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## **Heritage Impact Assessment (HIA) for the exploration of Lithium Resources on EPL 7574 near Karasburg and Orange River in //Karas Region.**

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**Geographic Co-ordinate Information:** Geographic co-ordinates in this report were obtained using a hand-held Garmin Global Positioning System device.

**Maps:** Maps included in this report use data extracted from the NTS Map and Google Earth Pro.

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The Archaeological and Heritage Impact Assessment Study was carried out within the context of tangible and intangible cultural heritage resources as defined by the National Heritage Council Regulations and Guidelines as to the authorisation of the proposed exploration project being proposed by Karas Lithium Resources Pty LTD.

## **DECLARATION**

We hereby declare that we do:

1. have knowledge of and experience in conducting archaeological assessments, including knowledge of Namibian legislation, specifically the National Heritage Act (27 of 2004), as well as regulations and guidelines that have relevance to the proposed activity;
2. perform the work relating to the application objectively, even if this results in views and findings that are not favorable to the applicant;
3. comply with the aforementioned Act, relevant regulations, guidelines, and other applicable laws. We also declare that we have no interest or involvement in:
  - (i) the financial or other affairs of either the applicant or his consultant; and
  - (ii) the decision-making structures of the National Heritage Council of Namibia.

Signed by: 

## Key Concepts and Terms

Abbreviation	Description
AIA	Archaeological Impact Assessment
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
LIA	Late Iron Age
NHA	Nation Heritage Act, Act 27 of 2004
SM	Site Manager
NHCN	National Heritage Council of Namibia
ESA	Later Stone Age
EPL	Exclusive Prospecting License
ECC	Environmental Clearance Certificate
CFP	Chance Find Procedure
EMA	Environmental Management Act

**Periodization Archaeologists** divide the different cultural epochs according to the dominant material finds for the different 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 nothing a little more than convenient time brackets because their terminal and commencement 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** (~ AD1100-1840)

**Historic** (~ AD 1840 to 1950, but a Historic building is classified as over 60 years old)

**Definitions** Just like periodization, it is also critical to define key terms employed in this study. Most of these terms derive from Namibian National Heritage legislation and its ancillary laws, as well as international regulations and norms of best practice. The following aspects have a direct bearing on the investigation and the resulting report:

**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 artifacts of importance associated with the history, architecture, or archaeology of human development.

**Cultural significance** is determined using aesthetic, historic, scientific, social, or spiritual values for past, present, or future generations.

**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.

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

**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.

**Archaeological sites/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 artifacts, human and hominid remains, and artificial features and structures. According to the Namibia National Heritage Act (NNHA) (Act No. 27 of 2004), no archaeological artifact, 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.

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

**Chance finds** means archaeological artifacts, features, structures, or historical remains accidentally found during development.

**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 it is referred to as being situated in a cemetery (contemporary) or burial ground (historic).

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

**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.

**The impact** is the positive or negative effects on human well-being and/or on the environment.

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

**Mining heritage sites** refer to old, abandoned mining activities, underground or on the surface, which may date from the pre-historical, historical, or the relatively recent past.

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

**Phase I** studies refers 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.



## **Executive Summary**

An archaeological desktop and field survey was carried out on EPL 7574 in //Karas Region. The field survey has located some potential heritage sites within the boundaries of the EPL presented in this report. Nevertheless, site management plan (SMP) has been suggested and thoroughly outlined as recommendations for the proponent to adopt.

## 1. Introduction

The Namibian Government recognizes that the exploration and development of its mineral wealth could best be undertaken by the private sector. Such premise focuses on creating an enabling environment through appropriate competitive policy and regulatory frameworks for the promotion of private sector investment coupled with the provision of national geo-scientific databases essential for attracting competitive exploration and mining (Draft Minerals Policy of Namibia, MME). It is against this background that the proponent has decided to conduct exploration activities for lithium minerals on EPL 7574 operated by Karas Lithium Resources (Pty) in //Karas region.

The proposed project is likely to benefit the Namibian government through the payment of the annual license fees to the Ministry of Mines and Energy. Further, the project will likely provide provisional contractual employment opportunities for the local communities.

Unrestrained natural resource mining/excavation has resulted in undesirable environmental effects in some areas of the country. This has been largely attributed to the fact that people were under no obligation to rehabilitate the affected areas and thus left behind large open pits/quarries, which pose a danger to both humans and animals. From the point of view of the environmental impact created. Karas Lithium Resources (Pty) Ltd, hereinafter referred to as the proponent through Environmental Compliance Consultancy (Pty) Ltd subcontracted ESM Archaeological and Cultural Heritage Consultants to carry out the following activity:

- **Heritage Impact Assessment (HIA) for the exploration of Lithium resources on EPL 7574 south of Karasburg near the Orange River in the //Karas region.**

The objective of the intended Heritage & Archaeological Impact Assessment (HAIA) is thus needed to:

- Assess the potential heritage and archaeological impacts associated with the intended exploration in the //Karas Region, and formulate a site management plan (SMP) as stipulated under the National Heritage Act 27 of 2004 (Section 58) read together with

the provisions of the Environmental Management Act (No. 7 of 2007) and Environmental Impact Assessment Regulations (Government Notice No. 30 of 2012).

