artefacts, notes and all photographs must be lodged with NMMZ following analysis. This work may include costs of dating the material and getting specialist reports.

- The analysis of all finds is necessary as the work is more than simply removing artefacts from the site. This work is often more time consuming than the actual field reconnaissance. Publication is also important so the baseline data is made available to other archaeologists.

- NMMZ will assess all finalised excavation and analysis reports and may require additional work. This will be specified in writing.

- Once work is complete NMMZ will issue a letter authorising, where this applies, destruction of the remaining portions of the site.

Site-specific mitigation proposals for the six identified sites include:

Site 12 – Chemapato Hill is the only site in the Project Area classed as having major significance. It is a site of considerable tangible and intangible value to the local community, more especially the Toka-Leya. The site and its artefacts are unique. It will be directly impacted with the flooding of the dam.

Previous investigations included both mapping of the site and recording of some of the cultural remains. This work is described in the 1998

[52] Seven other sites of 'significance' are identified in this report, but the Developer cannot be held directly responsible for their mitigation as they lie above the area to be inundated or are outside the sites of ancillary infrastructure. These are Sites 2, 4, 10, 33, 37, 38 and 41. It is possible that they will be destroyed by future developments along the new lakeshore and both EMA and NMMZ are advised to take these sites into consideration should there be any future applications by other parties to develop facilities along the edge of the future lake shore. These sites require mapping and excavation.

report. Given the perception of the studies by the local people, who suggest that heritage material was 'stolen' at the time, it is recommended that NMMZ engage directly with the local people and the traditional leadership about the future of the site. With their full approval and participation an updated site assessment should be undertaken. The hilltop must be put off bounds to visitors. Entry should only be permitted with the prior approval of the local headman. Mooring by boats should be prohibited and enforced by the appropriate authority such as the Zimbabwe Parks and Wildlife Management Agency (ZPWMA). The authorities should be informed and advised on the requirements for the site to be protected.

It is desirable that the site be granted National Monument status. This would give it added legal protection. The legal paperwork for this designation should be compiled by the Project Proponent and the Hwange Rural District Council as soon as possible.

Given the recent unlawful tree-feeling both on the island and nearby on the 'mainland', it is necessary that a resident custodian be appointed to watch over the site, preventing unwanted visitors and resource extraction. This person must live within sight of Chemapato. It is suggested that a local person be engaged through the local traditional structures. It is recommended that the Project Proponent should facilitate the process. This person must come be from one of the adjacent families. Employment is not necessarily offered, but the provision of suitable housing by the Project Proponent may attract a suitable person to take up the task.

With the commissioning of the Batoka HES it is important that the Project Proponent and ZPC become further involved at this site. This could be in the form of relevant Corporate Social Responsibility (CSR) and Inclusive Business with the host community. Already there are growing calls in Zimbabwe for all company and state enterprises to recognise the rights of local host communities, granting shares in their business and investing some of the profits locally. Developments at Chemapato Hill offer an ideal opportunity.

It is proposed that a small site museum be developed on the mainland near Chemapato Hill. This museum would cover the natural and social heritage of the area, as well as including details on the Batoka HES. It could provide the public with a good understanding of the diversity of this part of Zimbabwe, along with providing the local community somewhere where their heritage is documented with pride. It could also provide information on the Batoka HES project. Establishing the museum would require a building and the production of relevant displays, aimed at both local people as well as visitors. It may also have the potential to attract visitors from Victoria Falls.

Although falling under the future management of NMMZ, the costs of both construction and operations would have to borne by the Project

Proponent. It is recommended that a subsidy from the ZRA should cover utilities, staff wages, cleaning, maintenance to the access track, and any future refurbishment. The development of this facility requires further discussion between all interested parties – the Project Proponent, NMMZ, traditional leadership and local residents (most especially the spirit medium of this area).

Site 27 – This scatter of MSA and LSA lithics on a terrace just eastern of the Dibu Dibu River has a reasonable archaeological deposit. The mixture of cultural traits is either the result of post-depositional processes or the site could represent the Tshangula Tradition, a transitional phase which is not well understood in Zimbabwe. It requires mapping and excavation. As the purposed widening of the nearby road will directly impact this site, this work must be carried out by the Project Proponent.

Site 51 – This is a very significant site being a MSA factory site, more or less intact. It appears to belong to the Bambata Tradition. Localised erosion has exposed several individual workstations, patches of stone knapping debris. There are few such factory sites known in Zimbabwe and this deposit would provide important scientific information for the understanding of the Stone Age in the Victoria Falls and Zimbabwe as a whole. It requires mapping and extensive excavation.

It lies on the margin of one of two alternative residential settlements being considered and will only be impacted indirectly should this option be developed. If this is the case it is desirable that the Project Proponent carry out the work. If this location is not to be developed no party can be held responsible for the required mitigation costs and it is hoped that NMMZ may take the matter further. To leave it without excavation will result in the loss of a unique MSA assemblage.

