LESOTHO LOWLANDS WATER DEVELOPMENT PROJECT PHASE II

Heritage Impact Assessment within the Lesotho Lowlands Water Development Project Phase II (LLWDP-II)

Scoping Report

Prepared for:
Lesotho Lowlands Water Development Project II

Project Number:
LLW6521

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ACRONYMS

AIA	Archaeological Impact Assessment
APHP	Association of Professional Heritage Practitioners
ASAPA	Association of Southern African Professional Archaeologists
BA	Bachelor of Arts
CMP	Conservation Management Plan
COVID-19	SARS-Cov-2 / Coronavirus Disease 2019
CRM	Cultural Resources Management
CRQ	Change Request
CRR	Comments and Response Report
CCS	Crypto-crystalline silicas
CS	Cultural Significance
DEA	Department of Environmental Affairs
Digby Wells	Digby Wells Environmental
ESA	Early Stone Age
ESI	Evolutionary Studies Institute
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
FGM	Focus Group Meetings
GoL	Government of Lesotho
GRP	Grave Relocation Process
HIA	Heritage Impact Assessment
HMRFFA	Historic Monuments, Relics, Fauna and Flora Act No. 41 of 1967
HRM	Heritage Resources Management
I&APs	Interested and Affected Parties
ICOMOS	International Council on Monuments and Sites
IFC	International Finance Corporation
IOP	International Organisation of Palaeobotanists
km	kilometres
Kya	Thousand Years Ago

LEC	Lesotho Electricity Company
LLWDP-II	Lesotho Lowlands Water Development Project - Phase II
LLWSS	Lesotho Lowlands Water Supply Scheme
LSA	Late Stone Age
MA	Master of Arts
MARA	Mataliele Archaeology and Rock Art Programme
MDGs	Millennium Development Goals
Mℓ/d	Megalitres per day
MSA	Middle Stone Age
MSc	Master of Science
Mya	Million Years Ago
NHRA	National Heritage Resources Act No. 2 of 2012
OP	Operational Policy
PhD	Doctor of Philosophy
PIA	Palaeontological Impact Assessment
PPE	Personal Protective Equipment
PS	Performance Standard
RAP	Resettlement Action Plan
RfP	Request for Proposal
SDGs	Sustainable Development Goals
SEP	Stakeholder Engagement Plan
ToR	Terms of Reference
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organisation
WHC	World Heritage Convention, 1972
WHO	World Health Organisation
WTW	Water Treatment Works

EXECUTIVE SUMMARY

The Government of Lesotho (GoL) Ministry of Water propose to implement the Lesotho Lowlands Water Development Project - Phase II (LLWDP-II; the Project). The proposed bulk water supply scheme comprises the components detailed in the Table below.

Table: Project Infrastructure

Infrastructure	Description
Water intake	Direct surface water abstraction from the Hlotse River
Water Treatment Works (WTW)	Works to process extracted raw water with an initial capacity of 25 Mℓ/d
Water Storage	A total of 25 storage or service reservoirs to ensure security of supply.
Pumping Stations	A total of 14 pumping stations of various designs to support the service reservoirs.
Pipeline	A pipeline of 144.2 km to convey water to the storage tanks across the various Zones
Power Supply	Bulk power supply to be provided by the Lesotho Electricity Company (LEC).

To construct the requisite LLWDP-II infrastructure, the GoL has secured financial assistance from the World Bank. Financing covers the aforementioned water intake, water treatment works, transmission mains, pumping stations, reservoirs and distribution networks.

In accordance with the regulatory framework, the GoL Ministry of Water appointed Digby Wells Environmental (Digby Wells) to undertake a Heritage Impact Assessment (HIA) process, including an Archaeological Impact Assessment (AIA) and Palaeontological Impact Assessment (PIA) in support of the Environmental and Social Impact Assessment (ESIA) for the Project. The purpose of this report is to consolidate the outcomes of the data review and gap analysis. These outcomes assist in the development of a cultural heritage baseline to inform the quantitative and qualitative data collection, as well as the assessment of potential impacts that may manifest due to the Project.

The outcomes of a gap analysis demonstrated that the previous consideration of cultural heritage as part of the ESIA only achieved partial compliance with the regulatory framework.

Table: Gap Analysis

Report	Legislation & Guidelines	Overall Compliance
Monyane (2018) & Groenewald (2018)	National Requirements	9.5%
	World Bank OP 4.11	44.4%
	IFC PS 8	11.5%
Aurecon Lesotho (Pty) Ltd, (2018)	National Requirements	52.4%
	World Bank OP 4.11	66.7%
	IFC PS 8	42.3%

The average compliance level achieved is 37.8%. To address these gaps, Digby Wells will complete the requisite scope including:

- Notification of the HRM process and engagement with Interested and Affected Parties;
- Documentary data collection to supplement the cultural heritage baseline description;
- Primary data collection to identify tangible and intangible heritage resources within the site-specific and local study areas; and
- Evaluation of CS of identified heritage resources and assessment of potential impacts that may manifest from the Project.

Where this scope is achieved, Digby Wells is confident the regulatory requirements will be met, and potential risks to heritage resources within the site-specific study area will be managed or mitigated to both national and international best practice standards.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF APPENDICES

LIST OF PLANS

1 Introduction

The Government of Lesotho (GoL) Ministry of Water appointed Digby Wells Environmental (Digby Wells) to undertake a Heritage Impact Assessment (HIA) process, including an Archaeological Impact Assessment (AIA) and Palaeontological Impact Assessment (PIA) in support of the Environmental and Social Impact Assessment (ESIA) for the Lesotho Lowlands Water Development Project - Phase II (LLWDP-II; the Project).

This document serves as the Heritage Scoping Report and the second deliverable to the GoL Ministry of Water.

1.1 Project Description

The GoL is committed to the United Nations (UN) Millennium Development Goals (MDGs) and current Sustainable Development Goals (SDGs). As part of this commitment, the GoL initiated the greater Lesotho Lowlands Water Supply Scheme (LLWSS) by Cabinet Memorandum in 2002 (Aurecon Lesotho (Pty) Ltd, 2018). The LLWSS mandate is to:

- Define the water demand needs across various sectors;
- Identify and develop potential potable water sources;
- Design and construct the necessary infrastructure to service the lowlands; and
- Source funding to construct and implement the Project successfully.

As alluded to above, the LLWSS aims at addressing the shortage of potable water supply to the Lowlands area of the country and promote socio-economic development to a design horizon of 2045. Original designs were completed in 2008. Subsequently, design updates covered water intake, treatment plant, transmission pipeline and associated infrastructure. Based on the updated designs, implementation of LLWSS program has been grouped into six packages. Out of the six, two have been prioritized for the next phase of the program. The prioritized packages are:

- Project Package 4 that comprises Zones 6 and 7 (Mafeteng and Mohale's Hoek); and
- Project Package 2 that comprises Zones 2 and 3 (Hlotse and Maputsoe).

This component considers Project Package 2 and is referred to as the LLWDP-II.

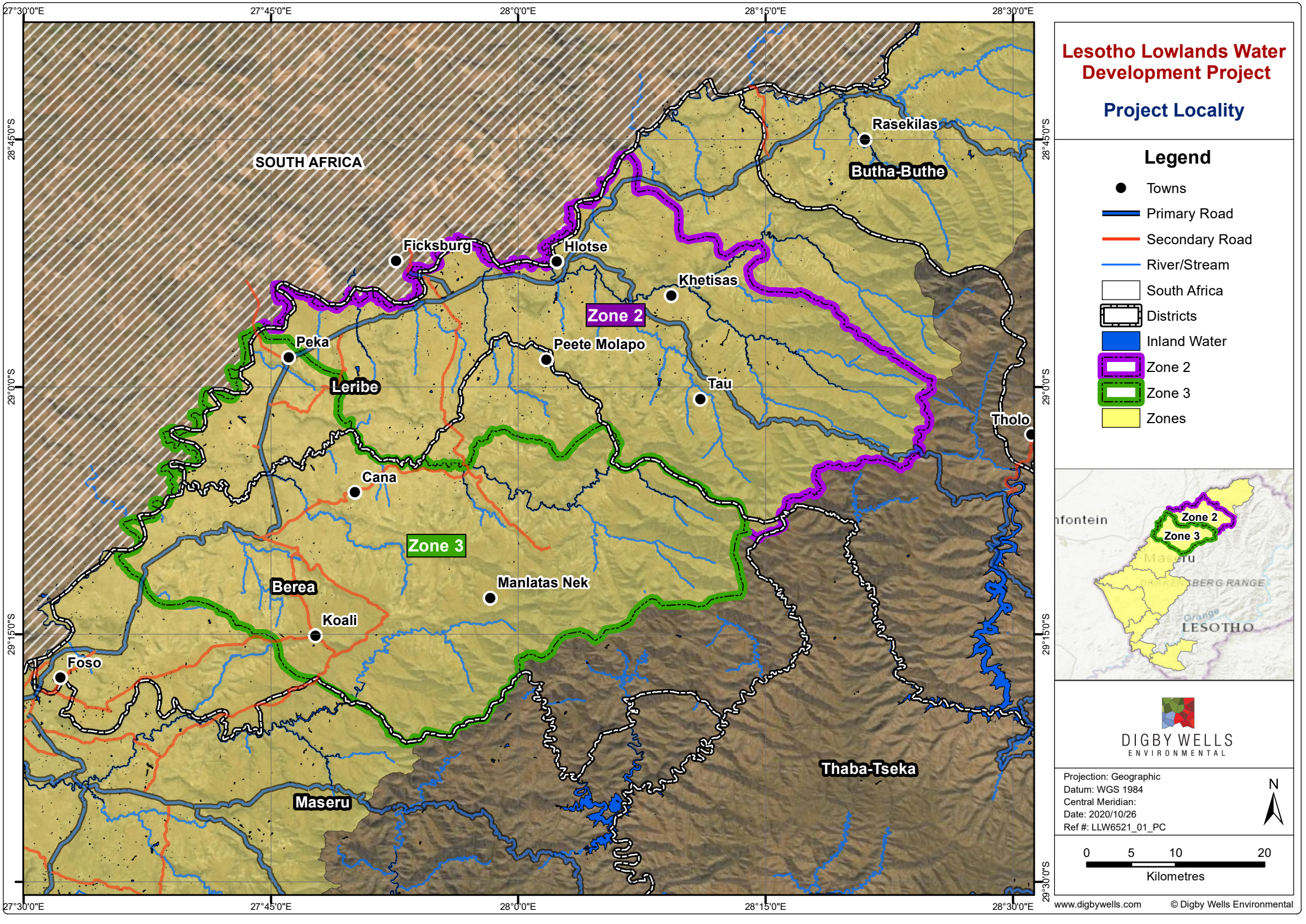
To construct the requisite LLWDP-II infrastructure, the GoL has secured financial assistance from the World Bank. Financing covers the aforementioned water intake, water treatment works, transmission mains, pumping stations, reservoirs and distribution networks.

1.2 Project Location

The Project Zones 2 and 3 are situated in the north-western section of Lesotho, some 83 km and 73 km from the capital Maseru respectively (Aurecon Lesotho (Pty) Ltd, 2018). Project Package 2 will service a combined 18 communities comprising those specified in Table 1-1.

Table 1-1: Project Package 2 Affected Communities

Zone 2 Communities	Zone 3 Communities
• Hlotse • Maputsoe • Hleoheng • Khanyane Nchee • Corn Exchange • Bela-Bela • Kolojane • Matlameng • Tsikoane • Mahobong • Tabola • Makhoa	• Kolonyama • Peka • Makhaketsa • Mamathe • Mohlokaqala



Lesotho Lowlands Water Development Project

Project Locality

Legend

- Towns
- Primary Road
- Secondary Road
- River/Stream
- South Africa
- Districts
- Inland Water
- Zone 2
- Zone 3
- Zones

DIGBY WELLS ENVIRONMENTAL

Projection: Geographic
Datum: WGS 1984
Central Meridian:
Date: 2020/10/26
Ref #: LLW6521_01_PC

N

0 5 10 20
Kilometres

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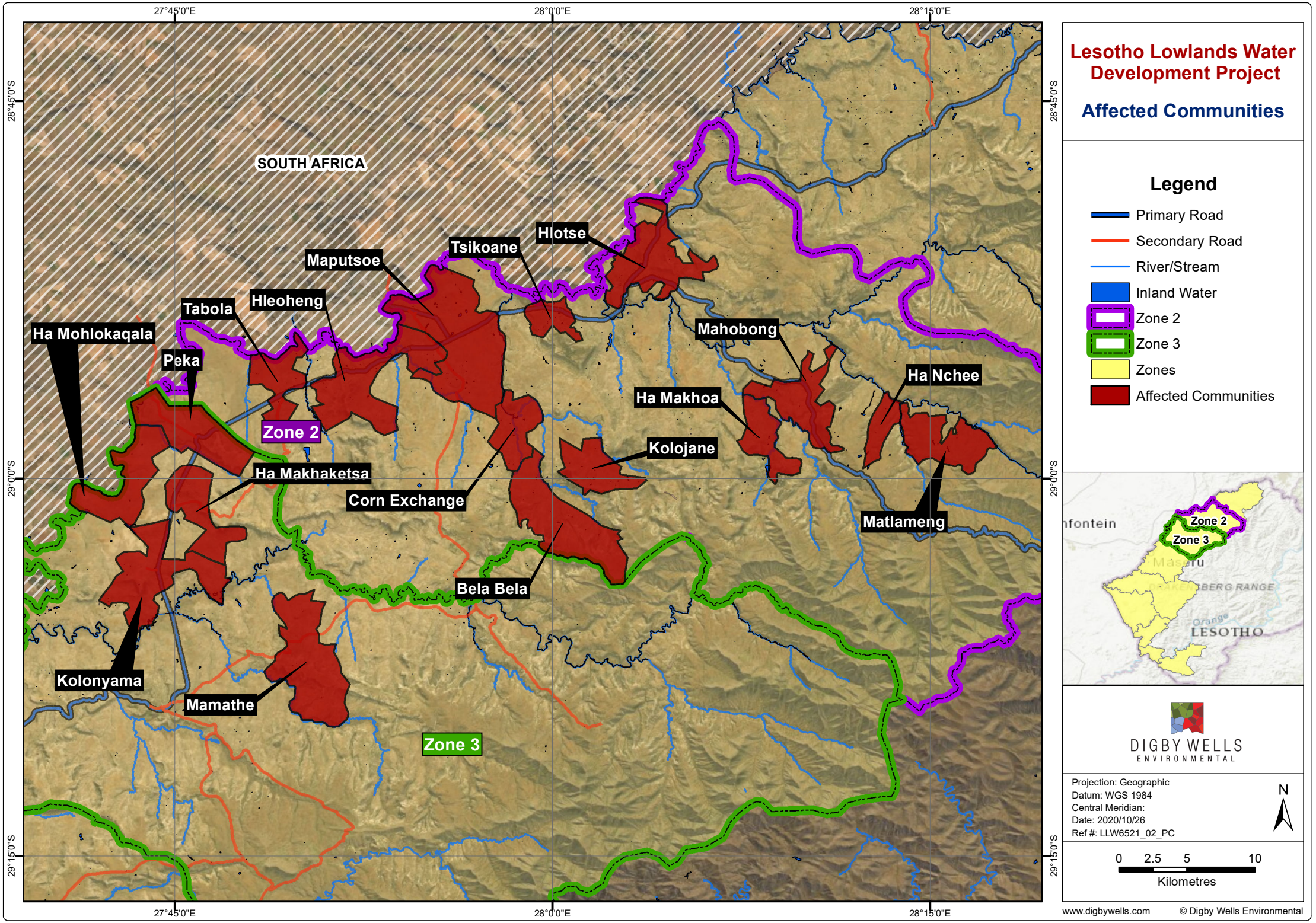


Lesotho Lowlands Water Development Project

Affected Communities

Legend

- Primary Road
- Secondary Road
- River/Stream
- Inland Water
- Zone 2
- Zone 3
- Zones
- Affected Communities

DIGBY WELLS ENVIRONMENTAL

Projection: Geographic
Datum: WGS 1984
Central Meridian:
Date: 2020/10/26
Ref #: LLW6521_02_PC

N

0 2.5 5 10
Kilometres

1.3 Technical Description

The technical description presented is extracted from the final ESIA (Aurecon Lesotho (Pty) Ltd, 2018) based on the SMEC South Africa engineering designs at the time of compilation. The proposed bulk water supply scheme comprises the components detailed in Table 1-2 below.

Table 1-2: Project Infrastructure

Infrastructure	Description
Water intake	Direct surface water abstraction from the Hlotse River
Water Treatment Works (WTW)	Works to process extracted raw water with an initial capacity of 25 Mℓ/d
Water Storage	A total of 25 storage or service reservoirs to ensure security of supply.
Pumping Stations	A total of 14 pumping stations of various designs to support the service reservoirs.
Pipeline	A pipeline of 144.2 km to convey water to the storage tanks across the various Zones
Power Supply	Bulk power supply to be provided by the Lesotho Electricity Company (LEC).

Please refer to sub-section 4.3 of the ESIA for detailed descriptions of these infrastructure. To understand the potential impacts of these infrastructure, it is necessary to provide a description of the project related activities required to implement the Project.

Table 1-3 summarises the Project-related activities considered in the impact assessment.

Table 1-3: Project Related Activities

Phase	Activities
Pre-construction	• Survey and mark construction servitude; • Survey river cross-sections for post-construction river bank reinstatement; • Possible removal of trees within construction servitude; • Arrangements with individual land users; and • Procurement process for Contractors.
Construction	• Site clearing; • Site establishment; • Prepare access routes and laydown areas;

Phase	Activities
	• Fencing of servitude and laydown areas; • Establish construction camps; • Storage and handling of material; • Construction worker employment; • Diverting utilities where clashes occurs; • Blasting of rock in pipeline trenches and for structure foundations and footings; • Cut and cover extraction activities for pipelines through watercourses and streams; • Mixing of concrete; • Concrete work; • Building works; • Installation of mechanical and electrical equipment; • Spoil material generation and management; • Refuelling and maintenance of construction equipment; • Storm water / Wastewater management; • Management of topsoil; • Waste management; • Management of flora; • Management of fauna; • Establish and manage river crossings; and • Managing construction sites.
Operation	• Maintain access to infrastructure; • Routine maintenance inspections; • Pipeline sourcing and operation of valves and pump stations; • Repair and maintenance works; and • Ongoing consultation with directly affected parties.

1.4 Project Alternatives

To comply with the regulatory framework (refer to Chapter 2 below), an assessment must demonstrate consideration of possible Project alternatives with the aim of avoiding and/or minimising potential adverse impacts to the cultural landscape. Project alternatives as presented in Section 3 of the final ESIA (Aurecon Lesotho (Pty) Ltd, 2018), were considered during the ESIA assessment, and does not fall within the ambit of this study.

The current Heritage Resources Management (HRM) process is limited to the assessment of potential impacts from the Project as relevant to the development and operation of the various infrastructures as presented in Table 1-2.

1.5 Aims and Objectives

The primary aim is to complete a HRM process in accordance with the national Lesotho regulatory framework and international best practice standards (Refer to Chapter 2 below). To achieve this aim, several key objectives must be met.

Table 1-4: Key Objectives

Objective 1
To promote principles of heritage management that conform to the national Lesotho regulatory framework and international best practice standards.
Objective 2
Acknowledge and create awareness of the cultural landscape that ensures the retention and enhancement of cultural significance.
Objective 3
Conserve, as far as is feasible, all heritage resources through appropriate management strategies or mitigations measures.
Objective 3
Transfer of skills to promote adequate implementation of management strategies or mitigation measures.

1.6 Terms of Reference

The Terms of Reference (ToR) is to complete an HRM process for the LLWDP-II. The HRM process is to focus on a review and revision of heritage related inputs in the ESIA, Environmental and Social Management Plan (ESMP) and Resettlement Action Plan (RAP) for the Project area in the Leribe District.

