# HERITAGE IMPACT ASSESSMENT

In terms of Section 38(3) of the NHRA for a

# PROPOSED INSTALLATION OF HF RADAR ON THE SOUTH COAST OF RSA: OUWERF


**Prepared by**

CTS HERITAGE

**In Association with Sue Lane & Associates**


For

**Lwandle Technologies (Pty) Ltd**

**September 2017**

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**THE INDEPENDENT PERSON WHO COMPILED A SPECIALIST REPORT OR UNDERTOOK A SPECIALIST PROCESS**

I, Kyla Bluff, as the appointed independent specialist hereby declare that I:

• act/ed as the 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, and

• 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, 2010 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, 2010 and any specific environmental management Act;

• am fully aware of and meet the responsibilities in terms of NEMA, the Environmental Impact Assessment Regulations, 2010 (specifically in terms of regulation 17 of GN No. R. 543) and any specific environmental management Act, and that failure to comply with these requirements may constitute and result in disqualification;

• have ensured that information containing all relevant facts in respect of the specialist input/study was distributed or made available to interested and affected parties and the public and that participation by interested and affected parties was facilitated in such a manner that all interested and affected parties were provided with a reasonable opportunity to participate and to provide comments on the specialist input/study;

• have ensured that the comments of all interested and affected parties on the specialist input/study were considered, recorded and submitted to the competent authority in respect of the application;

• have ensured that the names of all interested and affected parties that participated in terms of the specialist input/study were recorded in the register of interested and affected parties who participated in the public participation process;

• have provided the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not; and

• am aware that a false declaration is an offence in terms of regulation 71 of GN No. R. 543.

**Signature of the specialist**

CTS Heritage
**Name of company**

07/09/2017
**Date**

## EXECUTIVE SUMMARY

Lwandle Technologies (Pty) Ltd (Lwandle) in technical partnership with Actimar Operational Oceanography (Actimar) plans to provide near real-time, remotely sensed, environmental data on sea surface current and wave conditions to the South African coastal and maritime sectors.

The area of Ouwerf where the HF radar system will be installed will be towards the southern/coastal edge of the grazing land on the farm Klipdrift Oost 349. The precise location of individual components is to be confirmed with radar specialists on site and agreed with the landowner before installation.

Approximately 1km of land will be affected, to a depth of 0.5m and a height of 5.5m, and the proposed radar system will be constructed in areas that have been previously disturbed by agricultural activities.

Of the 14 known heritage sites within a 10km radius of the proposed installation, 9 are structures located within the town of Clarkson, and associated with the Moravian Mission Complex. Three of these sites are associated with Klasies River Mouth Archaeological Site, which is located approximately 6km from the proposed installation site. One of the known sites is a shipwreck located approximately 6km offshore from the proposed installation area and the last is a Grade IIIc structure, also located approximately 6km away from the proposed installation area. None of these sites will be directly or indirectly impacted. While it is demonstrated that various heritage resources, including archaeological sites, rock art, stone walling, burial grounds and graves are known from this area, no known heritage resources will be severely impacted by the proposed development due to its limited scale.

Archaeological heritage resources were identified during the field assessment, and have been aggregated into two sites: the first (SiteID 108202) is a collection of Early Stone Age stone artefacts, including a handaxe, all found within the farm dam located alongside the proposed alignment and out of context. The second (SiteID 108203) is a collection of Early and Middle Stone Age stone artefacts eroding from a gravelly surface located approximately 600mm beneath a layer of alluvial deposit on the banks of the dam. The latter appear to be *in situ.*

It is the recommendation of CTS Heritage, in light of these sub-surface artefacts (SiteID 108203) located in the vicinity of the proposed cable trenches, that all excavations for these trenches be monitored by an archaeologist in order to mitigate the impacts of construction on any potentially significant subsurface Stone Age archaeological resources.

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## CONTENTS

# 1. INTRODUCTION

## 1.1 Background Information on Project

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.

The proposed High Frequency radar system will comprise 14 slim-line antennae, 1 container/workstation, connecting cables and 1 solar panel located towards the southern/coastal edge of the grazing land on the Farm Klipdrift Oost 349. The precise location of the individual components to be laid is to be confirmed with radar specialists on site and agreed with the landowner before installation.


**Figure 1: Location of the proposed development site in the Eastern Cape Province**

## 1.2 Description of Property and affected Environment

Subsequent to completion of the Heritage Screener (Appendix 2), the alignment of the proposed development has been amended. The original alignment can be seen in Figure 2a, and the new proposed alignment (as surveyed during the field assessment for this HIA) is shown in Figure 2b. The proposed radar system will be

constructed in areas that have been previously heavily disturbed by agricultural activities as the fields to be impacted by the proposed development have been extensively used for the grazing of cattle and have been ploughed many times since first being established. In addition, a dam has been constructed adjacent to the proposed development. Alignment.


