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HERITAGE SCREENER

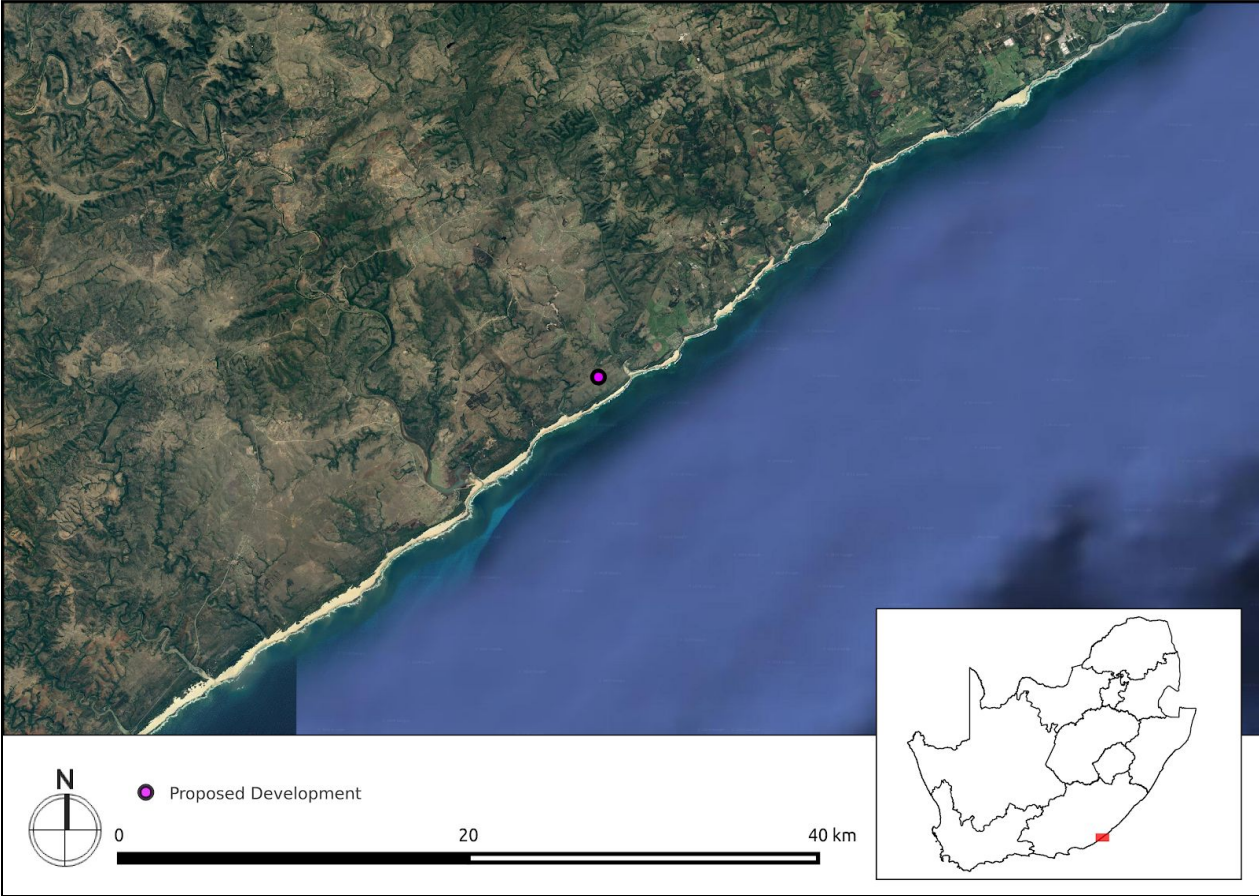
CTS Reference Number:	CTS19_039	
Client:	ACRM	
Date:	May 2019	
Title:	Mining permit application for Tyolomnqa (Keiskamma), Farm 1163, Eastern Cape	

Figure 1a. Satellite map indicating the location of the proposed development in the Eastern Cape Province

Recommendation by CTS Heritage Specialists	<p>RECOMMENDATION: Further heritage assessment work is required</p> <p>Due to the location and nature of the proposed development, it is likely that significant archaeological resources will be impacted by the proposed mine and as such, it is recommended that an archaeological field assessment is conducted. In addition, it is likely that significant palaeontological resources may be impacted during mining activities and as such, it is recommended that the attached Chance Fossil Finds Procedure be implemented throughout the life of the mine. This requirement must form part of the EMP for the project.</p>
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1. Proposed Development Summary

The required Mining Permit application is in terms of the National Environmental Management Act (NEMA) of 107 (1998) and the Mineral and Petroleum Resources Development Act (MPRDA) No. 28 of 20042 (MPRDA, amended in 2013) for the Environmental Authorisation and Mining Permit for the intended mining activity on Tyolomnqa (Keiskamma) farm 1163, situated in the Magisterial district of East London in the Eastern Cape province.

The sand minerals will be mined using front-end loaders to excavate the sands. The excavated sand will be transferred to a hopper and conveyed into a 100tph head feed modular plant (Primary Concentrator Plant - PCP) to produce Heavy Mineral Concentrate (HMC). The dry mining modular plant (PCP) will include trash screen, gravity spirals with ancillary conveyor belts, pumps, sumps and solids/liquid separation units. The plant is designed and configured for classification, concentration, separation and recovery of metals and minerals concentrate in dry mode and without the use of water. The HMC product of approximately 700tph will be generated and will comprise of heavy minerals including Zircon, Ilmenite and Rutile in a concentrate mix.

