

Shark Island

An Architectural Reconstruction of a Death Camp



Contents

1. Introduction	3
2. Scope of Analysis	5
3. Summary of Findings	6
4. Background	8
4.1. Historical and political context	8
4.2. The site	10
5. Materials Used in Analysis	11
5.1. List of material	11
5.2. Contextualization of material	12
6. Methodology	12
7. Reconstruction of Shark Island and the Concentration Camp	14
7.1. Perimeters of the concentration camp	14
7.2. Alterations to the island	18
7.3. Position of field hospital	20
7.4. Position of execution chamber	23
7.5. Position of Herero camp structures	26
7.6. Position of Nama camp structures and evidence for forced labour	32
7.7. Position of the Lenz camp	35
7.8. Findings	37
8. Localization of Unmarked Graves	39
8.1. GPR Survey	42
8.1.1. Site 1	44
8.1.2. Site 2	47
8.2. Findings	50
9. Recommendations	50
9.1. Shark Island	50
9.2. The port and the seabed surrounding Shark Island	51
9.3. Burial Sites	51
About Forensic Architecture	52
About Forensis	53

1. Introduction

This introductory text is a lightly edited version of remarks made by Gaob Johannes Isaack, chairperson of the Nama Traditional Leaders Association (NTLA), on the occasion of the event “Inherited Testimonies — German Colonial Genocide in Namibia,”¹ held at Haus der Kulturen der Welt in Berlin on the 3rd of December 2023.

The Nama Traditional Leaders Association is a body corporate comprising all recognized traditional Nama Chiefs [...]. Its objectives are to promote traditional practices, customs, history and cultural heritage of the Nama people in the Republic of Namibia and those in the diaspora.

In light of its objectives, the NTLA and the Ovaherero Traditional Authority has for a long time discussed how best the sanctity of Shark Island, which will form the greater body of what will be presented today, must be protected. Unfortunately, with the dawn of independence, the story of Shark Island disappeared from the official narrative. After 33 years of independence Shark Island continues to be a tourist destination where visitors may freely walk on sacred ground and wine and dine on the bones of the heroes and heroines who started the earliest resistance against colonial occupation in Namibia.

Shark Island is unique in the sense that it was not only a concentration camp. It was actually a Death Camp. It is also unique because it bears testimony to an unprecedented event [in Namibia], namely the large-scale murder and cruel death of a human group of people. Memorializing Shark Island will go a long way in satisfying the desire to honour those who died and as a means to examine the past and address contemporary issues. It can promote social recovery and healing. It must be a place of contemplation, a place of remembrance and a place which warns that such acts of genocide should never happen again.

The NTLA and OTA consider this a long-term project and therefore foresees that its implementation will be incremental. I want to repeat myself and emphasise the deep painful experiences of so many unsung heroes and heroines' whose blood waters this island, my message goes out to the young ones of the day, you are the leaders of tomorrow and we want to do the best we can to carry over the history which will start at Shark Island and we want to make sure that it is not contaminated by systems of knowledge embedded in the conventional sociology about the writings on slavery and colonialism.

One of the most profound consequences of the colonial experience has been how the socio-political, cultural and economic assault of the colonies, has led to what sometimes seems to be an unbridgeable cultural gap between the nationals that were beneficiaries of colonisation, and those that were the victims of colonial assault. The era of colonial pillage and plunder led to the relative stagnation and quick decline of traditional cultural pursuits in the colonies. Shark Island and many similar places in the rest of the country where German imperialists had their concentration camps, are places of extreme tragedies and unparalleled human suffering at the time, yet little is known of this history.

¹ Isaack, Gaob Johannes. Speech held at 'Inherited Testimonies', Haus der Kulturen der Welt, 3.12.2023. See: <https://www.hkw.de/programme/events/inherited-testimonies>

The efforts which will be reflected here, epitomises the inflection point from which revealing messages, regarding the experiences of those harsh conditions of my people, and that of the Ovaherero folk, will emerge. It is my hope that the research process upon which we embarked, will lead to a new historiography and decolonized knowledge production. It is also my hope that the latter should be less tainted by the post-colonial biases of the current scholarship on people of colour. I think this should also give due consideration to the socio-psychological factors derived from lived experiences and effects of colonialism on the social agency of my people. Such knowledge, in my view, is required to help address the present conditions of my people, which to a great extent are a product of colonial history. By “addressing”, I mean healing the wounds and stigmas, and improving my people’s conditions in every respect — including their psychological well-being, education, political voice and power, economic ability to satisfy material needs, and rights such as access to natural resources. This is of course believing, in the long run, that knowledge derived from this exercise may add significant value to the process of decolonization of this knowledge.

I want to submit that we put effort behind overcoming the epistemological biases of scientific disciplines dominated by universities, scholars, and bodies of knowledge anchored in the Global North. By this I mean, our heritage is supposed to provide clues to our past and how we have evolved. Such information should help us examine our history and traditions, and enable us to develop an awareness about ourselves and why we are the way we are. Knowing well that western civilization and culture has precariously contaminated the traditional values of our people, I want to maintain that our predecessors had established, well before the advent of colonialism, a pattern of home-grown political systems, governance processes and generally acceptable institutional rule-making arrangements, such that there was progression in the pace of civilization of our country and self-styled tempo of technological development. The 1858 Hoachanas Treaty for the different Nama groupings signifies one such convention.

It delights me to know that new networks are doing rounds in the community of social movement literature, working on ontological pluralism and post-colonial thought, highlighting the costly psychological impact of colonialism upon both the colonised and coloniser. These critiques clearly illuminate how colonial exploitation facilitated the wealth of European societies. They envision a future of global racial equality and redistributive socioeconomic systems; projecting a world beyond empire episteme – Du Bois, Fanon, and Cabral are among those thinkers, who believed in new postimperial forms and modes of self-actualization, in which racial and cultural differences would flourish rather than be denigrated, erased, and replaced by Europe’s so-called civilization. It is common knowledge that postcolonial thought criticises the culture of empire, and we agree to the extent that it aims to introduce new orders to cultivate new knowledge and ways of representing the world and histories that circumvent or transcend, rather than authorise or sustain imperialistic ways of knowing. Production of new knowledge should take us beyond the current epistemic limits, and inculcate a sense of seeking transcendence, something beyond the colonial epistemes. It is only opportune that this event is hosted by the House of the Cultures of the World, which embodies critical thinking about how we create knowledge and narratives through different forms of expression.

2. Scope of Analysis

Forensis and Forensic Architecture (FA) have worked with the Nama Traditional Leaders Association (NTLA) and the Ovaherero Traditional Authority (OTA) and the Centre of Archaeology at Staffordshire University (CoA) to study sites related to the 1893 genocide of the Witbooi Nama, and different stages of the 1904-1908 genocide perpetrated against the Ovaherero and Nama by the German Colonial Army.

The NTLA and the OTA are traditional representative bodies of the Nama and Ovaherero people respectively, advocating for the preservation and celebration of the traditional customs, practices, history, and cultural legacy of their people both within Namibia and among the diaspora. The CoA is a renowned research facility specialised in novel techniques to the investigation of the recent and ancient past, in particular of the Holocaust and other genocides, and to missing persons investigations across the world.

As part of its overall research, FA and Forensis teams analysed available cartographic and photographic evidence, conducted fieldwork and solicited testimonies related to the concentration camp in Shark Island, Lüderitz, between 1905-1908 in order to:

- Locate and outline the extent of the concentration camp on Shark Island;
- Reconstruct the architecture of the concentration camp;
- Locate events or experiences recorded in the oral history transmitted by descendants of genocide victims;
- Determine whether extensions of existent port infrastructure in the bay² will infer on the former concentration camp area;
- Identify evidence of burial places in Lüderitz related to the genocide period, and assess the likelihood of those graves being those of the camp's inmates;
- Survey these burial places with a team of archaeologists using ground penetrating radar (GPR), to identify the potential presence of graves.

² See chapter 4.1. for a more comprehensive description of planned changes to the port adjacent to Shark Island.

3. Summary

This investigation is the first to employ a precise digital reconstruction of the Shark Island concentration camp. Using advanced spatial analysis we were able to trace relations between sources unconnected until now and meld oral histories with archival footage, allowing for the most accurate model of the death camp to date. In a second step, we traced the burial sites of camp inmates in different locations around Lüderitz.

The spatial model of the island revealed the function of several structures visible in archival photographs, including the execution chamber, a field hospital and guard posts. Additionally, the model visualises how the natural architecture of the rocks – shaped by wind and waves – determined the camp's modes of use and inhabitation.

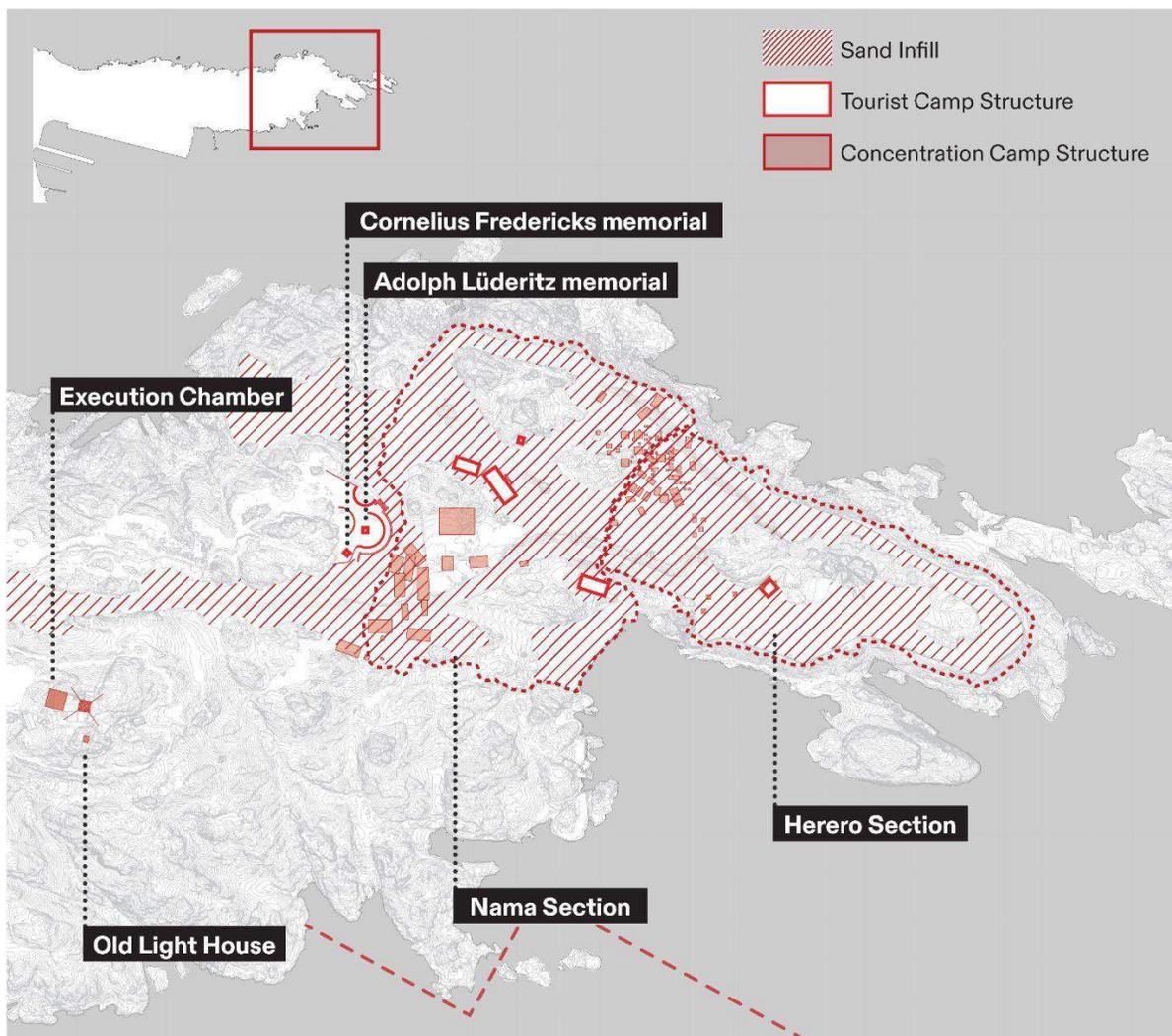


Figure 1. Map with structures and sections of the concentration camp on Shark Island as well as an overview of terraformation such as sand infill. FA/Forensis, 2024.

Our research allowed us to locate images of the concentration camp and thereby identify buildings marked on archival maps and mentioned in oral histories.



Figure 2. A photomatch of an archival image from Shark Island with our 3D reconstruction of the island, allowing us to place the execution chamber (here seen behind the red lighthouse) within the model and thus to determine its precise location. FA/Forensis, 2024.

The techniques employed were even able to identify markings in rocks stemming from forced labour that are depicted in archival photos and still traceable in the contemporary geography of Shark Island.



Figure 3. An inmate holding an axe in the archival photograph (Left). A human-made incision is visible today on the same rock the person with the axe was standing on (Right). FA/Forensis, 2024.

As a result of this research, our investigation arrived at the following findings:

- I. Present-day infrastructure, including tourist facilities, monuments of German perpetrators, roads, residential development and port infrastructure have been built over the former concentration camp, compromising it as a place of historical significance.
- II. The proposed extension of Lüderitz port in Robert Harbour poses further imminent risk to the site. Not only will the development affect Shark Island, but the dredging of nearby waters for the proposed port expansion will very likely disturb the remains of many who died on Shark Island, and whose bodies were thrown into the water.
- III. Around Lüderitz, unmarked graves exist that are very likely the interments of deceased inmates of Shark Island. Within at least one of these burial locations, several internments are likely to be mass graves. Infrastructure designed to connect the port to the surrounding desert runs the risk of destroying these unmarked burial sites.

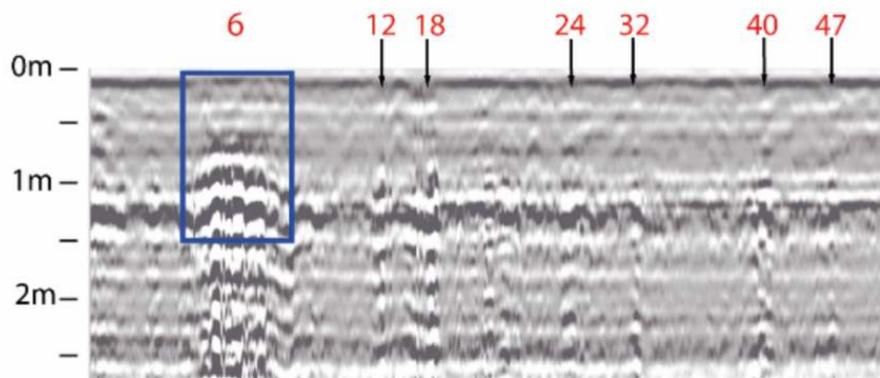


Figure 4. Data from the ground penetrating radar collected in Radford Bay outside Lüderitz. Feature 6 indicates a mass grave; the other features indicate individual graves. Centre of Archaeology at Staffordshire University and FA/Forensis, 2024.

4. Background

4.1. Historical and political context

Shark Island – today a peninsula – is located in the harbour of the Namibian town Lüderitz in the Karas region of Southern Namibia. The Shark Island concentration camp existed between March 1905 and April 1907 on the northern tip of the island. Set up by the German Schutztruppe, it served as a labour and extermination camp for Herero and Nama inmates captured during the German genocide of these communities.

Formerly known as Angra Pequena, Lüderitz was named so after the German merchant Adolf Lüderitz, who bought land from Nama Captain Joseph Frederiks II in 1883. This was the first land sale in what would later become Lüderitzland. !Nami≠Nûs is the name of this ancestral Nama land in Khoekhoe Nama language.

After the 1904 and 1905 extermination orders, issued by the German imperial army against Ovaherero and Nama, concentration camps were established across German South West

Africa. Shark Island was initially opened as a camp primarily for the Ovaherero inmates whose forced labour was exploited to build critical infrastructure for the colony, including the Lüderitz-Aus railway. The Nama inmates arrived later in 1906.

Shark Island became the most notorious concentration camp in the colony due to its extremely harsh environment weaponized against its inmates. Freezing temperatures and a lack of shelter from tough winds and fog exacerbated the already dire and unsanitary living conditions and scarce food rations leading to outbreaks of typhoid and scurvy.

It is estimated that between 1,000-3,000 people perished in the Shark Island concentration camp,³ most of them through hyperthermia and diseases as well as exhaustion due to excruciating physical labour building railroad tracks and the harbour, or as servants for White settlers. Uniquely brutal intimidation strategies in the camp included rape and various forms of torture, poisoning, medical experiments, and public executions. Captive women were forced to boil and scrape the heads of dead inmates which were then shipped off to Germany for pseudo-scientific research purposes.

Among the inmates that perished on Shark Island was resistance fighter and leader of the Nama !Aman people Cornelius Fredericks, who was decapitated on the island on 16 February 1907 and his skull sent to Germany.

When the camp was closed in April 1907, inmates were transferred to a so-called 'Burenkamp' in Radford Bay.

Even today, not all of the burial sites of the victims are known. According to oral history, the inmates who died on the island were thrown into the sea to be eaten by sharks or buried in shallow graves along the beach becoming food for hyenas. However, inmates who were executed with poison were buried in unknown locations off the island. Historical accounts refer to several locations of mass graves around the town.

During the concentration camp's operation and after its closure, Shark Island was terraformed, thus, the rock structure reshaped. At a later stage, the island was connected with the mainland to become a peninsula. Buildings, including luxury residences, were built on its south western side. Today, the north part of the peninsula where the camp was located serves as a tourist campsite. Sand has been filled into the gaps between the rocks to level the surface for tents and vans. Sanitary facilities were added. Almost no traces of the concentration camp structures are left today.

