CTS HERITAGE

HERITAGE SCREENER

CTS Reference Number:	**CTS19_176**
Client:	**Lwandle Environmental Consulting**
Date:	**November 2019**
Title:	**INSTALLATION OF HF RADAR ON THE SOUTH COAST OF RSA: SITE 6, OCEAN VIEW FARM**

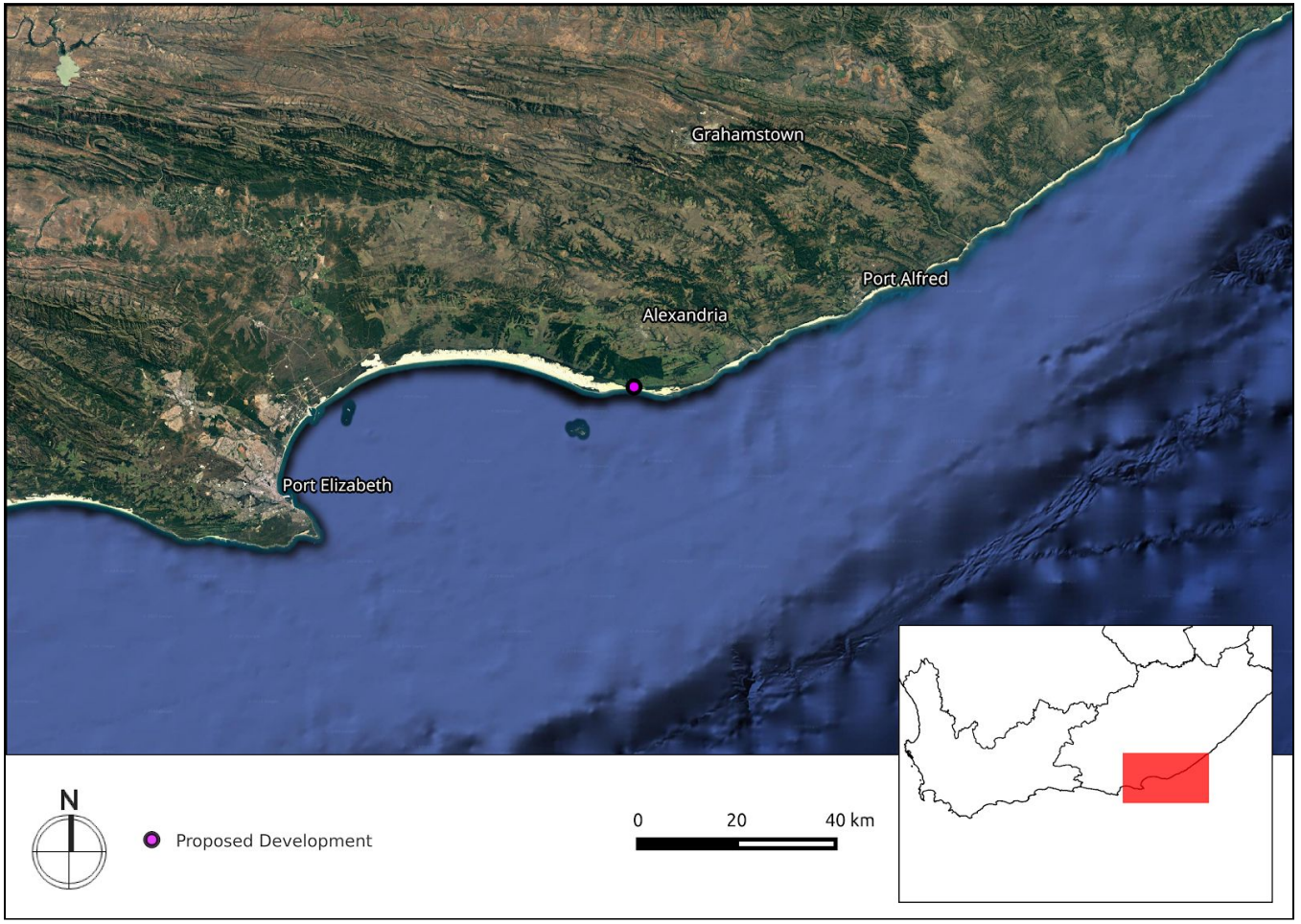

Figure 1a. Satellite map indicating the location of the proposed development in the Eastern Cape Province