2. Application References

Name of relevant heritage authority(s)	ECPHRA
Name of decision making authority(s)	Department of Economic Development, Environmental Affairs and Tourism

3. Property Information

Latitude / Longitude	33°13'36.03"S 27°33'40.44"E
Erf number / Farm number	Farm 1163
Local Municipality	Buffalo City
District Municipality	Amatole
Previous Magisterial District	Mdantsane
Province	Eastern cape
Current Use	Animal grazing
Current Zoning	Agriculture
Total Extent	133.72ha

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4. Nature of the Proposed Development

Total Surface Area	<5ha
Depth of excavation (m)	20m
Height of development (m)	NA
Expected years of operation before decommission	24 months

5. Category of Development

x	Triggers: Section 38(8) of the National Heritage Resources Act
	Triggers: Section 38(1) of the National Heritage Resources Act
	1. Construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier over 300m in length.
	2. Construction of a bridge or similar structure exceeding 50m in length.
	3. Any development or activity that will change the character of a site-
x	a) exceeding 5 000m ² in extent
	b) involving three or more existing erven or subdivisions thereof
	c) involving three or more erven or divisions thereof which have been consolidated within the past five years
	4. Rezoning of a site exceeding 10 000m ²
	5. Other (state):

6. Additional Infrastructure Required for this Development

Site Infrastructure includes the Drilling site, Dry mining site, Mobile administrative offices, Mobile ablution facilities, 6m or 12m Product storage containers, Security Access Offices, Access roads between drilling, mining, plant, offices and provincial roads and a spares storage facility (6m/12m containerised).

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7. Mapping (please see Appendix 3 and 4 for a full description of our methodology and map legends)



Figure 1b Overview Map. Satellite image (2017) indicating the proposed development area at closer range.

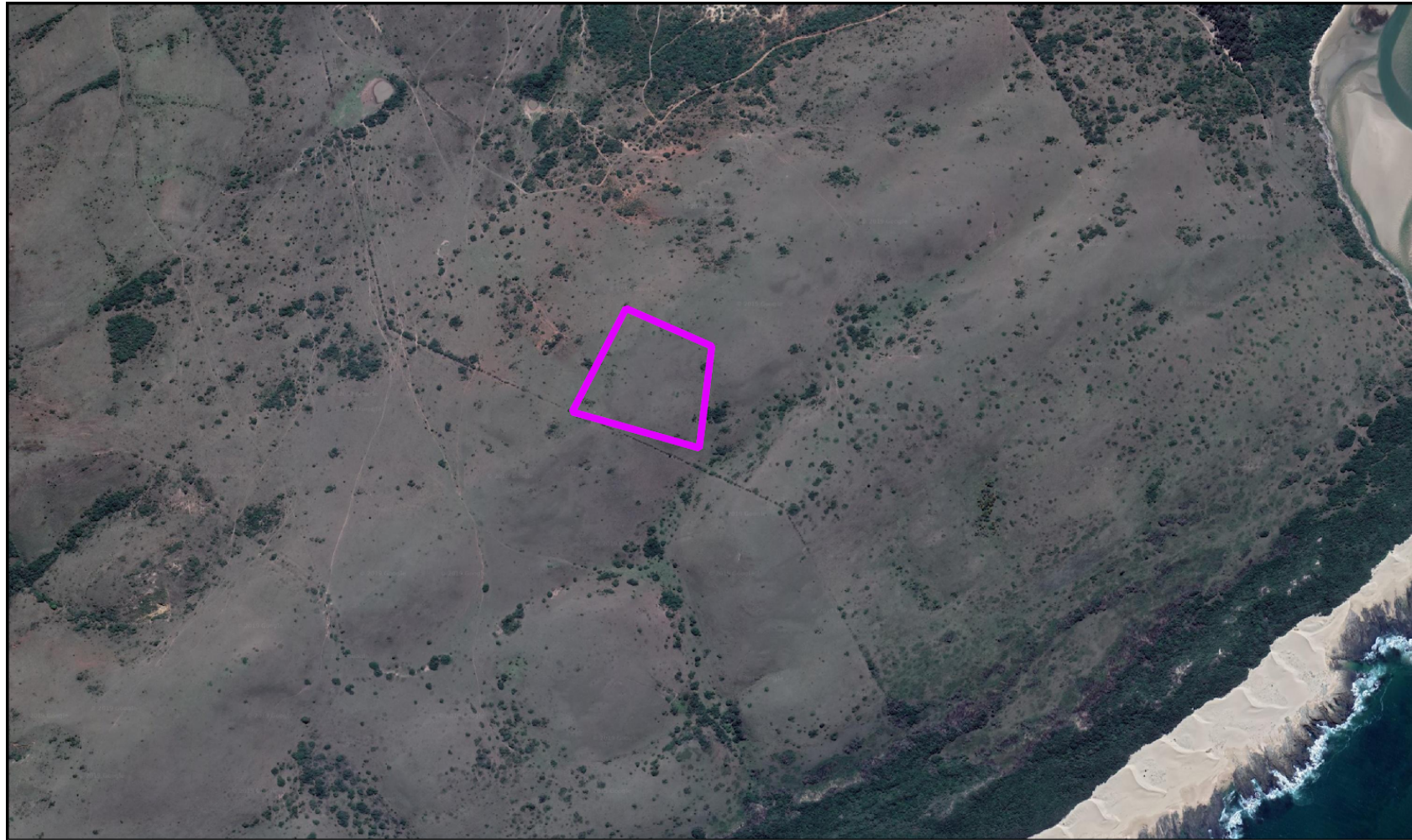
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 Proposed Development

1

0

1 km



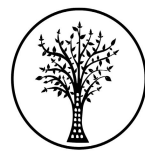
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Figure 1c. Overview Map. Satellite image (2017) indicating the proposed development area at closer range.

