

**MULILO NEWCASTLE WIND POWER GRID
CONNECTION**

FOR EOH COASTAL ENVIRONMENTAL SERVICES

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Abbreviations

EIA	Early Iron Age
ESA	Early Stone Age
HIA	Heritage Impact Assessment
HP	Historical Period
IIA	Indeterminate Iron Age
ISA	Indeterminate Stone Age
KZNARI	KwaZulu-Natal Amafa & Research Institute
LIA	Late Iron Age
LSA	Late Stone Age
MSA	Middle Stone Age
PIA	Palaeontological Impact Assessment
SAHRA	South African Heritage Resources Agency

INTRODUCTION

The proposed the Newcastle WEFs Phase 1 and 2 will be located approximately 15 km north west of the town of Newcastle in the Kwazulu-Natal Province.

The study area is situated in Ward 1 of the Newcastle Local Municipality (LM) within the Amajuba District Municipality (ADM).

The Newcastle WEF Complex grid connection will connect to the existing Eskom Incandu MTS within Ward 1 and possibly extending into Ward 2, 3 and 4 of Newcastle LM.

In addition to the two WEFs, an overhead line (132 kV) to an Eskom substation will also be developed. The distance of the overhead line (132 kV) will be approximately 20-25 km to an Eskom Incandu Substation, near Newcastle.

The following tables summarise the key WEF grid connection technical details:

Infrastructure component descriptions			
Infrastructure Component	Description	Construction footprint area (ha)	Final footprint area after rehabilitation (ha)
Newcastle WEF Phase 1 Switching Station	132 kV switching station. Height up to 25 m.	Up to 1 ha	Up to 0.5 ha
Newcastle WEF Phase 2 Switching Station	132 kV switching station. Height up to 25 m.	Up to 1 ha	Up to 0.5 ha
Overhead Transmission Line	132 kV double circuit overhead transmission line. Total length up to 40 km. Height up to 30	Up to 40 km length 40 000 m/250 m = 160 monopoles	Up to 40 km length 40 000 m/250 m = 160 monopoles 160 x 0.0072 ha

Infrastructure component descriptions			
Infrastructure Component	Description	Construction footprint area (ha)	Final footprint area after rehabilitation (ha)
	m.	160 x 0.0072 ha = 1.152 ha	= 1.152 ha
Maintenance tracks		Up to 40 km length 4 m width Which equates to 16 ha	Up to 40 km length 4 m width Which equates to 16 ha
Extension of existing Eskom Incandu MTS	Two (2) x 132 kV feeder bays	Up to 0.25 ha	Up to 0.25 ha
Total		Up to 19.4 ha	Up to 18.4 ha

Other Infrastructure Component	Description
Transmission Line	Total Servitude Up to 40 000 m x 31 m = 124 ha
	Total maintenance tracks (within TL servitude corridor) Up to 40 000 m x 4 m = 16 ha

Various alternatives are being considered, which will cross a large number of properties (Table 3), and cables possibly extending into Ward 2, 3 and 4 of Newcastle LM to the Eskom Incandu Substation. This will be dealt with under a separate application and Basic Assessment process.

The properties affected by the grid connection are all zoned as Agriculture and mostly used for stock grazing. Woodlands or afro-montane forests occur in the ravines. No cultivated land could be identified on Google or Bing satellite images on any of the farms. There are a few cultivated dry lands along the southern alignment. Although not directly on the route, some houses of farmers or their labour were identified within the 100 metre buffer reserved for construction.

Umlando was requested to undertake an HIA of the proposed transmission lines and their alternatives. The permission to undertake the fieldwork was only given in early December and we were fully booked for the year-end. We suggested a desktop study that would note all of the sensitive areas along the line. This is especially true for Late Iron Age and historical buildings. Other sites such as open stone tool scatters would be noted during the survey but are of low significance and would not affect any alignment.

Figures 1 – 3 show the location of the transmission lines.

