

**ARCHAEOLOGICAL IMPACT ASSESSMENT
THE PROPOSED GAS TO POWER POWERSHIP PROJECT AT THE
PORT OF NGQURA WITHIN THE COEGA SEZ, NELSON MANDELA
BAY METROPOLITAN MUNICIPALITY, EASTERN CAPE PROVINCE**

Assessment conducted under Section 38 (3) of the National Heritage Resources Act (No. 25 of 1999)

CASE ID: 15783

Prepared for:

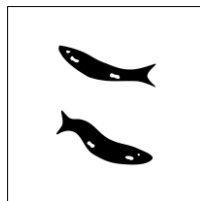
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Executive summary

1. Introduction

ACRM was requested by Triplo4 Sustainable Solutions (Pty) Ltd to conduct an Archaeological Impact Assessment (or AIA) for the proposed Karpower Gas to Power Powership Project at the Port of Ngqura within the Coega Special Economic Zone (SEZ) near Gqeberha/Port Elizabeth (Nelson Mandela Bay Municipality), in the Eastern Cape Province.

2. The development proposal

The proposed Karpowership Project entails the generation of electricity from two floating Powerships moored in the Port of Ngqura, fed with natural gas from a third ship, a Floating Storage & Regasification Unit (FSRU). A Liquefied Natural Gas Carrier (LNGC) will bring in liquified natural gas (LNG) and offload it to the FSRU approximately once every 20 to 30 days, dependent on power demand which is determined by the buyer, ESKOM. From the ship, electricity will be evacuated via a 132kV overhead transmission line over a distance of approximately 7.4kms to the Eskom Dedisa substation.

Proposed infrastructure associated with the project includes a Site Office Complex (3000m²), and Stringing Yard (19950m²), to be developed on reclaimed and already disturbed land within the National Port Area.

A Palaeontological Impact Assessment (PIA) desktop study has been conducted by palaeontologist Dr Alan Smith, while contract marine archaeologist Vanessa Maitland has conducted an underwater desktop survey.

The specialist studies form part of a wider Heritage Impact Assessment (HIA) for the proposed Gas to Power Powership Project.

Triplo4 Sustainable Solutions (Pty) Ltd is the independent Environmental Assessment Practitioner (EAP) responsible for facilitating environmental authorization for the proposed project.

3. Aim of the study

The overall purpose of the study is to determine the potential impact of the proposed project on pre-colonial Stone Age archaeological resources, and to avoid and/or minimise such impacts by means of mitigation measures.

The significance of archaeological resources was assessed in terms of their content and context. Attributes considered in determining significance include artefact and/or ecofact types, rarity of finds, exceptional items, organic preservation, potential for future research, density of finds and the context in which archaeological traces occur.

The AIA has been prepared taking cognisance of the underwater heritage and palaeontology reports. This report provides information on the heritage aspects and impacts, for consideration by the relevant specialists, such as the socio-economic and sustainability specialist, as well as the EAP, to ensure an integrated approach and holistic assessment of the project's Environmental Impact Assessment (EIA) report.

4. Constraints and limitations

Almost the entire study area is covered in extremely dense vegetation, resulting in low archaeological visibility, and constrained mobility.

5. Results of the study

A walk-down survey of the preferred 132kV, 7.4km long overhead powerline was conducted on the 12th and 13th October 2022.

The route for the proposed new powerline is located within the already approved Coega Development Corporation (CDC) Corridor.

The following observations were made:

- The archaeological landscape is dominated by tools assigned to the Middle Stone Age. These included small numbers of isolated weathered, quartzite flakes, several broken and snapped flakes, and chunks. No formal tools such as points, backed pieces or scrapers were found.
- Low-density scatters of tools including flakes, chunks, flaked chunks, round cores, and a few miscellaneous retouched pieces were recorded on an elevated ridge south of the N2, in Zone 7 of the Coega IDZ.
- No evidence of any human settlement or occupation was recorded and indications are that most of the tools comprise discarded flakes and flake debris.
- No Early Stone or Later Stone Age resources were recorded.
- No archaeological resources were recorded on the high back dunes aligned alongside the sandy shoreline in Zone 10 and Zone 8, where dunes are covered in extremely dense Acacia thicket vegetation
- The field observations confirm findings conducted during the course of numerous AIAs within the Coega Industrial Development Zone (IDZ).
- Fragmented and weathered, marine fossil shell was noted in previously disturbed land and on a large berm alongside the National Port Authority Road near the Port of Ngqura.

6. Grading of archaeological resources

The small numbers and isolated context in which they were found means that the archaeological remains recorded during the study have been graded as having Low (Grade IVC) local significance.

7. Built environment

Several radar stations were built during the Second World War (1939-1945) to combat the problem of ships being torpedoed along the coastline. The radar stations were built in 1942, guarded by the Native Military Corps – Black soldiers who were seconded to the Special Signal Services (SSS), a branch of the SA Corps of Signals which operated RADAR defences.

- Radar Station Coega 203 has its Technical Hut on a high, heavily vegetated sand dune (Zone 10) looking out to St Croix Island. The 'Tech Hut' comprising the remains of a two-roomed plastered brick building with galvanised blackout hoods and a rainwater tank, is located about 40m south of the proposed powerline servitude and will not be impacted by proposed construction activities. The affected building is older than 60 years and protected in terms of the National Heritage Resources Act (NHRA) but is not a declared heritage site.

➤ The site of the SSS Barracks (or Sonop House) is located in a sheltered position behind the dunes, in Zone 10. The collection of timber buildings with corrugated iron roofs and a water tank have all disappeared and only the flat roofed plastered brick building housing the engine room and a storeroom remain in a derelict form. The building is located \pm 40m north west of the proposed powerline servitude and will not be impacted by proposed construction activities. The structure is also protected by the 60 year old clause in terms of the NHRA but is not a declared heritage site.

8. Anticipated impacts

Clearing of vegetation in the powerline corridor, and excavations for powerline footings will likely impact on Middle Stone Age, and possibly Early Stone Age (ESA) resources.

Later Stone Age (LSA) shell middens may be exposed by clearing of vegetation on the sand dunes in Zone 10. According to the archaeologist, Dr Johan Binneman, Zone 7 and Zone 10 are considered 'the most sensitive' zones within the entire Coega IDZ.

Unmarked Khoisan remains may be intercepted or exposed during excavations for powerline footings in Zone 10. Pre-colonial burials can occur wherever soft sands suitable for burials occur.

9. Conclusion

Overall, the results of the study indicate that the proposed Gas to Power Powership Project at the Port of Ngqura does not pose a significant threat to local archaeological heritage resources.

From an archaeological perspective there are no fatal flaws and provided that the recommendations made by the archaeologist are implemented, there are no objections to the authorisation of the proposed activities.

10. Recommendations

1. No mitigation is required prior to proposed construction activities commencing.
2. Vegetation clearing in the powerline servitude must be monitored by a professional archaeologist.
3. Excavations for powerline footings must be monitored by a professional archaeologist.
4. The Radar Station (Technical hut), and possibly the Sonop building, need to be saved as they form part of a series of related lookouts dating from World War II.
5. If any unmarked human remains are exposed during excavations, work must immediately stop, and an archaeologist appointed to inspect the remains. Human remains must not be disturbed until inspected by the archaeologist. Human remains will have to be removed under a permit issued by the South African Heritage Resources Agency, or the Eastern Cape Provincial Heritage Authority (ECPHRA).

The above recommendations must be included in the Environmental Management Plan (EMP) for the proposed project.

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1. INTRODUCTION

ACRM was requested by Triplo4 Sustainable Solutions (Pty) Ltd to conduct an Archaeological Impact Assessment (AIA) for the proposed Karpower Gas to Power Powership Project at the Port of Ngqura near Gqeberha (Nelson Mandela Bay Municipality) in the Eastern Cape (Figures 1 & 2).