Site 67 – Although this Late Farming Community site was not relocated, its importance is highlighted in the 1998 report where mapping and excavation is recommended. If this deposit is still intact, and not now cultivated as a result of the expanding fields around Kasikiri, this work would provide valuable scientific information. If it has been disturbed mapping and surface collection are still necessary. As the site will be impacted directly both by the proposed residential settlement and the intended route of the transmission lines to Hwange Power Station, it is necessary that this work be carried out by the Project Proponent.

Site 72 - The site was identified as important in the 1998 investigation, but was not relocated during the current field reconnaissance. This large concentration of MSA lithics on a basalt ridge must be investigated to provide additional scientific information about the MSA in the Victoria Falls area. It requires mapping and excavation. The full extent of the work required can only be known once the site is revisited. The issue of the antipersonnel mines remains a concern.

Lying directly in the path of the proposed transmission lines to Hwange Power Station, it is recommended that the Project Proponent carry out this work even if the pylon foundations will not disturb the actual archaeological deposits.

Site 78 - This site was identified as important in the 1998 investigation, but was not relocated. The concentration of MSA lithics on a basalt plateau should be investigated to provide additional scientific information. It requires mapping and extensive excavation. The full extent of the work can only be known once the site is revisited. The issue of the antipersonnel mines remains a concern.

The above mitigation procedures have to be approved by NMMZ. In line with the NMMZ Act, copies of this report are to be made available to the Executive Director of NMMZ who will review the contents and make an informed decision. The Project Proponent may take no further action until feedback from NMMZ as all sites, even those classed as 'negligible significance' are protected under the NMMZ Act.

In its written response NMMZ may raise additional concerns. Once agreement is reached, NMMZ will issue the relevant permits issued allowing for the destruction of the sites indicated or directing relevant mitigation. It must be stressed to the Project Proponent that NMMZ is not obliged to implement the suggestions made in this report, and that it may offer alternatives.

With receipt of NMMZ communication it is important that the mitigation procedures are implemented before construction of the dam and ancillary infrastructure commences. The Project Proponent should engage suitable heritage specialists to undertake the work. This work can be conducted either by an independent and NMMZ-approved heritage specialist, or by NMMZ employees appointed directly by the Executive Director, NMMZ. Costs associated with this work and all laboratory-based investigations are the responsibility of the Project Proponent.

1.10 CONCLUSION AND RECOMMENDATIONS

The Batoka HES project is of both national and regional importance. However, the development of the project is likely to impact negatively on some of the Cultural Heritage resources in the Project Footprint. This investigation was undertaken in order to understand these resources prior to development, allow sites of significance to be located and offer relevant mitigation procedures. The latter require NMMZ approval. The approval letter covering their recommendations is to be included in the ESIA report to be submitted to EMA.

The majority of sites located are small or disturbed. As such they have limited cultural and academic significance. It is suggested that NMMZ permit their destruction, although a written directive is required. Others lie outside of the direct Project Footprint and as such the Project Proponent cannot be held

responsible for mitigation, although they will be impacted by secondary developments that are likely to develop along the intended lakeshore. EMA and NMMZ should keep in mind this report where future project proposals are made for this area.

The six sites identified include a cross-section of the various heritage sites in the area. Their mapping and excavation will provide important baseline data for the interpretation of the human history of the Victoria Falls area. For this mitigation the Project Proponent is directly responsible. Work on three of these sites should be undertaken soon (Numbers 12, 27 and 51). The remainder, previously highlighted in the 1998 report, are subject to a field reassessment as they were not accessible (Numbers 67, 72 and 78). This fieldwork should be undertaken as soon as security concerns are adequately answered.

Only one of the many sites located has any significance to the current residents. Chemapato Hill has been associated with traditional rainmaking activities, possibly for millennia. It is desirable that this site is preserved. It is recommended that the site be treated with utmost care. The local community must be consulted. It is important to view it as a Toka-Leya site, belonging to and serving the interests of the original Tonga, although they are now minority community. The site itself must not be developed and all unauthorised access must be prevented through appointing of a legal custodian. The Project Proponent together with the local people, the Hwange Rural Distinct Council and NMMZ, must pursue this. Developing a small site museum near the site is a medium-term project. This will highlight local heritage, both cultural and natural and would be a CSR activities for the Project Proponent. It might also circumvent increasing political pressure that is being put on corporate organisations, including national parastatals, to be open to host communities and to foster local development.

Although a general picture of the Cultural Heritage of the Project Footprint is now known through the recent field reconnaissance as well as the 1993 and 1998 reports, the entire Project Footprint has not been fully investigated and assessed. For reasons of limited resources there remain a number of areas and project components that require additional survey as they may include important sites not yet recorded. Further work on these areas must form part of the necessary post-ESIA investigations. The Project Proponent must fund this and all reports compiled and submitted to both EMA and NMMZ for their approval and further direction. This additional work includes:

- A water-based reconnaissance of the entire length of the actual Batoka Gorge from the head of the intended dam (taking at the highest point according to the various alternative engineering designs) to the point of exit of water from the power plants. This work must consider all caves on the sides of the Gorge and any waterfall, rapid or pool. Chimamba Rapids and the Moemba Falls are places of particular importance.