**Figure 2a: Original alignment of proposed development, as presented in Appendix 2.**

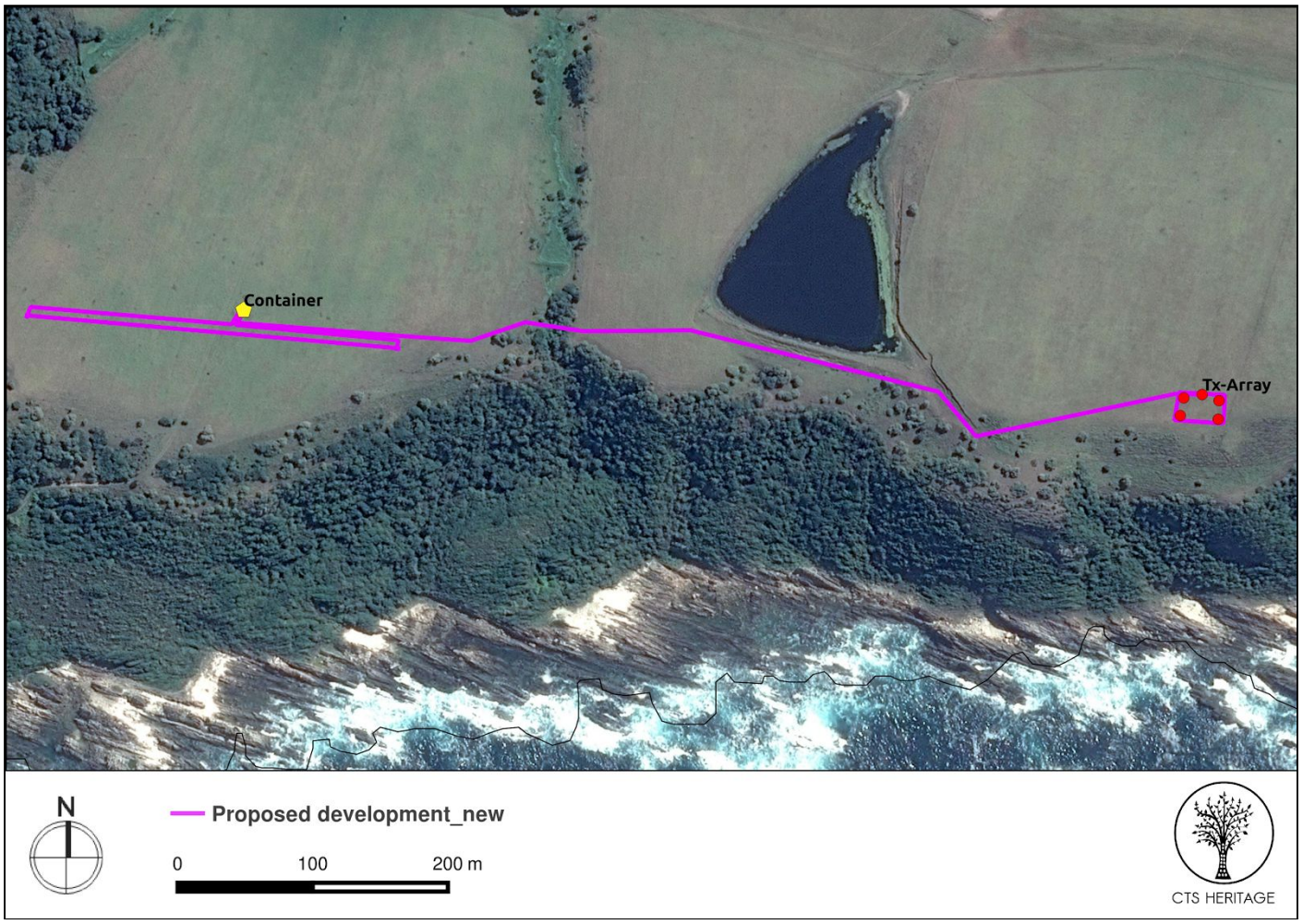


**Figure 2b: New alignment of proposed development, as surveyed during the field assessment per this HIA.**

## 2. METHODOLOGY

### 2.1 Purpose of HIA

Application is made in terms of section 38(3) for the installation of high frequency radar on the south coast of South Africa, Ouwerf.

### 2.2 Summary of steps followed

- A desktop study (Heritage Screener, Appendix 2) was conducted for the proposed development area.

- A heritage specialist was contracted to conduct a survey of heritage resources likely to be impacted by the proposed development
- The identified resources were mapped and assessed to evaluate their heritage significance in terms of the grading system outlined in section 3 of the NHRA (Act 25 of 1999).
- Alternatives and mitigation options were discussed with the Environmental Assessment Practitioner.

## 3. HISTORY AND EVOLUTION OF THE SITE AND CONTEXT

### 3.1 Definition of the property

The proposed development is located on Farm Klipdrift Oost 349 in the Kou-Kamma Municipality of the Cacadu District in the Eastern Cape Province. The proposed development is to be located toward the coastline of the Indian Ocean roughly 60km west of Jeffreys Bay. This portion of land has been extensively used for grazing cattle and has therefore been substantially disturbed and cleared in the past.

### 3.2 Geology, geomorphology, climate and vegetation

The area proposed for development lies alongside the Indian Ocean coastline within the Summer Rainfall Zone, and as such, experiences a varied climate with mild temperatures and high levels of precipitation. The coast is generally rugged, interspersed with beaches leading into temperate rainforest in the southern Tsitsikamma region. Vegetation along the coast consists predominantly of shrubs and small trees, while the proposed development is located on disturbed agricultural land located approximately 200m north of the rocky shore. The geology of the area is characterised by the rocky coastal shoreline and the quartzitic sandstone, shale and siltstone of the Goudini Formation that underlies it.

The area proposed for development is predominantly underlain by geological layers of low palaeontological sensitivity of the Goudini Formation. In close proximity to the proposed installation area are areas of high and very high palaeontological sensitivity (the Peninsula and Cedarberg Formations respectively). Considering the depth of excavation will be less than 1m, it is very unlikely that the proposed limited scale of the installation will impact on significant palaeontological resources.

### 3.3 Archaeological and Historical Background

This region of the Eastern Cape has been inhabited since the Early Stone Age (ESA), with substantial Middle Stone Age (MSA) deposit accumulated at Klasies River Mouth Archaeological Site (Site ID 107983 and 28471). Evidence of human habitation from approximately 125,000 years ago can be found in the region. This evidence includes shellfish collections that demonstrate the relationship between MSA people and the sea, as well as MSA stone artefact technology. Archaeological evidence indicates that early humans migrated across this coastline seasonally, coinciding migration patterns with the movement of herds and tides. These people were also responsible for the painted rock art at shelters located all along this coast (Site ID 32556).

