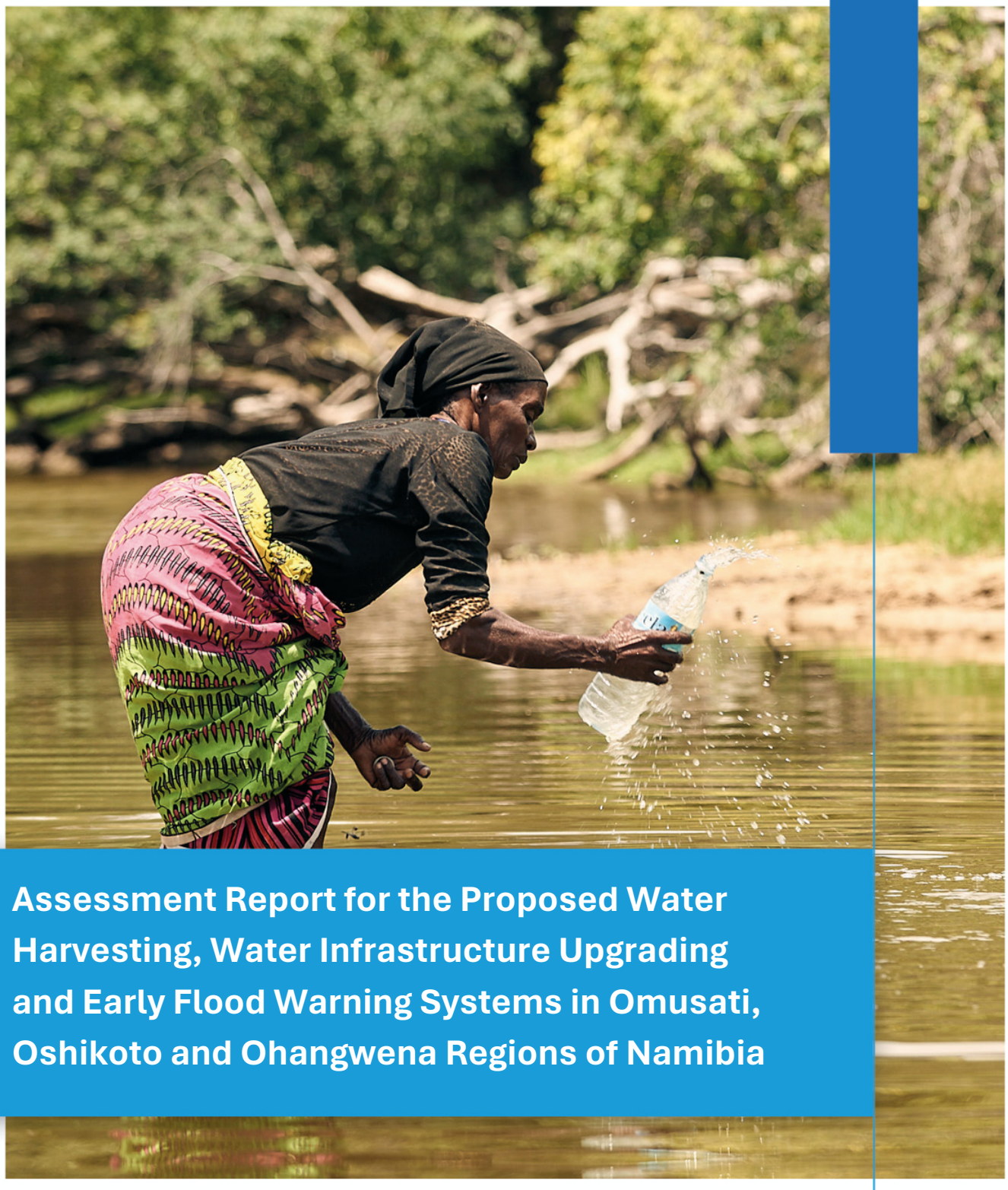
CUVKUN

Enhanced Water Security and Community Resilience in the Adjacent Cuvelai and Kunene Transboundary River Basins Project



Assessment Report for the Proposed Water Harvesting, Water Infrastructure Upgrading and Early Flood Warning Systems in Omusati, Oshikoto and Ohangwena Regions of Namibia

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EXECUTIVE SUMMARY

An Archaeological and Cultural Heritage Impact Assessment (ACHIA) was conducted on behalf of the Cuvelai Watercourse Commission and the Global Water Partnership Southern Africa, focusing on a proposed project aimed at enhancing water security in northern Namibia. The project includes the development of mechanized and solar-powered wells, the piloting of flood early warning systems, and the establishment of rainwater harvesting ponds across selected sites in the Omusati, Oshikoto and Ohangwena regions.

The assessment employed a multidisciplinary approach, reviewing archaeological and cultural heritage records, historical documents from previous studies in the surrounding areas, Geographic Information System (GIS) spatial data, and conducting stakeholder interviews with residents, traditional authorities, and other interested and affected parties. A systematic field survey was also undertaken to assess the tangible and intangible heritage resources within and around the proposed project footprint.

The field survey identified several heritage-sensitive features, including community burial sites, sacred ponds, unmarked war graves, and historically significant trees associated with local intangible heritage practices. These findings indicate that there is a moderate to high likelihood of encountering heritage resources during the construction and operational phases of the project.

It is therefore recommended that the project proponents implement the mitigation measures outlined in this report, including avoidance strategies, community engagement, and the integration of heritage considerations into project planning. Furthermore, the project must comply with the guidelines of the National Heritage Council of Namibia and adhere to the Chance Finds Procedure to ensure the protection of any archaeological or heritage materials that may be unearthed during project implementation.

ACRONYMS

Table 1: Acronyms

Acronyms	Description
ACHIA	Archaeological and Cultural Heritage Impact Assessment
AfDB	African Development Bank
AIA	Archaeological Impact Assessment
AMP	Archaeological Management Plan
CFP	Chance Find Procedure
CRM	Cultural Resource Management
CUVECOM	Cuvelai Watercourse Commission
ECC	Environmental Clearance Certificate
EIA	Environmental Impact Assessment
EMA	Environmental Management Act
EMP	Environmental Management Plan
ESF	Environmental and Social Framework
ESPS	Environmental and Social Performance Standards
ESS8	Environmental and Social Standard 8
FPIC	Free, Prior, and Informed Consent
GIS	Geographic Information System
GPS	Global Positioning System
GWPSA	Global Water Partnership Southern Africa
HIA	Heritage Impact Assessment
IFC	International Finance Corporation
LIA	Late Iron Age
LSA	Later Stone Age
NGO	Non-Governmental Organisation
NHA	National Heritage Act, Act 27 of 2004
NHC	National Heritage Council of Namibia
NNHA	Namibia National Heritage Act
OTAH	Omapipi Tageya Archaeological and Heritage
QRS	Quaternary Research Services
SES	Social and Environmental Standards
SM	Site Manager
ToRs	Terms of Reference
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization

KEY CONCEPTS AND TERMS

Periodization Archaeologists divide the different cultural periods according to the dominant material finds for the different time periods. This periodization is usually region-specific, such that the same label can have different dates for different areas. This makes it important to clarify and declare the periodization of the area one is studying.

These periods are merely convenient time brackets as their start and terminal points are not absolute, and there are several instances of overlap. In the present study, relevant archaeological periods are given below:
Early Stone Age (~ 2.6 million to 250 000 years ago)
Middle Stone Age (~ 250 000 to 40-25 000 years ago)
Later Stone Age (~ 40-25 000, to recently, 100 years ago)
Early Iron Age (~ AD 200 to 1000)
Late Iron Age (~ AD 1100-1840)
Historic (~ AD 1840 to 1950, but a Historic building is classified as over 60 years old)

DEFINITIONS OF TERMS

Similar to periodization, it is also critical to define the key terms employed in this study. Most of these terms are derived from Namibian National Heritage Legislation and its ancillary laws, as well as international regulations and best practice norms.

A grave is a place of interment (variably referred to as burial) and includes the contents, headstone or other marker of such a place, and any other structure on or associated with such place. A grave may occur in isolation or in association with others where upon it is referred to as being situated in a cemetery (contemporary) or burial ground (historic).

A site is a distinct spatial cluster of artefacts, structures, organic and environmental remains, as residues of past human activity.

Archaeological site/materials are remains or traces of human activity that are in a state of disuse and are in, or on, land and which are older than 100 years, including artefacts, human and hominid remains, and artificial features and structures. According to the Namibia National Heritage Act (NNHA) (Act No. 27 of 2004), no archaeological artefact, assemblage or settlement (site) and no historical building or structure older than 60 years may be altered,

moved or destroyed without the necessary authorization from the National Heritage Council or a provincial heritage resources authority.

Chance finds mean archaeological artefacts, features, structures or historical remains accidentally found during development.

Cultural (heritage) resources are all non-physical and physical human-made occurrences, and natural features that are associated with human activity. These can be singular or in groups and include significant sites, structures, features, Eco facts and artefacts of importance associated with the history, architecture or archaeology of human development.

Cultural significance is determined by means of aesthetic, historic, scientific, social or spiritual values for past, present or future generations.

Heritage Impact Assessment (HIA) refers to the process of identifying, predicting and assessing the potential positive and negative cultural, social, economic and biophysical impacts of any proposed project, which requires authorization of permission by law, and which may significantly affect the cultural and natural heritage resources. Accordingly, an HIA must include recommendations for appropriate mitigation measures for minimizing or circumventing negative impacts, measures enhancing the positive aspects of the proposal and heritage management and monitoring measures.

Historic materials are remains resulting from human process, which are younger than 100 years, but no longer in use, including artefacts, human remains and artificial features and structures.

Impact is the positive or negative effects on human well-being and / or on the environment.

In-situ refers to material culture and surrounding deposits in their original location and context, for example an archaeological site that has not been disturbed by farming.

Isolated finds are occurrences of artefacts or other remains that are not in-situ or are located apart from archaeological sites. Although these are noted and recorded, they do not usually constitute the core of an impact assessment, unless they have intrinsic cultural significance and value.

Mitigation is the implementation of practical measures to reduce and circumvent adverse impacts or enhance beneficial impacts of an action.

Phase I studies refer to surveys using various sources of data and limited field walking to establish the presence of all possible types of heritage resources in any given area.

Study area or 'project area' refers to the area where the developer wants to focus its development process (refer to plan).

Value is related to concepts such as worth, merit, attraction or appeal, concepts that are associated with the (current) usefulness and condition of a place or an object. Although significance and value are not mutually exclusive, in some cases the place may have a high level of significance but a lower level of value. Often, the evaluation of any feature is based on a combination or balance between the two.

Introduction

Background

The Enhanced Water Security and Community Resilience in the Adjacent Cuvelai and Kunene Transboundary River Basins (CUVKUN) Project is an initiative supported by the Cuvelai Watercourse Commission (CUVECOM). CUVECOM represents a strategic partnership between the Governments of Angola and Namibia, established to improve transboundary water governance and strengthen climate resilience within the Cuvelai and Kunene River Basins. As a bilateral institution, CUVECOM promotes the integrated and cooperative management of the Cuvelai River Basin, an ecologically sensitive and hydrologically complex system increasingly affected by climate variability, including frequent floods, prolonged droughts, and weak water governance mechanisms (CUVECOM, 2019). The CUVKUN Project aims to address these challenges through infrastructure development, early warning systems, and sustainable water resource management interventions at the community level.

The Cuvelai Basin, a transboundary wetland area shared by Angola and Namibia, is made up of hundreds of ephemeral drainage channels known as iishana, many of which are dry most of the year but can flood heavily during the rainy season (CUVECOM, 2019). The channels flow from north to south, from the southern Angolan highlands into Namibia. The Cuvelai is an endorheic basin, meaning that all its water either flows into the Omadhiya Lakes and Etosha Pan or evaporates along the way (CUVECOM, 2019).

This report presents the findings of an Archaeological and Cultural Heritage Impact Assessment (ACHIA) undertaken for the Cuvelai Watercourse Commission and Global Water Partnership Southern Africa. The assessment forms part of the environmental due diligence for a proposed project aimed at enhancing water security and climate resilience in northern Namibia. The project components include the installation of mechanized and solar-powered wells, the piloting of flood early warning systems, and the construction of rainwater harvesting ponds across selected locations in the Omusati, and Oshikoto and Ohangwena regions.

Description of project intervention sites

Livelihood-based watershed management

This intervention aims to upgrade the existing hand-dug wells in three villages in Ohangwena region to improve water access and quality for the local community.

Hand-dug wells often face risks of contamination, low yield and seasonal variability. This intervention therefore, seeks to address these issues by implementing water solutions that are more reliable and sustainable such as the installation of boreholes (solar pumping system) or the installation of other forms of pumping systems.

Okanyanona village

The proposed upgrading of community water infrastructure will take place in Okanyanona village in Okongo Constituency, Ohangwena Region (see Figure 1),

- **Existing water infrastructure**

The community together with their livestock survives from a hand-dug well. The existing water source is unsustainable as the water level of the well is unknown and there are risks of young children particularly, and livestock falling into the well.

Figure 1: The existing traditional well that's proposed for upgrading (Photo credits: Authors 2025).