Soon, a foreseen extension of the port in Lüderitz will further impose changes upon the site. A large-scale hydrogen production project with related desalination and ammonia plants are planned around Lüderitz harbour. The small existing port operated by the state-owned enterprise Namport is planned to be expanded along the eastern side of Shark Island, invading the area of the former concentration camp. This development will also block the

³ Erichsen, Casper and Olusoga, David (2010). *The Kaiser's Holocaust: Germany's Forgotten Genocide and the Colonial Roots of Nazism*. Faber & Faber; Zimmerer, Jürgen; Zeller, Joachim (2003). *Völkermord in Deutsch-Südwestafrika: Der Kolonialkrieg 1904–1908*. Berlin: Links.

view of the island from the city, robbing the city of the historical visual link to the island and robbing visitors of an understanding of how such atrocities were committed in full view of the town's citizenry. Roads and infrastructure will traverse the plain around Radford Bay, one of the areas we have investigated for likely mass and individual graves of Shark Island inmates, leading to a large zone with solar panels and wind turbines in the desert of the Sperrgebiet National Park. The project is supposed to be realised through investments amounting to 10 billion US dollars, the equivalent of the Namibian GDP, and is carried out by the Hyphen joint venture, under the responsibility of the German Enertrag company.⁴

4.2. The site

The site has a complex rock morphology shaped by water and strong wind. The western side of the island – the one facing the open Atlantic ocean – bears the brunt of the waves, and is typified with steep and bare rock faces. The centre part of the island is typified by distinct, protruding rock formations with smooth faces sculpted by the westerly wind which blows strong mainly in the afternoons and evenings. The relation between the rock, the water and the wind defines the 'architecture of the island.' Areas closer to the eastern edge of the island are relatively protected, the water calmer, and the coast line even has a number of bays and small beaches. This structure of the rock defines the modes of the site's use and inhabitation. The built structures made to accommodate the inmates were largely flimsy tent structures and huts that offered little privacy and protection against the harsh environmental conditions of the island. Individual rocks divided the island into zones – separate Nama and Herero zones as well as zones where inmates were forced to work, as well as an administration and command and control zone where the guards were located. The rock formation also offered a natural stage set to those looking at the ocean from Lüderitz. This is why public executions were undertaken on the eastern side of the island facing the city.



Figure 5. Drone photograph of Shark Island seen from North-East. FA/Forensis 2024.

⁴ Enertrag SE is a Germany-based renewable energy company specialising in solar and wind power as well as gas. They operate plants globally, from Uruguay to Ghana. Some of their projects have been critiqued for a lack of transparency and public participation processes.

5. Materials Used in Analysis

5.1. List of archival photographs and maps

- Figure 6, 7. Namibia Scientific Society, 1904.
- Figure 8. Koloniales Bildarchiv Universität Frankfurt, n.d.
- Figure 10a. National Archive Namibia, 1905.
- Figure 10b. Archive of the Rhenish Mission Society, 1910.
- Figure 12. Koloniales Bildarchiv Universität Frankfurt, 1907.
- Figure 13. Verlag Swakopmunder Buchhandlung, 1905.
- Figure 17. Erichsen, Angel of Death, 2005, p.124
- Figure 22. Koloniales Bildarchiv Universität Frankfurt, n.d.
- Figure 27. Koloniales Bildarchiv Universität Frankfurt, 1905.
- Figure 32. National Archive Namibia, 1906.
- Figure 45. National Archive Namibia, 1906.
- Figure 38. Koloniales Bildarchiv Universität Frankfurt, 1907.



4.2. List of aerial and satellite imagery

- Figure 11a. Surveyor General Office Namibia, 1965
- Figure 11b. Surveyor General Office Namibia, 1984.
- Figure 11c. Google Satellite, 2023.

5.2. Contextualisation of material

The analysis was based upon a variety of material types gathered from public and private sources in Namibia and Germany. Among these are archival photographs, maps and documents covering the period from the 1850s to the present. These are derived from a number of archives, including: the Namibian National Archives, the Colonial Image Archive of Frankfurt University, the Rhenish Mission Archive Wuppertal, Deutsche Kolonialschule Archive Kassel, the Übersee-Museum Bremerhaven and the German Federal Archive.

There are few photos from Shark Island concentration camp itself since the Schutztruppe was closely guarding the premises and did not allow for extensive documentation. While the camp was visible from the city, its rock topography shielded some parts of the camp hidden from view. There was very restricted access for guests from the outside. Some of the photos were taken by a German officer, Lieutenant von Düring, likely dating to the fall of 1905. We established this date since the camp, which opened in 1905, was seen to be in operation and General Lothar von Trotha, who left German South-West Africa in early November that year, is visible in some of the photos from the series — possibly just before his departure from the colony. While Düring was a member of the military, these photos seem to have been meant for private use. Yet they enforce the same dehumanising gaze that permeates the military occupation overall. In addition to photos of mainly women and children dying in the camp, Düring also took a pornographic image of a young naked Herero woman on Shark Island.⁵ Like the other photos, it is a testament to the horrors, humiliation and total control faced by the inmates. Other photos of the island come from private collections or from commercial publishers that disseminated them as postcards.

Current and historic maps, satellite and aerial images were sourced from Google Earth, Google Maps and the Namibian Surveyor General. Ground-level photographs and drone shots were taken by the researchers during their site visit in Namibia.

6. Methodology

Forensic Architecture and Forensis employed the following methodologies to establish the exact locations of these photos and create a granular cartography of the Shark Island concentration camp.

6.1. Cartographic regression and aerial/satellite image analysis

Cartographic regression refers to the process of using historic surveys, maps and aerial photographs overlaid on contemporary imagery in order to track changes in the territory and landscape over time. Cartographic regression is increasingly being used in archaeological surveys as a means to evaluate the probable locations of cultural resources.

⁵ Gewalt, J. B. (2003). The Herero genocide: German unity, settlers, soldiers, and ideas. In K. -A. R. Bechhaus-Gerst M. (Ed.), *Die (koloniale) Begegnung: AfrikanerInnen in Deutschland (1880-1945), Deutsche in Afrika (1880-1918)* (pp. 109-127). Frankfurt am Main: Peter Lang, p. 125.

We geo-referenced all aerial images and maps using a Geographic Information System (GIS) software. This allowed us to cross-reference satellite images with aerial photographs of Lüderitz over the years in order to ascertain information regarding changes to the terrain.

Since the events studied happened decades before the advent of aerial surveys, the investigation relies on archival cartographic material from the period. While those maps are often inaccurate according to modern standards, they contain valuable information of the extent of the mapped areas and landmarks of interest at the time.

6.2. Fieldwork and site documentation

In September 2023, FA, Forensis and the CoA travelled to Namibia to undertake field research in Lüderitz. This was to inform our understanding of the contexts in which the investigation is carried out. To this end, we visited the known and suspected sites of several camps and graves, specifically Shark Island, Radford Bay and the former 'Burenkamp.'

6.3. Situated testimony

Working with Nama and Ovaherero community members and oral historians, we employed a technique we refer to as 'situated testimony'. This involves testimony delivered while a witness experiences an immersive 3D model. The model can be built using CAD software or based on the re-configuration of a navigable game engine. The witness furnishes the bare model with elements such as structures or people as far as their memory allows them.

In relation to a genocide perpetrated almost 120 years ago, the testimonies are based on oral traditions, though also in this case witnesses were able to offer more precise descriptions of events when "located" within a 3D environment. During our field research in September 2023, we recorded testimonies from oral historians, descendants of genocide victims and leaders from traditional authorities. They spoke on the conditions in the camps, the architectural and natural constitutions of the camps and surrounding areas, as well as burial rites and the grave sites.

6.4. Geolocation

Geolocation is the practice of establishing exactly where a photo was captured. An image can be geolocated by studying its content, by comparing it to others, or by looking at clues outside of the image, such as who shared it, or where it was found. We located the images we included in this research on multiple GIS platforms based on satellite images.

During our field research, we further employed ground truthing to connect the results from our technical analysis of the graves and concentration camps to the conditions on the ground.

6.5. Photogrammetry

Photogrammetry is the art, science, and technology of obtaining reliable information about physical objects and the environment through processes of recording, measuring, and

interpreting photographic images and patterns. During our field research in Lüderitz, we conducted a drone survey of Shark Island forming the basis of the 3D model outlined below.

6.6. Photomatching

Photomatching is the process of matching found still images or video to the corresponding 3D world, and thus measurement space. This step followed our photogrammetry process, as outlined above. We matched several archival photos to the current geology of the island.

6.7. 3D reconstruction

In our analysis, digital models are more than mere 3D representations of real-world locations — we use 3D models as analytic or operative devices. Models help us to understand the location of images, camera positions or events in relation to one another. They also allow us to conduct new analyses based on spatial relations, including fields of vision, and the location and dimensions of structures. In doing so, models also allow us to conduct new analyses based on the spatial relations of structures to their surroundings. Our 3D reconstructions were built using the open-source 3D computer graphics and animation software Blender and the 3D computer graphics games engine Unreal Engine.

Using historical photographs, aerial images and photogrammetry we built accurate and geo-referenced 3D models of the topography of Shark Island. This model has been used to create for the first time a detailed topographic map of the island with a 25 cm resolution.

6.8. Ground Penetrating Radar

Ground penetrating radar (GPR) is a technique for the identification and investigation of buried remains. GPR functions by recording reflections or attenuations of electromagnetic (radar) signals that are continuously emitted from a roving antenna. These reflections or attenuations are affected by the physical properties of the subsurface and any buried features within it. The reflections are then recorded and visualised in 2D profiles and 3D data plots called timeslices that can be analysed to determine the presence, size, and nature of buried remains.⁶

7. Reconstruction of Shark Island and the Concentration Camp

7.1. Perimeters of the concentration camp

The image below is the oldest traceable archival photograph of Shark Island, here visible on the right side, dating back to the late 19th century. The only visible building on the island is the pyramid-shaped structure which can be seen clearer on later photographs (see Fig. 7).

⁶ See full report here: Colls, Kevin and Mitchell, William (2024). A non-invasive forensic investigation of the slave cemeteries sites in Lüderitz and Swakopmund, Namibia. Centre of Archaeology at Staffordshire University.

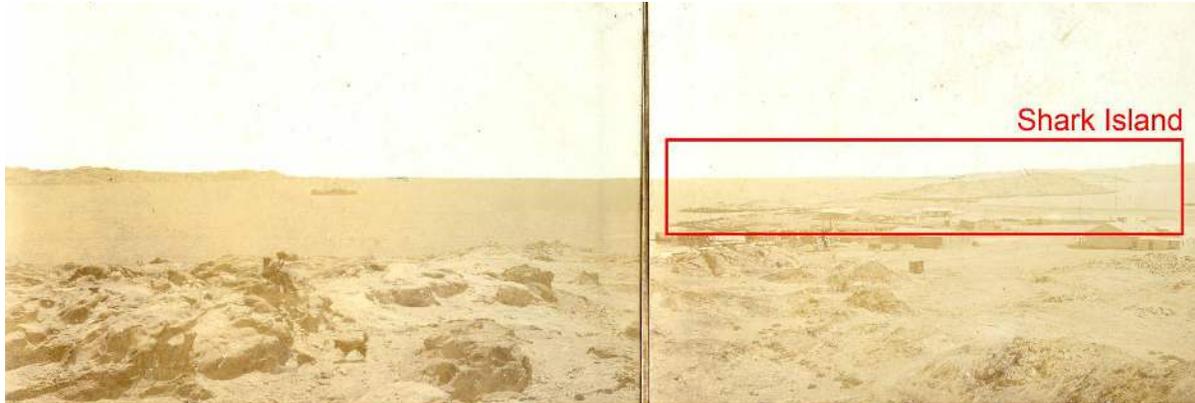


Figure 6. Photo likely dating to the late 19th century with Shark Island on the top right and buildings in the harbour of Lüderitz in the foreground. Namibia Scientific Society.

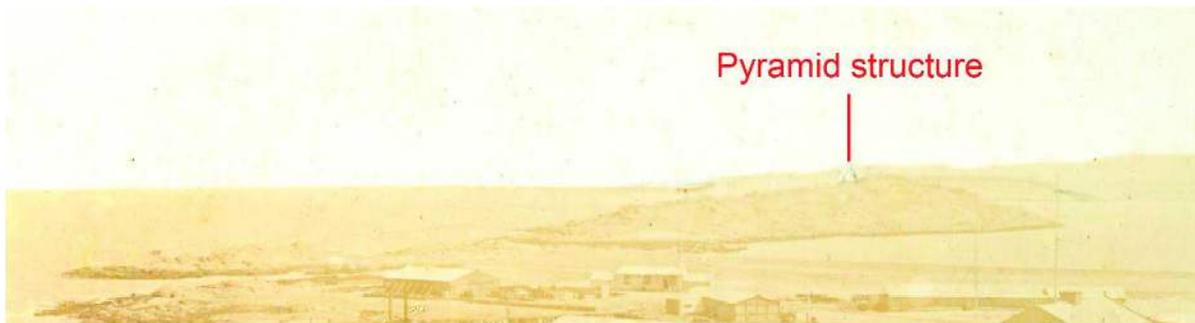


Figure 7. Close-ups depicting the increasing number of buildings on Shark Island and the bridge connecting the island to the mainland.

Later images dated to around 1904, show various buildings at the island's entrance and a bridge connecting it to the mainland.

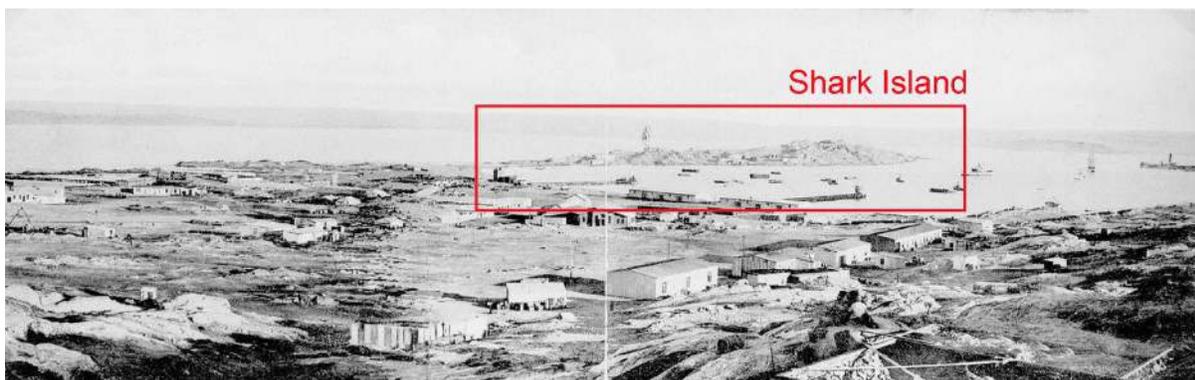


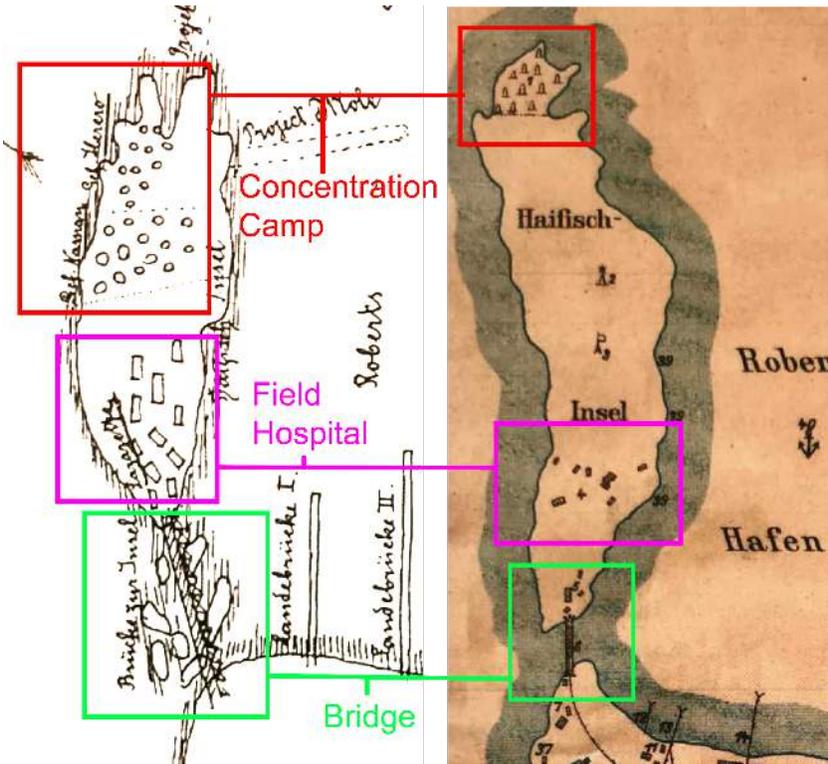
Figure 8. Photo likely dating to 1904 of 'Lüderitzbucht: Panorama der Stadt (DSWA)' ['Lüderitz Bay: panorama of the city (German South West Africa)'] with Shark Island visible in the centre. Koloniales Bildarchiv Universität Frankfurt.



Figure 9. Close-up of Figure 8 depicting the increasing number of buildings on Shark Island and the bridge connecting the island to the mainland.