FIG. 1 GENERAL LOCATION OF THE PROPOSED DEVELOPMENT

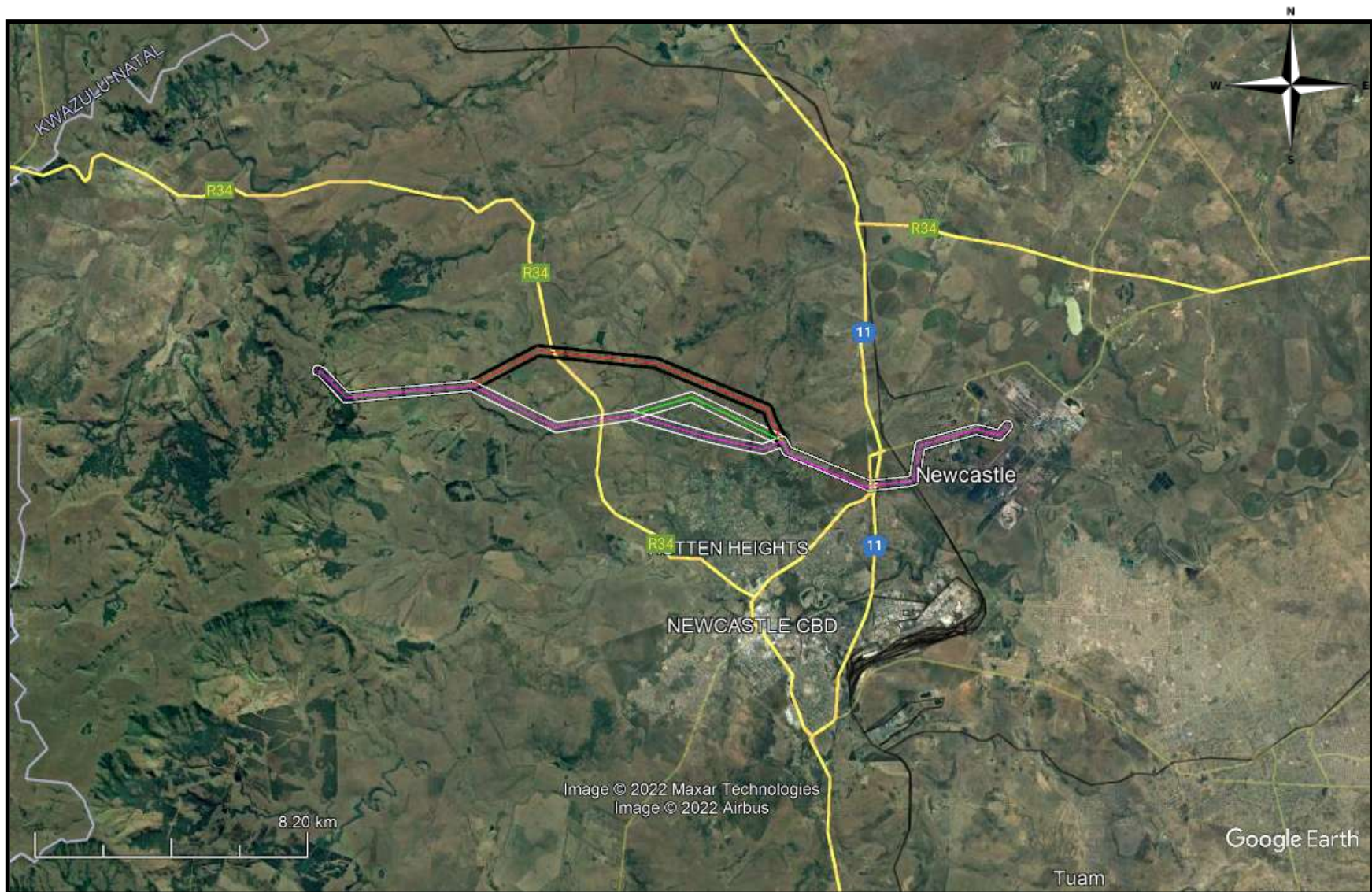


FIG. 2: AERIAL OVERVIEW