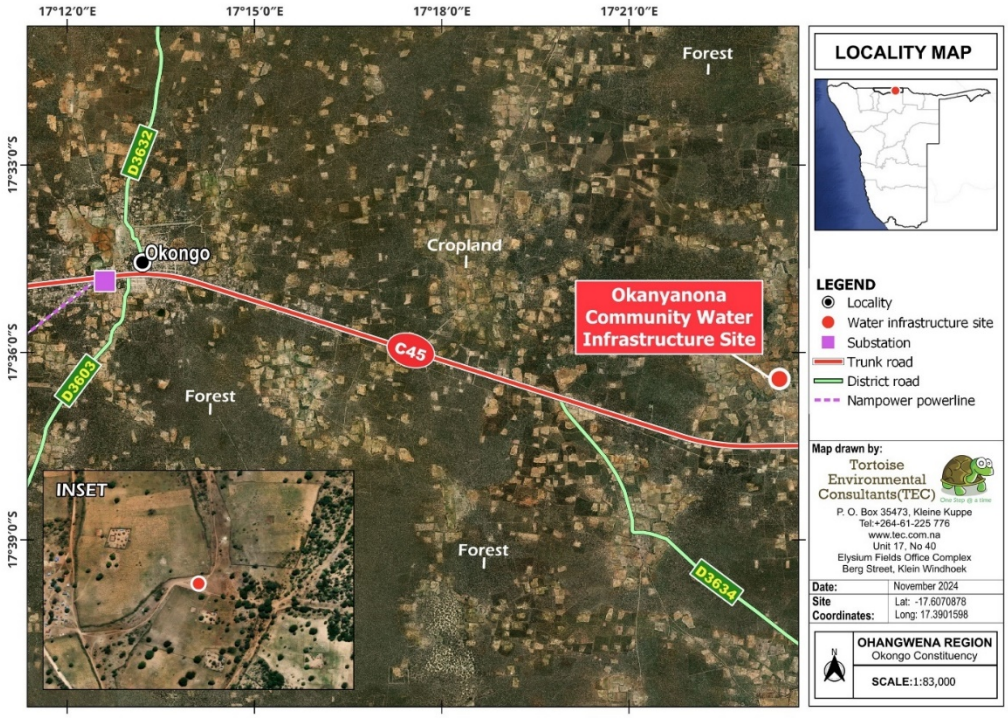

Figure 2: Locality map of the Okanyanona well (Map credits: TEC, 2025).

Omboloka village

The proposed upgrading of community water infrastructure will take place in Omboloka village in Okongo Constituency, Ohangwena Region (see Figure 4).

- **Existing water infrastructure**

The community together with their livestock survives from a hand-dug well (Figure 3). The existing water source is unsustainable as the water level of the well is unknown and there are risks of young children particularly, and livestock falling into the well.

Figure 3: The existing well in Omboloka (Photo credits: Authors 2025).

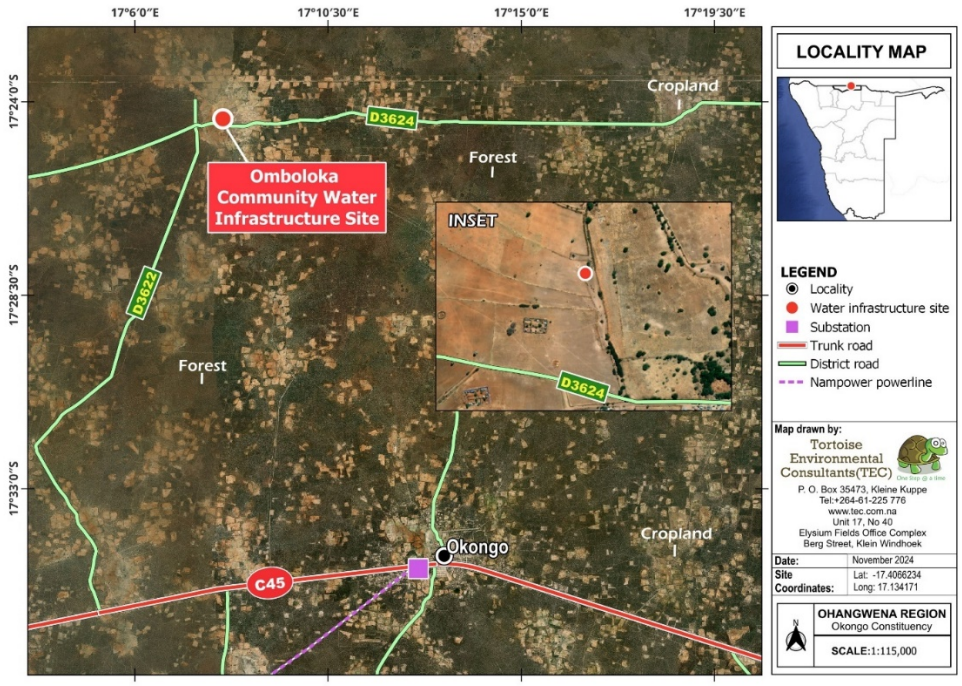

Figure 4: Locality map of the Omboloka waterpoint (Map credits: TEC, 2025).

Oluwaya Community Water Infrastructure

The proposed upgrading of community water infrastructure will take place in Oluwaya village in Oshikunde Constituency, Ohangwena Region (see Figure 6).

- **Existing water infrastructure**

The community together with their livestock survives from a hand-dug well.

Figure 5: The existing traditional well in Oluwaya that will be upgraded to a modern well (Authors 2025).

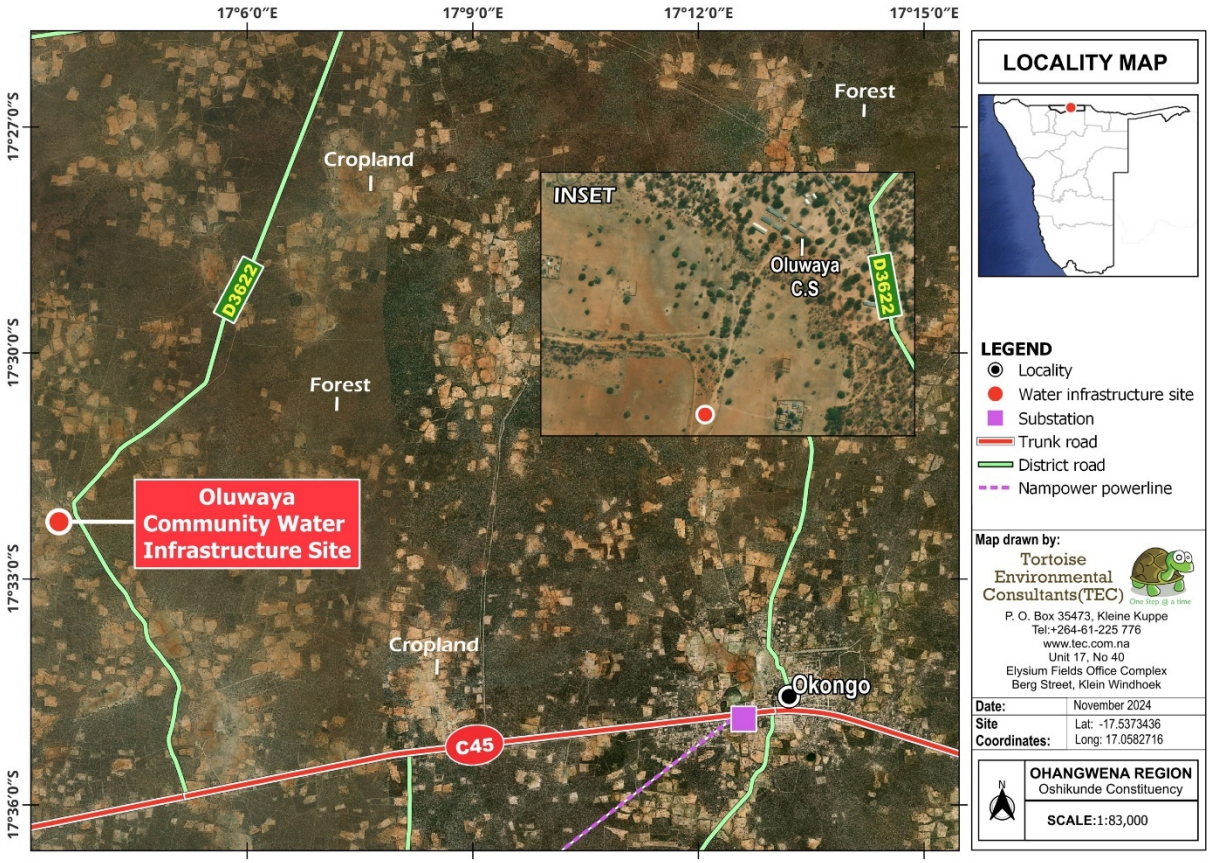

Figure 6: Locality map of Oluwaya waterpoint (Map credits: TEC, 2025).

Water (rainwater and/or flood water) harvesting

This intervention seeks to construct rainwater harvesting earth ponds in three villages in Omusati and Oshikoto regions. The rainwater harvesting earth ponds will be constructed to capture (harvest) and store rainwater during the rainy season, providing a reliable water source during dry seasons. This reduces the reliance on unreliable water supplies, improving water security for household consumption and livestock.

Onamatende

The proposed rainwater harvesting earth ponds will be constructed in Onamatende village, Okankolo constituency in Oshikoto region (see Figure 8).

Figure 7: The proposed site for the rainwater harvesting earth ponds (Authors 2025).

Figure 8: Locality map of proposed rainwater harvesting earth ponds in Onamatende (Map credits: TEC, 2025).

Ombudamuti

The proposed rainwater harvesting earth ponds will be constructed in Ombudamuti village, Anamulenge constituency in Omusati region (see Figure 9).

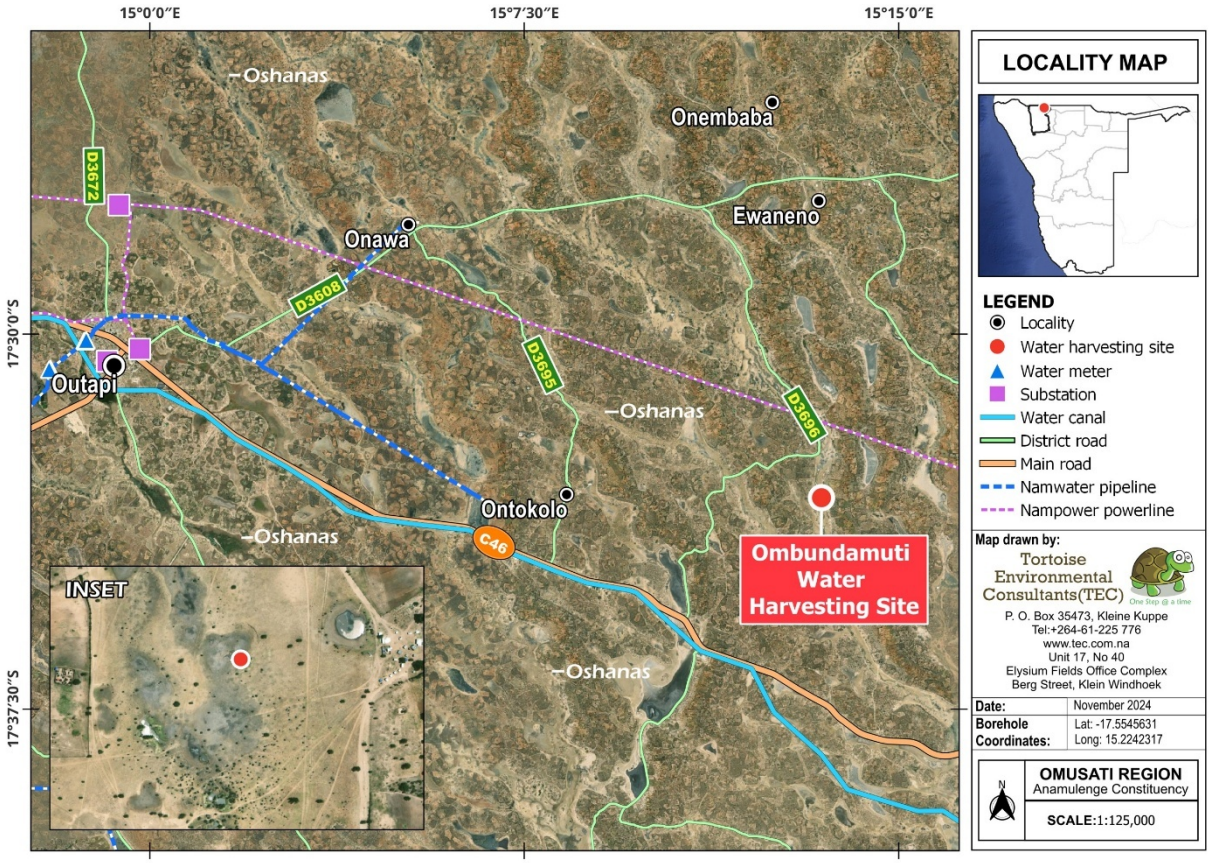

Figure 9: Locality map of proposed rainwater harvesting earth ponds in Ombudamuti (Map credits: TEC, 2025).

Figure 10: The rainwater harvesting earth ponds will be constructed in Ombudamuti village (Authors 2025).

Olupumbu

The proposed rainwater harvesting earth pond will be constructed in Olupumbu village, Oshikuku constituency in Omusati region (see Figure 12).

Figure 11: The proposed rainwater harvesting earth pond site in Olupumbu village (Photo credits: Authors 2025).