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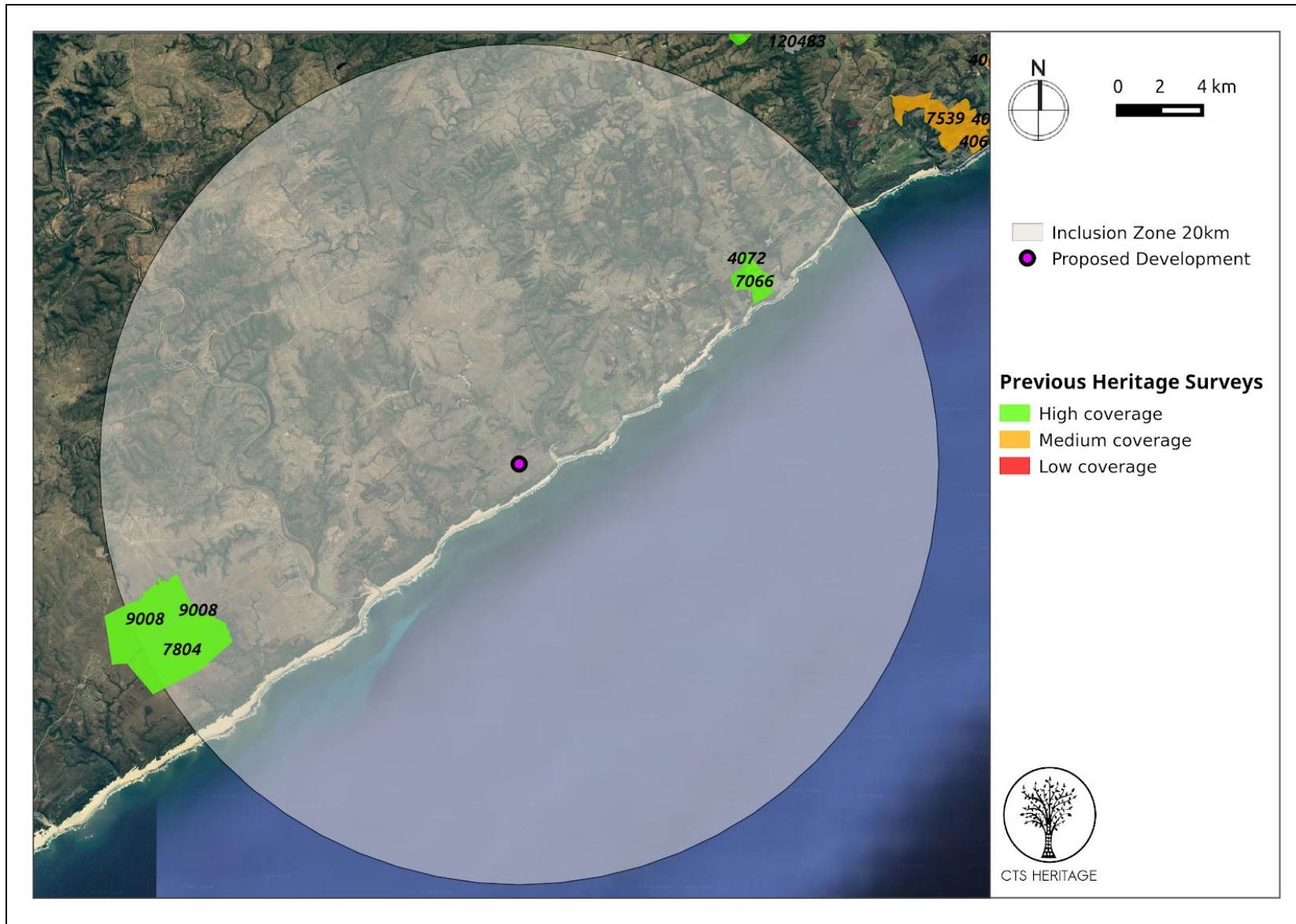


Figure 2. Previous HIAs Map. Previous Heritage Impact Assessments surrounding the proposed development area within 20km, with SAHRIS NIDS indicated. Please see Appendix 2 for full reference list.