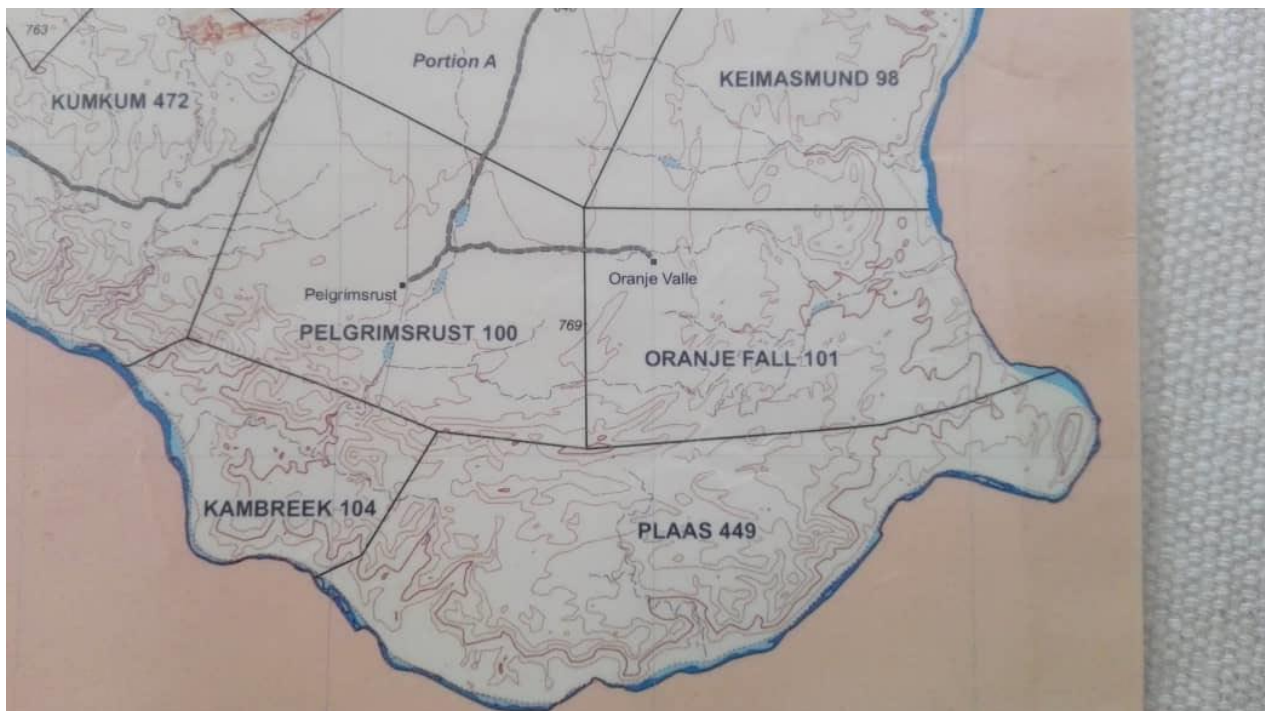
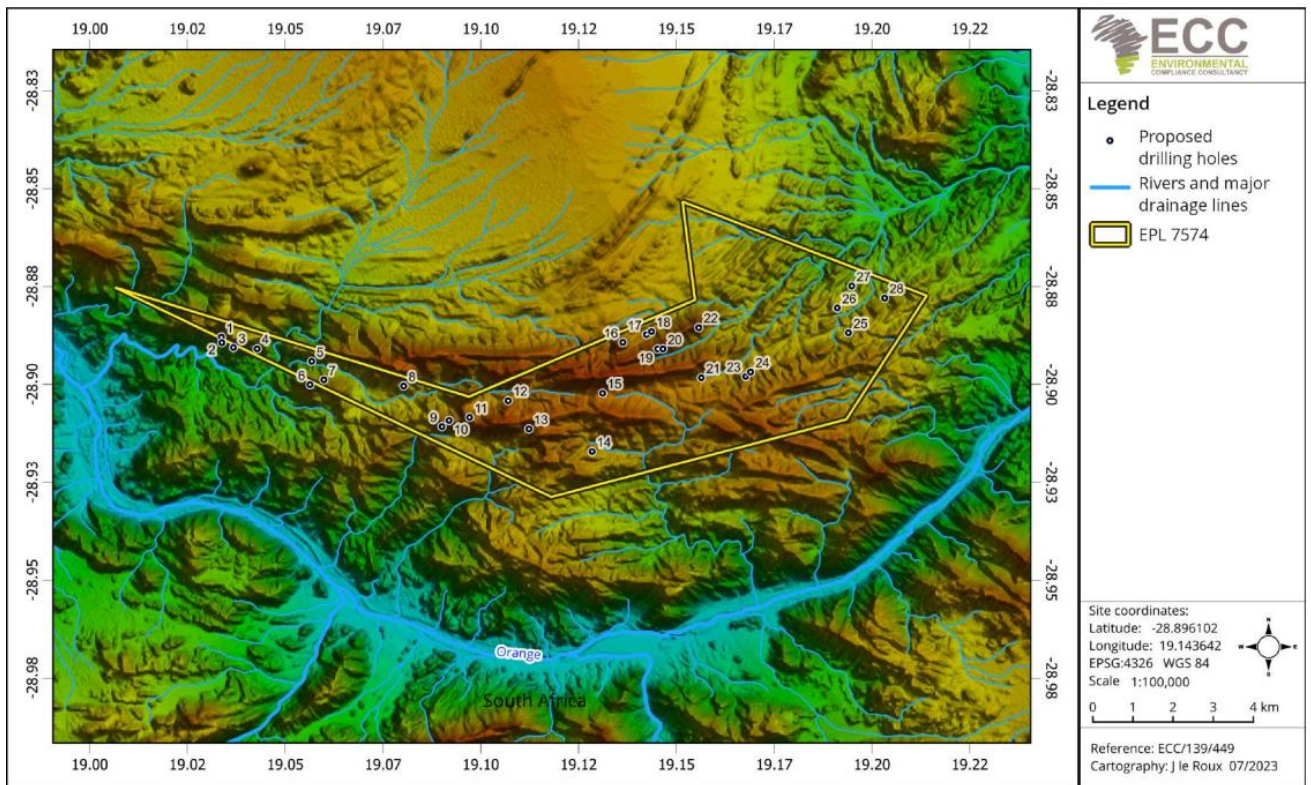