- The major tributary gorges where these will be flooded, even only in part, must be investigated to identify caves and potentially fossiliferous travertine deposits.

- The dissected and isolated area west of Kasikiri must be surveyed. This first requires clarification on the antipersonnel landmines. This area has the potential to have many sites such as those described in this report, but the topography may allow for other cultural heritage sites.

- All points of gravel and aggregate extraction both along the roads and for the construction of the dam and all ancillary infrastructure must be subject to a ESIA. These points must be identified and a consultant engaged before any construction work starts.

- The finalised routes of the two new roads have not as yet been investigated. The point of crossing to Zambia below the intended dam wall is of concern. It will require substantial earth movement and should this be a tradition point of crossing it may have sites of Cultural Heritage as yet unrecorded.

- All auxiliary developments around the residential settlement need to be included – access roads, sewage and water facilities and waste disposal areas. Where these are outside the current proposed boundaries these additional areas must be investigated.

- The transmission lines from the power plant to Hwange must be subject to its own ESIA. This should cover not only the foundations of the required pylons, but any accompanying access road and the wider area of natural vegetation and landscape that is cleared along the route.

- Should there be any deviation of the current engineering plans or significant changes to the Project Footprint, the new areas must be investigated.

It is important to note that any Archaeologists undertaking these further studies must be registered with NMMZ.

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ZRA, 1998. Batoka Gorge Hydro Electric Scheme Feasibility Study. Scanned copy supplied by ZRA.

1.12 *Appendix 1 - Points of Possible Cultural Heritage Interest along the Proposed Transmission Lines as Identified on Google Earth*

The following list relates to the map in *Figure 21*. They are points of concern noted on Google Earth along the proposed path of the Transmission Lines from the Batoka HES to Hwange Power Station. For further discussion see Section 1.6.3 and Section 1.6.4.

1.12.1 *Main Proposed Transmission Line (Purple)*

- M01 - Rough ground. This area is unlikely to have much in the way of Cultural Heritage. It has low natural 'carrying capacity' that would not have attracted past human behaviour.
- M02 - Kasikiri Village consisting of houses and fields. Development here will result in major resettlement issues while there is also the persistent problem of landmines. Several archaeological sites were recorded in this area in the 1998 reconnaissance but most small and disturbed. Some however are cited as worthy of mitigation.
- M03 - East of Kasikiri Village. The open area east of the hill at headwaters of NE flowing stream has great potential for Cultural Heritage remains. It needs further investigation.
- M04 – OF MAJOR CONCERN. Established settlement with school, church and shops. The open and 'undeveloped' area on the south side of road should not be treated as empty space. It may include a cemetery. It is best to avoid this area.
- M05 - Densely populated areas exist along the Lukunguni and Jambezi Rivers. The associated rich alluvial soils will have attracted people in the past as they do now. This area of 'dambo' is similar to the site locations of the major Early Farming Community villages which are an important feature of Zambian heritage studies. No sites are currently known in this area but recent investigations showed the possibility. The finding of these isolated sites reiterates the need to investigate the entire route of the transmission lines when the Project engineers have finalised their choice.
- M05 - Undeveloped patch of Kalahari Sand Forest. This indigenous copse is particularly dense. That it has been left undisturbed, uncultivated and used for timber, suggests that it has some social purpose eg graves or ritual activity. Best avoided.
- M06 - Jambezi Business Centre. This is a major regional centre with shops, schools and administrative offices. As it has been long established there will be an associated cemetery nearby, possibly to the SE of the settlement where there is a three-sided rectangle of trees
- M07 - Dissected area along stream. This location is likely to have many sites of archaeological interest. It needs further investigation.
- M08 - Former exposure of Kalahari Sand Forest but now cleared. It is unlikely to have major Cultural Heritage sites, although recent fieldwork found many small, early Tonga village' sites often associated with scattered baobabs of same age. It needs further investigation.
- M09 - Established school and should be avoided.
- M10 - Broken country as a result of tilted basalt layers. Likely to have limited archaeology, although all flat ridges and the margins of all the

streams should be subject to further investigation. This area is currently set aside for CAMPFIRE hunting. This community-based initiative will be undermined once roads are cut into this area and people follow as settlers. This could be a serious social challenge.