The HRM process must be undertaken in compliance with the relevant sections of the Historic Monuments, Relics, Fauna and Flora Act No. 41 of 1967 (HMRFFA) and the National Heritage Resources Act No. 2 of 2012 (NHRA), as well as International Conventions such as the United Nations Educational, Scientific and Cultural Organisation (UNESCO) World Heritage Convention (WHC) and international best practice standards, specifically the World Bank operational policy (OP) 4.11 and International Finance Corporation (IFC) Performance Standard (PS) 8: Cultural Heritage, which are described in more detail in Section 2 below.

1.7 Purpose of the Document

The Heritage Scoping Report consolidates the outcomes of the data review and gap analysis. These outcomes assist in the development of a cultural heritage baseline to inform the

quantitative and qualitative data collection, as well as the assessment of potential impacts that may manifest due to the Project.

1.8 Expertise of the Specialists

The expertise of the HRM specialist involved in the development of the Heritage Scoping Report is presented in Table 1-5.

Table 1-5: Expertise of the Specialist

Team Member	Bio Sketch
Justin du Piesanie ASAPA Member 270 AMAFA Registered ICOMOS Member 14274 IAIAsa Member Years' Experience: 12	Justin is the Divisional Manager for Social and Heritage Services at Digby Wells. Justin joined the company in August 2011 as an archaeologist and was subsequently made HRM Manager in 2016 and Divisional Manager in 2018. He obtained his Master of Science (MSc) degree in Archaeology from the University of the Witwatersrand in 2008, specialising in the Southern African Iron Age. Justin also attended courses in architectural and urban conservation through the University of Cape Town's Faculty of Engineering and the Built Environment Continuing Professional Development Programme in 2013. Justin is a professional member of the Association of Southern African Professional Archaeologists (ASAPA) and accredited by the association's Cultural Resources Management (CRM) section. He is also a member of the International Council on Monuments and Sites (ICOMOS), an advisory body to the UNESCO World Heritage Convention. He has over 12 years combined experience in HRM in South Africa, including heritage assessments, archaeological mitigation, grave relocation, NHRA Section 34 application processes, and CMPs. Justin has gained further generalist experience since his appointment at Digby Wells in Botswana, Burkina Faso, Cameroon, the Democratic Republic of Congo, Liberia, Mali and Senegal on projects that have required compliance with IFC requirements such as Performance Standard 8: Cultural Heritage. Furthermore, Justin has acted as a technical expert reviewer of HRM projects undertaken in Cameroon and Senegal. Justin's current focus at Digby Wells is to develop the HRM process as an integrated discipline following international HRM principles and standards. This approach aims to provide clients with comprehensive, project-specific solutions that promote ethical heritage management and assist in achieving strategic objectives.

Team Member	Bio Sketch
Jaco van der Walt ASAPA Member 159 AMAFA Registered APHP Member 114 Years' Experience: 20	Jaco van der Walt has been practicing as a CRM archaeologist for 20 years. He obtained a Master of Arts (MA) degree in Archaeology from the University of the Witwatersrand focusing on the Iron Age in 2012 and is a PhD candidate at the University of Johannesburg focusing on Stone Age Archaeology with specific interest in the Middle Stone Age (MSA) and Later Stone Age (LSA). Jaco is a professional member of ASAPA and accredited by the association's CRM section. He is also a member of the Association of Professional Heritage Practitioners (APHP). Jaco has a vast range of experience in impact assessments, archaeological mitigation, grave relocation, NHRA Section 34 application processes, and CMPs in all provinces of South Africa. He has also worked on various international projects in Zimbabwe, Botswana, Mozambique, Lesotho, DRC, Zambia and Tanzania. Through this he has a sound understanding of the IFC Performance Standard requirements, with specific reference to Performance Standard 8 – Cultural Heritage.
Shannon Hardwick ASAPA Member 451 AMAFA Registered ICOMOS Member 38048 Years' Experience: 2	Shannon joined the Digby Wells team in May 2017 as a Heritage Management Intern and has most recently been appointed as a Heritage Resources Management Consultant. Shannon is an archaeologist who obtained a Master of Science (MSc) degree from the University of the Witwatersrand in 2013, specialising in historical archaeobotany in the Limpopo Province. She is a published co-author of one paper in *Journal of Ethnobiology*. Since joining Digby Wells, Shannon attended courses in architectural and urban conservation through the University of Cape Town's Faculty of Engineering and the Built Environment Continuing Professional Development Programme in 2019.Shannon has gained generalist experience through the compilation of various heritage assessments, including Heritage Scoping Reports (HSRs), HIAs, Heritage Basic Assessment Reports (HBARs) and Section 34 permit applications. Her other experience includes compiling a Community Health, Safety and Security Management Plan (CHSSMP), various social baselines and research to inform a Livelihood Restoration Framework (LRF). Shannon's experience in the field includes pre-disturbance surveys in South Africa, Malawi and the Democratic Republic of the Congo and social fieldwork in South Africa and Malawi.

Team Member	Bio Sketch
Marion Bamford FRSSAf Registered MASSAf Registered IOP Registered PSSA Registered SASQUA Registered Years' Experience: 22	Marion Bamford is the Director of the Evolutionary Studies Institute (ESI) at the University of the Witwatersrand. She obtained her PhD in Palaeobotany from Wits in 1990. After working at the Council for Geosciences in Pretoria she returned to Wits and completed a two-year postdoctoral fellowship specialising in fossils woods before becoming a researcher in the Bernard Price Institute. Her duties were research and lecturing to undergraduates, honours students and supervision of post graduates. She became an Associate Professor in 2007, Full Professor in 2014 and the Director of the ESI in 2017. Her research field is palaeobotany and her speciality is fossil wood and is a member of many international research teams in Africa. She has carried out field research in South Africa, Zimbabwe, Botswana, Namibia, Mozambique, Zambia, Tanzania, Kenya and Ethiopia, as well as France, Brazil, Argentina and Australia. Her expertise includes fossil plants from the Devonian to the Present and uses leaves, seeds, wood, charcoal, pollen and phytoliths. Marion has published over 120 scientific papers and has an NRF B2 rating. She reviews manuscripts for international journals and funding bodies. She is a fellow of the Royal Society of South Africa, a member of the South Academy of Science, past president of SASQUA and PSSA and is the African representative of the International Organisation of Palaeobotanists (IOP). She has been doing Palaeontological Impact Assessments for 22 years and written over 50 reports.

2 Regulatory Framework

As a World Bank donor funded Project, the LLWDP-II is governed by the national Lesotho regulatory framework and international best practice standards, specifically the World Bank operational policies and procedures. This section provides an overview of the various laws, regulations, policies and procedure relevant to the HRM process.

Table 2-1: Regulatory Framework

Law, Regulation, Policy or Guideline	Relevance
The Constitution of Lesotho, 1993 The constitution is the principal law of Lesotho, informing the legislative framework. The constitution considers citizens right to culture in terms of Sections 29, 35 and 36. Section 35 makes provision for every citizen to freely participate in the cultural life of the community and share in the benefits of scientific advancement and its application. Section 36 states "*Lesotho shall adopt policies designed to protect and enhance the natural and cultural environment of Lesotho for the benefit of both present and future generations and shall endeavour to assure to all citizens a sound and safe environment adequate for their health and well-being*".	The HRM process is cognisant of the intent of the provisions within the Constitution and will endeavour to provide feasible management and / or mitigation measures aligned to the principles enshrined therein.
The Environment Act, 2008 (Act No. 10 of 2008) This Act makes provision for the conservation and management of the environment and the sustainable use of natural resources in Lesotho. As part of the general principles, Section 3(2) states "*The principles of environmental management referred to in subsection (1) are as follows: (g) to encourage participation by the people of Lesotho in the development of policies, plans and processes for the management of the environment; (j) to take measures to preserve the cultural heritage of the Basotho Nation for the benefit of both present and future generations".* The Act requires proponents to consider during an Environmental Assessment, amongst other aspects, 25(5)(j) the possible social, economic and cultural effects of a project on people and society. It further makes provision for the protection of natural heritage resources under Section 71.	The HRM process will be completed in accordance with the general principles encapsulated in the Act, specifically around participation with stakeholders and the development of requisite management or mitigation measures aimed at preserving the tangible and intangible cultural heritage of Lesotho.
The National Environmental Policy, 1998 The primary objective is to ensure the proper maintenance of, and care for, historical monuments and relics for education and enjoyment of the present and future generations. The National Environmental Policy makes provision for cultural heritage under Section 4.16. Guiding principles include *inter alia*: • Catalogue known resources to facilitate assessment and monitoring; • Manage resources by enlisting services of well trained professionals; and • Create public awareness.	The HRM process will be completed by technically qualified specialists. Furthermore, the proposed methodology will promote the recording of heritage resources and widest dissemination of information.
The Historical Monuments, Relics, Fauna and Flora Act, 1967 (Act No. 41 of 1967) The Act provides for the preservation and protection of natural and historical monuments, relics, antiques, fauna and flora and connected matters. Section 9 of the Act makes provision for the protection of monuments, relics and antiques in that (2) "*no person shall without written consent of the commission destroy or damage any monument or relic or make any alteration thereto or remove it from its original site or export it from Lesotho*".	The HRM process will consider the principles and requirements of the Act in the development of the impact assessment and consequent recommended management and mitigation measures.

Law, Regulation, Policy or Guideline	Relevance
The National Heritage Resources Act, 2012 (Act No. 2 of 2012) The Act provides for the preservation and protection of the heritage of Lesotho. Pertinent sections of the Act include *inter alia*: • Section 16: Discovery of Objects; • Section 24: Prohibition of Certain Activities; • Section 25: Application for Permit to Carry Out Works or Activities; • Section 27: Heritage Buildings; and • Section 29: Conservation of Intangible Heritage.	The HRM process will adhere to the requirements encapsulated in the Act.
World Bank OP 4.11: Physical Cultural Heritage (July,2006) (Revised April 2013) The objective of the Operating Policy is to assist applicants avoid or mitigate adverse impacts on physical cultural resources from development projects in line with the national legislative requirements. This includes provisions for *inter alia*: • Considerations within an environmental assessment; • Consultation; • Disclosure; and • Capacity Building.	The HRM process will adhere to the requirements encapsulated in the Operating Policy by ensuring that adverse impacts on physical heritage resources from the Project are avoided and where avoidance is not possible to mitigate adverse impacts and by ensuring that the mitigation measures do not contravene Lesotho's national heritage legislation.
International Finance Corporation Performance Standard 8: Cultural Heritage (2012) IFC PS 8 recognises the importance of cultural heritage for current and future generations. This standard aims to: • Protect cultural heritage from the adverse impacts of project activities and support its preservation; and • Promote the equitable sharing of benefits from the use of cultural heritage in business activities. The mechanisms contained within IFC PS 8 are consistent with the Convention Concerning the Protection of the World Cultural and Natural Heritage. This standard makes provisions for the protection of Cultural Heritage in Project Design and Execution by requiring *inter alia* proponents to: • Identify and protect cultural heritage by ensuring that internationally recognized practices for the protection, field-based study, and documentation of cultural heritage are implemented; • Retain competent professionals to assist in the identification and protection of cultural heritage; • Develop provisions for managing chance finds through a chance find procedure which will be applied in the event that cultural heritage is subsequently discovered; • Consult with Affected Communities within the host country who use, or have used within living memory, the cultural heritage for longstanding cultural purposes; • Allow continued access to the cultural site or will provide an alternative access route, subject to overriding health, safety, and security considerations; • Apply mitigation measures that favour avoidance. Where avoidance is not feasible, apply a mitigation hierarchy; • Not remove any nonreplicable cultural heritage;	The HRM process will adhere to the requirements encapsulated in IFC PS 8 by ensuring that adverse impacts on heritage resources from the Project are avoided and where avoidance is not possible to mitigate adverse impacts and by ensuring that the mitigation measures do not contravene Lesotho's national heritage legislation.

Law, Regulation, Policy or Guideline	Relevance
United Nations Educational, Scientific and Cultural Organisation (UNESCO) Convention concerning the Protection of the World Cultural and Natural Heritage of 1972 (World Heritage Convention [WHC]) While fully respecting the sovereignty of the States, the Convention formalises requirements for the national and international protection of cultural and natural heritage in respect of the collective interest of the international community. Article 5 requires each State Party to this Convention to: a. Adopt a general policy which aims to give cultural and natural heritage a function in the life of the community and integrate the protection of that heritage into comprehensive planning programmes; b. Set up services for the protection, conservation and presentation of the cultural and natural heritage with appropriate staff; c. Develop scientific and technical studies and research and to work out such operating methods as will make the State capable of counteracting the dangers that threaten its cultural and natural heritage; d. Take the appropriate measures necessary for the identification, protection, conservation, presentation and rehabilitation of this heritage; and e. Establish or development for training in the protection, conservation and presentation of the cultural and natural heritage and to encourage scientific research in the field.	The HRM process will consider the requirements of Article 5 of the WHC. The proposed SoW will further promote these principles to relevant stakeholders and through skills transfer.
Operational Guidelines for the Implementation of the World Heritage Convention, 12 July 2017 The guidelines aim to facilitate the implementation of the WHC. It further provides for: • Chapter II D: Criteria for the assessment of Outstanding Universal Value • Chapter II E: Integrity and/or Authenticity; and • Chapter II F: Protection and Management.	The HRM process will consider the principles encapsulated in Chapter II of the guidelines in the designation of Cultural Significance (CS), and recommendations for protection and management of identified heritage resources and greater cultural landscape.
United Nations Educational, Scientific and Cultural Organisation (UNESCO) Convention for the Safeguarding of the Intangible Cultural Heritage, 2003 The purpose of the Convention is to safeguard and respect the intangible cultural heritage of the communities, groups and individuals concerned that concurrently raises awareness at local, national and international level of its importance. Chapter III advises to the safeguarding of the intangible cultural heritage at a national level through, amongst other, the following: • Article 12 – Inventories; • Article 14 – Education, awareness-raising and capacity building; and • Article 15 – Participation of communities, groups and individuals.	The physical data collection will adhere to the minimum required standards to record and inventorise identified heritage resources. The current SoW is designed to consider Articles 14 and 15.

3 Assumptions, Limitations and Exclusions

The compilation of the Scoping Report is predicated on various assumptions, limitations and exclusions. This section summarises the applicable constraints to the development of this report, and possible consequences on the outcomes.

Table 3-1: Assumptions, Limitations, Exclusions, and Possible Consequences

Constraint Description	Consequence
Whilst every attempt was made to obtain the latest available information, the reviewed literature does not represent an exhaustive list of information sources for the various study areas.	The Cultural Heritage Baseline Description presented in Section 6 below is considered accurate, but may not include the latest data or information that is not publicly available.
Previously completed assessments did not present a record of identified heritage resources or spatial distribution of these.	Heritage resources are known to occur within the local study area and must be assumed to be at risk from project related activities.
Archaeological resources commonly occur at subsurface levels. These types of resources cannot be adequately recorded or documented by assessors without destructive and intrusive methodologies and without the correct permits issued in terms of the Regulatory Framework.	The reviewed literature, previously completed heritage assessments, and requisite pre-disturbance survey will be limited to surface observations. Subsurface tangible heritage may be exposed during Project activities. Should this occur, LLWDP-II must alert the HRAs of the find and may need to enlist the services of a suitably qualified archaeologist or palaeontologist to advise them on the way forward.
Information pertaining to living / intangible heritage is required to comply with the Regulatory Framework.	Intangible heritage is not considered in the Cultural Heritage Baseline Description presented in Section 6 below. Information will be gathered, collated and presented as part of the HIA Report.

4 Methodology

Chapter 4 presents a summary of the methodologies employed in the development of the Heritage Scoping Report specifically. The various aspects are considered separately below.

4.1 Gap Analysis

Digby Wells developed a Gap Analysis Matrix to assess previously completed assessments against national Lesotho legislation and international best practice standards, specifically World Bank and IFC PS. The aim of the gap analysis is to quantify the level of compliance of information contained within various documentations, primarily HIAs and ESIAs/EMPs. Determining adequacy, however, is too subjective to rate and was rather included in the analysis as recommendations for additional information.

The Gap Analysis Matrix considered a simple sum of “Yes/No” against prescribed criteria encapsulated in the applicable regulatory framework. The total “Yes” count is divided by the total number of criterion to provide a compliance rating, that being either:

- Non-compliance;
- Partial compliance; and
- Full compliance.

Where a specific criterion was deemed as “Not Applicable” (N/A), these contributed to the compliance rating.

For this assessment, the Gap Analysis Matrix was limited to the ESIA and HIA as the primary documents considering the cultural heritage landscape. The remaining documents were reviewed and considered as relevant to cultural heritage.

4.2 Defining the Study Area

Heritage resources do not exist in isolation to the greater natural and social environment, which includes the socio-economic, social-political and socio-cultural aspects. To develop an applicable cultural baseline for the Project, Digby Wells defined three nested study areas to be considered. These include:

- The *site-specific* study area: the applicable Project infrastructure subject to this assessment, including an approximate 500 m buffer around these;
- The *local* study area: the area most likely to be influenced by any changes to heritage resources in the Project area, or where project development could cause heritage impacts. The local study area is defined as the area bounded by Project Package 2. The local study area is specifically examined to offer a backdrop to the socio-economic conditions within which the proposed development will occur; and
- The *regional* study area: the greater area of north-west Lesotho and parts of the Free State in South Africa. Where necessary, the regional study area may be extended outside these boundaries to include much wider expressions of specific types of heritage resources and historical events.

4.3 Statement of Cultural Significance

Digby Wells designed the significance rating process to provide a numerical rating of the Cultural Significance (CS) of identified heritage resources. This process determines the intrinsic, comparative and contextual significance of identified heritage resources by considering their:

- Importance rated on a six-point scale against four criteria; and
- Physical integrity rated on a five-point scale.

A resource's importance rating is based on information obtained through review of available credible sources and representativity or uniqueness (i.e. known examples of similar resources to exist).

The rationale behind the heritage value matrix takes into account that a heritage resource's value is a direct indication of its sensitivity to change (i.e. impacts). Value, therefore, was determined prior to completing any assessment of impacts.

The matrix rated the potential, or importance, of an identified resource relative to its contribution to certain values – aesthetic, historical, scientific and social. Resource significance is directly related to the impact on it that could result from Project activities, as it provided minimum accepted levels of change to the heritage resource.

4.4 Definition of Heritage Impacts

Potential impacts to heritage resources may manifest differently across geographical areas or diverse communities when one considers the simultaneous effect to the tangible resource and social repercussions associated with the intangible aspects. Furthermore, potential impacts may concurrently influence the CS of heritage resources. This assessment therefore considers three broad categories adapted from Winter & Baumann (2005, p. 36). These are described in Table 4-1.

Table 4-1: Impact definition

Category	Description
Direct Impact	Affect the fabric or physical integrity of the heritage resource, for example destruction of an archaeological site, grave or historical building. Direct impacts may be the most immediate and noticeable. Such impacts are usually ranked as the most intense but can often be erroneously assessed as high-ranking.
Indirect Impact	Occur later in time or at a different place from the causal activity, or as a result of a complex pathway. For example, restricted access to a heritage resource resulting in the gradual erosion of its CS that may be dependent on ritual patterns of access. Although the physical fabric of the resource is not affected through any direct impact, its significance is affected to the extent that it can ultimately result in the loss of the resource itself.
Cumulative Impact	Result from in-combination effects on heritage resources acting within a host of processes that are insignificant when seen in isolation, but which collectively have a significant effect. Cumulative effects can be: • Additive: the simple sum of all the effects, e.g. the increased new development within an area will minimise the sense of the historic landscape. • Synergistic: effects interact to produce a total effect greater than the sum of the individual effects, e.g. the removal of all archaeological sites will sterilise the archaeological context of the landscape.