Figure 1. Top Map: Locality map of EPL 7574 between South of Karasburg near the Orange River. (Source: Environmental Compliance Consultants). Bottom Map. Three farms covered by EPL 7574, namely Kambreek 104, Plaas 449 and Oranje Fall 101 (Source Mr Morkel Pete) .

## **2. Legislations**

In Namibia, the legal instrument for the protection of heritage sites and objects is the National Heritage Act (No. 27 of 2004). However, there are no regulations for the realization of the National Heritage Act requirements about impact assessment.

Heritage impact assessments therefore take place under the activities of the Environmental Management Act (7 of 2007), which in addition to fauna and flora includes cultural heritage elements among those that defines an environment in holistic terms. The List of activities that may not be undertaken without Environmental Clearance Certificate: Environmental Management Act, 2007 (Govt Notice 29 of 2012), and the Environmental Impact Assessment Regulations: Environmental Management Act, 2007 (Govt Notice 30 of 2012) both apply to the management of impacts on heritage & archaeological sites and remains whether these are considered in detail by the environmental assessment or not. In its application, 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 interests.

## **3. Approach to study**

### **4.1 Terms of reference**

The objectives of this heritage impact assessment were to identify and locate sensitive heritage resources within the boundary limit of EPL 7574 stretching linearly along the lower Orange River valley. Such potential resources are those that could negatively be affected by the exploration of Lithium mineral resources in the EPL through proposed exploration methods such as but not limited to sample drilling, stream sampling, and other non-invasive methodology such as geophysical survey.

Additionally, the assessment intended to establish the heritage significance of possible resources and assess their vulnerability, estimates the extent of the possible impacts; considers cumulative impacts, and propose practical management actions for the conservation of heritage resources (*if present*). The impact assessment forms the basis of recommended management actions to avoid or reduce negative impacts and sets out associated long-term monitoring requirements.

The assessment is therefore required to satisfy the requirements of both regulations (the Environmental Management Act No. 7 of 2007 and its Regulations - Government Notice No. 30 of 2012 and those of the National Heritage Act No 27 of 2004). The activities to be carried out by the proponent during the course of the exploration and mining include, but might not be limited to drilling and stream sampling, such activities have a potentially high impact on archaeological resources (*if present*) thus these are the activities by which impact on heritage is measured against.

## 4.2 Methodology

This Heritage & Archaeological Impact Assessment followed desktop-based assessments complimented by field survey. These methodologies are standards for environmental and heritage assessments in Namibia, which are in line with international best practices. Desktop information were sought from secondary sources including heritage and culture archives. These were taken from existing heritage records comprising those from National Heritage Council, archaeological GIS spatial data and record that has been substantially exposed during the last decades, by a series of detailed archaeological assessments carried out during the mineral investigation and mining operations, and the development of infrastructure required by these operations. These sources were then complemented by ESM Heritage Consultants’ site survey within EPL 7574 undertaken on the 12<sup>th</sup> and 13<sup>th</sup> of July 2023 in the selected focus areas, The study focused on three farms, namely farm Kambreek 104, Plaas 449, and Orange Fall 101.

Sensitivity and susceptibility rating scales, aimed at finding out the nature of vulnerability and sensitivity of heritage resources to be impacted by the exploration activities, were adopted as per assessment objectives. Their vulnerability to the disturbance in the course of exploration that includes drilling was evaluated according to parallel 0-5 scales, abridged in Table 1.

**Table 1: Rating scales for the assessment of archaeological significance and vulnerability as developed by the Quaternary Research Services.**

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

Concerning each specific source of impact risk to heritage resources, the assessment methodology estimated the extent of the impact, the magnitude of the impact, and the duration of these impacts. The scales of estimation are set out and explained in Table 2. The assessment methodology further estimated the potential reversibility of the identified impacts as reflected in Table 3.