- M10a - Natural pan that may be associated with sites. It needs further investigation.
- M10b - Open area, possibly a former occupation site. It needs further investigation.
- M11 – This could be a site of major importance. It is associated with a perennial pool in the Matetsi River adjacent cliff face. The availability of surface water would have attracted prehistoric settlement and Cultural Heritage sites should exist nearby. Such locations are also often important spiritual sites for local and regional peoples where they conduct various activities including rainmaking, cleansing and the veneration of the ancestors. There are a number of spiritually important Nambya sites in Hwange District, although it is not known if this is one of them.
- M11a - Possible archaeological village site. It needs further investigation.
- M11b - Possible archaeological village site. It needs further investigation.
- M12 - As with Point M11. Note the access track that leads to this site. This could give access for spiritual devotees, but it may also be associated with hunting and the CAMPFIRE scheme. It needs further investigation.
- M13 - As with M11. The minor waterfall and pool in rock may be of spiritual importance to the Nambya and or Tonga residents. It needs further investigation.
- M14 – Open area that may be an archaeological site. It needs further investigation.
- M15 - Appears to be natural spring. It may have social importance. It needs further investigation.
- M16 -Localised patch of current occupation taking advantage of local resources. This area may also have attracted human residence in the past. It needs to be investigated. There will also be serious issues of resettlement and compensation should it be developed.
- M17 – Local school that should be avoided.
- M18 - As with M16 the open areas around this point may include archaeological evidence. This area requires extensive investigation on the ground.
- M19 - Scattered homesteads in this area. This suggests presence of water and cultivatable soils. These may also have attracted interest in the past. Area needs further investigation.
- M20 - Numerous open areas that may represent former occupation sites. However there is the possibility of these being of geomorphological origin, sodic soils or the presence of shallow bedrock. The area requires investigation all along the river and adjacent hills.
- M20a - Possible archaeological site on hilltop. It needs further investigation.
- M20b - Possible archaeological site on hilltop. It needs further investigation.
- M21 - Open areas of basalt forming localised plateaux near the rivers. These flat-topped hills may have evidence of past habitation. These features require investigation.

- M21a - Large plateau with sparse vegetation. There is ample space for habitation and it may have site of Cultural Heritage. It requires further investigation.
- M21b - Large plateau, sparse vegetation and with ample space for habitation. Requires investigation
- M22 - Natural pool in stream with thick riparian fringe. This site will have attracted past human habitation while the remaining presence of the vegetation suggests that it is somehow protected from timber extraction. Possibly this is a site of social significance to local community. It needs further investigation.
- M23 - Area of broken relief near the Deka River. Such sites with access to surface water would have attracted human habitation in the past. The area needs further investigation.
- M23a - Possible archaeological site at base of prominent conical hill. It needs further investigation.
- M23b - Possible archaeological site. It needs further investigation.
- M23c - Possible archaeological site. It needs further investigation.
- M23d - Possible archaeological site. It needs further investigation.
- M24 - Wankie Colliery borehole and water station. This needs to be avoided.
- Black Line – This is the approximate junction of the Basalt rock to NW of the line and the Karroo Sediments to the SE. In the basalt layers there may exists small, localised lenses of sandstone which elsewhere have been found to have fossils. More important is the fact that SE of this line in the Karroo sediments there is a VERY good chance of fossils. These areas require further investigation by palaeontologist.
- M25 – Approximate site of known plant fossils in the Karroo Sediments. Very likely to have plant fossils. It needs further investigation.
- M26 - Wastewater ponds and other contaminated waterways coming from the Wankie Colliery and the ZPC Hwange Power Station. This area is marshy and badly polluted. Avoid if possible.
- M27 - Thompson Junction. This is a MAJOR railway junction, siding and station. It must be avoided as it is a major infrastructural node and there are presently plans afoot by National Railways of Zimbabwe to upgrade these facilities in partnership with others.
- M28 - Wankie Colliery, Colliery Number 2 and related infrastructure. Avoid.
- M29 – Somewhere in this area and not visible on the Google Erath image is the new Hwange Cemetery. This must be avoided.
- M30 – There is a need to engage with Hwange Power Station as to actual plans near the town. There are proposals to relocate the current residential areas associated with the plant, its wastewater treatment plant, ash dams, etc. This landscape may alter significantly in the next few years during the upgrade of the Power Station that is due to start fairly soon. Do not assume that this will remain the same as shown.
- M31 - Old Hwange Cemetery. This is still in use as there are scattered open plots. There are several locally important people buried in the cemetery and it cannot be relocated.

