

Phase 1a Archaeological Impact Assessment

Basic Assessment Report in terms of NEMA

Basic Assessment and Water Use Authorisation Application for the proposed establishment of Battery Energy Storage Systems for the Impofu Wind Farms (East, West and North), Kouga Local Municipality, Eastern Cape

Conducted in terms of Section 38 of the National Heritage Resource Act (No. 25 of 1999)

prepared for

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1. Executive Summary

Red Cap Impofu East (Pty) Ltd, Red Cap Impofu West (Pty) Ltd and Red Cap Impofu (Pty) Ltd each propose to establish a Battery Energy Storage System (BESS) adjacent to the approved and planned Impofu East, West and North Wind Farm substations in the Kouga Municipality, respectively. The applications for a Basic Assessment for the development proposal are being facilitated by CEN Integrated Environmental Management Unit.

Presented here is the archaeological component of the Basic Assessment application processes, as triggered by Section 38 of the National Heritage Resources Act (Act 25 of 1999; NHRA), that is being undertaken in order to ensure compliance with heritage legislation as well as that of the National Environmental Management Act (Act 107 of 1998; NEMA).

The general study area for the project is under rural, agricultural and wind farm (industrial) development. Large parts of the landscape, particularly along the coastal plain and areas adjacent to water sources are transformed by farming activities. Further human-related impacts of the more recent past include roads, single vehicle tracks, quarries, dams, variety of farming activities, variety of structures and infrastructure, fencing, overhead power lines, transmission/receiver masts, wind turbines, substations, and so on.

The development site is situated west of Humansdorp in the Kouga Local Municipality of the Eastern Cape Province. Surrounded by five operational wind farms, the development site falls within an existing renewable energy landscape. Because of the excellent local wind regime, the site is in one of the best areas for wind farming in South Africa. The development aims to assist in meeting the ever-increasing demand for energy through the storage and distribution of this renewable resource.

The scope of the impact assessment for the proposed three BESS facilities for the Impofu Wind Farms involves the three development footprints and associated access roads. The different battery technology options make no difference to the archaeological impact assessment and are therefore not assessed separately.

The Public Participation Process, in terms of the National Heritage Resources Act, will be advertised and run as part of the Basic Assessment and Water Use Authorisation processes. Interested & Affected Parties will be provided the opportunity to give feedback regarding this and other specialist reports for the proposed development. CEN have notified the EC PHRA as well as the Gamtkwa Khoisan Council, a local registered I&AP, about the proposed development.

The overall purpose of a Phase 1a Archaeological Impact Assessment is to evaluate the sensitivity of archaeological resources in the affected area, to determine the potential impacts on such resources, and to avoid and/or minimize such impacts by means of management and/or mitigation measures. Apart from limited archaeological visibility, there were no limitations to the study.

A comprehensive archaeological foot survey of the three proposed sites for the Impofu BESS facilities was conducted on 24 May 2021. No archaeological heritage resources or sites were identified in the study area. Since we know that isolated Stone Age artefacts of low significance are present in the landscape and may be found in the BESS footprints, they are included here as a precautionary measure.

1) Isolated Specimens and Low Density Stone Age Artefact Scatters.
Recommendation: No further studies or mitigation of these finds is required and even though they are protected by the NHRA, it is recommended that a permit for their disturbance or destruction is not required from the EC PHRA;

2) In the event that vegetation clearing and earthmoving activities expose archaeological or palaeontological resources, then such activities must stop immediately and the Eastern Cape Provincial Heritage Resources Authority (ECPHRA) must be notified immediately. These heritage resources are protected by Section 35(4) of the NHRA (Act 25 of 1999) and may not be damaged or disturbed in any way without a permit from the relevant heritage authorities. Any work in mitigation, if deemed appropriate, should be commissioned and completed before construction continues in the affected area and will be at the expense of the developer.

3) In the event of exposing human remains during construction, then the find should be protected from further disturbance and work in the immediate area should be halted. The find will fall into the domain of SAHRA and would need to be reported to them, and will require inspection by a professional archaeologist to undertake mitigation, if needed. Any disturbance to a human burial older than 60 years will require a permit in terms of Section 36 (3)(a). Graves and burial grounds are the property of the state and may require excavation and curation in an approved institution. Any work associated with the find will also be at the cost of the developer.

All of the above recommendations must be included in the Environmental Management Program for the proposed three BESS facilities for the Impofu Wind Farms.

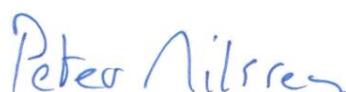
From an archaeological standpoint, this assessment found no archaeological resources and there are no fatal flaws. Consequently there are no objections to the development of the proposed three BESS facilities for the Impofu Wind Farms.

2. Name, Expertise and Declaration

I, Peter Nilssen (PhD in archaeology, University of Cape Town 2000), herewith confirm that I am a Professional member - in good standing - of the Association of South African Professional Archaeologists (ASAPA), including the Cultural Resource Management section of the same association since 1989 (ASAPA professional member # 097). I am an accredited Principal Investigator for archaeozoology (specialist analysis), coastal, shell midden and Stone Age archaeology; Field Director for Colonial Period archaeology; and Field Supervisor for Iron Age archaeology and Rock Art. I have worked as a professional archaeologist in Cultural Resource Management since 1989 and have completed more than 200 heritage-related impact assessments and mitigation projects that were approved by provincial and national heritage authorities. My CV accompanies this report.

As the appointed independent specialist (archaeologist) for this project hereby declare that I:

- act as an independent specialist in this application;
- regard the information contained in this report as it relates to my specialist input/study to be true and correct;
- do not have and will not have any financial interest in the undertaking of the activity, other than remuneration for work performed in terms of the NEMA, the Environmental Impact Assessment Regulations, 2014 and any specific environmental management Act;
- have and will not have no vested interest in the proposed activity proceeding;
- have disclosed, to the applicant, EAP and competent authority, any material information that have or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required in terms of the NEMA, the Environmental Impact Assessment Regulations, 2014 and any specific environmental management Act;
- am fully aware of and meet the responsibilities in terms of NEMA, the Environmental Impact Assessment Regulations, 2014 (specifically in terms of regulation 13 of GN No. R. 982) and any specific environmental management Act, and that failure to comply with these requirements may constitute and result in disqualification;
- am aware that a false declaration is an offence in terms of regulation 48 of GN No. R. 982.



Signature of the specialist:

Name of company: Dr Peter Nilssen

Professional Archaeologist and Specialist Heritage Practitioner

Date: **9 September 2021**

NEMA requirements for Specialist Reports

Appendix 6	Specialist Report content as required by the NEMA 2014 EIA Regulations, as amended	Section
1 (1)(a)	(i) the specialist who prepared the report; and (ii) the expertise of that specialist to compile a specialist report including a curriculum vitae;	Title page & Section 2; as well as the accompanying CV
(b)	a declaration that the specialist is independent in a form as may be specified by the competent authority;	Section 2
(c)	an indication of the scope of, and the purpose for which, the report was prepared;	Section 4.3
(cA)	an indication of the quality and age of the base data used for the specialist report;	desktop study up to 2018 and fieldwork data obtained in September 2017 and July 2019; see Section 4.6 and section 5
(cB)	a description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change;	Section 4.4 & Sections 6 & 7
(d)	the duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment;	Section 4.6 and Section 5
(e)	a description of the methodology adopted in preparing the report or carrying out the specialised process, inclusive of equipment and modelling used;	Section 4.6
(f)	details of an assessment of the specific identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure, inclusive of a site plan identifying site alternatives;	Section 4.6 and Section 5
(g)	an identification of any areas to be avoided, including buffers;	Sections 5, 6 & 7
(h)	a map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers;	Section 5 and associated Figures and Plates
(i)	a description of any assumptions made and any uncertainties or gaps in knowledge;	Section 4.7
(j)	a description of the findings and potential implications of such findings on the impact of the proposed activity, or activities;	Section 5
(k)	any mitigation measures for inclusion in the EMPr;	Sections 5, 6 & 7
(l)	any conditions for inclusion in the environmental authorisation;	Section 7
(m)	any monitoring requirements for inclusion in the EMPr or environmental authorisation;	Section 7
(n)	a reasoned opinion- (i) whether the proposed activity or portions thereof should be authorised; and (iA) regarding the acceptability of the proposed activity or activities; and (ii) if the opinion is that the proposed activity or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan;	Section 7
(o)	a description of any consultation process that was undertaken during the course of preparing the specialist report;	Not yet done
(p)	a summary and copies of any comments received during any consultation process and where applicable all responses thereto; and	Not yet done
(q)	any other information requested by the competent authority.	Not at this time
2	Where a government notice gazetted by the Minister provides for any protocol or minimum information requirement to be applied to a specialist report, the requirements as indicated in such notice will apply.	Section 4.3 & 4.5

4. Introduction

4.1. Background to Development Proposal

Red Cap Impofu East (Pty) Ltd, Red Cap Impofu West (Pty) Ltd and Red Cap Impofu (Pty) Ltd (hereafter Red Cap) each propose to establish a Battery Energy Storage System (BESS) adjacent to the approved and planned Impofu East, West and North Wind Farm substations in the Kouga and Koukamma (North) Municipality, respectively (Cohen & Clark 2021). The location of the development site and proposed sites for the three BESS facilities are shown in Figures 1 through 6.

A Basic Assessment application must be submitted to the National Department of Forestry, Fisheries and Environment (DFFE) in terms of EIA Regulations (2014 as amended) under Section 24 of the National Environmental Management Act (No. 107 Of 1998) for each of the 3 BESS sites. These applications and the public participation and consultation processes are being facilitated by CEN Integrated Environmental Management Unit (details on title page; hereafter CEN, Cohen & Clark 2021). All project background information and proposal specifications presented in this report were supplied by CEN and Red Cap. Some sections below are taken verbatim from CEN's documents that were issued to participating specialists.