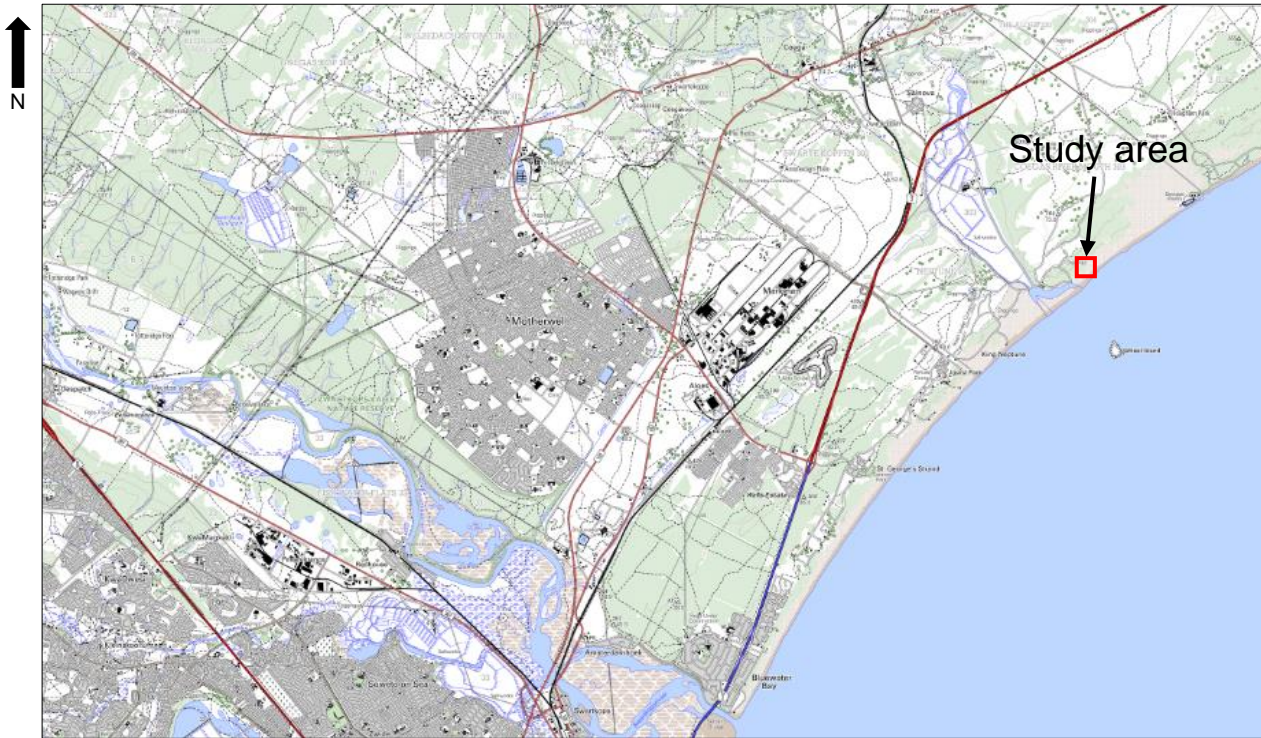


Figure 1. Locality map (3325 DC & DD & 3425 BA Port Elizabeth). Red polygon indicates the study area

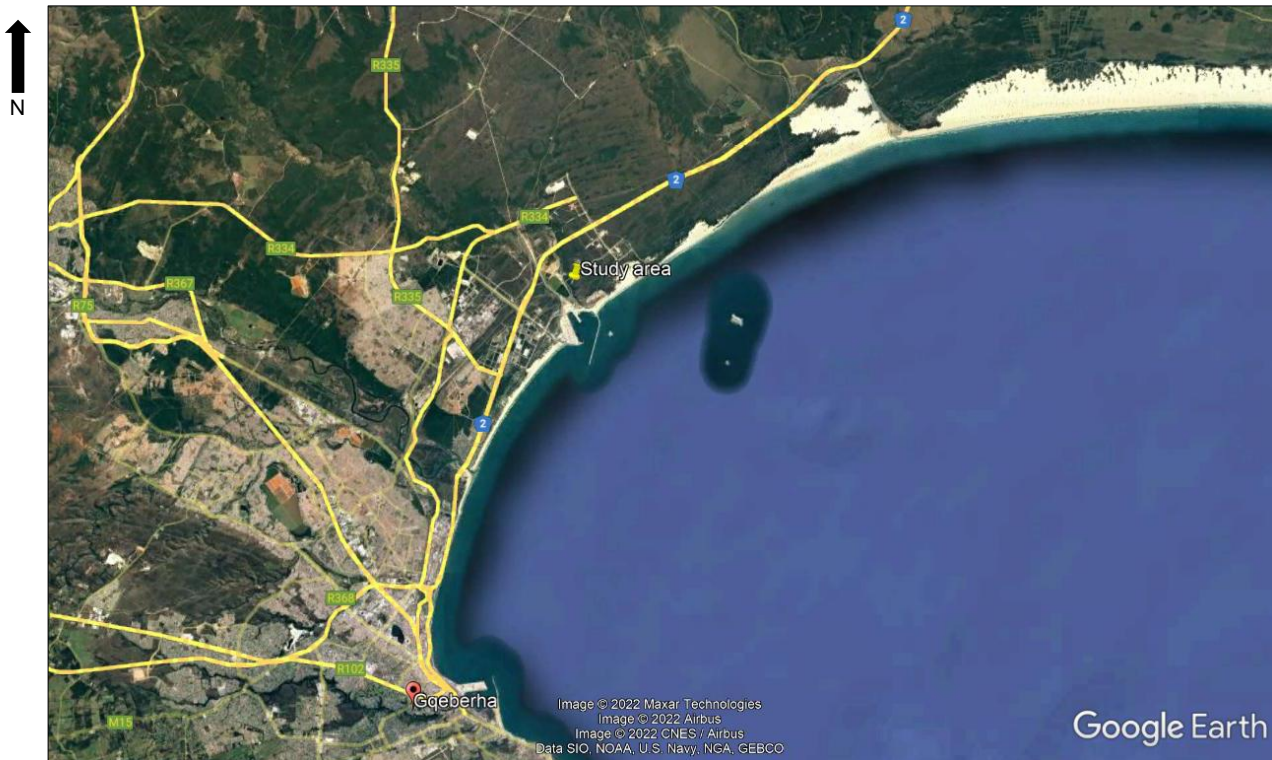


Figure 2. Google Earth map indicating the study area (yellow pin) for the proposed Karpower SA Gas to Power Powership Project at the Port of Ngqura, near Gqeberha in the Eastern Cape Province

2. THE DEVELOPMENT PROPOSAL

The proposed Karpowership Project entails the generation of electricity from two floating Powerships moored in the Port of Ngqura within the Coega Special Economic Zone (SEZ), near Gqeberha in the Eastern Cape Province (Figure 3). The Powerships will be fed with natural gas from a third ship, a Floating Storage & Regasification Unit (FSRU). A Liquefied Natural Gas Carrier (LNGC) will bring in liquified natural gas (LNG) and offload it to the FSRU approximately once every 20 to 30 days, dependent on power demand which is determined by the buyer, ESKOM.

Associated infrastructure includes a Site Office Complex (3000m²) and Stringing Yard (19950m²), to be developed on reclaimed land and already disturbed land within the port area.

From the Powership, electricity will be evacuated via a 132kV transmission line over approximately 7.4kms to the Eskom Dedisa substation north of the N2 (Figure 4). The preferred powerline route is located within the already approved Coega Development Corporation (CDC) Corridor.

A Palaeontological Impact Assessment (PIA) desktop study has been conducted by consulting palaeontologist Dr Alan Smith (Smith 2022), while contract marine archaeologist Vanessa Maitland has conducted a desktop underwater study (Maitland 2022).

The specialist studies form part of the wider Heritage Impact Assessment (HIA) for the proposed Karpowership Project.

Triplo4 Sustainable Solutions (Pty) Ltd is the independent Environmental Assessment Practitioner responsible for facilitating environmental authorization for the proposed project.