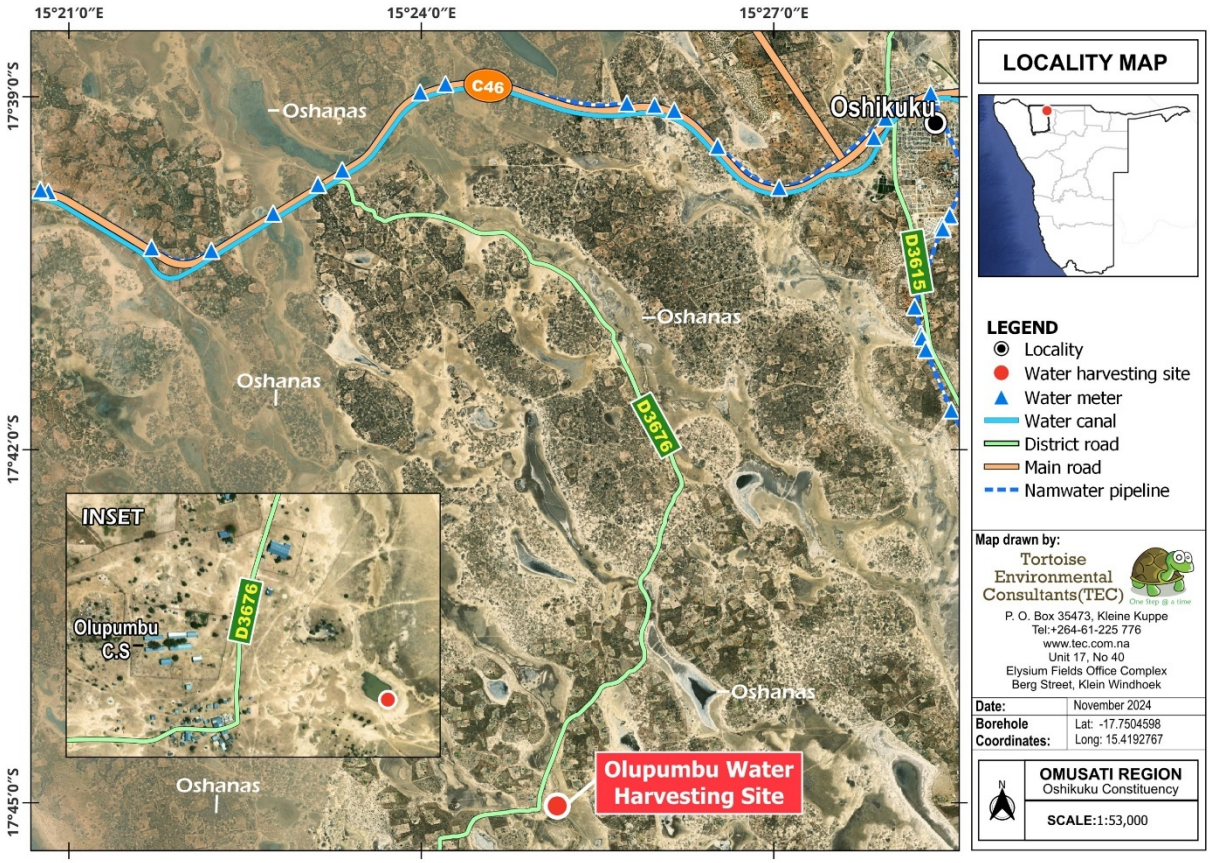

Figure 12: ***Locality map of proposed rainwater harvesting earth ponds site in Olupumbu (Map credits: TEC, 2025).***

Piloting of Flood early warning systems for communities

The piloting of the flood early warning system at Shanalumono, Ohaingu Village in Ohangwena and Shapoko Omambuumbu village in Omusati region is crucial to address the recurrent and severe impacts of flooding in all areas that are near/along the two streams. Thus, it is crucial to address the recurrent and severe impacts of flooding for many villages and constituencies. The intervention to pilot flood early warning systems aims to ensure the following:

- Improved preparedness within the community
- Timely evacuation which reduces the loss of lives and avoids people getting trapped in the flood.
- Access to healthcare facilities and other services during floods.
- Enhanced flood data collection supports sustainable water and land use planning.
- Controlled flooding strategies can help mitigate soil erosion and loss of fertile agricultural land.

Oshanalumono

The flood early warning system is located at Oshana – Oshanalumono, Ohaingu Village, Engela Constituency, Ohangwena Region (see Figure 13).

- **Existing Infrastructure**

The existing systems have been poorly maintained, therefore are non-functional. The technology is outdated, and the communication system is quite poor for example, data can only be accessed by the team in Windhoek.

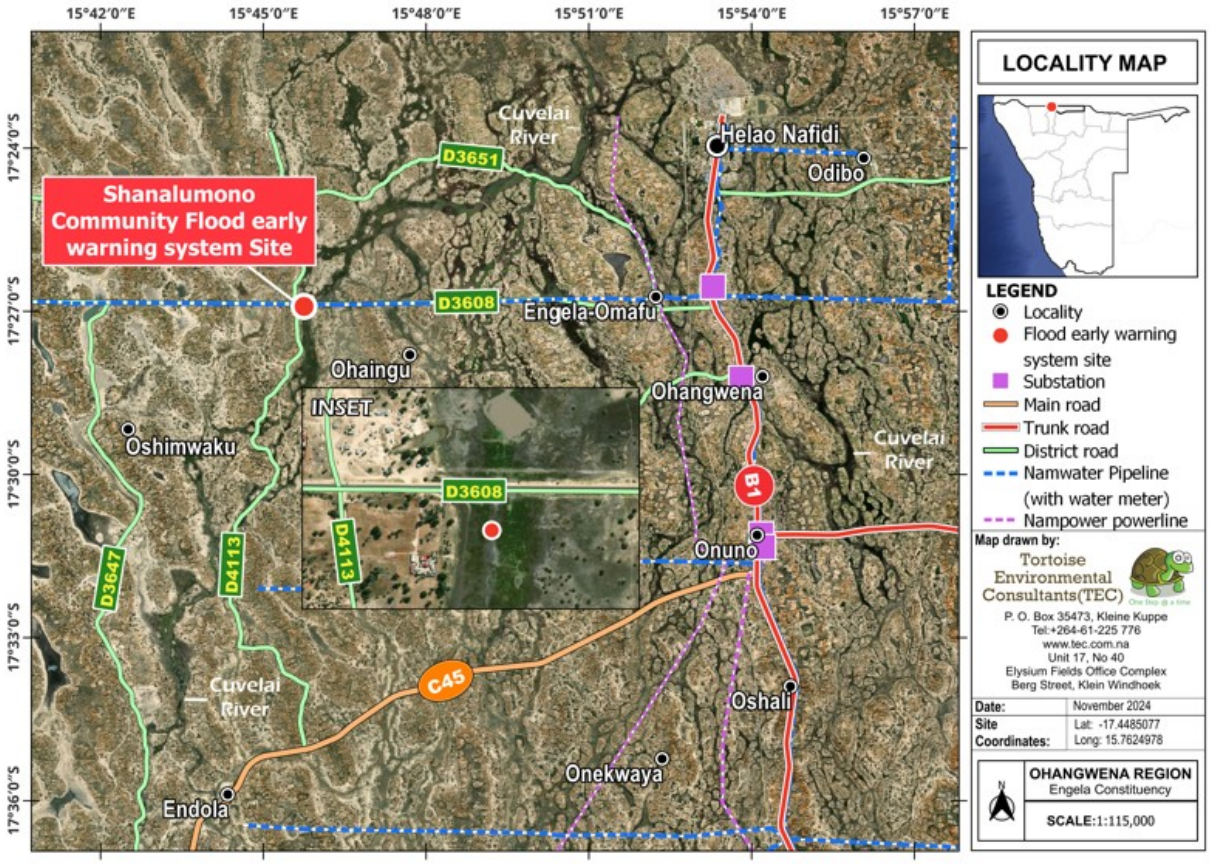

Figure 13: Locality map of the Oshanalumono flood early warning system (Map credits: TEC, 2025).

Figure 14: The existing non-functional early warning system at the proposed site oshana – Shanalumono at Ohaingu village (Photo credits: authors 2025).

Shapoko

The flood early warning system is located at oshana – Shapoko, Omambuumbu Village, Anumulenge Constituency, Omusati Region (see Figure 15).

- **Existing infrastructure**

The existing systems have been poorly maintained, therefore are non-functional. The technology is outdated, and the communication system is quite poor.

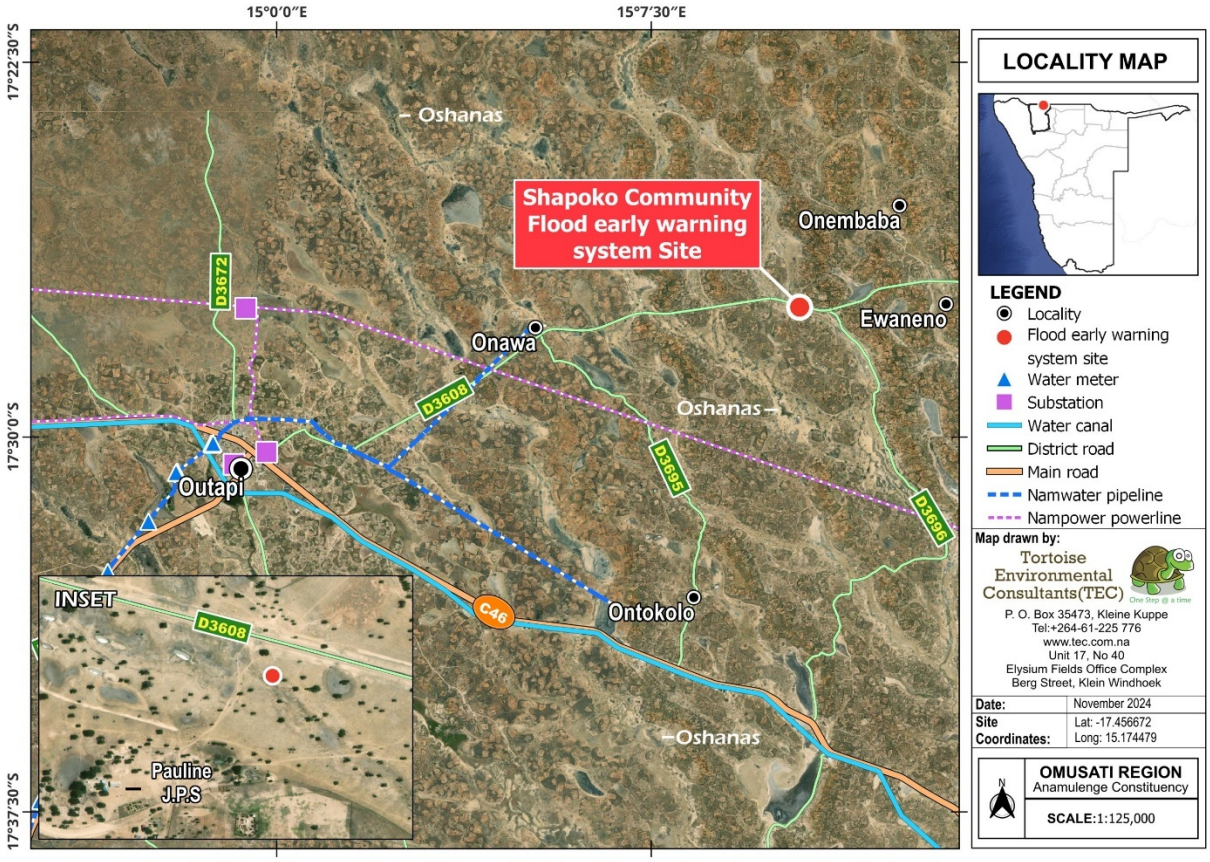

Figure 15: Locality map of the Shapoko flood early warning system (Map credits: TEC, 2025).

Figure 16: The proposed site for the flood early warning system is located at oshana – Shapoko, Omambuumbu Village (Photo credits: Authors 2025).

Location

The project intervention sites in Namibia are in the Ohangwena, Omusati, and Oshikoto regions. Below is baseline information for these areas.

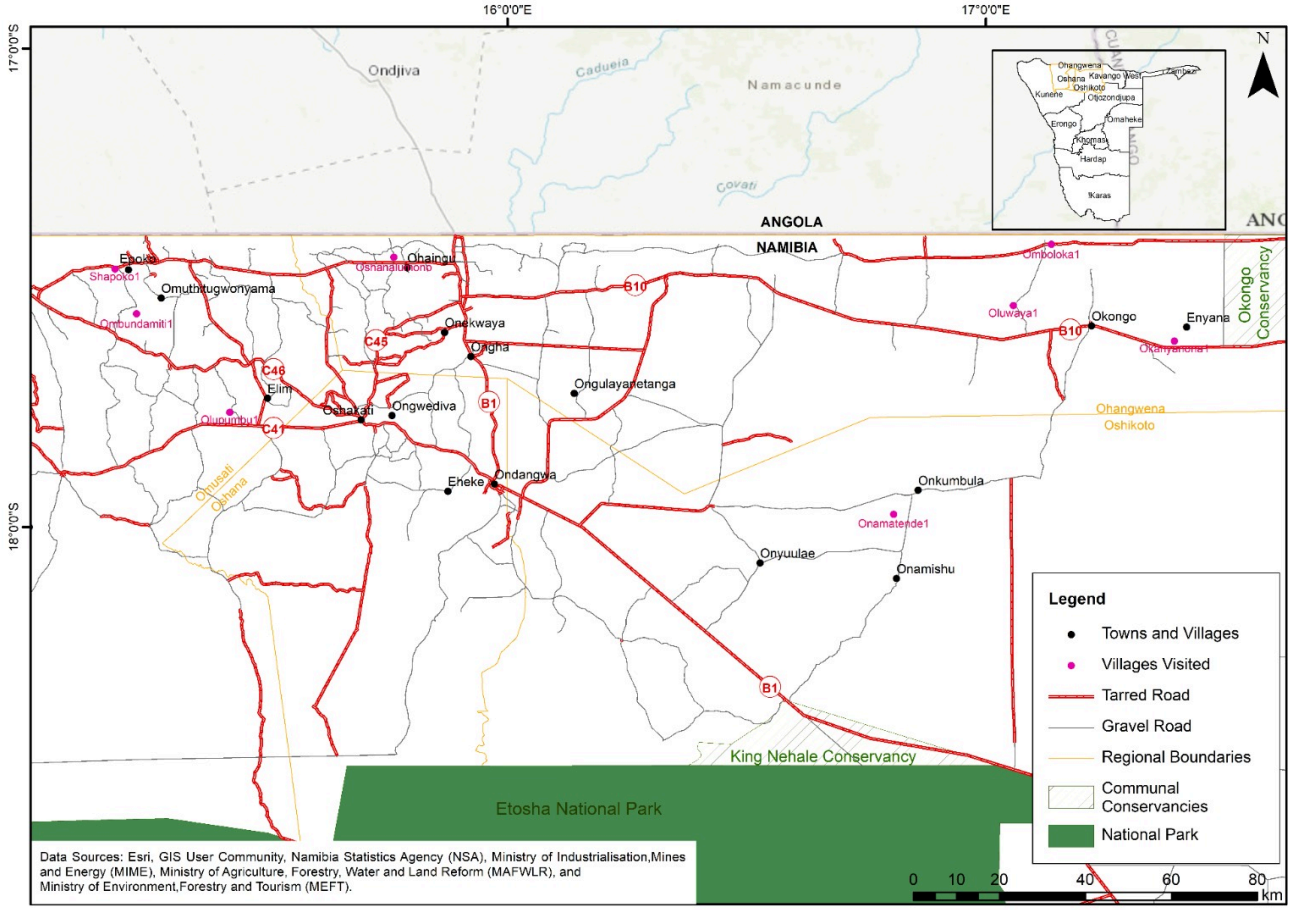

Figure 17: The locality map of the project intervention sites in the northern Namibia the Ohangwena, Omusati, and Oshikoto regions (Map Credits: Monarch Data Den Consultancy 2025).