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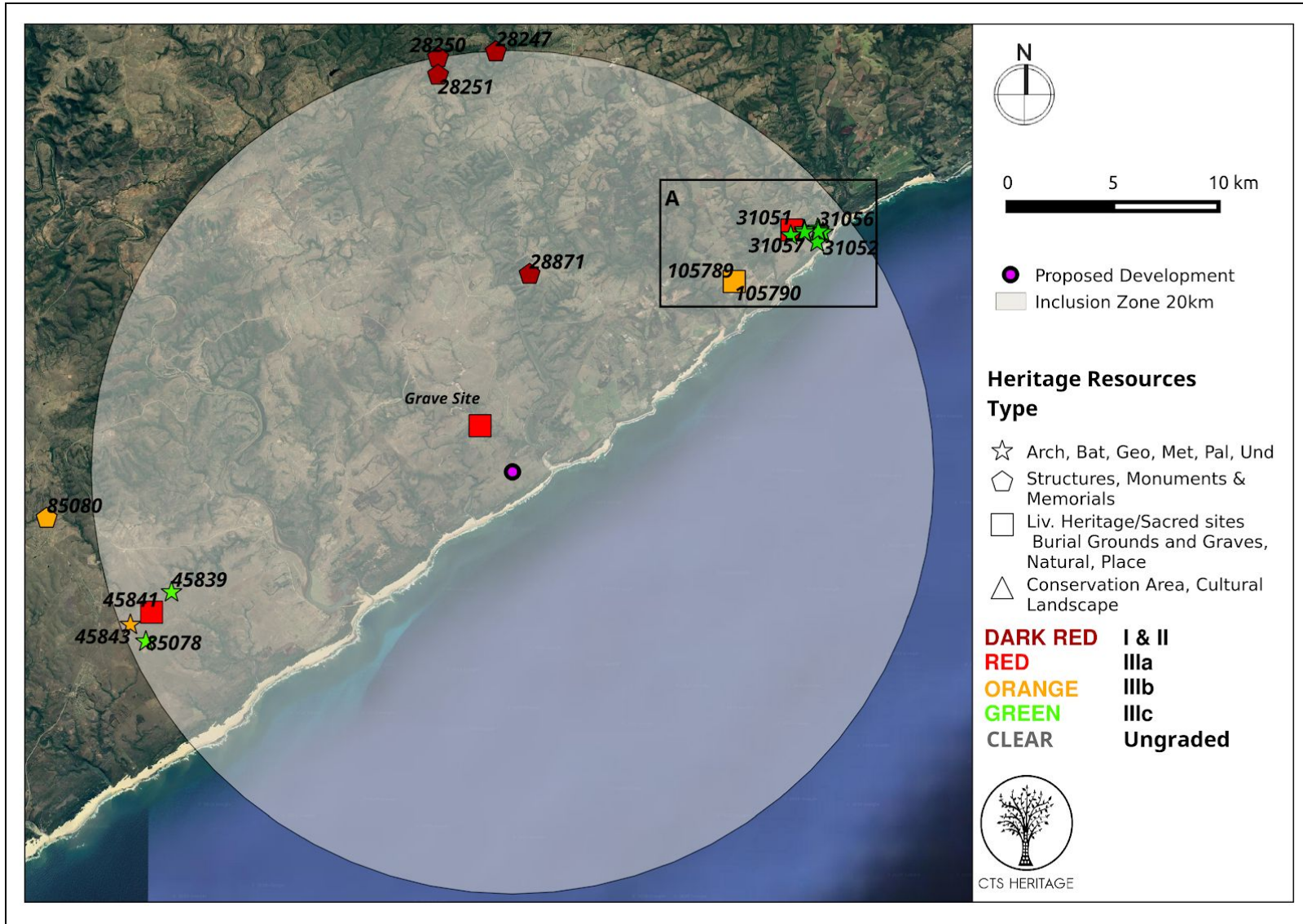


Figure 3a. Heritage Resources Map. Heritage Resources previously identified in and near the study area, with SAHRIS Site IDs indicated. Please See Appendix 4 for full description of heritage resource types.