The archaeological component of the BA, as triggered by Section 38 of the National Heritage Resources Act (Act 25 of 1999; NHRA), is being undertaken by the present author in order to ensure compliance with heritage legislation as well as that of the National Environmental Management Act (Act 107 of 1998; NEMA). The following clause of the NHRA is relevant to the requirement for a heritage impact assessment for the proposed Impofu Wind Farms BESS development: Section 38(1) (c) any development or other activity which will change the character of a site (i) exceeding 5 000 m² in extent; or (ii) involving three or more existing Erven or subdivisions thereof. See Appendix A for more information on heritage legislation relevant to this project and to heritage resources discussed in this report.

4.2 Proposed Development Description

Environmental Authorisations (EA) have been issued for each of the Impofu Wind Farms (East, West and North) in the Kouga and Koukamma (North) Local Municipality. Red Cap Impofu East (Pty) Ltd, Red Cap Impofu West (Pty) Ltd and Red Cap Impofu (Pty) Ltd each propose to establish a Battery Energy Storage System (BESS) adjacent to the approved and planned Impofu East, West and North Wind Farm substations respectively. Each BESS area will be up to 4 ha in extent, with a maximum of 140 MW capacity and up to 8 hours storage. Lithium-Ion and Redox-Flow BESS Technologies are the proposed options, but since these make no difference to the archaeological impact assessment, they are not assessed separately. The 3 proposed locations are at: BESS North: 34°3'34.29"S 24°32'7.34"E; BESS West: 34°5'4.62"S 24°33'16.72"E; BESS East: 34°6'36.36"S 24°37'7.46"E.

Figure 2 is an aerial image showing the locations of the 3 BESS sites.

The proposed BESS sites are within a number of 'sensitive environments' are referenced in the Listing Notices under the EIA Regulations (2014 as amended):

- Strategic Water Source Areas – Tsitsikamma Surface Water area.

- BESS West is within a Critical Biodiversity Area (CBA) in the Garden Route Initiative Plan.
- The sites do not appear to be within a watercourse or 32 m buffer according to the 1:50 000 watercourse layer. However BESS North and East are within 500 m of wetlands according to the NFEPA database.
- Protected Areas and Conservation Areas: the sites are all within the Garden Route Biosphere Reserve, and within proximity to other conservation areas and protected areas.

The BESS sites are planned adjacent to the approved (but not yet constructed) substations on each of the 3 Wind Farms to reduce impacts. The Environmental Impact Assessment processes for the approved Wind Farms included a detailed assessment of the biophysical environment in the area, and developed a set of 'no-go' areas to guide placement of turbines and other supporting infrastructure. The BESS sites are situated outside of these 'no-go' areas.

The environmental assessment process and specialist studies done as part of the current Basic Assessment process will further consider and assess impacts of the BESS sites in relation to the 2 technology types and 4 ha footprints allocated for each. Studies will advise on placement of structures and infrastructure, risks and benefits of the 2 technologies, and construction methods to avoid and/or reduce impacts on sensitive environments.

A detailed description of the specifications of the BESS facilities and the two battery technologies options is available on request. None of these specifications, the different battery technology options, or the construction methods has any influence on the assessment of impacts to archaeological heritage resources under consideration here, and therefore, they are not assessed separately according to these criteria.

4.3. Purpose and Scope of the Study

The overall purpose of a Phase 1a Archaeological Impact Assessment (AIA) is to assess the sensitivity of archaeological resources in the affected area, to determine the potential impacts on such resources, and to avoid and/or minimize such impacts by means of management and/or mitigation measures. Note that the AIA presented here considers archaeological materials of prehistoric and historic origin as well as the cultural landscape. A separate palaeontological study was undertaken by Dr John Almond. This study was undertaken according to best practice principles and meets standards required by the heritage authorities in terms of the National Heritage Resources Act, No. 25 of 1999.

The objectives of the Archaeological Impact Assessment are:

- To assess the nature and sensitivity of archaeological resources in the affected parts of the receiving environment;
- To identify the impact of the proposed development on such resources as well as options for mitigation and/or management in order to minimize potential negative impacts and to make recommendations for mitigation / management where necessary; and
- To identify archaeological resources and issues that may require further investigation.

The scope of the impact assessment for the proposed three BESS facilities for the Impofu Wind Farms involves the three development footprints and associated access roads.

The different battery technology options and construction methods make no difference to the archaeological impact assessment and are therefore not assessed separately.

This archaeological study and the palaeontological study undertaken by Dr Almond form the basis for community consultation in terms of Section 38 (3) (e) of the NHRA. This draft Basic Assessment Report will be made available to all Interested and Affected Parties (I&APs) as part of the Public Participation Process being undertaken by CEN for the BA process. Thus heritage authorities (SAHRA and EC PHRA), conservation bodies and interest groups will be given the opportunity to provide feedback as part of the official community consultation to fulfil NHRA requirements.

Posters advertising the development have been placed at visible locations in the area, in three languages (i.e. English, Afrikaans, and isiXhosa). The project has been advertised under the legal section of the Herald and in the Kouga Express in 3 languages. This round of public participation is part of the pre-application process.

The next step will be to submit a formal application form and Draft Basic Assessment Report (DBAR) to the authorities. Registered interested and affected parties (I&APs) and state departments will be notified of the availability of the DBAR for a 30 day comment period. The report will describe the project proposal and the surrounding environment, and will identify and assess the significance of potential impacts of the development on the biophysical and socio-economic environment. Comments received on the draft report will be collated, and the report updated to a Final BAR for submission to the National DFFE for their review. All reports and information related to the project will be added to the EAP's website on the project tab at <https://environmentcen.co.za/projects/>.

The DFFE screening reports for the three Impofu Wind Farms BESS facilities was obtained by CEN on behalf of Red Cap on 4 May 2021. The reports indicated that the affected area's environmental sensitivity rating for the Archaeological and Cultural Heritage Theme is Low Sensitivity, and identified the need for a specialist Archaeological and Cultural Heritage Impact Assessment. The Palaeontology Theme is rated as High Sensitivity, and the required Palaeontology Impact Assessment is being undertaken by Dr John Almond.

Since archaeological resources occur on ground surfaces or in sub-surface sediments, only those aspects of the BESS development that will impact on surface or sub-surface sediments are considered relevant. Since the BESS facilities will be located in an existing and approved renewable energy farming area (wind turbines, substations and overhead power lines) they will have a negligible visual impact on the aesthetic character and value of the surroundings and cultural landscape.

4.4. Study Area

The location and extent of the three development sites for the proposed BESS facilities are shown in Figures 1 through 6, while examples of the receiving environment are shown in the Google Earth images in Figures 3 through 6 as well as Plates 1 and 2.

Due to the largely homogenous nature of the receiving environment, the following description is for the consolidated Impofu Wind Farms site as a whole, and applies to all three wind farm sites, including the proposed sites for the three BESS facilities.

Most of the consolidated Impofu Wind Farms site is situated on the coastal platform of South Africa's Eastern Cape some 100 km west of Gqeberha (Port Elizabeth) and about

22 km WSW of Humansdorp in the Kou-Kamma and Kouga Local Municipalities, Sarah Baartman District Municipality, Eastern Cape Province (Figures 1).

The Impofu Wind Farms site is centred roughly on S34.07642° E24.54738° (WGS84, latitude and longitude in decimal degrees; 1:250 000 map 3324 PORT ELIZABETH) and the three BESS facilities are located on the following farms and farm portions: BESS East – Rebok Rant 715 and Portion 5 of Farm 715, BESS North – Vergaaderings Kraal 675, and BESS West – Klip Rug 676 and Portion 1 of Farm 676.

The operational wind farms of Tsitsikamma Community, Gibson Bay, Kouga, Oyster Bay and Jeffery's Bay are located adjacent to and nearby the Impofu Wind Farms site. The approved, but not yet constructed Impofu Wind Farms (North, West and East) and associated grid connection are therefore part of an existing and growing renewable energy landscape.

The bulk of the Impofu Wind Farms study area is situated on the coastal plain between the shoreline of the Indian Ocean in the south and the south-eastern slopes, foothills and hills of the more mountainous terrain to the north (Figure 2). Only a narrow strip of the affected properties originally extended to the coastal shoreline, but on heritage and ecological grounds, Red Cap excluded this portion from development as a No-Go zone. The coastal dunes commonly contain prehistoric heritage resources and in some instances palaeontological material (Binneman & Reichert 2017 and references therein; Brink 2015; Nilssen 2010 and Nilssen & Smith 2015).

Ancient aeolian sediments on the coastal plain are deeply incised in places by the Kromme, Klipdrift and Tsitsikamma rivers and their associated tributaries exposing the underlying hard rock geological formations described in greater detail in the palaeontological study (Almond 2017). Numerous drainage lines and water sources occur in this area as do man-made dams, including the large Impofu Dam (the wind farms' namesake) on the Kromme River immediately to the north.

The main geological units in the area include the Table Mountain Group (with palaeontologically sensitive Cedarberg and Baviaanskloof Formations), the Bokkeveld Group (with palaeontologically sensitive Gydo Formation) and the Algoa Group that is partly represented by the fossil and more recent dunes in the coastal strip (Almond 2011a & 2011b and Binneman 2010). For the most part, hard rock geological sediments - mainly quartzites and sandstones - are covered by top soils, dune sands, ferricretes and calcretes with a few surface outcrops of quartzites occurring in the study area.

Dominant landscape features include gravelled terraces in the north and remnants of dynamic dune systems in the south. Today the latter are largely stabilized by alien and dune vegetation. Small remnants of a formerly much larger dynamic dune system stretching from about Klasies River in the west to the Kromme River in the east are still exposed. These include exposed dunes at Geelhoutboom (north of Klasies River Caves), Brandewynkop and the dune field between Oyster Bay and the Kromme River mouth (some dunes visible in Figure 2). For the most part, these exposed dune areas contain abundant archaeological and palaeontological resources where the shifting dune sands are continually burying and exposing sites (Binneman 2010 & 2011a, Deacon & Geleijnse 1988, Nilssen 2010 and ACO UCT 2010).