**Table 2: Assessment criteria for the evaluation of cumulative impacts on archaeological sites developed by the QRS.**

<b>CRITERIA</b>	<b>CATEGORY</b>	<b>DESCRIPTION</b>
<b>Extent or spatial influence of impact</b>	<b>National</b> <b>Regional</b> <b>Local</b>	Within Namibia Within the Region On site or within 200 m of the impact site impact
<b>Magnitude of impact (at the indicated spatial scale)</b>	<b>High</b> <b>Medium</b> <b>Low</b> <b>Very Low</b> <b>Zero</b>	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
<b>Duration of impact</b>	<b>Short Term</b> <b>Medium Term</b> <b>Long Term</b>	Up to 3 years 4 to 10 years after construction More than 10 years after construction

### 4.3 Assumptions and limitations

This heritage impact assessment described here is a desktop study with a comprehensive field assessment undertaken. It is possible to predict the likely occurrence of further archaeological sites with some accuracy and to present a general statement of the local archaeological site distribution. However, since the previous surveys in the area relied on limited surface observations, it is necessary to caution the proponents that hidden, or buried archaeological remains might be exposed during the exploration of Lithium resources (see Management plan, especially Chance Finds Procedure (CFP)). As indicated this study relied on non-intrusive surface observation, thus there is a possibility that certain archaeological finds might be buried beneath the surface, with a possibility of being unearthed during the mineral exploration phase.

Thus, as a precaution and best practice, we are recommending the proponent strictly follow the Chance Finds Procedure as the project progresses, should any archaeological objects be found during drilling and trenching. The Chance Finds Procedure is outlined in the National Heritage Council booklet and is included in the recommendation and Site Management Plan (SMP) section of this report. Failure to follow and implement such a procedure will result in appropriate action being taken against the proponent as per the 2004 Heritage Act.

#### 4. Geological setting

EPL 7574 is located within the elevated mountains of lower orange valley that act as catchment area for the short ephemeral rivers that drains in the Orange River. Winter rainfall are very common in this area. The Nama-karoo Basin is characterized by flat lying plateau underpinned by Nama and Karoo sediments.

Locally especially as observed physically from ephemeral rivers, predominant rock type is igneous rock, due to weathering, there appear somewhat rugged, some have what appears like natural caves and shelters, though human intervention in creating the caves could not be precluded either. Further as indicated in Figure 2 and 4, the rock is dominated by pre-tectonic gneiss and Ortho-Amphibolite of Namaquan formation of unknown age.

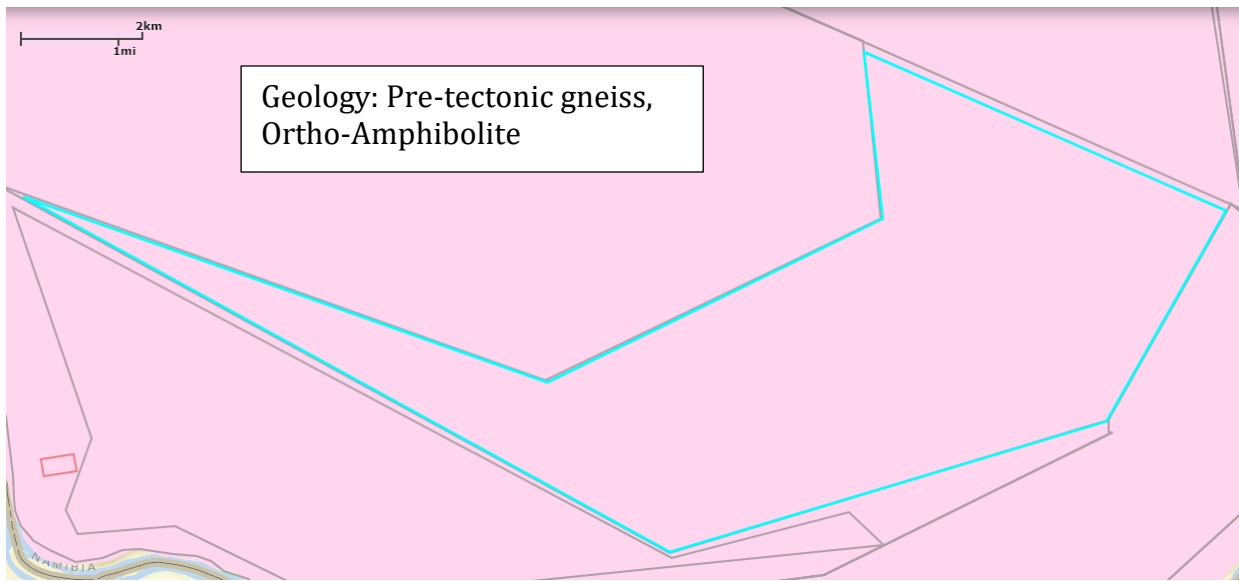


Figure 2: Geology of EPL 7574, indicating a uniform geological composition throughout the EPL and nearby areas (Source: Mining Cadastre 2023).