More recently, the bay of Cape St Francis to the east of the proposed development area was recorded by passing Portuguese traders, and named Bahia de Sao Francisco by Manuel Perestrelo in 1575. The lighthouse at Seal Point began operating in 1878 and settlement in the area took place at roughly the same time, with Jeffreys Bay growing in population by the late 1800's and early 1900's. The Tsitsikamma National Park lies to the west of the proposed development area, and derives its name from the Khoisan word meaning "place of much water". It is a mountainous fynbos region with high forests and deep river gorges leading to the ocean.

Of the 14 known heritage sites within a 10km radius of the proposed installation, 9 of these are structures located within the town of Clarkson associated with the Moravian Mission Complex. Three of these sites are associated with Klasies River Mouth Archaeological Site, which is located approximately 6km from the proposed installation site. One of the known sites is a shipwreck located approximately 6km offshore from the proposed installation area and the last is a Grade IIIc structure, also located approximately 6km away from the proposed installation area.

**Table 1: Sites previously identified within 10km of the proposed development area (Figure 3)**

| Site ID | Site no | Full Site Name | Site Type | Grading | Declaration |
|---|---|---|---|---|---|
| 32556 | KSR1 | Klasies River 1 | Rock Art | Ungraded | NA |
| 84427 | TSITSI002 | Tsitsikamma Borrow Pits 002 | Structures | Grade IIIc | NA |
| 2734 | SHIPWRECKID2530 | Panaghia | Shipwreck | Ungraded | NA |
| 28463 | 9/2/044/0006-007 | Memorial to Pastor Nauhaus, Moravian Mission Complex, Clarkson, Humansdorp District | Monuments & Memorials | Grade II | Provincial Heritage Site |
| 28471 | 9/2/044/0003 | Klasies River Caves, Humansdorp District | Archaeological | Grade I | National Heritage Site |
| 107983 | Klasies River Mouth Caves 1/1A | NA | Archaeological | Ungraded | NA |
| 28459 | 9/2/044/0006-003 | School, Moravian Mission Complex, Clarkson, Humansdorp District | Building | | Provisional Protection |
| 28467 | 9/2/044/0006 | Moravian Mission Complex, Clarkson, Humansdorp District | Building | Grade II | Provincial Heritage Site |
| 28468 | 9/2/044/0006-001 | Church, Moravian Mission Complex, Clarkson, Humansdorp District | Building | Grade II | Provincial Heritage Site |
| 28469 | 9/2/044/0006-002 | Parsonage, Moravian Mission Complex, Clarkson, Humansdorp District | Building | Grade II | Provincial Heritage Site |
| 28460 | 9/2/044/0006-004 | Church offices, Moravian Mission Complex, Clarkson, Humansdorp District | Building | Grade II | Provincial Heritage Site |
| 28461 | 9/2/044/0006-005 | Mission store, Moravian Mission Complex, Clarkson, Humansdorp District | Building | Grade II | Provincial Heritage Site |
| 28462 | 9/2/044/0006-006 | Cemetery, Moravian Mission Complex, Clarkson, Humansdorp District | Burial Grounds & Graves | Grade II | Provincial Heritage Site |
| 28464 | 9/2/044/0006-008 | Church bell, Moravian Mission Complex, Clarkson, Humansdorp District | Building | Grade II | Provincial Heritage Site |

**Table 2: HIAs previously conducted in the vicinity of the proposed development**

| Nid | Report Type | Author/s | Date | Title |
|---|---|---|---|---|
| 269397 | AIA | Celeste Booth | 02/03/2015 | FibreCo Repeater Sites Routes 3 and 4_Heritage_2015 AIA report |