The predominant land use in the area consists of grazing lands for dairy farming that has dramatically changed the landscape from one formerly vegetated by Tsitsikamma Sandstone Fynbos, Garden Route Shale Fynbos, Coastal Shale Band Vegetation and Southern Cape Dune Fynbos. The Eastern Cape Biodiversity Conservation Plan has

designated certain parts of the region as Critical Biodiversity Areas for the protection of endangered vegetation types, ecological corridors and water management areas such as the Tsitsikamma, Klipdrift and Slang Rivers. The coastal strip in this region mostly comprises sensitive dune systems.

The study area is under rural and agricultural settlement. Large parts of the landscape, particularly along the coastal plain and areas adjacent to water sources are transformed by farming activities. Further human-related impacts of the more recent past include roads, single vehicle tracks, quarries, dams, variety of farming activities, variety of structures and infrastructure, fencing, overhead power lines, transmission/receiver masts, wind turbines, overhead power lines, substations, and so on. The landscape of the area is transitioning to a renewable energy landscape given the five operational wind farms in the area. Natural processes that have and continue to impact archaeological materials include erosion and bioturbation.

All three of the proposed sites for the BESS facilities are more than 5km from the present day shoreline and thus lie inland of the archaeologically sensitive coastal zone (ACO UCT 2010, Binneman 2010a, 2010b, 2011a, 2011b, 2011c, Nilssen 2003, SAHRA APM 2010, Webley 2003). Archaeological resources that may occur in the BESS study areas include historic period infrastructure, structures, cemeteries, graves and cultural materials, Stone Age artefacts in open air and disturbed contexts of mostly Early Stone Age and Middle Stone Age origin, Stone Age artefacts in sub-surface sediments, and unmarked burials. Due to the scarcity of rock shelters and caves in the area, archaeological sites are rare further inland and are expected to cluster on higher lying areas overlooking the relatively flat to undulating surroundings. Finds reported in this type of setting comprise mainly of isolated Stone Age specimens or very low density scatters of Stone Age artefacts that occur in disturbed contexts and are devoid of any faunal remains or other cultural materials and features. For the most part, such heritage resources are rated to be of low significance (Generally Protected C or Grade IIIc).

4.5 Legal Requirements

The following legal requirements - relevant to heritage - apply to the proposed grid connection development:

- The National Environmental Management Act, No. 107 of 1998 (NEMA as amended): An Environmental Authorisation is required for Listed Activities in Regulations pursuant to NEMA, and specialist assessments are required to inform the Scoping and EIA phases associated with the Application for Environmental Authorisation for the project;
- The National Heritage Resources Act, No. 25 of 1999 (NHRA): A full Heritage Impact Assessment is not required by the Eastern Cape Provincial Heritage Resources Authority for the proposed project. Only archaeological and palaeontological studies are required (ECPHRA e-mail of 28 January 2021).

The archaeological component of the BA process is being undertaken to comply with the following clause of Section 38(1) of the NHRA which triggers the requirement for a heritage impact assessment: (c) any development or other activity which will change the character of a site (i) exceeding 5 000 m² in extent; or (ii) involving three or more existing Erven or subdivisions thereof. ECPHRA was approached by this author, and ECPHRA confirmed in terms of Section 38(2) (a) that a heritage study was required, and ECPHRA requested in terms of Section 38(3) that archaeological and palaeontological impact

assessments be undertaken and that these studies be done by separate specialists, one for the archaeological component, and one for the palaeontological component. See Section 38(3) in Appendix A for further details required for the heritage study in terms of the NHRA No 25 of 1999.

4.6. Approach to the Study - Methodology

This assessment was conducted according to best practice principles and in accordance with guidelines and minimum standards required by heritage authorities in respect of the NHRA(HWC 2007, 2016a, 2016b, SAHRA 2007, 2010, 2012, 2017, 2018), and as set out in Section 13, GN.R982 of NEMA(General requirements forEAPs and Specialists).

4.6.1. Desktop & Literature Review (see Section 5.1)

This author has considerable work experience in the coastal region of the Eastern Cape Province and is familiar with the main types of heritage resources that occur in the area (Nilssen 2003, 2010, 2013, 2014, 2015, 2016, 2019a, 2019b, 2019c & 2019d, Nilssen & Van Ryneveld 2012, and Nilssen & Smith 2015). A desktop study and literature review was undertaken, which relied in part on this author's experience in the area and also focused on the SAHRIS database up to 2020, which is by no means exhaustive. Previous heritage and archaeological studies in the immediate surroundings have already provided detailed descriptions of the history, heritage and archaeological record of the area (see for example Binneman 2010a, 2011a, 2011b & 2011c and references therein, Van Ryneveld 2010 and references therein and ACO UCT 2010). While giving a broad overview of the archaeological record presented in the reports listed in the reference section below, the focus is on identifying key heritage resources and concerns already identified in earlier studies and how they inform the assessment being conducted here.

The desktop study also involved a detailed inspection of aerial imageryavailable through Google Earth. The main aim of examining aerial imagery was to determine which development activities encroached upon potentially sensitive areas, and to locate man-made structures or ruins.

4.6.2. Archaeological Survey(see Section 5.2)

Due to the small size of the three study areas for the BESS facilities, a detailed archaeological foot survey was conducted on 24 May 2021, and focused on identifying heritage resources of both prehistoric and historic origin. Based on past experience, the desktop study, and literature review, the chance of finding significant archaeological sites was expected to be low. It was anticipated, however, that isolated Stone Age artefacts or low density scatters of Stone Age artefacts may be seen.

4.6.3. Consultation (see Section 5.3)

Posters advertisingthe development have been placed at visible locations in the area, in three languages (i.e. English, Afrikaans, and isiXhosa). Theproject has been advertised under the legal section of the Herald and in the Kouga Express in 3 languages. CEN have notified the EC PHRA as well as the Gamtkwa Khoisan Council, a local registered I&AP,

about the proposed development. This round of public participation is part of the pre-application process.

The next step will be to submit a formal application form and Draft Basic Assessment Report (DBAR) to the authorities. Registered interested and affected parties (IAPs) and state departments will be notified of the availability of the DBAR for a 30 day comment period. The report will describe the project proposal and the surrounding environment, and will identify and assess the significance of potential impacts of the development on the biophysical and socio-economic environment. Comments received on the draft report will be collated, and the report updated to a Final BAR for submission to the National DFFE for their review. All reports and information related to the project will be added to the EAP's website on the project tab at <https://environmentcen.co.za/projects/>

4.7. Assumptions, Limitations and Gaps in Knowledge

This assessment assumes that all background information and layout plans provided by Red Cap and CEN are correct and current. This assessment is specifically for the three proposed localities for the BESS facilities for the three approved Impofu Wind Farms (North, West and East) as shown in Figures 3, 4, 5 and 6.

The only limitation to this study is reduced archaeological visibility as all three study areas are under cultivation and, at the time of field work, grasses and crops covered large parts of the BESS sites (Plates 1 and 2). Nevertheless, based on previous archaeological surveys in the area as well as partly exposed ground surfaces, sufficient observations were made for the purpose of this assessment (Nilssen 2019a, 2019b & 2019c). The chances of significant archaeological sites occurring in the three BESS development sites are low.

As in all environments with soft geological sediments, the presence of sub-surface archaeological remains cannot be ruled out and such materials may be exposed during vegetation clearing and earthmoving activities associated with development.

5. Results

5.1. Archaeological Background

Most of the references cited and literature consulted during the desktop study are heritage-related impact assessments for a variety of developments that are relevant to the current BESS study areas and are listed in the reference section below. Studies specifically conducted for wind farm and associated grid connection projects in the surrounding environs include Anderson 2010, Binneman 2010a, 2010b, 2011a, 2011b, 2011c, 2011d, 2011e, 2012a, 2012b, Binneman & Reichert 2015 & 2017, Kaplan 2016, Nilssen 2014, 2015, 2016, 2019a, 2019b, 2019c, 2019d, Orton & Muller 2020 and Van Ryneveld 2010 and 2013.

Based on previous studies in the surrounding environment, it is known that the area contains heritage resources including a variety of historic period structures, associated cultural materials, graves and grave yards, while the prehistoric period, particularly in the areas further than 5km inland from the present day shoreline, is most commonly represented by Early Stone Age and Middle Stone Age stone artefacts in open contexts (e.g., ACO UCT 2010, Anderson 2010, 2011, Binneman 2010b, 2011b, 2011c, 2011d, 2012a, 2012b, 2013a, 2013b, 2013c, Binneman & Reichert 2015, 2017, Kaplan 2016, Nilssen 2003, 2014, 2015,

2016, 2019a, 2019b, 2019c, 2019d, Webley 2003 and Van Ryneveld 2010). Stone Age artefacts in open contexts normally occur in isolation or in very low densities and are devoid of any other cultural and faunal remains, which results in these resources being considered to be of low heritage value from a scientific perspective. An exception to this broader pattern is a large Early Stone Age site that comprises a scatter of thousands of stone artefacts in a previously ploughed and disturbed area immediately north of the Impofu North Wind Farm (Binneman 2010b). Outcrops of quartzite that have been quarried by prehistoric peoples for raw materials used in the manufacture of stone tools are fairly common in the area, and several of these are now protected as a result of archaeological investigations done for the Impofu Wind Farms (Nilssen 2019a, 2019b & 2019c).

Further details regarding heritage resources occurring in the area are given in the archaeological background section below. As reported by most investigators, the greatest limiting factor to archaeological fieldwork is poor visibility of ground surfaces due to dense natural vegetation cover and seasonal agricultural crops.