Recommendation by CTS Heritage Specialists	**RECOMMENDATION:** **Based on the information available for the area proposed for the proposed HF Radar Installation, as well as the limited and temporary nature and scale of the proposed development, it is very unlikely that the proposed development will impact on significant archaeological or palaeontological heritage. As such, it is recommended that no further heritage studies are required, and that this desktop assessment is sufficient for any process required in terms of section 38 of the National Heritage Resources Act (Act 25 of 1999).**

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1. Proposed Development Summary

Lwandle Technologies (Pty) Ltd (Lwandle) in technical partnership with Actimar Operational Oceanography (Actimar) plan to provide near real time, remotely sensed, environmental data on sea surface current and wave conditions to the South African coastal and maritime sectors. This application is for the installation of temporary a temporary HF radar system that comprises of 4 transmitting antenna, 12 receiving antenna, a 3m container and a solar panel array for power. The antenna are connected by coaxial cable protected by LDPE. The cables are placed in shallow trenches and covered with material to prevent damage from farm vehicles and grazing animals. The precise location of individual components is to be confirmed with radar specialists on site and agreed with the landowner before installation.

2. Application References

Name of relevant heritage authority(s)	ECPHRA
Name of decision making authority(s)	Sarah Baartman District Municipality, Eastern Cape

3. Property Information

Latitude / Longitude	33°45′25.17″S, 26°23′58.43″E
Erf number / Farm number	Farm 26/329
Local Municipality	Sundays River Valley
District Municipality	Sarah Baartman
Province	Eastern Cape
Current Use	Agricultural
Current Zoning	Agricultural
Total Extent of Property	NA

4. Nature of the Proposed Development

Total Surface Area of development	Approximately 1km
Depth of excavation (m)	Not exceeding 30cm deep and 20cm wide for cable laying to be recovered and reseeded.
Height of development (m)	4m

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
x	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-
	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

This radar site will require:

- vehicle access for installation, monthly checking and then eventual uninstalling;
- a container either 2.4 m or 6 m long x 2.4 m wide x 2.4 m high, to house the computer for storing the data collected, and ~10 batteries for storing solar power
- ~60 m2 of solar panels, to supply approximately 17.28 kWh/day of power
- electrical and antenna cables, in protective black plastic tubes laid on the ground surface, or buried if required for protection against trampling by cattle; radar signals transmitted at 5.25 MHz frequency which is an extremely low/ non-invasive electromagnetic force used by oceanographic research vessels;
- 4 transmission (TX) antennae, and 12 reception antennae (RX), with supporting poles, reaching 5.5 m high. This height is lower than a telephone transmission pole, and about half the height of the majority of wooden poles used for power transmission lines. For technical reasons the bases of the 12 RX antennae need to be at the same height off the ground and thus follow the topography, but for good transmission the tops of the 4 TX antennae need to be at the same elevation so their length would differ to compensate for any differences in ground level;
- the antennae will be placed approximately 28 m apart, and
- protective wooden fencing around antennae where necessary.

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

Figure 1b Overview Map. Satellite image (2019) indicating the proposed development area at closer range.

Figure 1c. Overview Map. Satellite image (2019) indicating the proposed development area at closer range.