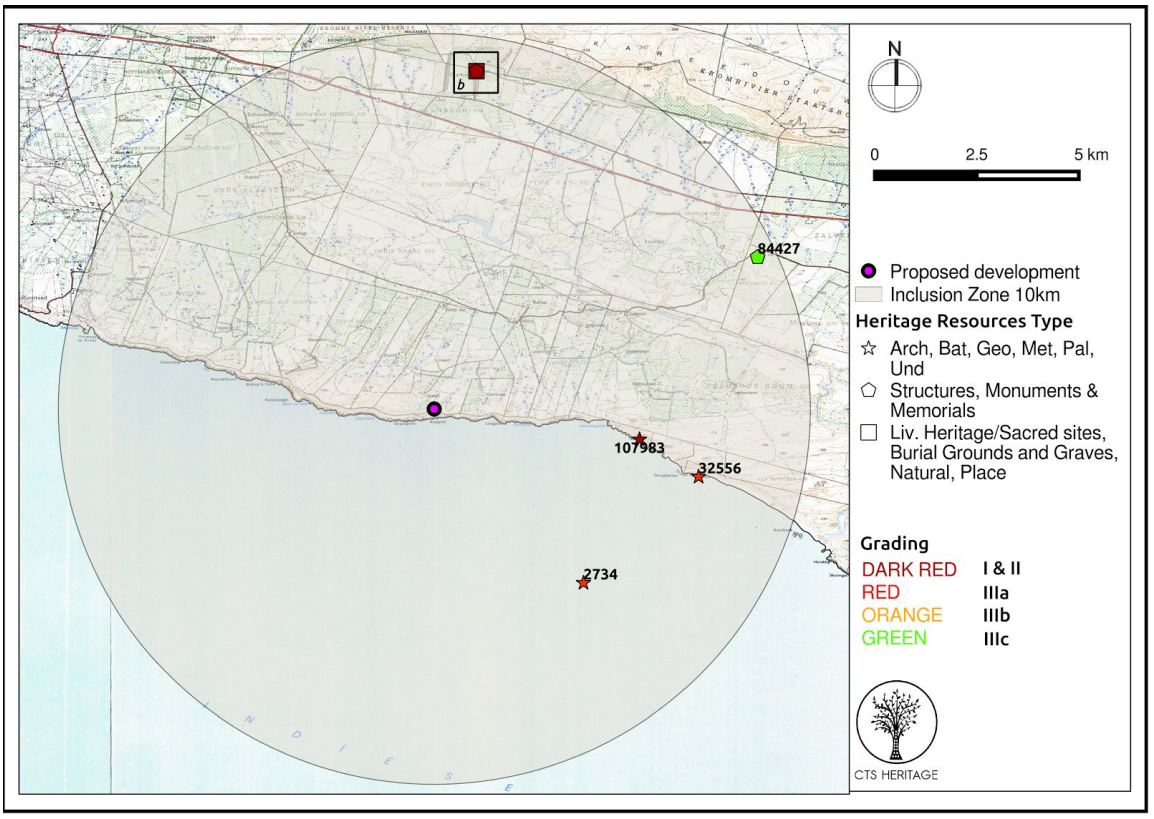


**Figure 3a: Spatialisation of known heritage resources in the vicinity of the proposed development (see Figure 3b for inset).**