OF THE PROPOSED DEVELOPMENT

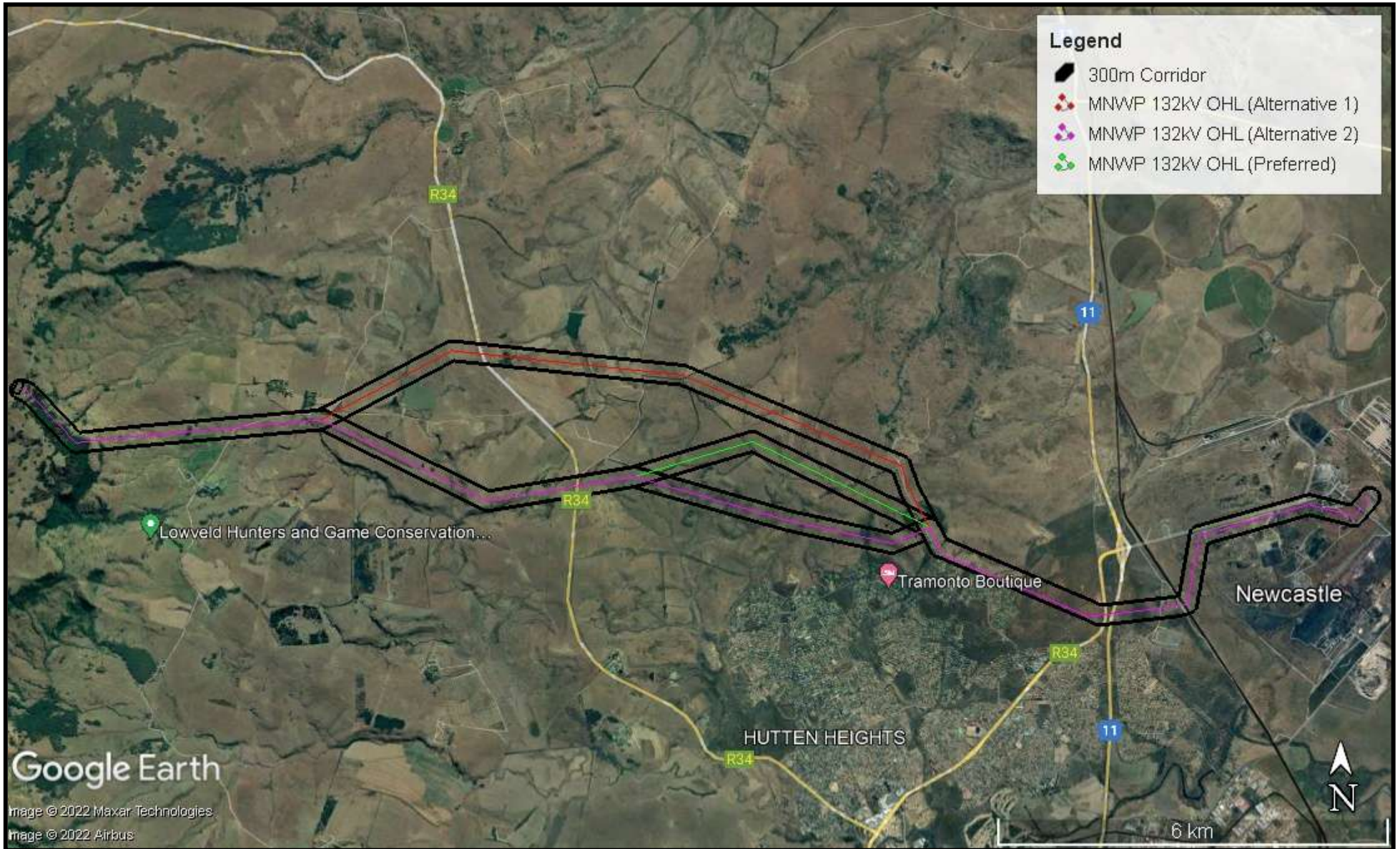
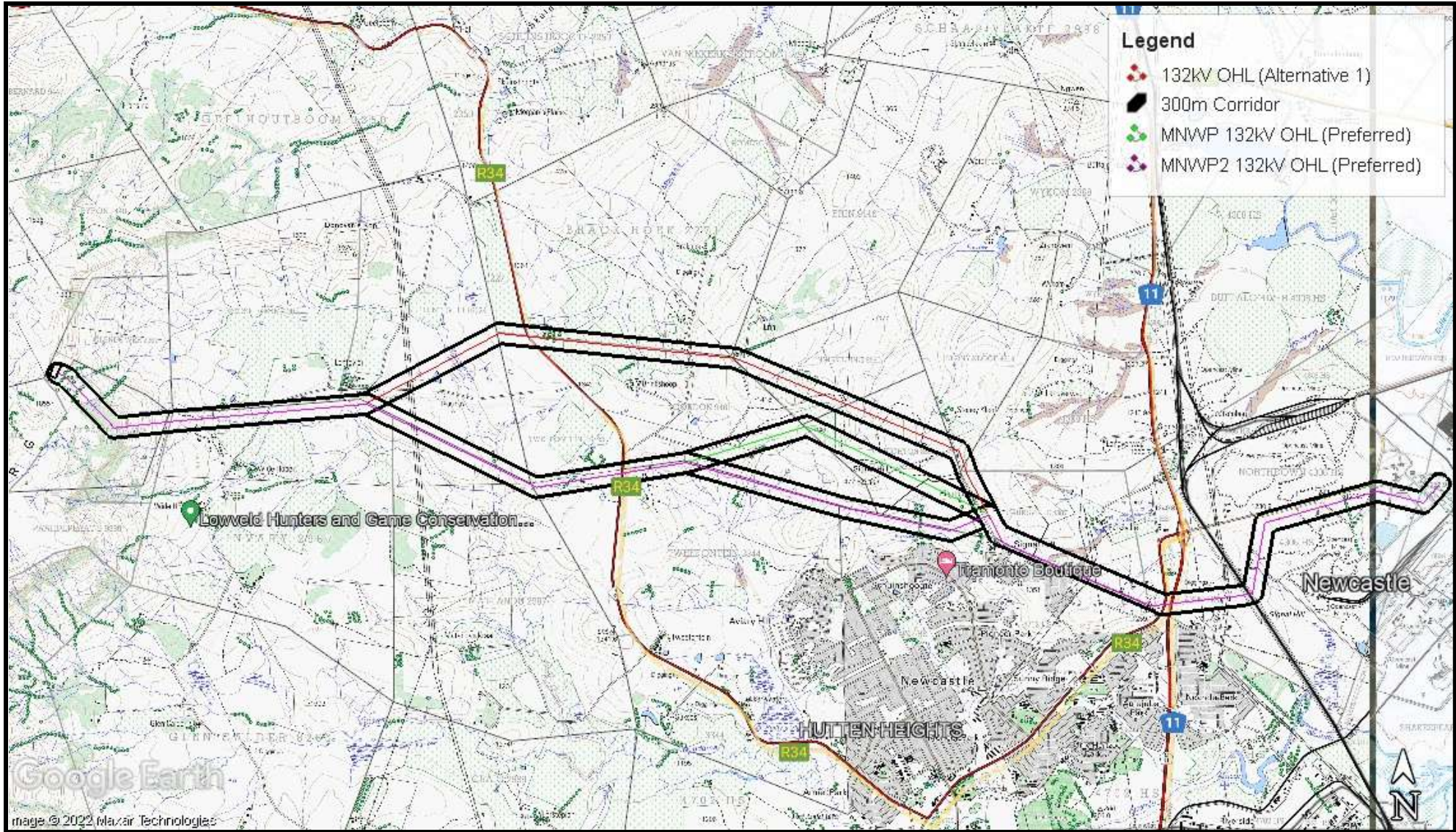