At the initiation stage of the project, Eastern Cape Heritage Consultants were commissioned by Red Cap to undertake a desktop study for the Impofu Wind Farms and Grid Connection projects (Binneman & Reichert 2017). Their comprehensive study included a review of reports of heritage-related work in the surrounding area from 2006 up to 2017. Dr Binneman's research experience in the area, however, stretches from the 1980's to present. Their desktop study includes the findings and assessments of the existing neighbouring wind farms and their transmission lines as well as those for which Dr Binneman conducted studies, also including other developments like borrow pits etc. Binneman and Reichert produced a Google Earth map with 100 archaeological sites and observations. In their discussion of the Impofu Wind Farms Site, they reported the following:

"The desktop study identified only a few locations (all north of the southern boundary of the WEF) where Early and Middle Stone Age stone tools were observed. These stone tools were found randomly scattered without any recognised distribution patterns. They were in secondary context and not associated with any other archaeological materials, and therefore are of low cultural significance. Most of the area is also already disturbed by farming activities. Based on our experiences and knowledge gained from other investigations in the immediate area and the wider surrounding region, it would appear that the area in general is of low cultural sensitivity and it is unlikely that any in situ archaeological remains will be exposed during the development" (Binneman & Reichert 2017, page 17).

Pre-Colonial / Stone Age Period

Several heritage related studies have been conducted along the nearby coastline, which is rich in archaeological resources of Early, Middle and Later Stone Age origin. A strip along the coast of up to 5km wide is particularly rich and is considered to be one of the richest archaeological and pre-colonial cultural landscapes in South Africa (Binneman 2010a, ACO UCT 2010 and SAHRA APM 2010). The archaeology of the adjacent interior is not well known due to a paucity of research (also see Binneman & Reichert 2017).

Early Stone Age (ESA) materials including Acheulian hand axes, cleavers and chopping tools that date from between about 1.5 million and 300 000 years ago is the earliest evidence for human ancestors occupying this area. Such artefacts are usually found among ancient river gravels and on old palaeosols exposed within dune fields like those at Geelhoutboom and Brandewynkop (Deacon & Geleijnse 1988 and Binneman's personal observations). A large scatter comprising thousands of ESA and MSA stone artefacts, however, was identified in previously ploughed and disturbed sediments to the north of the Impofu Wind Farm site, but this ESA site will not be affected by the proposed Impofu Wind

Farms development (Binneman 2010b). While ESA artefacts are common among the dunes immediately east of Thysbaai, they are rare in the dunes a bit further north between Oyster Bay and St Francis Bay and always identified in disturbed or derived contexts where they are usually mixed with artefacts of more recent Stone Age times. Although ESA artefacts were identified in the immediate surroundings of the study area, they are rare, and always found in secondary, derived and mixed contexts, and are therefore considered to be of low significance (also see Van Ryneveld 2010 and Nilssen 2019a, 2019b, 2019c & 2019d). More recently, however, during an archaeological assessment near Jeffery's Bay, some *in situ* ESA stone artefacts were identified (Kaplan 2016). An example of *in situ* ESA stone artefacts in the Impofu Wind Farms site is shown in Plate 6 (Almond 2017, also see Nilssen 2019a, 2019b & 2019c).

The Middle Stone Age (MSA) starts at about 300 000 years ago and gives way to the Later Stone Age some 30 000 years ago. MSA stone artefacts are characterised by flake and blade industries where evidence for core preparation - also known as the Levallois technique - is seen on prepared or faceted striking platforms of points, flakes and blades. Convergent flakes or points are also one of the markers of the MSA period. The Klasies River Cave complex - a National Heritage Site some 8km west of the SW boundary of the Impofu Wind Farms study area - is the most significant MSA site in the area that contains evidence for human occupation spanning the last 120 000 years. Research at the site has made a significant contribution to our understanding of the origins of modern humans, and therefore, Klasies River Cave is among 5 other South African archaeological sites that are in the process of being nominated for World Heritage Site status with UNESCO.

Stone artefacts of MSA origin occur among the dunes and exposed gravels in the area, with the dunes at Brandewynkop containing numerous MSA stone tools (personal observation, but see Orton & Muller 2020). Unfortunately, no other cultural materials or faunal remains apart from a single fossilised toothfragment (Orton & Muller 2020) are associated with these artefacts at Brandewynkop, but bone and fossil bone is associated with MSA materials in the dunes between Oyster Bay and St Francis Bay (also see Nilssen 2010). SAHRA has declared a delineated area containing Brandewynkop an exclusion area where no development is permitted. "At the eastern end of the (St Francis Bay) dune field are most remarkable Middle Stone Age 'factory' sites which consisted of large circular piles of flakes and cores. Most of the flake piles represent unique 'moments in time' where large numbers of flakes were produced from a single core" (Binneman 2010a pg 3). A comprehensive description of the mostly MSA archaeological record of Brandewynkop is included in the conservation management plan for the site (Orton & Muller 2020).

The Later Stone Age (LSA) in this area starts about 30 000 years ago and is characterised by substantial technological improvements over the MSA industries. Advancements on previous technologies and new technologies as well as cultural developments include the widespread occurrence of rock art (cave paintings and rock engravings), decorative objects (ostrich egg shell beads, marine shell pendants and beads, ochre), human burials with grave goods including painted stones, an expanded stone tool kit, microlithic stone tool industries (often associated with composite tools such as bow and arrow technology), bone tools, tortoise carapace bowls, ostrich egg shell containers, fire making sticks and so on. Many of the LSA sites in the area are shell middens, and although these usually occur within a few hundred metres of the shoreline, they are also found up to 5km inland.

Binneman has identified, described and dated the below-listed types of LSA archaeological sites and their contents that occur in the dune systems along the 5 km coastal

strip. No significant LSA sites have been recorded by previous studies in the immediate vicinity of the present study area.

1. large stone features associated with cooking (one dated to some 300 years ago);
2. shell middens with pottery only and with pottery and domesticated fauna that represent Khoi pastoralists or herders (dated to about 1800 and 1600 years ago respectively);
3. shell middens, without pottery, associated with a quartzite stone industry that Binneman has named the Kabeljous industry, which represent hunter-collector-fishers who lived along the coastal foreland (dated to between about 4700 and 1800 years ago); and
4. shell middens, without pottery, associated with a silcrete or quartz microlithic Wilton Industry that represent hunter gatherers or San who lived mainly in the interior and only visited the coast periodically (dated to between about 5180 and 1900 years ago) (Binneman 2010a pg 4-5).

Pastoralist / Herder Period

The last 2000 years saw a significant shift in the socio-economic setting with the immigration and settlement of KhoiKhoi peoples in the area from about 1800 years ago. As described above in the Later Stone Age section, the most common archaeological traces of the pastoralist / herder lifestyle in the area include large stone features associated with cooking, shell middens with pottery only and shell middens with pottery and domesticated animals (Binneman 2010).

The KhoiKhoi were the first food producing peoples in South Africa who brought domestic stock, pottery / ceramic containers and bowls and associated cultural items into the region. A lifestyle still closely connected with nature would have allowed for likely easy and mutually beneficial relations between KhoiKhoi and hunter-gatherer (San) peoples. Descendants of these first farming peoples, and offspring from converging KhoiKhoi and San families, such as members of the GamakwaKhoiSan Council, still live in the region today.

Colonial / Historic Period

The most recent inhabitants of the area are mostly of European origin and started settling here from around the late 1700s during the Colonial Period. These latest arrivals have had the most dramatic effect on the environment, particularly in more recent years with large scale cattle / dairy farming where large tracts of indigenous vegetation has been cleared for ploughing and planting of crops and pastures for cattle feed and grazing. Heritage resources related to this period - older than 60 years or of historic significance - include dwellings and associated structures and material culture as well as cemeteries, marked and unmarked human burials (Van Ryneveld 2010).

Cultural Landscape

Human occupation and use of the landscape and its features results in a visually more or less evident modification of that landscape. Human use of the environment, however, may have no visually detectible altering effect at all, but nevertheless, this imprinting of human behaviour on the environment, and the relationship between people and the landscape is what is implied by the term "cultural landscape"(see UNESCO 2008 for definitions, significance and preservation of cultural landscapes).

Although this area has been occupied by hominins and humans for at least 1.5 million years, the nomadic hunter-gatherer and to a lesser extent early pastoralist lifestyles of pre-historic inhabitants leaves little to no physical evidence of their presence in the landscape and has a negligible modifying effect on the landscape. This is in stark contrast to the significant alteration to the environment made over the past few hundred years by colonial

agricultural and urban settlements of the area, as well as the most recent industrial developments including wind farms and associated infrastructure.

Cultural landscapes are defined and informed by several elements including, but not limited to; natural landscape features, palaeontology, archaeology / anthropology, oral histories, public memory, the built environment and social and written histories. The value of cultural landscapes are determined through professional interpretation and opinion, community and public values as well as environmental and heritage legislation.

The cultural landscape of the affected environment includes three broad layers, with the most recent, colonial settlement and development over the past few hundred years having the most visually evident modifying effect on the landscape. Impacts related to this cultural layer include roads, single vehicle tracks, agricultural clearings for grazing and cultivation, variety of farming activities, variety of farmsteads, structures and infrastructure, quarries, dams, fencing, overhead power lines, transmission/receiver masts, wind turbines, electrical substations and infrastructure, and so on.

The second layer underlying the historic period and dating to the last 2000 years is the pastoralist or herder period, which in turn is underlain by the third layer comprised of the three Stone Age periods spanning the period from a few hundred years ago to the early periods of tool making archaic humans some 1.5 million years ago. The physical traces associated with herder and hunter-gatherer or Stone Age occupation of the area are described above.

Although the prehistoric cultural landscape is the least evident and often invisible, temporally, it makes up for the overwhelming bulk of human occupation of the region. Given that most of the archaic human (ESA) and human (MSA to recent) occupation of this area involves the Stone Age era, it can be argued that the most significant cultural layer in this area involves the pre-colonial cultural landscape and its sense of place.