1.12.2 Alternative Transmission Line (red)

- A1 - This alternative was provided at the request of the ZPC who wanted it along an existing road and transmission line. However the Google Erath image does not appear to follow any existing route southward. The former road to the Bingwa Loop Road is to the west of the area shown. It is important to check with the ZPC that the correct area is being assessed as it may in fact be elsewhere and thus has not been investigated.
- A2 – As with M11 this could be a site of major importance. It is associated with a perennial pool in the Matetsi River adjacent cliff face. The availability of surface water would have attracted prehistoric settlement and Cultural Heritage sites should exist nearby. Such locations are also often important spiritual sites for local and regional peoples where they conduct various activities including rainmaking, cleansing and the veneration of the ancestors. There are a number of spiritually important Nambya sites in Hwange District, although it is not known if this is one of them.
- A2a - Possible archaeological site. It needs further investigation.
- A2b - Possible archaeological site. It needs further investigation.
- A2c - Possible archaeological site adjacent to well established riparian fringe. It needs further investigation.
- A4a - Possible archaeological site. It needs further investigation.
- A4b - Possible archaeological site. It needs further investigation.
- A5 - Local spring in open country. This site may be associated with Cultural Heritage remains or local traditional values. It needs further investigation.
- A6 – The Bingwa River is an important water source with a fertile strip of alluvial soil. It is likely that this location will have Cultural Heritage sites, both archaeological and current traditional ones. It needs further investigation.
- A6a - Possible archaeological site. It needs further investigation.
- A6b - Possible archaeological site. It needs further investigation.
- A6c - Possible archaeological site. It needs further investigation.
- A6d - Possible archaeological site. It needs further investigation.
- A7 - Minor rapids and pool on the Bingwa River. These may be of Cultural Heritage significance. It needs further investigation.
- A8 – At this point the Bingwa River is very degraded. This may indicate an area of rich alluvial soil. This would have attracted past human habitation and the area must be investigated.
- A8a - Possible archaeological or historical site. The latter could be old cattle byre/kraal when this was a commercial farm. It needs further investigation.
- A8b - Possible archaeological or historical site. The latter could be old cattle byre/kraal when this was a commercial farm. It needs further investigation.
- A9 - Area shows extensive evidence of past habitation/disturbance. This site may have been the old commercial farmstead of 'Railway Farm 51'. It needs further investigation.

- A10 - Area of several open plateaux that may have traces of past human habitation. Surface water is present in the stream that flows along side the Bingwa Loop Road and this would have been significant in attracting people to this area. It is also a major natural pass, something that is also often associated with human habitation or use. Sites of Cultural heritage are very likely. The whole area needs further investigation.
- A10a - Possible Cultural Heritage site. It needs further investigation.
- A10b - Possible Cultural Heritage site. It needs further investigation.
- A10c - Possible Cultural Heritage site. It needs further investigation.
- A10d - Possible Cultural Heritage site. It needs further investigation.
- A11 - Former homestead of commercial farm. The residential buildings and associated infrastructure may now be resettled with new functions such as schools and shops. The local residents should be consulted.
- A11a - Old farm dam. This may be important to the new residents on this resettled farm. They must be consulted.
- A11b – Open area, probably associated with cultivation or livestock on the former commercial farm. Now resettled and it is important to engage with the new farmers to avoid conflict.
- A12 – This area is becoming increasingly resettled with new homes, cultivated fields and community infrastructure. It should not be assumed that it is still open. The interests of the new residents must be taken into consideration.
- A13 – Area of major coal works. Avoid.
- A14 - This area is becoming increasingly resettled with new homes, cultivated fields and community infrastructure. It should not be assumed that it is still open. The interests of the new residents must be taken into consideration.
- A15 - Existing 88kV line.

Appendix A

Addendum for the Proposed Quarry Site associated with the BGHES

ARCHAELOGICAL / CULTURAL HERITAGE IMPACT ASSESSMENT ADDENDUM FOR THE PROPOSED QUARRY SITE ASSOCIATED WITH THE BATOKA GORGE HYDRO ELECTRICITY SCHEME –ZIMBABWE

Rob S. Burrett[1]

1. Introduction

A Cultural Heritage Assessment of the Batoka Gorge Hydro-electric Scheme (HES) was carried out on the Zimbabwean side of the intended project in August 2014. The 2014 report updated two earlier heritage assessments of the Batoka Project [1993 & 1998], as well as investigating additional areas identified in the current project footprint. The resultant tangible heritage report described the sites located in all three investigations and provided relevant mitigation procedures in line with the standards of National Museums and Monuments of Zimbabwe [NMMZ] and the International Finance Corporation [IFC] Performance Standard 8. This report was subsequently approved by NMMZ.

The 2014 investigation concluded that most of the sites in the project footprint were ephemeral or disturbed. As such they were of limited social and academic significance. The vast majority of these sites lie further to the south and to the west of the broken country where the Batoka HES will be constructed. In the area of the intended dam wall [the wall itself and associated powerhouse, spillway, and access roads] nothing of heritage significance was located.

Only one confirmed site was identified in 2014, however, this is modern and of no heritage significance. '*The only site located was a recent historical one dating from the 1993 engineering survey. The cement beacon, together with nearby debris from a Landrover is of no further significance* [Burrett 2014: 41]'. A single "Later Stone Age flake" was reported to have been located in 1993 during the heritage investigation of the already constructed gravel airstrip. This is of little

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significance; it may not even be of human origin[2]. Unconfirmed community reports of an "old village" on the plateau overlooking the Chimamba Rapids and Moemba Falls [that section of the Zambezi River upstream of the proposed dam] have still to be verified. It is more likely, if at all this is true, that the settlement remains lie further to the west on the large plateau overlooking the Zambezi where the falls are visible[3] - these features of the river channel have sacred associations for the local Toka-Leya people.