FIG. 3: TOPOGRAPHICAL MAP OF THE PROPOSED DEVELOPMENT



KWAZULU NATAL AMAFA AND RESEARCH INSTITUTE, ACT 05, 2018,

The KwaZulu Natal Amafa And Research Institute, Act 05, 2018, Chapter 8 (pp 29 – 32) defines heritage resources.

“General protection: Structures.

37.(1)(a) No structure which is, or which may reasonably be expected to be older than 60 years, may be demolished, altered or added to without the prior written approval of the Institute having been obtained on written application to the Council.

(b) Where the Institute does not grant approval, the Institute must consider special protection in terms of sections 38, 39, 40, 41 and 43 of Chapter 9.

The Institute may, by notice in the *Gazette*, exempt—

(a) A defined geographical area; or

(b) defined categories of sites within a defined geographical area, from the provisions of subsection where the Institute is satisfied that heritage resources falling in the defined geographical area or category have been identified and are adequately protected in terms of sections 38, 39, 40, 41 and 43 of Chapter 9.

(3) A notice referred to in subsection (2) may, by notice in the *Gazette*, be amended or withdrawn by the Council.

General protection: Graves of victims of conflict.

38. No person may damage, alter, exhume, or remove from its original position

(a) the grave of a victim of conflict;

(b) a cemetery made up of such graves; or

(c) any part of a cemetery containing such graves, without the prior written approval of the Institute having been obtained on written application to the Council.

General protection: Informal and private burial grounds

39.(1) or burial ground older than 60 years, or deemed to be of heritage significance by a heritage authority -

- (a) not otherwise protected by this Act; and
- (b) not located in a formal cemetery managed or administered by a local authority, may be damaged, altered, exhumed, removed from its original position, or otherwise disturbed without the prior written approval of the Institute having been obtained on written application to the Council.