SAHRA has already recognized the significance of the Thyspunt cultural landscape and will not approve any developments that will have a negative impact on it (SAHRA APM 2010). The Thyspunt cultural landscape, however, is only a fraction of a much larger and equally significant pre-colonial cultural landscape that involves an up to 5km wide coastal strip that extends at least from St Francis Bay in the east to Klasies River in the west (Binneman 2011b & 2011c and ACO UCT 2010). Brandewynkop, referred to above, is part of this pre-colonial cultural landscape and is now protected through the conservation management plan that was developed in 2020 (Orton & Muller 2020).

Binneman provides a detailed description of the archaeological riches in this area, which he uses to justify the significance attributed to the pre-colonial cultural landscape in this area (Binneman 2011b & 2011c). Moreover, large stretches of South Africa's coastline are rich and varied cultural landscapes that house the highest quantity and quality of archaeological Stone Age sites in the world. With ever increasing coastal developments and resulting degradation of the coastal strip, it follows that as much as possible of this cultural landscape should be protected for future generations and scientists.

The renewable energy landscape made up of the existing Kouga, Gibson Bay, Tsitsikamma Community, Oyster Bay and Jeffery's Bay Wind Farms and their associated transmission lines is the most recent layer of the cultural landscape. These and additional approved wind farms in the surroundings of the study area already encroach on, and have a mostly aesthetic impact on the pre-colonial cultural landscape. The avoidance of the archaeologically sensitive areas identified in the Eastern Cape Heritage Consultants desktop

study will help to reduce the visual impact of the Impofu Wind Farms on the overall cultural landscape (Binneman & Reichert 2017). Because the proposed BESS facilities for the Impofu Wind Farms lie outside and inland of the 5km wide archaeologically sensitive coastal strip, the BESS facilities will not have a direct impact on the pre-colonial cultural landscape.

5.2. Archaeological Survey

Field work for this assessment was done on 24 May 2021 after Red Cap, on behalf of this author, obtained permission from the land owners to access the affected areas. The sites for the three BESS facilities were accessed by vehicle and the archaeological survey was conducted on foot. Figures 4, 5 and 6 show the archaeological survey tracks covering the BESS footprints and survey tracks in the immediate surroundings are from this author's fieldwork conducted for the three approved Impofu Wind Farms (Nilssen 2019a, 2019b & 2019c).

Even though ground surfaces were mostly covered by natural and agricultural vegetation, sufficient ground surfaces were exposed for the purpose of this assessment (Plates 1 and 2). Personal experience from previous field work in the immediate surroundings showed that these localities contain no significant archaeological resources, though isolated Stone Age specimens of low significance do occur from place to place.

In the case of the three proposed BESS sites, no archaeological heritage resources or traces were identified. Although there are no identified archaeological resources in the BESS study areas, it cannot be ruled out that such resources may occur in subsurface sediments or are currently covered by vegetation. Isolated Stone Age specimens are likely to occur over much of the development area, but they are considered to be of low significance and their disturbance or loss will have a negligible effect on the heritage value of the area.

Since we know that isolated Stone Age artefacts of low significance are present in the landscape and may be found in the BESS footprints, they are included here as a precautionary measure. The following is taken directly from this author's assessment and recommendations regarding such finds for the Impofu North Wind Farm (Nilssen 2019a).

Isolated Specimens and Low Density Stone Age Artefact Scatters

All of the Stone Age artefacts occur in either very low densities (well below 1 stone artefact per square meter), but more commonly as isolated pieces. There is a general tendency for slight, but noticeable increases in stone artefact occurrences and densities in higher lying areas. This pattern is fairly common for human use of landscapes in prehistoric and historic times because high lying areas provide good vantage points to observe the surrounding environment in general, and to keep an eye on animal and predator movement. None of the finds are classified as archaeological sites and all occurrences were found in derived and mixed contexts, and lacked other cultural materials and fauna normally associated with stone artefacts in sites like caves, rock shelters and shell middens where preservation is more favourable.

Significance and recommendation: These Stone Age finds are considered to be of low significance due to their low densities, the lack of any other associated cultural or faunal remains and their derived and mixed nature. It is recommended, therefore, that no further studies or mitigation of these finds is required. In addition, these occurrences are common in the surrounding landscape and similar finds recorded during earlier work on the Impofu Wind Farms project are avoided and thus conserved in the development layout. The finds are

given a field rating of Generally Protected C (Grade IIIc) and because they were adequately recorded previously, and are not classified as archaeological sites, it is recommended that a permit for their destruction is not required from the heritage authorities.

5.3. Consultation

At this stage of the project there are no results concerning the public participation or community consultation processes.

6. Sources of Risk, Impact Identification and Assessment

Vegetation clearing and earthmoving activities associated with the construction phase of the three BESS facilities have potential to impact archaeological resources and ultimately the cultural landscape, and therefore, only the construction phase is considered as a potential risk. There will be no impacts during the operational and decommissioning phases of the development. Only one anticipated impact associated with the construction phase of the BESS facilities is assessed.

Since the no-go option will involve continued and unknown impacts of natural and agricultural processes on archaeological resources, and because the proposed development impacts can be controlled and monitored if necessary, then the proposed development may actually be preferred over the no-go option. At this stage, however, there is no preference of one over the other.

The positive impact of this project is that we now have a larger area that has been investigated for archaeological resources and hence we have a better understanding of the archaeological record in the immediate surroundings. The project has also provided an opportunity to conserve any important archaeological resources if they were to occur in the area. This is not possible if uncontrolled piecemeal developments as well as natural and agricultural processes were to take place.

Currently there is no anticipated or known cumulative impact on archaeological resources or the cultural heritage value of the development site. Because the surrounding landscape is already under existing and approved wind farm development, the addition of the three BESS facilities will have a low to negligible additional impact on the aesthetic value of the area.

Table 1. Impact Table for Isolated Specimens and Low Density Stone Age Artefact Scatters – low significance.

Project phase	Construction		
Impact	Isolated Specimens and Low Density Stone Age Artefact Scatters		
Description of impact	Disturbance & destruction during construction phase		
Mitigatability	Low	Mitigation is not feasible and will not reduce the significance of impacts	
Potential mitigation	none, no further studies or mitigation required		
Assessment	Without mitigation		With mitigation
Nature	Slightly negative to neutral		Neutral
Duration	Permanent (4)	Impact is permanent, or in excess of 20 years	#N/A
Extent	Footprint (1)	Limited to specific isolated parts of the site	#N/A
Intensity	Very low (2)	The archaeological heritage value of the area negligibly altered	#N/A
Probability	Probable (2)	There is a possibility that the impact will occur to the extent that provisions must therefore be made.	#N/A
Confidence	High	Determination is based experience and specialist knowledge	#N/A
Reversibility	Low	Archaeological resources are non-renewable	#N/A
Resource irreplaceability	Low	The archaeological record is irreplaceable, but this resource is of low to no significance	#N/A
Significance	Low to none–slightly negative to neutral		#N/A
Comment on significance	Resource is of low significance and hence impact is negligible to neutral		
Cumulative impacts	low to none		

Significance value = (extent + duration + Intensity) x probability
 Significance value = (1 + 4 + 2) x 2
 Significance value = 14

According to the methodology provided by CEN, the significance value of 14 is Low Significance, meaning that, “The impacts are less important, but some mitigation is required to reduce the negative impacts.” However, mitigation is not feasible and will not reduce the significance value or negative impacts. Nevertheless, as stated above, the negative impacts will not reduce the archaeological or heritage value of the area due to the low significance of the heritage value of this category of archaeological remains.

7. Conclusions and Recommendations

A comprehensive archaeological foot survey of the three proposed sites for the Impofu BESS facilities was conducted on 24 May 2021. No archaeological heritage resources or sites were identified in the study area. Since we know that isolated Stone Age artefacts of low significance are present in the landscape and may be found in the BESS footprints, they are included here as a precautionary measure.

1) Isolated Specimens and Low Density Stone Age Artefact Scatters.
Recommendation: No further studies or mitigation of these finds is required and even

though they are protected by the NHRA, it is recommended that a permit for their disturbance or destruction is not required from the EC PHRA;

2) In the event that vegetation clearing and earthmoving activities expose archaeological or palaeontological resources, then such activities must stop immediately and the Eastern Cape Provincial Heritage Resources Authority (ECPHRA) must be notified immediately. These heritage resources are protected by Section 35(4) of the NHRA (Act 25 of 1999) and may not be damaged or disturbed in any way without a permit from the relevant heritage authorities. Any work in mitigation, if deemed appropriate, should be commissioned and completed before construction continues in the affected area and will be at the expense of the developer.

3) In the event of exposing human remains during construction, then the find should be protected from further disturbance and work in the immediate area should be halted. The find will fall into the domain of SAHRA and would need to be reported to them, and will require inspection by a professional archaeologist to undertake mitigation, if needed. Any disturbance to a human burial older than 60 years will require a permit in terms of Section 36 (3)(a). Graves and burial grounds are the property of the state and may require excavation and curation in an approved institution. Any work associated with the find will also be at the cost of the developer.

All of the above recommendations must be included in the Environmental Management Program for the proposed three BESS facilities for the Impofu Wind Farms.

From an archaeological standpoint, this assessment found no archaeological resources and there are no fatal flaws. Consequently there are no objections to the development of the proposed three BESS facilities for the Impofu Wind Farms.