Category	Description
	• Time crowding: frequent, repetitive impacts on a particular resource at the same time, e.g. the effect of regular blasting activities on a nearby rock art site or protected historical building could be high. • Neutralizing: where the effects may counteract each other to reduce the overall effect, e.g. the effect of changes from a historic to modern mining landscape could reduce the overall impact on the sense-of-place of the study area. • Space crowding: high spatial density of impacts on a heritage resource, e.g. density of new buildings resulting in suburbanisation of a historical rural landscape.

4.5 Secondary Data Collection

Data collection informs the cultural heritage baseline profile of the study area under consideration. Data was collected through a desktop literature review of online electronic journal articles, reference books and select internet sources. The cultural baseline presented in Section 6 below includes a summary and discussion of only the most relevant findings. Relevant sources have been cited and are included in the reference list (refer to Section 10 below).

5 Gap Analysis Summary

Digby Wells completed a gap analysis of the following documentation:

- ESIA for Zones 2 and 3 of the Lesotho Lowlands Water Development Project (Aurecon Lesotho (Pty) Ltd, 2018);
- HIA: An assessment carried out to identify how the cultural heritage in both Leribe and Berea will be affected by the construction of the pipeline (Monyane, 2018);
- PIA: Desktop Palaeontological Assessment for Zones 2 And 3 of the Lesotho Lowlands Water Supply Scheme, Kingdom of Lesotho (Groenewald, 2018).

The outcomes of the gap analysis demonstrated that the previous consideration of cultural heritage as part of the ESIA only achieved partial compliance with the regulatory framework. A detailed assessment of the ESIA and HIA reports are presented in Table 5-2 through Table 5-7. This is quantified in Table 5-1.

Table 5-1: Compliance Rating of Previously Developed Reports

Report	Legislation & Guidelines	Overall Compliance
Monyane (2018) & Groenewald (2018)	National Requirements	9.5%
	World Bank OP 4.11	44.4%
	IFC PS 8	11.5%
Aurecon Lesotho (Pty) Ltd, (2018)	National Requirements	52.4%
	World Bank OP 4.11	66.7%
	IFC PS 8	42.3%

Review and consideration of the following documentations was also undertaken, but not subject to the Gap Analysis Matrix:

- RAP: Consultancy services to carry out an Environmental and Social Impact Assessment and a Resettlement Action Plan for Zones 2 and 3 of the Lesotho Lowlands Bulk Water Supply Scheme (Aurecon Lesotho (Pty) Ltd, 2018).

The review of the resettlement document indicated that cultural heritage was considered in respect of the project affected persons burial grounds and graves. In the event that burial grounds and graves being impacted upon by the Project, recommendations for a Grave Relocation Process (GRP) are made. This notwithstanding, the authors do acknowledge the consideration of a GRP is required in the event that all other management or mitigations measures in respect of the mitigation hierarchy are not viable, i.e. avoid or remove the potential impact.

Table 5-2: HIA Gap Analysis to National Requirements

Gap Analysis Matrix – National Legislative Requirements and Adopted Standards				
Criterion	**Addressed in HIA**	**Report Reference**	**Adequacy**	**Information required**
Adopted ASAPA Minimum Standards				
D - Background Information on the Project	No	References are limited to the construction of the pipeline, limited to the excavations / diggings during construction	Inadequate	Need a Project Description of the greater LLWDP-II, including proposed Project-related activities that create a risk to known and unknown heritage resources within the development footprint, and within proximity to the Project infrastructure.
E - Background on the Archaeological History	No	No palaeontological, archaeological or historical context is provided.	Inadequate	Require a cultural heritage baseline
F - Description of the Property or Affected Environment	No	None	Inadequate	Require a description of the affected environment.
G - Description of Sites	No	Indicated that no heritage resources occur within the proposed development footprint		
H - Description of the Artefacts, Faunal, Botanical or Other Finds or Features	No	Indicated that no heritage resources occur within the proposed development footprint		
I - Clear Description of Burial Grounds and Graves	No	Indicated that no heritage resources occur within the proposed development footprint		
J - Recommended Field Significance	No	Indicated that no heritage resources occur within the proposed development footprint		
K - Statement of Significance	Yes	Reference to the landscape as "rich in tangible heritage".	Inadequate	Require consideration of the significance of the cultural landscape as a whole.
L - Recommendations	No	No reference to recommended management or mitigation measures that may be required during construction activities as applicable to unknown heritage resources that may be accidentally discovered.	Inadequate	A Chance Find Protocol
M - Conclusion	No	No conclusion provided	Inadequate	Require a conclusion to the assessment.
O - Bibliography	Yes	-	Inadequate	Require in text references where contents of the secondary data was considered.
Minimum Standard compliance (out of 11)	2	Partial compliance		
Legislative Requirements to Consider				
Historical Monuments, Relics, Fauna and Flora Act, 1967 (Act No. 41 of 1967)				
9(2) - No person shall, without the written consent of the commission destroy or damage any monument or relic or make any alterations thereto or remove it from its original site or export it from Lesotho	No		Inadequate	Require consideration of the provisions of this section of the Act in the HIA

Gap Analysis Matrix – National Legislative Requirements and Adopted Standards				
Criterion	**Addressed in HIA**	**Report Reference**	**Adequacy**	**Information required**
9(3) - A person desiring to remove a monument or relic from its original site or export it from Lesotho shall when applying to the commission for consent, supply the commission with a drawing or photograph of the monument or relic in question and shall state the exact locality in which it is situated and the place to which and purpose for which it is desired to be remove or export it	No		Inadequate	Require consideration of the provisions of this section of the Act in the HIA
9(4) - No person having control of any antique shall without written consent of the commission destroy or damage it or export it from Lesotho	No		Inadequate	Require consideration of the provisions of this section of the Act in the HIA
9(5) - A person desiring to export an antique from Lesotho shall when applying to the commission for its consent supply the commission with a photograph and description thereof and shall state the place to which and the purposes for which it is desired to export the antique	No		Inadequate	Require consideration of the provisions of this section of the Act in the HIA
National Heritage Resources Act, 2011 (Government Notice No. 2 of 2012)				
24(1) no person shall - (a) demolish; (b) damage or despoil; (c) excavate; (d) develop; (e) alter; or (f) exhume, all or part of a heritage site	No		Inadequate	Require consideration of the provisions of this section of the Act in the HIA
24(2) no person shall - (a) remove or demolish; (b) damage or despoil; (c) excavate; (d) alter; (e) remove from its original position; or (f) export from Lesotho, a heritage object.	No		Inadequate	Require consideration of the provisions of this section of the Act in the HIA
24(3) No person shall relocate or disturb the position of a fixed heritage object.	No		Inadequate	Require consideration of the provisions of this section of the Act in the HIA
24(4) Where a burial ground, grave or sacred place has been declared a heritage site under this Act, a person who wishes to do any activity referred to in subsection (1) shall, before making an application to the Council - (a) consult a community which or individuals who by tradition have interest in the burial ground, grave or sacred place; and (b) reach agreement with the community which or individuals who by tradition have interest in the burial ground, grave or sacred place.	No		Inadequate	Require consideration of the provisions of this section of the Act in the HIA
25(4) Before determining an application under this section, the Council may require an applicant to obtain from a person with appropriate professional qualifications or experience, at the applicants expense a statement as to the impact of the proposed works and activities may have on the heritage site or object to which the application relates and the risk of damage to the heritage site or object.	No		Inadequate	Require consideration of the provisions of this section of the Act in the HIA
29(1) The owner or custodian of a heritage object in the form of an intangible cultural heritage shall take all necessary steps to develop, identify, transmit, cause to be performed and facilitate research on the intangible cultural heritage according to guidelines and procedures as may be prescribed.	No		Inadequate	Require consideration of the provisions of this section of the Act in the HIA
Legislative Consideration (out of 10)	0	Non-compliance		
Overall compliance (out of 21)	2	Partial compliance		

Table 5-3: HIA Gap Analysis to World Bank Operational Policy 4.11

World Bank Operational Policies Gap Analysis					
	Requirement	**Addressed in HIA**	**HIA reference**	**Adequacy**	**Information required**
OP 4.11 Physical Cultural Heritage - Environmental Assessment					
.1.1	4. The borrower addresses impacts on physical cultural resources in projects proposed for Bank financing, as an integral part of the environmental assessment (EA) process. The steps elaborated below follow the EA sequence of: screening; developing terms of reference (TORs); collecting baseline data; impact assessment; and formulating mitigating measures and a management plan.	No		Inadequate	All requisite information to comply
.1.2	5. The following projects are classified during the environmental screening process as Category A or B, and are subject to the provisions of this policy: (a) any project involving significant excavations, demolition, movement of earth, flooding, or other environmental changes; and (b) any project located in, or in the vicinity of, a physical cultural resources site recognized by the borrower. Projects specifically designed to support the management or conservation of physical cultural resources are individually reviewed, and are normally classified as Category A or B.	No		Inadequate	Project description, as well as the cultural landscape within which the Project is situated.
.1.3	6. To develop the TORs for the EA, the borrower, in consultation with the Bank, relevant experts, and relevant project-affected groups, identifies the likely physical cultural resources issues, if any, to be taken into account by the EA. The TORs normally specify that physical cultural resources be included in the baseline data collection phase of the EA.	No		Inadequate	All requisite information to comply
.1.4	7. The borrower identifies physical cultural resources likely to be affected by the project and assesses the project's potential impacts on these resources as an integral part of the EA process, in accordance with the Bank's EA requirements.	No	Reference to the landscape as "rich in tangible heritage".	Inadequate	Require consideration of the significance of the cultural landscape as a whole and contextual information as to the distribution of known heritage resources
.1.5	8. When the project is likely to have adverse impacts on physical cultural resources, the borrower identifies appropriate measures for avoiding or mitigating these impacts as part of the EA process. These measures may range from full site protection to selective mitigation, including salvage and documentation, in cases where a portion or all of the physical cultural resources may be lost.	Not Applicable	Indicated that no heritage resources occur within the proposed development footprint		
.1.6	9. As an integral part of the EA process, the borrower develops a physical cultural resources management plan that includes measures for avoiding or mitigating any adverse impacts on physical cultural resources, provisions for managing chance finds, any necessary measures for strengthening institutional capacity, and a monitoring system to track the progress of these activities. The physical cultural resources management plan is consistent with the country's overall policy framework and national legislation and takes into account institutional capabilities with regard to physical cultural resources.	No		Inadequate	All requisite information to comply
.1.7	10. The Bank reviews, and discusses with the borrower, the findings and recommendations related to the physical cultural resources aspects of the EA, and determines whether they provide an adequate basis for processing the project for Bank financing.	Not Applicable			
	Compliance (out of 7)	**2**	**Partial compliance**		
	OP 4.11 Physical Cultural Heritage - Consultation & Disclosure, Subprojects, Country Requirements and Capacity Building				

World Bank Operational Policies Gap Analysis					
	Requirement	**Addressed in HIA**	**HIA reference**	**Adequacy**	**Information required**
.2.1	11. As part of the public consultations required in the EA process, the consultative process for the physical cultural resources component normally includes relevant project-affected groups, concerned government authorities, and relevant nongovernmental organizations in documenting the presence and significance of physical cultural resources, assessing potential impacts, and exploring avoidance and mitigation options.	No		Inadequate	Consideration of the outcomes of the EA consultation undertaken, as relevant to cultural heritage
.2.2	12. The findings of the physical cultural resources component of the EA are disclosed as part of, and in the same manner as, the EA report. Exceptions to such disclosure would be considered when the borrower, in consultation with the Bank and persons with relevant expertise, determines that disclosure would compromise or jeopardize the safety or integrity of the physical cultural resources involved or would endanger the source of information about the physical cultural resources. In such cases, sensitive information relating to these particular aspects may be omitted from the EA report.	No		Inadequate	Consideration of the outcomes of the EA consultation undertaken, as relevant to cultural heritage
.2.3	13. This policy normally applies to projects processed under paragraph 11 of OP 10.00, Investment Project Financing. OP/BP 4.01, Environmental Assessment, sets out the application of EA to such projects. When compliance with any requirement of OP 4.11, Physical Cultural Resources would prevent the effective and timely achievement of the objectives of such a project, the Bank (subject to the limitations set forth in paragraph 11 of OP 10.00) may exempt the project from such a requirement, recording the justification for the exemption in the loan documents. However, the Bank requires that any necessary corrective measures be built into either the emergency operation or a future lending operation.	Not Applicable			
.2.4	14. The physical cultural resources aspects of subprojects financed under Bank projects are addressed in accordance with the Bank's EA requirements.	Not Applicable			
.2.5	15. The Bank may decide to use a country's systems to address environmental and social safeguards issues in a Bank-financed project that affects physical cultural resources. This decision is made in accordance with the requirements of the applicable Bank policy on country systems.	Not Applicable			
.2.6	16. When the borrower's capacity is inadequate to manage physical cultural resources that may be affected by a Bank-financed project, the project may include components to strengthen that capacity.	Not Applicable			
.2.7	17. Given that the borrower's responsibility for physical cultural resources management extends beyond individual projects, the Bank may consider broader capacity building activities as part of its overall country assistance program.	Not Applicable			
	Compliance (out of 7)	**5**	**Partial compliance**		
	3.0 References to International Agreements and Accompanying Guidance and Recommendations				
.3.1	Did the HIA refer to relevant international agreements and demonstrate understanding / compliance with such, including:	No		Inadequate	All requisite information to comply
.3.2	Convention of Biological Diversity (CBD)	Not Applicable			
.3.3	United Nations Educational, Scientific and Cultural Organisation (UNESCO) including International Council on Monuments and Sites (ICOMOS)	No		Inadequate	All requisite information to comply

World Bank Operational Policies Gap Analysis					
	Requirement	**Addressed in HIA**	**HIA reference**	**Adequacy**	**Information required**
.3.4	IFC Performance Standards	No		Inadequate	All requisite information to comply
	Compliance (out of 4)	**1**	**Partial compliance**		
	Overall compliance (out of 18)	**8**	**Partial compliance**		

Table 5-4: HIA Gap Analysis to IFC PS 8

IFC Performance Standard Gap Analysis					
	Requirement	**Addressed in HIA**	**HIA reference**	**Adequacy**	**Information required**
1.0 IFC Performance Standard 8: Cultural Heritage Requirements					
.1.1	<u>Paragraph 6 & 7: Protection of Cultural Heritage in Project Design and Execution</u> Does the HIA comply with applicable national law on the protection of cultural heritage, including national law implementing Lesotho's obligations under the *Convention Concerning the Protection of the World Cultural and Natural Heritage.* Was cultural heritage identified and protected by ensuring that internationally recognised practices for the protection, field-based study, and documentation of cultural heritage were implemented.	No		Inadequate	HIA does not comply with national requirements or WHC
.1.2	<u>Paragraph 8: Chance Find Procedures</u> The client is responsible for siting and designing a project to avoid significant adverse impacts to cultural heritage. The environmental and social risks and impacts identification process needed to determine whether the proposed location of the project is in areas where cultural heritage is expected to be found, either during construction or operations. In such cases, the specialist needed to develop provisions for managing chance finds through a Chance Find Procedure to be applied in the event that cultural heritage is subsequently discovered.	No		Inadequate	Require consideration of a CFP
.1.3	<u>Paragraph 9: Consultation</u> Affected Communities needed to be consulted who use, or have used within living memory, the cultural heritage for long-standing cultural purposes. The specialist needed to provide proof of consultation with the Affected Communities to identify cultural heritage of importance, and to incorporate into the client's decision-making process the views of the Affected Communities on such cultural heritage. Consultation also needed to involve the relevant national or local regulatory agencies that are entrusted with the protection of cultural heritage.	No		Inadequate	Consideration of the outcomes of the EA consultation undertaken, as relevant to cultural heritage

IFC Performance Standard Gap Analysis					
	Requirement	**Addressed in HIA**	**HIA reference**	**Adequacy**	**Information required**
.1.4	Paragraph 10: Community Access Recommendations needed to be made for continued access to cultural heritage that were previously accessible, which are being used by, or that have been used by, Affected Communities within living memory for long-standing cultural purposes. Consultation with Affected Communities needed to include provisions for continued access to the cultural sites or provided alternative access routes, subject to overriding health, safety, and security considerations.	No		Inadequate	Requisite information to comply
.1.5	Paragraph 10: Removal of Replicable Cultural Heritage If tangible cultural heritage resources that are replicable and not critical have been identified, mitigation measures that favour avoidance needed to be recommended. Where avoidance is not feasible, the following mitigation hierarchy needed to be proposed: - Adverse impacts to be minimised and in situ restoration measures implemented implement restoration measures to ensure maintenance of the value and functionality of the cultural heritage; - If restoration in situ is not possible, restore the functionality of the cultural heritage, in a different location; - Permanent removal of historical and archaeological artefacts and structures is carried out according to the principles of paragraphs 6 (and 7 in the IFC GN) - Permanent removal should only be considered if the minimising of impacts and in situ restoration to ensure maintenance of the value and functionality of the cultural heritage are demonstrably not feasible; - Where Affected Communities are using the tangible cultural heritage for long-standing cultural purposes, compensate for loss of that tangible cultural heritage.	Not Applicable	Indicated that no heritage resources occur within the proposed development footprint		
.1.6	Paragraph 12: Removal of Non-replicable Cultural Heritage The specialist needs to recommend that most cultural heritage is best protected by preservation in its place as removal is likely to result in irreparable damage or destruction of the cultural heritage. The specialist needed to ensure recommendations for removal met the following conditions: - No technical or financial feasible alternatives exist; - The overall benefits of the project conclusively outweigh the anticipated cultural heritage loss from removal; and - Any removal of cultural heritage is conducted using the best available technique.	Not Applicable	Indicated that no heritage resources occur within the proposed development footprint		
.1.7	Paragraphs 13, 14, 15: Critical Cultural Heritage The specialist needed to indicate if any critical cultural heritage exists in the project area, or that will be affected by the project, such as (i) internationally recognised heritage of communities who use, or have used within living memory the cultural heritage for long-standing cultural purposes, or (ii) legally protected cultural heritage areas, including those proposed by host governments for such designation. If critical cultural heritage was identified, the specialist needed to recommend that mitigation meet the following requirements: - Compliance with defined national or local cultural heritage regulations or the protected area management plans; - Consultation with the protected area sponsors and managers, local communities and other key stakeholders on the proposed project; and - Implementation of additional programs, as appropriate, to promote and enhance the conservation aims of the protected area.	No	Reference to the landscape as "rich in tangible heritage".	Inadequate	Require consideration of the cultural landscape as a whole and confirm if provisions are applicable.