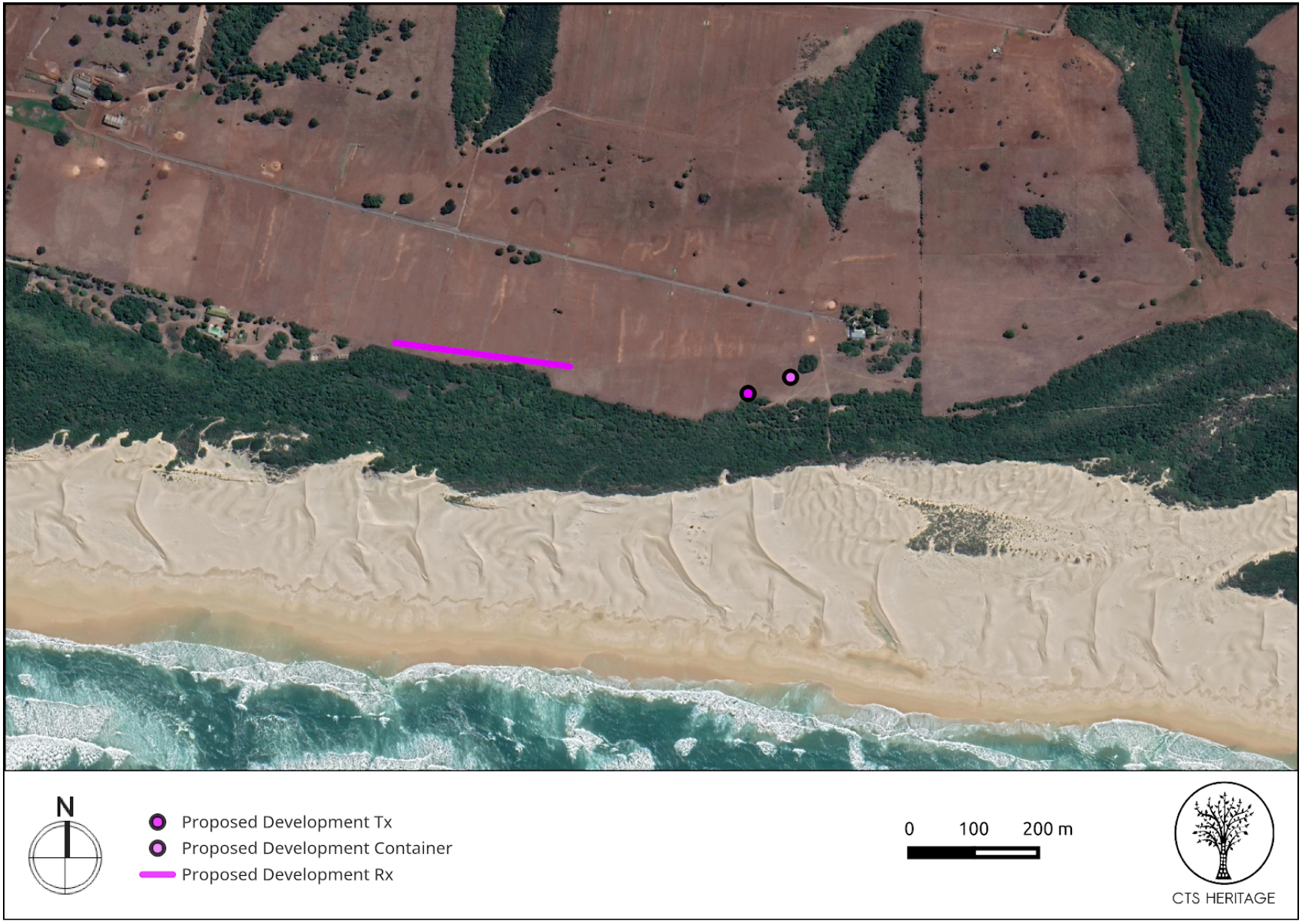

Figure 1d. Overview Map. Satellite image (2019) indicating the proposed development area at closer range

Figure 1e. Overview Map. Satellite image (2019) indicating the proposed development area at closer range