The Institute may only issue written approval once the Institute is satisfied that—

- (a) the applicant has made a concerted effort to consult with communities and individuals who by tradition may have an interest in the grave; and
- (b) the applicant and the relevant communities or individuals have reached agreement regarding the grave.

General protection: Battlefield sites, archaeological sites, rock art sites, palaeontological sites, historic fortifications, meteorite or meteorite impact sites.—

40 (1) No person may destroy, damage, excavate, alter, write or draw upon, or otherwise disturb any battlefield site, archaeological site, rock art site, palaeontological site, historic fortification, meteorite or meteorite impact site without the prior written approval of the Institute having been obtained on written application to the Council.

(2) Upon discovery of archaeological or palaeontological material or a meteorite by any person, all activity or operations in the general vicinity of such material or meteorite must cease forthwith and a person who made the discovery must submit a written report to the Institute without delay.

(3) The Institute may, after consultation with an owner or controlling authority, by way of written notice served on the owner or controlling authority, prohibit

any activity considered by the Institute to be inappropriate within 50 metres of a rock art site.

(4) No person may exhume, remove from its original position or otherwise disturb, damage, destroy, own or collect any object or material associated with any battlefield site, archaeological site, rock art site, palaeontological site, historic fortification, meteorite or meteorite impact site without the prior written approval of the Institute having been obtained on written application to the Council.

(5) No person may bring any equipment which assists in the detection of metals and archaeological and palaeontological objects and material, or excavation equipment onto any battlefield site, archaeological site, rock art site, palaeontological site, historic fortification, or meteorite impact site, or use similar detection or excavation equipment for the recovery of meteorites, without the prior written approval of the Institute having been obtained on written application to the Council.

(6)(a) The ownership of any object or material associated with any battlefield site, archaeological site, rock art site, palaeontological site, historic fortification, meteorite or meteorite impact site, on discovery, vests in the Provincial Government and the Institute is regarded as the custodian on behalf of the Provincial Government.

(b) The Institute may establish and maintain a provincial repository or repositories for the safekeeping or display of —

- (i) archaeological objects;
- (ii) palaeontological material;
- (iii) ecofacts;
- (iv) objects related to battlefield sites;
- (v) material cultural artefacts; or
- (vi) meteorites,

(7) The Institute may, subject to such conditions as the Institute may determine, loan any object or material referred to in subsection (6) to a national or provincial museum or institution.

(8) No person may, without the prior written approval of the Institute having been obtained on written application to the Institute, trade in, export or attempt to export from the Province ~

- (a) any category of archaeological object;
- (b) any palaeontological material;
- (c) any ecofact;
- (d) any object which may reasonably be regarded as having been recovered from a battlefield site;
- (e) any material cultural artefact; or
- (f) any meteorite.

(9)(a) A person or institution in possession of an object or material, referred to in paragraphs (a) ~ (f) of subsection (8), must submit full particulars of such object or material, including such information as may be prescribed, to the Institute.

(b) An object or material referred to in paragraph (a) must, subject to paragraph (c) and the directives of the Institute, remain under the control of the person or institution submitting the particulars thereof.

(c) The ownership of any object or material referred to in paragraph (a) vests in the Provincial Government and the Institute is regarded as the custodian on behalf of the Provincial Government.”

METHOD

The method for Heritage assessment consists of several steps.

The first step forms part of the desktop assessment. Here we would consult the database that has been collated by Umlando. This databases contains

archaeological site locations and basic information from several provinces (information from Umlando surveys and some colleagues), most of the national and provincial monuments and battlefields in Southern Africa (<http://www.vuvuzela.com/googleearth/monuments.html>) and cemeteries in southern Africa (information supplied by the Genealogical Society of Southern Africa). We use 1st and 2nd edition 1:50 000 topographical and 1937 aerial photographs where available, to assist in general location and dating of buildings and/or graves. The database is in Google Earth format and thus used as a quick reference when undertaking desktop studies. Where required we would consult with a local data recording centre, however these tend to be fragmented between different institutions and areas and thus difficult to access at times. We also consult with an historical architect, palaeontologist, and an historian where necessary.

The survey results will define the significance of each recorded site, as well as a management plan.

All sites are grouped according to low, medium, and high significance for the purpose of this report. Sites of low significance have no diagnostic artefacts or features. Sites of medium significance have diagnostic artefacts or features and these sites tend to be sampled. Sampling includes the collection of artefacts for future analysis. All diagnostic pottery, such as rims, lips, and decorated sherds are sampled, while bone, stone, and shell are mostly noted. Sampling usually occurs on most sites. Sites of high significance are excavated and/or extensively sampled. Those sites that are extensively sampled have high research potential, yet poor preservation of features.