#### 5. Contexts of heritage in //Karas region

//Karas Region is a highly significant archaeological landscape in Namibia whose resources represent irreplaceable evidence of global importance. Its archaeological record is reported to have evidence of human occupation dating to the Pleistocene and Holocene periods, roughly in the last 800 000 years to 2000 BP (Kinahan, 2012). Such evidence is reflected in materials records such as surface scatters of stone artifacts, rock shelters with evidence of occupation, including rock art, graves, and stone features such as hunting blinds and huts. Among the rock art finds in //Karas region is the well-established rock art in the Hun Mountains along the Nuob River near the town of Rosh-Pinah. The heritage site is popularly known as the Apollo 11 Cave. The engraving in the cave was discovered by archaeologist Wolfgang Erich Wendt in 1969 (Riaan *et al.* 2015). According to Riaan *et al.* (2015) Wendt was captivated by the successful 1969 NASA moon landing and subsequent fruitful return to Earth. He thus honored the American mission's name to the discovery of the rock engravings in Namibia, probably due to the similarity of the Arid, and seemingly barren Namibian landscape to that of the moon. The site hosts some of what Riaan *et al.* (2015) refer to as rare typologies of rock painting and the only examples of African figurative art securely dated to



the late Pleistocene Period, implying that it is the oldest rock art recorded thus far in Southern Africa. These incorporate seven figurative arts on stone plaques that were subsequently excavated from Apollo 11 cave in the //Karas region. Despite the removal of these engravings from the site. The significant heritage and archaeological context are still retained at the site.

Following the archaeological context of the //Kharas region, moreover, sites and monuments linked to European seafarers, colonial settlements, battlefield sites, and camps can be found near the coast and the interior of the region. About European exploration and colonial history, the Old wagon trails can be found near Aus in //Karas Region. Other heritage sites linked to colonial history are such as prisoner of war camps, First World War graves and some undocumented archaeological sites can be found near Aus. These sites demonstrate evidence of significant human exploration, contact, and links to global events. Furthermore, evidence of advancements as well as incredible adaptations to extreme aridity and environmental uncertainty of southern Namib and the coast can still be seen through some undocumented rock art in the region. These are attributed to the hunter-gatherers and nomadic pastoralists, and their interaction with early European trading missions (Kinahan 2012).

Moreover, According to Schmidt *et al.* (2017), a middle Stone Age site in southern Namibia identified in 1969 by Wendt through a test pit yielded important find of local and global importance in understanding the past.

This site was of late excavated again by a team of paleontologists from Cologne University in Germany and local archaeologists. The site yielded crucial data in understanding the evolution of modern human behavioral developments in Southern Africa. According to Schmidt *et al* (2017) materials that were uncovered during the excavation included animal bones and Ostrich eggshells. Important to this assessment is that Pockenbank Rockshelter is located about 80 km northwest from Apollo 11 heritage site (See Figure 3 )

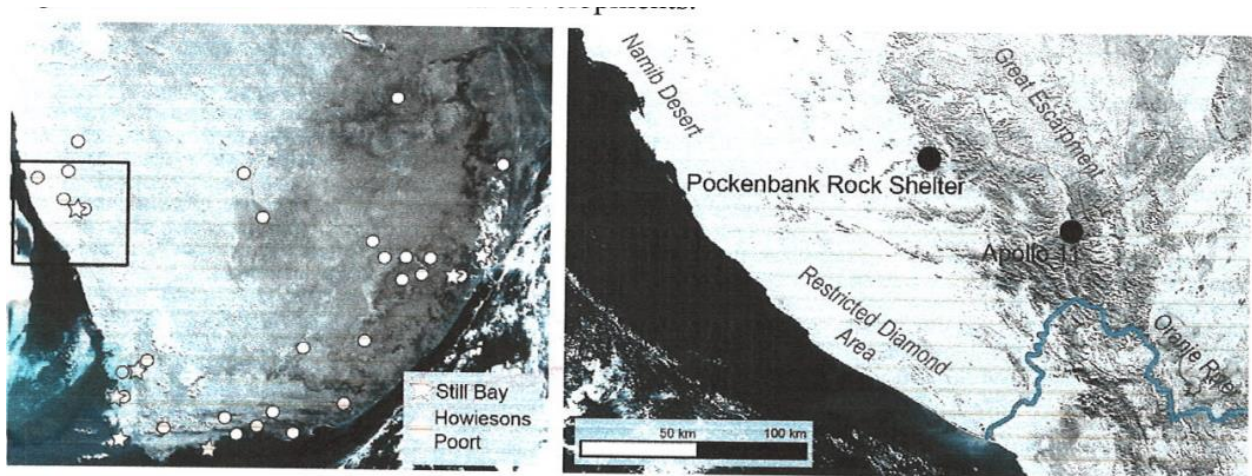


Figure 3. Left photograph-locality of Pockenbank about southern African archaeological sites. Right photograph Pockenbank rock shelter about Apollo 11 in!Kharas Region.

Another study was carried out in 2019 by Linnemann *et al.* (2019) in southern Namibia almost within the same precinct as the Pockenbank rock shelter, approximately 90 kilometers from the Aus settlement towards Roshpinah in Karas region.

The stratigraphy from the three sites was documented yielding fossils from different paleontological environments (see Figure 3 and Figure 4). The findings are critical in understanding the formations of different local paleontological environments as evidenced by the fossils uncovered. This could help to understand and link the Namibian fossils to those found elsewhere around the world. The period concerned by the study range from the Cryogenian period (770- 635 million years ago), the Ediacaran period (635-541 MA), and the Cambrian period about (541 MA).