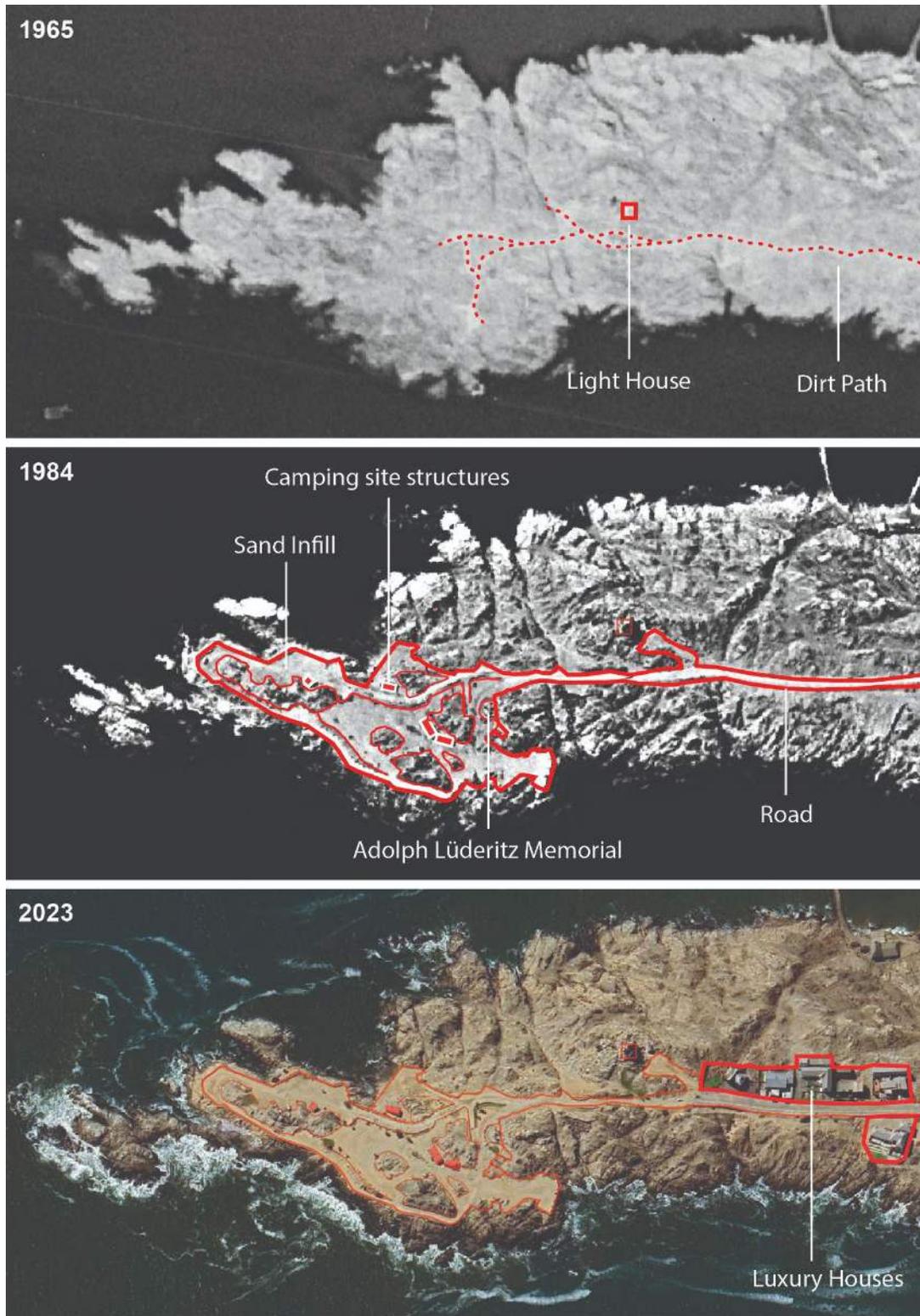
The point of departure for our reconstruction of Shark Island and its concentration camp during the period of the genocide were two historical maps depicting the peninsula during its operational period as a concentration camp. Figure 10a is a hand drawn map by a local missionary, Emil Laaf; the producer of Figure 10b is unknown. Both of these maps depict the island connected to the mainland via a bridge and both place the concentration camp at the tip of the island while the German field hospital is located at the entrance.

We were able to corroborate the location of areas marked in these maps by geolocating and analysing archival imagery from different sections of the camp.



Figures 10a, b. The map on the left, drawn by Missionary Emil Laaf in 1906 and cropped here for comparison, shows a rough sketch of the concentration camp. Archive of the Rhenish Mission Society. The right map, published in 1910, seems to be depicting Lüderitz when Shark Island concentration camp was operational, as indicated by the tent drawings at the tip of the island. National Archive Namibia.

7.2. Alterations to the island



Figures 11a-c. These aerial and satellite images of Shark Island show the concentration camp site's alterations between 1965 and 2023.

Today, the northern part of the island, where according to historical maps the concentration camp was located, is a tourist camping site (Fig. 11). All the buildings pertaining to the concentration camp have disappeared. The southern part of the island forms part of the port and residential buildings stretch along the street reaching over from the mainland.

By analysing aerial photographs and satellite imagery over time, it becomes apparent that drastic landscape alterations happened between 1965 and 1984, during the height of South Africa's colonisation of Namibia and the apartheid era, possibly in the mid-1970s.

In the aerial image from 1965, the rock formation on the northern part of the island seems fairly intact, with only a narrow dirt path leading to it. The Shark Island lighthouse is also visible in this image. In 1977, an old European cemetery was transferred from the northern part of Lüderitz to Shark Island and the human remains were placed alongside memorial plaques for the German 'pioneer' Heinrich Vogelsang and Adolf Lüderitz.⁷

In the aerial image from 1984, extensive landscaping changes are visible. The narrow path has turned into a road and large sections of the northern part of the island have been flattened by sand infills while various memorials commemorating the perpetrators of the genocide were erected. Sanitary facilities for the camping site that are still intact today become visible.



Figure 12. Photo captioned "Lüderitzbucht 1907 / Alter Friedhof am Roberthafen" [Lüderitz Bay 1907 / Old cemetery at Robert Harbour]. *Koloniales Bildarchiv Universität Frankfurt*.

From 1984 to the present day not much has been added to the northern part of the island except a small monument remembering Cornelius Fredericks, the Nama leader who was detained and decapitated on the island in February 1907. However, luxurious residential buildings have been erected in other parts of the island.

⁷ In 1883, Heinrich Vogelsang led the first German expedition to Lüderitz, then called Angra Pequena. Adolf Lüderitz was a merchant from Bremen, Germany, who financed said mission and later bought a sizable amount of land in the area under dubious circumstances, defrauding Nama Captain Joseph Fredriks II about the size of the plot.

7.3. Position of field hospital

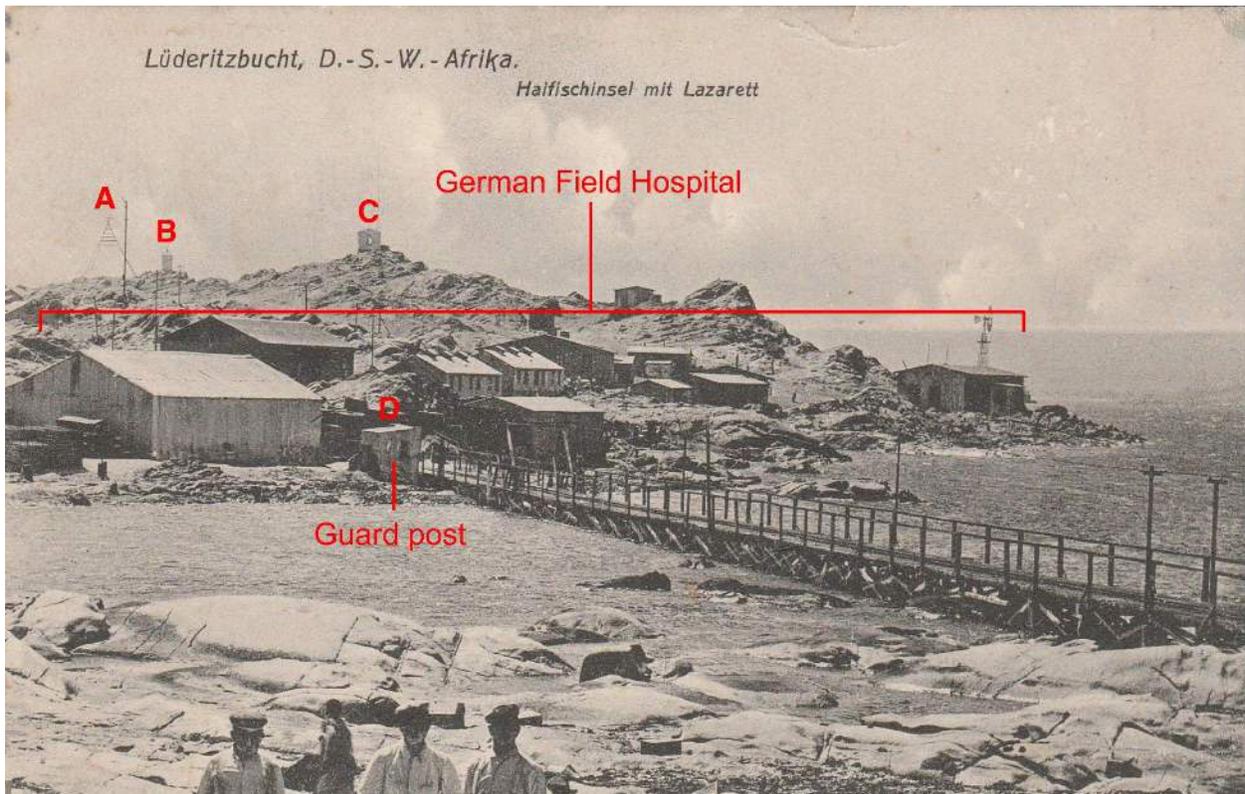


Figure 13. Postcard titled 'Lüderitzbucht, D.S.W. Afrika, Haifischinsel mit Lazarett' ('Lüderitz Bay, German-South-West Africa, Shark Island with hospital'). It was published in German South West Africa by a German bookstore in 1905. Verlag Swakopmunder Buchhandlung.

The image above depicts the entrance to the island which was then connected to the mainland only through a wooden bridge. Visible in the forefront of this image is 'Feld Lazarett XII,' the German field hospital. This photograph corroborates the location of the field hospital marked in the two hand draw maps (Fig. 10). By 3D-modelling and placing all the visible structures in this image within the Blender 3D software environment, we were then able to cross reference these structures and identify their functions according to the tags from the map below (Fig. 14).

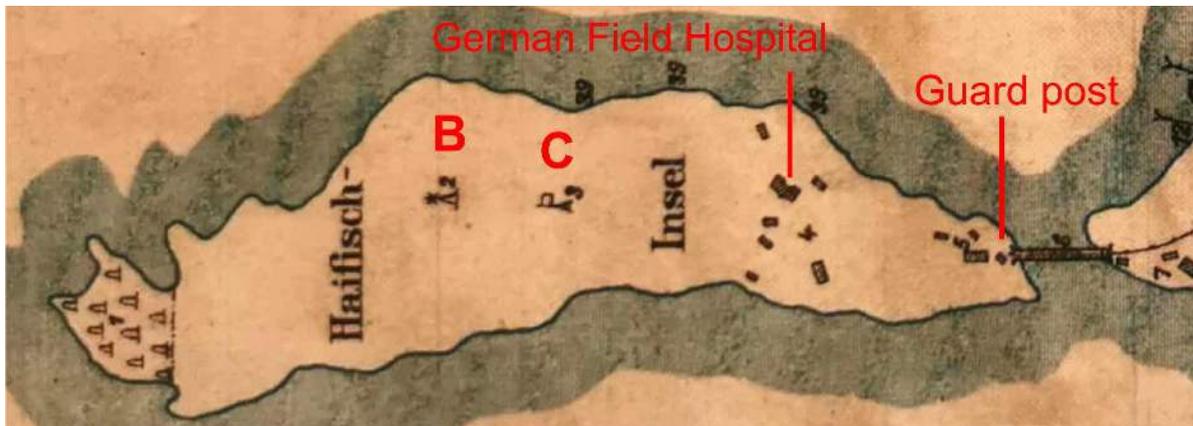


Figure 14. Rotated excerpt from the map in Figure 10 with building structures marked red. FA/Forensis, 2024.

In Figure 14, the original labelling of the map reveals buildings matching the locations of structures tagged B and C within our model and the photograph: a lighthouse and a signal station. While the structure tagged A, a pyramid-shaped steel beacon, is also visible in other archival photographs from the period, its function is not clear.

Through interviews with descendants of Shark Island victims, it was established that the structure tagged D, right at the entrance to the island and on the left side of the wooden bridge, is most likely the guards' post (Fig. 13).



Figure 15. A photomatch of the postcard in Figure 13 within our 3D reconstruction of the island, allowing us to place the buildings within the model. FA/Forensis, 2024.

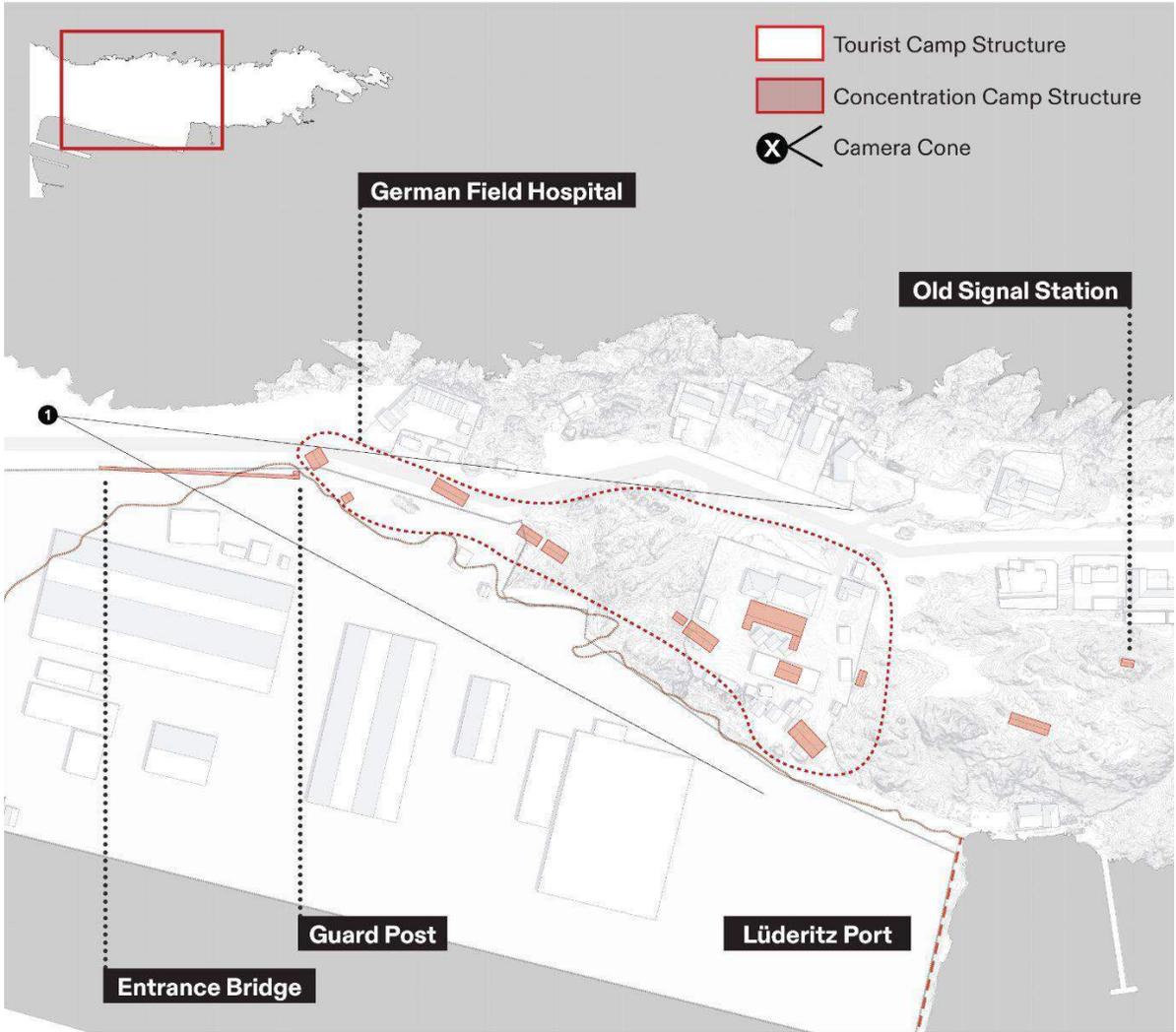


Figure 16. Map illustrating the structures on Shark Island seen in the archival photo Figure 13. FA/Forensis, 2024.

7.4. Position of execution chamber

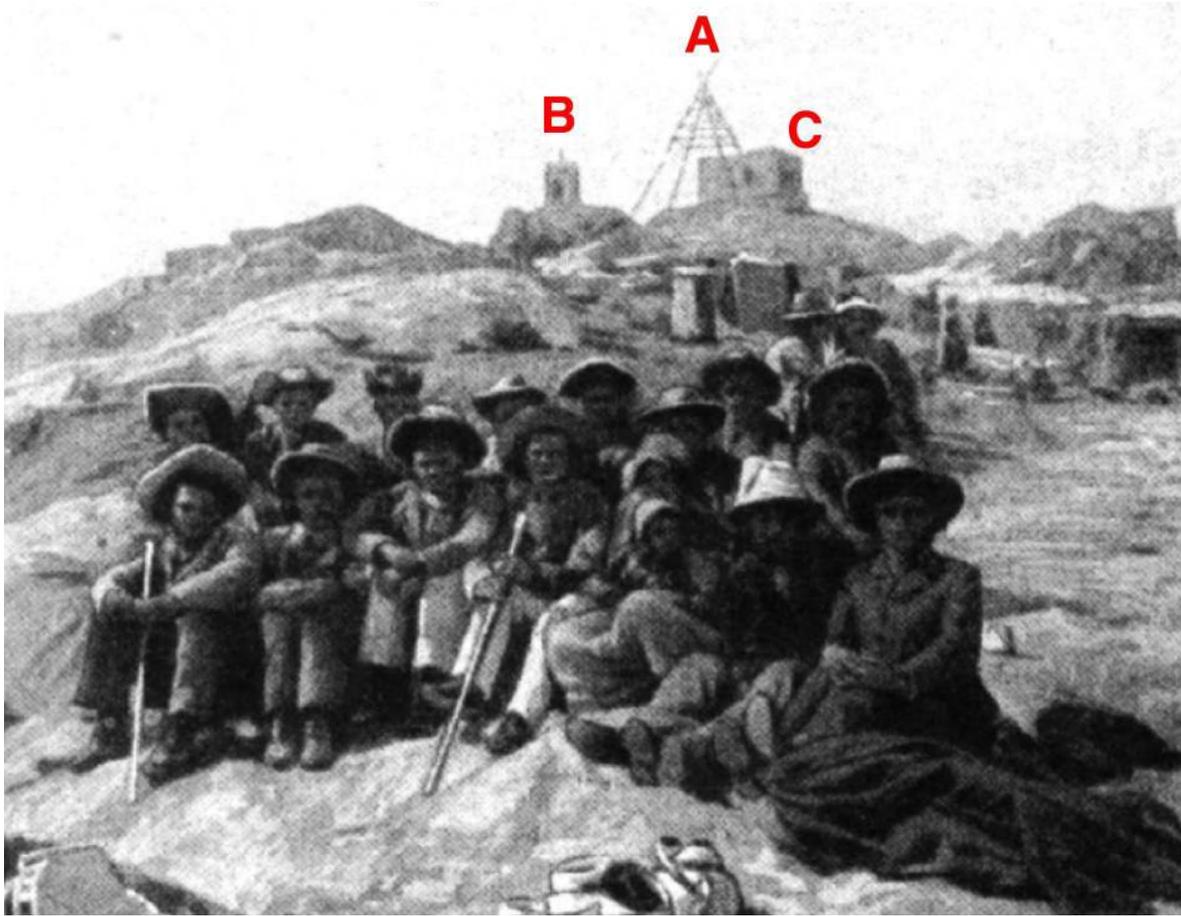


Figure 17. A retouched photo of Nama inmates in Shark Island, likely dating to late 1906. Distinct camp structures are visible in the background. Taken from: Erichsen, *Angel of Death*, 2005, p. 124.