Defining significance

Heritage sites vary according to significance and several different criteria relate to each type of site. However, there are several criteria that allow for a general significance rating of archaeological sites.

These criteria are:

1. State of preservation of:

- 1.1. Organic remains:
 - 1.1.1. Faunal
 - 1.1.2. Botanical
- 1.2. Rock art
- 1.3. Walling
- 1.4. Presence of a cultural deposit
- 1.5. Features:
 - 1.5.1. Ash Features
 - 1.5.2. Graves
 - 1.5.3. Middens
 - 1.5.4. Cattle byres
 - 1.5.5. Bedding and ash complexes

2. Spatial arrangements:

- 2.1. Internal housing arrangements
- 2.2. Intra-site settlement patterns
- 2.3. Inter-site settlement patterns

3. Features of the site:

- 3.1. Are there any unusual, unique or rare artefacts or images at the site?
- 3.2. Is it a type site?
- 3.3. Does the site have a very good example of a specific time period, feature, or artefact?

4. Research:

- 4.1. Providing information on current research projects

4.2. Salvaging information for potential future research projects

5. Inter- and intra-site variability

5.1. Can this particular site yield information regarding intra-site variability, i.e. spatial relationships between various features and artefacts?

5.2. Can this particular site yield information about a community's social relationships within itself, or between other communities?

6. Archaeological Experience:

6.1. The personal experience and expertise of the CRM practitioner should not be ignored. Experience can indicate sites that have potentially significant aspects, but need to be tested prior to any conclusions.

7. Educational:

7.1. Does the site have the potential to be used as an educational instrument?

7.2. Does the site have the potential to become a tourist attraction?

7.3. The educational value of a site can only be fully determined after initial test-pit excavations and/or full excavations.

8. Other Heritage Significance:

8.1. Palaeontological sites

8.2. Historical buildings

8.3. Battlefields and general Anglo-Zulu and Anglo-Boer sites

8.4. Graves and/or community cemeteries

8.5. Living Heritage Sites

8.6. Cultural Landscapes, that includes old trees, hills, mountains, rivers, etc related to cultural or historical experiences.

The more a site can fulfill the above criteria, the more significant it becomes. Test-pit excavations are used to test the full potential of an archaeological deposit. This occurs in Phase 2. These test-pit excavations may require further excavations if the site is of significance (Phase 3). Sites may also be mapped and/or have artefacts sampled as a form of mitigation. Sampling normally occurs when the artefacts may be good examples of their type, but are not in a primary

archaeological context. Mapping records the spatial relationship between features and artefacts. Table 1 lists the grading system.

TABLE 1: SAHRA GRADINGS FOR HERITAGE SITES

SITE SIGNIFICANCE	FIELD RATING	GRADE	RECOMMENDED MITIGATION
High Significance	National Significance	Grade 1	Site conservation / Site development
High Significance	Provincial Significance	Grade 2	Site conservation / Site development
High Significance	Local Significance	Grade 3A / 3B	
High / Medium Significance	Generally Protected A		Site conservation or mitigation prior to development / destruction
Medium Significance	Generally Protected B		Site conservation or mitigation / test excavation / systematic sampling / monitoring prior to or during development / destruction
Low Significance	Generally Protected C		On-site sampling monitoring or no archaeological mitigation required prior to or during development / destruction

RESULTS

DESKTOP STUDY

The desktop study consisted of analysing various maps for evidence of prior habitation in the study area, as well as for previous archaeological surveys. The general area is known for its (fig. 5). One survey has occurred at the substation Eskom Switching station as part of the WEF Phase 2 survey. The rest of the general area is known to be archaeologically and historically sensitive.

The following historical map were used to note features such as stone walling, farm buildings, human settlements, and general built structures (or features) (fig. 6):

1. Umlando, SAHRIS database for known sites,

2. 29137 aerial photographs
3. 1971 1:50 000 topographical map
4. 2022 Google Earth imagery

Table 2 summarises the sites located from the desktop. A total of sixty-eight (68) occur within, or party on, the 300m corridor. Twenty-four (24) of these occur within 50m of the proposed transmission line alignment. One contemporary house occurs in the direct line of the transmission line and will require re-alignment.