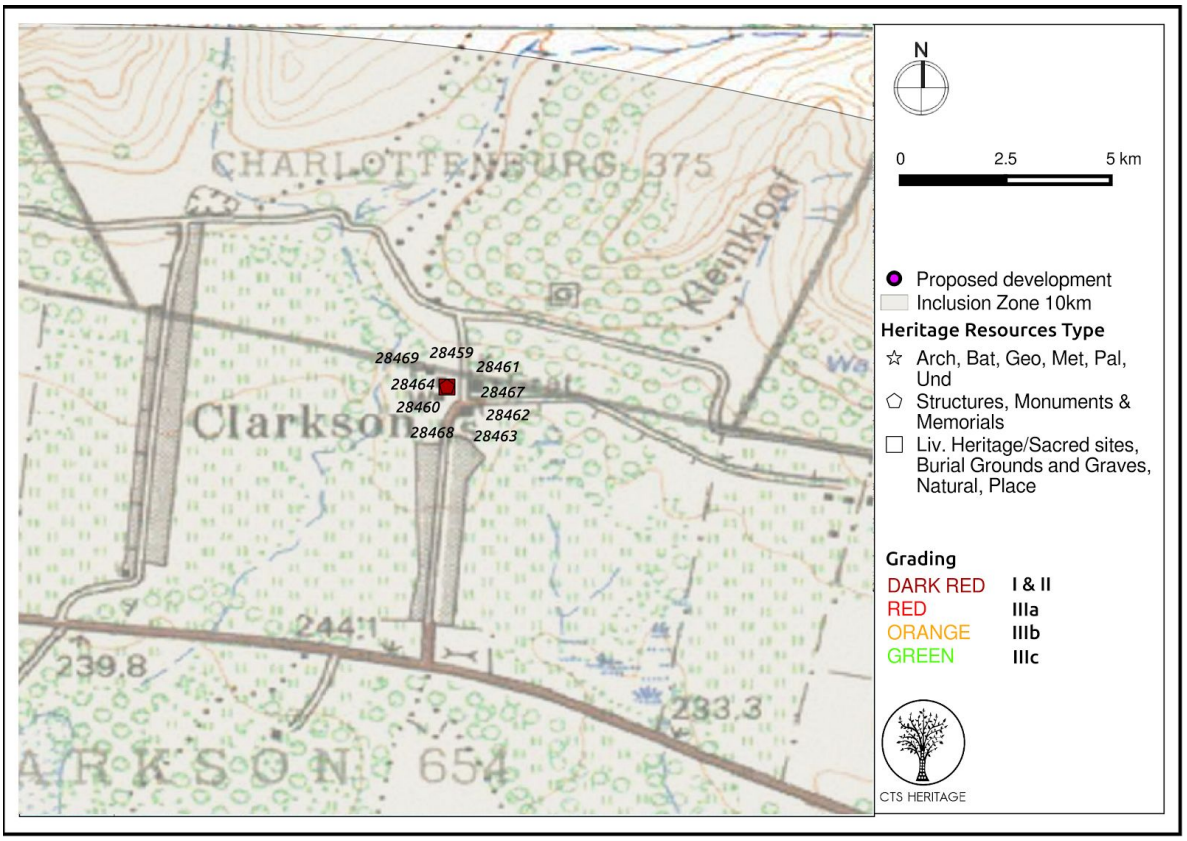


**Figure 3b. Inset Map.**

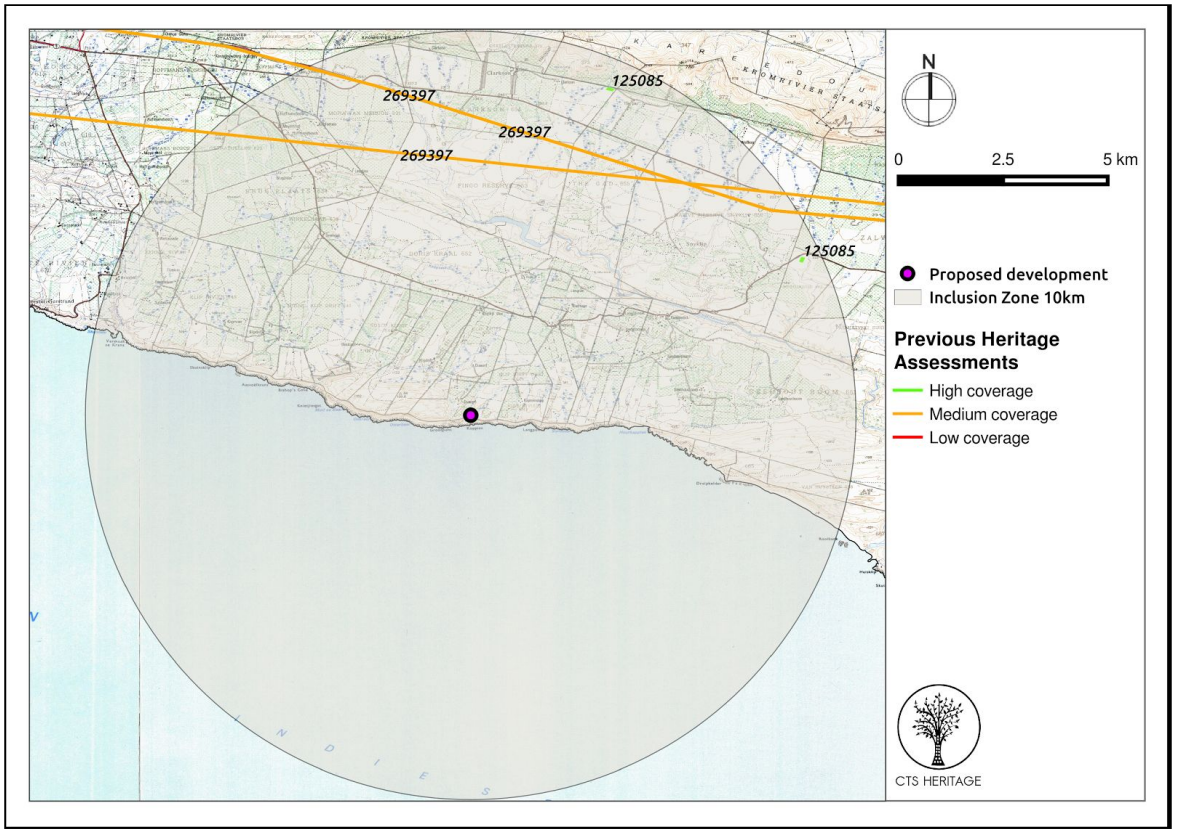


**Figure 4a. Previous Heritage Impact Assessments conducted in the vicinity of the proposed development.**

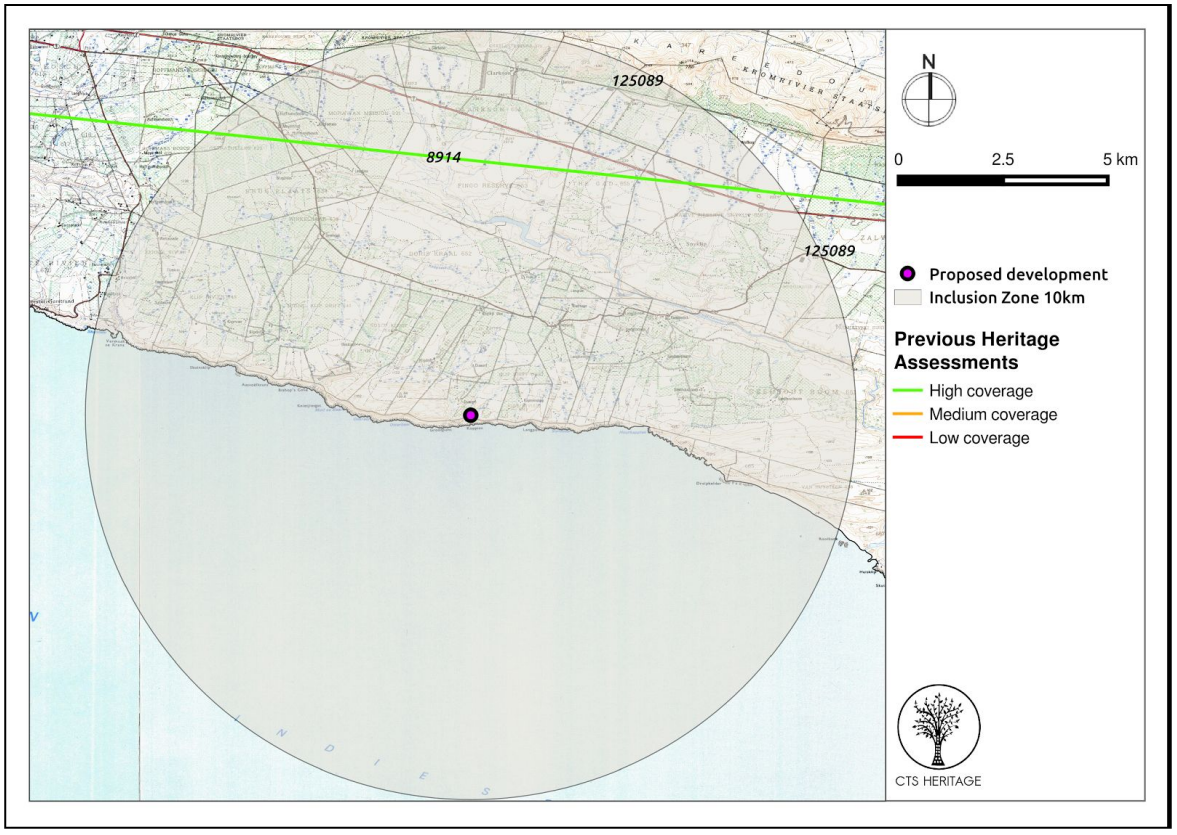


**Figure 4b. Previous Palaeontological Impact Assessments conducted in the vicinity of the proposed development.**

## 4. IDENTIFICATION OF HERITAGE RESOURCES

### 4.1 Field Survey

An archaeologist conducted a field survey on 6 September 2017. The alignment and nearby areas were surveyed (Figure 5), and all heritage resources identified were photographed, recorded with a GPS and described in detail directly in the SAHRIS mobile app.