IFC Performance Standard Gap Analysis					
	Requirement	**Addressed in HIA**	**HIA reference**	**Adequacy**	**Information required**
.1.8	Paragraph 16: Project's Use of Cultural Heritage If the project proposes to use the cultural heritage, including knowledge, innovations, or practices of local communities for commercial purposes, the specialist needed to inform the client it is obliged to inform these communities of: (i) their rights under national law; (ii) the scope and nature of the proposed commercial development; and (iii) the potential consequences of such development.	Not Applicable			
	Compliance with IFC PS 8: Cultural Heritage (out of 8)	**3**	**Partial compliance**		
	2.0 IFC Guidance Note 8: Cultural Heritage Requirements				
.2.1	Does the HIA address tangible cultural heritage resources as defined in Annex A: Tangible Cultural Heritage Resource Types.				
.2.2	A. Archaeological Sites	No	Reference to the landscape as "rich in tangible heritage".	Inadequate	Require consideration of cultural landscape as a whole and provide information as to the distribution of known tangible cultural heritage resources
.2.3	B Historic Structures	No		Inadequate	
.2.4	C Historic Districts	No		Inadequate	
.2.5	D Historic or Cultural Landscapes	No		Inadequate	
.2.6	E Artefacts	No		Inadequate	
.2.7	Did the HIA follow the IFC cultural heritage process as outlined in Annex B: Process Guidance.	No		Inadequate	
.2.8	A. Cultural Heritage Feasibility Studies: Did the specialist compare general project features against known or anticipated heritage baseline conditions in the proposed project area. Did the specialist include competent heritage experts and project planning and/or engineering staff in the study work team(s). Were any “fatal flaw” issues identified.	No		Inadequate	
.2.9	B. Cultural Heritage Aspects of the Environmental and Social Impact Assessment Process Did the HIA include the following elements: (i) a detailed description of the proposed project including its alternatives; (ii) heritage baseline conditions in the project’s area of influence; (iii) an analysis of project alternatives in relation to the baseline conditions to determine potential impacts; and (iv) proposed impact mitigation measures, which may include avoidance or reduction of impacts by project design changes and/or the introduction of special construction and operational procedures, and compensatory mitigations such as data recovery and/or detailed study.	No		Inadequate	
.2.10	C. Expertise Needed for Assessment Studies: Did the specialists/s demonstrate necessary competencies and expertise.	No		Inadequate	

IFC Performance Standard Gap Analysis					
	Requirement	**Addressed in HIA**	**HIA reference**	**Adequacy**	**Information required**
.2.11	D. Permitting and Approval of Assessment Studies Did the HIA outline actions that are / will need to be formally permitted by the appropriate national heritage authority. Were lacunae in implementing regulations under national heritage law identified and were project-specific recommendations made to address such gaps. Were the specialists accepted / approved by national heritage authorities.	No		Inadequate	
.2.12	E. Disclosure and Consultation Were project heritage data publicly disclosed early and in detail, including the methodology, findings and analyses of the assessment heritage team.	No		Inadequate	
.2.13	F. Purpose and Scope of Assessment Studies Did the HIA clearly demonstrate the purpose and appropriate scope of heritage assessment studies	No		Inadequate	
.2.14	G. Project Design and Execution Did the HIA identify necessary avoidance and mitigation measures through the assessment process. Were these measures integrated in the project's Environmental Management Program	No		Inadequate	
	Compliance (out of 14)	**0**	**Non-compliance**		
	3.0 References to International Agreements and Accompanying Guidance and Recommendations				
.3.1	Did the HIA refer to relevant international agreements and demonstrate understanding / compliance with such, including:				
.3.2	Convention of Biological Diversity (CBD)	No			
.3.3	United Nations Educational, Scientific and Cultural Organisation (UNESCO) including International Council on Monuments and Sites (ICOMOS)	No			
.3.4	World Bank	No			
	Compliance (out of 4)	**0**	**Non-compliance**		
	Overall compliance (out of 26)	**3**	**Partial compliance**		

Table 5-5: ESIA Gap Analysis to National Requirements

Gap Analysis Matrix – National Legislative Requirements and Adopted Standards				
Criterion	**Addressed in ESIA**	**Report Reference**	**Adequacy**	**Information required**
ASAPA Adopted Minimum Standards				
D - Background Information on the Project	Yes	Section 1: Introduction Section 4: Project Need / Justification and Description	Adequate	None
E - Background on the Archaeological History	Yes	Section 6.1.6	Inadequate	Require cultural heritage baseline to contextualise the study area.
F - Description of the Property or Affected Environment	Yes	Section 6	Adequate	
G - Description of Sites	No		Inadequate	Reference to the landscape as "rich in tangible heritage". Require description of sites / heritage resources alluded to and distribution in relation to the Project
H - Description of the Artefacts, Faunal, Botanical or Other Finds or Features	No		Inadequate	Reference to the landscape as "rich in tangible heritage". Require information in respect of known heritage resources and description thereof.
I - Clear Description of Burial Grounds and Graves	No		Inadequate	Reference to the landscape as "rich in tangible heritage". Require information in respect of known heritage resources and description thereof.
J - Recommended Field Significance	No		Inadequate	Reference to the landscape as "rich in tangible heritage". Require information in respect of known heritage resources and description thereof.
K - Statement of Significance	Yes	Section 6.1.6	Inadequate	Reference to the landscape as "rich in tangible heritage". Require consideration of the significance of the cultural landscape as a whole.
L - Recommendations	Yes	Section 10.7.1	Inadequate	Recommendations that consider project-related activities and potential impacts to previously unknown heritage resources, which may include accidental exposure or damage.
M - Conclusion	Yes		Inadequate	Does not adequately consider cultural heritage in respect of the Regulatory Framework requirements
O - Bibliography	Yes		Adequate	
Minimum Standard compliance (out of 11)	**7**	**Partial compliance**		
Legislative Requirements to Consider				
Historical Monuments, Relics, Fauna and Flora Act, 1967 (Act No. 41 of 1967)				
9(2) - No person shall, without the written consent of the commission destroy or damage any monument or relic or make any alterations thereto or remove it from its original site or export it from Lesotho	Yes	Section 2.1.6	Inadequate	Impact Assessment and Recommendations do not reflect consideration of the requirements encapsulated in Section 9 of the Act. Require an assessment to demonstrate that provisions made within the Act are adhered, and where not

Gap Analysis Matrix – National Legislative Requirements and Adopted Standards				
Criterion	**Addressed in ESIA**	**Report Reference**	**Adequacy**	**Information required**
9(3) - A person desiring to remove a monument or relic from its original site or export it from Lesotho shall when applying to the commission for consent, supply the commission with a drawing or photograph of the monument or relic in question and shall state the exact locality in which it is situated and the place to which and purpose for which it is desired to be remove or export it	Yes		Inadequate	possible, recommendations are aligned with the principles of the Act as relevant to Section 9.
9(4) - No person having control of any antique shall without written consent of the commission destroy or damage it or export it from Lesotho	Yes		Inadequate	
9(5) - A person desiring to export an antique from Lesotho shall when applying to the commission for its consent supply the commission with a photograph and description thereof and shall state the place to which and the purposes for which it is desired to export the antique	Yes		Inadequate	
National Heritage Resources Act, 2011 (Government Notice No. 2 of 2012)				
24(1) no person shall - (a) demolish; (b) damage or despoil; (c) excavate; (d) develop; (e) alter; or (f) exhume, all or part of a heritage site	No	Section 2.1.7	Inadequate	Incorrectly references the HMRFF Act, and not the applicable sections of the NHRA. Impact Assessment and Recommendations do not reflect consideration of the requirements encapsulated in the relevant sections of the Act. Require an assessment to demonstrate that provisions made within the Act are adhered, and where not possible, recommendations are aligned with the principles of the Act as relevant to the applicable sections.
24(2) no person shall - (a) remove or demolish; (b) damage or despoil; (c) excavate; (d) alter; (e) remove from its original position; or (f) export from Lesotho, a heritage object.	No		Inadequate	
24(3) No person shall relocate or disturb the position of a fixed heritage object.	No		Inadequate	
24(4) Where a burial ground, grave or sacred place has been declared a heritage site under this Act, a person who wishes to do any activity referred to in subsection (1) shall, before making an application to the Council - (a) consult a community which or individuals who by tradition have interest in the burial ground, grave or sacred place; and (b) reach agreement with the community which or individuals who by tradition have interest in the burial ground, grave or sacred place.	No		Inadequate	
25(4) Before determining an application under this section, the Council may require an applicant to obtain from a person with appropriate professional qualifications or experience, at the applicants expense a statement as to the impact of the proposed works and activities may have on the heritage site or object to which the application relates and the risk of damage to the heritage site or object.	No		Inadequate	
29(1) The owner or custodian of a heritage object in the form of an intangible cultural heritage shall take all necessary steps to develop, identify, transmit, cause to be performed and facilitate research on the intangible cultural heritage according to guidelines and procedures as may be prescribed.	No		Inadequate	
Legislative Consideration (out of 10)	**4**	**Partial compliance**		
Overall compliance (out of 21)	**11**	**Partial compliance**		

Table 5-6: ESIA Gap Analysis to World Bank Operational Policy 4.11

World Bank Operational Policies Gap Analysis					
	Requirement	**Addressed in ESIA**	**Report Reference**	**Adequacy**	**Information required**
OP 4.11 Physical Cultural Heritage - Environmental Assessment					
.1.1	4. The borrower addresses impacts on physical cultural resources in projects proposed for Bank financing, as an integral part of the environmental assessment (EA) process. The steps elaborated below follow the EA sequence of: screening; developing terms of reference (TORs); collecting baseline data; impact assessment; and formulating mitigating measures and a management plan.	Yes	Section 10.7 & 10.8	Inadequate	Cultural Heritage assessments require infield identification and verification of heritage resources to adequately assess potential impacts and formulate feasible mitigation measures and management plans.
.1.2	5. The following projects are classified during the environmental screening process as Category A or B, and are subject to the provisions of this policy: (a) any project involving significant excavations, demolition, movement of earth, flooding, or other environmental changes; and (b) any project located in, or in the vicinity of, a physical cultural resources site recognized by the borrower. Projects specifically designed to support the management or conservation of physical cultural resources are individually reviewed, and are normally classified as Category A or B.	Yes	Section 2.1.2.1	Adequate	
.1.3	6. To develop the TORs for the EA, the borrower, in consultation with the Bank, relevant experts, and relevant project-affected groups, identifies the likely physical cultural resources issues, if any, to be taken into account by the EA. The TORs normally specify that physical cultural resources be included in the baseline data collection phase of the EA.	Yes	Section 6.1.6	Inadequate	All requisite information to comply
.1.4	7. The borrower identifies physical cultural resources likely to be affected by the project and assesses the project's potential impacts on these resources as an integral part of the EA process, in accordance with the Bank's EA requirements.	No	Reference to the landscape as "rich in tangible heritage".	Inadequate	Require consideration of the significance of the cultural landscape as a whole and contextual information as to the distribution of known heritage resources
.1.5	8. When the project is likely to have adverse impacts on physical cultural resources, the borrower identifies appropriate measures for avoiding or mitigating these impacts as part of the EA process. These measures may range from full site protection to selective mitigation, including salvage and documentation, in cases where a portion or all of the physical cultural resources may be lost.	Yes	Section 10.7 & 10.8	Inadequate	Assessment and recommendations that consider project-related activities and potential impacts to previously unknown heritage resources, which may include accidental exposure or damage.
.1.6	9. As an integral part of the EA process, the borrower develops a physical cultural resources management plan that includes measures for avoiding or mitigating any adverse impacts on physical cultural resources, provisions for managing chance finds, any necessary measures for strengthening institutional capacity, and a monitoring system to track the progress of these activities. The physical cultural resources management plan is consistent with the country's overall policy framework and national legislation and takes into account institutional capabilities with regard to physical cultural resources.	Yes	Section 10.7 & 10.8	Inadequate	Recommendations and plans that consider project-related activities and potential impacts to previously unknown heritage resources, which may include accidental exposure or damage. Present recommended management is limited to a generic chance find procedure.
.1.7	10. The Bank reviews, and discusses with the borrower, the findings and recommendations related to the physical cultural resources aspects of the EA, and determines whether they provide an adequate basis for processing the project for Bank financing.	Yes		Adequate	
	Compliance (out of 7)	**6**	**Partial compliance**		

World Bank Operational Policies Gap Analysis					
	Requirement	**Addressed in ESIA**	**Report Reference**	**Adequacy**	**Information required**
	OP 4.11 Physical Cultural Heritage - Consultation & Disclosure, Subprojects, Country Requirements and Capacity Building				
.2.1	11. As part of the public consultations required in the EA process, the consultative process for the physical cultural resources component normally includes relevant project-affected groups, concerned government authorities, and relevant nongovernmental organizations in documenting the presence and significance of physical cultural resources, assessing potential impacts, and exploring avoidance and mitigation options.	Yes	Section 7	Adequate	
.2.2	12. The findings of the physical cultural resources component of the EA are disclosed as part of, and in the same manner as, the EA report. Exceptions to such disclosure would be considered when the borrower, in consultation with the Bank and persons with relevant expertise, determines that disclosure would compromise or jeopardize the safety or integrity of the physical cultural resources involved or would endanger the source of information about the physical cultural resources. In such cases, sensitive information relating to these particular aspects may be omitted from the EA report.	Yes	Appendix D4 & D5	Inadequate	Require evidence of the outcomes of the HIA was presented to I&Aps
.2.3	13. This policy normally applies to projects processed under paragraph 11 of OP 10.00, Investment Project Financing. OP/BP 4.01, Environmental Assessment, sets out the application of EA to such projects. When compliance with any requirement of OP 4.11, Physical Cultural Resources would prevent the effective and timely achievement of the objectives of such a project, the Bank (subject to the limitations set forth in paragraph 11 of OP 10.00) may exempt the project from such a requirement, recording the justification for the exemption in the loan documents. However, the Bank requires that any necessary corrective measures be built into either the emergency operation or a future lending operation.	Not Applicable			
.2.4	14. The physical cultural resources aspects of subprojects financed under Bank projects are addressed in accordance with the Bank's EA requirements.	Not Applicable			
.2.5	15. The Bank may decide to use a country's systems to address environmental and social safeguards issues in a Bank-financed project that affects physical cultural resources. This decision is made in accordance with the requirements of the applicable Bank policy on country systems.	Yes	Section 2.1	Inadequate	Incorrectly references sections of the NHRA. Local legislative requirements to cultural heritage are however, considered in the ESIA document.
.2.6	16. When the borrower's capacity is inadequate to manage physical cultural resources that may be affected by a Bank-financed project, the project may include components to strengthen that capacity.	No		Inadequate	Require confirmation of the proponents capacity to implement requisite management or mitigation measures.
.2.7	17. Given that the borrower's responsibility for physical cultural resources management extends beyond individual projects, the Bank may consider broader capacity building activities as part of its overall country assistance program.	No			
	Compliance (out of 7)	**5**	**Partial compliance**		
	3.0 References to International Agreements and Accompanying Guidance and Recommendations				

World Bank Operational Policies Gap Analysis					
	Requirement	**Addressed in ESIA**	**Report Reference**	**Adequacy**	**Information required**
.3.1	Did the Report refer to relevant international agreements and demonstrate understanding / compliance with such, including:	Yes	Section 2.3	Adequate	
.3.2	Convention of Biological Diversity (CBD)	No			
.3.3	United Nations Educational, Scientific and Cultural Organisation (UNESCO) including International Council on Monuments and Sites (ICOMOS)	No			
.3.4	IFC Performance Standards	No			
	Compliance (out of 4)	**1**	**Partial compliance**		
	Overall compliance (out of 18)	**12**	**Partial compliance**		

Table 5-7: ESIA Gap Analysis to IFC PS 8

IFC Performance Standard Gap Analysis					
	Requirement	**Addressed in ESIA**	**Report Reference**	**Adequacy**	**Information required**
1.0 IFC Performance Standard 8: Cultural Heritage Requirements					
.1.1	Paragraph 6 & 7: Protection of Cultural Heritage in Project Design and Execution Does the HIA comply with applicable national law on the protection of cultural heritage, including national law implementing Lesotho's obligations under the *Convention Concerning the Protection of the World Cultural and Natural Heritage.* Was cultural heritage identified and protected by ensuring that internationally recognised practices for the protection, field-based study, and documentation of cultural heritage were implemented.	Yes	Section 2 Section 10.7 and 10.8	Inadequate	
.1.2	Paragraph 8: Chance Find Procedures The client is responsible for siting and designing a project to avoid significant adverse impacts to cultural heritage. The environmental and social risks and impacts identification process needed to determine whether the proposed location of the project is in areas where cultural heritage is expected to be found, either during construction or operations. In such cases, the specialist needed to develop provisions for managing chance finds through a Chance Find Procedure to be applied in the event that cultural heritage is subsequently discovered.	Yes	Section 10.7 and 10.8	Inadequate	

IFC Performance Standard Gap Analysis					
	Requirement	**Addressed in ESIA**	**Report Reference**	**Adequacy**	**Information required**
.1.3	Paragraph 9: Consultation Affected Communities needed to be consulted who use, or have used within living memory, the cultural heritage for long-standing cultural purposes. The specialist needed to provide proof of consultation with the Affected Communities to identify cultural heritage of importance, and to incorporate into the client's decision-making process the views of the Affected Communities on such cultural heritage. Consultation also needed to involve the relevant national or local regulatory agencies that are entrusted with the protection of cultural heritage.	Yes	Appendix D4 and D5	Inadequate	Cultural heritage as part of engagement limited to one reference to cultural heritage sites and focus on possible Grave Relocation Process. No evidence of input received from I&APs on possible intangible heritage aspects that require consideration, or the dissemination of information upon conclusion of the Project.
.1.4	Paragraph 10: Community Access Recommendations needed to be made for continued access to cultural heritage that were previously accessible, which are being used by, or that have been used by, Affected Communities within living memory for long-standing cultural purposes. Consultation with Affected Communities needed to include provisions for continued access to the cultural sites or provided alternative access routes, subject to overriding health, safety, and security considerations.	No		Inadequate	Distribution of known heritage resources in relation to the Project to determine if community access will be affected, and what requisite management or mitigation measures will be required.
.1.5	Paragraph 10: Removal of Replicable Cultural Heritage If tangible cultural heritage resources that are replicable and not critical have been identified, mitigation measures that favour avoidance needed to be recommended. Where avoidance is not feasible, the following mitigation hierarchy needed to be proposed: - Adverse impacts to be minimised and in situ restoration measures implemented implement restoration measures to ensure maintenance of the value and functionality of the cultural heritage; - If restoration in situ is not possible, restore the functionality of the cultural heritage, in a different location; - Permanent removal of historical and archaeological artefacts and structures is carried out according to the principles of paragraphs 6 (and 7 in the IFC GN) - Permanent removal should only be considered if the minimising of impacts and in situ restoration to ensure maintenance of the value and functionality of the cultural heritage are demonstrably not feasible; - Where Affected Communities are using the tangible cultural heritage for long-standing cultural purposes, compensate for loss of that tangible cultural heritage.	No		Inadequate	Distribution of known heritage resources in relation to the Project to determine if replicable cultural heritage will be affected, and what requisite management or mitigation measures will be required.
.1.6	Paragraph 12: Removal of Non-replicable Cultural Heritage The specialist needs to recommend that most cultural heritage is best protected by preservation in its place as removal is likely to result in irreparable damage or destruction of the cultural heritage. The specialist needed to ensure recommendations for removal met the following conditions: - No technical or financial feasible alternatives exist; - The overall benefits of the project conclusively outweigh the anticipated cultural heritage loss from removal; and - Any removal of cultural heritage is conducted using the best available technique.	No		Inadequate	Distribution of known heritage resources in relation to the Project to determine if non-replicable cultural heritage will be affected, and what requisite management or mitigation measures will be required.