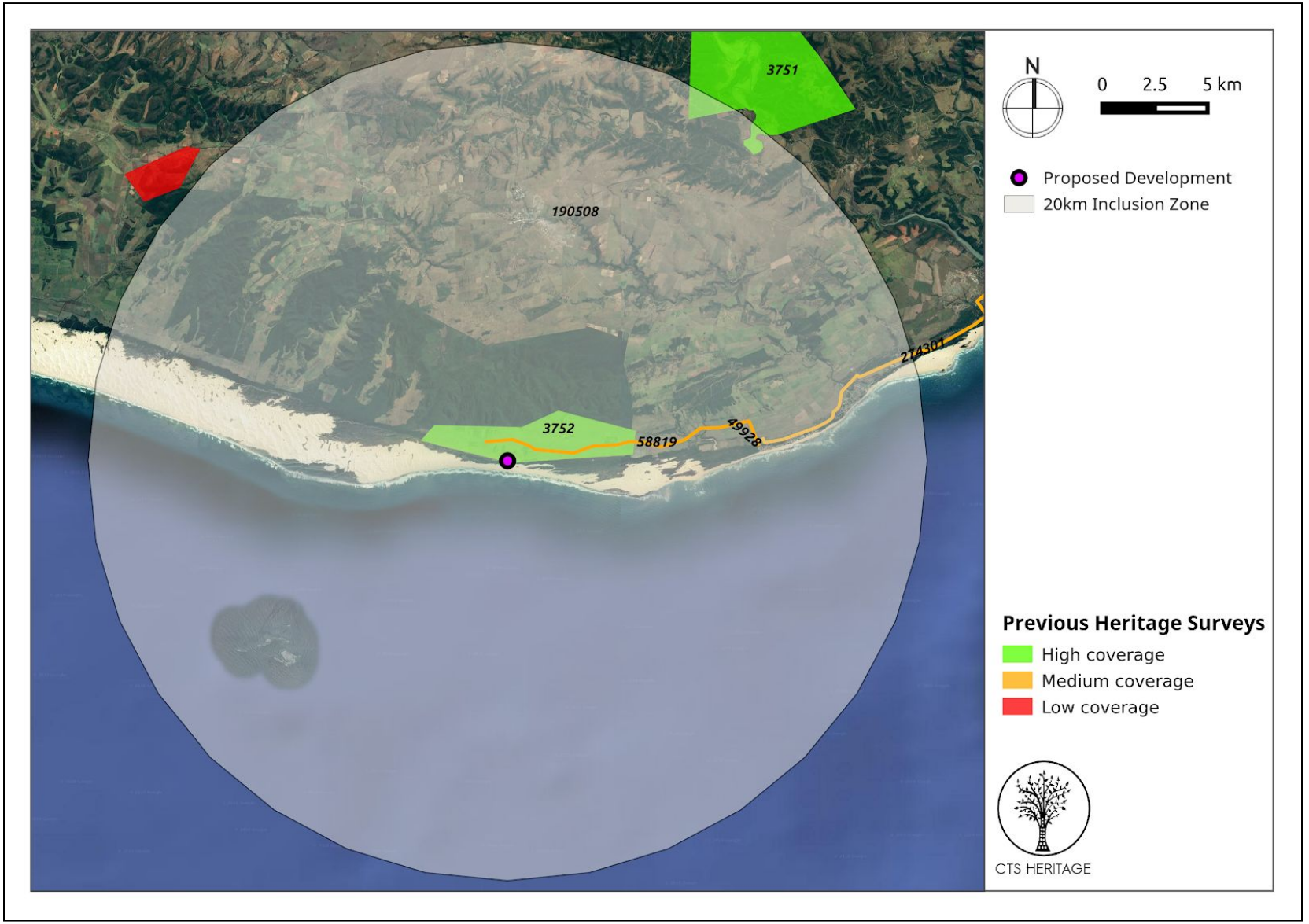

Figure 2. Previous HIAs Map. Previous Heritage Impact Assessments surrounding the proposed development area within 20km, with SAHRIS NIDS indicated. Please see Appendix 2 for full reference list.