This archival photograph depicts a group of about 20 Witbooi Nama inmates — recognizable by their clothing and hats — in the foreground and three distinct structures in the back, alongside two temporary tent-like structures most probably housing inmates interned on the island.

The Pyramid shape structure (tagged A) and the lighthouse (tagged B) on its left side were identifiable in Figure 13. An additional structure (tagged C) is visible in Figure 17 directly behind the pyramid.

Using our topographical 3D model, we established the exact location of the camera and placed it within the 3D environment of the software Blender using the method described above as photomatching (see page 14). During this process geological features were put in accordance with both the 3D model and the archival image.

According to testimonies of descendants, structure C was used as an execution room. The descendants believe that in this building the skulls of Herero and Nama were scraped by other inmates in order to be sent to Germany.



Figure 18. The same view is captured in the archival photograph (Left), and in the image taken by Forensic Architecture in September 2023 from the same area (Right).

As a next step, all the major structures visible in this photograph were modelled in detail and placed at their exact locations within the 3D model. As a result it became clear that the three structures visible on the top of this image used to stand very close to where the lighthouse is located now.



Figure 19. Zooming in on both photos shows that the execution chamber (Left) stood on the same rock as the red lighthouse does today (Right).

Similarly, in their testimonies, descendants of Shark Island victims stated that oral history professes that there had been a building used for executions and for scraping skulls “where the lighthouse stands today.” We identified this building as structure C.

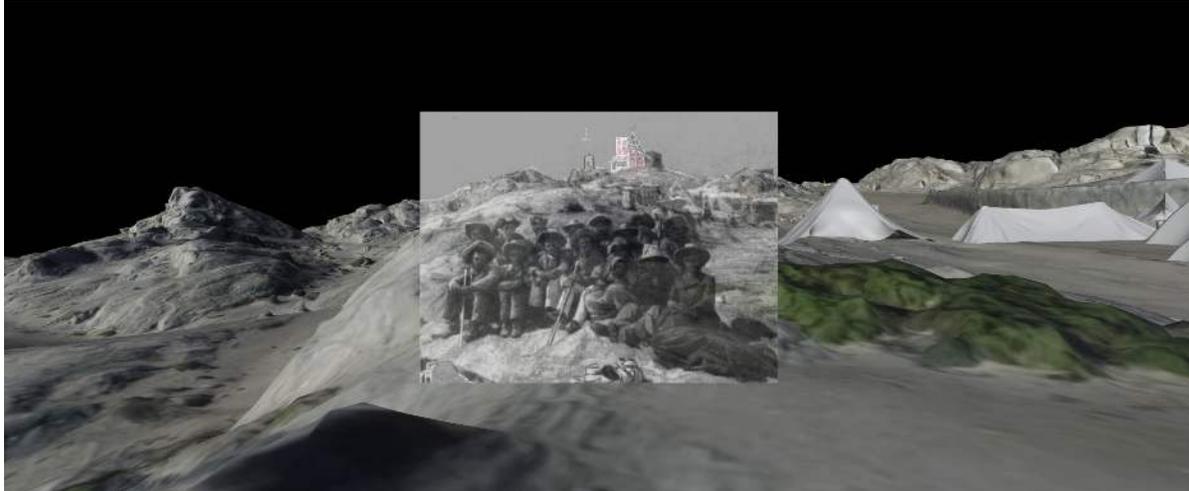


Figure 20. A photomatch of Figure 17 within our 3D reconstruction of the island, allowing us to place the execution chamber within the model and thus to determine its precise location. FA/Forensis, 2024.

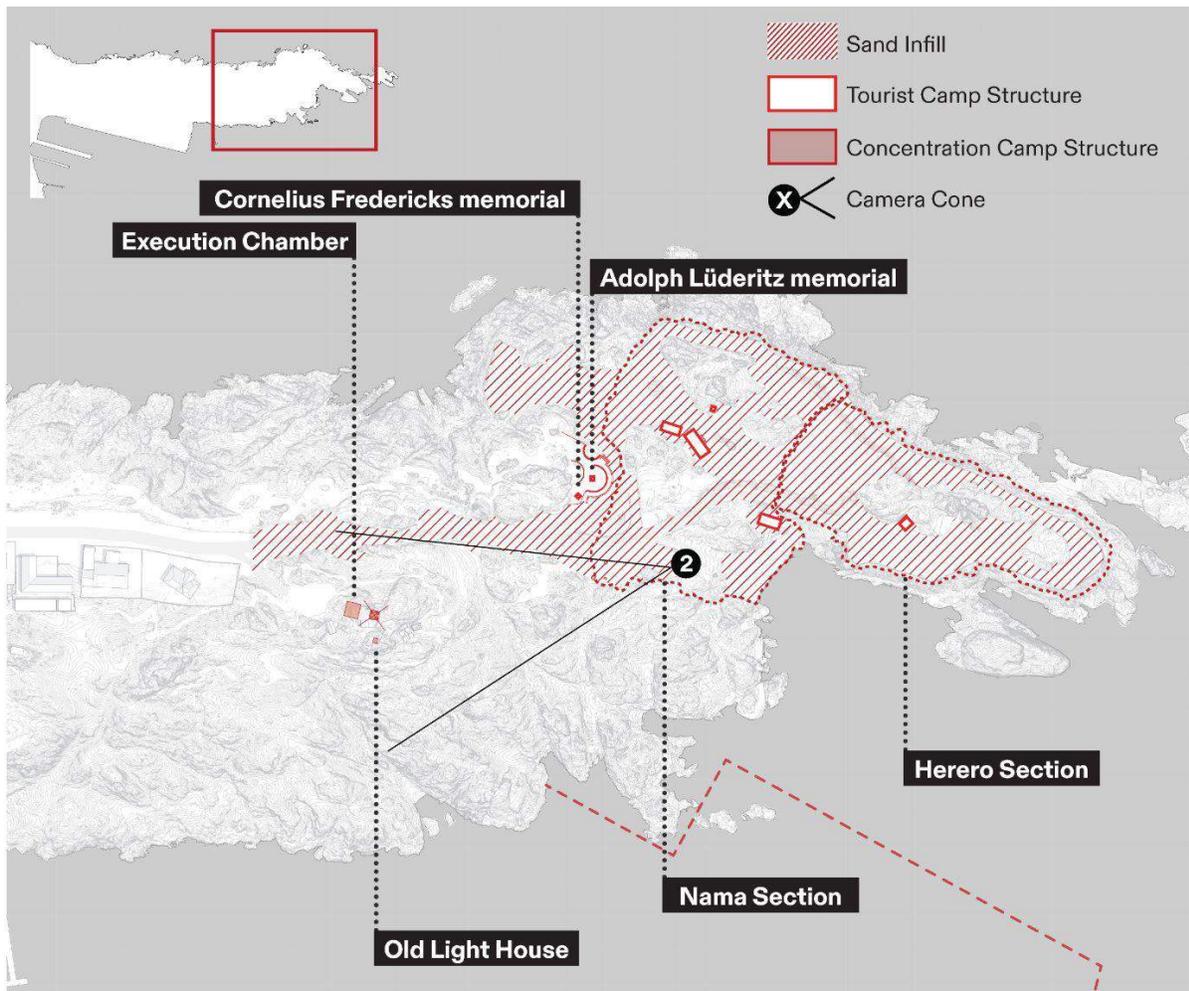


Figure 21. Map illustrating the structures on Shark Island seen in the archival photo Figure 17 in addition to the structures and terraformation realised for the tourist campsite. FA/Forensis, 2024.

7.5. Position of Herero camp structures



Figure 22. Photo of the Shark Island concentration camp titled 'Haifischinsel : Lager der gefangenen Herero und Hottentotten: Hereropontok' ('Shark island: Camp of the Herero and Nama - Herero Pontok'), n.d., Lt. v. Düring, Koloniales Bildarchiv Universität Frankfurt.

This archival photograph shows the Herero section of the camp. We identified at least 21 temporary structures in this image which are most probably self-made housing structures for the inmates. The absence of people in the image suggests that inmates were possibly outside of the camp performing forced labour.

We geo-located this image through the distinct rock formations visible in this section of the camp. The rock at the centre of the image is clearly identifiable on the island today as seen in Figure 23.



Figure 23. Image taken by Forensic Architecture in September 2023 capturing the same view as Figure 22.

What becomes immediately clear is that most of the area visible in the archival photograph has been terraformed and covered in sand, flattening the area for vehicles, tourist tents and amenities.

We used the aforementioned rock as an anchor point in order to precisely place the archival photo's camera angle within the 3D environment. The location of the camera is on the upper part of the island and close to the area marked by Map A as the Herero area.



Figure 24. Structures visible in the archival photograph are placed within the 3D model, thus showing the extent of the sand infill. The marking visualises the same rock standing out in both images.

We modelled the visible structures, placed them in our model and found that most of the concentration camp structures visible in the foreground of this image would be buried beneath at least 130 cm of sand infill. Archaeological excavation in this area could reveal crucial remnants related to the conditions of the camp and its operation.

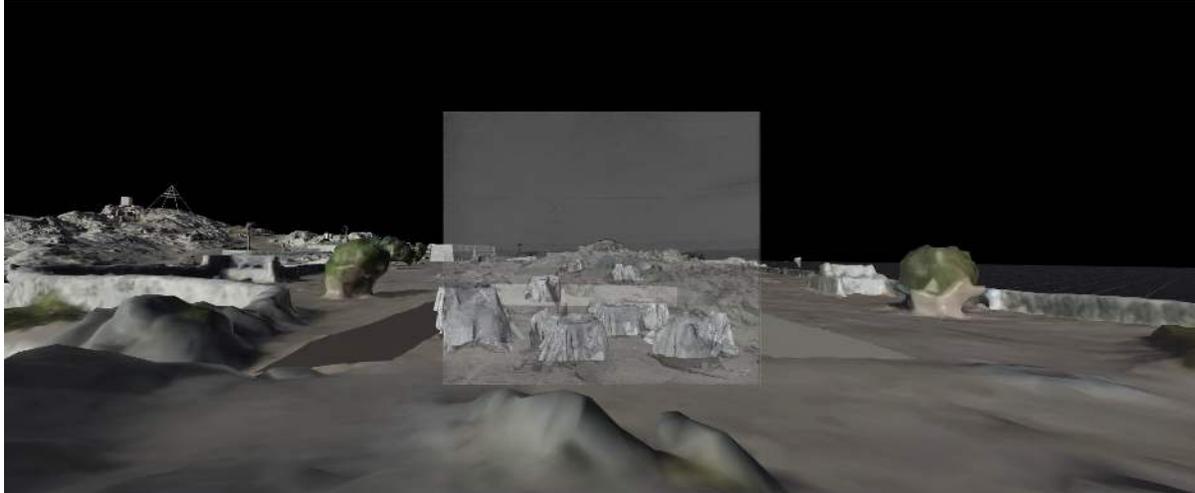


Figure 25. The view from Figure 22 is placed within our 3D reconstruction of the island allowing us to calculate the sand infill and locate the Herero section of the camp. FA/Forensis, 2024.

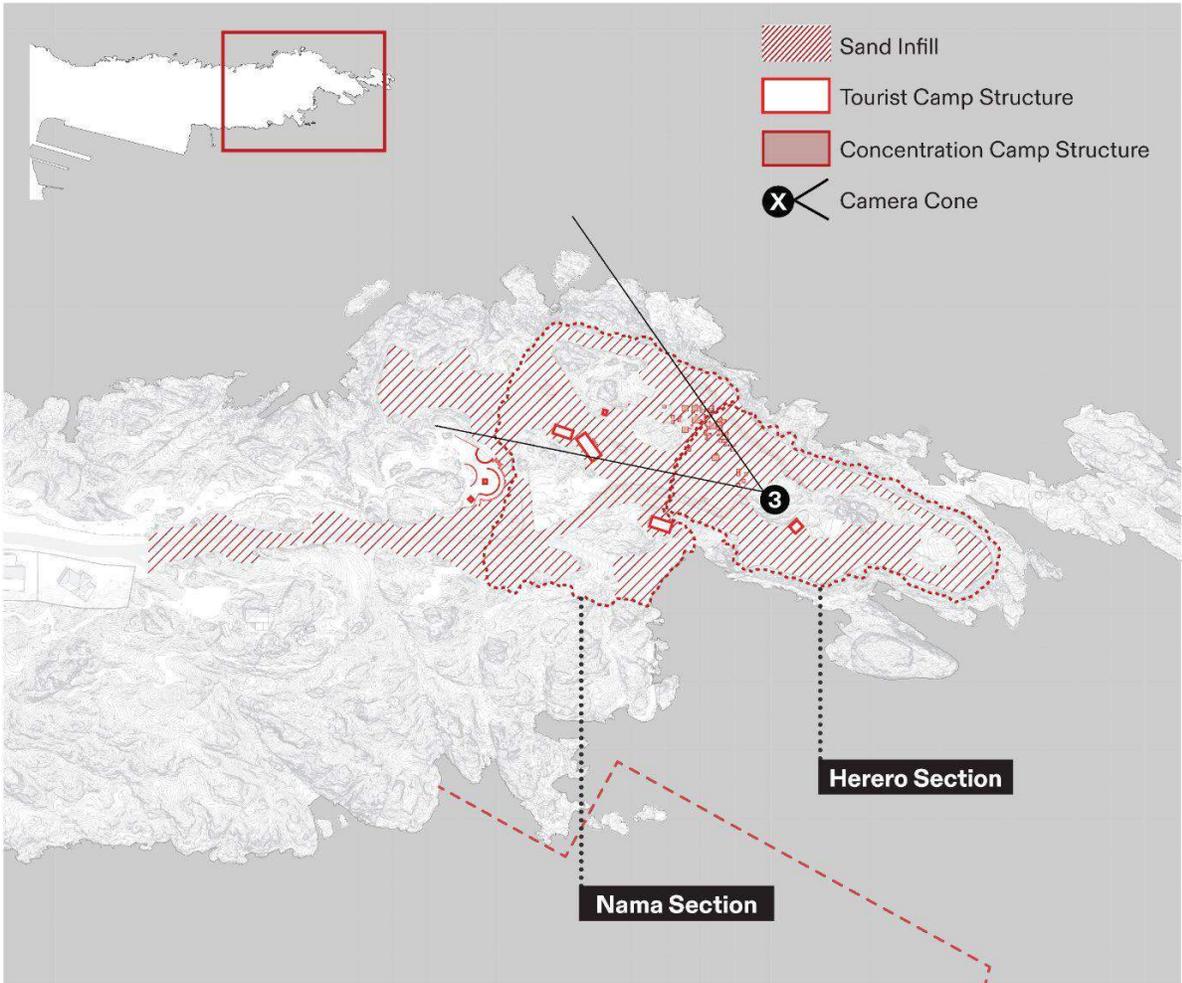


Figure 26. Map illustrating the structures on Shark Island seen in the archival photo Figure 22 and visualising the different sections of the concentration camp. FA/Forensis, 2024.



Figure 27. Photo, likely dating to 1905, of Herero inmates in the concentration camp surrounded by tent structures offering little protection. The red marking captures a distinct rock we used to locate the image. Koloniales Bildarchiv Universität Frankfurt.

This archival photograph comes from the album of Lieutenant von Düring and likely dates to October 1905. Düring captioned the image, ‘Shark Island: Herero inmates,’ and it depicts another side of the camp’s Herero section.

We identified 9 temporary structures in this photograph. Further, we geolocated this image by referencing a distinct rock on the upper left side of this image, marked by a cross.