All routes share some of the same sites. The total number of sites per route is as follows:

1. Preferred Route: 45
2. Alternative 1: 42
3. Alternative 2: 37

The types of sites can be divided into the following:

1. Farm houses
2. Features
3. General buildings
4. Graves
5. Houses
6. Kraals
7. Stone walling

Farmhouses

Farmhouses refer to several farm buildings on a farm with a Title Deed, The farms in this area tend to date from the 19th century. E.g. Roose Boom 3305 was surveyed in 1857 and Gordon 9481 in 1896 (fig. 7 – 8 respectively). This means most of the farmhouse are older than 60 years in age and are thus protected,

even if they are in ruin. Moreover, any middens associated with the farms would also be protected. Some of these farms have known family cemeteries, e.g. Gordon, farm labourers' houses and animal structures such as barns and kraals.

None of the farmhouses are listed buildings. Mitigation can be in the form of sampling/excavations and/or monitoring during construction for historical artefacts. Alternatively, the locations of pylon can be adjusted to have no impact.

Features

Features are built structures of various forms that were observed from the aerial photographs or Google Earth Imagery. These will need to be identified in the survey. They are unlikely to have high significance.

General buildings

These are buildings noted on the topographical map but have no specific association. These will need to be identified in the survey. They are unlikely to have high significance.

Graves

Graves occur in a formal cemetery (e.g. Farm Gordon), or in general settlements or farm labourers' houses (e.g. H30). These are of high significance and may not be impacted. No known graves are currently affected.

Houses

Houses tend to refer to farm labourer's house and vary from wattle and daub family houses forming a settlement, or the more recent built brick structures. The ones in the study area occur over the last 100 years, and some are still in use. The transmission line only goes directly over one house: H29 for Alternative 1. This will need to be realigned if used.

Kraals

Kraals are square or rectangular stone walled structures normally associated with colonial farms. These are not part of the farm complex and tend to be isolated structures in the field.

These will need to be identified in the survey. They are unlikely to have high significance.

Stone walling

Stone Walling tends to refer to the Late Iron Age circular structures often used for kraals for cattle and/or goats. The graves tend to be in from of these kraals, while the domestic houses occur behind them.

These will need to be identified in the survey. They vary in high significance and some may have human burial inside the kraal. The locations of pylon can be adjusted to have no impact.

TABLE 2: LOCATION OF SITES IN EACH ALIGNMENT¹

Name	Latitude	Longitude	Description	Map Date	Within 300m Corridor	Within 50m Of The Transmission Line	Preferred Alignment	Alternative 1	Alternative 2
B01	-27.694857332	29.935132714	Building	1971	y	N	Yes	Yes	Yes
Dip 1	-27.700589494	29.880264769	Sheep/cattle dip	2022	Y	N	Yes	Yes	Yes
Dip 2	-27.700159323	29.879185242	Sheep/cattle dip	2022	Y	Y	Yes	Yes	Yes
F01	-27.714783162	29.982219099	Feature	1937	y	N	Yes	Yes	Yes
F02	-27.715344073	29.968095867	Feature	1937	y	N	Yes	Yes	Yes
F03	-27.714746167	29.966172549	Feature	1937	y	N	Yes	Yes	Yes
F04	-27.714647961	29.963616359	Feature	1937	y	N	Yes	Yes	Yes
F05	-27.700003581	29.931012728	Feature	1937	y	Y	Yes		
F06	-27.706028021	29.984617955	Feature	1937	y	N	Yes	Yes	Yes
F07	-27.700460549	29.937146544	Feature	1937	Y	N	Yes	Yes	
F08	-27.711546635	29.981632754	Feature	1971	Y	y	Yes	Yes	Yes
F09	-27.713933465	29.980749414	Feature	1971	y	N	Yes	Yes	Yes
f10	-27.703069246	29.918428519	Feature	1971	y	N			Yes
f11	-27.693101620	29.909924552	Feature	1971	y	N	Yes		
f12	-27.691848500	29.925530157	Feature	1971	y	Y		Yes	
f13	-27.687571696	29.917235157	Feature	1971	y	N			
f14	-27.693459299	29.816441000	Feature	1971	y	N	Yes	Yes	Yes
fh1	-27.700119955	29.884077237	farmhouse	1937	Y	Y	Yes		Yes
fh2	-27.698684462	29.882076092	farmhouse several buildings	1937	y	Y	Yes		Yes
fh3	-27.680750871	29.876349002	Muirsend	1937	y	Y	1		
fh6	-27.702924186	29.938051005	Highton, ruins 2022	1937	y	Y	Yes	Yes	