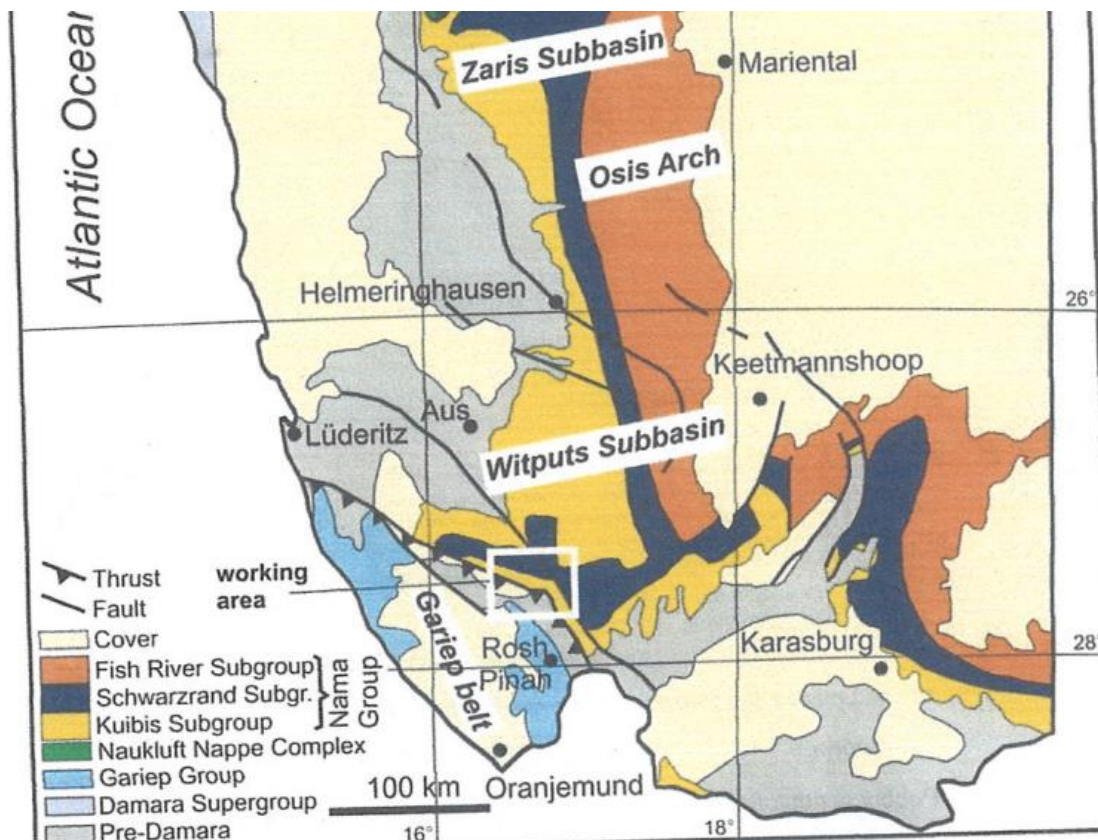


Figure 4 Paleontological Geologic composition of the //Karas Region.

## 6. Localized Archaeological context of the lower Orange River Valley

Kinahan's (2003) archaeological assessment of the lower Orange Valley focused on three key areas, mainly composed of rivers, draining towards the Orange River. His choice of research focus is attributed to the fact that; archaeological resources in arid southern Namibia are likely to be found in association with or within rivers for obvious access to water reasons, especially at the confluence of rivers. As such, two rivers were identified for a preliminary archaeological assessment in this research. The Mouth of the Boom River, and the Mouth of the Haib River. Results varied significantly. Historic and colonial sites and artifacts were concentrated along the Haib River. While the Boom River archaeological evidence mainly of the Pleistocene era and the last 2000

years was discovered in the form of traces of pastoralist encampment. Moreover, Orange River has been historically used extensively. Several crossing points (Figure 5) along the river have been identified. These were utilized as crossing points by the Afrikaner Trekkers from Cape Town as well as the Oorlam migrants from South Africa to Namibia. In a nutshell, such rivers and tributaries flowing into the lower Orange River Valley were used as points to penetrate the Namibian interior. Therefore, if anything historic heritage resources are to be found here, hence this heritage assessment is equally focused on accessible rivers than unreachable mountain tops.