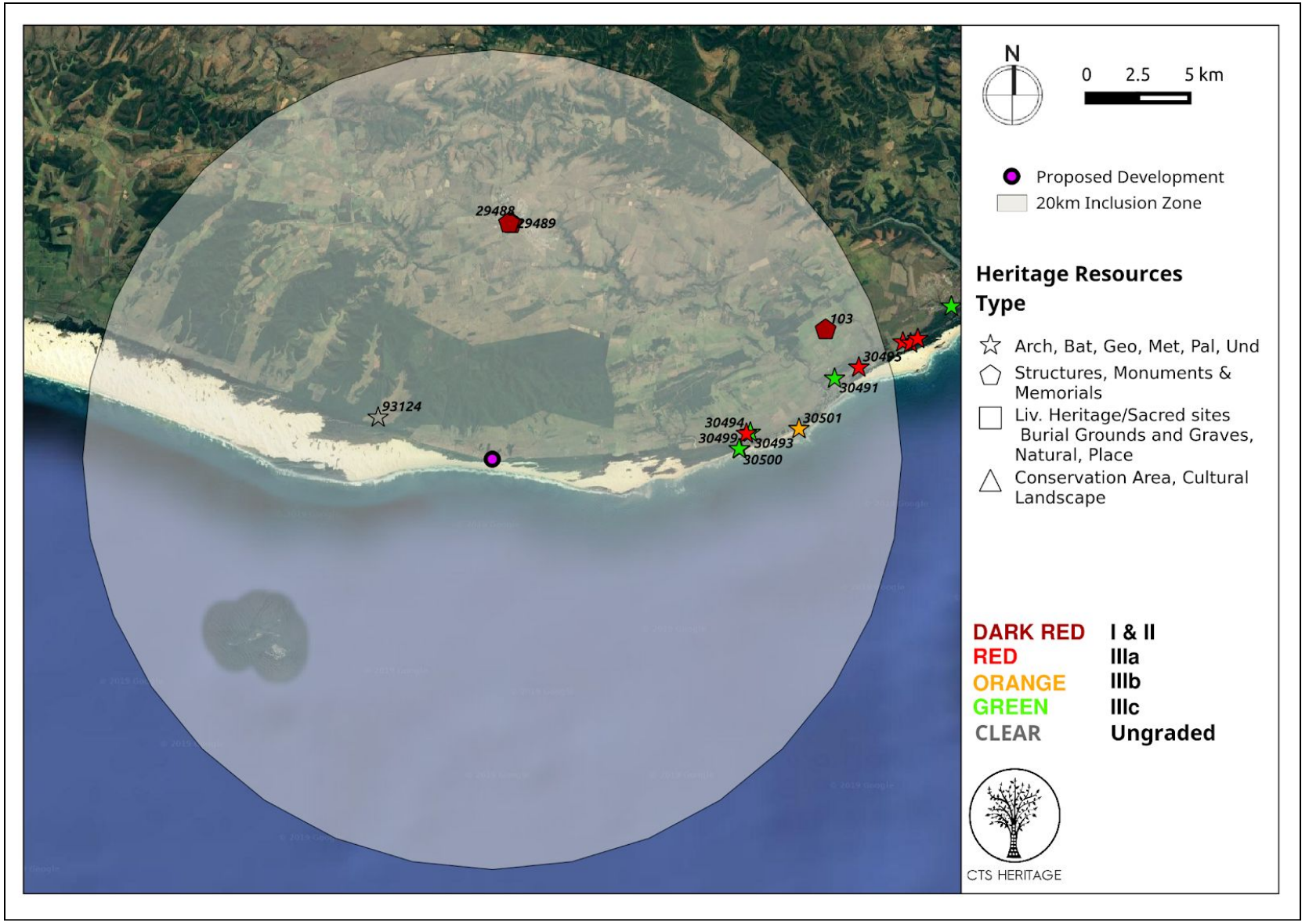

Figure 3a. Heritage Resources Map. Heritage Resources previously identified in and near the study area, with SAHRIS Site IDs indicated. Please See Appendix 4 for full description of heritage resource types.