Table 2: Project sites in the 3 regions

N0.	Village	Regional and Constituency	Coordinates
Ohangwena Region			
1.	Okanyanona	Okongo Constituency, Ohangwena Region	17° 36' 41" S 17° 23 '41" E
2.	Oluwaya	Oshikunde Constituency, Ohangwena Region	17° 32' 14" S 17° 03' 29" E
3.	Oshanalumono	Engela Constituency, Ohangwena Region	17° 26' 10" S 15° 45' 45" E
4.	Omboloka	Okongo Constituency, Ohangwena Region	17° 24' 33" S 17° 08' 15" E
Oshikoto Region			
5.	Onamatende	Okankolo constituency, Oshikoto region	17° 58 '25" S 16° 48 '28" E
Omusati Region			
6.	Shapoko	Anamulenge Constituency, Omusati Region	17° 27' 39" S 15° 10' 46" E
7.	Ombudamuti	Anamulenge Constituency, Omusati Region	17° 33' 16" S 15° 13' 28" E
8.	Olupumbu	Oshikuku Constituency, Omusati Region	17° 45' 37" S 15° 25' 10" E

Heritage and Archaeological Study

Global Water Partnership Southern Africa (GWPSA), appointed Omapipi Tageya Archaeological and Heritage Consultants (OTAH) to conduct a Heritage and Archaeological Assessment for the project in accordance with the National Heritage Act (27 of 2004)[1].
The International Finance Corporation's Performance Standard 8 (Cultural Heritage), and other relevant international standards and best practices. [2]

[1] The National Heritage Act (Section 1 of 2004) defines heritage resources as those of geological and rare objects; paleontological; archaeological; ethnographic objects; historical objects/sites; maritime heritage; built monuments; mining sites as well as objects of scientific curiosity.
[2] Including the United Nations Development Programme (UNDP) Social and Environmental Standards (SES), which provide a framework for managing social and environmental risks and impacts, including those related to cultural heritage, in line with international human rights and sustainability principles.

Terms of reference

The Terms of Reference (ToRs) set out the scope, objectives for the heritage and archaeological study that are intended to ensure that all relevant aspects of heritage and archaeology are considered, and that due diligence is applied in the preservation of cultural resources in accordance with national and international Regulatory framework and standards.

Scope

The scope includes, but not limited to the following aspects:

- **Archaeological Surveys**: Identifying, documenting, and interpreting archaeological sites and materials.
- **Heritage Site Management**: Developing and implementing conservation strategies for historical sites, monuments, and landscapes (if there are any).
- **Cultural Resource Management (CRM)**: Ensuring the protection and sustainable use of cultural and historical resources, including regulatory compliance.
- **Impact Assessments**: Conducting heritage impact assessments for proposed developments that may affect heritage resources.
- **Archaeological Research**: Conducting studies to enhance the understanding of historical and prehistorical human societies.

Objectives

In accordance with the ToRs, the specific objectives of the study are to:

- Identify and describe heritage resources and archaeological materials that may be affected by the project activities and assess their cultural, historical, and scientific value.
- Develop appropriate measures for the preservation, conservation, and management of heritage resources.
- Engage stakeholders, including local communities, indigenous groups, government agencies, and Non-Governmental Organisations NGOs, in discussions about heritage management.
- Ensure that all activities comply with relevant heritage protection laws, policies, and international conventions.

Methodology

The methodology for conducting heritage and archaeological activities should be done in accordance with applicable national laws and international conventions, such as:

- The Convention for the Protection of Cultural Heritage (e.g., UNESCO conventions).

- National heritage laws and regulations.
- Performance Standard 8 of International Finance Corporation (IFC)
- World Bank Environmental and Social Standard 8 (ESS8)
- African Development Bank (AfDB) guidelines related to the cultural heritage impact

The methodology must include but not limited to:

- Review of existing records, historical documents, maps, and other secondary sources to gather initial information about the project area.
- Conduct fieldwork to identify and document archaeological sites, features, and artifacts, using non-invasive methods (e.g., geophysical surveys).
- Where necessary, undertake excavation work to recover and analyse artifacts, Eco facts, and other materials.
- Analyse the potential impacts of proposed developments on heritage resources.
- Develop mitigation strategies to minimize adverse impacts, including alternative project designs, monitoring, or conservation.
- Develop strategies for the long-term conservation of archaeological sites, artifacts, and other heritage resources.
- Prioritize actions based on the significance, condition, and vulnerability of the resources.
- Integrate indigenous knowledge and cultural values into the heritage preservation strategies.
- Prepare comprehensive reports on findings, analysis, and recommendations for stakeholders.
- Submit required documentation to the client for approval, permits, and compliance.

Deliverables

The expected deliverables from the study include:

- **Heritage and Archaeological Assessment Report**: A detailed report documenting the findings from surveys and impact assessments.
- **Cultural Heritage Management Plan**: A plan for mitigating negative impacts to heritage sites during project implementation.

Policy, regulatory frameworks and protocols applicable to the study

The study used national and international policies, regulatory frameworks and protocols for the protection of heritage resources.

AfDB Integrated Safeguards System

The African Development Bank (AfDB) has established guidelines related to cultural heritage impact as part of its broader Environmental and Social Safeguard policies. These guidelines aim to protect and preserve the cultural heritage of African countries, as it relates to the impact of development projects. Like the IFC, the AfDB requires that projects identify, assess, and mitigate any potential adverse effects on cultural heritage, both tangible cultural heritage and intangible cultural heritage.

European Investment Bank's Environmental and Social Handbook (2013)

The European Investment Bank's Environmental and Social Handbook (2013) mandates a baseline survey and assessment of cultural heritage impact to be conducted. This involves screening risks, assessing and mitigating their impact, and employing techniques like field surveys and expert assessment. A field survey and expert assessment cultural heritage impact has been done for the study.

National Policy and Regulatory Framework

National Heritage Act (No. 27 of 2004) Namibia

Often, when development is involved, cultural and archaeological material located within areas earmarked for development faces the risk of complete erasure or destruction. Heritage resources imply both sites and objects of: archaeological, paleontological and rare geological objects (including meteorites); ethnographical, historical (including military objects, historic graves, or sacred sites), shipwrecks; built monuments of significant architectural heritage and objects of scientific interests.

Section 48 of the Act provides the procedure for the application and granting of permits that are required in the event of damage to a significant site occurring as an inevitable result of development while Sections 53 (7) and 55 (8) of the Heritage Act relates to the application of a Consent for works and activities subject to an environmental impact assessment. The National Heritage Council, the custodian of the act made it mandatory that a heritage impact assessment must be conducted before project development.

Environmental Management Act (No. 7 of 2007)

The Environmental Management Act, (No. 7 of 2007) (EMA) defines 'environment' as the complex of natural and *anthropogenic factors and elements* that are mutually interrelated and affect the ecological equilibrium and the quality of life, including "the human environment that is the landscape and natural, cultural, historical, aesthetic, economic and social heritage and values. The EMA has a list of activities that may not be undertaken without an Environmental Clearance Certificate, including those that applies to the management of impacts on heritage and archaeological resources.

International Treaties, Conventions and other Instruments

The World Heritage Convention

Adopted by the General Conference of UNESCO on 16 November 1972, the World Heritage Convention aims to identify, protect, and preserve world cultural and natural heritage sites. It seeks to ensure that these sites are safeguarded for future generations, promoting international cooperation in the conservation and management of such heritage. The Convention formally takes effect upon ratification by State Parties. Namibia is a signatory to this convention, henceforth, the Namibian Government has committed to the protection of culture and heritage through the National Heritage Act (No. 27 of 2004). Section 46 of the act "prohibits the locating, removal, damage, alteration or excavation of heritage sites or remains[2]".

Policy and Performance Standards on Environmental and Social Sustainability

The IFC, a member of the World Bank Group is the largest global development institution focused on the private sector, particularly in emerging markets. IFC's Sustainability Framework reflects its commitment to sustainable development and is a key part of its risk management approach. It includes IFC's Policy and Performance Standards on Environmental and Social Sustainability and its Access to Information Policy. The Environmental and Social Sustainability Policy defines IFC's responsibilities, while the Access to Information Policy ensures transparency and outlines disclosure requirements for investment and advisory services. The Performance Standards guide clients in identifying and managing risks and promoting sustainable business practices. IFC mandates clients to apply these standards to manage environmental and social risks to project development. In

[3] defined in the Act as "any remains of human habitation or occupation that are 50 or more years old found on or beneath the surface" without a heritage permit.

total, IFC established eight Performance Standards that the client is to meet throughout the life of an investment.

Performance Standard 8 recognizes the importance of cultural heritage for current and future generations. Consistent with the Convention Concerning the Protection of the World Cultural and Natural Heritage, this Performance Standard aims to ensure that clients protect cultural heritage in the course of their project activities. In addition, the requirements of this Performance Standard on a project's use of cultural heritage are based in part on standards set by the Convention on Biological Diversity.

Performance Standard 8 of the International Finance Corporation (IFC) focuses on Cultural Heritage. It is part of the IFC's Environmental and Social Performance Standards (ESPS) and aims to ensure that projects consider the significance of cultural heritage, both tangible and intangible, in a manner that recognizes its social, economic, and environmental value. The standard seeks to minimize impacts on cultural heritage while supporting its preservation and the sustainable use of cultural resources. This standard requires projects to have a clear plan for identifying, protecting, and managing cultural heritage including developing mitigation measures for the protection of cultural sites.

World Bank Environmental and Social Standards

Environmental and Social Framework (ESF) aims to protects people and the environment from potential adverse impacts that could arise from Bank-financed projects and promotes sustainable development. Within the ESF, the Environmental and Social Standards (ESS) set out responsibilities for Borrowers. The Standards are designed to help Borrowers manage project risks and impacts as well as improve environmental and social performance, consistent with good international practice and national and international obligations.

The ESS8 aim to project cultural heritage both tangible and intangible. This standard sets out measures designed to protect cultural heritage throughout the project life cycle. It also promotes meaningful consultation with stakeholders regarding cultural heritage and equitable sharing of benefits from the use of cultural heritage.

The World Bank Environmental and Social Standard 8 (ESS8) deals with the protection of cultural heritage and managing potential impacts. The ESS8 seeks to ensure that projects supported by the Bank avoid or mitigate adverse impacts on cultural heritage, whether tangible or intangible. The standard promotes the preservation, safeguarding, and sustainable use of cultural heritage.

Convention for The Safeguarding of The Intangible Cultural Heritage 2003

Adopted by the General Conference of the United Nations Educational, Scientific and Cultural Organization (UNESCO), the purposes of this Convention are, (a) to safeguard the intangible cultural heritage, (b) to ensure respect for the intangible cultural heritage of the communities, groups and individuals concerned (c) to raise awareness at the local, national and international levels of the importance of the intangible cultural heritage, and of ensuring mutual appreciation thereof and, (d) to provide for international cooperation and assistance.

The 2005 Convention on The Protection and Promotion of The Diversity of Cultural Expressions

The objectives of this Convention are: a) to protect and promote the diversity of cultural expressions; b) to create the conditions for cultures to flourish and to freely interact in a mutually beneficial manner; c) to encourage dialogue among cultures with a view to ensuring wider and balanced cultural exchanges in the world in favour of intercultural respect and a culture of peace; d) to foster interculturality in order to develop cultural interaction in the spirit of building bridges among peoples; e) to promote respect for the diversity of cultural expressions and raise awareness of its value at the local, national and international levels; f) to reaffirm the importance of the link between culture and development for all countries, particularly for developing countries, and to support actions undertaken nationally and internationally to secure recognition of the true value of this link.

Approach to study and impact assessment methodology

Methodology

This Heritage & Archaeological Impact Assessment employed a combination of literature reviews, field surveys, interviews with local communities, and consultation with relevant stakeholders. These methodologies are standards for environmental and heritage assessment in Namibia, and in line with international standards and best practices.

Desktop information was sourced from existing heritage records of National Heritage Council (NHC), archaeological GIS spatial data, and records from a series of archaeological assessments carried out for the exploration and mining activities as well and the development of infrastructure in the three regions. These sources were supplemented by site visit field surveys within the nine pilot sites (as shown in Table 3) in the Oshikoto, Omusati and Ohangwena regions.

Sensitivity and susceptibility rating scales, aimed at establishing the nature of vulnerability and sensitivity of heritage resources that are likely to be impacted by the project activities, were adopted. Their vulnerability to the disturbance was evaluated on the scale ranging from 0-5, as shown in Table 4 below.

Table 3: Rating scales for the assessment of archaeological significance and vulnerability as developed by the Quaternary Research Services (QRS).