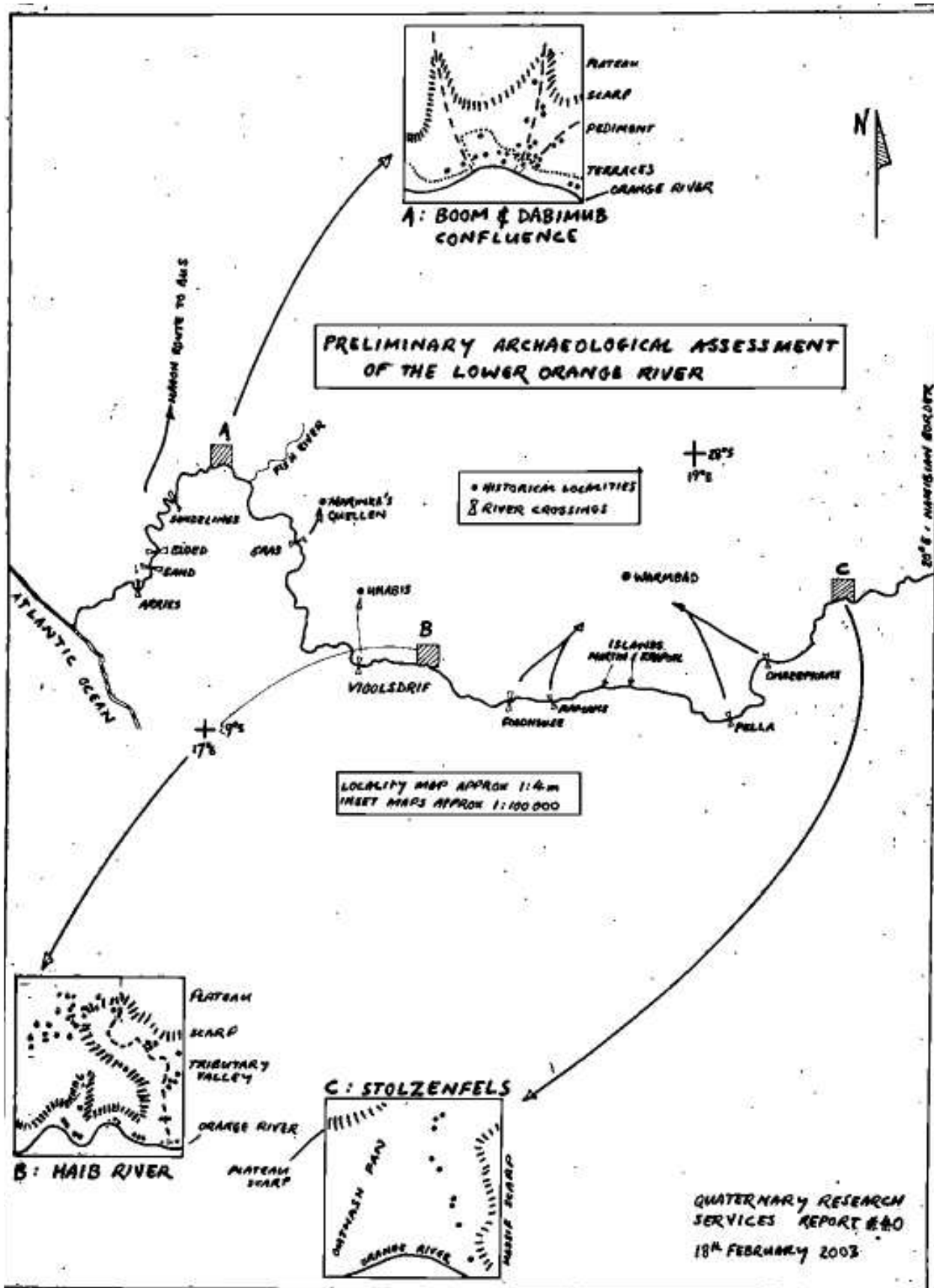


Figure 5. Map highlighting several historic crossing points on the Orange River. Source: Kinahan (2003).

Mr. Pete Morkel owns Kambreek Farm 104, portion of this farm covers part of EPL 7574. Mr. Morkel (Pers. comm 2023) asserts that several fine lithic stone tools were collected near the Orange River. Mr. Morkel (Pers. comm 2023) suspects that these could have been washed from upstream of the Orange River. These might have been utilized elsewhere upstream by hunter-gatherers or early pastoralist communities (Figure 6). According to Mr Morkel, these were nonetheless discovered further away from the area covered by EPL 7574.

Moreover, Mr Morkel (Pers. comm 2023) informed the author of suspected animal traps of ancient origin. Additionally, several rocks in circular formation were found in the past, these are presumed and suspected to be ancient graves within Pelgrimrust 100 Farm. Due to limited time, the author could not visit these graves, nonetheless, photographs were provided courtesy of Mr Morkel. The suspected ancient graves are close to Mr Morkel's residence while animal traps are four kilometers southeast-east of the residence within farm Kambreek 104. These archaeological findings are technically located outside the boundary of EPL 7574. The findings give relevance to an educated submission that this area was inhabited by thriving communities of hunter-gathers and pastoralists in pre-colonial times. These nonetheless need more research to appreciate the context of their archaeological composition fully.



Figure 6. Top Left: Suspected Cage or animal Trap, Top Right: Suspected ancient graves. Bottom Left Mr Morkel showing the stone tools. Bottom Right: polished lithic stone tool artifacts collected near the Orange River by Mr. Morkel. (Source: Top right and left photographs courtesy Mr Morkel. Bottom right and left photographs by the author.)

## 7. Impact Assessment results

### **Site 1: Twelve Caves and rock shelters (Located outside the EPL, however, it is significant since it lies along the only access route to the EPL which is the river)**

Description: On Kambreek Farm along the banks of an ephemeral river x discharging into the Orange River. On the Steep Rugged igneous rock hangs 12 caves most likely naturally occurring including one large rock shelter at the base (Figure 7).