IFC Performance Standard Gap Analysis					
	Requirement	**Addressed in ESIA**	**Report Reference**	**Adequacy**	**Information required**
.1.7	Paragraphs 13, 14, 15: Critical Cultural Heritage The specialist needed to indicate if any critical cultural heritage exists in the project area, or that will be affected by the project, such as (i) internationally recognised heritage of communities who use, or have used within living memory the cultural heritage for long-standing cultural purposes, or (ii) legally protected cultural heritage areas, including those proposed by host governments for such designation. If critical cultural heritage was identified, the specialist needed to recommend that mitigation meet the following requirements: - Compliance with defined national or local cultural heritage regulations or the protected area management plans; - Consultation with the protected area sponsors and managers, local communities and other key stakeholders on the proposed project; and - Implementation of additional programs, as appropriate, to promote and enhance the conservation aims of the protected area.	No			Distribution of known heritage resources in relation to the Project to determine if critical cultural heritage will be affected, and what requisite management or mitigation measures will be required.
.1.8	Paragraph 16: Project's Use of Cultural Heritage If the project proposes to use the cultural heritage, including knowledge, innovations, or practices of local communities for commercial purposes, the specialist needed to inform the client it is obliged to inform these communities of: (i) their rights under national law; (ii) the scope and nature of the proposed commercial development; and (iii) the potential consequences of such development.	Not Applicable			
	Compliance with IFC PS 8: Cultural Heritage (out of 8)	**4**	**Partial compliance**		
	2.0 IFC Guidance Note 8: Cultural Heritage Requirements				
.2.1	Does the ESIA address tangible cultural heritage resources as defined in Annex A: Tangible Cultural Heritage Resource Types.	Yes	Section 6.1.6	Inadequate	Distribution of known heritage resources in relation to the Project to determine if replicable cultural heritage will be affected, and what requisite management or mitigation measures will be required.
.2.2	A. Archaeological Sites	No			
.2.3	B Historic Structures	No			
.2.4	C Historic Districts	No			
.2.5	D Historic or Cultural Landscapes	No			
.2.6	E Artefacts	No			
.2.7	Did the HIA follow the IFC cultural heritage process as outlined in Annex B: Process Guidance.	No			

IFC Performance Standard Gap Analysis					
	Requirement	**Addressed in ESIA**	**Report Reference**	**Adequacy**	**Information required**
.2.8	A. Cultural Heritage Feasibility Studies: Did the specialist compare general project features against known or anticipated heritage baseline conditions in the proposed project area. Did the specialist include competent heritage experts and project planning and/or engineering staff in the study work team(s). Were any “fatal flaw” issues identified.	No			
.2.9	B. Cultural Heritage Aspects of the Environmental and Social Impact Assessment Process Did the HIA include the following elements: (i) a detailed description of the proposed project including its alternatives; (ii) heritage baseline conditions in the project’s area of influence; (iii) an analysis of project alternatives in relation to the baseline conditions to determine potential impacts; and (iv) proposed impact mitigation measures, which may include avoidance or reduction of impacts by project design changes and/or the introduction of special construction and operational procedures, and compensatory mitigations such as data recovery and/or detailed study.	Yes	Section 1 & 3 Section 6.1.6 Section 10.7 & 10.8	Inadequate	
.2.10	C. Expertise Needed for Assessment Studies: Did the specialists/s demonstrate necessary competencies and expertise.	No	Section 5.2	Inadequate	No evidence of qualifications provided in the ESIA document.
.2.11	D. Permitting and Approval of Assessment Studies Did the HIA outline actions that are / will need to be formally permitted by the appropriate national heritage authority. Were lacunae in implementing regulations under national heritage law identified and were project-specific recommendations made to address such gaps. Were the specialists accepted / approved by national heritage authorities.	Yes		Inadequate	Require appropriate impact assessment to determine consequent permitting requirements to comply with the HMRFF & NHRA
.2.12	E. Disclosure and Consultation Were project heritage data publicly disclosed early and in detail, including the methodology, findings and analyses of the assessment heritage team.	Yes	Appendix D4 and D5	Inadequate	Cultural heritage as part of engagement limited to one reference to cultural heritage sites and focus on possible Grave Relocation Process. No evidence of input received from I&APs on possible intangible heritage aspects that require consideration, or the dissemination of information upon conclusion of the Project.
.2.13	F. Purpose and Scope of Assessment Studies Did the HIA clearly demonstrate the purpose and appropriate scope of heritage assessment studies	Yes	Section 4	Adequate	
.2.14	G. Project Design and Execution Did the HIA identify necessary avoidance and mitigation measures through the assessment process. Were these measures integrated in the project’s Environmental Management Program	No	Section 10.7 & 10.8	Inadequate	Distribution of known heritage resources in relation to the Project to determine if replicable cultural heritage will be affected, and what requisite management or mitigation measures will be required.
	Compliance with IFC PS 8: Cultural Heritage (out of 14)	**5**	**Partial compliance**		

IFC Performance Standard Gap Analysis					
	Requirement	**Addressed in ESIA**	**Report Reference**	**Adequacy**	**Information required**
	3.0 References to International Agreements and Accompanying Guidance and Recommendations				
.3.1	Did the HIA refer to relevant international agreements and demonstrate understanding / compliance with such, including:	Yes	Section 2.3	Adequate	
.3.2	Convention of Biological Diversity (CBD)	No			
.3.3	United Nations Educational, Scientific and Cultural Organisation (UNESCO) including International Council on Monuments and Sites (ICOMOS)	No			
.3.4	World Bank	Yes	Section 2.4	Adequate	
	Compliance with IFC PS 8: Cultural Heritage (out of 4)	**2**	**Partial compliance**		
	Overall compliance (out of 26)	**11**	**Partial compliance**		

6 Cultural Heritage Baseline Description

6.1 Geological Context

The Kingdom of Lesotho is almost exclusively underlain by rocks of the Karoo Supergroup (Main Karoo Basin) ranging in age from the Late Carboniferous to Middle Jurassic and comprising sediments which cover a quarter of the surface area in the northwest (Schlüter, 2006; Johnson, et al., 2006).

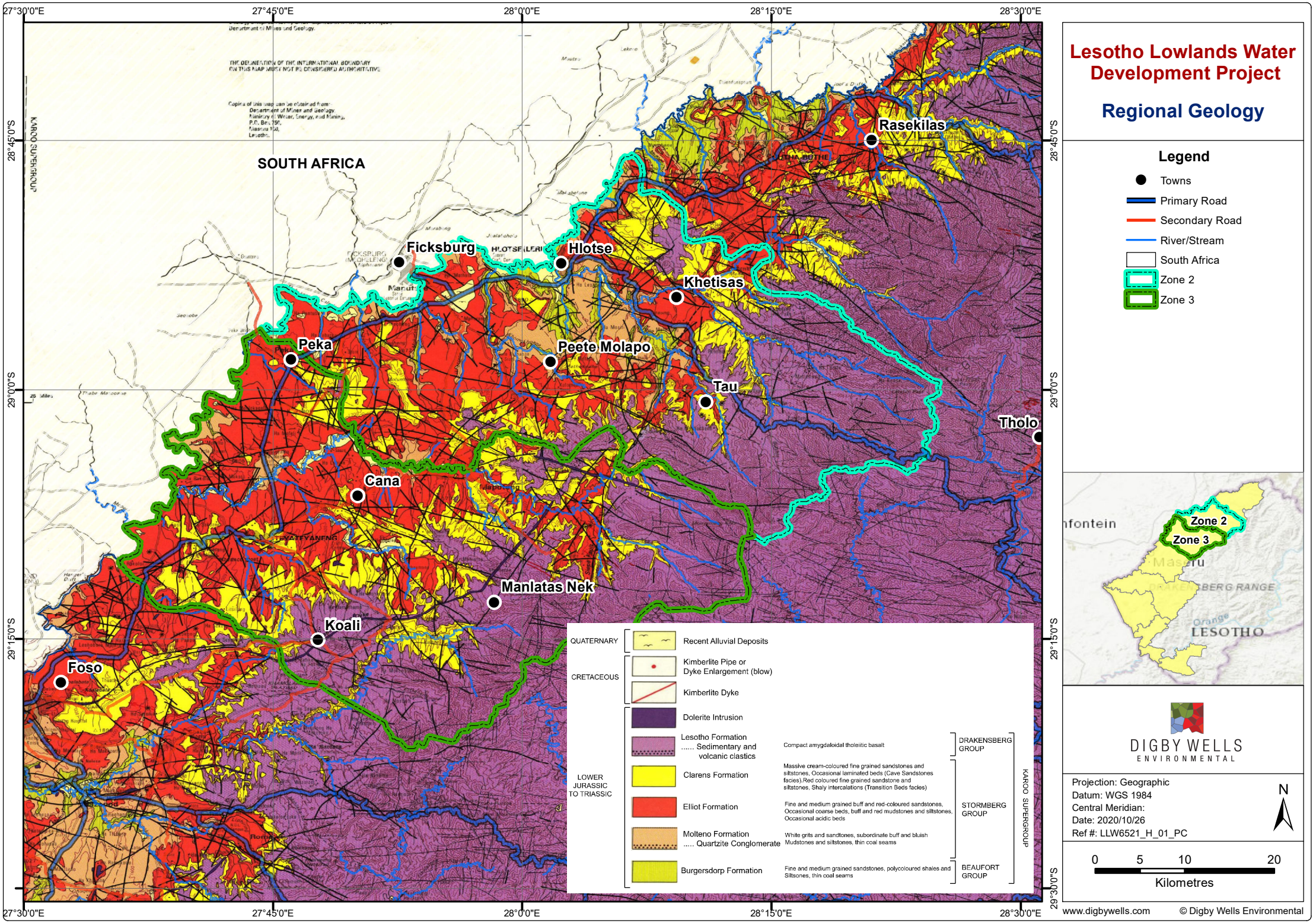
The Main Karoo Basin constitutes a retro-arc foreland basin. This description is on the basis that it:

- Contains a thick flysch-molasse succession that wedges out northwards over the adjacent craton; and
- Is situated behind an inferred magmatic arch and associated fold thrust belt produced by northward subduction of oceanic lithosphere located south of the arc.

Ultimately, these processes facilitated the sedimentation of the basin, forming the associated groups, subgroups and formations (Johnson, et al., 2006). Table 6-1 summarises the stratigraphic configuration of the Karoo Supergroup, where Plan 3 presents a graphical representation of the geological context of Zones 2 and 3 of the Project.

Table 6-1: Geological Context of the Karoo Supergroup (Adapted from [Johnson, et al., 2006])

EON	ERA	Super-Group	Group	Sub-group	Formation
Phanerozoic	Mesozoic	Karoo	Drakensberg & Lebombo		
			Stormberg		Molteno, Elliot & Clarens
			Beaufort	Tarkastad	
	Palaeozoic			Adelaide	
			Dwyka		
			Ecca		



Lesotho Lowlands Water Development Project

Regional Geology

Legend

- Towns
- Primary Road
- Secondary Road
- River/Stream
- South Africa
- Zone 2
- Zone 3

DIGBY WELLS ENVIRONMENTAL

Projection: Geographic
Datum: WGS 1984
Central Meridian:
Date: 2020/10/26
Ref #: LLW6521_H_01_PC

N

0 5 10 20
Kilometres

As per the Scope of Work, this HRM process is focussed on the *Molteno, Elliot* and *Clarens Formations* of the Stormberg Group. These formations are considered separately below in the following subsections.

6.1.1 Molteno Formation

The *Molteno Formation* dates to the late Triassic, primarily deposited by bedload-dominated rivers flowing across extensive braid-plains from a tectonically active source area to the south and southeast. It comprises alternating medium- to coarse-grained sandstones and grey mudrocks, with secondary quartz overgrowths (Johnson, et al., 2006; Groenewald, 2018).

6.1.2 Elliot Formation

The *Elliot Formation,* dating to the late Triassic and early Jurassic, comprises an alternating sequence of mudrock and subordinate fine- to medium-grained sandstone. It is a typical “red bed” fluvial deposit where initial meandering rivers became broader, shallower and more ephemeral over time and with the onset of progressive warming and aridity (Johnson, et al., 2006). The formation underlies very large parts of the Lesotho Lowlands (Groenewald, 2018).

6.1.3 Clarens Formation

The *Clarens Formation* represents the final phase of the Karoo sedimentation. Dating to the late Triassic / early Jurassic, progressive warming and desiccation is reflected by fine grained aeolian sand and associated playa lake, sheet flood and ephemeral stream deposits (Johnson, et al., 2006). Within the local study area, the *Clarens Formation* manifests as remarkable cliff faces, typically weathered into large overhangs (Groenewald, 2018). The Karoo sediments are capped by the Drakensburg lavas that essentially terminated the sedimentation but has preserved the sediments.

6.2 Palaeontological Context

The Karoo Supergroup is renowned for the associated palaeontological record comprising terrestrial vertebrae fossils and distinctive plant assemblages (Johnson, et al., 2006). As stated in Groenewald (2018, p. 13), the sandstone and shales of the Stormberg Group specifically are rich in trace and vertebrae fossils. A summary of the primary palaeontology associated with the aforementioned formations of the Stormberg Group is presented in Table 6-2.

Table 6-2: Palaeontological Context of the Stormberg Group Formations (Adapted from [Groenewald, 2018])

Formation	Palaeontology
Molteno	Assemblages of *Dicroidium* seed ferns and most diverse plant and insect remains in the Gondwana Geological Terrain. One of the richest plant histories and the clearest window into the Late Triassic plant and insect communities in the world. Includes descriptions of several dinosaur tracks.
Elliot	Globally recognized for its abundance of early dinosaur and mammal remains, including very well-defined dinosaur tracks and also dinosaur eggs containing embryos. At present, one fish genus, two amphibian genera, 10 non-dinosaurian reptiles, at least 17 dinosaur genera, seven cynodont genera and two mammalian genera are known from this formation.
Clarens	The palaeontology record includes examples of some dinosaur remains and footprints as well as invertebrate burrows, as well as the fish genus, *Semionotus*. Rare silicified wood occurs.

6.3 Archaeological Context

Archaeological research[1] within Lesotho is fairly limited in comparison to neighbouring South Africa, attributed to various factors including the mountainous terrain and lack of researchers (Mitchell, 1992). This section provides an overview of the archaeological context for Lesotho as a whole, presenting the various types of heritage resources known to occur.

6.3.1 Stone Age

The southern African (i.e. South Africa and Lesotho) Stone Age sequence is complex, spanning more than two million years (Mya) (Lombard, et al., 2012). Within Lesotho, the dolerite intrusions through the *Clarens Formation* are associated with hornfels, a major raw material for the manufacture of stone tools. Other raw material include tuff and crypto-crystalline silicas (CCS) of various kinds, derived from the *Lesotho Formation* lavas (Mitchell, 1992).

The sequence comprises three broad periods, each containing sub-phases and techno-complexes that manifest regional variations in characteristics and time ranges (Lombard, et al., 2012). These include the following:

- The Later Stone Age (LSA) (1840 - ~40 000 [kya]);
- The Middle Stone Age (MSA) (20 – 300 kya); and
- The Earlier Stone Age (ESA) (~200 kya – >2 Mya).

[1] Section 1.2.1 of Pinto (2014) provides a comprehensive summary of previously completed archaeological research in Lesotho. The reader is referred to this section for more details.

6.3.1.1 The Earlier Stone Age

The ESA marks the period during which our hominid ancestors learnt to select suitable raw material and manipulate stone to create tools. These included Oldowan Industry flakes struck from cobbles, and later Achuelean core tools characterised by straighter and sharper edges (Esterhuysen & Smith, 2007). ESA material is rare in Lesotho, with limited sites recorded in Leribe, Botha Bothe and Qacha's Nek Districts (Cain, 2009).

6.3.1.2 The Middle Stone Age

The MSA consists of high proportions of minimally modified blades, represented by the Levallois technique characterise the early MSA (Clark, 1982). In general the MSA is broadly defined by blades and points produced from good quality raw material, the use of bone tools, ochre, beads and pendants (Deacon & Deacon, 1999). MSA sites are found throughout the country, and artefacts are generally made from quartzite, dolerite and hornfels (Cain, 2009).

6.3.1.3 The Late Stone Age

The LSA dates from approximately 40 kya to the historical period. Ethnographically, this period correlates to use of the landscape by:

- *Bona fide* hunter-gatherer groups, i.e. the San;
- Southerly migration of pastoralists, i.e. Khoekhoe into the region from ~2 kya (Brenton, et al., 2014; Sadr, 2015).

Lithics associated with the LSA are specialised: specific tools being created for specific purposes, and the inclusion of bone tools into the assemblages (Mitchell, 2002). LSA sites commonly contain diagnostic artefacts, such as microlithic scrapers and segments. In Lesotho, tools from sites recorded by Cain (2009, p. 37), occurring within all districts, are described as being heterogenous in raw material and form. It is suggested that the widespread occurrence of lithics can be attributed to long occupation of Lesotho by LSA peoples, the association with rock shelters and rock art make identification of the sites easier, and due to the relative recent date of the sites, artefacts can still be identified on the surface.

Table 6-3 summarises the southern African Stone Age sequence, as well as presents a list of sites recorded within Lesotho.

Table 6-3: Southern African Stone Age Sequence (Adapted from Lombard et al, 2012)

Period	Techno-complex	Dates	Also known as (including regional variants)	Lesotho Sites
Later Stone Age <40 kya	Ceramic Final LSA	<2 kya	Ceramic post-classic Wilton, Late Holocene with pottery (Doornfontein, Swartkop)	**Likoaeng** (Mitchell et al. 2008,2011); Grassland Biome, Lesotho Age: 1285 ± 40 bp (GrA-23237), 1290 ± 30 bp (GrA-26831), 1310 ± 80 bp (Pta-7877) Variations: microlithic; some thumbnail scrapers, adzes, but small lithic assemblage; iron **Sehonghong** (Mitchell 1996a, 2010; Vinnicombe 2009); Grassland Biome, Lesotho Age: 1240 ± 50 bp (Pta-8064), 1400 ± 50 bp (Pta-885), 1710 ± 20 bp (Pta-6063) Variations: microlithic; many thumbnail scrapers, adzes, some backed tools; many OES beads; rock art. Site still occupied by San in late nineteenth/start of twentieth centuries (can be paralleled at Melikane, Moshebi's Shelter, Pitsaneng among other known highland sites)
	Final LSA	4 – 0.1 kya	Post-classic Wilton, Holocene microlithic (Smithfield, Kabeljous, Wilton)	**Likoaeng** (Mitchell 2009; Plug et al. 2010; Mitchell et al. 2011); Grassland Biome, Lesotho Age: 1830 ± 15 bp (Pta-7865), 1850 ± 40 bp (Pta-7092), 1850 ± 15 bp (Pta-7097), 2000 ± 70 bp (Pta-9048), 2020 ± 60 bp (Pta-7876), 2060 ± 45 bp (Pta-7098), 2390 ± 60 bp (Pta-7101), 2555 ± 45 bp (GrA-23236), 2650 ± 60 bp (Pta-7093), 2810 ± 45 bp (GrA-23233), 2875 ± 35 bp (GrA-26178), 3110 ± 50 bp (GrA-23535) Variations: microlithic; many thumbnail scrapers, adzes, backed microliths (including pressure-flaked backed points and bladelets in upper horizons (only backed bladelets and points lower down); worked bone (including one fish hook); rare OES beads and shell ornaments
	Wilton	8 – 4 kya	Holocene microlithic	**Sehonghong** (Mitchell 1996b); Grassland Biome, Lesotho Age: 5950 ± 70 bp (Pta-6154) **Tloutle** (Mitchell 1993a); Grassland Biome, Lesotho Age: 6140 ± 100 bp (Pta-5158), 6910 ± 80 bp (Pta-5162), 7230 ± 80 bp (Pta-5171)
	Oakhurst	7 – 1 kya	Terminal Pleistocene / early Holocene non-microlithic (Albany, Lockshoek, Kuruman)	**Ha Makotoko** (Mitchell 1993b; Mitchell & Arthur 2010); Grassland Biome, Lesotho Age: 8370 ± 80 bp (Pta-5191), 8950 ± 80 bp (Pta-5192), 9290 ± 90 bp (Pta-5204), 9970 ± 90 bp (Pta-5205) Variations: the Oakhurst here consists of a younger assemblage rich in end scrapers with lateral adze-like retouch ('Woodlot scrapers') and described in print as 'later Oakhurst' and an older assemblage lacking these artefacts and with few formal tools other than occasional large scrapers. Worked bone; OES beads **Ntloana Tsoana** (Mitchell 1993b; Mitchell & Arthur 2010); Grassland Biome, Lesotho Age: 8780 ± 30 bp (Pta-5238), 9420 ± 110 bp (Pta-5237), 9690 ± 120 bp (Pta-5207), 10 200 ± 100 bp (Pta-5208), 12110 ± 120 bp (Pta-5236) Variations: the Oakhurst here consists of a younger assemblage rich in end scrapers with lateral adze-like retouch ('Woodlot scrapers') and described in print as 'later Oakhurst', and an older assemblage lacking these artefacts and with few formal tools other than occasional large scrapers. Worked bone; OES beads **Sehonghong** (Mitchell 1996b); Grassland Biome, Lesotho Age: 6870 ± 60 bp (Q-3174), 7010 ± 70 bp (Pta-6083), 7090 ± 80 bp (Pta-6280), 7210 ± 80 bp (Pta-6072), 7290 ± 80 bp (Pta-6278), 9280 ± 45 bp (Pta-6368), 9740 ± 140 bp (Pta-6057) Variations: later dates relate to an assemblage rich in end scrapers with lateral adze-like retouch ('Woodlot scrapers') and described in print as 'later Oakhurst'. Tenth millennium bp dates associated with an assemblage lacking these artefacts and with few formal tools other than occasional large scrapers. Worked bone; OES beads
	Robberg	18 – 12 kya	Late Pleistocene microlithic	**Sehonghong** (Mitchell 1995); Grassland Biome, Lesotho Age: 12 180 ± 110 bp (Pta-6282), 12 200 ± 250 bp (Q-3176), 12 250 ± 300 bp (Q-3165), 12 410 ± 45 bp (Pta-6062), 12 800 ± 250 bp (Q-3173), 13 000 ± 140 bp (Pta-884), 13 200 ± 150 bp (Q-3172), 15 700 ± 150 bp (Pta-6060), 17 820 ± 270 bp (Q-1452), 19 400 ± 200 bp (Pta-6281) Variations: grindstones; rare bone points; OES and marine shell beads/ornaments
	Early LSA	40 – 18 kya		**Sehonghong** (Plug & Mitchell 2008); Grassland Biome, Lesotho Age: 20 500 ± 230 bp (Pta-6059), 25 100 ± 300 bp (Pta-6271), 26 000 ± 430 bp (Pta-6268)