Significance Rating	
0	No heritage significance
1	Disturbed or secondary context, without diagnostic materials
2	Isolated minor finds in undisturbed primary context, with diagnostic materials
3	Archaeological and paleontological site (s) forming part of an identifiable local distribution or group
4	Multi-component site (s), or central site (s) with high research potential
5	Major archaeological or paleontological site (s) containing unique evidence of high regional significances
Vulnerability Rating	
0	Not vulnerable
1	No threat posed by current or proposed development process
2	Low or indirect threat from possible consequences of development (e.g., soil erosion)
3	Probable threat from inadvertent disturbance due to proximity of development
4	High likelihood of partial disturbance or destruction due to proximity of development
5	Direct and certain threat of major disturbance or total destruction

The assessment methodology used to estimate the extent of the impact, the magnitude of impact, and the duration of these impacts is shown in Table 5.

Table 4: Assessment criteria for the evaluation of cumulative impacts on archaeological sites developed by the Quaternary Research Services (QRS).

Criteria	Category	Description
Extent or spatial influence of impact	**National**	Within Namibia
	Regional	Within the Region

	Local	On site or within 200 m of the impact site impact
Magnitude of impact (at the indicated spatial scale)	**High** **Medium** **Low** **Very Low** **Zero**	Social and/or natural functions and/ or processes are severely altered Social and/or natural functions and/or processes are notably altered Social and/or natural functions and/ or processes are slightly altered Social and/or natural functions and/ or processes are negligibly altered Social and/or natural functions and/or processes remain unaltered
Duration of impact	**Short Term** **Medium Term** **Long Term**	Up to 3 years 4 to 10 years after construction More than 10 years after construction

Impact Reversibility Rating Criteria was used to assess the potential for the impacts to be reversed after they occur. These criteria categorize impacts based on the possibility of restoring the affected resource to its original or acceptable condition.

Table 5: Reversibility Rating Criteria

Reversibility Ratings	Criteria
Irreversible	The impact will lead to an impact that is permanent.
Reversible	The impact is reversible, within a period of 10 years

Limitations and assumptions

The archaeological assessment relies on the indicative value of surface finds recorded during the field survey. These observations are augmented, where possible, by inferences drawn from previously documented surveys and excavations conducted in the broader area surrounding the proposed project site. Where detailed archaeological records exist, they are incorporated into a desk-based assessment to enhance understanding of the local heritage context. In addition to physical evidence and literature review, the assessment process includes direct engagement with local communities, particularly in areas where hand-dug wells, traditional water sources, or known heritage features may exist. These interactions offered valuable insights into historical land use, community memory, and the potential presence of undocumented cultural sites. Oral histories and local knowledge are essential in contextualizing past discoveries and identifying areas of cultural significance that may not be visible on the surface or captured in the formal archaeological record. By integrating field data, prior research, and community-sourced knowledge, the assessment is able to present a more nuanced understanding of the archaeological sensitivity and site distribution across the project area. However, the methodology is constrained by the limitations of surface visibility and the availability of existing records. Therefore, the possibility remains that subsurface or buried archaeological and paleontological materials may be encountered during ground disturbance associated with project activities. It is strongly recommended that the Chance Finds Procedure be implemented throughout the construction phase to ensure compliance with national heritage legislation and appropriate management of any unexpected discoveries.

Baseline environment

Physical Characteristic

The Omusati, Oshikoto and Ohangwena Regions features a predominantly flat topography, with elevations ranging between 800 and 1,200 meters above sea level (Mendelson et al., 2002). The project area falls within the Cuvelai landscape. The land gradually slopes from approximately 1,150 meters above sea level in the northeast to about 1,080 meters at the Etosha Pan in the south.

As noted by Environam Consultants (2019), the northern regions of Namibia fall within the Cuvelai landscape, comprising sediment layers of silt, clay, limestone, and sandstone. A defining feature of this area is the network of drainage channels known locally as Iishana, which fill with water during heavy rains and erode the underlying sediments.

The vegetation of the Omusati Region is largely shaped by its semi-arid climate, saline soils, and seasonal water availability. It falls within the Savanna Biome, specifically the Mopane Savanna, characterized by drought-tolerant plant species and a mix of grasslands, shrubs, and trees (Omusati Regional Council, n.d).

Ohangwena vegetation is characterized by Kalahari woodlands, shrubs and bushy concoction on the east and Cuvelai network of Iishana on the west, acting as the drainage system bringing in water and sedimentary deposits from higher lying areas of Angola (Ohangwena Regional Council, n.d).

Land use

The communities in project sites predominantly use the land for subsistence crops and livestock farming and settlements.

Heritage and Archeology of the Ohangwena, Omusati and Oshikoto Regions

Ohangwena Region

Cultural Heritage Setting

Ohangwena is the heartland of the Oukwanyama Kingdom, with the Omhedi Royal Homestead continuing to serve as a traditional authority seat. The region is rich in liberation heritage, including the Eenhana Shrine, which honors fallen PLAN combatants and is actively used during national commemorations (Becker, 2011). The Ondeshifiilwa mass grave memorial, linked to clashes in April 1989, marks the turbulent transition to independence (Ministry of Education, Arts and Culture, 2016). These sites, combined with long-standing traditions such as initiation ceremonies, totemic clan symbols, and ritual landscapes, reflect a layered cultural identity.

Archaeological Setting

While systematic excavations are scarce, heritage assessments have identified precolonial settlement remains, including old homestead foundations, iron slag, and potsherds around Eenhana and Omhedi. The region's archaeological potential remains underexplored due to dense settlement and environmental factors such as sandy soils, but oral histories suggest ancient migration and iron-smelting activity (Ndeutala, 1993; Fuller & Kinahan, 2010).

Omusati Region

Cultural Heritage Setting

Omusati is significant in Namibia's national memory, being the site of Omugulugwombashe, where the first armed battle of the liberation struggle took place on 26 August 1966. This site has become a central place of commemoration and national identity (Wallace & Kinahan, 2011). Other notable cultural landmarks include the Ombalantu Baobab Tree, used as a hiding place, chapel, and post office during various historic periods, reflecting its symbolic importance in local oral traditions and recent history (Katanekwa, 2011). The region features royal homesteads of groups such as the Uukwaluudhi and Ombalantu, which are key to understanding political and social organization in precolonial and colonial times (NHCN, 2020).

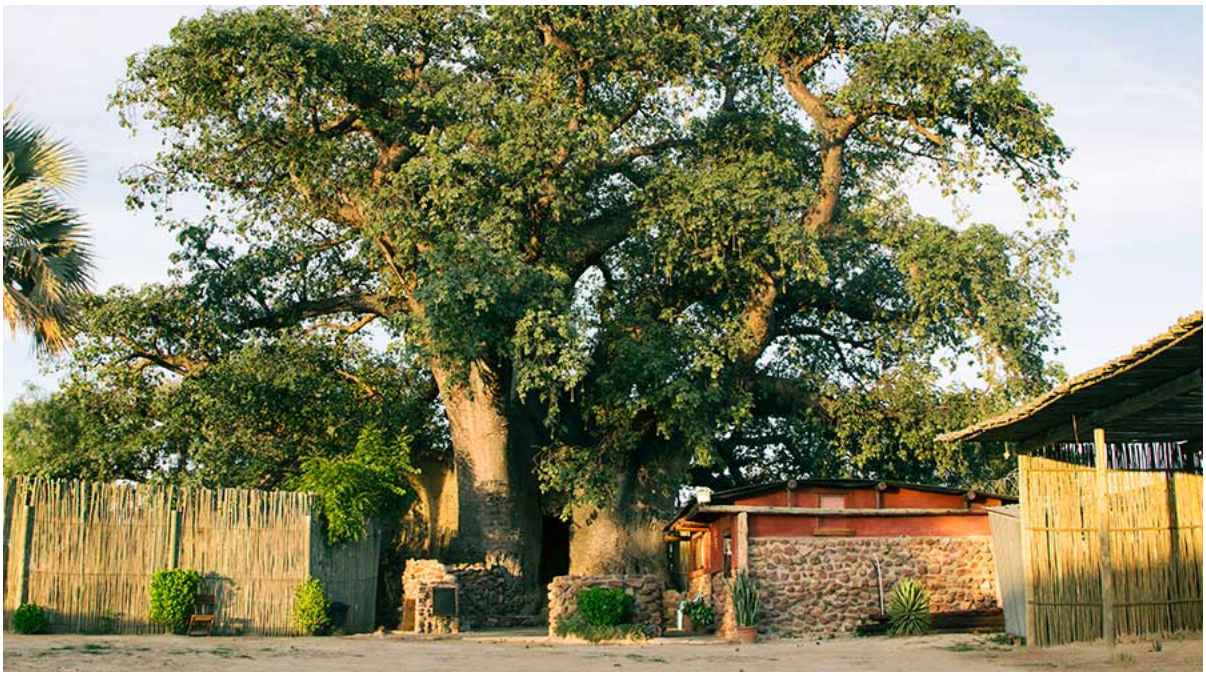

Figure 18: Ombalantu Baobab tree (Photo credit: Museum Association of Namibia, 2025)

Archaeological Setting

Archaeological research in Omusati has been limited but reveals evidence of past settlement in the form of surface scatters of ceramics, lithics, and iron-working debris, particularly around former royal settlements and water sources. Baobabs such as those at Outapi and Okahao also show signs of modification for ritual or utilitarian purposes, representing significant ethnoarchaeological interest (Kinahan, 2001).

Oshikoto Region

Cultural Heritage Setting

Oshikoto is rich in cultural and historical sites. The Nakambale Mission Station at Olukonda, established by Finnish missionary Martti Rautanen in the 1870s, alongside the ELCIN Church (1889), represents the early intersection of Aawambo society with Christianity and European education (Peltola, 1958). The Grave of King Nehale lya Mpingana near Onayena is a key liberation and resistance heritage site, celebrating a leader who opposed German colonial forces (Wallace & Kinahan, 2011). Additionally, Lake Oshikoto, a deep sinkhole, holds cultural and ritual significance and served as a burial site for German arms during WWI (Mendelsohn et al., 2002).

Figure 19: The Nakambale sation : A century-old church at Nakambale. Pictures by Ron Swilling.

Figure 20: Lake Oshikoto (a deep sinkhole) (Photo credit: authors 2022)

Archaeological Setting

Oshikoto has yielded archaeological finds linked to early iron-working, stone tool use, and historic trade networks. The Tsumeb region, once the hub of the Otavi Mining Company (OMEG), preserves colonial-era industrial heritage, including the Minenbüro building (1907) and residential architecture dating from 1912–1915. The Ghaub Caves, featuring the largest underground lake in Namibia, may also hold future archaeological interest (Kinahan, 2001). The battlefield of Namutuni, the Onayena Omandongo Mission, and Lake Guinas areas further underscore the need for archaeological mapping and conservation (NHCN, 2020).

Figure 21: The Ghaub Caves (Photo credit: authors 2024)

8.4 Results of Desktop

National Monuments within the Omusati Region:

1. Omugulugwombashe. Site of battle between SWAPO guerrillas and South African forces on 26th August, 1966, that is generally taken as marking the start of the liberation struggle.
2. Ombandjele. Onelungo Ponds
3. Outapi. Ombalantu Baobab
4. Outapi. Monument of the Unknown PLAN Soldiers
5. Okahao. Okahao Baobab
6. Onatshiku. King Iipumbu yaTshilongo Memorial Site

National Monuments within the Ohangwena Region:

1. Ondeshifiilwa. Memorial to mark a mass grave of PLAN fighters who died in April, 1989.

2. Eenhana Shrine

3. Omhedi. Omhedi Cultural Landscape

National Monuments within the Oshikoto Region:

1. Gaub Caves. The largest underground lake in Namibia.
2. Olukonda. Nakambale Mission House
3. Olukonda ELCIN Church (built in 1889 and the oldest church in the north) and
4. Olukonda Cemetery.
5. Oshikoto Lake. Circular sinkhole with verticle cliffs of dolomite.
6. Namutoni. Fort originally built on site in 1903 destroyed in 1904. Rebuilt in 1905. Restored and opened in 1957.
7. Tsumeb. German Private School Building. Built in 1915.
8. Tsumeb. The Roman Catholic Church was built in 1913.
9. Tsumeb. OMEG-Minenbüro building. Built in 1907.
10. Tsumeb. Second Director's house. Built in 1912.
11. Onayena Omandongo Mission Station
12. Namutuni the Battlefield of Amutuni lyOmanenge
13. Onayena the Grave of Omukwaniilwa Nehale lya Mpingana

1.5 Fieldwork Site Assessment

Reconnaissance field survey

A reconnaissance field survey was undertaken from 26 to 31 May 2025 to identify, describe, and document any archaeological or heritage resources within the eight project intervention sites located in northern Namibia, specifically within the Ohangwena, Omusati, and Oshikoto Regions. The survey employed a combination of systematic visual inspection, transect-based pedestrian walkovers, and vehicle-assisted inspections to ensure comprehensive coverage across diverse terrains.

The field investigation resulted in the identification of several heritage-sensitive features, including:

- Community burial sites, some of which are actively maintained while others appear unmarked or neglected.
- Sacred ponds with known ritual or spiritual significance to local communities.
- Unmarked war graves, likely linked to the liberation struggle.

- Historically significant trees, particularly Jackal trees (eemwandi), which are associated with intangible heritage practices such as traditional meetings and kings' stopovers during their long journeys.

These findings underscore the cultural and historical richness of the surveyed areas and highlight the need for mitigation measures to avoid or minimize adverse impacts on heritage resources during project implementation. This approach ensured a comprehensive and representative assessment of the landscape, allowing for the identification of any surface-level archaeological or heritage features.

The site locations were recorded using a handheld Garmin GPS and observations were photographed for documentation, and descriptive field notes were taken to accurately record the observed heritage resources and archaeology materials. Intense assessment was done at areas with higher potential for cultural material, such as elevated ground and drainage lines. The key findings of the survey are summarized in **Table 7 below**.