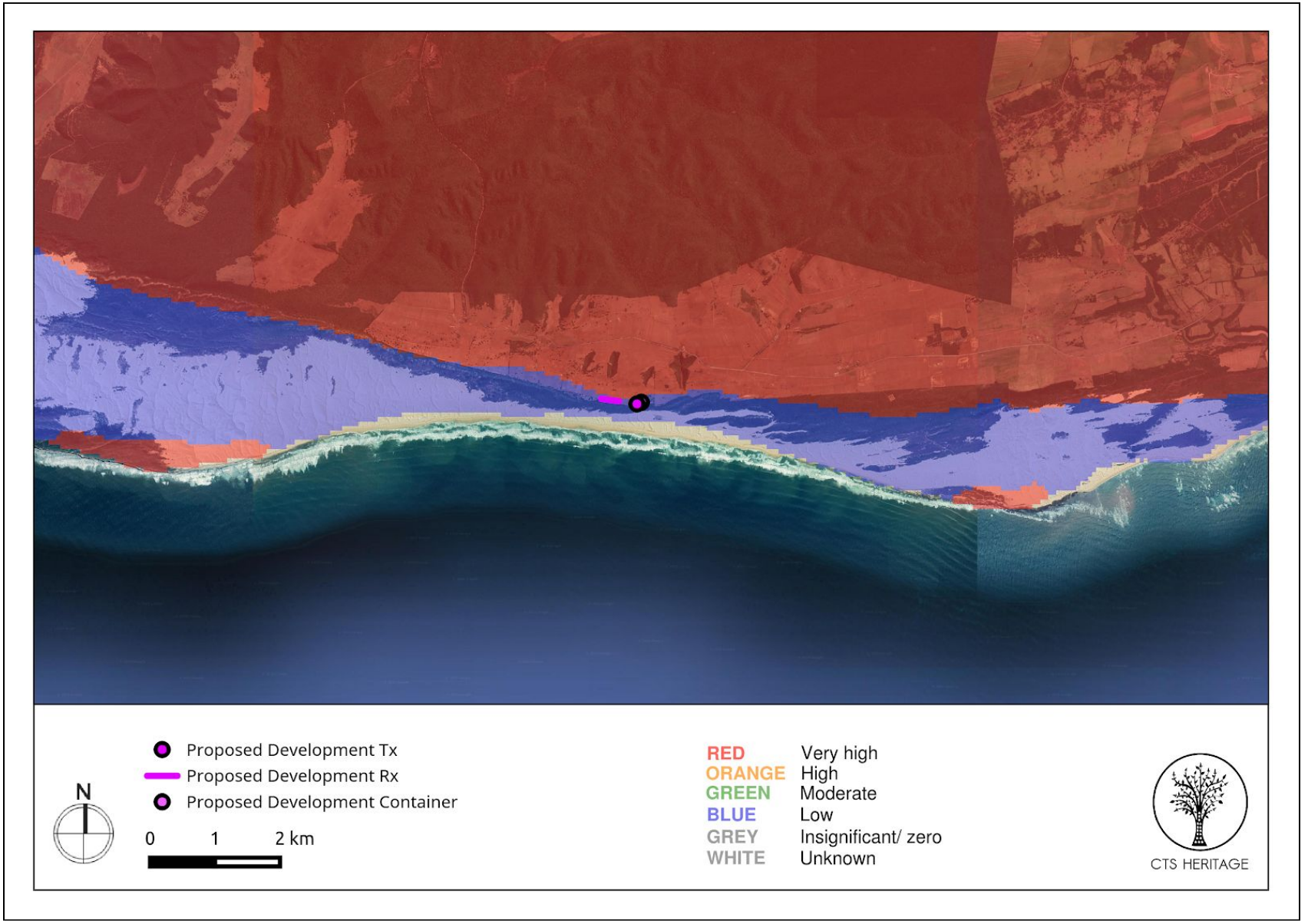

Figure 4. Palaeosensitivity Map. Indicating Moderate and Very High fossil sensitivity underlying the study area. Please See Appendix 3 for full guide to the legend.

Figure 7a and b. Example of the kinds of infrastructure proposed.

Figure 7c. Example of the kinds of infrastructure proposed.

8. Heritage statement and character of the area

The area proposed for the HF Radar Installation is located in between Port Elizabeth and Port Alfred, and approximately 15km south of the town of Alexandria. Alexandria might have been established by the Dutch colonial government in the late 18th century, but was named Alexandria in 1856 after Reverend Alexander Smith. According to Webley (2007) very little is known about the archaeology of the Alexandria coastal area, however historical records refer to the occupation of the area by indigenous peoples, and many place names in the area are derived from Khoe languages. In addition, the Springs Fish Traps are located approximately 3km south of the development area, although recent research by Hine (2009) has revealed that such fish traps were likely built and utilised by colonial farmers and not the indigenous Khoe or San.

In general, the coastline of the Eastern Cape is sensitive in terms of archaeological heritage related to the Middle and Later Stone Age, especially in the form of shell midden remains. According to Van Ryneveld (2010), "Sites are often found within white shifting sand dunes and vary greatly in character; from several meters in extent with significant deposit depth to fairly small ephemeral scatters of lithic artefacts, charcoal and shell. Sites are most common within approximately 400m, but up to 2km from the shoreline (ACO UCT 2010)". Van Ryneveld goes further to note that "MSA and ESA artefacts closer to the coast have been identified on palaeosols (ACO UCT 2010). Anderson (2010) reported on a single Acheulean artefact located during his survey further inland. The ACO UCT (2010) as well as Anderson and Van Schalkwyk (Pers. Comm. – 2010-12-08) highlighted the possibility of unmarked LSA graves, which, if discovered or encountered during the course of development would be of significant social and scientific interest". In 2007, Webley surveyed the Farm Ocean View for impacts to archaeological resources, including the area proposed for the HF Radar installation (Figure 2). In her assessment, Webley (2007) identified only one badly fragmented shell midden. This site was located within a farm road, and consists of very fragmented Donax serra shells. Webley (2007) also identified a number of historical structures and cemeteries, however none of these resources are located in close proximity to the area proposed for the HF Radar installation. Based on the information available for this area, as well as the limited and temporary nature and scale of the proposed development, it is very unlikely that significant archaeological heritage resources will be impacted by the proposed development.