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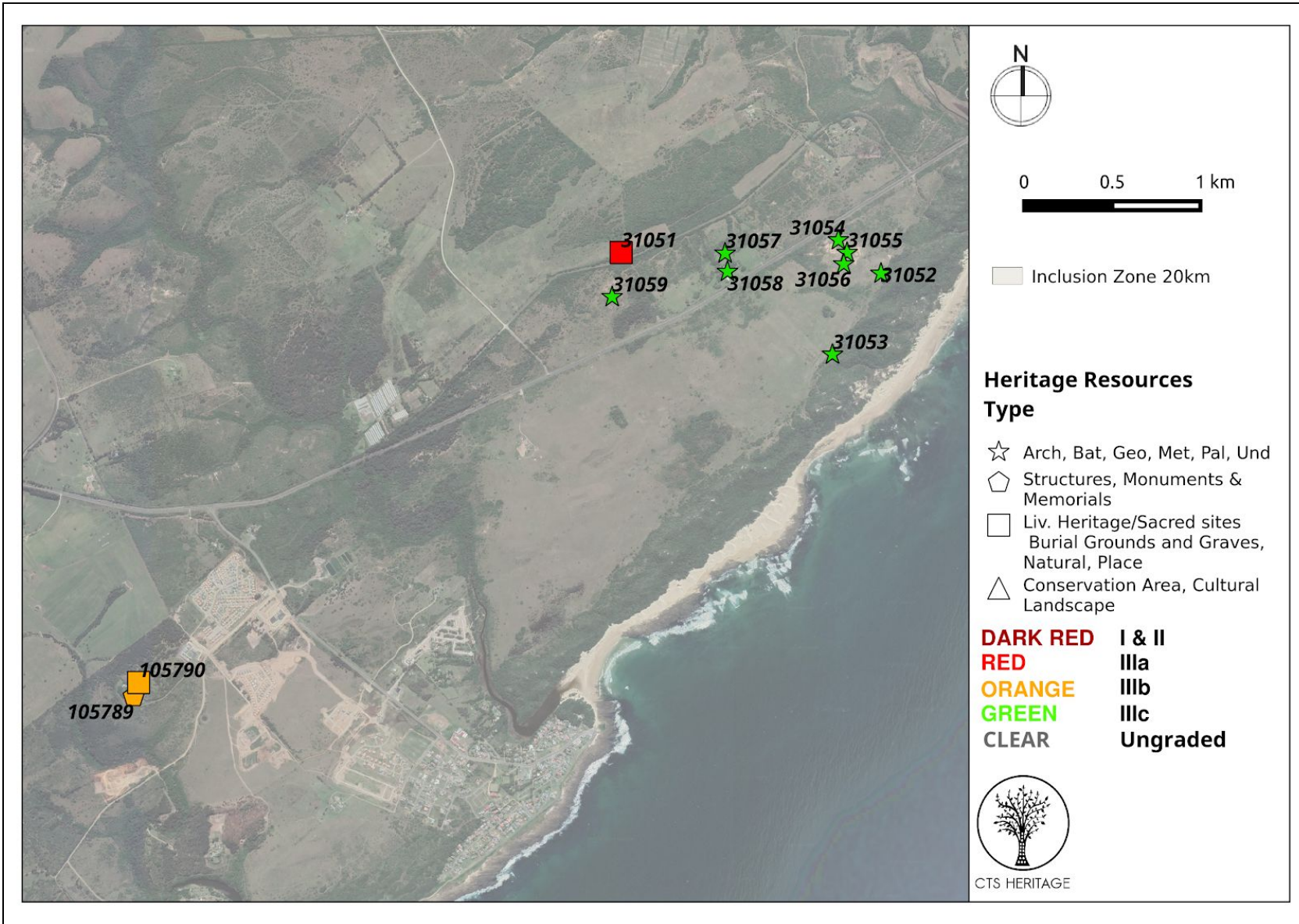


Figure 3b. Heritage Resources Map. Heritage Resources Inset A

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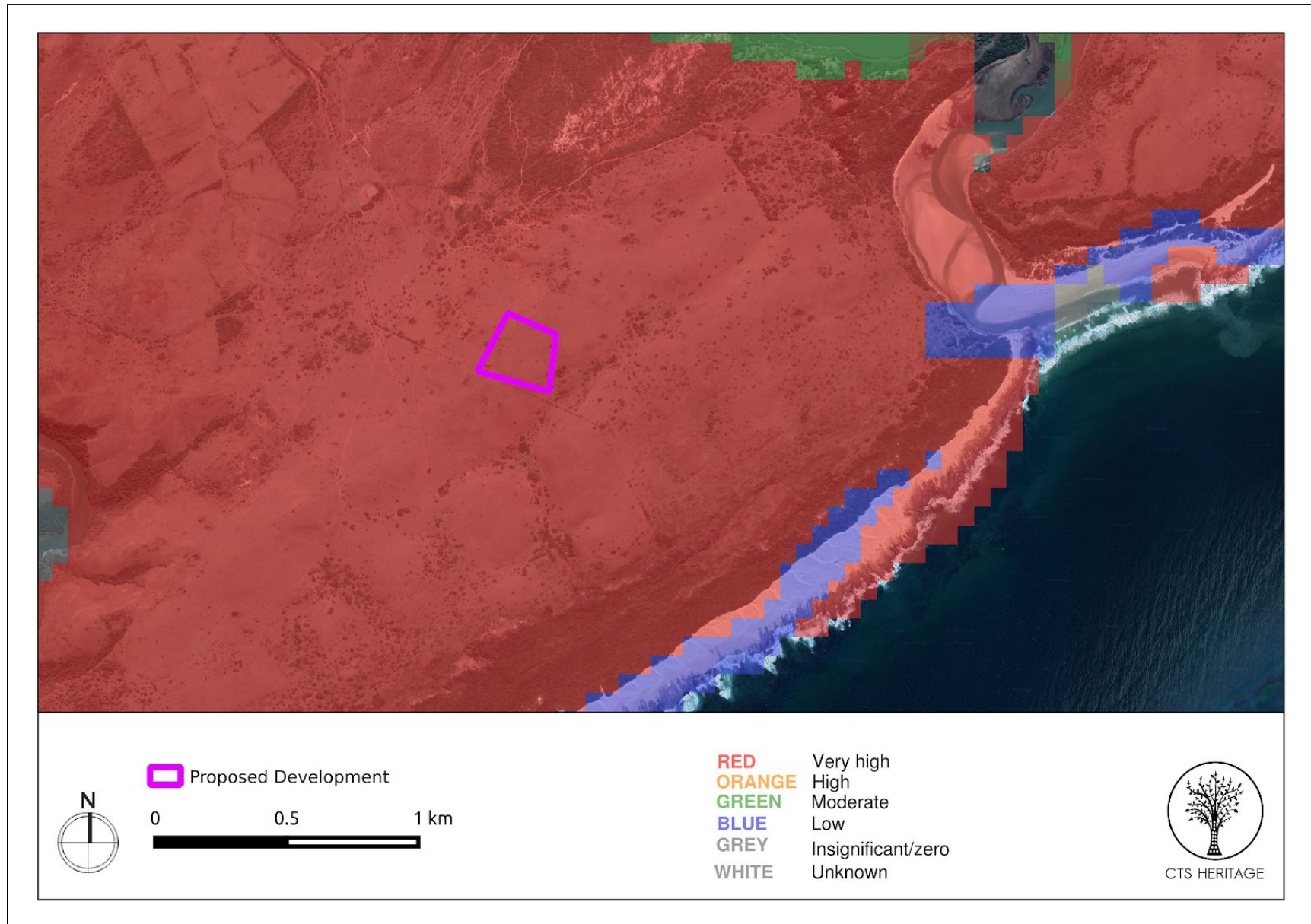