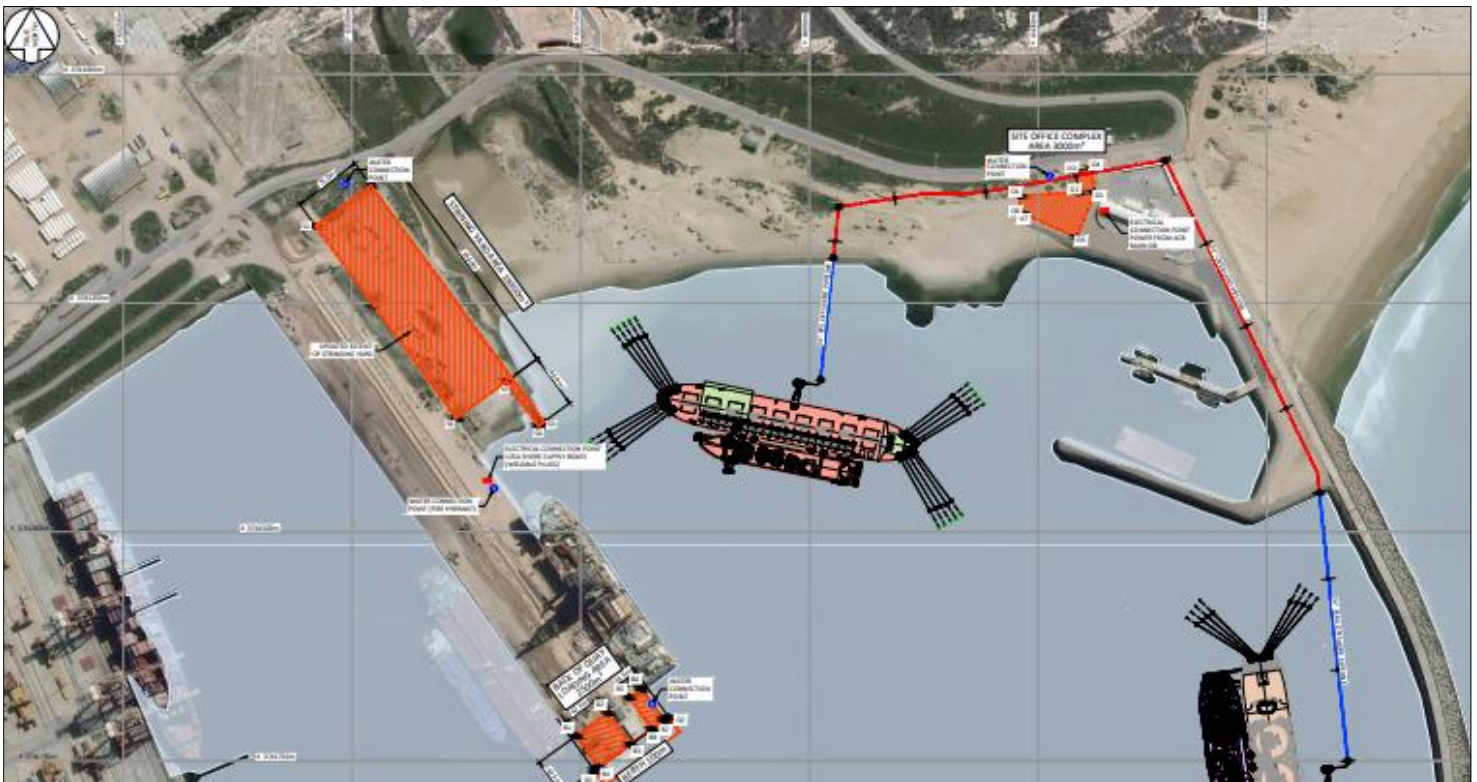


Figure 3. Layout of the proposed Karpower Gas to Powership Project at the Port of Ngqura.

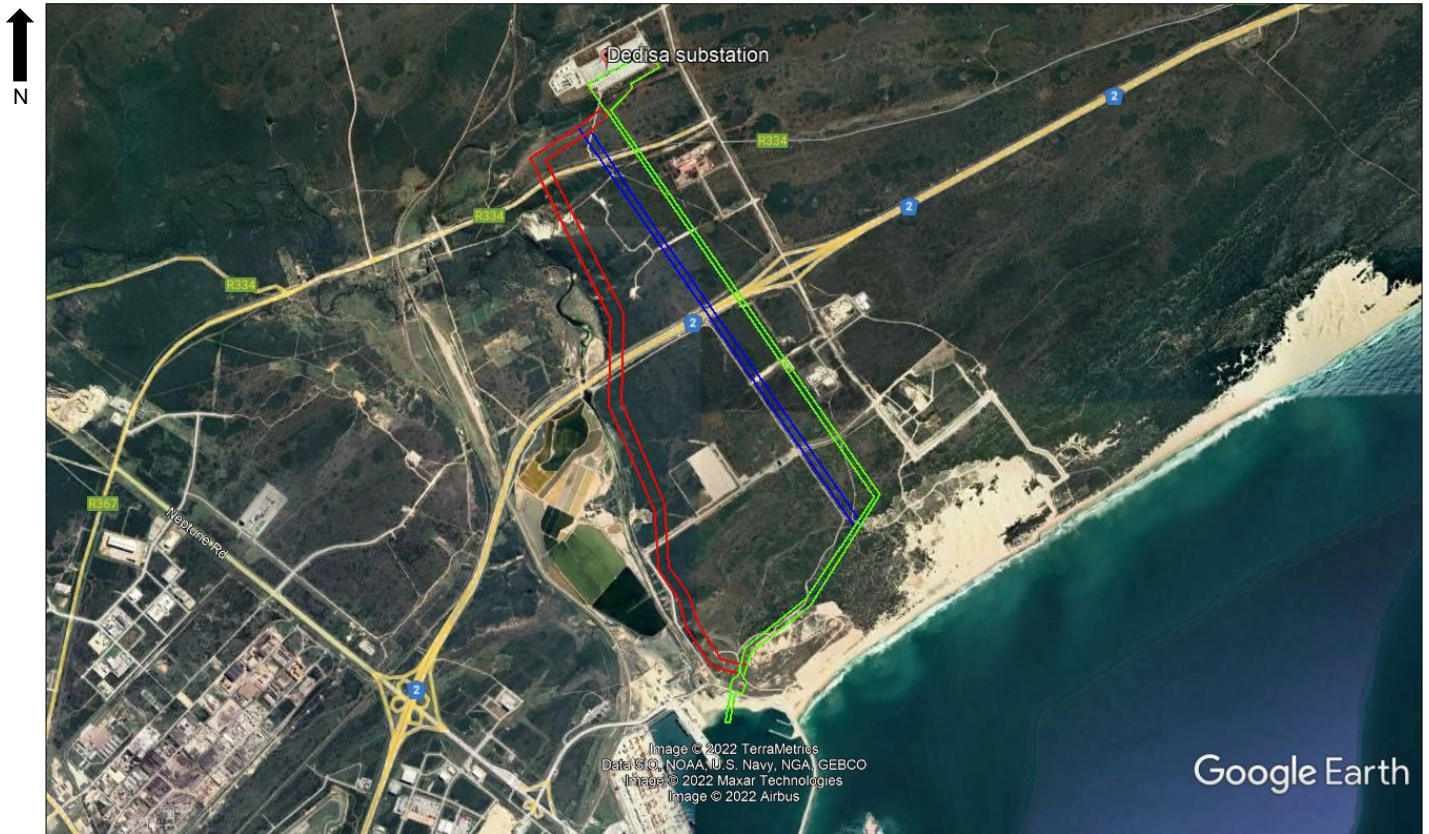


Figure 4. Google Earth satellite map illustrating the proposed and proposed alternative 132kV overhead transmission lines, from the proposed Karpowership Construction Facility to the Eskom Dedisa substation north of the N2 within the Coega SEZ. The blue line is the Preferred Alternative Transmission Line within the already approved Coega CDC. The green line is the proposed Alternative Eastern Route (refer to Kaplan 2020) & the red line is the proposed Alternative Western Route, which has been screened out of the project.

3. APPLICABLE HERITAGE LEGISLATION

The National Heritage Resources Act (Act No. 25 of 1999) makes provision for a compulsory HIA when an area exceeding 5000m² is being developed. This is to determine if the area contains heritage sites and to take the necessary steps to ensure that they are not damaged or destroyed during development. The Act provides protection for the following categories of heritage resources:

- Landscapes, cultural or natural (Section 3 (3))
- Buildings or structures older than 60 years (Section 34);
- Archaeological sites, palaeontological material and meteorites (Section 35);
- Burial grounds and graves (Section 36);
- Public monuments and memorials (Section 37);
- Living heritage (including cultural tradition, oral history, performance, ritual, popular memory, skills and techniques, Indigenous knowledge systems and the holistic, approach to nature, society and social relationships) (Section 2 (d) (xxi)).

Section 38 (1) (a) of the Act stipulates that any person constructing a powerline, pipeline or road, or similar linear development or barrier exceeding 300m in length is required to notify the responsible heritage resources authority, who will in turn advise whether an impact assessment report is needed before development can take place.

4. TERMS OF REFERENCE

The terms of reference for the study are to:

- Determine whether there are likely to be any important Stone Age archaeological resources that may be impacted by the proposed development activities.
- Indicate any constraints that would need to be considered in considering the development proposal.
- Recommend mitigation and management action

5. ENVIRONMENTAL CONTEXT

Heavy industry, including the Eskom Dedisa substation, overhead powerlines, wind tower turbines, roads (N2 & R334), factories and new infrastructure development (associated with the Port of Ngqura), characterise the surrounding, and increasing industrial landscape.