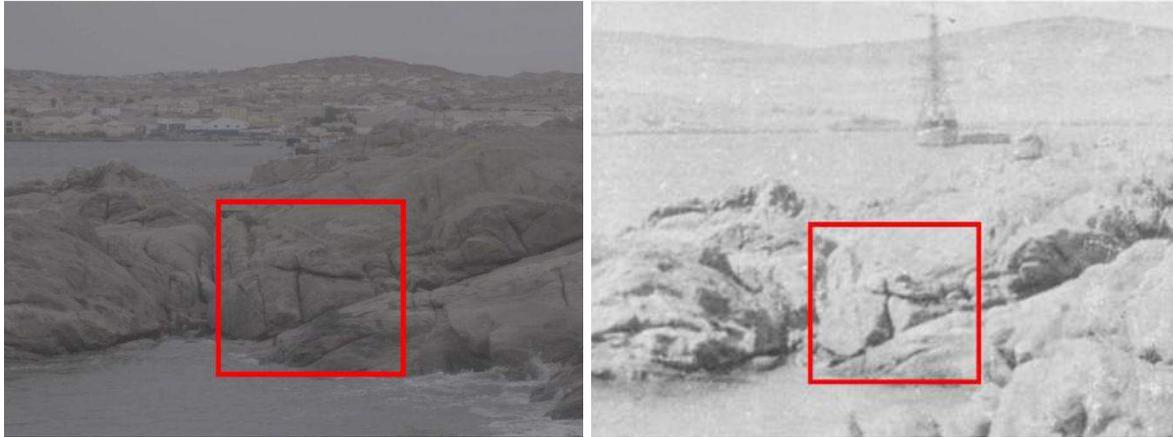


Figure 28. A rock with a distinct shape is marked both in the archival photograph and in an Image taken by Forensic Architecture in September 2023 from the same area.

Using this rock as an anchor point and placing the camera within our model, we realised the view captured in this image is blocked today. We found the location of this camera by digitally removing the structure and the sand infill.



Figure 29. The image on the left captures the same camera angle as in the archival photograph within the 3D software environment. The structure blocking the view is the washroom visible on the image on the right.

The structure blocking this view is one of the contemporary camping site washrooms, positioned exactly where inmates stand in the archival image. This finding suggests another important location for further archeological investigations.

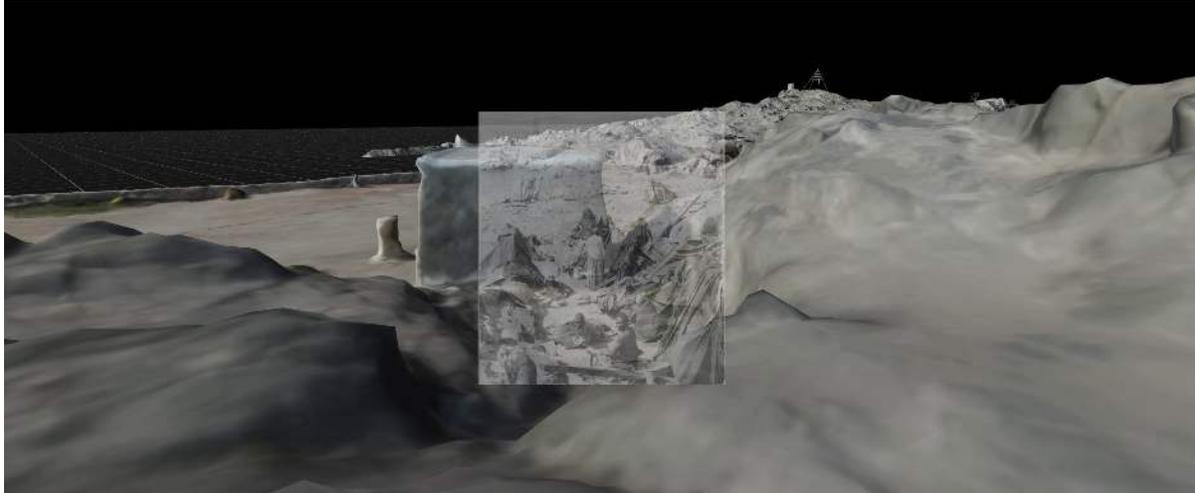


Figure 30. The archival photo Figure 27 is placed within our 3D reconstruction of the island allowing us to locate the Herero section of the camp. FA/Forensis, 2024.

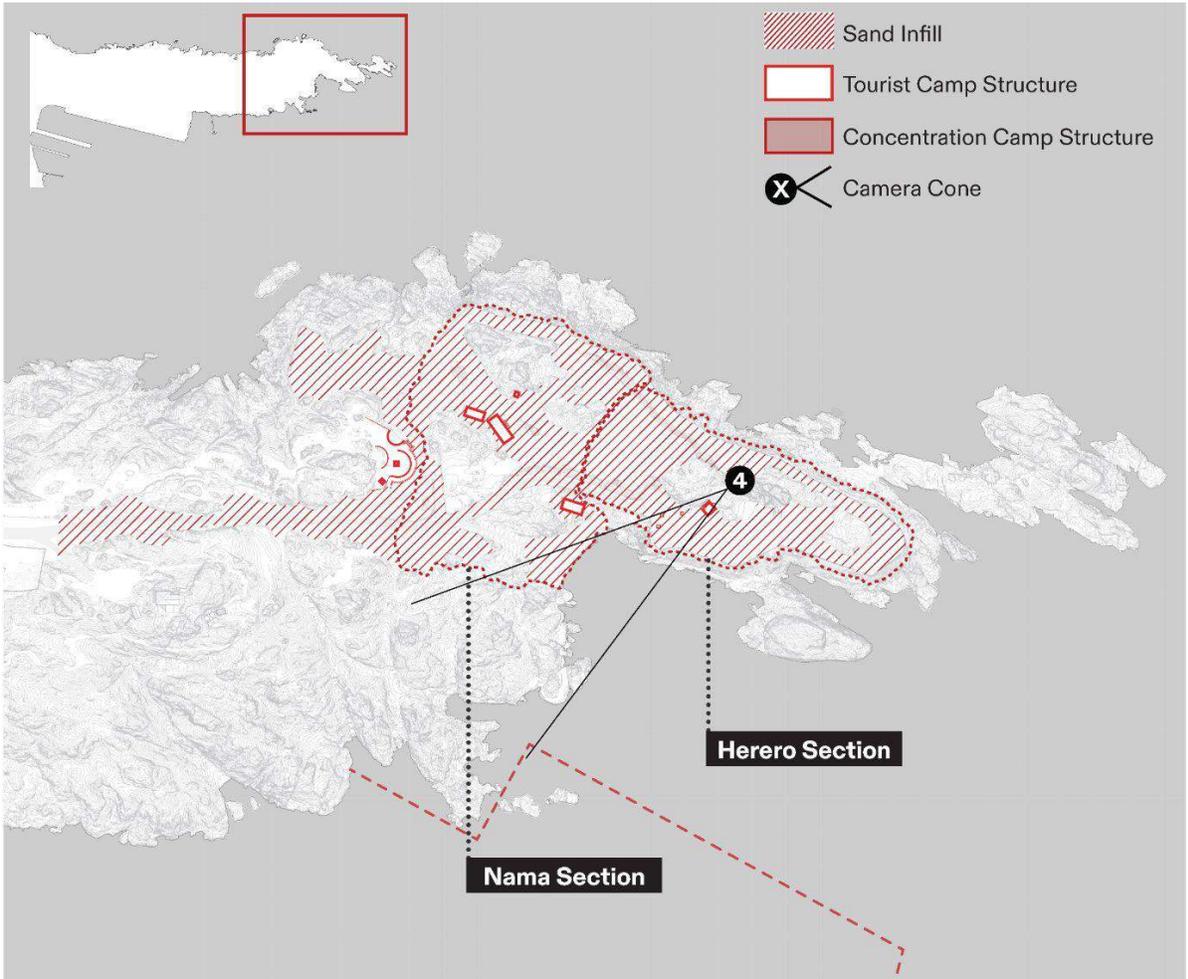


Figure 31. Map illustrating the structures on Shark Island seen in the archival photo Figure 27 and visualising the different sections of the concentration camp. FA/Forensis, 2024.

7.6. Position of Nama camp structures and evidence of forced labour



Figure 32. Photo of the Nama section of the concentration camp depicting inmates conducting physical labour. National Archives Namibia, 1906.

This image, likely dating to 1906, mainly shows the Nama area of the concentration camp. Parts of the Herero section are visible in the upper right corner. The temporary structures in the Nama area seem to be military tents and distinguish themselves from the structures in the Herero areas.

Similar to other photomatches, in order to locate the camera within our 3D model, we looked for recognizable rocks and used them as anchor points.



Figure 33. The same rock marked in the archival photograph and within the 3D model environment. FA/Forensis, 2024.

After modelling the visible structures in the archival photograph and placing them within our 3D model, it became evident that almost the entirety of this visible section of the camp falls within the heavily landscaped part of the island. Most of the structures of the Herero section

in this image on the upper right corner are completely buried beneath sand infills but also the geology on the Nama section has been gravely altered.



Figure 34. The same view captured in the archival photograph (Left), is visible within the 3D software environment (Center), and in the image taken by Forensic Architecture in September 2023 from the same area (Right).

The inmates of Shark Island were mostly forced to work outside of the camp, for instance building railroad tracks for the line from Lüderitz to Aus or in the construction of the harbour. However, inmates were also involved in egregious labour projects on the island itself, such as the erection of a pier in close proximity to the camp. According to the work diary of construction technician Richard Müller, this project failed due to the high casualty rates of inmates and consequently a lack of labour force.⁸ To provide building material for this project inmates were forced to break rock with pickaxes and sometimes even explode stones with dynamite.

The woman in the foreground of the picture appears to be breaking rocks with an axe. Several buckets filled with stones are visible close to her. By geolocating the position of this woman on the island and identifying the rock she is standing on, we were able to find clear traces of human-made incisions on this rock. Likely these are traces of the movement she is seen undertaking in this image from 1906. The image below shows a 3D scanned image of this specific rock and traces of forced labour on it.



Figure 35. An inmate holding an axe in the archival photograph (Left). A human-made incision is visible on the same rock the woman with an axe is standing on (Right). FA/Forensis, 2024.

⁸ Müller, Richard. Arbeitstagebuch, Dec. 24, 1906. Kaiserliches Hafengebäudeamt. National Archives Namibia.

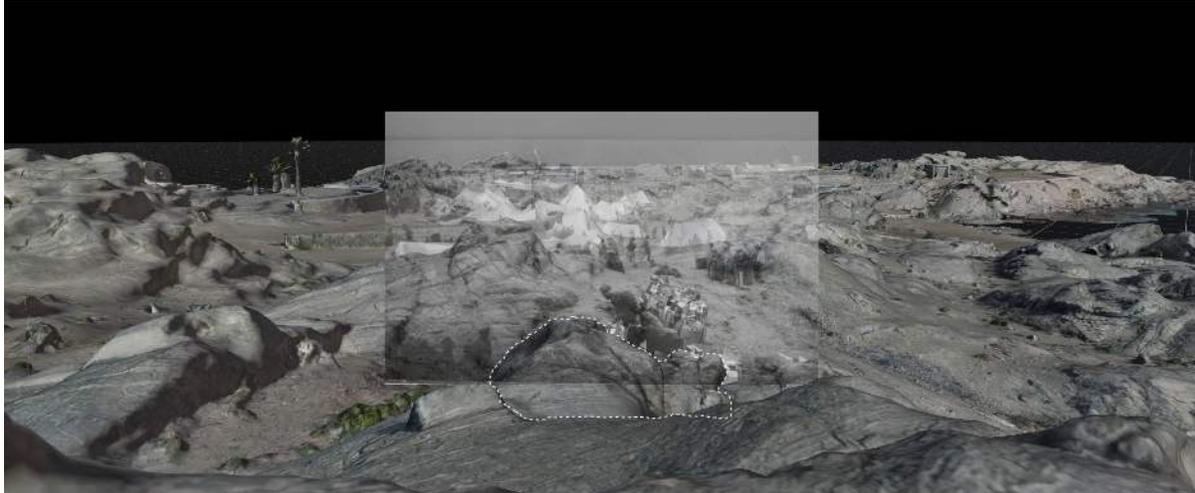


Figure 36. The archival photo Figure 32 is placed within our 3D reconstruction of the island allowing us to locate the Nama section of the camp. The distinctive rock from Figure X is outlined in white. FA/Forensis, 2024.

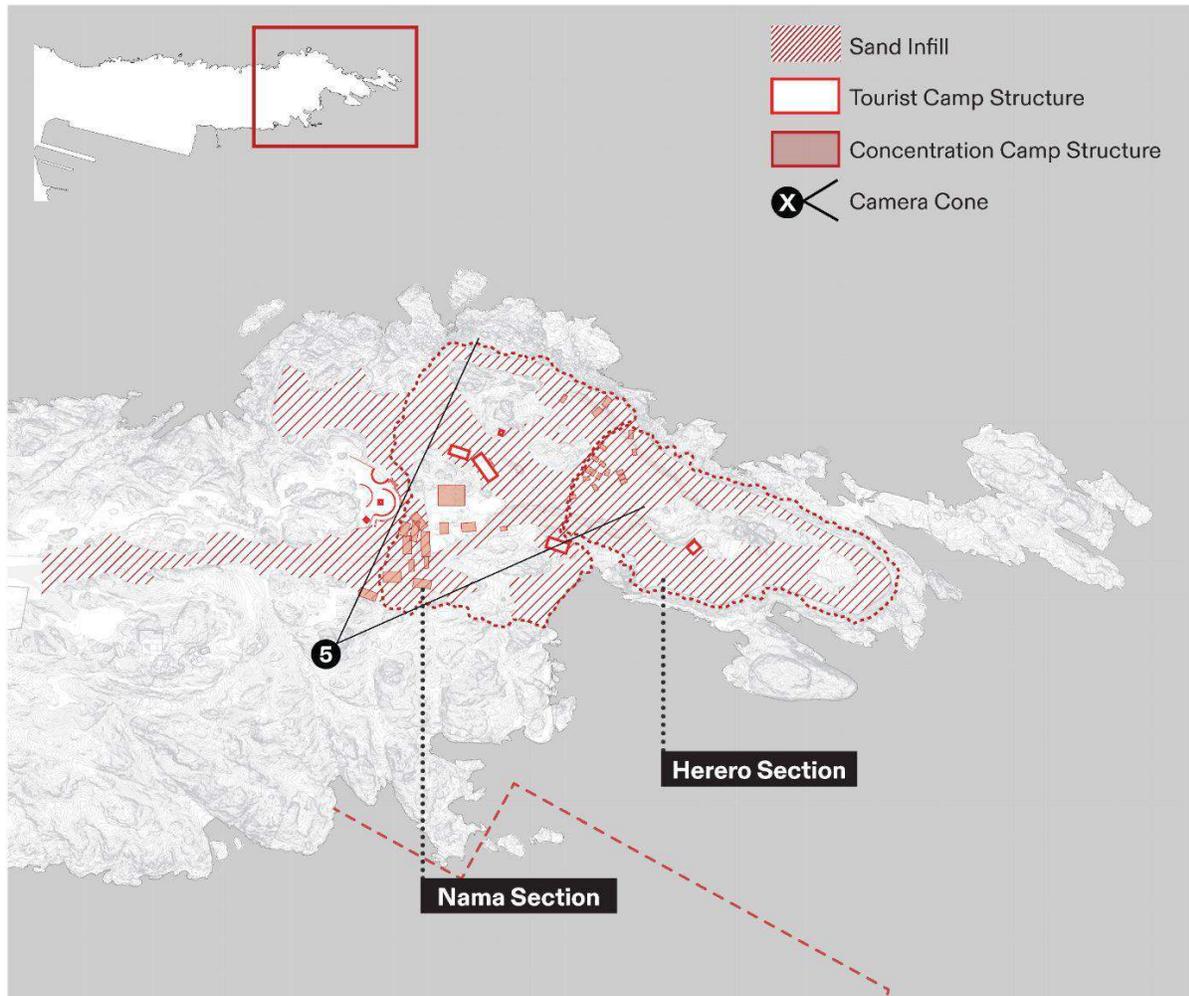


Figure 37. Map illustrating the structures on Shark Island seen in the archival photo Figure 32 and visualising the different sections of the concentration camp. FA/Forensis, 2024.

7.7. Position of the Lenz camp

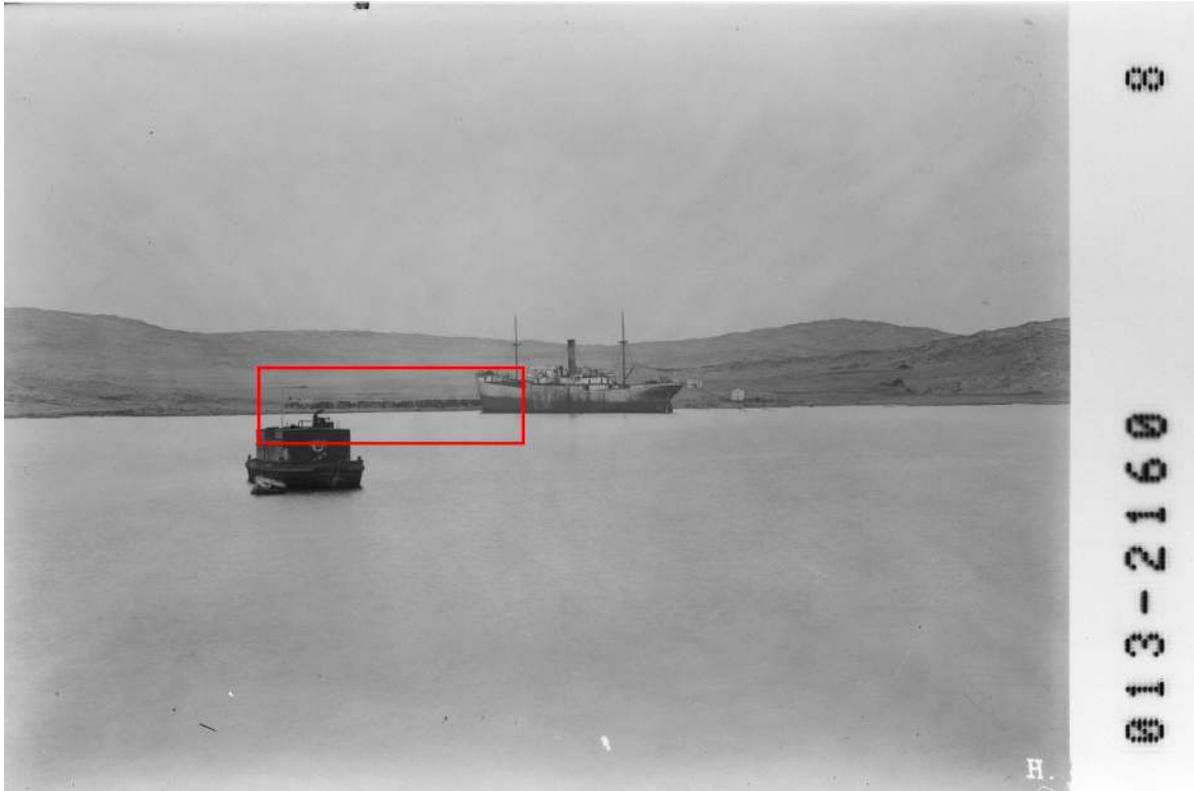


Figure 38. Photo of Lüderitz harbour with the Lenz labour camp marked by the red frame. The Dunbeth wreck is at the centre of the image. Koloniales Bildarchiv Universität Frankfurt, 1907.