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9. Figures and Plates (on following pages)

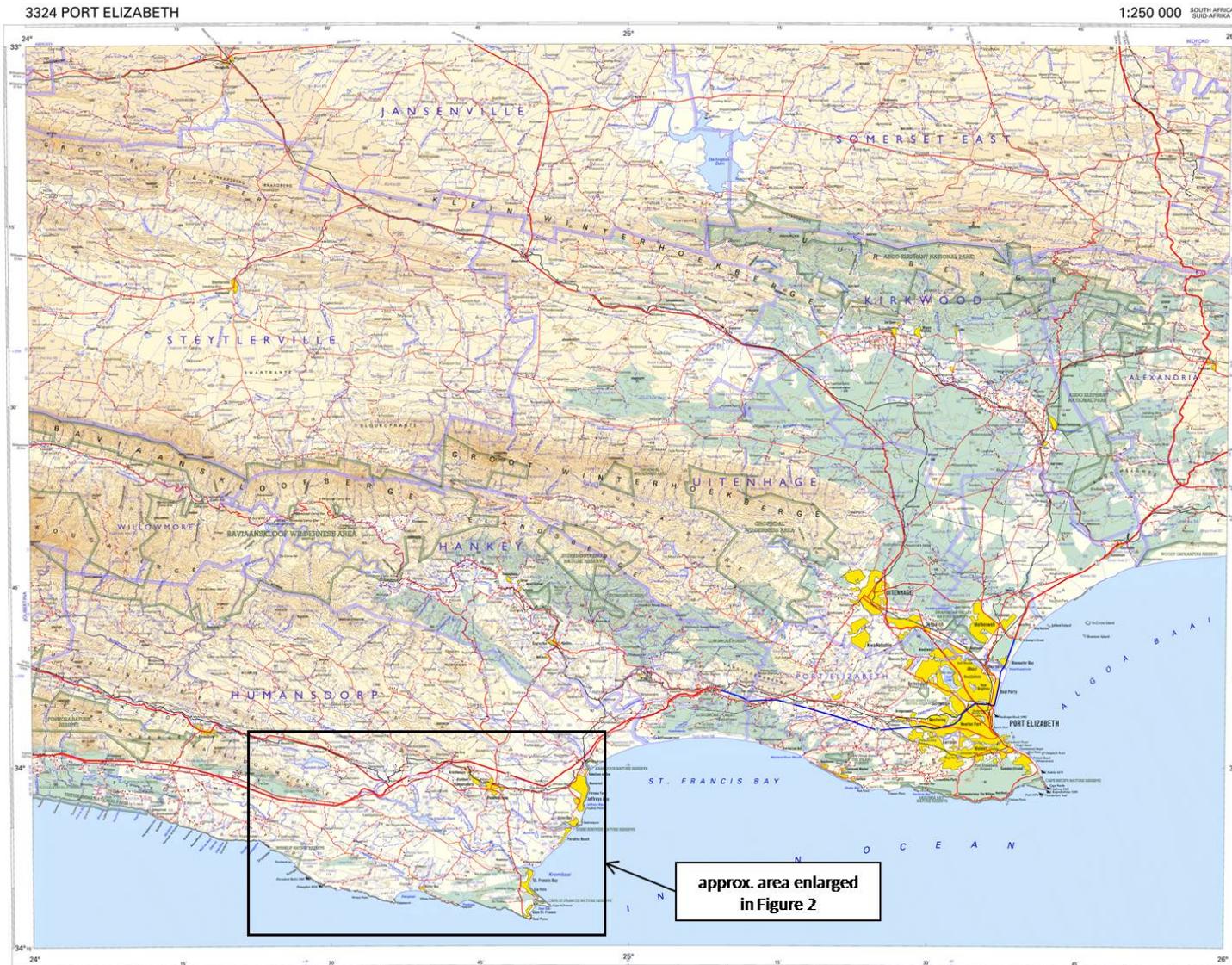


Figure 1. General location of the Impofu Wind Farms (North, West & East) in the Humansdorp, Cape St Francis and Gqeberha (Port Elizabeth) region of the Eastern Cape Province. Map – 3324 Port Elizabeth 1:250 000 - courtesy of The Chief Directorate, Surveys & Mapping, Mowbray.



Figure 2. Area enlarged from Figure 1 showing the location of the three BESS facilities (labelled yellow markers) for the Impofu Wind Farms (North, West and East) indicated with red lines, and a portion of the approved Impofu Grid Connection leading to the Chatty Substation is shown with a blue line Courtesy of Red Cap, CEN and Google Earth 2021.

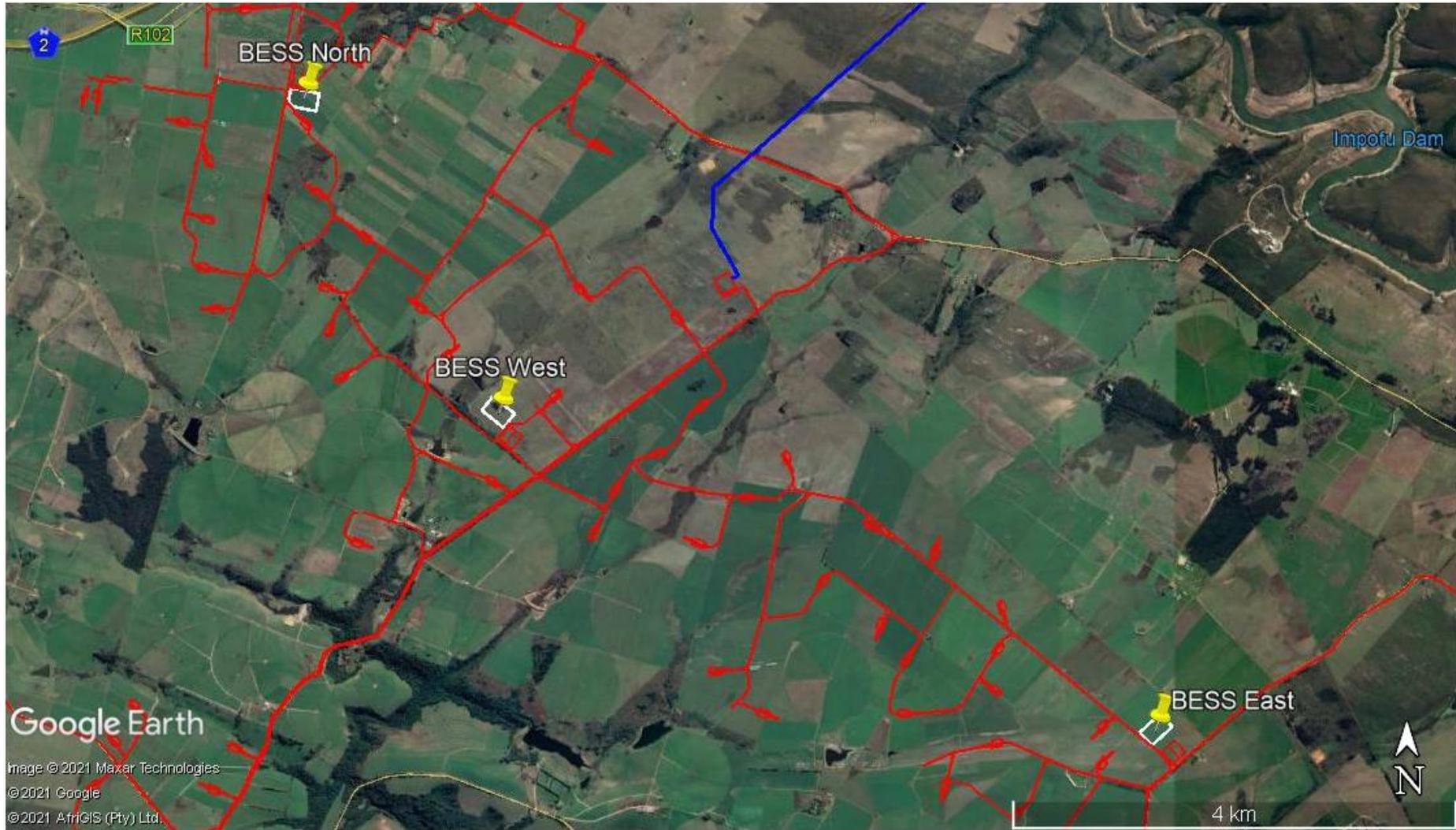


Figure 3. Area enlarged from Figure 2 showing the location and extents of the BESS facilities (white polygons with labelled yellow markers) for the Impofu Wind Farms (North, West & East) indicated with red lines. Courtesy of Red Cap, CEN and Google Earth 2021.