The preferred route for the 132kV transmission line, from the Port of Ngqura, to the Eskom Dedisa Substation crosses multiple zones within the Coega SEZ, including Zones 8, 10, 7, 6, 11 and 14 (Figure 5).

Zones 7 and 10 are considered the most archaeologically sensitive zones in the Coega IDZ (Binneman 2010).

The National Port Authority administers Zone 8.



Figure 5. The preferred 132kV powerline route (dark blue line), crosses Zone 14, Zone 6, Zone 11 Zone 7, Zone 8 & Zone 10 in the Coega IDZ.

The receiving environment (Zone 6, Zone 11 & Zone 14) is covered in very dense vegetation (Figures 6-15), while the backdune area (Zone 7) and dunes adjacent the shoreline (Zone 10 & Zone 8), is covered in grasses and extremely dense invasive Acacia thicket (Figures 16-21). A short section of the proposed powerline route is located alongside the National Port Authority Road (Figures 22 & 23).



Figure 6. Zone 7. View of the preferred powerline servitude facing north.



Figure 7. Zone 7. View of the preferred powerline servitude facing north.



Figure 8. Zone 7. View of the preferred powerline servitude facing north.



Figure 9. Zone 7. View of the preferred powerline servitude facing north.



Figure 10. Zone 7. View of the preferred powerline servitude facing north.



Figure 11. Zone 6. View of the preferred powerline servitude facing north.



Figure 12. Zone 6. View of the preferred powerline servitude facing north.



Figure 13. Zone 11. View of the preferred powerline servitude facing north.



Figure 14. Zone 11. View of the preferred powerline servitude facing north.



Figure 15. Zone 14 View of the preferred powerline servitude facing north. The Eskom Dedisa substation is in the background of the plate



Figure 16. Zone 10. View of the preferred powerline servitude facing north.



Figure 17. Zone 10. View of the preferred powerline servitude facing south to the Port of Ngqura



Figure 18. Zone 10 View of the preferred powerline servitude facing south to the Port of Ngqura



Figure 19. Zone 8. View of the preferred powerline servitude facing south.



Figure 20. Zone 8. View of the preferred powerline servitude facing south to the Port of Ngqura. Fragmented and weathered marine fossil shell covers the large berm alongside the National Port Authority Road

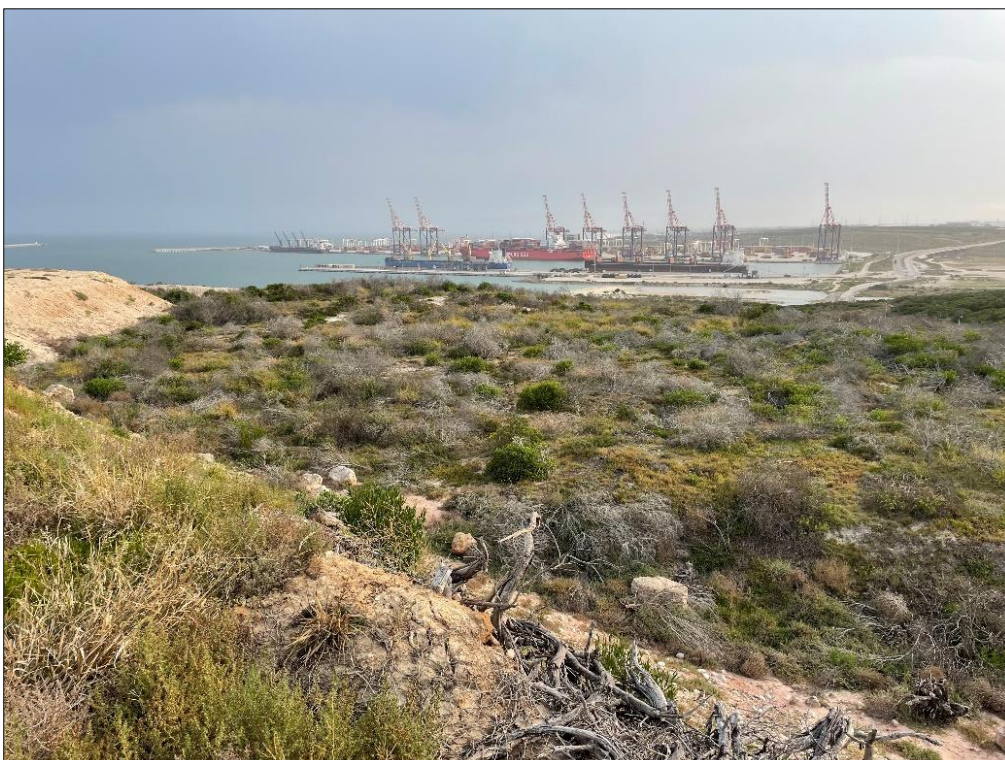


Figure 21. Zone 8. View facing south with the Port of Ngqura in the background



Figure 22. Zone 8. A short section of the transmission line will be aligned alongside the National Port Authority Road. Note the large berm alongside the road



Figure 23. Zone 8. The transmission line will cross previously disturbed land alongside the National Port Authority Road

6. STUDY APPROACH

6.1 Aim of the study

The overall purpose of the AIA is to assess the sensitivity of Stone Age archaeological heritage resources in the proposed 132kV overhead transmission line, to determine the potential impacts on such resources, and to avoid and/or minimize such impacts by means of mitigation measures.

The AIA has been prepared taking cognisance of the underwater heritage and palaeontology reports. This report provides information on the heritage aspects and impacts, for consideration by the relevant Specialists, such as the socio-economic and sustainability specialists as well as the EAP to ensure an integrated approach and holistic assessment of the project's Environmental Impact Assessment Report.

6.2 Method of survey

A walk down survey of the proposed (preferred new) 7.4km long powerline was conducted on the 12th and 13th October 2022.

Archaeological resources recorded during the study were mapped using a handheld GPS unit set on the map datum WGS84.

The significance of archaeological resources was assessed in terms of their content and context. Attributes considered in determining significance include artefact and/or ecofact types, rarity of finds, exceptional items, organic preservation, potential for future research, density of finds and the context in which archaeological traces occur.

A literature survey was also carried, out to assess the archaeological context surrounding the project area. The survey included mostly unpublished commercial CRM reports sourced from SAHRIS.

6.3 Constraints and limitations

The study area is covered in extremely dense vegetation, resulting in low archaeological visibility. Mobility was also severely constrained due to thick vegetation cover.

6.4 Identification of potential risks

Clearing of vegetation in the powerline corridor, and excavations for powerline footings will likely impact on Middle Stone Age (MSA) and possibly Early Stone Age (ESA) resources, but overall, the archaeological risk sources are rated as being LOW.

Later Stone Age (LSA) shell middens may be exposed by clearing of vegetation on the high frontal dunes at the coast, in Zone 10. According to the archaeologist, Dr Johan Binneman (2010) Zone 7 and Zone 10 are considered 'the most sensitive' zones within the entire Coega IDZ.

Unmarked Khoisan remains may be intercepted or exposed during excavations for powerline footings on the dune cordon in Zone 10 and Zone 8. Burials can occur wherever soft sands suitable for burials occur.

7. ARCHAEOLOGICAL CONTEXT

More than 17 AIAs and several Requests for Exemption from further AIAs have been conducted within the Coega IDZ (Binneman 2010a, b, c, 2008, 1999, 1994; Binneman & Webley 1996, 1997a, b; Kaplan 2008, 2007a, b; Van Schalkwyk & Wahl 2006, Webley 2007a, b). The majority of these unpublished CRM reports were found on the South Africa Heritage Resources Information System (or SAHRIS). One or two reports were sourced independently. The archaeologist also consulted with Ms. Celeste Booth, archaeologist, and Head of Department at the Albany Museum in Makhanda/Grahamstown.

The most comprehensive survey in the Coega IDZ was conducted by the Dr Johan Binneman of the Albany Museum (Binneman 2010a), which included Zones 1-4, 6, 7, 9, & 10-13. Binneman's (2010a:3) brief was 'to conduct a survey of possible archaeological sites in the Coega Industrial Development Zone and to establish the range and importance of the heritage sites/materials, the potential impact of the development on these and to make recommendations to minimize possible damage to these sites'.

By his own admission, the study was severely constrained by the sheer size of the Coega IDZ (more than 10 000ha in extent), and the extremely dense vegetation cover across large areas of the site resulting in very, poor archaeological visibility.

A number of important observations were made, however.

According to Binneman (2010), large numbers of LSA shell middens were recorded in Zone 10 at the coast, while dispersed scatters of MSA tools of low archaeological significance were recorded further inland, behind the backdune area in Zone 7, and on exposed cobbles and gravels in Zone 6 and Zone 11 north of the N2.