Table 6: Findings at the proposed project sites

Heritage resources	Status/findings	Level of impact
Buildings, structures, and places of cultural significance	None	None
Areas to which oral traditions are attached or which are associated with intangible heritage	Sacred ponds and historical trees	High
Historical buildings	None	None
Landscapes and natural features of cultural significance	None	None
Archaeological and paleontological sites	None	None
Graves and burial grounds	Community burial grounds and scattered war graves	Severe
Movable objects	None	None

1.5.1.1 Survey Observations

1. Ohangwena Region

Okanyanona Village

Site 1: Community burial site

Site coordinates: 17° 35’34’’S 17° 23’ 33’’E and mapping

Figure 22 Location of gravesite (1,5km) relative to project footprint

Description: The community burial site is about 2km from the well, the burial site is fenced off and the graves are marked. See **Figs. 21 & 22.**

Significance rating: 3 Archaeological and paleontological site (s) forming part of an identifiable local distribution or group

Vulnerability rating: 1 Low or indirect threat from possible consequences of development (e.g., soil erosion)

Records: Photographs and fieldnotes

Reversibility rating: Irreversible

Condition assessment: Sensitive

Figure 23: The community burial site in Okanyanona (Photo credit: authors 2025).

Figure 24: Community burial site in Okanyanona (Photo credit: authors 2025).

Site 2: Ekolombongo (Natural hole)
Site coordinates: 17° 36’ 45’’S 17° 23’ 34’’E and mapping

Figure 25 Location of pounding well relative to project footprint (132m)

Description: The natural water hole is a sacred place that has existed for years., According to oral history, there used to be people pounding at night. The villagers were told by the elders of the community not to fence the natural hole off or include it in their yards. See **Figs. 23 & 24.**
Significance rating: 4 multi-component site (s), or central site (s) with high research potential
Vulnerability rating: 3 Probable threats from inadvertent disturbance due to proximity of development
Records: Photographs and fieldnotes
Reversibility rating: Irreversible
Condition assessment: Sensitive

Figure 26: Ekolombongo (Natural hole) in Okanyanona (Photo credit: authors 2025).

Figure 27: Ekolombongo (Natural hole) in Okanyanona (Photo credit: authors 2025).

Mitigation Measures and Recommendations

The site survey for the proposed water access improvement intervention in Okanyanona village, Ohangwena Region, recorded two heritage resources in proximity to the project footprint:

- Community burial site – approximately 2 km from the proposed project site.
- Natural sinkhole – approximately 400 m from the proposed project site.

Although neither resource falls within the direct footprint of the proposed works and the intervention has very minimal impacts, both are considered culturally and environmentally sensitive. In accordance with the National Heritage Act, 2004 (Act No. 27 of 2004), avoidance and protective measures are required to safeguard these sites from potential direct or indirect impacts during project implementation.

Mitigation Measures

1. Avoidance and Buffer Zones

- No construction, excavation, material stockpiling, or associated project activities must occur within a 100 m buffer zone of the community burial site and a 50 m buffer zone of the natural sinkhole.
- Final project designs must take these buffer zones into account to ensure complete avoidance of the heritage resources.

2. Demarcation and Signage

- Prior to commencement of works, buffer zones must be clearly marked to restrict access especially for the sinkhole due to proximity.
- Visible warning signs in English and the local language indicating “No-Go Area – Heritage Site” must be installed around both heritage resources.

Recommendations

- Maintain buffer zones throughout the project’s operational life to protect the cultural and natural heritage sites from disturbance.
- Heritage awareness training (including chance find procedures) shall be provided to all project workers before site mobilisation, covering the location and significance of the burial site and sinkhole.

Omboloka Village

Site 1: A burial site for the first community members in Omboloka.
Site coordinates: 17° 24' 31''S 17° 08' 18''E
Description: A burial site was identified for the first community settler and headman of Omboloka village, Mr. Kambangula, who settled in Omboloka around 1937. He was buried next to his mother, and the two graves lie side by side. The burial site is located approximately 200 metres from the well that is proposed to be upgraded. See **Figs. 25 & 26**
Significance rating: 3 Archaeological and paleontological site (s) forming part of an identifiable local distribution or group
Vulnerability rating: 3 Probable threats from inadvertent disturbance due to proximity of development
Records: Photographs and fieldnotes
Reversibility rating: Irreversible
Condition assessment: Sensitive

Figure 28: A burial site for the first community members in Omboloka (Photo credit: authors 2025).

Figure 29: A burial site for the first community members in Omboloka (Photo credit: authors 2025).

Site 2: Ondombe Yakula (Natural Water Pond)
Site coordinates: 17° 24' 32''S 17° 08' 14''E
Description: The natural water pond is a sacred place in Omboloka. According to oral history, no one is allowed to fetch water from the pond, as doing so is believed to result in death; however, animals are permitted to drink from it. Neither adults nor children are allowed to swim in the pond, as it is said this would also cause death. In recent years, the pond has stopped holding water, regardless of how heavy the rains are. The pond is located approximately 100 metres from the well that is proposed to be upgraded. See **Figs. 27 & 28**
Significance rating: 4 multi-component site (s), or central site (s) with high research potential
Vulnerability rating: 3 Probable threats from inadvertent disturbance due to proximity of development
Records: Photographs and fieldnotes
Reversibility rating: Irreversible
Condition assessment: Fair

Figure 30: Ondombe yakula (natural pond) in Omboloka (photo credit: Authors 20

Figure 31: Ondombe yakula (natural pond) in Omboloka (photo credit: Authors 2025).

Site 3: War graves

Site coordinates: 17° 24’ 59’’S 17° 25’ 05’’E

Description: Two (2) war graves containing the remains of five freedom fighters (PLAN fighters) who were killed during a battle between PLAN and South African soldiers in 1980. The graves are unmarked and are located approximately 3 kilometres from the well that is proposed to be modernised, **see Figs. 29 & 30**

Significance rating: 3 Archaeological and paleontological site (s) forming part of an identifiable local distribution or group

Vulnerability rating: 2 Low or indirect threat from possible consequences of development (e.g., soil erosion)
Records: Photographs and fieldnotes
Reversibility rating: Irreversible
Condition assessment: Sensitive

Figure 32: War graves of 2 PLAN fighters in Omboloka (photo credit: Authors 2025).

Figure 33: War graves of 3 PLAN fighters in Omboloka (photo credit: Authors 2025).

Mitigation Measures and Recommendations

The proposed upgrading of the community water infrastructure in Omboloka village, involves the conversion of an existing traditional hand-dug well into a modern solar-powered borehole system. The site survey recorded the above – mentioned three heritage resources in proximity to the project area. Although, none of these heritage resources fall within the immediate project footprint, they hold high cultural, spiritual, and historical value. Their protection is required under the National Heritage Act, 2004 (Act No. 27 of 2004), as well as in accordance with community traditions.

Mitigation Measures

- A minimum 50 m buffer zone must be maintained around the sacred water pond (Ondombe Yakula).
- A minimum 100 m buffer zone must be maintained around the burial site.
- No project activities are permitted within the buffer zones, including storage of materials, access roads, or worker camps.
- The war graves are located outside the project's area of direct influence but must be recognized in the environmental management plan to prevent indirect disturbance from project-associated activities.

Recommendations

- Maintain buffer zones for the life of the project and ensure these are clearly communicated in the project's Environmental Management Plan (EMP).
- Long-term preservation: In consultation with the community, consider installing permanent protective fencing or signage around the burial site and Ondombe Yakula.
- Recognition of war graves: Although 3 km away, their location should be recorded in the project's heritage database.

Oluwaya Village

Site 1: Community Burial site
Site coordinates: 17° 32' 07''S 17°325' 07''E
Description: Community Burial site that is fenced and in good condition.
The graves are about 3km from the well that is to be modernised, **see Fig. 31**
Significance rating: 3 Archaeological and paleontological site (s) forming part of an identifiable local distribution or group

Vulnerability rating: 2 Low or indirect threat from possible consequences of development (e.g., soil erosion)
Records: Photographs and fieldnotes
Reversibility rating: Irreversible
Condition assessment: Sensitive

Figure 34: Community burial site in Oluwaya (Photo credit: authors 2025).

Mitigation Measures and Recommendations

The proposed upgrading of the community water infrastructure in Oluwaya Village, involves converting an existing traditional hand-dug well into a modern solar-powered borehole system. The site survey recorded one heritage resource in the vicinity of the project area:

- Community burial site – located approximately 3 km from the existing well.

Although this burial site is well outside the direct project footprint, it is of high cultural significance to the local community and warrants protection through project planning and management in compliance with the National Heritage Act, 2004 (Act No. 27 of 2004).

Mitigation Measures

- Given the 3 km distance from the project site, no direct impact is anticipated; however, the burial site shall be documented in the project's heritage database for reference in future planning.

Recommendations

- Maintain the current project footprint to ensure no direct or indirect disturbance to the burial site.

- Implement a Chance Find Procedure in the project's Environmental Management Plan (EMP).

Oshanalumono – Ohaingu Village

Site 1: Historical Jackal Berry Tree well known as Omwandi weendunda
Site coordinates: Due to water, the survey team could not reach the tree. The tree is about 1.5km from the early warning flood detector.
Description: There is a historical tree in Oshanalumono, well known as Omuti weendunda, where elder men used to spend time carving traditional huts. It was also known as a refreshment stop for headmen and their soldiers when they were on their way to the Oukwanyama palace. The local community wishes to preserve this significant tree due to its cultural and historical importance. **see Fig. 32**
Significance rating: 4 multi-component site (s), or central site (s) with high research potential **Vulnerability rating**: 2 Low or indirect threat from possible consequences of development (e.g., soil erosion)
Records: Photographs and fieldnotes
Reversibility rating: Irreversible
Condition assessment: Fair

Figure 35: Historical Jackal Berry Tree well known as Omwandi weendunda (Photo credit: authors 2025).

Figure 36:Flood pan in Oshana lumono (Photo credit: authors 2025).

Mitigation Measures and Recommendations

The proposed intervention in Oshanalumono – Ohaingu Village, aims to pilot flood early warning systems by upgrading the existing structures with new cables and the latest technology. The objective is to improve disaster preparedness and response capacity within the community.

The site survey recorded one heritage resource in proximity to the project area:

- Historical Jackal Berry Tree (Omwandi weendunda) – located approximately 1.5 km from the existing infrastructure.

Although this tree lies outside the direct footprint of the proposed works, it is of significant historical and cultural value to the community. Protection measures are required to ensure no direct or indirect disturbance, in compliance with the National Heritage Act, 2004 (Act No. 27 of 2004).

Mitigation Measures

- The location of Omwandi weendunda shall be recorded on all project maps and clearly designated as a “Heritage No-Go Area”.

Recommendations

- Maintain at least a 50 m precautionary buffer if any future activities take place near Omwandi weendunda.
- Incorporate the location and heritage significance of the tree into the project’s Environmental Management Plan (EMP) and long-term monitoring framework.

- Consider installing interpretive signage to inform the public and visitors about the cultural value of the tree, in consultation with the community.

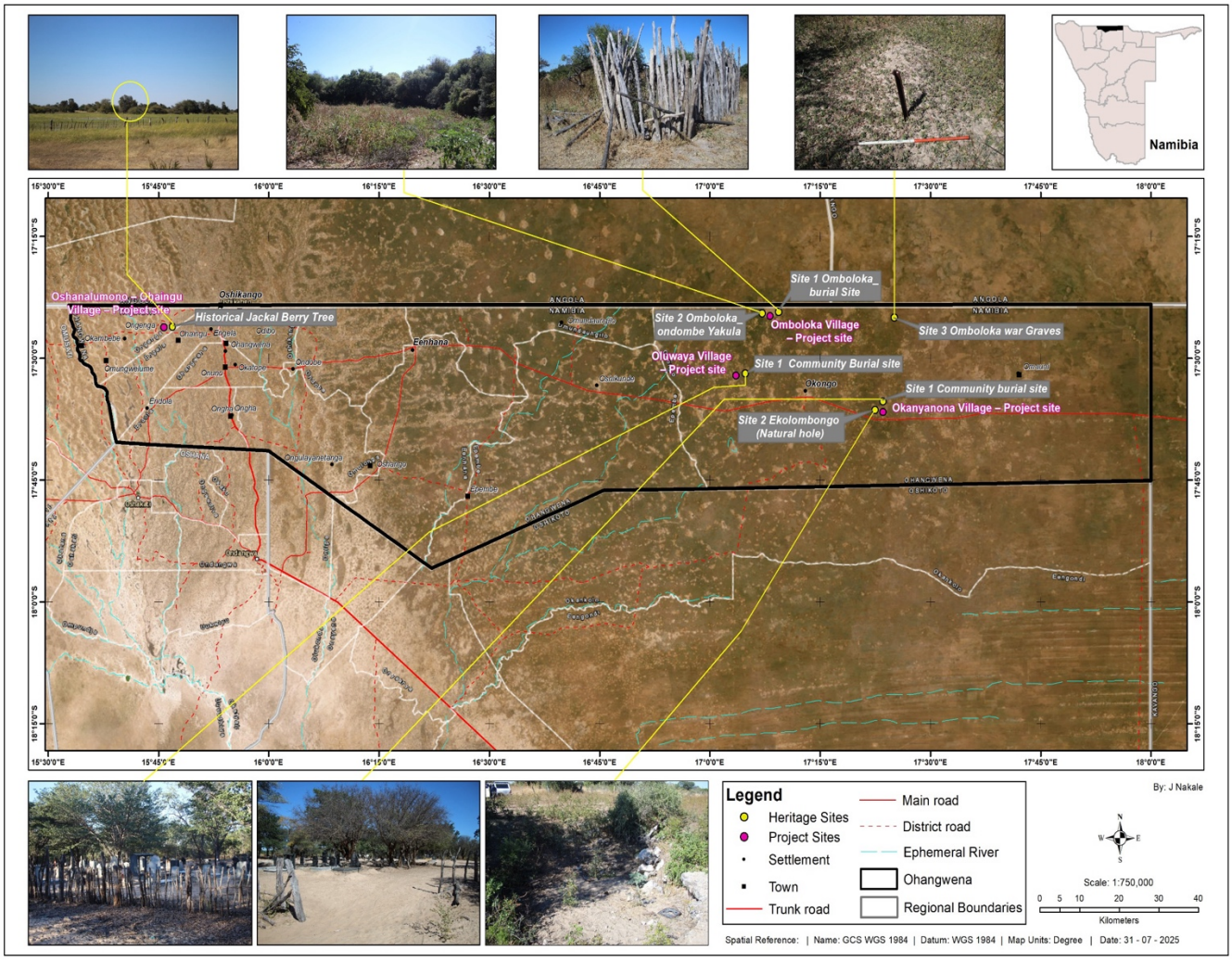

Figure 37: Map of all the heritage site in Ohangwena region (Map credit: OTAH, 2025)

2. Omusati Region

Shapoko - Epoko Village

Site 1: A family burial site
Site coordinates: 17° 27’ 38’’S 15° 10’08’’E
Description: About 14 graves, this family burial site is in the mahangu field, the burial site is not fenced off and it is about 2.5km from the early warning flood detector. See **Fig. 34**

Significance rating: 4 multi-component site (s), or central site (s) with high research potential
Vulnerability rating: 2 Low or indirect threat from possible consequences of development (e.g., soil erosion)
Records: Photographs and fieldnotes
Reversibility rating: Irreversible
Condition assessment: Sensitive

Figure 38: A family burial site in Shapoko (Photo credit: authors 2025).