Figure 4. Palaeosensitivity Map. Indicating varied fossil sensitivity underlying the study area. Please See Appendix 3 for full guide to the legend.

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Figure 5.1, 5.2 and 5.3. Burial Ground. Images of burial ground identified approximately 2.5km from proposed mine (Grave Site in Figure 3)

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Figure 6.1, 6.2 and 6.3. Context.Images of the proposed mine area



Figure 6.4, 6.5 and 6.6. Context.Images of the proposed mine area

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8. Heritage statement and character of the area

This application is for the intended mining of sand on Tyolomnqa (Keiskamma) farm 1163, situated in the Magisterial district of East London in the Eastern Cape province. The area proposed for mining is located approximately 40km southwest of East London, along the south coast, with the proposed mining area located approximately 1.2km from the coastline and 1.6km from the Chalumna or Tyolomnqa River. It was near the mouth of this river in 1938 that Captain Hendrik Goosen caught a fish that was later identified as a coelacanth, a species which was previously thought to be long extinct and was at that point in time only known from the fossil record. Historically the Chalumna River formed the northern border of the former Ciskei shoreline until 27 April 1994 when all the Apartheid era political regions were reincorporated into South Africa. The area proposed for development appears to be covered in grass, and has been previously disturbed through agricultural activities such as cattle grazing.

The nearby Kayser's Beach town, located approximately 5km to the north east, is dated to the mid to late 19th century, with at least one significant site associated with the development of this town - the Ncera Methodist Church Provincial Heritage Site (SAHRIS SID 28871) indicated in figure 3. A number of other Provincial Heritage Sites are noted within the 20km inclusion zone, however all of these are located approximately 20km from the proposed mine area (Table 1). A burial ground has been identified located approximately 2.5km from the proposed mine area (Figure 3a). No known burials will be impacted by the proposed mine. No known heritage resources, structures or archaeological sites, will be impacted by the proposed mine.

Very few Heritage Impact Assessments (HIAs) have been conducted within the 20km inclusion zone according to SAHRIS (the South African Heritage Resources Information System) (Figure 2). A number of heritage reports were completed for the proposed Riverbank Wind Energy Facility situated approximately 20km south west of the proposed mine area. According to Booth (2010) in Binneman (2010 - SAHRIS NID 7804), the area proposed for the mine is located within the coastal archaeological sensitivity area which is within 5km of the coast. The archaeological assessment for the proposed Riverbank WEF identified random scatters of Middle Stone Age artefacts as well as fragmented scatters of marine shell within the WEF development area. Also noted were possible unmarked burials and the remains of a possible historical/Late Iron Age settlement. These would be the kinds of heritage resources that would be impacted by the proposed sand mine. It is therefore recommended that an archaeological field assessment be conducted to ensure that significant archaeological resources are not impacted by the proposed mining activity.

According to the SAHRIS Palaeosensitivity Map, the proposed mine is located in an area of very high palaeontological sensitivity (Figure 4). The geology underlying the proposed mine is part of the Nanaga Formation of the Algoa Group. The palaeontological significance and sensitivities associated with this formation have been described in De Klerk (2011 - SAHRIS NID 9008). De Klerk (2011) notes that "the younger Neogene Algoa Group sediments are represented by a veneer of marine and marine related (aeolian) formations... Rare fossils that are encountered in the Nanaga Formation include pollens, terrestrial and freshwater invertebrates, mammal bones and teeth." The recommendations from De Klerk (2011) for the Nanaga Formation are considered appropriate for this proposed sand mine, and are adapted as follows: In view of the nature of the field geology for the Nanaga Formation, the likelihood of well-preserved fossils being found within the proposed mine footprint is extremely slim. There is, however, a remote chance that some fossil forms like trace or invertebrate body fossil and possibly bone may be found during mining activities. It is therefore recommended that the attached Chance Fossil Finds Procedure be implemented throughout the life of the proposed mine.

RECOMMENDATION:

Further heritage assessment work is required

Due to the location and nature of the proposed development, it is likely that significant archaeological resources will be impacted by the proposed mine and as such, it is recommended that an archaeological field assessment is conducted. In addition, it is likely that significant palaeontological resources may be impacted during mining activities and as such, it is recommended that the attached Chance Fossil Finds Procedure be implemented throughout the life of the mine. This requirement must form part of the EMP for the project.