Bush clearing for a road in Zone 7 exposed a thin layer of dune sand and dispersed scatters of marine shellfish, bone fragments, stone tools and pottery, while construction of the road exposed a few MSA tools. According to Binneman (2010), Zone 7 and Zone 10 are considered 'the most sensitive' zones within the entire Coega IDZ, while Zone 11 and Zone 6 are considered 'the least sensitive'.

Tellingly, all the AIAs undertaken to date within the Coega IDZ confirm the early observations made by Binneman (2010a). These observations were further confirmed by Kaplan (2020), where small numbers of MSA tools were recorded during an AIA of the Eastern Route of the proposed 132Kv transmission line for the Karpower Coega Project.

8. RESULTS

A field assessment of the preferred 132kV, 7.4km long, powerline route (refer to Figure 4) was conducted on the 12th and 13th October, 2022.

Trackpaths and waypoints of archaeological find are illustrated in Figures 22-26.

A spreadsheet of waypoints and description of archaeological finds is presented in Table 1.

The following observations were recorded.

The archaeological landscape is dominated by tools assigned to the Middle Stone Age (MSA). These included small numbers of isolated weathered, quartzite flakes, broken flakes, and chunks. All the tools are in locally available quartzite, recorded either on gravels and compact grey soils below the coversands (Zone 7), on fine red sands (Zone 6), or on exposed rounded

colluvial cobbles and gravels (Zone 11 & Zone 14). No formal tools such as points, backed pieces or scrapers were found.

Low-density scatters of tools (GPS Points 158, 208, 217 & 527), including chunky and triangular shaped flakes, chunks, flaked chunks/minimal cores, round cores, and a few heavily weathered, miscellaneous retouched and modified pieces were recorded on an elevated ridge, covered in limestone pebbles and surface bedrock south of the N2, in Zone 7.

No evidence of any human settlement or occupation was recorded during the field study, and indications are that most of the tools comprise discarded flakes and flake debris.

No archaeological resources were recorded on the high back dunes aligned alongside the sandy shoreline in Zone 10 and Zone 8, where dunes are covered in extremely dense Acacia thicket vegetation.

No Early Stone (ESA) tools, or Later Stone Age (LSA) resources including ostrich eggshell or pottery were recorded in the proposed powerline servitude.

A collection of tools, and the context in which they were found are illustrated in Figures 27-32.

8.1 Grading of the archaeological resources

The small numbers, and isolated context in which they were found means that the archaeological remains have been graded as having Low (Grade IVC) local significance.

Fragmented and weathered marine fossil shell was also noted in previously disturbed land, and on the large berm alongside the National Port Authority Road, near the Port of Ngqura (GPS Point 411).