Period	Techno-complex	Dates	Also known as (including regional variants)	Lesotho Sites
Middle Stone Age >20 - <300 kya	Final MSA	40 – 20 kya	MSA IV at Klasies River, MSA 4 generally	**Melikane** (Stewart et al., in press); Grassland Biome, Lesotho Age: 41 300 ± 3 ka, 45 900 ± 3.8 ka Variations: earlier date associated with blades, bladelets, Levallois flakes and points; later date associated with informal industry with flakes and irregular cores **Sehonghong** (Carter et al. 1988; Jacobs et al. 2008a); Grassland Biome, Lesotho Age: 30.3 ± 3.4 ka, 31.6 ± 1.2 ka Variations: scrapers, possibly knives
	Sibudu	58 – 45 kya	Late MSA / post-Howieson's Poort or MSA III at Klasies and MSA 3 generally	**Melikane** (Jacobs et al. 2008a; Stewart et al., in press); Grassland Biome, Lesotho Age: 50 ± 1.9 ka **Ntloana Tsoana** (Jacobs et al. 2008a; Mitchell & Steinberg 1992); Grassland Biome, Lesotho Age: 56.0 ± 1.8 ka Variations: irregular cores, faceted cores, knives, blades, bladelets, rare prepared cores **Sehonghong** (Carter et al. 1988; Mitchell 1994,1996c; Jacobs et al. 2008a); Grassland Biome, Lesotho Age: 46.5 ± 2.3 ka, 57.6 ± 2.0 ka Variations: scrapers, knives; few blade, bladelet and Levallois cores
	Howieson's Poort	66 – 58 kya	-	**Melikane** (Carter 1978; Jacobs et al. 2008a; Stewart et al, in press); Grassland Biome, Lesotho Age: 61.0 ± 2.5 ka Variations: few backed pieces **Ntloana Tsoana** (Mitchell & Steinberg 1992; Jacobs et al. 2008a); Grassland Biome, Lesotho Age: 60.9 ± 2.0 ka Variations: also points and knives
	Still Bay	77 – 70 kya		
	Pre-Still Bay	96 – 72 kya		
	Mossel Bay	105 – 77 kya	MSA II at Klasies River, MSA 2b generally (Pietersburg, Orangian)	**Melikane** (Stewart et al, in press); Grassland Biome, Lesotho Age: 79.5 ± 3.1 ka; 83.2 ± 6.2 ka Variations: large blades like those of the Klasies River (not yet designated to the Mossel Bay, but falls in the associated MIS range)
	Klasies River	130 – 105 kya	MSA I at Klasies River, MSA 2a generally (Pietersburg)	
	Early MSA	300 – 130 kya	-	
Earlier Stone Age >200 ka	ESA-MSA transition	600 - >200 kya	Fauresmith, Sangoan	
	Acheulean	1.5 Mya – 300 kya	-	
	Oldowan	>2 – 1.5 Mya		

6.3.2 Rock Art

The LSA period is further characterised by rock art as evidence of ritual practices and complex societies enfolded in the landscape, relative to other tangible heritage markers such as LSA lithics (Deacon & Deacon, 1999; Morris, 2012). At a macroscale, rock art includes both engraving and painting production techniques, i.e. technical approaches to making images on rock surfaces. These are briefly distinguished below:

- Rock engravings are produced by incising, chipping or pecking of the rock surface to remove the outer surface of the rock. These are commonly situated in the open, on boulders or exposed glaciated pavements within the central plateau of the interior of South Africa (Morris, 1988; Smith & Ouzman, 2004; Morris, 2012);
- Paintings are produced using fine brushes, quills, sticks or fingers predominantly done in red, white and black, and more rarely bichrome and polychrome (Eastwood, et al., 2002; Smith & Zubieta, 2007). Commonly identified in escarpment and mountainous areas and valleys where shelters occur and provide panels for paintings (Hollmann & Hykkerud, 2004; Morris, 2012).

For the purposes of this assessment, emphasis is placed on paintings as the primary form of rock art recorded in Lesotho. The art of the San depict imagery of realistic and proportionally correct animals such as various antelope species, human figures, shamanistic concepts comprising symbolic beings or entoptic shapes, while correlating to themes of gender, landscape and politics (Eastwood, et al., 2002; Smith & Ouzman, 2004). This iconography and the site preference contrasts with the geometric imagery recorded throughout southern Africa.

Commencing with the work of Orpen (1874) & Qing, followed by the works of Vinnicombe (1976), several hundred of San rock paintings sites have been recorded within Lesotho. These sites in conjunction with the ethnographical accounts recorded by both Orpen, Bleek and Lloyd, provided the basis for interpreting San rock art (Mitchell, 1992; Pinto, 2014). More recently, work being undertaken by Challis (2018) in respect of the Mataliele Archaeology and Rock Art (MARA) programme, is a continued effort in the identification and recording of rock art sites though a community engagement approach This approach does not only provide spatial distribution information, but seeks to reconfigure the ‘old-explanation’ of rock art to redress the balance of the region’s neglected history (Challis, 2018, p. 259).

6.3.3 Farming Community

Very little research in respect of farming communities has taken place in Lesotho (Mitchell, 1992; Cain, 2009). Mitchell (1992, p. 27) suggests farming communities settled the Lesotho lowlands from the 17th century AD onwards. Cain (2009, p. 35) reports on a single excavation of an abandoned village in the eastern Lowlands and an aborted attempt at an archaeological assessment on the original capital of Lesotho, Thaba Bosiu represent documented research of the farming community period. Further to this Cain states, *“According to research in adjacent parts of South Africa, there was no settlement in the dry high-altitude grasslands of the south-eastern Free State and Lesotho until after AD 1600*”.

Within eastern Lesotho, archaeological evidence for farming community people comprises well-fired, grit-tempered, undecorated ceramics, and in some instances, fragments of iron and glass beads (Mitchell, 1992), the latter having implications for long-distance trade with people outside of Lesotho (Pinto, 2014).

6.4 Historical Period

The historical period has been largely accepted as representing contact between Bantu-speaking peoples and Europeans, and the written records of these interactions. This division, however, is artificial as in southern Africa, where the last 500 years represent a formative period marked by enormous internal economic invention and political experimentation that shaped the cultural contours and categories of modern identities outside of European contact (Swanepoel, et al., 2008). This artificial division is further refuted by archaeological excavation evidence demonstrating continued occupation of farming community period settlements and retention of strong links with living communities (Mitchell & Arthur, 2010; 2012; Pinto, 2014). This section will consider the transition from the farming community period through to the historical, holistically.

Oral traditions suggest that by 1820, farming community peoples occupied much of the upper and middle parts of the Caledon Valley, and were present in smaller numbers along the lower reaches of the Senqu (Orange) River within southern Lesotho (Mitchell, 1992, p. 27). It is during this same period that multiyear droughts and food scarcity caused by crop failures and the loss of cattle to poor pasturage exacerbated dislocations of various Basotho clans, disrupting social networks and systems of political patronage and authority (Eldredge, 2015). This period further coincided with *Difaqane* or *Lifaqane*. The traditional understanding of the period is that Mzilikazi and his Ndebele group were pushed out of their territory by the Zulu group, led by Shaka. This displacement had a knock-on effect, as multiple groups were subsequently displaced to the north and the west (Garstang, et al., 2014).

At this time that Moshoeshoe I, a son of a junior chief of the BaMokoteli lineage of the crocodile clan[2], accumulated large herds of cattle through raiding weaker communities (Maliehle, 2019). This accumulation of wealth in conjunction with offers of protection and allegiance allowed for the emergence of a single Basotho polity under Moshoeshoe I as the paramount chief. The political consolidation of the various clans and refugees can be understood in terms of an African Frontier Model where mechanisms within social systems trigger repeated fission, migration and fusion of polities leading to the formation of new polities on the margins of, or in the spaces between more established societies (Kopytoff, 1987). This new Basotho state was based on mountain fortresses in the present lowlands of Lesotho (*first within the Butha-Buthe Mountain, and later on the Qiloane Plateau / Thaba Bosiu*) (Cobbe, 1983).

The subsequent evolution of the state was shaped by contact with Europeans, in the form of missionaries, *Voortrekkers* migrating into the interior, and British military. This form of

[2] Clan refers to a social unit made up of men and women who believe they have descended from a common ancestor through the male line. This differs from a chiefdom which consists of a number of clans, one being politically dominant (Ngubane, 2005)

colonialism served to greatly reduce the territory of early historical Lesotho (Cain, 2009). These interactions resulted in several skirmishes and wars, notably:

- Senekal's War (1858); and
- Seqiti War (1865).

Rosenberg (1999, p. 50) writes, "*After a decade of warfare (1858-68), it seemed as if the Basotho would fall to the Boers of the Orange Free State. With defeat on the horizon, Mashoeshoe turned to the British Empire for protection. In 1868, Basutholand was declared a British Territory, thus keeping it out of the Free State as well as the Union of South Africa*". Under the protection of the British, the Boers were ordered to leave, and with the Convention of Aliwal North, defined and agreed to the boundaries of the protectorate.

The unity of the Basotho was further challenged by the Gun War (1880-1881) with the Cape Colony, as well as internal factions. This notwithstanding, the threat of the British handing over the protectorate to South Africa served to unify the Basotho until independence in 1966 (Rosenberg, 1999), which culminated in the establishment of the Kingdom of Lesotho.

Cain (2009, p. 40) proports historical sites are common throughout the areas under investigation in his paper, with the majority identified being known to local and national populations. Through the investigation, tangible remains of occupation are linked to the recorded oral histories, these included the pioneers living in some instances with the San in caves, rock shelters or compounds no longer occupied today; the main population that established villages on the high shoulders of the mountains and hills when areas were formally allocated to the chiefs; and the more recent villages established in more accessible locations in lower elevations.

6.5 Listed Cultural Heritage

The GoL makes provision for the declaration of cultural heritage sites and resources within its boundaries. Table 6-4 provides a list of declared cultural heritage encapsulated in the various legal notices.

Table 6-4: Declared Cultural Heritage Sites and Resources

Site	District
Legal Notice 36 of 1969	
Monuments	
Ha Khotso	Maseru
Thaba-Tsoeu Petrified Wood Deposit	Mohale's Hoek
Maphutseng Fossilbed	Mohale's Hoek
Moyeni Fossil Footprint	Quthing
Masitise Seqhobo	Quthing

Site	District
Thaba Bosiu Fortress	Maseru
Major Bells's Tower	Leribe
Fort Hartley Remains	Quthing
Mount Moorosi Fortress	Quthing
Relics	
Litsoantso tsa Baroa / Bushman Paintings	All
Fossil Footprints	All
Fossil Remains	All
Archaeological Sites and Deposits	All
Legal Notice No. 81 of 2006	
Monuments	
Botha-Bothe Plateau	Botha-Bothe
Sekubu Cave	Botha-Bothe
Liphofung Cultural and Heritage Site	Botha-Bothe
Khalo-la-Lithunya	Botha-Bothe
Menkhoaneng Cultural Heritage Site	Botha-Bothe
Matita Grave	Berea
Ha Kome Cave Dwellings	Berea
Malimong Heritage Site	Berea
Khalo-la-Lithethana	Berea
Bokhopa Peak	Berea
St. Saviours Church Mission (ACL)	Leribe
Litemekoaneng	Leribe
Fika-le-Mohala	Maseru
Makoanyane Square	Maseru
Maletsunyane Falls	Maseru
All old churches / all government buildings [100 years old]	Maseru
Old graves of national heroes	Maseru
Mafeteng Cemetery / Lichaba Graveyard	Mafeteng
Qalabane Mountain	Mafeteng
Lets' a-la-luma	Mafeteng

Site	District
Lets'a-la-Letsie	Quthing
Old Bridge (Alwyn's Kop)	Quthing
Khubelu Hot Prings	Mokhotlong
Molumong Church Mission	Mokhotlong
Thabana-Ntlenyana	Mokhotlong
Mount-aux-Sources / Senqu Source	Mokhotlong
Tsoelike Mission / Suspended Bridge	Qacha's Nek
Siloe Mission	Mohale's Hoek

7 Potential Identified Impacts

Table 7-1 presents an overview of the potential risks to heritage resources that are expected at this stage and outlines preliminary mitigation measures that may mitigate these anticipated risks. The risk assessment will be refined following a pre-disturbance survey of the Project area and an assessment of the CS of any heritage resources identified within the Project area.

Table 7-1: Summary of Potential Risks to Cultural Heritage Resources

Phase	Activities	Potential impacts	Mitigation type	Potential for residual risk
Pre-construction	Possible removal of trees within construction servitude	Damage or destruction of tangible or intangible heritage resources	Proactive – avoid through amendment of servitudes	Low
Construction	Site Clearing		Proactive – avoid through amendment of development footprint	Low
	Site Establishment			
	Prepare access routes and laydown areas		Reactive – mitigate impacts on previously unidentified heritage resources	Medium to High
	Blasting of rock in pipeline trenches and for structure foundations and footings			

8 Heritage Impact Assessment Terms of Reference

The ToR for the requisite impact assessment phase will comprise the defined Scope of Work presented in the proposal and inception report. This will include the following:

- Notification of the HRM process and engagement with Interested and Affected Parties;
- Documentary data collection to supplement the cultural heritage baseline description;
- Primary data collection to identify tangible and intangible heritage resources within the site-specific and local study areas; and
- Evaluation of CS of identified heritage resources and assessment of potential impacts that may manifest from the Project.

9 Conclusion

The GoL Ministry of Water appointed Digby Wells to undertake an HIA process for the LLWDP-II. To construct the requisite LLWDP-II infrastructure, the GoL has secured financial assistance from the World Bank. Financing covers the aforementioned water intake, water treatment works, transmission mains, pumping stations, reservoirs and distribution networks within Zones 2 and 3 in the north-western section of Lesotho.

The outcomes of a gap analysis demonstrated that the previous consideration of cultural heritage as part of the ESIA only achieved partial compliance with the regulatory framework. The average compliance level achieved is 37.8%. To address these gaps, Digby Wells will complete the requisite scope as presented in Section 8 above.

Where this scope is achieved, Digby Wells is confident the regulatory requirements will be met, and potential risks to heritage resources within the site-specific study area will be managed or mitigated to both national and international best practice standards.

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Appendix A: Specialist CV

Mr. Justin du Piesanie

Divisional Manager

Social and Heritage Services

Digby Wells Environmental

1 Education

Date	Degree(s) or Diploma(s) obtained	Institution
2015	Continued Professional Development, Intermediate Project Management Course	PM.Ideas: A division of the Mindset Group
2013	Continued Professional Development Programme, Architectural and Urban Conservation: Researching and Assessing Local Environments	University of Cape Town
2008	MSc	University of the Witwatersrand
2005	BA (Honours) (Archaeology)	University of the Witwatersrand
2004	BA	University of the Witwatersrand
2001	Matric	Norkem Park High School

2 Language Skills

Language	Written	Spoken
English	Excellent	Excellent
Afrikaans	Proficient	Good

3 Employment

Period	Company	Title/position
2018 to present	Digby Wells Environmental	Divisional Manager: Social and Heritage Services
2016-2018	Digby Wells Environmental	Unit Manager: Heritage Resources Management
2011-2016	Digby Wells Environmental	Heritage Management Consultant: Archaeologist
2009-2011	University of the Witwatersrand	Archaeology Collections Manager
2009-2011	Independent	Archaeologist
2006-2007	Maropeng & Sterkfontein Caves UNESCO World Heritage Site	Tour guide

4 Experience

I joined the company in August 2011 as an archaeologist. Subsequently, Digby Wells appointed me as the Heritage Unit Manager and Divisional Manager for Social and Heritage Services in 2016 and 2018 respectively. I obtained my Master of Science (MSc) degree in Archaeology from the University of the Witwatersrand in 2008, specialising in the Southern African Iron Age. I further attended courses in architectural and urban conservation through the University of Cape Town's Faculty of Engineering and the Built Environment Continuing Professional Development Programme in 2013. I am a professional member of the Association of Southern African Professional Archaeologists (ASAPA), and accredited by the association's Cultural Resources Management (CRM) section. I am also a member of the International Council on Monuments and Sites (ICOMOS), an advisory body to the UNESCO World Heritage Convention. I have over 10 years combined experience in HRM in South Africa, including heritage assessments, archaeological mitigation, grave relocation, and NHRA Section 34 application processes. I gained further generalist experience since my appointment at Digby Wells in Botswana, Burkina Faso, Cameroon, the Democratic Republic of Congo, Liberia, Malawi, Mali, Senegal and Tanzania on projects that have required compliance with IFC requirements such as Performance Standard 8: Cultural Heritage. Furthermore, I have acted as a technical expert reviewer of HRM projects undertaken in Cameroon and Senegal. As Divisional Manager for Social and Heritage Services at Digby Wells Environmental, I manage several large capital Projects and multidisciplinary teams placing me in the best position to identify and exploit points of integration between the HRM process and greater social landscape. This approach to HRM, as an integrated discipline, is grounded in

international HRM principles and standards that has allowed me to provide comprehensive, project-specific solutions that promote ethical heritage management and assist in achieving the strategic objectives of our clients, as well as maintain or enhance Cultural Significance of the relevant cultural heritage resources.