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APPENDIX 1

List of heritage resources within the 20km Inclusion Zone

Site ID	Site no	Full Site Name	Site Type	Grading
28871	9/2/026/0006	Old Methodist Church, Ncera, East London District	Building	Grade II
28250	9/2/050/0012	Magistrate's Court, Alexandra Road, King William's Town	Building	Grade II
28251	9/2/050/0013	Deeds Office, Alexandra Road, King William's Town	Building	Grade II
28247	9/2/050/0019	Sutton House, Queens Road, King William's Town	Building	Grade II
85078	WESPED001	Wesley-Peddie 001	Artefacts	Grade IIIc
85080	WESPED003	Wesley-Peddie 003	Structures	Grade IIIb
45839	RIVER 01	Riverbank 01	Artefacts	Grade IIIc
31051	UMLANDO-CEM3	UMLANDO-CEM3	Burial Grounds & Graves	Grade IIIa
45841	RIVER 02	Riverbank 02	Burial Grounds & Graves	Grade IIIa
45843	RIVER 03	Riverbank 03	Settlement	Grade IIIb
31052	UMLANDO-PGE01	UMLANDO-PGE01	Archaeological	Grade IIIc
31053	UMLANDO-PGE02	UMLANDO-PGE02	Archaeological	Grade IIIc
31054	UMLANDO-PGE03A	UMLANDO-PGE03A	Archaeological	Grade IIIc
31055	UMLANDO-PGE03B	UMLANDO-PGE03B	Archaeological	Grade IIIc
31056	UMLANDO-PGE03C	UMLANDO-PGE03C	Archaeological	Grade IIIc
31057	UMLANDO-PGE04	UMLANDO-PGE04	Archaeological	Grade IIIc
31058	UMLANDO-PGE05	UMLANDO-PGE05	Archaeological	Grade IIIc
31059	UMLANDO-PGE06	UMLANDO-PGE06	Archaeological	Grade IIIc
105788	KIDD01	Kidds Beach 01	Building	
105789	KIDD01	Kidds Beach 01	Building	Grade IIIb
105790	KIDD02	Kidds Beach 02	Building, Burial Grounds & Graves	Grade IIIb

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APPENDIX 2 Reference List

Heritage Impact Assessments				
Nid	Report Type	Author/s	Date	Title
4072	AIA Phase 1	Karen Van Ryneveld	11/10/2008	Rezoning & Mixed Use Development, Portion 4 of Farm 1050, Kidd's Beach, East London, Eastern Cape, South Africa
7804	AIA Phase 1	Johan Binneman, Celeste Booth, Natasha Higgitt	16/10/2010	A Phase 1 Archaeological Impact Assessment (AIA) for the proposed Riverbank Wind Energy Facility between Hamburg and Wesley, Amathole District Municipality, Eastern Cape Province
360662	AIA Phase 1B	Karen Van Ryneveld	21/03/2016	Phase 1b Archaeological Ground Truthing - Phase 1: Riverbank Wind Energy Facility (WEF), Riverbank 147 and Sandflat 149, near Wesley, Amathole District Municipality, Eastern Cape
9008	PIA Phase 1	Billy De Klerk	16/01/2011	Palaeontological heritage impact assessment of the proposed Riverbank Wind Energy Facility near Wesley, Eastern Cape
7066	AIA Phase 1	Karen Van Ryneveld	03/12/2008	Phase 1 Archaeological Impact Assessment: Kidd's Beach Golfing Estate, Portions of Farms 1075, 1076, 1077, 1078, 1079 & 1086, Kidd's Beach, East London, Eastern Cape, South Africa
7804	AIA Phase 1	Johan Binneman, Celeste Booth, Natasha Higgitt	16/10/2010	A Phase 1 Archaeological Impact Assessment (AIA) for the proposed Riverbank Wind Energy Facility between Hamburg and Wesley, Amathole District Municipality, Eastern Cape Province
162775	AIA	Johan Binneman	21/04/2014	A Phase 1 Archaeological Impact Assessments of the Proposed Wesley-Peddie 132 KV Power Line for the Authorised Uncedo Lwethu Wind Energy Facility, Ngqushwa Local Municipality, Amathole District, Eastern Cape Province

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APPENDIX 3 - Keys/Guides

Key/Guide to Acronyms

AIA	Archaeological Impact Assessment
DARD	Department of Agriculture and Rural Development (KwaZulu-Natal)
DEA	Department of Environmental Affairs (National)
DEADP	Department of Environmental Affairs and Development Planning (Western Cape)
DEDEAT	Department of Economic Development, Environmental Affairs and Tourism (Eastern Cape)
DEDECT	Department of Economic Development, Environment, Conservation and Tourism (North West)
DEDT	Department of Economic Development and Tourism (Mpumalanga)
DEDTEA	Department of economic Development, Tourism and Environmental Affairs (Free State)
DENC	Department of Environment and Nature Conservation (Northern Cape)
DMR	Department of Mineral Resources (National)
GDARD	Gauteng Department of Agriculture and Rural Development (Gauteng)
HIA	Heritage Impact Assessment
LEDET	Department of Economic Development, Environment and Tourism (Limpopo)
MPRDA	Mineral and Petroleum Resources Development Act, no 28 of 2002
NEMA	National Environmental Management Act, no 107 of 1998
NHRA	National Heritage Resources Act, no 25 of 1999
PIA	Palaeontological Impact Assessment
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resources Information System
VIA	Visual Impact Assessment

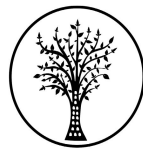
Full guide to Palaeosensitivity Map legend

	RED:	VERY HIGH - field assessment and protocol for finds is required
	ORANGE/YELLOW:	HIGH - desktop study is required and based on the outcome of the desktop study, a field assessment is likely
	GREEN:	MODERATE - desktop study is required
	BLUE/PURPLE:	LOW - no palaeontological studies are required however a protocol for chance finds is required
	GREY:	INSIGNIFICANT/ZERO - no palaeontological studies are required
	WHITE/CLEAR:	UNKNOWN - these areas will require a minimum of a desktop study.