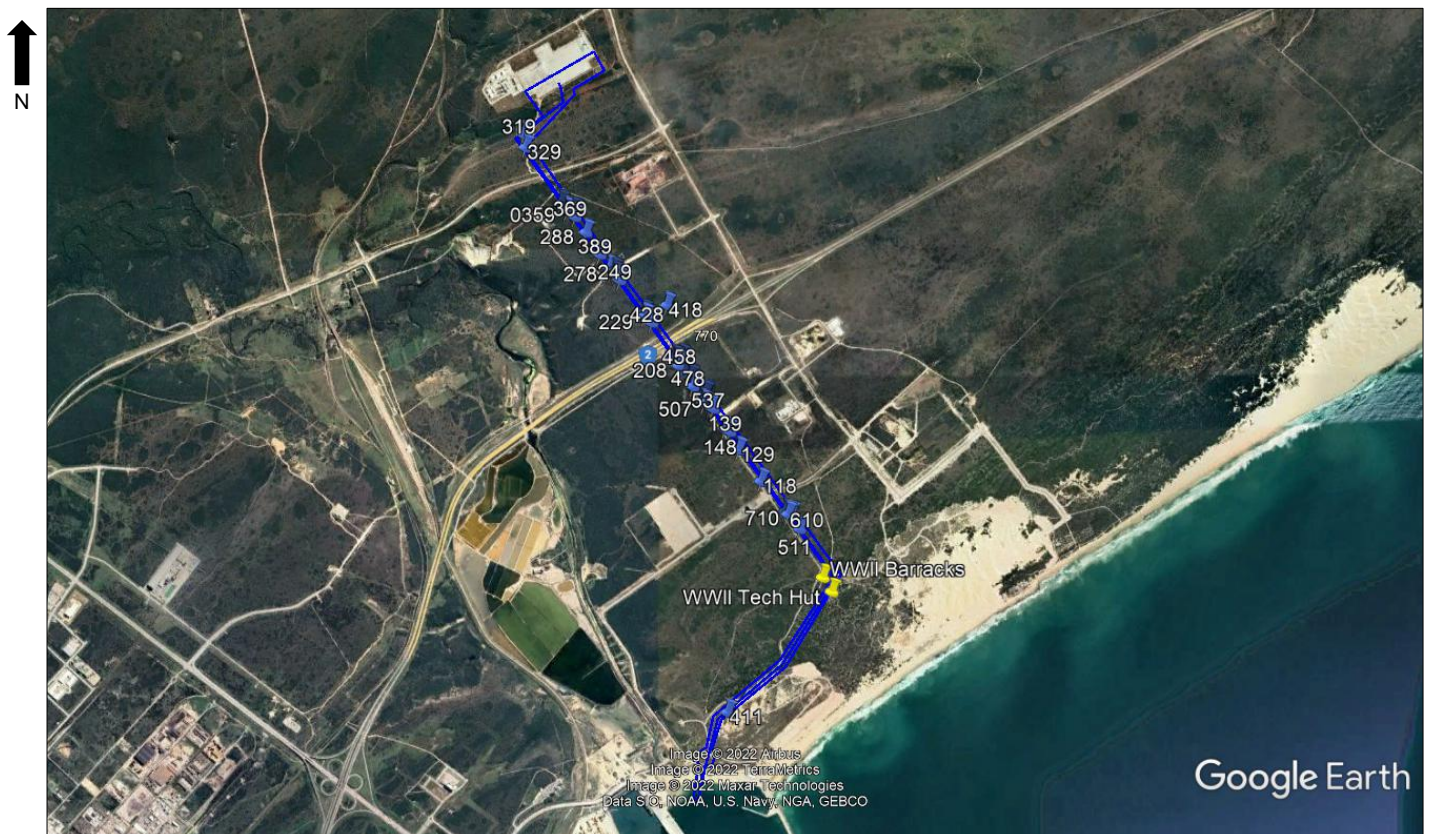


Figure 22. Waypoints of archaeological finds

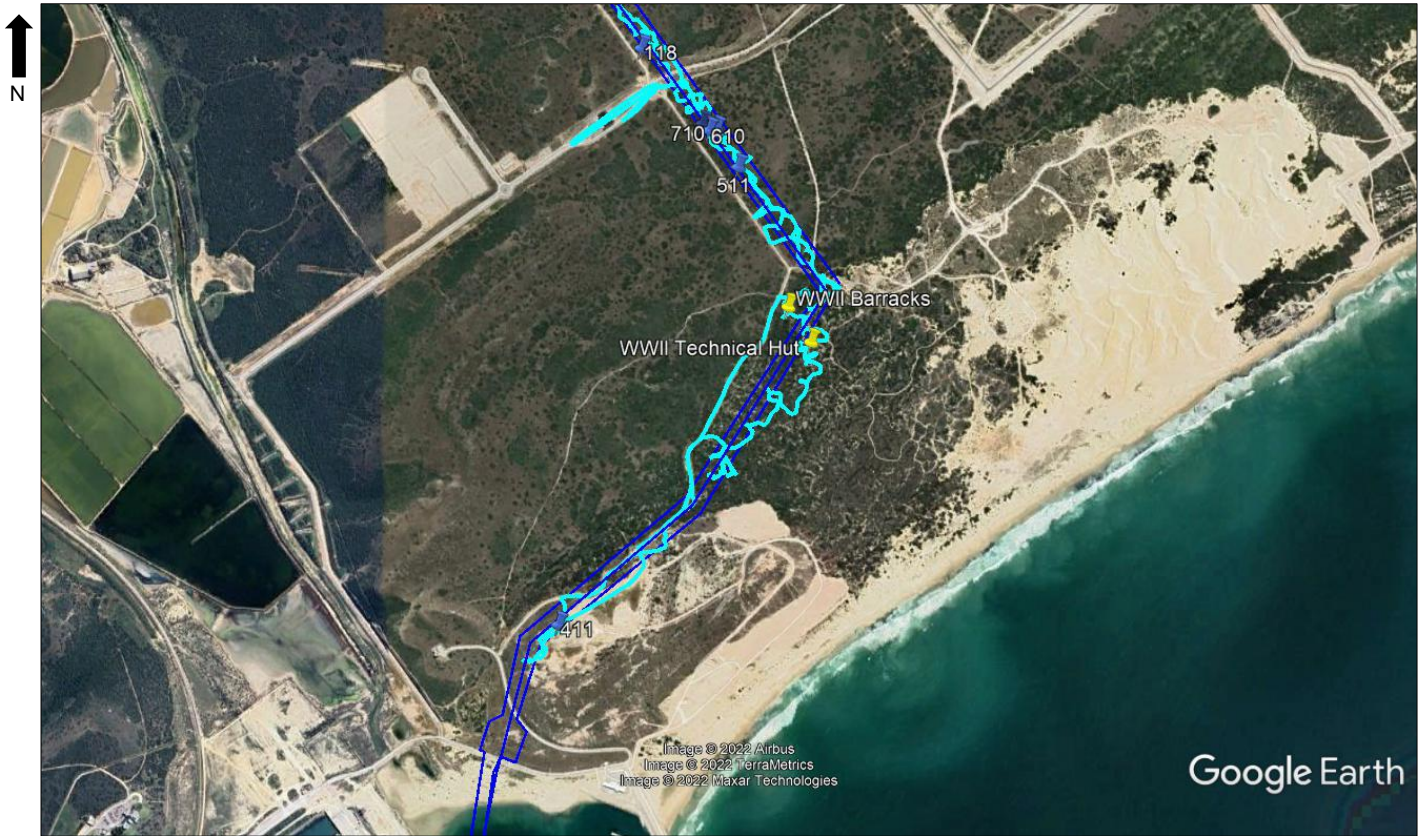


Figure 23. Trackpaths (in blue) and waypoints of archaeological finds

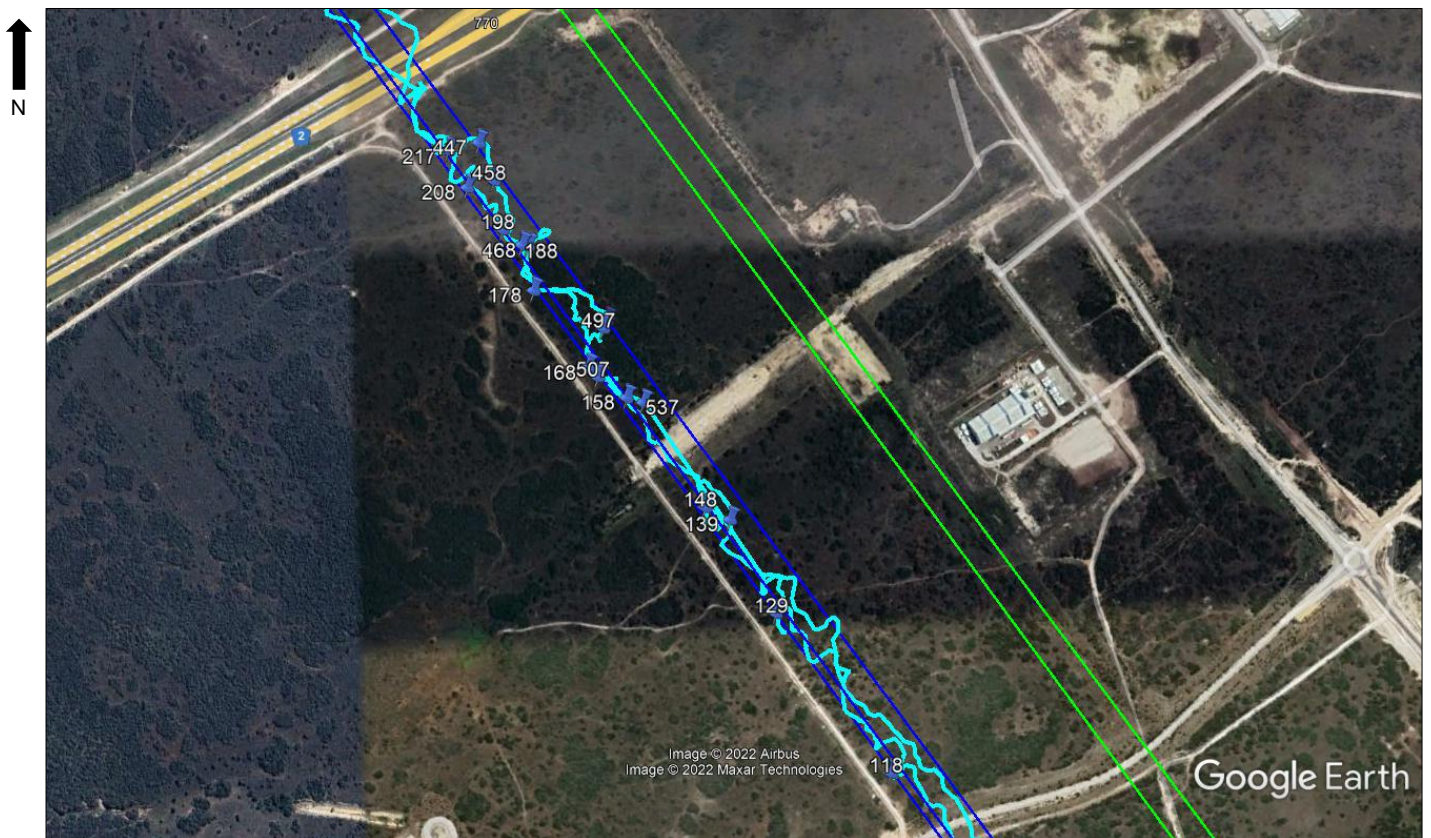


Figure 24. Trackpaths (in blue) and waypoints of archaeological finds

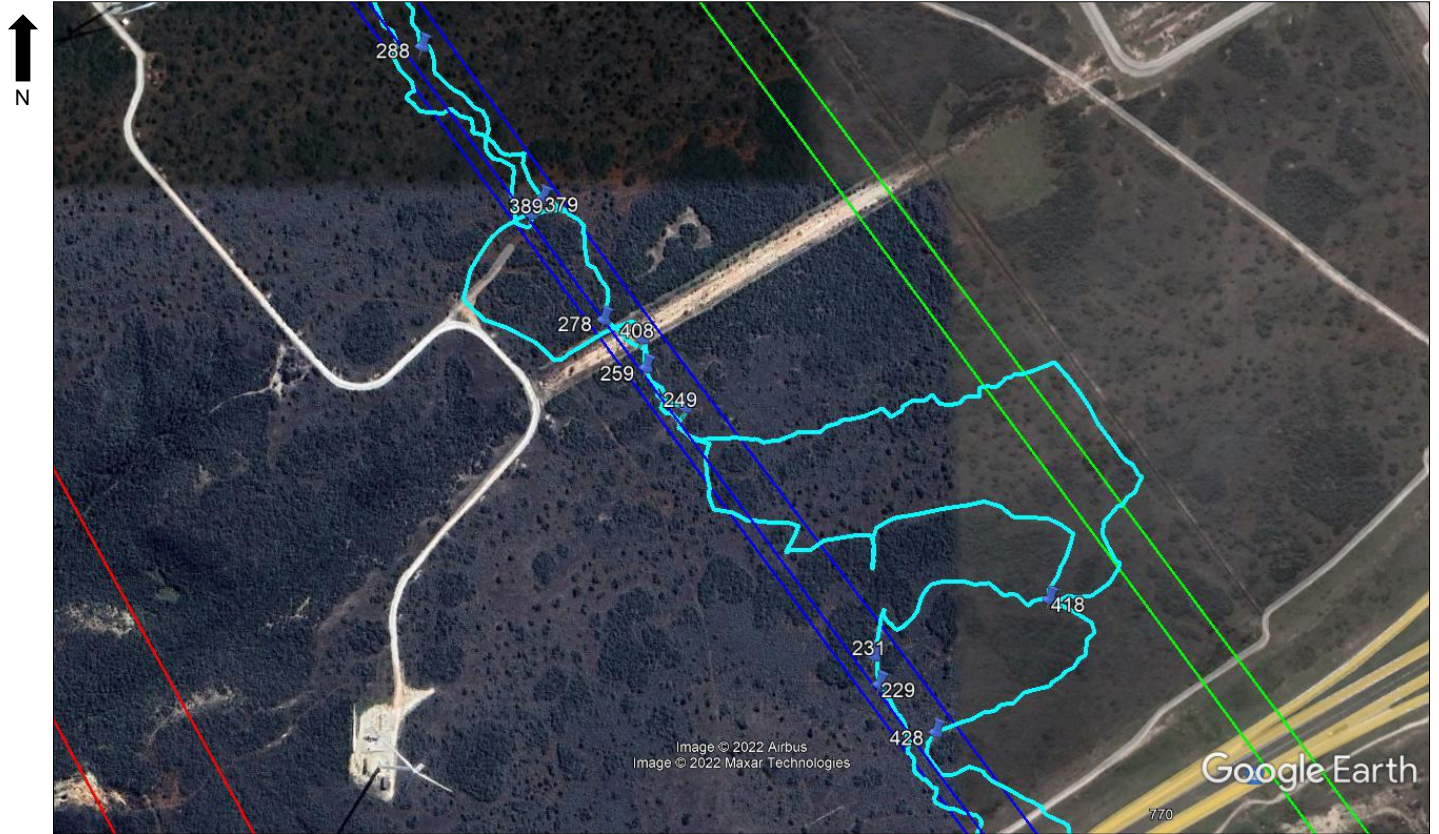


Figure 25. Trackpaths (in blue) and waypoints of archaeological finds

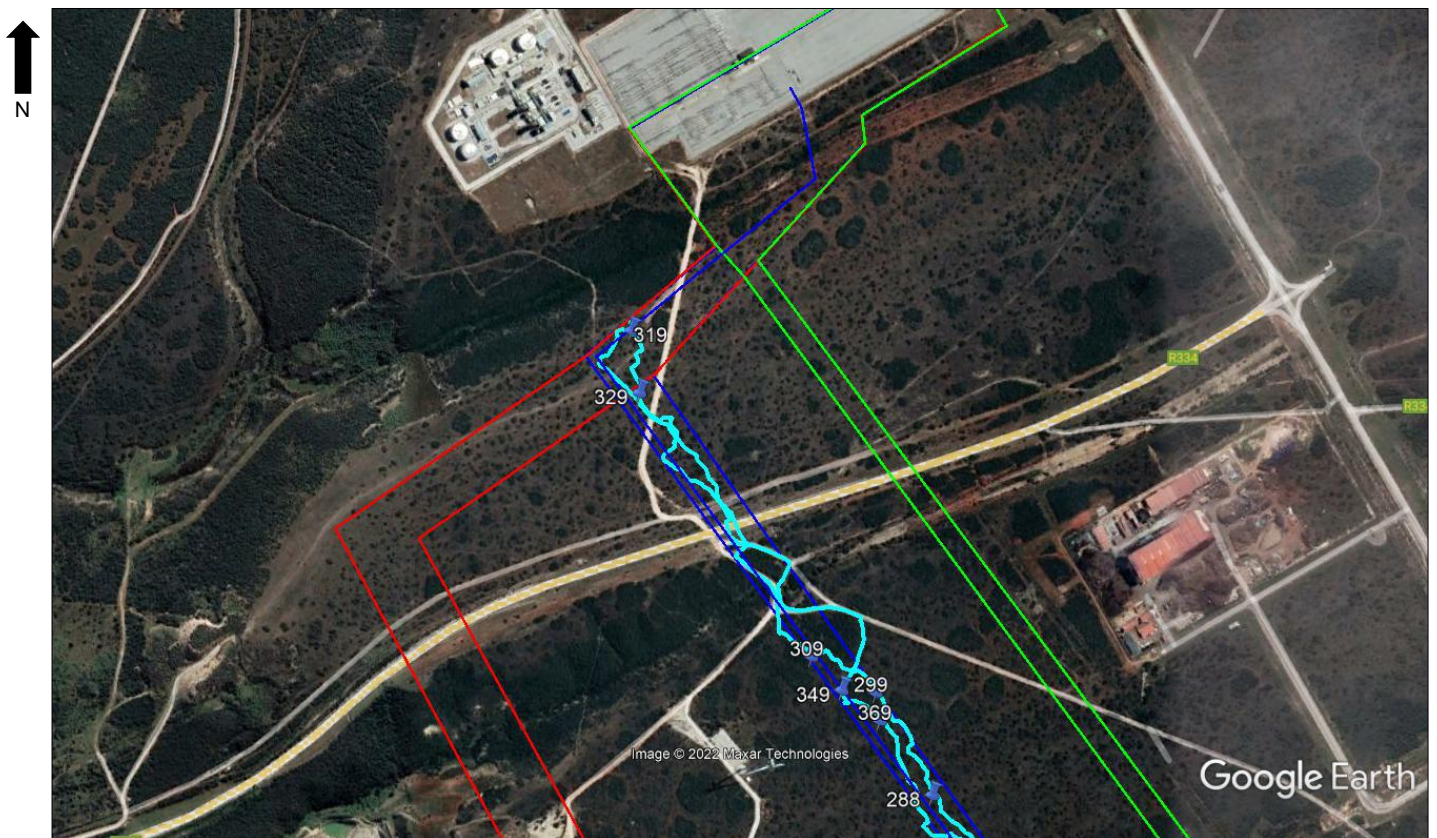


Figure 26. Trackpaths (in blue) and waypoints of archaeological finds

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Waypoint	Name of farm	Lat/long	Description	Grading	Mitigation
			All lithics in quartzite		
411		S33° 47.414' E25° 41.573'	Fragmented and weathered marine fossil shell in previously disturbed land & on the high berm alongside Port Authority Road	Low/IIIV	None required
WWII Engine Room		S33° 46.863' E25° 42.055'	Special Signal Services Barracks situated on level ground behind large dune cordon	Low/IIIC	Avoid
WWII Radar Station		S33° 46.929' E25° 42.107'	Radar Station/tech hut on a high sand dune, about 30m south of the powerline servitude	Low/IIIC	Avoid
511		S33° 46.592' E25° 41.961'	Weathered MSA flake	Low/IIIV	None required
610		S33° 46.527' E25° 41.898'	Weathered MSA flake	Low/IIIV	None required
710		S33° 46.524' E25° 41.914'	MSA flake and chunk	Low/IIIV	None required
109		S33° 46.515' E25° 41.883'	Broken/snapped MSA flake/blade	Low/IIIV	None required
118		S33° 46.379' E25° 41.752'	A few isolated MSA flakes & chunks among surface scatter of calcrete ± 30m from road	Low/IIIV	None required
129		S33° 46.238' E25° 41.632'	2-3 MSA flakes, broken flake, embedded in patch of soil below cover sands & in old gravel road	Low/IIIV	None required
139		S33° 46.155' E25° 41.585'	Isolated MSA broken flake	Low/IIIV	None required