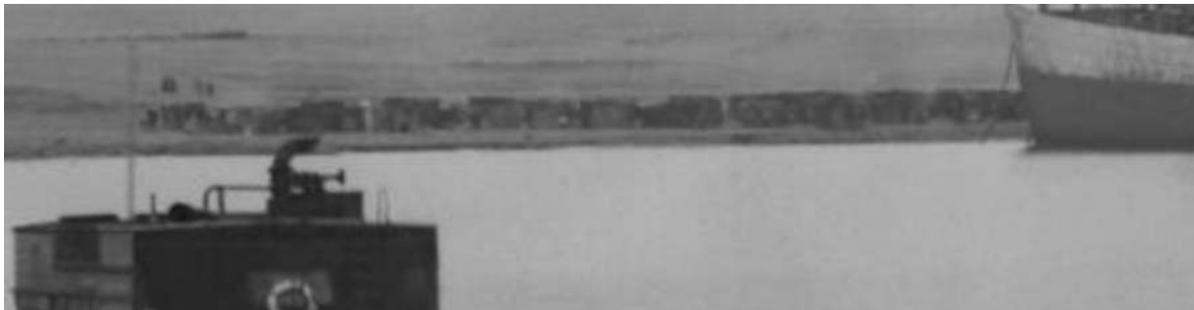


Figure 39. Close-up of the Lenz labour camp in the harbour of Lüderitz. FA/Forensis, 2024.

On the hand drawn Map by missionary Laaf at the beginning of this report (Fig. 10), another camp run by the railway company Lenz is labelled as 'Captured Hereros,' next to the stranded Dunbeth ship. The archival photograph above is taken from Shark Island on July 14, 1907 and appears to capture a rare image of the Lenz camp and the wreck alongside it.⁹

⁹ The ship was stranded on June 6, 1906 and stayed in the harbour until 1910 adding another indication to the photo's date.

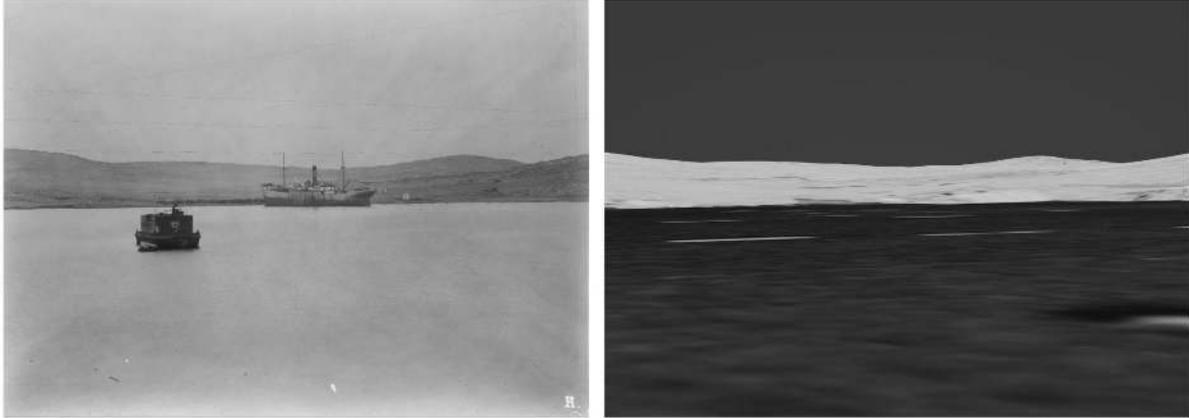


Figure 40. The same view, captured in the archival photograph (Left) and within the 3D model environment allowing us to place the camp on the map (Right).

By placing the camera cone of the photo (Fig. 38) within our 3D model we were able to establish the exact location of the Lenz Camp which corresponds roughly with what is visible on the hand drawn Map by missionary Laaf.



Figure 41. The camera angle of Figure 38 placed within our 3D model. The red box marks the position of the Lenz Camp. FA/Forensis, 2024.

7.8. Findings

Our analysis has revealed the following findings:

- I. The spatial model reveals the precise extent and spatial layout of the former concentration camp (Fig. 42);
- II. The testimonies and the matching of archival photos to the current island geography allowed the identification of the function of several structures visible in archival photographs, including the structure reportedly used for public executions, guard posts, the field hospital, the lighthouse, a signal station as well as the Nama and Ovaherero sections of the camp. Further, we identified Lenz Camp, another concentration camp, within Robert Bay.
- III. Extensive terraformation has taken place on the island, such as sand infill that raised the ground level for the benefit of roads, car parking and flat camping areas.
- IV. Present day infrastructure that we mapped on the island, such as a tourist campsite, monuments, residential buildings and port developments have been built on top of or very close to the former concentration camp.

Our findings demonstrate that the infrastructure for the tourist camp, such as roads or sanitary facilities, are situated directly on top of the former concentration camp, thus an area of archaeological, historical, religious and emotional significance.

The current usage of the site desecrates a space that should be dedicated to preserving the memory of the victims and survivors of the crimes committed here as well as the resistance fighters battling this oppression. Rather than allowing for remembrance and prayer, the site currently confronts visitors with the commotion of holiday-goers, loud music, laughter, and the smell of barbeque.

The proposed extension of Lüderitz port in Robert Harbour poses an imminent risk of further desecrating the heritage site directly and indirectly, as well as disturbing maritime burial places within the jurisdiction of Namport and adjacent waters. This would further and irreversibly compromise the island as a place of historical significance and prevent additional archeological research needed on the underwater burial sites of camp inmates. Noise from the port will permanently affect the experience of being in this site, preventing solemn contemplation. The view from the city to the former camp and vice versa, situating the atrocities committed here within its local context, will be disrupted if new buildings are constructed on the eastern side of the island.



Figure 42a. Spatial analysis by Forensis/FA reveals how key sites of the concentration camp have been overbuilt and how the proposed port extension threatens to further disrupt and continue the erasure of traces.

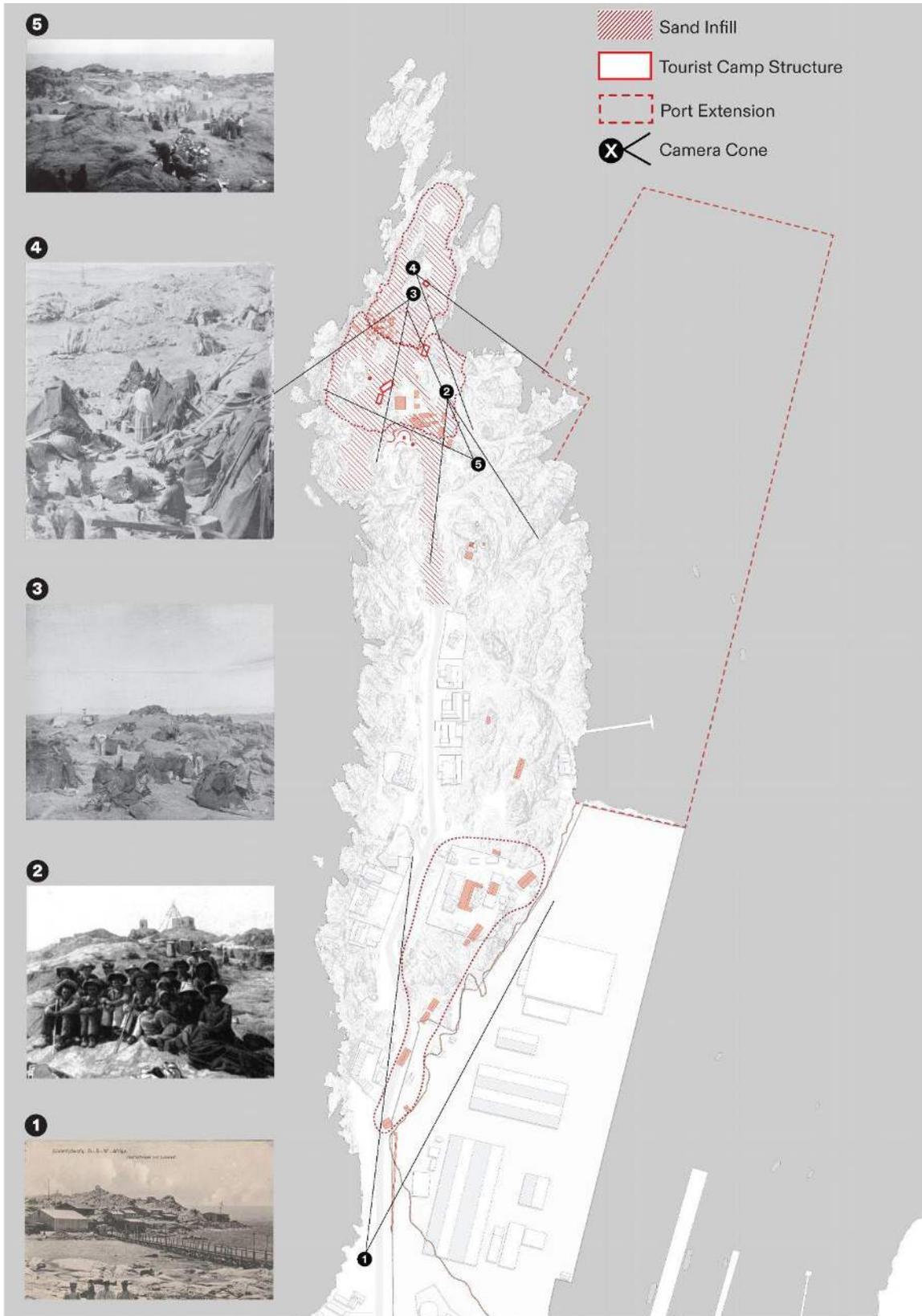


Figure 42b. Exact locations of archival photographs camera cones used for the reconstruction of Shark Island concentration camps

8. Localization of Unmarked Graves

Thousands of Herero and Nama inmates died in Shark Island concentration camp. Yet, until this day, the burial sites of the victims are unclear. Evidence points to multiple areas around Lüderitz as possible sites of burial.¹⁰ Some of them lie in the Sperrgebiet, the area sealed-off for diamond mining since 1908 which is now slated to be used for the Hyphen Energy project. In the testimonies we collected, it was mentioned multiple times that bodies of inmates were simply thrown into the sea off Shark Island. This is substantiated by written reports, such as a South African transport rider, Leslie Cruikshank Bartlet, stating in 1905 that he saw ‘corpses of women prisoners washed up on the beach between Lüderitzbucht and the cemetery.’¹¹ It is thus highly likely that the shallow waters around the island are graves to victims of the German-made genocide. We were moreover able to gather substantial evidence for the presence of inmates’ graves in Radford Bay, which is the area that we will be concentrating on in the following.

Multiple historic sources reference inmates dying or being laid to rest on beaches around Radford Bay. For instance, a soldier passing through Lüderitz in 1906 writes that upon arrival he ‘perceived nearly 500 native women lying on the beach, all bearing indications of being slowly starved to death. Every morning and towards evening four women carried a stretcher containing about four or five corpses, and they also had to dig the graves and bury them.’¹² This is the first sight he records in Lüderitz. Since he is coming from South Africa, Radford Bay’s beach close to Burenkamp is the first part of town he would encounter.



Figure 43. A drone photograph capturing the unmarked graves of victims of Shark Island close to Radford Bay. FA/Forensis 2024.

¹⁰ In Lüderitz Burenkamp we were able to identify a cemetery on historic maps and locate it in the current geography. Together with geo-referenced photomatches these processes show the existence of graves in these areas. We have excluded it from this report since we weren’t able to conduct a GPR survey in the area.

¹¹ Union of South Africa, Report on the Natives of South-West Africa.

¹² Erichsen, Casper W. (2005). ‘The angel of death has descended violently among them’: Concentration camps and prisoners-of-war in Namibia, 1904-08. Leiden: African Studies Centre, p.80.

Close to Radford Bay (Fig. 43), a memorial next to several sand mounds honors the Nama and Herero victims of the genocide. During restoration works of the railways adjacent to this site, human remains were discovered which were then reburied in Lüderitz. Oral history points to the mounds as traces of graves of victims from the Shark Island concentration camp and others around Lüderitz. We have looked for archival images of this area during the genocide period.



Figure 44. A Contemporary satellite image of Radford Bay, Lüderitz. The marking shows the site where mounds are visible today. FA/Forensis, 2023.

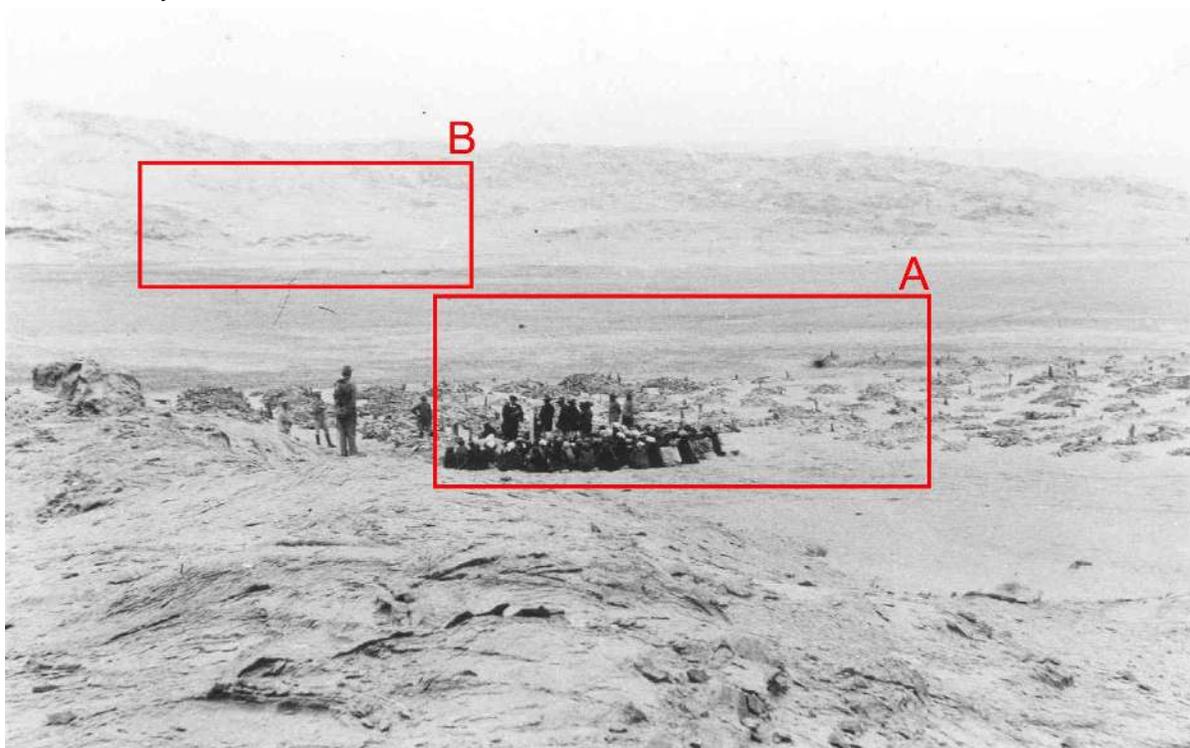


Figure 45. A photo, likely from 1906, labelled by the archive as, 'Burial of Shark Island concentration camp victims near Lüderitzbucht', shows the burial ceremony in Radford Bay. The markings indicate different grave zones. National Archives Namibia.

The archival photo (Fig. 45), likely dating to 1906, shows inmates conducting a burial in an area we identified as a plain behind Radford Bay outside of Lüderitz, the same site as Figure 44. The people visible in the centre of this image seem to be Nama, based on their clothing and head scarfs.

The burial might be staged for the photo since no other written or visual material from Lüderitz points to ritualised burials for inmates at that time. Rather, different sources point to them being disposed of in mass and individual graves dug daily by other inmates.

A closer look at the image reveals that the mounds vary in size. On the right side (Frame A) of the picture are smaller ones, indicating they might be individual graves. However, bigger mounds are visible on the left side of this image indicating that these might be mass graves.

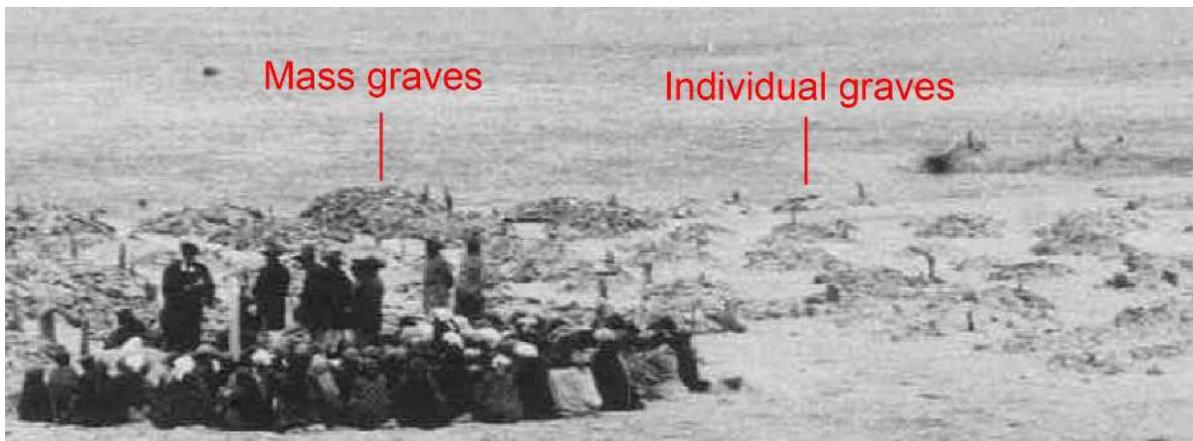


Figure 46. A zoom-in (Frame A) of Figure 45, suggests the presence of individual graves at the right of the image and mass graves on the left side.