The area of the intended quarry is rough, inaccessible country. The underlying basalt is deeply dissected, and the countryside comprises of steep sided valleys and razor-backed ridges and dry plateaux. It is an area completely unsuited to agriculture, is of low biomass productivity, and has a severely limited ecological carrying-capacity (Figure 1). As such this area is unlikely to have attracted past human habitation, hence there is little chance of finding cultural heritage remains.

Figure 1: Basalt hilltops near Batoka Gorge Dam site

[2] This item was not documented, nor does it appear to have been collected as there is nothing of this nature in the collections held by NMMZ. However the consultant has seen many natural flakes produced by grading activities in the quarries and roadsides in this area - the chalcedony inclusions in the basalt are easily fractured and the pieces may be mistaken as human fashioned artefacts by those with a less critical eye.

[3] The 1993 report cites local community representatives mentioning this heritage site but it was not visited. Time and funds again precluded investigation.

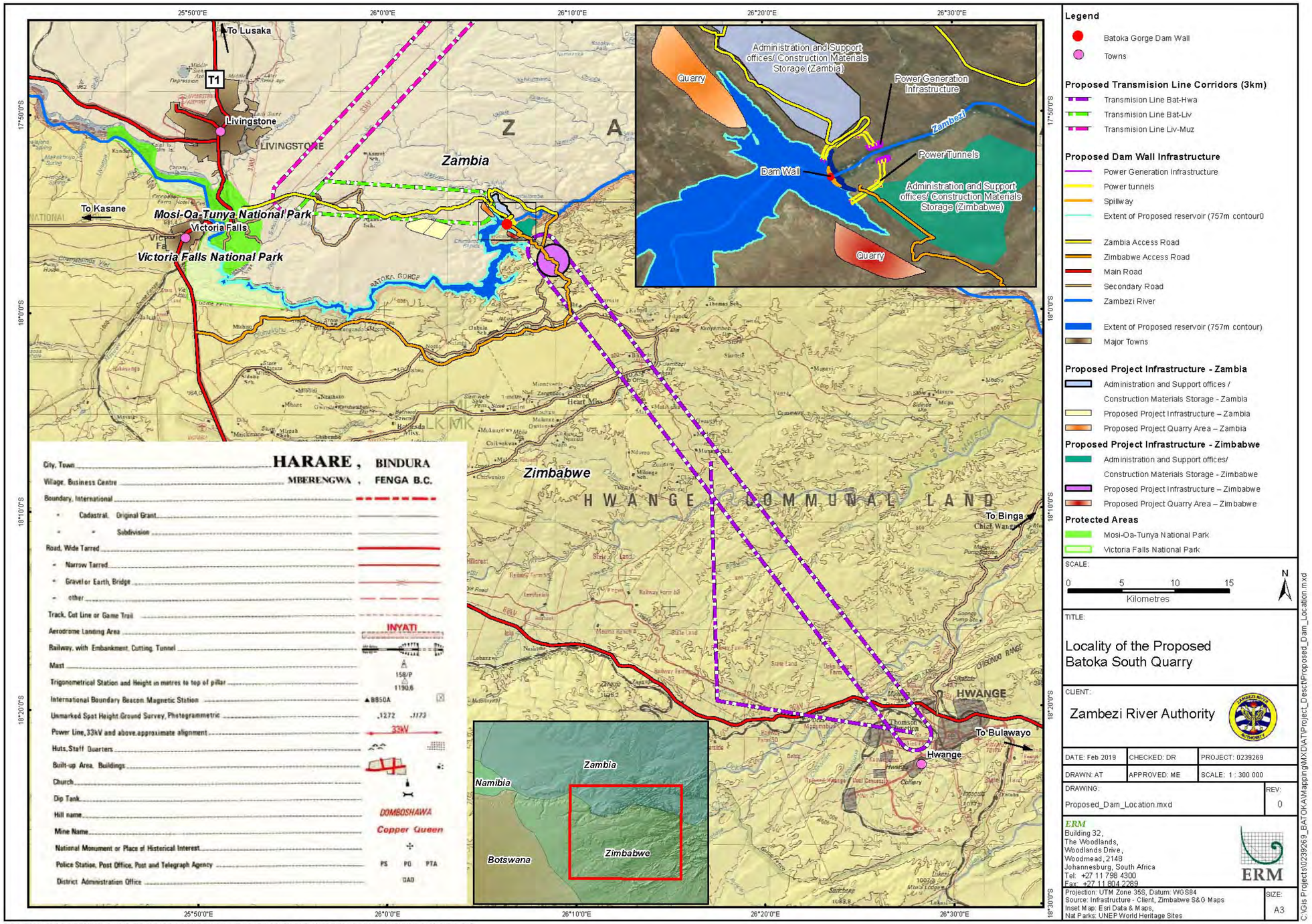
Historically the area was not occupied. Instead settlement was limited to adjacent areas where there are more suitable open river valleys or more easily cultivated margins of the Kalahari palaeo-dunes. We have also been advised that during the Rhodesian Civil War of the 1970s, ZPRA [Zimbabwe Peoples' Revolutionary Army] fighters did indeed cross the Zambezi River at this point from Zambia, but they quickly moved south so as to avoid detection by South African and later Rhodesian forces. When the belt of anti-personnel landmines was laid parallel to the border, north of Kasikiri village, this transit route was subsequently dropped [D. Dabengwa 2015, *pers comm*.]. It is unlikely that there will be remains from that era.