148		S33° 46.155' E25° 41.585'	2-3 MSA & chunks flakes in old gravel track	Low/IIIV	None required
158		S33° 46.048' E25° 41.477'	Low density scatter of weathered MSA flakes & chunks, broken chunk/minimal core on an elevated ridge /surface bedrock and loose calcrete pebbles/chunks	Low/IIIV	None required
168		S33° 46.020' E25° 41.436'	Isolated MSA flake/blade	Low/IIIV	None required
178		S33° 45.953' E25° 41.379'	Isolated, weathered MSA chunky flake	Low/IIIV	None required
188		S33° 45.913' E25° 41.367'	Weathered MSA flake & chunk, large white quartzite MSA flake (prepared platform), on compact grey-coloured soils, & thin scatter of calcrete pebbles	Low/IIIV	None required
198		S33° 45.899' E25° 41.347'	Isolated, weathered MSA flake	Low/IIIV	None required
208		S33° 45.862' E25° 41.310'	Low density scatter of MSA resources including 2-3 round cores/minimal cores, crude retouched weathered, several chunky MSA flakes & chunks, on an elevated calcrete covered ridge & surface bedrock	Low/IIIV	None required
217		S33° 45.829' E25° 41.290'	Low density scatter of a MSA flakes, x 2 small round cores, several chunks, on limestone/calcrete covered ridge and surface bedrock	Low/IIIV	None required
229		S33° 45.639' E25° 41.125'	MSA flake on red sand	Low/IIIV	None required
231		S33° 45.623' E25° 41.121'	Small MSA flake on red sands	Low/IIIV	None required
249		S33° 45.476' E25° 40.990'	Chunk	Low/IIIV	None required
259		S33° 45.453' E25° 40.963'	x 2 large broken cobbles	Low/IIIV	None required
278		S33° 45.424' E25° 40.934'	MSA flake & chunk among scatter/patch of surface quartzite gravel & colluvial cobbles	Low/IIIV	None required
288		S33° 45.264' E25° 40.808'	MSA flake on red sand	Low/IIIV	None required
299		S33° 45.167' E25° 40.745'	MSA flake on red sand	Low/IIIV	None required
309		S33° 45.133' E25° 40.673'	A few MSA quartzite flakes & chunks on surface scatter of quartzite gravels	Low/IIIV	None required