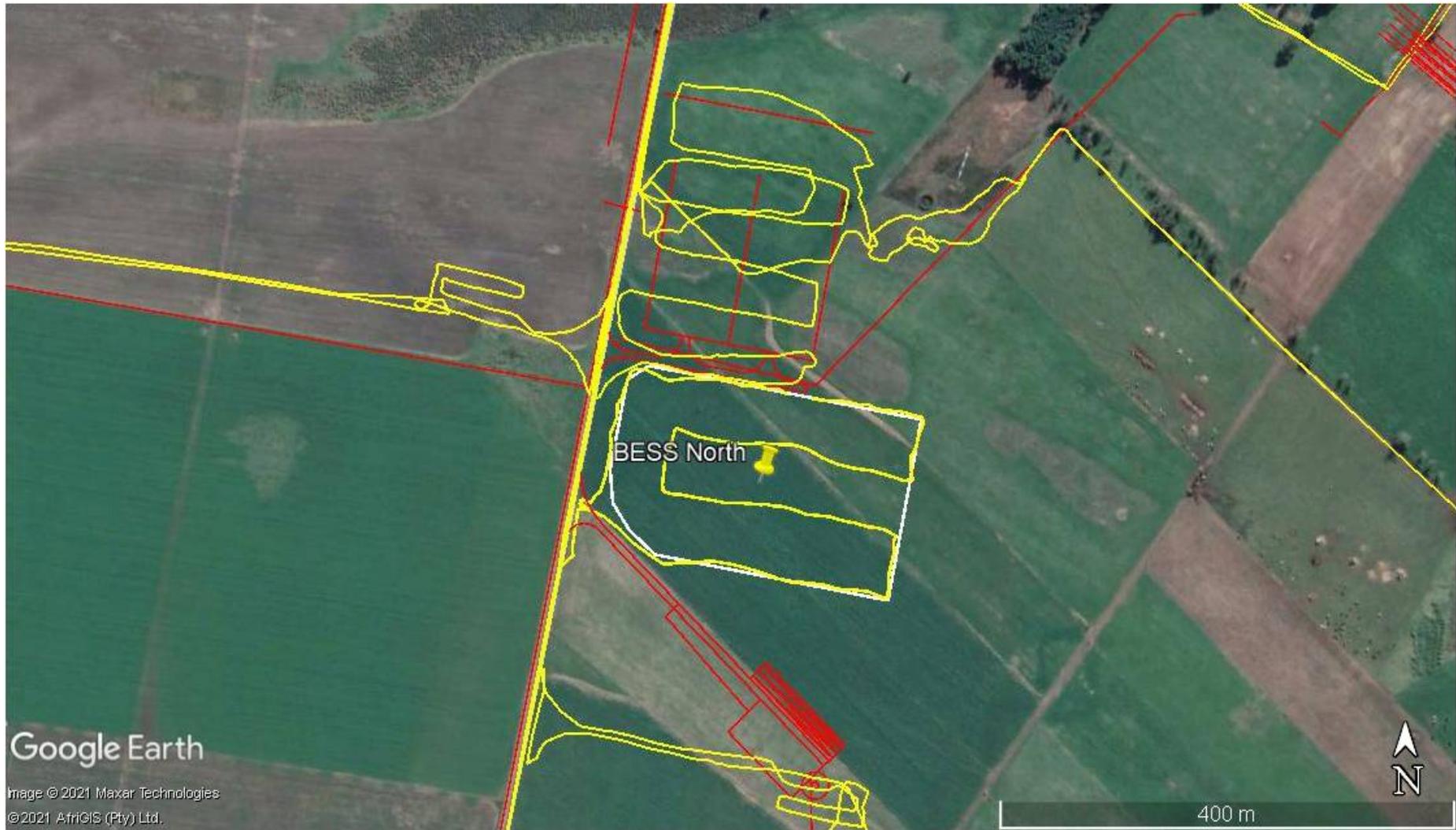


Figure 4. Area enlarged from Figure 3 showing the location and extent of the proposed BESS facility (white polygons with labelled yellow markers) for the Impofu North Wind Farm (red lines). Archaeological survey tracks are indicated with yellow lines. Courtesy of Red Cap, CEN and Google Earth 2021.

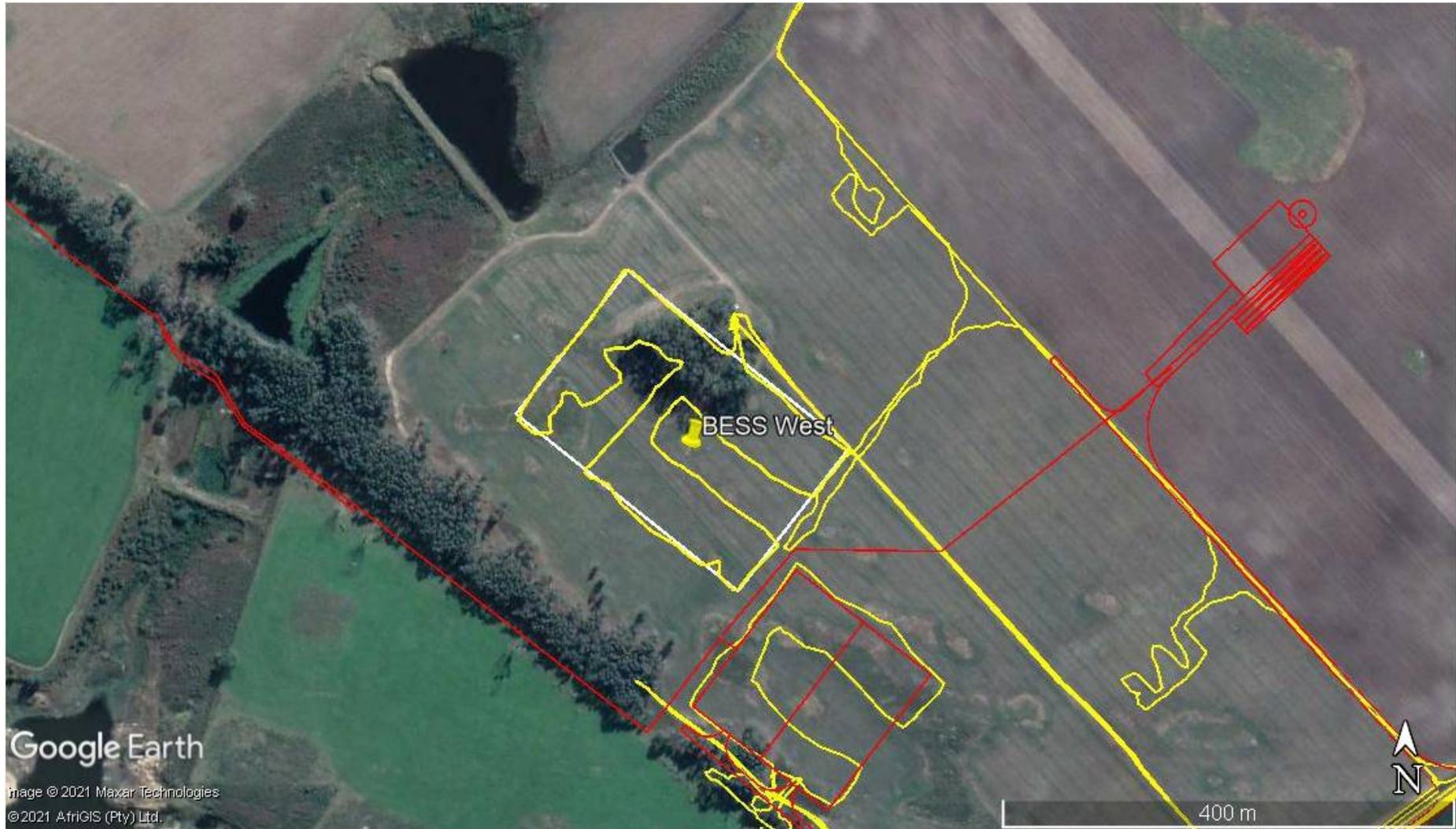


Figure 5. Area enlarged from Figure 3 showing the location and extent of the proposed BESS facility (white polygons with labelled yellow markers) for the Impofu West Wind Farm (red lines). Archaeological survey tracks are indicated with yellow lines. Courtesy of Red Cap, CEN and Google Earth 2021.



Figure 6. Area enlarged from Figure 3 showing the location and extent of the proposed BESS facility (white polygons with labelled yellow markers) for the Impofu East Wind Farm (red lines). Archaeological survey tracks are indicated with yellow lines. Courtesy of Red Cap, CEN and Google Earth 2021.



Plate 1. Examples of the receiving environment at the proposed BESS facility for the Impofu North Wind Farm (top and bottom L) and for the Impofu West Wind Farm (bottom R).



Plate 2. Examples of the receiving environment at the proposed BESS facility for the Impofu West Wind Farm (top) and for the Impofu East Wind Farm (bottom).

Appendix A

Legislation regarding the general protection of heritage resources taken from the National Heritage Resources Act (Act 25 of 1999)

Provisional protection

29. (1) SAHRA, or a provincial heritage resources authority, may, subject to subsection (4), by notice in the Gazette or the Provincial Gazette, as the case may be—

(a) provisionally protect for a maximum period of two years any—

(i) protected area;

(ii) heritage resource, the conservation of which it considers to be threatened and which threat it believes can be alleviated by negotiation and consultation; or

(iii) heritage resource, the protection of which SAHRA or the provincial heritage resources authority wishes to investigate in terms of this Act; and

(b) withdraw any notice published under paragraph (a).

(2) A local authority may, subject to subsection (4), by notice in the Provincial Gazette—

(a) provisionally protect for a maximum period of three months any place which it considers to be conservation-worthy, the conservation of which the local authority considers to be threatened and which threat it believes can be alleviated by negotiation and consultation; and

(b) withdraw any notice published under paragraph (a): Provided that it notifies the provincial heritage resources authority within seven days of such provisional protection.

(3) A provincial heritage resources authority may, by notice in the Provincial Gazette, revoke a provisional protection by a local authority under subsection (2) or provisionally protect a place concerned in accordance with subsection (1).

(4) A heritage resources authority or a local authority may not provisionally protect any heritage resource unless it has notified the owner of the resource in writing of the proposed provisional protection.

(5) A heritage resource shall be deemed to be provisionally protected for 30 days from the date of service of a notice under subsection (4) or until the notice is withdrawn or the resource is provisionally protected by notice in the Gazette or the Provincial Gazette, whichever is the shorter period.

(6) A heritage authority or a local authority may at any time withdraw a notice which it has issued under subsection (4).

(7) SAHRA shall inform the relevant provincial heritage authority and local authority within 30 days of the publication or withdrawal of a notice under subsection (1).

(8) A provincial heritage resources authority shall inform the relevant local authority within 30 days of the publication or withdrawal of a notice under subsection (1).

(9) A local authority shall inform the provincial heritage authority of the withdrawal of a notice under subsection (2)(b).

(10) No person may damage, deface, excavate, alter, remove from its original position, subdivide or change the planning status of a provisionally protected place or object without a permit issued by a heritage resources authority or local authority responsible for the provisional protection.

Legislation relevant to Heritage Areas taken from the National Heritage Resources Act (Act 25 of 1999)

Heritage areas

31. (1) A planning authority must at the time of revision of a town or regional planning scheme, or the compilation or revision of a spatial plan, or at the initiative of the provincial heritage resources authority where in the opinion of the provincial heritage resources authority the need exists, investigate the need for the designation of heritage areas to protect any place of environmental or cultural interest.

(2) Where the provincial heritage resources authority is of the opinion that the need exists to protect a place of environmental or cultural interest as a heritage area, it may request a planning authority to investigate its designation in accordance with proposals submitted by the provincial heritage resources authority with its request. The planning authority must inform the provincial heritage resources authority within 60 days of receipt of such a request whether it is willing or able to comply with the request.