Coordinates: 28°52'53''S 19°03'38''E

Vulnerability: Rate 5

Significance: Rate 3

SMP: No Sampling within 200 meter from the river rock shelter and caves.

### **Site 2. Five Natural Caves and Rock Shelters (Within EPL 7574, along the same river)**

Description: Five caves and rock shelters are currently inhabited by animals such as Rock Daisies along a steep gradient rock formation. The formations are located at the confluence of three rivers (Figure 8).

Coordinate: 28°53'41.92"S 19° 2'53.57"E

Vulnerability: Rate 2

Significance: Rate 3

SMP: No Sampling 200 meters from the rock shelter and caves within EPL 7574.

### **Site 3. Hunting Blinds**

Description: Suspected hunting blinds overlooking a plain to the north and south. They appear rugged with vertical-faced ridges extending linearly in the north-easterly and south-westerly directions (Figure 9).

Coordinate: 28°51'29''S 19°09'20''E

Vulnerability: Rate 3

Significance: Rate 4

SMP: No sampling within 200 meters from the hunting blind rock ridges.



Figure 7. Eleven Caves and one rock shelter along the river passing through EPL 7574. Left Photographs the cave and bottom photograph indicate some suspected lithic artefacts. (Source: Author Photography.)



Figure 8. Steep rock gradient indicates five natural caves and shelters along the steep interlocking spur river banks.





Figure 9. Suspected Hunting Blinds within farm Orange Falls part of EPL 7574

The findings in this assessment are a testament to the limited contact these places have had with humanity throughout the Pleistocene age to the last 2000 years. However, suspected human habitation in the form of natural caves and lithic stone tools could offer a glimpse, if any, that there is sufficient evidence humans occupied the lower Orange Valley in the distant past. From an environmental perspective, the many rivers forming the catchment area of the lower Orange River Valley could have supported many hunter-gatherers and pastoralist communities with sufficient water for their animals. Historically, it is possible that isolated remnants of Afrikaner and Oorlam populations migrating from the Cape could be found along the rivers which are the only access route to the Namibian interior north of the Orange River. However seasonal flooding and seasonal river flows might have ostensibly washed any such evidence. Seemingly on the route to farm Kambreek104 from the D206 gravel road to Warmbad can be sighted old abandoned buildings,

likely dating from the colonial era within farm Pelgrimrust 100, nonetheless, these lie 15 to 20 kilometers away from EPL 7574.

The Caves and shelters might have served as accommodation for pastoralists, hunter-gathers, and migrants from South Africa. It is assumed that the Oorlam population did not erect permanent structures in Namibia before the Warm Bad mission structure was established by the British missionaries.

Hunting blinds might have been used by the hunter-gathers to shield themselves from prey when embarking on elaborate hunting missions. As such these geologic features of the natural environment have a dual purpose as both natural and cultural sites.

In essence, the significance ratings for all the suspected heritage sites presented in this report consider the potential provenance such sites might have served for the precolonial and colonial communities in Southern Namibia. Thus, they are culturally and historically significant and ought to be protected and further research by scholars and heritage authorities is not only encouraged but necessary since little research has focused on southern Namibia, particularly the lower Orange River Valley, with the exception of few research and assessments conducted by Dr. John Kinahan.

## 8. Management recommendations

### Specific Management recommendation

- 200-meter Radius buffer zone be observed around the coordinates of the potential heritage sites observed in this study.
- Access to the rivers is currently by foot due to uneven steep terrain along the rivers, thus if access roads for vehicles are constructed, potential heritage sites presented in the findings of this report such as the twelve caves and rock shelters that yielded some suspected lithic stone tools would need a 200-radius meter buffer zone to be observed, from localities, this implies no activities or construction of roads will be allowed within the radius.

### General recommendation.

Chance Finds Procedure (CFP) Management Guidelines where necessary be utilized in the course of exploration.

These assessments were desktop-based, with no intrusive ground survey that relied heavily on observation. Therefore; significant subsurface heritage resources might be discovered in the course of exploration. Onsite personnel and contractors must be sensitized to recognize “chance finds heritage” in the course of their work. The procedure set out here covers the reporting and management of such findings. The CFP covers the actions to be taken from the discovery of a heritage site or object to its investigation and assessment by a trained archaeologist. The CFP is intended to ensure compliance with the relevant provisions of the National Heritage Act (27 of 2004), especially Section 55 (4): “A person who discovers any archaeological objects must as soon

as possible report the discovery to the council”. The procedure of reporting set out below must be observed so that heritage materials are reported to the authorities.

A. 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, advise management, and recovers remains

B. 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 the foreman

C. Action by Foreman:

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

D. Action by 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

E. Action by 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

F. 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.

## 9. Conclusion

In conclusion this field and desktop-based Heritage and Archaeological Assessment has located potential archaeological or heritage resources of regional significance within the precinct of EPL 7574 and site management plan have been proposed.

Three farms covered the extent of EPL 7574, these were all assessed with the exception of farm Plaas 449, this is due to the extremely unforgiving high and steep rugged mountains, rendering them virtually inaccessible. We thus recommend the issuance of Consent to the proponent with conditions that field findings and accompanying management recommendations are respected within the surveyed area or as the heritage council may consider as appropriate.



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