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APPENDIX 4 - Methodology

The Heritage Screener summarises the heritage impact assessments and studies previously undertaken within the area of the proposed development and its surroundings. Heritage resources identified in these reports are assessed by our team during the screening process.

The heritage resources will be described both in terms of **type**:

- Group 1: Archaeological, Underwater, Palaeontological and Geological sites, Meteorites, and Battlefields
- Group 2: Structures, Monuments and Memorials
- Group 3: Burial Grounds and Graves, Living Heritage, Sacred and Natural sites
- Group 4: Cultural Landscapes, Conservation Areas and Scenic routes

and **significance** (Grade I, II, IIIa, b or c, ungraded), as determined by the author of the original heritage impact assessment report or by formal grading and/or protection by the heritage authorities.

Sites identified and mapped during research projects will also be considered.

DETERMINATION OF THE EXTENT OF THE INCLUSION ZONE TO BE TAKEN INTO CONSIDERATION

The extent of the inclusion zone to be considered for the Heritage Screener will be determined by CTS based on:

- the size of the development,
- the number and outcome of previous surveys existing in the area
- the potential cumulative impact of the application.

The inclusion zone will be considered as the region within a maximum distance of 50 km from the boundary of the proposed development.

DETERMINATION OF THE PALAEOLOGICAL SENSITIVITY

The possible impact of the proposed development on palaeontological resources is gauged by:

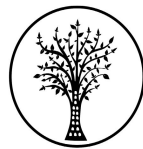
- reviewing the fossil sensitivity maps available on the South African Heritage Resources Information System (SAHRIS)
- considering the nature of the proposed development
- when available, taking information provided by the applicant related to the geological background of the area into account

DETERMINATION OF THE COVERAGE RATING ASCRIBED TO A REPORT POLYGON

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Each report assessed for the compilation of the Heritage Screener is colour-coded according to the level of coverage accomplished. The extent of the surveyed coverage is labeled in three categories, namely low, medium and high. In most instances the extent of the map corresponds to the extent of the development for which the specific report was undertaken.

Low coverage will be used for:

- desktop studies where no field assessment of the area was undertaken;
- reports where the sites are listed and described but no GPS coordinates were provided.
- older reports with GPS coordinates with low accuracy ratings;
- reports where the entire property was mapped, but only a small/limited area was surveyed.
- uploads on the National Inventory which are not properly mapped.

Medium coverage will be used for

- reports for which a field survey was undertaken but the area was not extensively covered. This may apply to instances where some impediments did not allow for full coverage such as thick vegetation, etc.
- reports for which the entire property was mapped, but only a specific area was surveyed thoroughly. This is differentiated from low ratings listed above when these surveys cover up to around 50% of the property.

High coverage will be used for

- reports where the area highlighted in the map was extensively surveyed as shown by the GPS track coordinates. This category will also apply to permit reports.

RECOMMENDATION GUIDE

The Heritage Screener includes a set of recommendations to the applicant based on whether an impact on heritage resources is anticipated. One of three possible recommendations is formulated:

(1) The heritage resources in the area proposed for development are sufficiently recorded - The surveys undertaken in the area adequately captured the heritage resources. There are no known sites which require mitigation or management plans. No further heritage work is recommended for the proposed development.

This recommendation is made when:

- enough work has been undertaken in the area
- it is the professional opinion of CTS that the area has already been assessed adequately from a heritage perspective for the type of development proposed

(2) The heritage resources and the area proposed for development are only partially recorded - The surveys undertaken in the area have not adequately captured the heritage resources and/or there are sites which require mitigation or management plans. Further specific heritage work is recommended for the proposed development.

This recommendation is made in instances in which there are already some studies undertaken in the area and/or in the adjacent area for the proposed development. Further studies in a limited HIA may include:

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- improvement on some components of the heritage assessments already undertaken, for instance with a renewed field survey and/or with a specific specialist for the type of heritage resources expected in the area
- compilation of a report for a component of a heritage impact assessment not already undertaken in the area
- undertaking mitigation measures requested in previous assessments/records of decision.

(3) The heritage resources within the area proposed for the development have not been adequately surveyed yet - Few or no surveys have been undertaken in the area proposed for development. A full Heritage Impact Assessment with a detailed field component is recommended for the proposed development.

Note:

The responsibility for generating a response detailing the requirements for the development lies with the heritage authority. However, since the methodology utilised for the compilation of the Heritage Screeners is thorough and consistent, contradictory outcomes to the recommendations made by CTS should rarely occur. Should a discrepancy arise, CTS will immediately take up the matter with the heritage authority to clarify the dispute.

The compilation of the Heritage Screener will not include any field assessment. The Heritage Screener will be submitted to the applicant within 24 hours from receipt of full payment. **If the 24-hour deadline is not met by CTS, the applicant will be refunded in full.**

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