5 Project Experience

Please see the following table for relevant Project experience:

PROJECT	LOCATION	DATES		PROJECT TYPE	CLIENT
LLWDP-II HRM Process	Lesotho	2020	-	Heritage Impact Assessment	Lesotho Lowlands Water Development Project II
Ergo City Deep Heritage Mitigations	Johannesburg, Gauteng, South Africa	2020	-	Heritage Impact Assessment, Rescue Permit Application and Monitoring	Ergo (Pty) Ltd
Marshall Street Barracks Archaeological Monitoring	Johannesburg, Gauteng, South Africa	2020	-	Archaeological Monitoring	GVK-Siya Zama Construction
Exxaro Belfast Site Inspection	Belfast, Mpumalanga, South Africa	2020	2020	Site Inspection	Exxaro Coal Mpumalanga (Pty) Ltd
Matla Mine 1 GRP	Kriel, Mpumalanga, South Africa	2020	-	Grave Relocation	Exxaro Coal Mpumalanga (Pty) Ltd
Mafube RAP and GRP	Middelburg, Mpumalanga, South Africa	2019	-	Grave Relocation	Mafube Coal
SARAO SKA Project: Heritage Mitigations	Carnarvon, Northern Cape, South Africa	2019	-	Heritage Management and Mitigation	SARAO
Kibali Kalimva & Ikamva Pit ESIA	Orientale Province, Democratic Republic of Congo	2019	2019	Heritage Impact Assessment	Barrick Gold Corporation
Ergo City Deep HSMP	Johannesburg, Gauteng, South Africa	2019	2019	Heritage Site Management Plan	Ergo (Pty) Ltd
Ergo RTSF Section 34 Process	Westonaria, Gauteng, South Africa	2019	-	Section 34 Destruction Permit Applications	Ergo (Pty) Ltd

PROJECT	LOCATION	DATES		PROJECT TYPE	CLIENT
Twyfelaar EIA	Ermelo, Mpumalanga, South Africa	2019	2019	Heritage Impact Assessment	Dagsoom Coal Mining (Pty) Ltd
Sasol River Diversion	Sasolburg, Free State, South Africa	2019	2019	Heritage Impact Assessment	Sasol Mining
Sun City EIA and CMP	Pilanesberg, North-West Province, South Africa	2018	2019	Heritage Impact Assessment and Conservation Management Plan	Sun International
Exxaro Matla HRM	Kriel, Mpumalanga, South Africa	2017	2019	Heritage Impact Assessment and Conservation Management Plan	Exxaro Coal Mpumalanga (Pty) Ltd
Exxaro Belfast GRP	Belfast, Mpumalanga, South Africa	2013	2019	Grave Relocation	Exxaro Coal Mpumalanga (Pty) Ltd
Eskom Northern KZN Strengthening	KwaZulu-Natal, South Africa	2016	2018	Heritage Impact Assessment	ILISO Consulting
Thabametsi GRP	Lephalale, Limpopo Province, South Africa	2017	2018	Grave Relocation	Exxaro Resources Ltd
SKA HIA and CMP	Carnarvon, Northern Cape, South Africa	2017	2018	Heritage Impact Assessment and Conservation Management Plan	SARAO
Grootegeluk Watching Brief	Lephalale, Limpopo Province, South Africa	2017	2017	Watching Brief	Exxaro Resources Ltd
Matla HSMP	Kriel, Mpumalanga Province, South Africa	2017	2017	Heritage Site Management Plan	Exxaro Coal Mpumalanga (Pty) Ltd
Ledjadja Coal Borrow Pits	Lephalale, Limpopo Province, South Africa	2017	2017	Heritage Basic Assessment	Ledjadja Coal (Pty) Ltd
Exxaro Belfast Implementation Project PIA	Belfast, Mpumalanga, South Africa	2017	2017	Palaeontological Impact Assessment	Exxaro Coal Mpumalanga (Pty) Ltd

PROJECT	LOCATION	DATES		PROJECT TYPE	CLIENT
Lanxess Chrome Mine Archaeological Mitigation	Rustenburg, North West Province, South Africa	2017	2017	Phase 2 Excavations	Lanxess Chrome Mine (Pty) Ltd
Tharisa Apollo EIA Project	KwaZulu-Natal, South Africa	2017	2017	Heritage Impact Assessment	GCS (Pty) Ltd
Queen Street Section 34 Process	Germiston, Johannesburg, Gauteng, South Africa	2017	2017	Section 34 Destruction Permit Applications	IDC Architects
Goulamina EIA Project	Goulamina, Sikasso Region, Mali	2017	2017	Heritage Impact Assessment	Birimian Limited
Zuurfontein Residential Establishment Project	Ekurhuleni, Gauteng, South Africa	2017	2017	Notification of Intent to Develop	Shuma Africa Projects
Kibali Grave Relocation Training and Implementation	Orientale Province, Democratic Republic of Congo	2017	2017	Grave Relocation	Randgold Resources Limited
Massawa EIA	Senegal	2016	2017	Heritage Impact Assessment and Technical Reviewer	Randgold Resources Limited
Beatrix EIA and EMP	Welkom, Free State, South Africa	2016	2017	Heritage Impact Assessment	Sibanye Stillwater
Sun City Chair Lift	Pilanesberg, North-West Province, South Africa	2016	2017	Notification of Intent to Develop and Heritage Basic Assessment	Sun International
Hendrina Underground Coal Mine EIA	Hendrina, Mpumalanga, South Africa	2016	2017	Heritage Impact Assessment	Umcebo Mining (Pty) Ltd
Elandsfontein EMP Update	Clewer, Mpumalanga, South Africa	2016	2017	Heritage Impact Assessment	Anker Coal
Groningen and Inhambane PRA	Limpopo Province, South Africa	2016	2016	Heritage Basic Assessment	Rustenburg Platinum Mines Limited

PROJECT	LOCATION	DATES		PROJECT TYPE	CLIENT
Palmietkuilen MRA	Springs, Gauteng, South Africa	2016	2016	Heritage Impact Assessment	Canyon Resources (Pty) Ltd
Copper Sunset Sand Mining S.102	Free State, South Africa	2016	2016	Heritage Basic Assessment	Copper Sunset Sand (Pty) Ltd
Grootvlei MRA	Springs, Gauteng, South Africa	2016	2016	Notification of Intent to Develop	Ergo (Pty) Ltd
Lambda EMP	Mpumalanga, South Africa	2016	2016	Palaeontological Impact Assessment	Eskom Holdings SOC Limited
Kilbarchan Basic Assessment and EMP	Newcastle, KwaZulu-Natal, South Africa	2016	2016	Heritage Basic Assessment	Eskom Holdings SOC Limited
Grootegeluk Amendment	Lephalale, Limpopo Province, South Africa	2016	2016	Notification of Intent to Develop	Exxaro Coal Resources (Pty) Ltd
Garsfontein Township Development	Pretoria, Gauteng, South Africa	2016	2016	Notification of Intent to Develop	Leungo Construction Enterprises
Louis Botha Phase 2	Johannesburg, Gauteng, South Africa	2016	2016	Phase 2 Excavations	Royal Haskoning DHV
Sun City Heritage Mapping	Pilanesberg, North-West Province, South Africa	2016	2016	Phase 2 Mapping	Sun International
Gino's Building Section 34 Destruction Permit Application	Johannesburg, Gauteng, South Africa	2015	2016	Heritage Impact Assessment and Section 34 Destruction Permit Application	Bigen Africa Services (Pty) Ltd
EDC Block Refurbishment Project	Johannesburg, Gauteng, South Africa	2015	2016	Heritage Impact Assessment and Section 34 Permit Application	Bigen Africa Services (Pty) Ltd
Namane IPP and Transmission Line EIA	Steenbokpan, Limpopo Province, South Africa	2015	2016	Heritage Impact Assessment	Namane Resources (Pty) Ltd

PROJECT	LOCATION	DATES		PROJECT TYPE	CLIENT
Temo Coal Road Diversion and Rail Loop EIA	Steenbokpan, Limpopo Province, South Africa	2015	2016	Heritage Impact Assessment	Namane Resources (Pty) Ltd
Sibanye WRTRP	Gauteng, South Africa	2014	2016	Heritage Impact Assessment	Sibanye Stillwater
NTEM Iron Ore Mine and Pipeline Project	Cameroon	2014	2016	Technical Review	IMIC plc
NLGM Constructed Wetlands Project	Liberia	2015	2015	Heritage Impact Assessment	Aureus Mining
ERPM Section 34 Destruction Permits Applications	Johannesburg, Gauteng, South Africa	2015	2015	Section 34 Destruction Permit Applications	Ergo (Pty) Ltd
JMEP II EIA	Botswana	2015	2015	Heritage Impact Assessment	Jindal
Oakleaf ESIA Project	Bronkhorstspruit, Gauteng, South Africa	2014	2015	Heritage Impact Assessment	Oakleaf Investment Holdings
Imvula Project	Kriel, Mpumalanga, South Africa	2014	2015	Heritage Impact Assessment	Ixia Coal
VMIC Vanadium EIA Project	Mokopane, Limpopo, South Africa	2014	2015	Heritage Impact Assessment	VM Investment Company
Everest North Mining Project	Steelpoort, Mpumalanga, South Africa	2012	2015	Heritage Impact Assessment	Aquarius Resources
Nzoro 2 Hydro Power Project	Orientale Province, Democratic Republic of Congo	2014	2014	Social consultation	Randgold Resources Limited
Eastern Basin AMD Project	Springs, Gauteng, South Africa	2014	2014	Heritage Impact Assessment	AECOM
Soweto Cluster Reclamation Project	Soweto, Gauteng, South Africa	2014	2014	Heritage Impact Assessment	Ergo (Pty) Ltd
Klipspruit South Project	Ogies, Mpumalanga, South Africa	2014	2014	Heritage Impact Assessment	BHP Billiton

PROJECT	LOCATION	DATES		PROJECT TYPE	CLIENT
Klipspruit Extension: Weltevreden Project	Ogies, Mpumalanga, South Africa	2014	2014	Heritage Impact Assessment	BHP Billiton
Ergo Rondebult Pipeline Basic Assessment	Johannesburg, South Africa	2014	2014	Heritage Basic Assessment	Ergo (Pty) Ltd
Kibali ESIA Update Project	Orientale Province, Democratic Republic of Congo	2014	2014	Heritage Impact Assessment	Randgold Resources Limited
GoldOne EMP Consolidation	Westonaria, Gauteng, South Africa	2014	2014	Gap analysis	Gold One International
Yzermite PIA	Wakkerstroom , Mpumalanga, South Africa	2014	2014	Palaeontological Impact Assessment	EcoPartners
Sasol Mooikraal Basic Assessment	Sasolburg, Free State, South Africa	2014	2014	Heritage Basic Assessment	Sasol Mining
Rea Vaya Phase II C Project	Johannesburg, Gauteng, South Africa	2014	2014	Heritage Impact Assessment	ILISO Consulting
New Liberty Gold Project	Liberia	2013	2014	Grave Relocation	Aureus Mining
Putu Iron Ore Mine Project	Petroken, Liberia	2013	2014	Heritage Impact Assessment	Atkins Limited
Sasol Twistdraai Project	Secunda, Mpumalanga, South Africa	2013	2014	Notification of Intent to Develop	ERM Southern Africa
Kibali Gold Hydro-Power Project	Orientale Province, Democratic Republic of Congo	2012	2014	Heritage Impact Assessment	Randgold Resources Limited
SEGA Gold Mining Project	Burkina Faso	2013	2013	Technical Reviewer	Cluff Gold PLC
Consbrey and Harwar Collieries Project	Breyton, Mpumalanga, South Africa	2013	2013	Heritage Impact Assessment	Msobo Coal
Falea Uranium Mine Environmental Assessment	Falea, Mali	2013	2013	Heritage Scoping	Rockgate Capital

PROJECT	LOCATION	DATES		PROJECT TYPE	CLIENT
Daleside Acetylene Gas Production Facility	Gauteng, South Africa	2013	2013	Heritage Impact Assessment	ERM Southern Africa
SEGA Gold Mining Project	Burkina Faso	2012	2013	Socio Economic and Asset Survey	Cluff Gold PLC
Kibali Gold Project Grave Relocation Plan	Orientale Province, Democratic Republic of Congo	2011	2013	Grave Relocation	Randgold Resources Limited
Everest North Mining Project	Steelpoort, Mpumalanga, South Africa	2012	2012	Heritage Impact Assessment	Aquarius Resources
Environmental Authorisation for the Gold One Geluksdal TSF and Pipeline	Gauteng, South Africa	2012	2012	Heritage Impact Assessment	Gold One International
Platreef Burial Grounds and Graves Survey	Mokopane, Limpopo Province, South Africa	2012	2012	Burial Grounds and Graves Survey	Platreef Resources
Resgen Boikarabelo Coal Mine	Limpopo Province, South Africa	2012	2012	Phase 2 Excavations	Resources Generation
Bokoni Platinum Road Watching Brief	Burgersfort, Limpopo Province, South Africa	2012	2012	Watching Brief	Bokoni Platinum Mine
Transnet NMPP Line	Kwa-Zulu Natal, South Africa	2010	2010	Heritage survey	Umlando Consultants
Archaeological Impact Assessment – Witpoortjie Project	Johannesburg, Gauteng, South Africa	2010	2010	Archaeological Impact Assessment	ARM
Der Brochen Archaeological Excavations	Steelpoort, Mpumalanga, South Africa	2010	2010	Phase 2 Excavations	Heritage Contracts Unit
De Brochen and Booysendal Archaeology Project	Steelpoort, Mpumalanga, South Africa	2010	2010	Site Recording: Mapping	Heritage Contracts Unit
Eskom Thohoyandou Electricity Master Network	Limpopo Province, South Africa	2010	2010	Heritage Statement	Strategic Environmental Focus

PROJECT	LOCATION	DATES		PROJECT TYPE	CLIENT
Batlhako Mine Expansion	North-West Province, South Africa	2010	2010	Phase 2 Mapping	Heritage Contracts Unit
Wenzelrust Excavations	Shoshanguve, Gauteng, South Africa	2009	2009	Phase 2 Excavations	Heritage Contracts Unit
University of the Witwatersrand Parys LIA Shelter Project	Parys, Free State, South Africa	2009	2009	Phase 2 Mapping	University of the Witwatersrand
Archaeological Assessment of Modderfontein AH Holdings	Johannesburg, Gauteng, South Africa	2008	2008	Heritage Basic Assessment	ARM
Heritage Assessment of Rhino Mines	Thabazimbi, Limpopo Province, South Africa	2008	2008	Heritage Impact Assessment	Rhino Mines
Cronimet Project	Thabazimbi, Limpopo Province, South Africa	2008	2008	Archaeological surveys	Cronimet
Eskom Thohoyandou SEA Project	Limpopo Province, South Africa	2008	2008	Heritage Statement	Eskom
Witbank Dam Archaeological Impact Assessment	Witbank, Mpumalanga, South Africa	2007	2007	Archaeological survey	ARM
Sun City Archaeological Site Mapping	Sun City, Pilanesberg, North West Province, South Africa	2006	2006	Site Recording: Mapping	Sun International
Klipriviersberg Archaeological Survey	Meyersdal, Gauteng, South Africa	2005	2006	Archaeological surveys	ARM

6 Professional Registration

Position	Professional Body	Registration Number
Member	Association for Southern African Professional Archaeologists (ASAPA);	270

Position	Professional Body	Registration Number
	ASAPA Cultural Resources Management (CRM) section	
Member	International Council on Monuments and Sites (ICOMOS)	14274
Member	Society for Africanist Archaeologists (SAfA)	N/A
Member	International Association of Impact Assessors (IAIA) South Africa	5494

7 Publications

Huffman, T.N. & du Piesanie, J.J. 2011. Khami and the Venda in the Mapungubwe Landscape. Journal of African Archaeology 9(2): 189-206

du Piesanie, J.J., 2017. Book Review: African Cultural Heritage Conservation and Management. South African Archaeological Bulletin 72(205)

Jaco van der Walt
Archaeologist

jaco.heritage@gmail.com
+27 82 373 8491
+27 86 691 6461

Education:

Particulars of degrees/diplomas and/or other qualifications:

Name of University or Institution:		University of Pretoria
Degree obtained	**:**	BA Heritage Tourism & Archaeology
Year of graduation	**:**	2001
Name of University or Institution:		University of the Witwatersrand
Degree obtained	**:**	BA Hons Archaeology
Year of graduation	**:**	2002
Name of University or Institution	**:**	University of the Witwatersrand
Degree Obtained	**:**	MA (Archaeology)
Year of Graduation	:	2012
Name of University or Institution	**:**	University of Johannesburg
Degree	**:**	PhD
Year	:	Currently Enrolled

EMPLOYMENT HISTORY:

2011 – Present:	**Owner – HCAC (Heritage Contracts and Archaeological Consulting CC)**.
2007 – 2010 :	**CRM Archaeologist,** Managed the Heritage Contracts Unit at the University of the Witwatersrand.
2005 - 2007:	**CRM Archaeologist**, Director of Matakoma Heritage Consultants
2004:	**Technical Assistant**, Department of Anatomy University of Pretoria
2003:	**Archaeologist**, Mapungubwe World Heritage Site
2001 - 2002:	**CRM Archaeologists,** For R & R Cultural Resource Consultants, Polokwane
2000:	**Museum Assistant**, Fort Klapperkop.

Countries of work experience include:

Republic of South Africa, Botswana, Zimbabwe, Mozambique, Tanzania, The Democratic Republic of the Congo, Lesotho and Zambia.

SELECTED PROJECTS INCLUDE:

Archaeological Impact Assessments (Phase 1)

Heritage Impact Assessment Proposed Discharge Of Treated Mine Water Via The Wonderfontein Spruit Receiving Water Body. Specialist as part of team conducting an Archaeological Assessment for the Mmamabula mining project and power supply, Botswana
Archaeological Impact Assessment Mmamethlake Landfill
Archaeological Impact Assessment Libangeni Landfill

Linear Developments

Selected Linear Phase 1 Cultural Resource Management (Heritage and Archaeological Impact Assessment) Projects:

Archaeological Impact Assessment, Sekuruwe Pipelines, Mokopane, Limpopo.
Archaeological Impact Assessment, Seema Pipelines, Mokopane, Limpopo.
Archaeological Impact Assessment, Tshamahansi Pipelines, Mokopane, Limpopo.
A cultural heritage evaluation for the proposed Spencer Venulu Power line
Archaeological Impact Assessment for the Mamelodi – Hatherley Power Line, Mamelodi, Gauteng Province.
Archaeological Impact Assessment Medupi – Spitskop Power Line, Limpopo Province
Archaeological Impact Assessment Amendment To The Existing Report For The Grootvlei-Balfour Powerline, Burnstone Gold Mine Project, Balfour, Mpumalanga
Archaeological Impact Assessment for the Simmerpan Strengthening Project - Powerlines And New Substation, Johannesburg, Gauteng Province
Archaeological And Cultural Land Assessment For The Lethabo Power Station, On The Farm Lethabo Power Station 1814, Vereeniging, Free State Province
Archaeological Impact Assessment Proposed Marula 132/11kv Substation On A Remainder Of Portion 2 Of The Farm Hartebeestfontein 258 IQ, Randfontein, Gauteng Province
Archaeological Impact Assessment Proposed Cot Wildebees 400/132 Kv Substation And Loop In Lines, On Portions Of The Farms Pienaarspoort 338 & 339 JR And Hatherley 331 JR, Gauteng Province
Heritage Desktop Study for Eskom Tonki project.
Archaeological Impact Assessment for Majuba, Tutuka and Lethabo PV Facilities
Archaeological Walkdown of the Mareetsane Powerline, North West Province.
Phase 1 Heritage Assessment of Doornpoort 312 JS Witbank, Mpumalanga.

Renewable Energy developments

Archaeological Impact Assessment Karoshoek Solar Project Kenhardt PV
Heritage Impact Assessment Kotulo Tsatsi, Northern Cape.

HIA for the proposed Karoshoek Solar Development, Northern Cape.
HIA for the proposed Buffels Solar Farm 1 , Klerksdorp, North West Province
HIA for the proposed Buffels Solar Farm 2 , Klerksdorp, North West Province
HIA for the proposed Woodhouse Solar Development, North West Province
HIA for the proposed Orkney Solar Farm, Orkney, North West Province
HIA for the proposed Henneman Solar AIA, Free State Province.
Heritage Assessment for the project Batoka Gorge HIA, Zambia
Heritage Assessment for the project Kalungwishi Heritage study, Zambia

Grave Relocation Projects

Relocation of graves and site monitoring at Chloorkop as well as permit application and liaison with local authorities and social processes with local stakeholders, Gauteng Province.

Relocation of the grave of Rifle Man Maritz as well as permit application and liaison with local authorities and social processes with local stakeholders, Ndumo, Kwa Zulu Natal.
Relocation of the Magolwane graves for the office of the premier, Kwa Zulu Natal
Relocation of the OSuthu Royal Graves office of the premier, Kwa Zulu Natal

Phase 2 Mitigation Projects

Field Director for the Archaeological Mitigation For Booysendal Platinum Mine, Steelpoort, Limpopo Province. Principle investigator Prof. T. Huffman
Monitoring of heritage sites affected by the ARUP Transnet Multipurpose Pipeline under directorship of Gavin Anderson.
Field Director for the Phase 2 mapping of a late Iron Age site located on the farm Kameelbult, Zeerust, North West Province. Under directorship of Prof T. Huffman.
Field Director for the Phase 2 surface sampling of Stone Age sites effected by the Medupi – Spitskop Power Line, Limpopo Province

Heritage management projects

Platreef Mitigation project – mitigation of heritage sites and compilation of conservation management plan.