We were able to geolocate this image to the aforementioned area (Fig. 44) by once again using a rock, visible on the left side of the image, as an anchor to photomatch its location within our 3D model. Throughout this process, it became evident that sand mounds on this site are the same as the ones visible in the archival photograph. Moreover, we can see that the railway tracks pass right above some of the graves in this image, corroborating that the human remains found on this site might be coming from these graves.

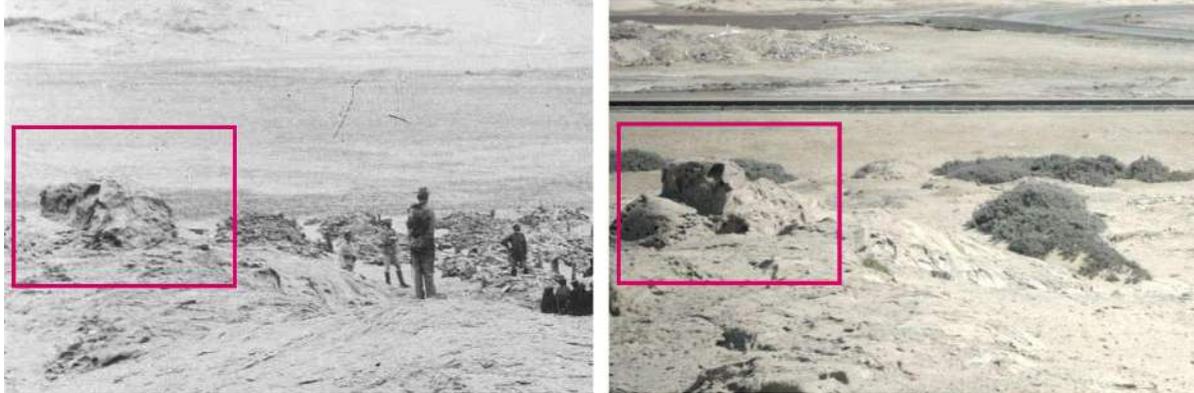


Figure 47. The same rock captured in the archival photograph (Fig. 45), is visible within the image taken by Forensic Architecture in September 2023 from the view (Right). FA/Forensis, 2024.

We were able to identify a potential burial site also in the background (Frame A) of the archival photograph. We visited this location in Lüderitz and found sand mounds very similar to the ones in the first location here as well.



Figure 48. A zoom-in (Frame B) of Figure 45, indicates what appear to be graves in the background.

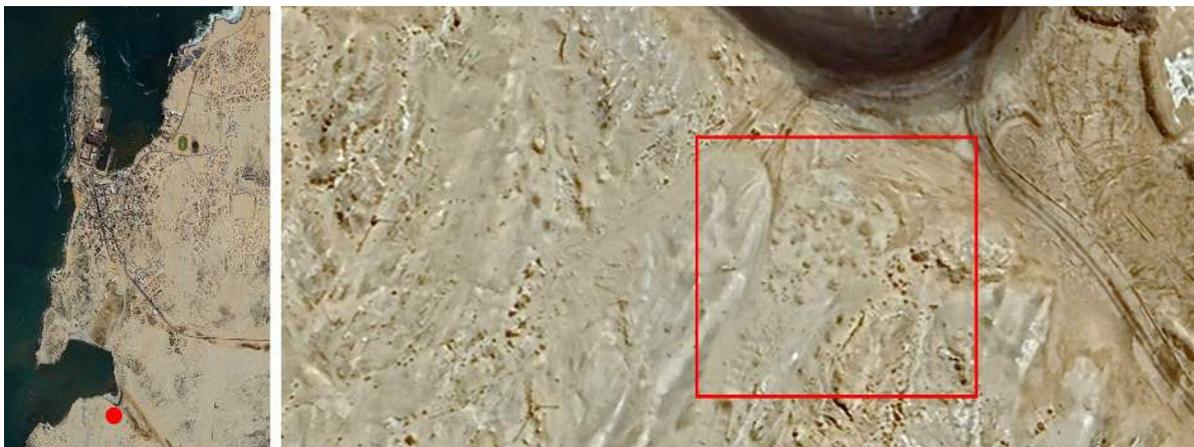


Figure 49. A Contemporary satellite image of Radford Bay, Lüderitz. The marking shows the second site where mounds are visible today. FA/Forensis, 2023.

8.1. GPR Survey

To further corroborate the existence of graves in the area, we collaborated with forensic archeologists from the Centre of Archaeology at Staffordshire University. The team of Prof. Caroline Sturdy Colls conducted a series of non-invasive investigations at the two sites mentioned in the previous section.¹³

A mix of forensic walkover investigation, Ground Penetrating Radar (GPR), UAV photogrammetry, and Global Positioning System (GPS) was employed to identify potential burial sites and map subterranean evidence.

Smaller survey areas were selected for both sites to undertake the GPR investigation. The location of these areas was chosen based on analysis of the visual and textual material and analysis of the site topography, taphonomy, and the presence of visible remains.



Figure 50. The locations of the survey sites in Lüderitz. Centre of Archaeology at Staffordshire University and FA/Forensis, 2024.

¹³ Colls, Kevin and Mitchell, William (2024). A non-invasive forensic investigation of the slave cemeteries sites in Lüderitz and Swakopmund, Namibia. Centre of Archaeology at Staffordshire University.

8.1.1. Site 1

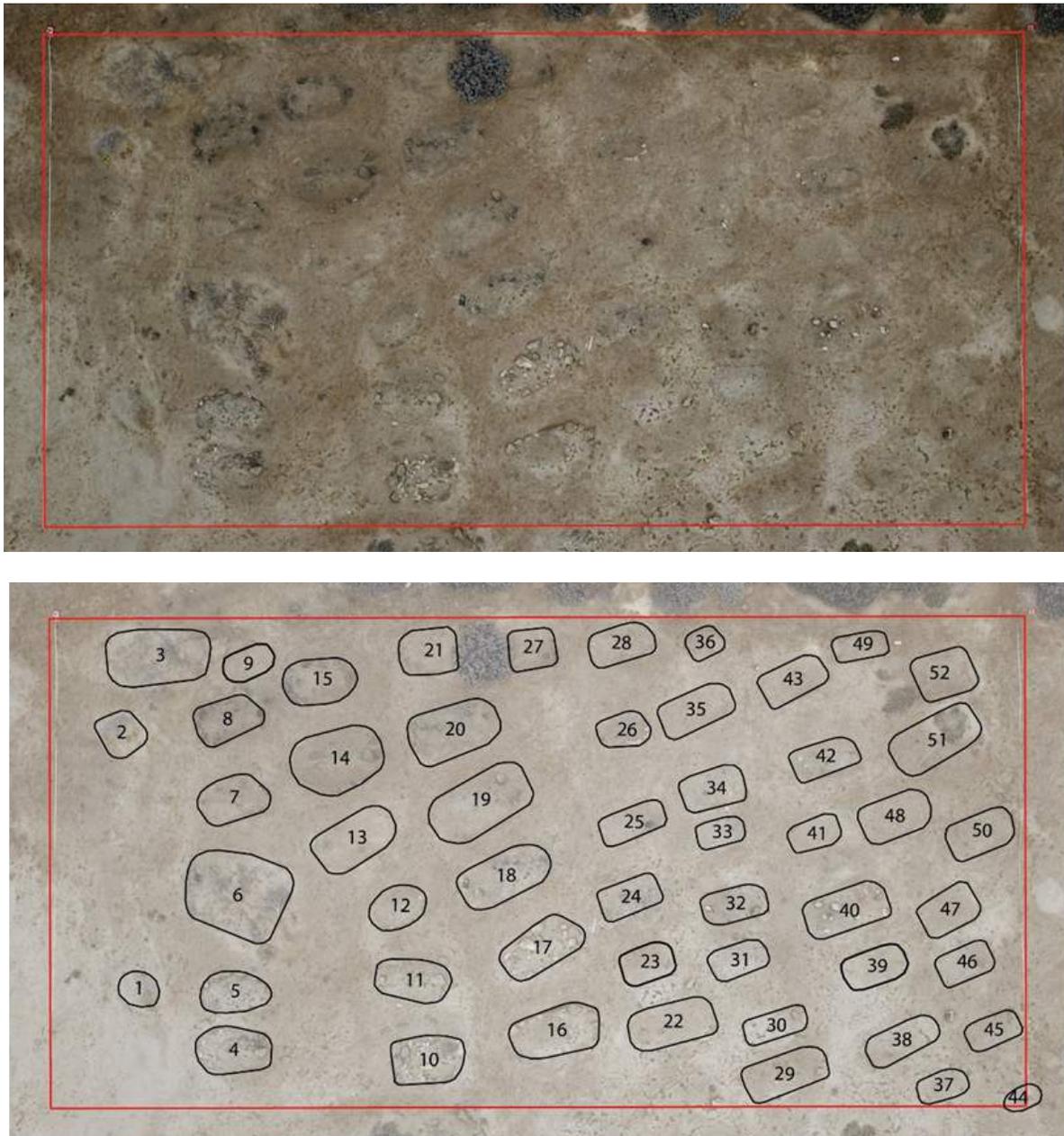


Figure 51. The detailed aerial image of the survey grid (top) shows the visible sand mounds and the feature numbers assigned to each (bottom). Centre of Archaeology at Staffordshire University and FA/Forensis, 2024.

The survey area for site 1 measures 30m by 15m, characterised by an uneven terrain of dry sand with sporadic vegetation. Within this area, 52 distinct sand mounds were observed. The survey successfully identified significant buried features, providing insights into both visible and concealed remnants at this site. Due to the abundance of visible mounds, only a representative section of this site will be elaborated upon here, encapsulating the results of the GPR survey.

The green line below indicates a section cut through the survey area at 6.5m, and it runs through seven visible sand mounds. Subterranean disturbances are detected at these locations, ranging from depths of 0.10m to 0.90m, followed by a change in geophysical response at 1m depth. Analysis suggests a high likelihood that the features along this profile represent individual graves, with feature 6 (blue box) potentially indicative of a mass grave due to its larger size. Strong signals around 1m depth may signify coffins, partially decomposed human remains, buried artefacts, or burial wrappings.

These features demonstrate a clear correlation between subterranean data and visible sand mounds on the surface.

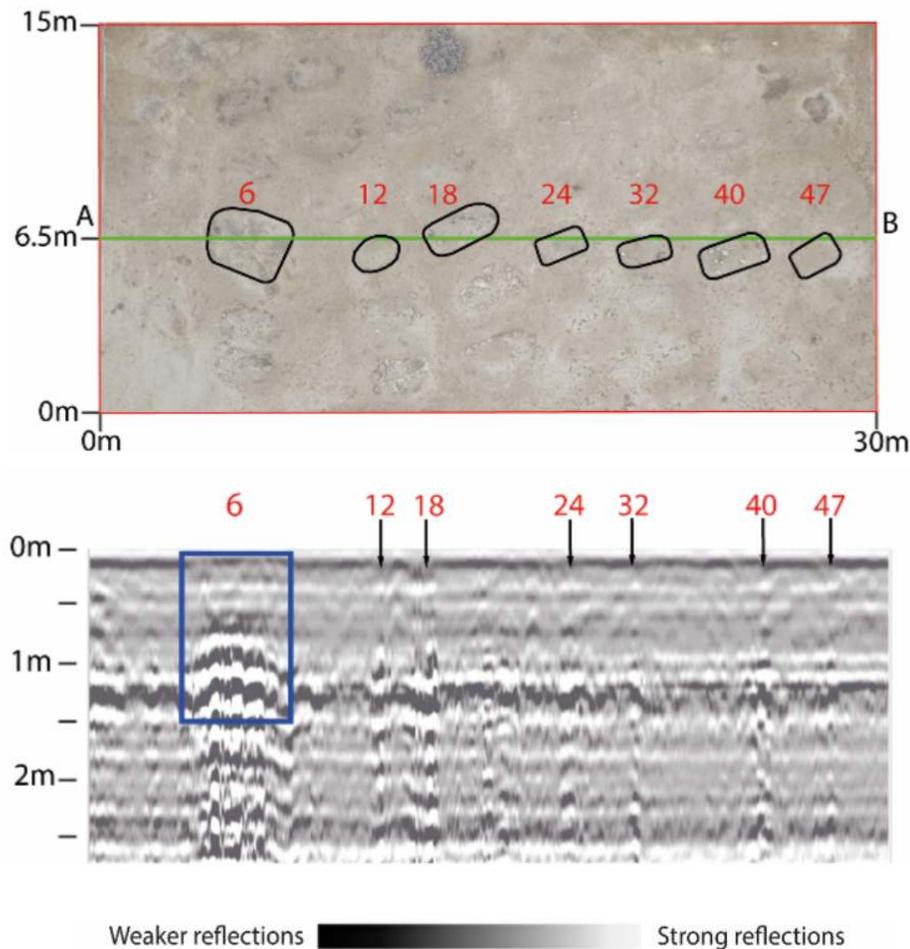


Figure 52. GPR data for features 6, 12, 18, 24, 32, 40, 47. Centre of Archaeology at Staffordshire University and FA/Forensis, 2024.

The green line below indicates a section cut through the survey area at 12.5m, and it runs through three visible sand mounds. The data suggest the presence of graves even in areas devoid of visible mounds above ground, such as feature "53" in the provided image.

Moreover what is important for feature "15" (yellow box) and "52" (blue box), is that although both of them each have one visible sand mound, the data from this section line shows two

anomalies present in each of these locations, suggesting the presence of two graves beneath each sand mound.

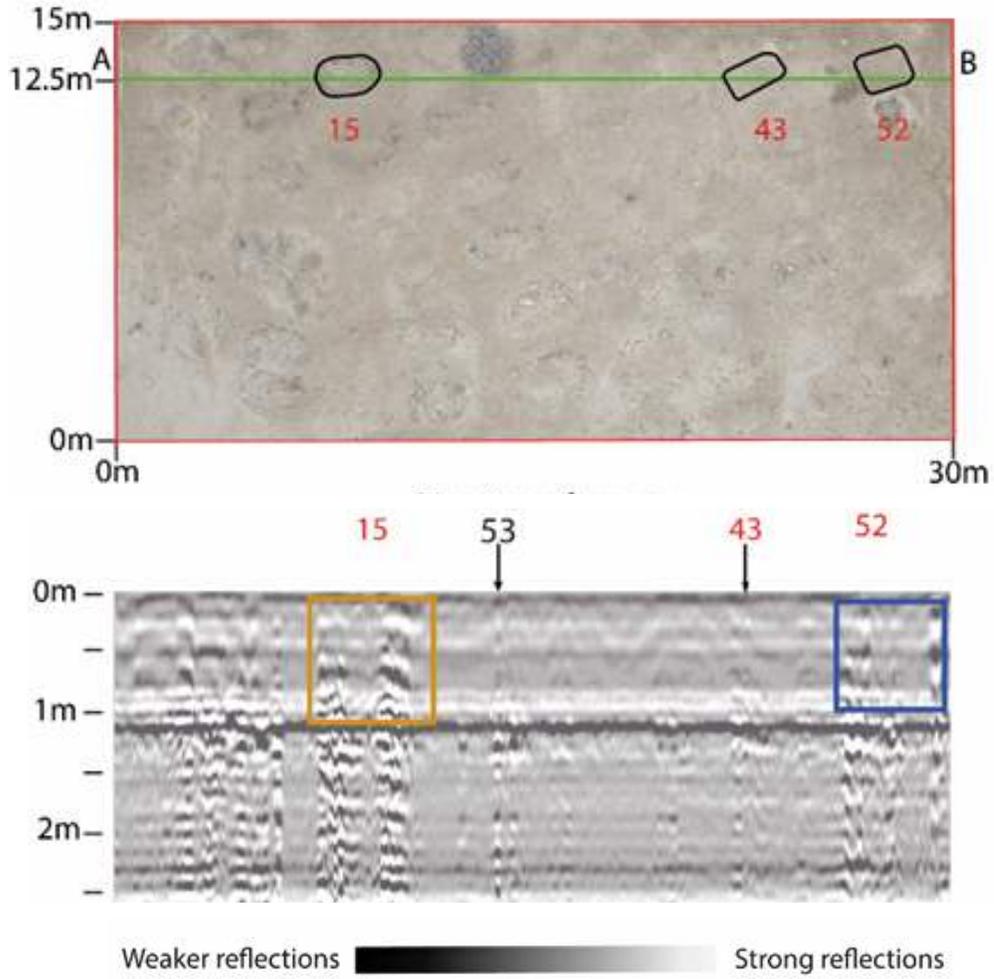


Figure 53. GPR data for features 15, 43, 52, 53. Centre of Archaeology and FA/Forensis, 2024.