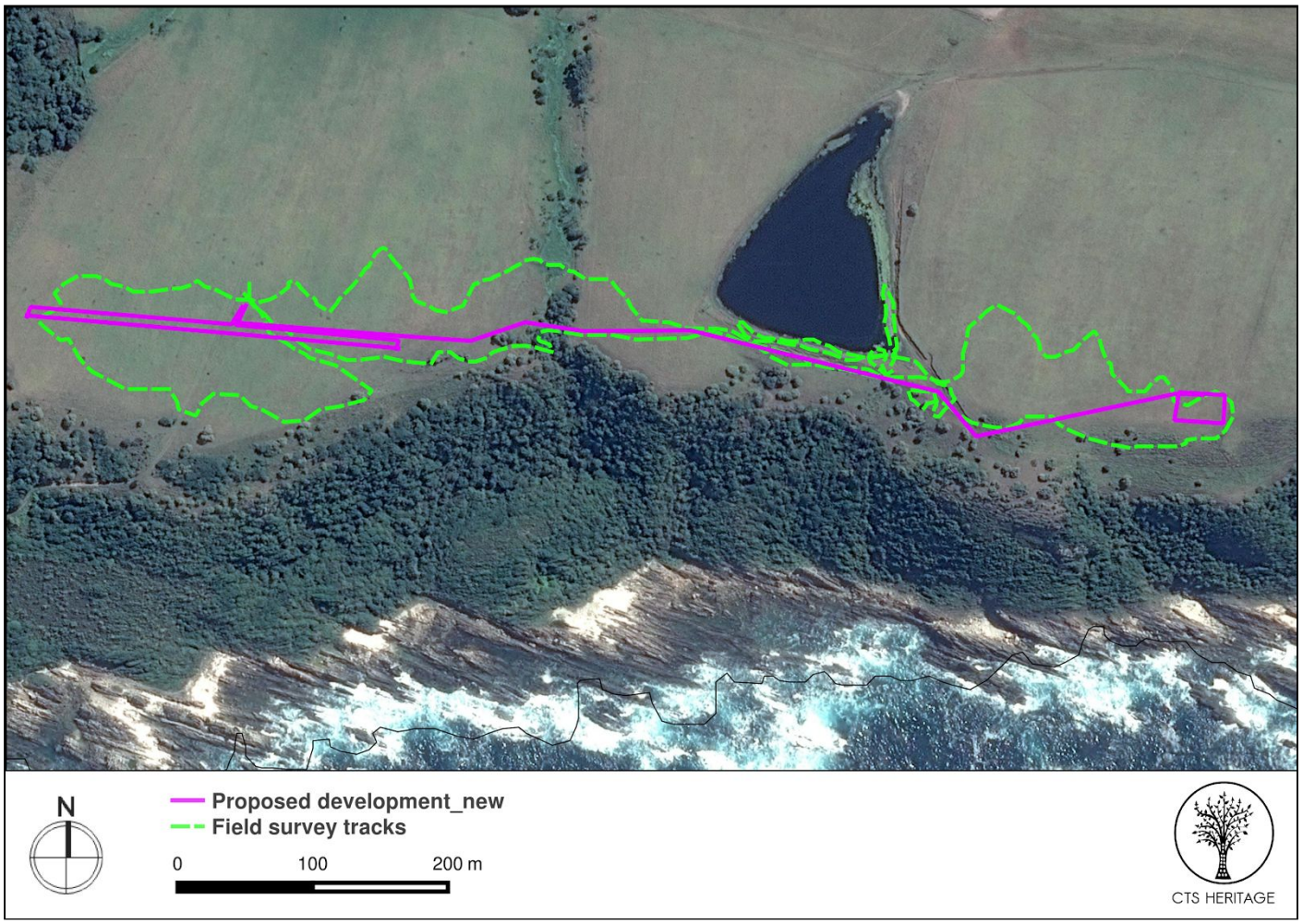


**Figure 5: Track paths of field survey**

The context of the farm is agricultural, and has been used for the grazing of Jersey cows for several decades. Typical farm infrastructure occurs across the area, with existing fence lines, power lines, buildings and fields having been established on the farm. According to the farmer, his family has been farming on this land since the early 19th century. The original farmhouse no longer exists, and has been replaced by newer, more modern buildings. No heritage resources pertaining to the built environment were identified during the field assessment.

Figure 6a. Vehicle tracks leading through field to proposed container location. No archaeology present.

Figure 6b. View to east where proposed development will be located. No archaeology present.

Figure 6c. Drainage channel running north-south through middle of proposed development area. No archaeology present.

Figure 6d. View to west of proposed development area. No archaeology present.

Figure 6e. View to east of proposed development area, with drainage channel running north-south. No archaeology present.

Figure 6f. Example of alluvial deposit excavated for dam. Stone artefacts found in this area, disturbed.

### 4.2 Heritage Resources identified

***Archaeology***

Two new heritage sites were recorded during the field assessment:

SiteID 108202 is located along the banks of the farm dam and some artefacts were located in the water. The site consists of a collection of Early Stone Age artefacts, including a handaxe, large scraper, hammerstones, radial core, chopper and a smaller (probably Middle Stone Age) flake tip (Figure 7a). These artefacts were all located out of context and were thrown into the dam by the farmer when the adjacent fields were ploughed. The farmer knows of other such artefacts which have also been found during agricultural activities over the years. This site has been assessed as having **Grade IIIc** significance.

**Figure7a. Early Stone Age artefacts found in dam.**

SiteID 108203 is located approximately 10m southeast of SiteID 108202, and consists of a collection of Early and Middle Stone Age stone artefacts eroding from a gravelly surface situated approximately 600mm beneath a layer of alluvial deposit on the banks of the dam. These artefacts appear to be *in situ*. It was not possible to determine the artefact types, however flakes were seen *in situ* and one additional handaxe was located lying on the ground out of context nearby (Figure 7b). This site has been assessed as having **Grade IIIb** significance.