MEMBERSHIP OF PROFESSIONAL ASSOCIATIONS:

- Association of Southern African Professional Archaeologists. Member number 159

  Accreditation:

  - Field Director — Iron Age Archaeology
  - Field Supervisor — Colonial Period Archaeology, Stone Age Archaeology and Grave Relocation
- Accredited CRM Archaeologist with SAHRA
- Accredited CRM Archaeologist with AMAFA
- Co-opted council member for the CRM Section of the Association of Southern African Association Professional Archaeologists (2011 – 2012)

PUBLICATIONS AND PRESENTATIONS

- A Culture Historical Interpretation, Aimed at Site Visitors, of the Exposed Eastern Profile of K8 on the Southern terrace at Mapungubwe.
  - J van der Walt, A Meyer, WC Nienaber
  - Poster presented at Faculty day, Faculty of Medicine University of Pretoria 2003
- 'n Reddingsondersoek na Anglo-Boereoorlog-ammunisie, gevind by Ifafi, Noordwes-Provinsie. South-African Journal for Cultural History 16(1) June 2002, with A. van Vollenhoven as co-writer.
- Fieldwork Report: Mapungubwe Stabilization Project.
  - WC Nienaber, M Hutten, S Gaigher, J van der Walt
  - Paper read at the Southern African Association of Archaeologists Biennial Conference 2004
- A War Uncovered: Human Remains from Thabantšho Hill (South Africa), 10 May 1864.
  - M. Steyn, WS Boshoff, WC Nienaber, J van der Walt
  - Paper read at the 12th Congress of the Pan-African Archaeological Association for Prehistory and Related Studies 2005
- Field Report on the mitigation measures conducted on the farm Bokfontein, Brits, North West Province .
  - J van der Walt, P Birkholtz, W. Fourie
  - Paper read at the Southern African Association of Archaeologists Biennial Conference 2007

- Field report on the mitigation measures employed at Early Farmer sites threatened by development in the Greater Sekhukhune area, Limpopo Province. J van der Walt
    - Paper read at the Southern African Association of Archaeologists Biennial Conference 2008
- Ceramic analysis of an Early Iron Age Site with vitrified dung, Limpopo Province South Africa.
    - J van der Walt. Poster presented at SAFA, Frankfurt Germany 2008

- Bantu Speaker Rock Engravings in the Schoemanskloof Valley, Lydenburg District, Mpumalanga (*In Prep)*
    - J van der Walt and J.P Celliers
- Sterkspruit: Micro-layout of late Iron Age stone walling, Lydenburg, Mpumalanga. W. Fourie and J van der Walt. A Poster presented at the Southern African Association of Archaeologists Biennial Conference 2011
- Detailed mapping of LIA stone-walled settlements' in Lydenburg, Mpumalanga. J van der Walt and J.P Celliers
    - Paper read at the Southern African Association of Archaeologists Biennial Conference 2011
- Bantu-Speaker Rock engravings in the Schoemanskloof Valley, Lydenburg District, Mpumalanga. J.P Celliers and J van der Walt
    - Paper read at the Southern African Association of Archaeologists Biennial Conference 2011
- Pleistocene hominin land use on the western trans-Vaal Highveld ecoregion, South Africa, Jaco van der Walt.
    - J van der Walt. Poster presented at SAFA, Toulouse, France. Biennial Conference 2016

REFERENCES:

1. Prof Marlize Lombard — Senior Lecturer, University of Johannesburg, South Africa
   E-mail: mlombard@uj.ac.za
2. Prof TN Huffman — Department of Archaeology Tel: (011) 717 6040
   University of the Witwatersrand
3. Alex Schoeman — University of the Witwatersrand
   E-mail: Alex.Schoeman@wits.ac.za

Curriculum vitae (short) - Marion Bamford PhD
January 2020

I) Personal details

Surname	:	**Bamford**
First names	:	**Marion Kathleen**
Present employment	:	Professor; Director of the Evolutionary Studies Institute. Member Management Committee of the NRF/DST Centre of Excellence Palaeosciences, University of the Witwatersrand, Johannesburg, South Africa-
Telephone	:	+27 11 717 6690
Fax	:	+27 11 717 6694
Cell	:	082 555 6937
E-mail	:	marion.bamford@wits.ac.za ; marionbamford12@gmail.com

ii) Academic qualifications

Tertiary Education: All at the University of the Witwatersrand:
1980-1982: BSc, majors in Botany and Microbiology. Graduated April 1983.
1983: BSc Honours, Botany and Palaeobotany. Graduated April 1984.
1984-1986: MSc in Palaeobotany. Graduated with Distinction, November 1986.
1986-1989: PhD in Palaeobotany. Graduated in June 1990.

iii) Professional qualifications

Wood Anatomy Training (overseas as nothing was available in South Africa):
1994 - Service d'Anatomie des Bois, Musée Royal de l'Afrique Centrale, Tervuren, Belgium, by Roger Dechamps
1997 - Université Pierre et Marie Curie, Paris, France, by Dr Jean-Claude Koeniguer
1997 - Université Claude Bernard, Lyon, France by Prof Georges Barale, Dr Jean-Pierre Gros, and Dr Marc Philippe

iv) Membership of professional bodies/associations

Palaeontological Society of Southern Africa
Royal Society of Southern Africa - Fellow: 2006 onwards
Academy of Sciences of South Africa - Member: Oct 2014 onwards
International Association of Wood Anatomists - First enrolled: January 1991
International Organization of Palaeobotany – 1993+
Botanical Society of South Africa
South African Committee on Stratigraphy – Biostratigraphy - 1997 - 2016

SASQUA (South African Society for Quaternary Research) – 1997+
PAGES - 2008 –onwards: South African representative
ROCEEH / WAVE – 2008+
INQUA – PALCOMM – 2011+onwards

vii) Supervision of Higher Degrees

All at Wits University

Degree	Graduated/completed	Current
Honours	7	0
Masters	10	4
PhD	12	5
Postdoctoral fellows	10	3

viii) Undergraduate teaching
Geology II – Palaeobotany GEOL2008 – average 65 students per year
Biology III – Palaeobotany APES3029 – average 25 students per year
Honours – Evolution of Terrestrial Ecosystems; African Plio-Pleistocene Palaeoecology; Micropalaeontology – average 2-8 students per year.

ix) Editing and reviewing
Editor: Palaeontologia africana: 2003 to 2013; 2014 – Assistant editor
Guest Editor: Quaternary International: 2005 volume
Member of Board of Review: Review of Palaeobotany and Palynology: 2010 –
Cretaceous Research: 2014 –
Journal of African Earth Sciences: 2020 –

Review of manuscripts for ISI-listed journals: 25 local and international journals

x) Palaeontological Impact Assessments

Selected – list not complete:

- Thukela Biosphere Conservancy 1996; 2002 for DWAF
- Vioolsdrift 2007 for Xibula Exploration
- Rietfontein 2009 for Zitholele Consulting
- Bloeddrift-Baken 2010 for TransHex
- New Kleinfontein Gold Mine 2012 for Prime Resources (Pty) Ltd.
- Thabazimbi Iron Cave 2012 for Professional Grave Solutions (Pty) Ltd
- Delmas 2013 for Jones and Wagener
- Klipfontein 2013 for Jones and Wagener
- Platinum mine 2013 for Lonmin
- Syferfontein 2014 for Digby Wells
- Canyon Springs 2014 for Prime Resources
- Kimberley Eskom 2014 for Landscape Dynamics

- Yzermyne 2014 for Digby Wells
- Matimba 2015 for Royal HaskoningDV
- Commissiekraal 2015 for SLR
- Harmony PV 2015 for Savannah Environmental
- Glencore-Tweefontein 2015 for Digby Wells
- Umkomazi 2015 for JLB Consulting
- Ixia coal 2016 for Digby Wells
- Lambda Eskom for Digby Wells
- Alexander Scoping for SLR
- Perseus-Kronos-Aries Eskom 2016 for NGT
- Mala Mala 2017 for Henwood
- Modimolle 2017 for Green Vision
- Klipoortjie and Finaalspan 2017 for Delta BEC
- Ledjadja borrow pits 2018 for Digby Wells
- Lungile poultry farm 2018 for CTS
- Olienhout Dam 2018 for JP Celliers
- Isondlo and Kwasobabili 2018 for GCS
- Kanakies Gypsum 2018 for Cabanga
- Nababeep Copper mine 2018
- Glencore-Mbali pipeline 2018 for Digby Wells
- Remhoogte PR 2019 for A&HAS
- Bospoort Agriculture 2019 for Kudzala
- Overlooked Quarry 2019 for Cabanga
- Richards Bay Powerline 2019 for NGT
- Eilandia dam 2019 for ACO
- Eastlands Residential 2019 for HCAC
- Fairview MR 2019 for Cabanga
- Graspan project 2019 for HCAC
- Lieliefontein N&D 2019 for Enviropro

xi) Research Output

Publications by M K Bamford up to December 2019 peer-reviewed journals or scholarly books: over 140 articles published; 5 submitted/in press; 8 book chapters.
Scopus h index = 27; Google scholar h index = 32;
Conferences: numerous presentations at local and international conferences.

xii) NRF Rating

NRF Rating: B-2 (2016-2020)
NRF Rating: B-3 (2010-2015)
NRF Rating: B-3 (2005-2009)
NRF Rating: C-2 (1999-2004)

Miss Shannon Hardwick

Heritage Resources Management Consultant

Social and Heritage Services

Digby Wells Environmental

1 Education

Date	Degree(s) or Diploma(s) obtained	Institution
2013	MSc (Archaeology)	University of the Witwatersrand
2010	BSc (Honours) (Archaeology)	University of the Witwatersrand
2009	BSc	University of the Witwatersrand
2006	Matric	Rand Park High School

2 Language Skills

Language	Written	Spoken
English	Excellent	Excellent
Afrikaans	Fair	Basic

3 Employment

Period	Company	Title/position
2019 to Present	Digby Wells Environmental	Heritage Resources Management Consultant
2017 to 2019	Digby Wells Environmental	Assistant Heritage Resources Management Consultant
2017 to 2017	Digby Wells Environmental	Social and Heritage Services Intern
2016 to 2017	Tarsus Academy	Facilitator
2011 to 2016	University of the Witwatersrand	Teaching Assistant
2011	University of the Witwatersrand	Collections Assistant

4 Experience

I joined the Digby Wells team in May 2017 as a Heritage Management Intern and has most recently been appointed as a Heritage Resources Management Consultant. I am an archaeologist and obtained a Master of Science (MSc) degree from the University of the Witwatersrand in 2013, specialising in historical archaeobotany in the Limpopo Province. I am a published co-author of one paper in *Journal of Ethnobiology*.

Since joining Digby Wells, I have gained generalist experience through the compilation of various heritage assessments, including Notification of Intent to Develop (NIDs), Heritage Scoping Reports (HSRs), Heritage Impact Assessment (HIA) reports, Heritage Basic Assessment Reports (HBARs) and permit applications to undertake permitted activities in terms of Sections 34 and 35 of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA). I have also obtained experience in compiling socio-economic documents, including a Community Health, Safety and Security Management Plan (CHSSMP) and social baselines and data analysis for Projects in South Africa, Malawi, Mali and Sierra Leone. My fieldwork experience includes heritage pre-disturbance surveys in South Africa, Malawi and the Democratic Republic of the Congo and social fieldwork in Malawi.

I am a registered member of the Association of Southern African Professional Archaeologists (ASAPA) and the International Council on Monuments and Sites (ICOMOS).

5 Project Experience

My project experience is listed in the table below.

Project Experience

Project Title	Name of Client	Project Location	Date of Completion	Project / Experience Description
Environmental Authorisation for the Dagsoom Coal Mining Project near Ermelo, Mpumalanga Province	Dagsoom Coal Mining (Pty) Ltd	Ermelo, Mpumalanga Province	Ongoing	Heritage Impact Assessment
Regional Tailings Storage Facility Heritage Mitigations	Ergo Mining (Pty) Ltd	Randfontein, Gauteng	Ongoing	Section 34 Permit Application Process
Weltervreden Mine Environmental Authorisation, Water Use Licence and Mining Right Application Project	Mbuyelo Group (Pty) Ltd	Belfast, Mpumalanga	Ongoing	Heritage Impact Assessment

Project Title	Name of Client	Project Location	Date of Completion	Project / Experience Description
Environmental Authorisation for the proposed Lephalale Pipeline Project, Limpopo Province	MDT Environmental (Pty) Ltd	Lephalale, Limpopo Province	2019	Notification of Intent to Develop
Heritage Resources Management Process Update for the Exxaro Matla Mine	Exxaro Coal Mpumalanga (Pty) Ltd	Kriel, Mpumalanga Province	2019	Heritage Site Management Plan Update
Environmental Authorisation for the proposed Musina-Makhado Special Economic Zone Development Project, Limpopo Province	Limpopo Economic Development Agency	Vhembe District Municipality, Limpopo Province	Ongoing	Heritage Impact Assessment Project Management
Songwe Hills Rare Earth Elements Project	Mkango Resources Limited	Phalombe District, Malawi	Ongoing	Heritage Impact Assessment
Elandsfontein Colliery Burial Grounds and Graves Chance Finds	Anker Coal and Mineral Holdings SA (Pty) Ltd Elandsfontein Colliery (Pty) Ltd	Clewer, Emalahleni, Mpumalanga Province	December 2018	Site Inspection Project Management
Environmental Authorisation Process to Decommission a Conveyor Belt Servitude, Road and Quarry at Twistdraai East Colliery	Sasol Mining (Pty) Ltd	Secunda, Mpumalanga Province	Ongoing	Notification of Intent to Develop
Environmental and Social Impact Assessment for the Bougouni Lithium Project, Mali	Future Minerals S.A.R.L.	Bougouni, Mali	Ongoing	Heritage Impact Assessment
Environmental Authorisation for the Nomalanga Estates Expansion Project, KwaZulu-Natal	Nomalanga Property Holdings (Pty) Ltd	Greytown. KwaZulu-Natal	Ongoing	Heritage Impact Assessment
Environmental Authorisation for the Temo Mine proposed Rail, Road and Pipeline Development, Limpopo Province	Temo Coal Mining (Pty) Ltd	Lephalale, Limpopo Province	Ongoing	Heritage Impact Assessment

Project Title	Name of Client	Project Location	Date of Completion	Project / Experience Description
Gorumbwa RAP Audit	Randgold Resources Limited	Kibali Sector, Democratic Republic of the Congo	December 2018	Resettlement Action Plan Audit
Sasol Sigma Defunct Colliery Surface Mitigation Project: Proposed Rover Diversion and Flood Protection Berms	Sasol Mining (Pty) Ltd	Sasolburg, Free State Province	November 2018	Notification of Intent to Develop
Basic Assessment and Regulation 31 Amendment / Consolidation for Sigma Colliery: Mooikraal and Sigma Colliery: 3 Shaft	Sasol Mining (Pty) Ltd	Sasolburg, Free State Province	Ongoing	Notification of Intent to Develop
Sasol Mining Sigma Colliery Ash Backfilling Project, Sasolburg, Free State Province	Sasol Mining (Pty) Ltd	Sasolburg, Free State Province	July 2018	Heritage Basic Assessment Report Update
Constructed Landfill Site for the Sierra Rutile Limited Mining Operation, Southern Province, Sierra Leone	Sierra Rutile Limited	Southern Province, Sierra Leone	May 2019	Social Impact Assessment
Environmental Impact Assessment for the Klipspruit Colliery Water Treatment Plant and associated pipeline, Mpumalanga	South32 SA Coal Holdings (Pty) Ltd	Ogies, Mpumalanga Province	Ongoing	Notification of Intent to Develop; Social baseline
Proposed construction of a Water Treatment Plant and associated infrastructure for the Treatment of Mine-Affected Water at the Kilbarchan Colliery	Eskom Holdings SOC Limited	Newcastle, KwaZulu-Natal Province	Ongoing	Heritage Impact Assessment
Belfast Implementation Project	Exxaro Coal Mpumalanga (Pty) Ltd	Belfast, Mpumalanga Province	Ongoing	Section 34 Permit Application

Project Title	Name of Client	Project Location	Date of Completion	Project / Experience Description
Newcastle Landfill Project	GCS Water and Environmental Consultants	Newcastle, KwaZulu-Natal	March 2019	Heritage Impact Assessment
NHRA Section 34 Permit Application process for the Davin and Queens Court Buildings on Erf 173 and 174, West Germiston, Gauteng Province	IDC Architects	Johannesburg, Gauteng Province	May 2018	Section 34 Permit Application Process
Basic Assessment and Environmental Management Plan for the Proposed pipeline from the Mbali Colliery to the Tweefontein Water Reclamation Plant, Mpumalanga Province	HCI Coal (Pty) Ltd Mbali Colliery	Ogies, Mpumalanga Province	February 2018	Heritage Basic Assessment Report
The South African Radio Astronomy Observatory Square Kilometre Array Heritage Impact Assessment and Conservation Management Plan Project	The South African Radio Astronomy Observatory (SARAO)	Carnarvon, Northern Cape Province	July 2018	Heritage Impact Assessment; Conservation Management Plan
Environmental Impact Assessment for the proposed Future Developments within the Sun City Resort Complex	Sun International (Pty) Ltd	Rustenburg, North West Province	Ongoing	Heritage Impact Assessment Conservation Management Plan Social Baseline
Environmental Fatal Flaw Analysis for the Mabula Filling Station	Mr van den Bergh	Waterberg, Limpopo Province	November 2017	Fatal Flaw Analysis
Environmental Impact Assessment for the Blyvoor Gold Mining Project near Carletonville, Gauteng Province	Blyvoor Gold Capital (Pty) Ltd	Carletonville, Gauteng	Ongoing	Notification of Intent to Develop; Social Baseline

Project Title	Name of Client	Project Location	Date of Completion	Project / Experience Description
Heritage Resources Management Process for the Exxaro Matla Mine	Exxaro Coal Mpumalanga (Pty) Ltd	Kriel, Mpumalanga Province	October 2018	Heritage Impact Assessment
Liwonde Additional Studies	Mota-Engil Africa	Liwonde, Malawi	June 2018	Community Health, Safety and Security Management Plan
Environmental Impact Assessment for the Millsite TSF Complex	Sibanye-Stillwater	Randfontein, Gauteng	December 2017	Heritage Impact Assessment
Heritage Resources Management Process for the Portion 296 of the farm Zuurfontein 33 IR Proposed Residential Establishment Project	Shuma Africa Projects (Pty) Ltd	Ekurhuleni (Johannesburg), Gauteng	June 2017	Notification of Intent to Develop
NHRA Section 35 Archaeological Investigations, Lanxess Chrome Mine, North-West Province	Lanxess Chrome Mine (Pty) Ltd	Rustenburg, North West Province	August 2017	Archaeological Phase 2 Mitigation
Environmental and Social Input for the Pre-Feasibility Study	Birimium Gold	Bougouni, Mali	October 2018	Pre-Feasibility Study; Heritage Impact Assessment

6 Professional Registration

Position	Professional Body	Member Number
Member	Association of Southern African Professional Archaeologists (ASAPA)	451
Member	International Council on Monuments and Sites (ICOMOS)	38048

7 Publications

Esterhuysen, A.B. & Hardwick, S.K. 2017. Plant remains recovered from the 1854 siege of the Kekana Ndebele, Historic Cave, Makapan Valley, South Africa. *Journal of Ethnobiology* 37(1): 97-119.