Mitigation Measures and Recommendations

The flood early warning system is located at oshana Shapoko village aims to pilot flood early warning systems by upgrading the existing structures with new cables and the latest technology. The objective is to improve disaster preparedness and response capacity within the community.

The site survey recorded one heritage resource in the vicinity of the project area:

- Community burial site – located approximately 2.5 km from the existing structures

Although this burial site is outside the direct project footprint, it is of high cultural significance to the local community and warrants protection through project planning and management in compliance with the National Heritage Act, 2004 (Act No. 27 of 2004).

Mitigation Measures

- Given the 2.5 km distance from the project site, no direct impact is anticipated; however, the burial site shall be documented in the project's heritage database for reference in future planning.

Recommendations

- Maintain the current project footprint to ensure no direct or indirect disturbance to the burial site.
- Implement a Chance Find Procedure in the project's Environmental Management Plan (EMP).

Ombundamuti Village

Site 1: Historical Jackal Berry Tree well known as Omwandi wa Shongola
Site coordinates: 17° 33' 29''S 15° 13'23''E
Description: There is a historical Jackal Berry tree in Ombundamutu, well known as Omwandi wa Shongola. According to oral history, this tree was a rest stop where King Shongola and his soldiers would pause for refreshment. It is also said that the decision to establish the border between Uukwambi and Ombalantu was made at this very tree. The historical tree is located approximately 800 metres from the proposed water harvesting pond. See **Fig. 35**
Significance rating: 4 multi-component site (s), or central site (s) with high research potential
Vulnerability rating: 3 Probable threats from inadvertent disturbance due to proximity of development
Records: Photographs and fieldnotes
Reversibility rating: Irreversible
Condition assessment: Fair

***Figure 39: Historical Jackal Berry Tree well known as Omwandi wa Shongola (*Photo credit: authors 2025).**

Mitigation Measures and Recommendations

The proposed rainwater harvesting earth ponds will be constructed in Ombudamuti village, in Omusati region which involves excarvation.
The site survey recorded one heritage resource in proximity to the project area:

- Historical Jackal Berry Tree well known as Omwandi wa Shongola located approximately 800m from the existing rainwater harvesting earth ponds.

Although this tree lies outside the direct footprint of the proposed works, it is of significant historical and cultural value to the community. Protection measures are required to ensure no direct or indirect disturbance, in compliance with the National Heritage Act, 2004 (Act No. 27 of 2004).

Mitigation Measures

- The location of Omwandi wa Shongola shall be recorded on all project maps and clearly designated as a “Heritage No-Go Area”.

Recommendations

- Maintain at least a 50 m precautionary buffer if any future activities take place near Omwandi wa Shongola.
- Incorporate the location and heritage significance of the tree into the project’s Environmental Management Plan (EMP) and long-term monitoring framework.
- Consider installing interpretive signage to inform the public and visitors about the cultural value of the tree, in consultation with the community.

Olupumbu Village

Site 1: Community burial site
Site coordinates: 17° 44' 59''S 15° 24' 51''E
Description: The burial site is fenced off and in good condition. The burial site is about 1.5 Km from the proposed earth dam. See **Fig. 36**
Significance rating: 4 multi-component site (s), or central site (s) with high research potential
Vulnerability rating: 2 Low or indirect threat from possible consequences of development (e.g., soil erosion)
Records: Photographs and fieldnotes
Reversibility rating: Irreversible
Condition assessment: Sensitive

Figure 40: Community burial site in Olupumbu Community burial site (Photo credit: authors 2025).

Site 2: A burial site for the non-Christians next to the Community burial site
Site coordinates: 17° 44' 59''S 15° 24' 51''E
Description: This burial site was historically designated for non-Christians and is located next to the community burial site reserved for Christians.
Some graves are fenced off and some are unfenced. See **Fig 37 & 38**
Significance rating: 4 multi-component site (s), or central site (s) with high research potential

Vulnerability rating: 2 Low or indirect threat from possible consequences of development (e.g., soil erosion)
Records: Photographs and fieldnotes
Reversibility rating: Irreversible
Condition assessment: Sensitive

Figure 41: Community burial site for the non-Christians in Olupumbu (Photo credit: authors 2025).

Figure 42: Community burial site for the non-Christians in Olupumbu (Photo credit: authors 2025).

Mitigation Measures and Recommendations

The proposed rainwater harvesting earth pond will be constructed in Olupumbu village, in Omusati region. The site survey recorded two heritage resources in the vicinity of the project area:

- Community burial sites that are next to each other – located approximately 1.5 km from the existing harvesting earth pod.

Although this burial site is outside the direct project footprint, it is of high cultural significance to the local community and warrants protection through project planning and management in compliance with the National Heritage Act, 2004 (Act No. 27 of 2004).

Mitigation Measures

- Given the 1.5 km distance from the project site, no direct impact is anticipated; however, the burial site shall be documented in the project's heritage database for reference in future planning.

Recommendations

- Maintain the current project footprint to ensure no direct or indirect disturbance to the burial site.
- Implement a Chance Find Procedure in the project's Environmental Management Plan (EMP).

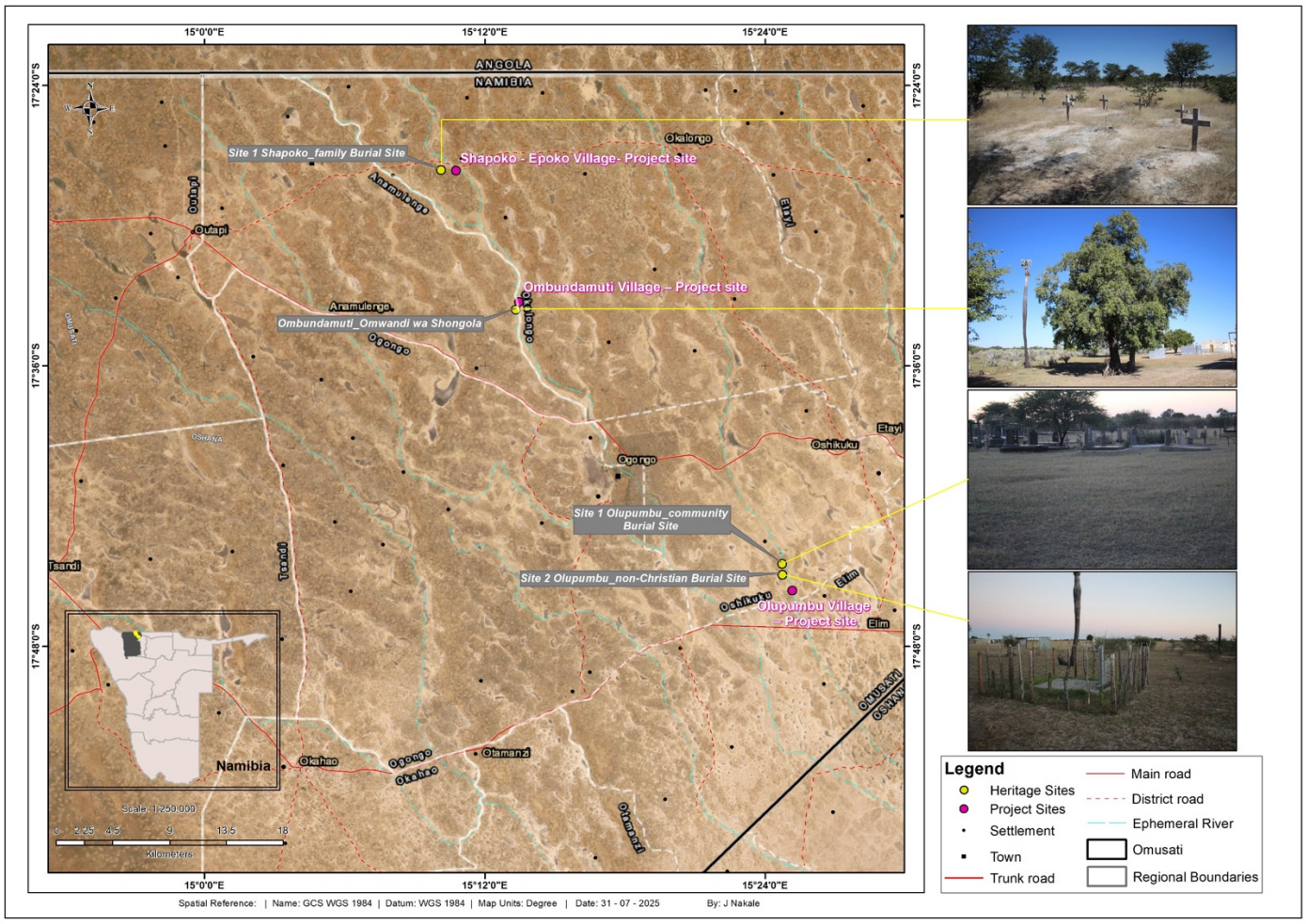

*Figure 43: **Map of all the heritage sites recorded in Omusati region (Map credit: OTAH, 2025)***

3. Oshikoto Region

Onamatende Village

Site 1: Community burial site
Site coordinates: 17° 59’ 05’’S 16° 48’ 59’’E
Description: About 14 graves about 13 marked with boards and tombstones and 1 unmarked, the burial site is unfenced. The oldest grave is from 2012. The burial site is about 4km from the proposed water harvesting pond see **Figs. 39 & 40**
Significance rating: 4 multi-component site (s), or central site (s) with high research potential
Vulnerability rating: 2 Low or indirect threat from possible consequences of development (e.g., soil erosion)

Records: Photographs and fieldnotes
Reversibility rating: Irreversible
Condition assessment: Sensitive

Figure 44: Community burial site in Onamatende (Photo credit: authors 2025).

Figure 45: Community burial site in Onamatende (Photo credit: authors 2025).

Mitigation Measures and Recommendations

The proposed rainwater harvesting earth ponds will be constructed in Onamatende village, which involves excavating. The site survey recorded one heritage resource in the vicinity of the project area:

- Community burial site – located approximately 4 km from the existing pod.

Although this burial site is far outside the direct project footprint, it is of high cultural significance to the local community and warrants protection through project planning and management in compliance with the National Heritage Act, 2004 (Act No. 27 of 2004).

Mitigation Measures

- Given the 4 km distance from the project site, no direct impact is anticipated; however, the burial site shall be documented in the project's heritage database for reference in future planning.

Recommendations

- Maintain the current project footprint to ensure no direct or indirect disturbance to the burial site.
- Implement a Chance Find Procedure in the project's Environmental Management Plan (EMP).

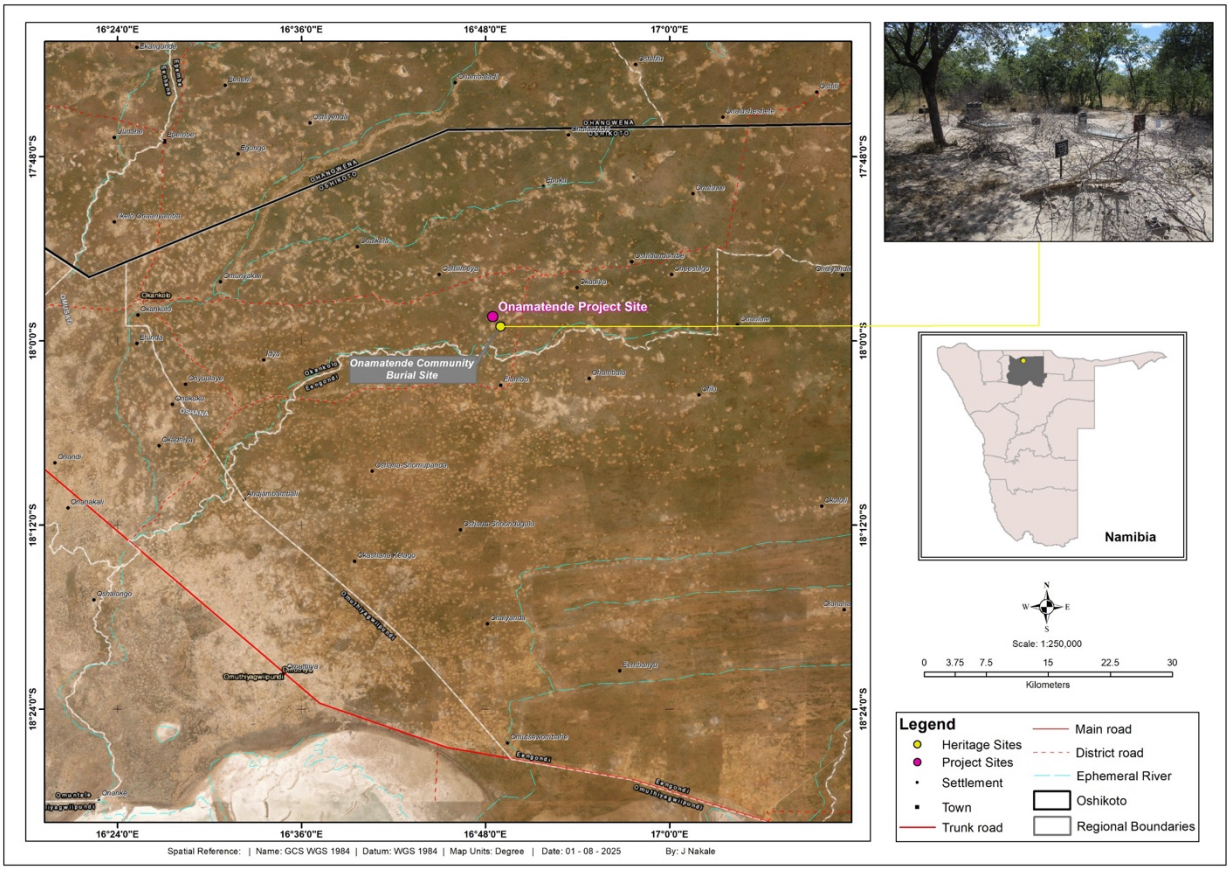

Figure 46: Map of the heritage site recorded in Oshikoto region (OTAH, 2025)

Stakeholder Engagement

Stakeholder consultations and meetings were conducted with local communities across the three regions at the respective project sites. During these engagements, local and indigenous knowledge was documented, and oral histories were shared by elders. Consultations with traditional authorities and residents ensured that indigenous and community-based heritage resources were adequately identified and represented.