**Figure 7b. Left - ESA and MSA artefacts eroding from beneath alluvium (*in situ*). Right - Handaxe out of context nearby**

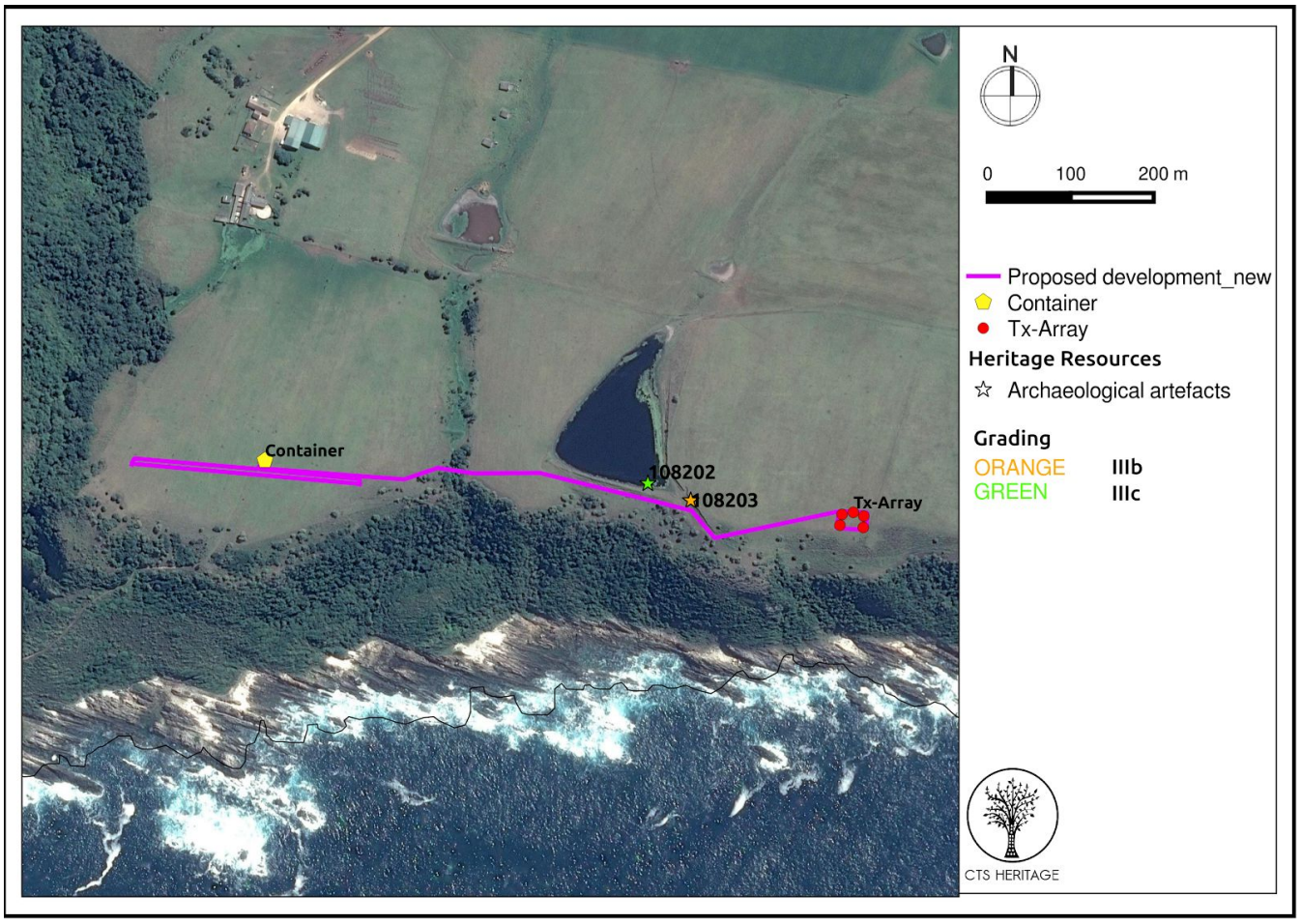


**Figure 8: Spatialisation of heritage resources identified during the field assessment, with SAHRIS Site ID's indicated.**

**Table 3: Heritage resources identified during the foot survey**

| SAHRIS Site ID | Site Number | Site Name | Site Description | Grading |
|---|---|---|---|---|
| 108202 | KLPDRF 01 | Klipdrif Oos 01 | ESA stone artefacts in dam | Grade IIIc |
| 108203 | KLPDRF 02 | Klipdrif Oos 02 | ESA and MSA stone artefacts eroding from banks of dam beneath alluvium | Grade IIIb |