According to the SAHRIS Palaeosensitivity map, the area proposed for the HF Radar installation falls within an area that has low sensitivity for impacts to palaeontology. The geology underlying the proposed development area consists of sterile aeolian Quaternary dune and beach sands. Below these sands lies sediments of the very highly sensitive Nanaga Formation consisting of Aeolian sands along the coastline. These sands in turn overly sediments of the Bokkeveld Group - Ceres Subgroup which has in the past yielded a diverse shelly invertebrate biota and trace fossils, and is considered to be very highly sensitive for impacts to significant palaeontology. De Klerk (2010) conducted a Palaeontological Impact Assessment that assessed impacts to these geological formations. He noted that rare fish remains, plants and microfossils have been recovered from this general area. He goes on to note that "It is however unlikely that any meaningful fossil will be found in this particular area as the underlying sediments have firstly been subjected to tectonic overprint imparted by the Cape Folding Event that took place around 310 million years ago. This tectonism, coupled with low-grade regional metamorphism has effectively destroyed any fossils that may have been in the original sediments. Secondly a long period of weathering and erosion coupled with repeated marine transgressions and regressions would also have had a negative effect on fossil preservation." As such, based on the available information for this specific area, as well as the limited and temporary nature and scale of the proposed development, it is very unlikely that significant palaeontological heritage resources will be impacted by the proposed development.

RECOMMENDATION:
Based on the information available for the area proposed for the proposed HF Radar Installation, as well as the limited and temporary nature and scale of the proposed development, it is very unlikely that the proposed development will impact on significant archaeological or palaeontological heritage. As such, it is recommended that no further heritage studies are required, and that this desktop assessment is sufficient for any process required in terms of section 38 of the National Heritage Resources Act (Act 25 of 1999).

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APPENDIX 1

List of heritage resources within the 20km Inclusion Zone from SAHRIS

Site ID	Site no	Full Site Name	Site Type	Grading
103	9/2/003/0095	Corbelled hut, Spring Farm, Albany District	Building	Grade II
29489	9/2/005/0004	Dutch Reformed Church, Voortrekker Street, Alexandria	Building	Grade II
30491	UMLANDO-CDW-F6		Artefacts	Grade IIIc
30493	UMLANDO-CR02		Archaeological	Grade IIIc
30494	UMLANDO-CR03		Settlement	Grade IIIa
30495	UMLANDO-CR04		Settlement	Grade IIIa
30499	UMLANDO-CROCK		Archaeological	Grade IIIc
30500	UMLANDO-CROCK2		Artefacts	Grade IIIc
30501	UMLANDO-CROCK4		Shell Midden	Grade IIIb
29488	9/2/005/0003	Dias Cross Memorial, Kwaaihoek, Alexandria District	Monuments & Memorials	Grade II
93124	Alexandria Coastal dune field	Alexandria Coastal dune field	Archaeological	

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APPENDIX 2

Reference List from SAHRIS

Heritage Impact Assessments				
Nid	**Report Type**	**Author/s**	**Date**	**Title**
3751	HIA Phase 1	Lita Webley	01/09/2007	Phase 1 Heritage Impact Assessment: Harvest Vale Development, Kariega Game Reserve, Eastern Cape
3752	HIA Phase 1	Lita Webley	08/10/2007	Heritage Impact Assessment: La Repose Development, Alexandria, Eastern Cape
49928	AIA Phase 1	Gavin Anderson	19/03/2011	HERITAGE SURVEY OF THE PROPOSED PIPELINE FROM ALEXANDRIA TO CANNON ROCKS RO, EASTERN CAPE
58819	PIA Phase 1	Lloyd Rossouw		Phase 1 Palaeontological Impact Assessment of a proposed water pipeline between Cannon Rocks and Kenton-on-Sea and between Cannon Rocks and Alexandria, EC Province.
190508	AIA Phase 1	Celeste Booth	09/12/2014	A LETTER OF RECOMMENDATION (WITH CONDITIONS) FOR THE EXEMPTION OF A PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT (AIA) FOR THE PROPOSED KWANONKQUBELA ALEXANDRIA COMMUNITY HEALTH CENTRE ON ERF 623, ALEXANDRIA, NDLAMBE LOCAL MUNICIPALITY, EASTERN CAPE PROVINCE
274301	HIA Phase 1	Gavin Anderson	01/04/2015	HERITAGE SURVEY OF THE NDLAMBE BULK WATER SUPPLY SCHEME â€“ SANDILE DAM TO CANNON ROCKS, EASTERN CAPE

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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.

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 PALAEONTOLOGICAL 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

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:

- 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.**