319		S33° 44.825' E25° 40.473'	A few MSA flakes & chunks on surface scatter of quartzite gravels & colluvial cobbles	Low/IIIV	None required
329		S33° 44.883' E25° 40.482'	Quartzite flake and several chunks, on surface scatter of quartzite gravels & colluvial cobbles	Low/IIIV	None required
349		S33° 45.164' E25° 40.707'	Round core, cortex flake	Low/IIIV	None required
369		S33° 45.193' E25° 40.749'	MSA flake on red sand	Low/IIIV	None required
379		S33° 45.353' E25° 40.891'	MSA flake on red sand	Low/IIIV	None required
389		S33° 45.362' E25° 40.883'	Chunk	Low/IIIV	None required
408		S33° 45.591' E25° 41.245'	Isolated MSA flake on red sand	Low/IIIV	None required
418		S33° 45.591' E25° 41.245'	Isolated MSA flake on red sand	Low/IIIV	None required
428		S33° 45.667' E25° 41.164'	Small, snapped/broken flake	Low/IIIV	None required
447		S33° 45.823' E25° 41.323'	Several large, very weathered MSA flakes among scatter of calcrete pebbles, and brown sand surrounded by dense bush	Low/IIIV	None required
458		S33° 45.856' E25° 41.339'	Isolated, weathered MSA flake	Low/IIIV	None required
468		S33° 45.914' E25° 41.374'	Large, round weathered MSA flake, in barely visible, gravel track	Low/IIIV	None required
488		S33° 45.980' E25° 41.457'	3 small chunks & broken flake surrounded by dense bush	Low/IIIV	None required
497		S33° 45.987' E25° 41.453'	Chunk and MSA flake	Low/IIIV	None required
507		S33° 46.029' E25° 41.446'	Large, very weathered, miscellaneous retouched MSA flake, embedded chunk	Low/IIIV	None required
516		S33° 46.046' E25° 41.472'	Weathered MSA flake on calcrete ridge	Low/IIIV	None required
527		S33° 46.052' E25° 41.494'	Low density scatter of a few weathered MSA flakes, several chunks on elevated ridge covered in limestone pebbles and surface bedrock	Low/IIIV	None required

Table 1. Spreadsheet of waypoints and description of archaeological finds



Figure 27. Collection of Middle Stone Age tools. Ruler scale is in cm



Figure 28. Collection of Middle Stone Age tools. Ruler scale is in cm



Figure 29. Collection of Middle Stone Age tools. Ruler scale is in cm



Figure 30. Zone 7. GPS Point 158. Context in which some of the remains were found. View facing south west



Figure 31. Zone 7. GPS Point 208. Context in which some of the remains were found. View facing south west



Figure 32. Zone 11. GPS Point 309. Context in which some of the remains were found. View facing south west



Figure 33. Zone 14. GPS Point 329. Context in which some of the remains were found. View facing south west



Figure 34. Zone 7. GPS Point 527. Context in which some of the remains were found. View facing south west

8.2 Built Environment

Several radar stations were built during the Second World War (1939-1945) to combat the problem of ships being torpedoed along the coastline. The radar stations were built in 1942, guarded by the Native Military Corps – Black soldiers who were seconded to the Special Signal Services (SSS), a branch of the SA Corps of Signals who which operated RADAR defences (Bennie 2010).

8.2.1 Radar Station Coega 203 (Hougham Park)

Radar Station Coega 203 (the name was later changed to Hougham Park) has its Technical Hut on a high, heavily vegetated sand dune looking out to St Croix Island, while the camp is to be found in a sheltered position on even ground behind it (Figure 35).

The Technical (or Tech) Hut comprising the remains of two-roomed plastered brick building with galvanised blackout hoods and a rainwater tank, is located about 40m south of the proposed powerline servitude and will therefore not be impacted by proposed construction activities. The affected building is older than 60 years, and protected in terms of the NHRA, but is not a declared heritage site. All doors and windows/frames have been removed, and the structure has fallen into disrepair and ruin (Figure 36).

The site of the SSS Barracks (or Sonop House), located in a sheltered position behind the dunes, was still being used in 2001 as a weekend school camp. The collection of timber buildings with corrugated iron roofs and a water tank have all disappeared (Bennie 2010). Only the flat roofed plastered brick building housing the engine room and a storeroom remain in a derelict form (Figure 37). The building is also located \pm 40m north west of the proposed powerline servitude and will not be impacted by construction activities. The structure is also protected by the 60 year old clause in terms of the NHRA but is not a declared heritage site.



Figure 35. Location of WWII Special Signal Services (SSS) Barracks and Technical Hut



Figure 36. WWII Technical Hut on the crest of the dune. View facing south



Figure 37. WWII Special Signal Services (SSS) Barracks (Sonop House)

9. IMPACT CRITERIA – CONSTRUCTION PHASE

9.1 Irreplaceable loss of resources

Without mitigation and rescue of exposed archaeological deposits there will be a complete loss of resources within the development footprint area.

9.2 Reversibility

Archaeological resources are unique, and their loss is IRREVERSIBLE.

10. ANTICIPATED IMPACT

The proposed 7.4km long, 132kV overhead powerline for the proposed Gas to Power Powership Project crosses multiple zones with the Coega SEZ, including Zones 8, 10, 7, 6, 11, and 14.

According to Binneman (2010a:40) Zone 6 and Zone 11 are the considered the 'least archaeologically sensitive', where dispersed scatters of MSA tools of *low* archaeological significance are likely to be encountered, while Zone 7 and Zone 10 are regarded 'as the most sensitive'.

Construction of a proposed Site Office Complex (3000m²) and Stringing Yard (19950m²) - used to assemble the gas pipeline, is situated on reclaimed and previously disturbed land within the port area (refer to Figure 4), is unlikely to impact on archaeological heritage resources.

10.1 Cumulative impact

Regarding Cumulative Impacts associated with the Karpower Gas to Power Powership Project, the following comparable projects have been assessed:

- *The Proposed Coega 1000MW Gas-to-Power Plant – Zone 10 (South). Draft EIA report prepared for the Coega Development Corporation (SRK 2021a)*

The Cumulative Impact is rated as being potentially High.

- *The Proposed Coega 1000MW Gas-to-Power Plant – Zone 10 (North), Draft EIA report prepared for the Coega Development Corporation (SRK 2021b)*

The Cumulative Impact is rated as being as being potentially High.

- *The Proposed Coega 1000MW Gas-to-Power Plan – Zone 13. Draft EIA report prepared for the Coega Development Corporation (SRK 2021c):*

The Cumulative Impact is rated as being Low

- *Draft Environmental Impact Report, Proposed 200MW “Risk Mitigation Power Project” in the Coega SEZ. Report prepared for Engie Southern Africa (SRK 2021d):*

The Cumulative Impact is rated as being Low.

11. CONCLUSION.

Overall, the results of the study indicate that the proposed Gas to Power Powership Project within the Port of Ngqura in the Eastern Cape does not pose a significant threat to local archaeological heritage resources.

The study has identified no significant impacts to pre-colonial archaeological remains that will need to be mitigated prior to construction activities commencing.

From an archaeological perspective there are no fatal flaws and provided that the recommendations made are implemented, there are no objections to the authorisation of the proposed activities.

12. RECOMMENDATIONS

Regarding the proposed Gas to Power Powership Project at the Port of Ngqura, the following recommendation are made

1. No mitigation is required prior to proposed construction activities commencing.
2. Vegetation clearing must be monitored by a professional archaeologist.
3. Excavations for powerline footings must be monitored by a professional archaeologist.
4. The Radar Station (Technical hut), and possibly the Sonop building, need to be saved as they form part of a series of related lookouts dating from World War II (Bennie 2010:40).

5. If any unmarked human remains or burial sites are exposed during excavations, work must immediately stop, and an archaeologist appointed to inspect the remains. Human remains must not be disturbed until inspected by the archaeologist. Human remains will have to be removed under a permit issued by the South African Heritage Resources Agency, or the Eastern Cape Provincial Heritage Authority (ECPHRA)

The above recommendations must be included in the Environmental Management Plan (EMP) for the proposed project.

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