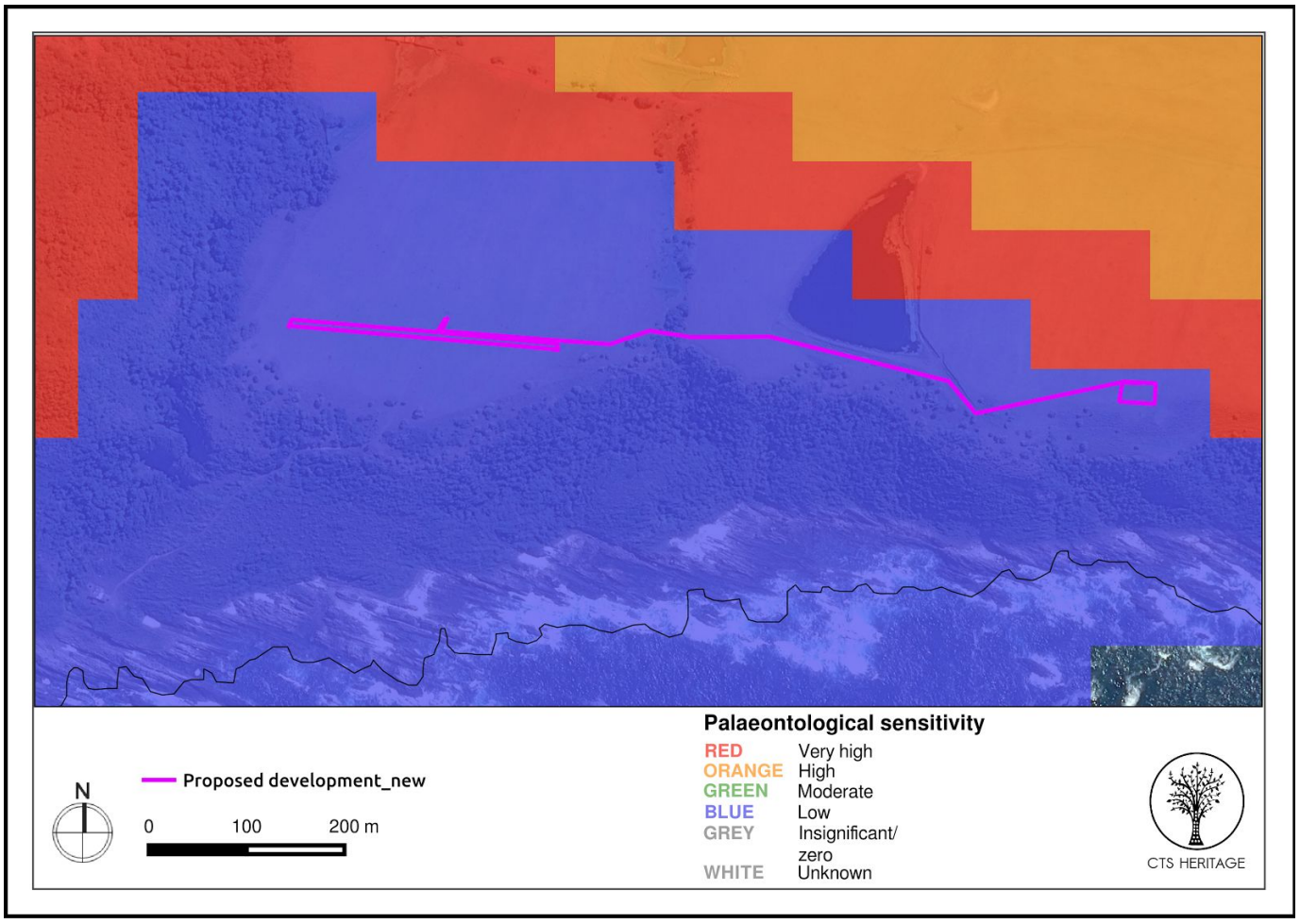


**Figure 9. Palaeontological sensitivity map indicating low fossil sensitivity in the area proposed for development.**

## 5. ASSESSMENT OF THE IMPACT OF THE DEVELOPMENT

***Assessment of impact to Heritage Resources***

The construction of the new HF radar wave monitoring antennae will not have a significant impact on heritage resources located within its immediate vicinity. The antennae will have a small footprint (<50cm base, spaced several meters apart), and are temporary structures which will be removed after approximately 18 months. Although heritage resources do exist in the area proposed for development, these are largely limited to out-of-context artefacts of low heritage value.

Only two collections of heritage resources of some significance have been located in the area proposed for development (SiteID 108202 and 108203). However, with cables proposed to be laid at a depth of approximately 500mm below the surface (in order to avoid ploughing activities of the farmer), it is possible that *in situ* stone artefacts (such as those found at Site 108203) may be impacted.

## 6. CONCLUSION AND RECOMMENDATIONS

Although two collections of stone artefacts were identified during the field survey for this HIA, the artefacts are largely out of context and of low heritage significance, and as such, there is no heritage objection to the proposed development proceeding.

According to the July 2017 BID document, the radar system will have a "disturbance footprint" compatible with existing farm infrastructure in that:

- existing roads and tracks would be used for access;
- the antennae would be secured by wooden fence poles of the same type as already used on the farm;
- the antennae would be spaced approximately 28m apart so movement of farm machinery or animals would not be restricted;
- cabling would be mostly unobtrusive as it would be buried in areas trampled by cattle and otherwise fed on the surface between plants and rocks or along existing fence-lines.

In light of the proximity of Site 108203 to the proposed cable trenches, and the recording of *in situ* artefacts eroding from this context, it is possible that the excavations for the cable trenches may impact additional *in situ* artefacts. We therefore recommend that monitoring be conducted by a qualified archaeologist during any excavations of trenches for cabling on this farm, in order to mitigate the impacts of construction on any potentially significant subsurface Stone Age sites. It is recommended that the results of the archaeological monitoring be submitted to ECPHRA in a report once trenching is complete.

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# APPENDICES

## APPENDIX 1: Photographic Record

View to north-west looking at small dam constructed in drainage channel. Cables will be laid in this vicinity, over the soil surface.

Cattle tracks disturbing area east of drainage dam.

Cattle tracks are evident throughout the proposed development area.

View to north with dam in distance and alluvial banks containing stone age artefacts.

Alluvial banks containing stone age artefacts.

Southwest-facing banks with alluvial topsoil and calcretised gravels.

| | |
|---|---|
|  |  |
| View to east showing area with several out-of-context ESA artefacts | Dense vegetation in drainage channel is archaeologically sterile |
|  |  |
| Cattle tracks are evident throughout the proposed development area. | Dense vegetation to west of proposed development area - will not be impacted by development |
|  |  |
| View to north with farmhouse in the distance | Powerline infrastructure as well as fencing exist all over farm |

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**APPENDIX 2: Heritage Screener**