2. Current Project

This addendum covers the south bank quarry area, which is required to provide aggregate for the construction of the Batoka Dam (Figure 2). The coordinates for the central point of the proposed quarry site is 17º 56' 14.46" S & 26º 06' 48.07" E. This is in line with recommendations made in the original heritage assessment report: "*All points of gravel and aggregate extraction both along the roads and for the construction of the dam and all ancillary infrastructure must be subject to a ESIA. These points must be identified and a consultant engaged before any construction work starts* [Burrett 2014: 160]". The location of this quarry has since been finalised by the project engineers, hence the need for this report.

The area was initially reviewed using Google Earth Pro, informed by the consultant's previous experience of the area. The latter includes the original field inspection undertaken for the 2014 heritage assessment, and two further visits made since that time. These personal visits were undertaken in an effort to find an easier way to get to the Chimamba Rapids and Moemba Falls by going overland rather than by water [a long-distance and difficult raft excursion from Victoria Falls]. These geological features in the course of the Zambezi River are now thought to be in someway associated with the process of river capture of the Upper Zambezi and with the origin of the Victoria Falls. This work was undertaken as an independent academic investigation, but which traversed the area in question[4].

[4] *In addition to the August 2014 impact assessment, the consultant has traversed this area in September 2017 and August 2018.*



Legend

- Batoka Gorge Dam Wall
- Towns

Proposed Transmision Line Corridors (3km)

- Transmision Line Bat-Hwa
- Transmision Line Bat-Liv
- Transmision Line Liv-Muz

Proposed Dam Wall Infrastructure

- Power Generation Infrastructure
- Power tunnels
- Spillway
- Extent of Proposed reservoir (757m contour0

- Zambia Access Road
- Zimbabwe Access Road
- Main Road
- Secondary Road
- Zambezi River

- Extent of Proposed reservoir (757m contour)
- Major Towns

Proposed Project Infrastructure - Zambia

- Administration and Support offices / Construction Materials Storage - Zambia
- Proposed Project Infrastructure – Zambia
- Proposed Project Quarry Area – Zambia

Proposed Project Infrastructure - Zimbabwe

- Administration and Support offices/ Construction Materials Storage - Zimbabwe
- Proposed Project Infrastructure – Zimbabwe
- Proposed Project Quarry Area – Zimbabwe

Protected Areas

- Mosi-Oa-Tunya National Park
- Victoria Falls National Park

SCALE: 0 5 10 15 Kilometres

N

TITLE:

Locality of the Proposed Batoka South Quarry

CLIENT:

Zambezi River Authority

DATE: Feb 2019	CHECKED: DR	PROJECT: 0239269
DRAWN: AT	APPROVED: ME	SCALE: 1 : 300 000
DRAWING: Proposed_Dam_Location.mxd		REV: 0

ERM
Building 32,
The Woodlands,
Woodlands Drive,
Woodmead, 2148
Johannesburg, South Africa
Tel: +27 11 798 4300
Fax: +27 11 804 2289

Projection: UTM Zone 35S, Datum: WGS84
Source: Infrastructure - Client, Zimbabwe S&G Maps
Inset Map: Esri Data & Maps,
Nat Parks: UNEP World Heritage Sites

SIZE: A3

C:\Gis Projects\0239269_BATOKA\Mapping\MXD\ATProject_Desc\Proposed_Dam_Location.mxd

Figure 2: Locality of the Proposed Batoka South Quarry

It was planned to undertake an additional site-specific visit to the quarry site in early January 2019, however political turbulence in Zimbabwe at the time meant that it was not possible to conduct this study. However, it is our view that the area has been sufficiently covered by the previous ESIA survey and our own independent visits so as to inform this study. The findings of the 2019 heritage study of the equivalent north bank [Zambian] quarry site are also relevant. This Zimbabwean consultant inadvertently traversed the Zambian quarry area in August 2018 while seeking a north bank access route to the Zambezi River. It is identical to the Zimbabwean quarry site as far as geology and topography, and the heritage footprint is likely to be the same, there being nothing present.