8.1.2. Site 2

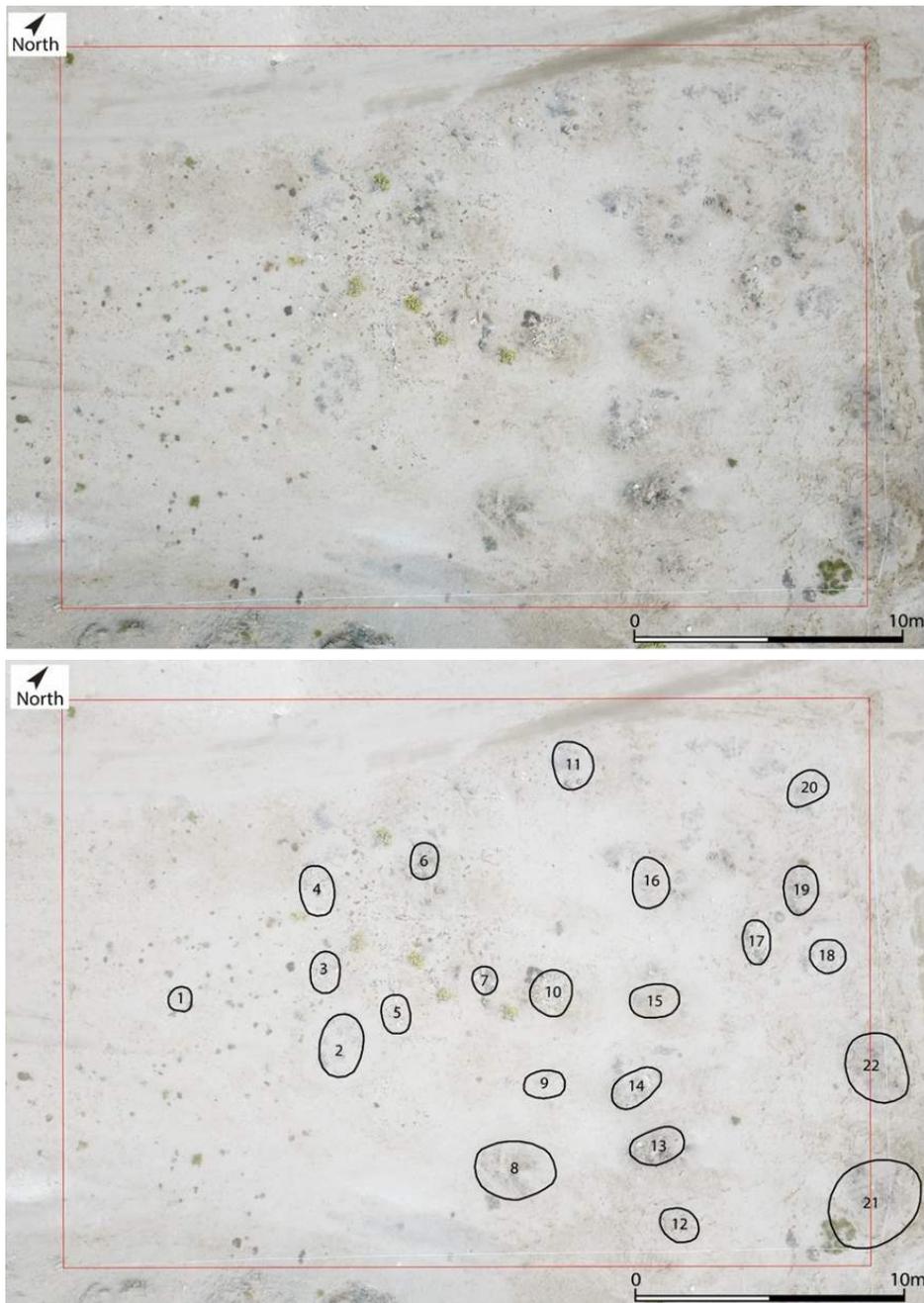


Figure 54. The detailed aerial image of the survey grid showing the visible sand mounds (left) and the feature numbers assigned to each (right). Centre of Archaeology and FA/Forensis, 2024.

The survey area for site 2 measures 30m by 19.5m, with a similar topography of dry sand sloping from southwest to northeast. As depicted in the provided image, we identified 22 visible sand mounds in this survey area. The survey successfully identified significant buried features, providing insights into both visible and concealed remnants at this site. Due to the abundance of visible mounds, only a representative section of this site will be elaborated upon here, encapsulating the results of the GPR survey.

The green line in Figure 42 indicates a section cut through the survey area at 10m, and it runs through three visible sand mounds. In this case all three features indicate anomalies below ground. The data beneath feature 3 and 18 are similar to what was observed in the previous survey area indicating a high possibility that these are graves. However, although a pit-like anomaly is observed in the vicinity of feature 7, further investigations need to take place in order to confirm it being a grave. This anomaly could be the result of natural geology or a pit or grave-like feature that is backfilled with stones rather than sand.

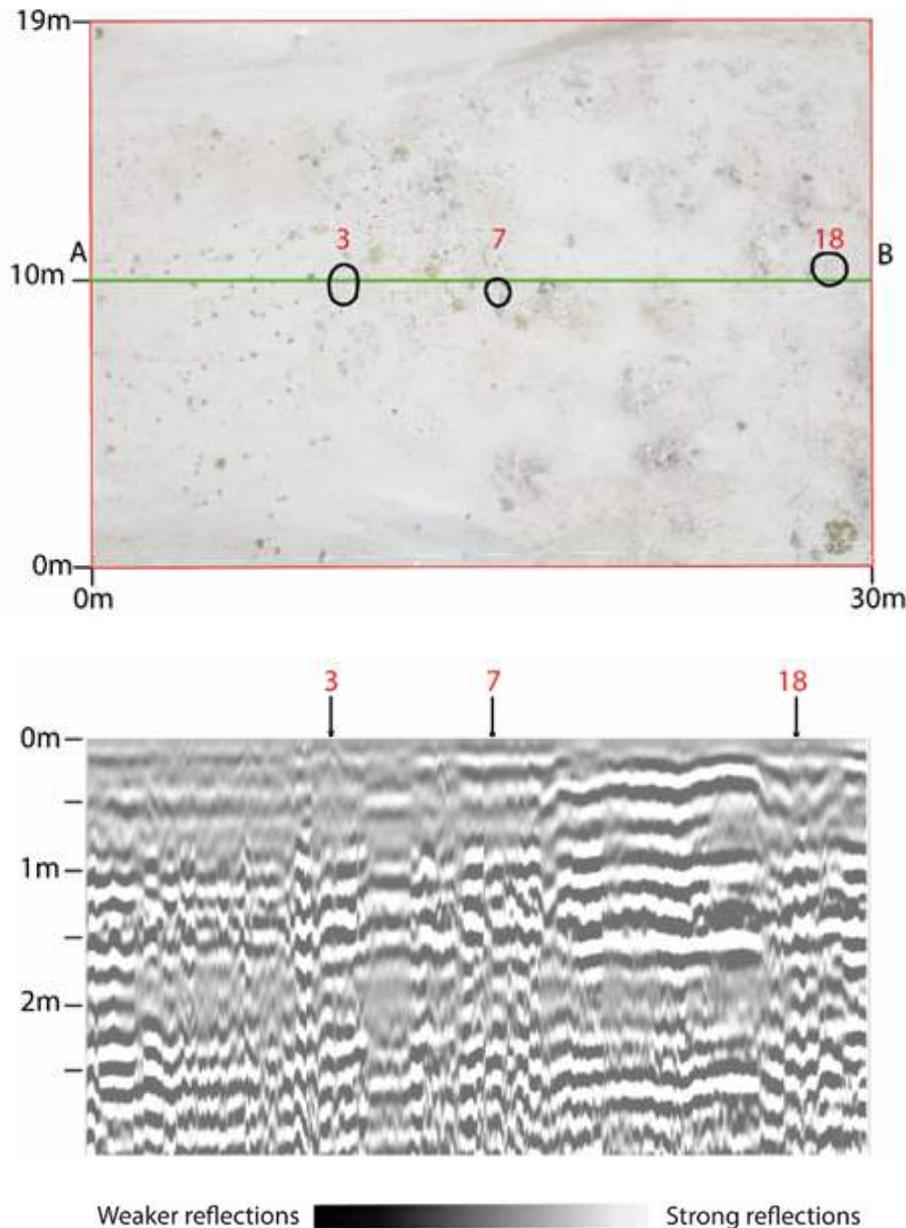


Figure 55. GPR data for features 3, 7, 18. Centre of Archaeology and FA/Forensis, 2024.

The green line in Figure 43, indicates a section cut through the survey area at 3m, and it runs through three visible sand mounds. The GPR data in this section demonstrates that not all visible sand mounds are graves. The interpretation of data presented below indicates that feature 13 may be formed from wind blown sand covering a natural geological outcrop. The visible rocks on the surface of this mound also appear to be bigger and different in form than the ones in other locations at both sites.

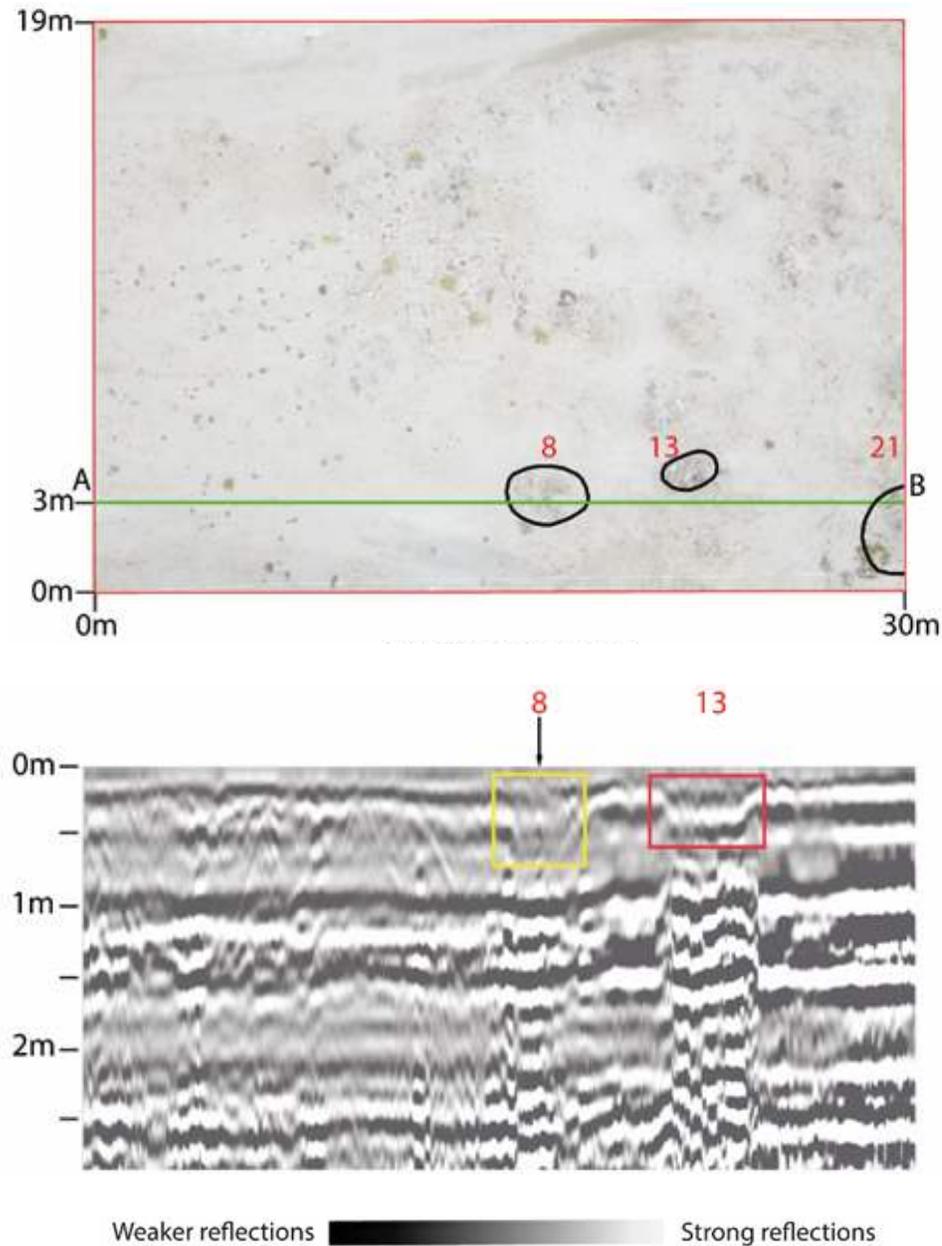


Figure 56. GPR data for features 8, 13, 21. Centre of Archaeology and FA/Forensis, 2024.

8.2. Findings

Our analysis has revealed the following findings:

- I. In two identified sites our analysis of all available data proves with high likelihood the presence of graves.
- II. Based on archival imagery analysis and in-depth interviews and testimony collection with descendants of survivors from Shark Island as well as oral historians, the identified graves have a high probability of containing human remains of Nama and Herero inmates killed in the Shark Island concentration camp.
- III. Ground-penetrating radar (GPR) analysis of the identified sites indicate both individual and mass graves.
- IV. In survey area 1, the GPR data confirms the likelihood that all 52 recorded mounds relate to anomalies beneath the ground and that these can be interpreted as graves. Of these, three are larger than the others that are likely to be mass graves (features 6, 19 and maybe 3). The analysis also suggests that at least 5 other graves are present but without visible mounds on the surface. Therefore the total number of identified graves in this area would be 58 graves, with three showing indications of being larger than the rest.
- V. In survey area 2, the GPR data confirms the likelihood that at least 4 recorded mounds relate to anomalies beneath the ground and that these can be interpreted as graves. However the data suggest that up to 6 more graves might be present in this area.

9. Recommendations

9.1. Shark Island

Our findings show that the extensive terraforming and the geological alteration that Shark Island has undergone substantially compromised it as a place of historical significance. The tourist camp's infrastructure, such as roads or sanitary facilities, are situated directly on top of the former concentration camp, thus, of an area of archaeological, historical, religious and emotional significance.

We recommend preserving the entire island and the waters surrounding it, including the geology with its traces of forced labour. Further research in the form of archeological surveys is needed to better understand the living and working conditions in the concentration camp. Lastly, the site needs to be dedicated to remembrance, honoring the victims and survivors of the genocide and the resistance fighters that battled the oppression by the German Imperial power.

9.2. The port and the seabed surrounding Shark Island

The proposed extension of Lüderitz port in Robert Harbour poses an imminent risk of further desecrating the heritage site directly and indirectly, as well as disturbing maritime burial places within the jurisdiction of Namport and adjacent waters. Noise from the port will permanently affect the experience of being in this site, preventing solemn contemplation. The view from the city to the former camp and vice versa, situating the atrocities committed here within its local context, will be disrupted if new buildings are constructed on the eastern side of the island.

Written and oral testimonies speak to the presence of human remains in the waters around Shark Island extending beyond the low water mark. Many inmates who were killed or died in the camp were never buried, but thrown into the waters now within Namport's jurisdiction. The terraforming, quay wall construction and land reclamation, including the dredging of material from the seabed close to Shark Island, entailed by the present plans for a port expansion form a serious risk of disturbing human remains and burial places. These sites are protected under Namibia's Burial Place Ordinance 27 of 1966.¹⁴

To ensure the holistic preservation of Shark Island as a Heritage Site in the true meaning of the term, Forensis and FA recommend an immediate and permanent moratorium on all construction on top of or in direct vicinity of Shark Island. Moreover, we recommend a holistic, non-invasive archaeological study of the seabed surrounding the island, which constitutes a burial place for many victims of the genocide.

9.3. Burial Sites

The GPR survey of the two sites discussed in the previous sections strongly suggests the presence of graves in both locations. This clearly indicates the urgency to seal off and preserve these areas and their immediate surroundings, while further forensic and archeological investigations are being conducted. Currently most of these protected grave sites are in poor condition and subject to erosion if immediate conservation measures are not undertaken.

In line with the archaeological assessment by the Centre of Archaeology at Staffordshire University, Forensis and FA recommend the full archeological study of the sites, expanding the size and scope of the analysis already carried out. This expansion both includes the increase in size of the GPR-survey area (as the sites analysed only represent a small sample of the overall area that likely contains graves) and scope, including community-led excavations confirming the presence of buried human remains and providing further insight into the circumstances surrounding their death.

¹⁴ Burial Place Ordinance, OG 2728, Republic of Namibia (1966).
<https://www.lac.org.na/laws/annoSTAT/Burial%20Place%20Ordinance%2027%20of%201966.pdf>

About Forensic Architecture and Forensis

Forensic Architecture (FA) is a research agency, based at Goldsmiths, University of London. FA's Berlin-based sister agency Forensis e.V. was founded to expand upon this work¹⁵. The teams include architects, scientists, academics, journalists, technology experts and other specialised professionals and experts. Forensic Architecture undertakes advanced architectural and media research on behalf of international prosecutors, human rights organisations, as well as political and environmental justice groups. Since 2011, FA have published more than ninety investigations worldwide including in Pakistan, Indonesia, Myanmar, Guatemala, Mexico, Chile, Brazil, the US, UK, Germany, Turkey, Ukraine and Greece.

Our investigations employ pioneering techniques in spatial and architectural analysis, open-source investigation, digital modelling, and immersive technologies, as well as documentary research, situated interviews, and academic collaboration. Findings from our investigations have been presented in national and international courtrooms, parliamentary inquiries, and exhibitions at some of the world's leading cultural institutions and in international media, as well as in citizen's tribunals and community assemblies.

FA's case files have been submitted as evidence in national legal processes across the world, including in Israeli courts. The agency's findings have also been submitted or presented in international jurisdictions including the European Court of Human Rights and the UN General Assembly, and in national courtrooms, parliamentary inquiries, and truth commissions around the world.

Forensic Architecture has been recognised for its work in the field of journalism with a Peabody Award for Digital and Interactive Storytelling (2021), the European Cultural Foundation (ECF) Princess Margriet Award for Culture (2018), the Designboom Design Prize for Social Impact (2019), and a Peabody-Facebook Futures of Media Award for Interactive Storytelling (2017). FA director Eyal Weizman is a life fellow of the British Academy and recipient of an MBE for 'services to architecture'. He is a member of the Technology Advisory Board of the International Criminal Court in The Hague and is on the board of the Centre for Investigative Journalism.

Forensis is the co-recipient of the "Daphne Caruana Galizia Prize for Journalism 2023" for the investigation on the Pylos Shipwreck.

More information on our casework available at: www.forensic-architecture.org & <https://counter-investigations.org>

¹⁵ References to 'FA' throughout this document should be understood to refer jointly to the activities, and findings, of FA and Forensis together.