This participatory approach was undertaken to promote inclusivity in identifying heritage values and understanding community concerns. Moreover, the community engagement process formed part of the United Nations Development Programme (UNDP)'s Social and Environmental Standards (SES), which require the obtaining of Free, Prior, and Informed Consent (FPIC) from affected communities. FPIC ensures that consent is given voluntarily, without coercion, prior to the commencement of project activities, and is based on the full disclosure of relevant information in a culturally appropriate and

accessible format allowing communities to fully understand the potential impacts and make informed decisions.

Figure 47 OTAH consultants engaging with local male community representatives during a field visit in Oshanalumono, Cuvelai Basin. This engagement focused on traditional land use and oral histories. Due to the timing of the visit coinciding with the mahangu harvest season, many women were occupied with essential agricultural duties and were therefore unable to participate in this particular consultation session. Broader community input, however, was sought through follow-up discussions where possible. (Photo credits: Authors 2025).

Figure 48: Community consultation in Shapoko (Photo credits: Authors 2025).

Figure 49: Community consultation in Ombundamuti (Photo credits: Authors 2025).

Figure 50: Community consultation in Olupumbu (Photo credits: Authors 2025).

Impact Assessment and Mitigation

This section outlines the criteria used to assess the significance, sensitivity and or vulnerability of heritage resources and archaeological materials as well as the proposed mitigation measures. The criteria used to assess the impacts and the method of determining their significance are outlined in section 8.5 above. This approach conforms with National guidelines and international best practices. The core principle of impact assessment is mitigation, which aims to avoid the negative impact through preventative means.

The mitigation measures were developed by applying the mitigation hierarchy: (i) avoid adverse impacts to the extent possible by using preventative measures; (ii) reduce adverse impacts to low levels (see Table Figure 8).

Table 7: Impact assessment and mitigation during project development

Impact	Impact description	Vulnerability	Extent	Duration	Reversibility	Significance	Mitigation Measures
Disruption of known archaeological features	The burial sites and sacred water pond located within or near the footprint of the proposed development face a higher risk of direct disturbance or destruction, particularly if these features are disturbed or destroyed during development.	**3** Probable threats from inadvertent disturbance due to proximity of development	Local	Short term	No	**5** Major archaeological or paleontological site (s) containing unique evidence of high regional significances	The burial sites and sacred water pond should be marked and avoided during construction. A buffer zone should be established around these features to prevent accidental disturbance. Wherever possible, project designs should be adjusted to exclude burial sites from the construction area.

Impact	Impact description	Vulnerability	Extent	Duration	Reversibility	Significance	Mitigation Measures
Discovery of undocumented archaeological sites	There is a possibility that undiscovered archaeological sites to be unearthed during construction.	**5** Direct and certain threat of major disturbance or destruction	Local	Short term	Yes	Not established	Any newly discovered archaeological sites or features should be reported to the relevant heritage authorities, such as the National Heritage Council. Implement the "chance find" procedure protocol established for dealing with unexpected archaeological finds during construction which outline the steps to take if any significant archaeological or cultural artifacts are discovered, including halting work in the affected area and notifying heritage authorities.
Damage to cultural heritage sites	There is a risk of damaging important cultural heritage features.	**2** Low or indirect threat from possible consequences of development	Local	Short term	Yes	**2** Isolated minor finds in undisturbed primary context, with diagnostic materials	Continuous archaeological monitoring should be implemented during construction to ensure any previously unidentified archaeological sites are discovered and protected. NHC should be present

Impact	Impact description	Vulnerability	Extent	Duration	Reversibility	Significance	Mitigation Measures
							on-site to identify and manage any new findings. All construction personnel and staff should undergo cultural heritage awareness training to enhance their understanding and to help prevent inadvertent damage to cultural resources during construction.
Loss of intangible cultural heritage	Risk of interference and consequent disappearance of traditions, practices, expressions, knowledge, and skills that are passed down through generations within a community, practices such as oral traditions, performing arts, rituals, festivals, and traditional craftsmanship.	**3** Probable threats from inadvertent disturbance due to proximity of development	n/a	n/a	n/a	n/a	Engage local communities in the process, as they may have valuable knowledge about the area's cultural significance. It is recommended that the project team and the consultant should initiate discussions with the NHC to explore collaborative opportunities for the systematic recording, verification, and preservation of community knowledge related to culturally significant landscapes, features, and practices.

Conclusions and recommendations

Management Recommendations

i. Cultural Heritage Preservation
Given the identification of burial grounds, graves and sacred places within the project sites, it is essential to ensure that these sites are appropriately preserved. Measures should be taken to avoid disturbing these features during the development process.

ii. Ongoing Monitoring
Continuous archaeological monitoring should be conducted during the construction phase to ensure that any undiscovered cultural or archaeological resources are identified and protected. This will help to mitigate any potential impact on significant sites that may not have been previously identified. There is a need for continued preservation and recognition of these resources and serve as a reference point for future project implementers

iii. Engagement with Local Communities
Regular engagement with local communities, traditional authorities, and other stakeholders should continue throughout the project. This ensures transparency, allows for the incorporation of local knowledge, and strengthens community ownership of heritage preservation efforts.

iv. Consultation with Heritage Authorities
All findings should be reported to the relevant heritage authorities for further investigation and possible protection measures. The National Heritage Council should be kept informed of the development's progress, ensuring compliance with Namibian heritage legislation.

v. Cultural Heritage Awareness Training
Provide training for the construction team and project staff on the importance of cultural heritage and the legal implications of disturbing archaeological sites. This will help raise awareness and prevent accidental damage to heritage resources during construction activities.

vi. Mitigation Measures for Discovery of Additional Sites
If additional archaeological sites or artifacts are discovered during the development, a detailed mitigation plan should be put in place. This may include site preservation, excavation, or the relocation of findings in accordance with best practice guidelines as outlined in the chance find procedure.

vii. Public Reporting

Upon completion of the construction phase, findings of the heritage and archaeology should be publicly reported and updated on the national map to contribute to the broader understanding of the area's cultural and archaeological significance.

viii. Compliance with Act 27 of 2004 on the “chance finds” procedure

The “chance finds' ' procedure is covering the actions to be taken from the discovery of a heritage site or item to its investigation and assessment by a trained archaeologist or other appropriately qualified person. Section 55 (4) of the Heritage Act of 2004 outline that a person who discovers any archaeological object must as soon as practicable report the discovery to the Council”. The procedure of reporting set out below as “appendix 1” must be observed so that heritage remains reported to the NHC are correctly identified in the field.

Conclusions

The field survey conducted from 26 to 31 May 2025 within the eight project intervention sites in the Ohangwena, Omusati, and Oshikoto Regions confirmed the presence of multiple archaeological and heritage-sensitive features. These include community burial grounds, sacred natural features, unmarked graves linked to Namibia’s liberation history, and trees with deep cultural symbolism.

The diversity and significance of these features reflect the rich cultural landscape of northern Namibia, where tangible and intangible heritage remain interwoven with everyday life. It is evident that any development activity without proper heritage safeguards risks damaging irreplaceable cultural resources and violating the rights of communities who hold these sites sacred.

Therefore, the report recommends a suite of mitigation measures, including avoidance, site protection, community consultation, and monitoring, in line with the National Heritage Act (Act No. 27 of 2004). Continued collaboration with traditional authorities, the National Heritage Council of Namibia, and heritage specialists will be crucial to ensuring that development proceeds responsibly, respectfully, and legally.

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Appendix 1. Chance finds procedure (cfp) management guideline:

Areas of proposed development are subject to heritage survey and assessment at the planning stage. These surveys are based on surface indications alone, and it is, therefore, possible that sites or items of heritage significance will be found during development work. The procedure set out here covers the reporting and management of such finds.

Scope

The "chance finds" procedure covers the actions to be taken from the discovery of a heritage site or item to its investigation and assessment by a trained archaeologist or other appropriately qualified people.

Compliance

The "chance finds" procedure is intended to ensure compliance with relevant provisions of the National Heritage Act (27 of 2004), especially Section 55 (4): "a person who discovers any archaeological object must as soon as practicable report the discovery to the Council". The procedure of reporting set out below must be observed so that heritage remains reported to the NHC are correctly identified in the field.

Responsibilities

Operator: To exercise due caution if archaeological remains are found
Foreman: To secure site and advise management timeously
Superintendent: To determine safe working boundary and request inspection
Archaeologist: To inspect, identify, advice management, and recovers remain

Procedure:

Action by the person (operator) identifying archaeological or heritage material

- If operating machinery or equipment: **stop work**
- Identify the site with flag tape
- Determine GPS position if possible
- Report findings to foreman

Foreman:

- Report findings, site location and actions are taken to the superintendent
- Cease any works in the immediate vicinity

Superintendent:

- Visit the site and determine whether work can proceed without damage to findings.
- Determine and mark the exclusion boundary
- Site location and details to be added to the Archaeological Heritage database system

Archaeologist:

- Inspect site and confirm the addition to AH database system.
- Advise National Heritage Council and request a permit to remove findings.
- Recovery, packaging and labeling of findings for transfer to National Museum

A. In the event of discovering human remains

- Actions as above.
- Field inspection by archaeologist to confirm that remains are human.
- Advise and liaise with NHC Guidelines; and
- Recovery of remains and removal to National Museum or National Forensic Laboratory, or as directed.

Appendix 2. Archaeological and heritage monitoring measures

Table 8: Archaeological and Heritage Monitoring Measures

SITE REF	HERITAGE ASPECT	POTENTIAL IMPACT	MITIGATION MEASURES	RESPONSIBLE PARTY	PENALTY	METHOD STATEMENT REQUIRED
Chance Finds (Archaeological and Burial Sites)	General area where the proposed project is situated is a historic landscape, which may yield archaeological, cultural property, remains. There are possibilities of encountering unknown archaeological sites during subsurface construction work and construction phase which may disturb previously unidentified chance finds.	Possible damage to previously unidentified archaeological and burial sites during construction phase. • Unanticipated impacts on archaeological sites where project actions inadvertently uncovered significant archaeological sites. • Loss of historic cultural landscape. • Destruction of burial sites and associated grave • Loss of aesthetic	In situations where unpredicted impacts occur construction process must be stopped, and the heritage authority should be notified immediately. Where remedial action is warranted, minimize disruption in construction scheduling while recovering archaeological data. Where necessary, implement emergency measures to mitigate. • Where burial sites are accidentally disturbed during construction, the affected area should be demarcated as no-go zone by use of fencing	• Contractor / • Project Manager • Archaeologist • Project Environmental Control Officer (ECO) or Site Manager	Fine and or imprisonment under the National Heritage Act	Monitoring measures should be issued as instruction within the project EMP. PM/EO/Archaeologists Monitor construction process on sites where such construction projects commence.

		value due to construction work • Loss of sense of place Loss of intangible heritage value due to change in land use	during construction, and access thereto by the construction team must be denied. • Accidentally discovered burials in development context should be salvaged and rescued to safe sites as may be directed by relevant heritage authority. The heritageofficer responsible should securerelevant heritage and healthauthorities' permits for possible relocation of affected graves accidentally encountered during construction work.			

Appendix 3. Archaeological management plan (amp)

The objectives of Archaeological Management Plan (AMP) are to:

- Protection of archaeological sites and land considered to be of cultural value.
- Protection of known physical cultural property against vandalism, destruction, and theft; and

- The preservation and appropriate management of new archaeological finds should these be discovered during the development phase.

Table 9: Archaeological Management Plan (AMP)

Archaeological Management Plan (AMP)								
Area and Site	**Mitigation Measures**	**Phase**	**Timeframe**	**Responsibility party for implementation**	**Monitoring party**	**Accountable party**	**Monitoring system (performance indicators)**	**Target**
Water intervention project in the Ohangwena, Omusati and Oshikoto regions	If potentially human remains, NHC and the Namibian Police should be contacted	Throughout the project	The project life	Operational staff or any person employed by the proponent	Site Manager (SM)	Proponent	Checklist/Progress report	Place Ordinance 27 of 1966
NB! The procedure to be followed during the operation, decommissioning and rehabilitation phases are the same as they were during the construction phase.								

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