(3) Where the planning authority informs the provincial heritage resources authority that it is willing and able, the provincial heritage resources authority must assist the planning authority to investigate the designation of the place as a heritage area.

(4) Where the planning authority does not so inform the provincial heritage resources authority, or informs the provincial heritage resources authority that it is not so willing and able, the provincial heritage resources authority may investigate the designation of the place as a heritage area and, with the approval of the MEC, designate such place to be a heritage area by notice in the Provincial Gazette.

(5) A local authority may, by notice in the Provincial Gazette, designate any area or land to be a heritage area on the grounds of its environmental or cultural interest or the presence of heritage resources, provided that prior to such designation it shall consult—

(a) the provincial heritage resources authority; and

(b) owners of property in the area and any affected community, regarding inter alia the provisions to be established under subsection (7) for the protection of the area.

(6) The MEC may, after consultation with the MEC responsible for local government, publish regulations setting out the process of consultation referred to in subsection (5).

(7) A local authority must provide for the protection of a heritage area through the provisions of its planning scheme or by-laws under this Act, provided that any such protective provisions shall be jointly approved by the provincial heritage resources authority, the provincial planning authority and the local authority, and provided further that—

(a) the special consent of the local authority shall be required for any alteration or development affecting a heritage area;

(b) in assessing an application under paragraph (a) the local authority must consider the significance of the area and how this could be affected by the proposed alteration or development; and

(c) in the event of any alteration or development being undertaken in a heritage area without the consent of the local authority, it shall have the power to require the owner to stop such work instantly and restore the site to its previous condition within a specified period. If the owner fails to comply with the requirements of the local authority, the local authority shall have the right to carry out such restoration work itself and recover the cost thereof from the owner.

(8) A local authority may erect signage indicating its status at or near a heritage area.

(9) Particular places within a heritage area may, in addition to the general provisions governing the area, be afforded further protection in terms of this Act or other heritage legislation.

Legislation relevant to archaeology and palaeontology taken from the National Heritage Resources Act (Act 25 of 1999)

Archaeology, palaeontology and meteorites

35. (1) Subject to the provisions of section 8, the protection of archaeological and palaeontological sites and material and meteorites is the responsibility of a provincial heritage resources authority: Provided that the protection of any wreck in the territorial waters and the maritime cultural zone shall be the responsibility of SAHRA.

(2) Subject to the provisions of subsection (8)(a), all archaeological objects, palaeontological material and meteorites are the property of the State. The responsible heritage authority must, on behalf of the State, at its discretion ensure that such objects are lodged with a museum or other public institution that has a collection policy acceptable to the heritage resources authority and may in so doing establish such terms and conditions as it sees fit for the conservation of such objects.

(3) Any person who discovers archaeological or palaeontological objects or material or a meteorite in the course of development or agricultural activity must immediately report the find to the responsible heritage resources authority, or to the nearest local authority offices or museum, which must immediately notify such heritage resources authority.

(4) No person may, without a permit issued by the responsible heritage resources authority—

(a) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;

(b) destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;

(c) trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any meteorite; or

(d) bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites.

(5) When the responsible heritage resources authority has reasonable cause to believe that any activity or development which will destroy, damage or alter any archaeological or palaeontological site is under way, and where no application for a permit has been submitted and no heritage resources management procedure in terms of section 38 has been followed, it may—

(a) serve on the owner or occupier of the site or on the person undertaking such development an order for the development to cease immediately for such period as is specified in the order;

(b) carry out an investigation for the purpose of obtaining information on whether or not an archaeological or palaeontological site exists and whether mitigation is necessary;

(c) if mitigation is deemed by the heritage resources authority to be necessary, assist the person on whom the order has been served under paragraph (a) to apply for a permit as required in subsection (4); and

(d) recover the costs of such investigation from the owner or occupier of the land on which it is believed an archaeological or palaeontological site is located or from the person proposing to undertake the development if no application for a permit is received within two weeks of the order being served.

(6) The responsible heritage resources authority may, after consultation with the owner of the land on which an archaeological or palaeontological site or a meteorite is situated, serve a notice on the owner or any other controlling authority, to prevent activities within a specified distance from such site or meteorite.

(7) (a) Within a period of two years from the commencement of this Act, any person in possession of any archaeological or palaeontological material or object or any meteorite which was acquired other than in terms of a permit issued in terms of this Act, equivalent provincial legislation or the National Monuments Act, 1969 (Act No. 28 of 1969), must lodge with the responsible heritage resources authority lists of such objects and other information prescribed by that authority. Any such object which is not listed within the prescribed period shall be deemed to have been recovered after the date on which this Act came into effect.

(b) Paragraph (a) does not apply to any public museum or university.

(c) The responsible authority may at its discretion, by notice in the Gazette or the Provincial Gazette, as the case may be, exempt any institution from the requirements of paragraph (a) subject to such conditions as may be specified in the notice, and may by similar notice withdraw or amend such exemption.

(8) An object or collection listed under subsection (7)—

(a) remains in the ownership of the possessor for the duration of his or her lifetime, and SAHRA must be notified who the successor is; and

(b) must be regularly monitored in accordance with regulations by the responsible heritage authority.

Legislation relevant to burial grounds and graves taken from the National Heritage Resources Act (Act 25 of 1999)

Burial grounds and graves

36. (1) Where it is not the responsibility of any other authority, SAHRA must conserve and generally care for burial grounds and graves protected in terms of this section, and it may make such arrangements for their conservation as it sees fit.

(2) SAHRA must identify and record the graves of victims of conflict and any other graves which it deems to be of cultural significance and may erect memorials associated with the grave referred to in subsection (1), and must maintain such memorials.

(3) (a) No person may, without a permit issued by SAHRA or a provincial heritage resources authority—

(a) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;

(b) destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or

(c) bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation equipment, or any equipment which assists in the detection or recovery of metals.

(4) SAHRA or a provincial heritage resources authority may not issue a permit for the destruction or damage of any burial ground or grave referred to in subsection (3)(a) unless it is satisfied that the applicant has made satisfactory arrangements for the exhumation and re-interment of the contents of such graves, at the cost of the applicant and in accordance with any regulations made by the responsible heritage resources authority.

(5) SAHRA or a provincial heritage resources authority may not issue a permit for any activity under subsection (3)(b) unless it is satisfied that the applicant has, in accordance with regulations made by the responsible heritage resources authority—

(a) made a concerted effort to contact and consult communities and individuals who by tradition have an interest in such grave or burial ground; and

(b) reached agreements with such communities and individuals regarding the future of such grave or burial ground.

(6) Subject to the provision of any other law, any person who in the course of development or any other activity discovers the location of a grave, the existence of which was previously unknown, must immediately cease such activity and report the discovery to the responsible heritage resources authority which must, in co-operation with the South African Police Service and in accordance with regulations of the responsible heritage resources authority—

(a) carry out an investigation for the purpose of obtaining information on whether or not such grave is protected in terms of this Act or is of significance to any community; and

(b) if such grave is protected or is of significance, assist any person who or community which is a direct descendant to make arrangements for the exhumation and re-interment of the contents of such grave or, in the absence of such person or community, make any such arrangements as it deems fit.

(7) (a) SAHRA must, over a period of five years from the commencement of this Act, submit to the Minister for his or her approval lists of graves and burial grounds of persons connected with the liberation struggle and who died in exile or as a result of the action of State security forces or agents provocateur and which, after a process of public consultation, it believes should be included among those protected under this section.

(b) The Minister must publish such lists as he or she approves in the Gazette.

(8) Subject to section 56(2), SAHRA has the power, with respect to the graves of victims of conflict outside the Republic, to perform any function of a provincial heritage resources authority in terms of this section.

(9) SAHRA must assist other State Departments in identifying graves in a foreign country of victims of conflict connected with the liberation struggle and, following negotiations with the next of kin, or relevant authorities, it may re-inter the remains of that person in a prominent place in the capital of the Republic.

Legislation relevant to the proposed activity under consideration taken from the National Heritage Resources Act (Act 25 of 1999)

Heritage resources management

38. (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as—

(a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;

(b) the construction of a bridge or similar structure exceeding 50 m in length;

(c) any development or other activity which will change the character of a site—

(i) exceeding 5 000 m² in extent; or

(ii) involving three or more existing erven or subdivisions thereof; or

(iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or

(iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;

(d) the re-zoning of a site exceeding 10 000 m² in extent; or

(e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

(2) The responsible heritage resources authority must, within 14 days of receipt of a notification in terms of subsection (1)—

(a) if there is reason to believe that heritage resources will be affected by such development, notify the person who intends to undertake the development to submit an impact assessment report. Such report must be compiled at the cost of the person proposing the development, by a person or persons approved by the responsible heritage resources authority with relevant qualifications and experience and professional standing in heritage resources management; or

(b) notify the person concerned that this section does not apply.

(3) The responsible heritage resources authority must specify the information to be provided in a report required in terms of subsection

(2)(a): Provided that the following must be included:

(a) The identification and mapping of all heritage resources in the area affected;

(b) an assessment of the significance of such resources in terms of the heritage assessment criteria set out in section 6(2) or prescribed under section 7;

(c) an assessment of the impact of the development on such heritage resources;

(d) an evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development;

(e) the results of consultation with communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources;

(f) if heritage resources will be adversely affected by the proposed development, the consideration of alternatives; and

(g) plans for mitigation of any adverse effects during and after the completion of the proposed development.

(4) The report must be considered timeously by the responsible heritage resources authority which must, after consultation with the person proposing the development, decide—

(a) whether or not the development may proceed;

(b) any limitations or conditions to be applied to the development;

(c) what general protections in terms of this Act apply, and what formal protections may be applied, to such heritage resources;

(d) whether compensatory action is required in respect of any heritage resources damaged or destroyed as a result of the development; and

(e) whether the appointment of specialists is required as a condition of approval of the proposal.