3. Chance Finds Procedures

While the developer may work to avoid adverse impacts on known cultural and fossil heritage, there is always the chance that material, hitherto unexpected, may be uncovered during excavation, construction and operation. This is because it was buried and without surface indication. Very often these occurrences are human burials, although other sites may also be fully covered in the soil profile. However, given the shallow soils in this area this situation seems very unlikely.

Although there is no provision for "Chance Finds Procedures" in the NMMZ Act, its importance is stressed in the IFC Standard 8 [Clause 8]. This requires clear statements as to what to do in those circumstances were heritage remains are unexpectedly uncovered.

The following recommendations should be made clear to all contractors and subcontractors engaged in working in the quarry area:

- In the case of inadvertedly exposing or impacting on heritage resources all on-site work should be stopped. IFC Standard 8 [Clause 8] stresses the point that '*The client will not disturb any chance find further until an assessment by competent professionals is made and actions consistent with the requirements of this Performance Standard are identified*';

- There should be immediate notification of NMMZ as to the discovery of heritage remains [and the police in the case of all human skeletal remains];

- Where possible an employee of NMMZ will then come to the project area to make further suggestions as to the proper way forward. This usually involves excavation and the removal of the heritage remains before allowing development to proceed. The use of police and local residents in excavation and recovery alone is inconsistent with proper heritage mitigation procedures and the NMMZ Act. These interested third parties should be engaged with and should be present during excavations, but with NMMZ directing the process;

- The developer will be required to pay all costs incurred by NMMZ, and may be also to the other parties as mentioned above.

4. Conclusion

On the basis of what is known I believe that it is unlikely that there are any cultural heritage resources present in the Zimbabwean quarry area. If there is anything, these traces are likely to ephemeral, probably disturbed and of little further significance. We therefore recommend that the proposed project can continue without further pre-construction mitigation measures.

Rob Burrett
Black Crystal Consulting PL
Bulawayo
29th January 2019

Fig. 3. General view of area of intended Zimbabwean Quarry. RSB August 2014

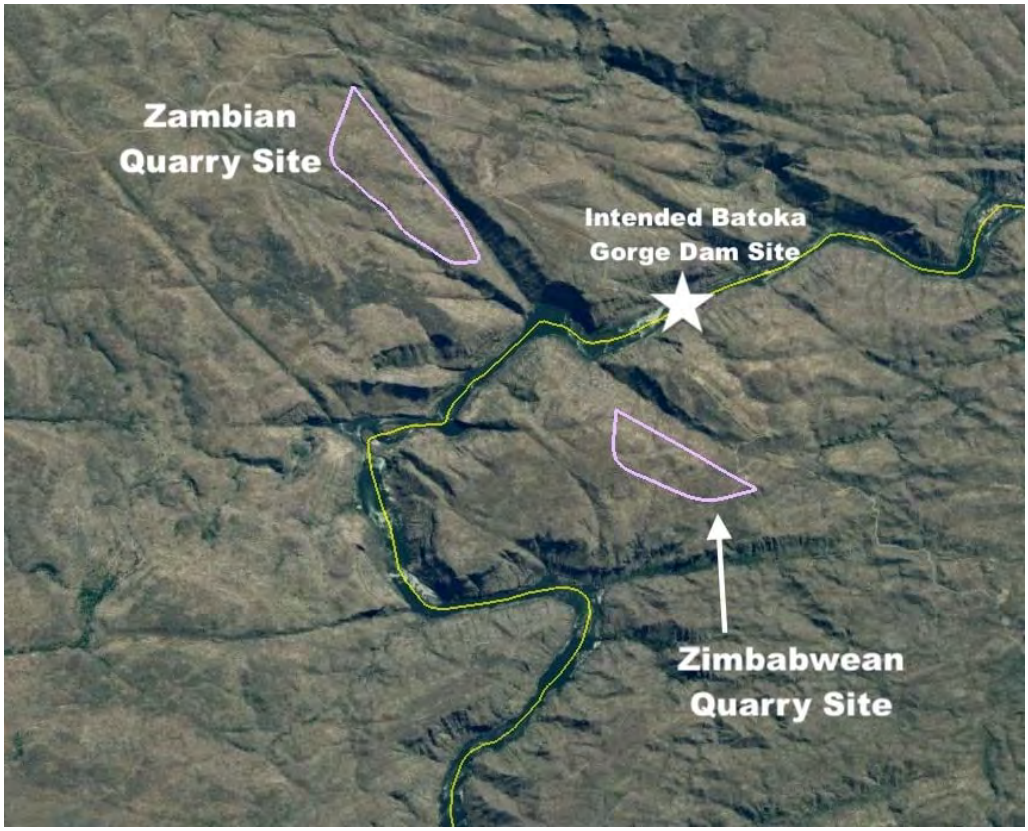


Fig. 4. Location of Proposed Quarry Sites in relation to the Batoka Gorge Project