¹ Sensitivity rating: Green = low; orange = medium; red = high.

fh7	-27.688596048	29.844477262	Farmhouse	1971	y	Y	Yes	Yes	Yes
fh8	-27.689644156	29.827393911	Farmhouse	1971	y	N	Yes	Yes	Yes
grave	-27.698099283	29.882858748	Farm grave	1971	y	N	Yes		Yes
graves?	-27.699408419	29.890299202	Possible graves	2022	y	N	Yes		Yes
H01	-27.714267737	29.980421616	House	1937	y	n	Yes		Yes
H02	-27.716031136	29.962608809	several settlements	1937	y	Y	Yes,	Yes	Yes
H04	-27.684118431	29.894903961	House	1937	y	Y		Yes	
H05	-27.684861492	29.895404482	House	1937	N	n		Yes	
H06	-27.681432987	29.894873102	House	1937	n	Y		Yes	
H08	-27.692411479	29.910738280	House	1937	y	N	Yes		
H09	-27.692003727	29.913212022	House	1937	Y	n	Yes		
h10	-27.691856294	29.914792778	House	1937	y	N	Yes		
h11	-27.695220156	29.918908739	House	1937	y	Y	Yes		
h12	-27.694738787	29.919596468	House	1937	Y	n	Yes		
h13	-27.693967740	29.919429969	House	1937	y	N	Yes		
h14	-27.697037284	29.919219583	House	1937	n	N	Yes		
h15	-27.713112493	29.983199304	House	1971	y	N	Yes	Yes	Yes
h16	-27.712181335	29.980377625	House	1971	y	N	Yes	Yes	Yes
h17	-27.713617012	29.961622210	House	1971	y	Y	Yes,	Yes	Yes
h18	-27.713292930	29.955211061	House	1971	y	Y	Yes,	Yes	Yes
h19	-27.699908509	29.936341096	House	1971	y	N	Yes,	Yes	
h20	-27.700287783	29.934176076	House	1971	y	N	Yes		
h21	-27.698173089	29.923434573	House	1971	y	N	Yes		
h22	-27.689360386	29.826625618	House	1971	n	N	Yes	Yes	Yes
h23	-27.686907870	29.916180396	House	1971	y	N		Yes	
h24	-27.688638374	29.919253723	House	1971	y	N		Yes	
h25a	-27.691750591	29.919906772	House	1971	n	N		Yes	
h25b	-27.693620597	29.935155314	House	1971	n	N		Yes	
h26	-27.699760603	29.898972492	House	1971	Y	n			Yes
h27	-27.702709061	30.007038603	foundations?	2022	y	Y	Yes	Yes	Yes

h28	-27.689989976	29.919740746	House (move)	2022	y	Y		Yes	
h29	-27.683350416	29.895379359	House	2022	y	Y		Yes	
h30	-27.681978724	29.894915313	House	2022	y	N	Yes,	Yes	Yes
h30	-27.699284696	29.890603530	House	2022	y	N	Yes		
K01	-27.713577387	29.981884847	stone walling	1937	y	Y	Yes	Yes	Yes
K02	-27.705428357	29.943505831	stone walling	1937	y	N	Yes	Yes	Yes
K03	-27.682695494	29.866458109	Rectangular kraal	2022	n	Y		Yes	
K04	-27.714096153	29.963701080	rectangular kraal	2022	y	N	Yes	Yes	Yes
K05	-27.705695563	29.924273861	Rectangular kraal	2022	y	N			Yes
K06	-27.691486054	29.928285151	Rectangular kraal	2022	Y	N		Yes	
MUL012	-27.686496556	29.799554926	2 Rectangular kraals and house	1937	y	Y	Preferred	Yes	Yes
W01	-27.683055502	29.862225230	Walling?	2022	y	N		Yes	
W02	-27.694449698	29.908980081	walling?	1937	y	y	Yes		
W03?	-27.703690782	29.919349406	Walling	1937	y	Y			Yes
W04	-27.715309430	29.960270581	walling	1937	y	n	Yes		Yes
W05	-27.697174494	29.895631431	Walling	2022	y	y	Yes		Yes
W06?	-27.688142957	29.849353642	walling	1937	y	y	Yes	Yes	Yes

FIG. 4: LOCATION OF KNOWN HERITAGE SITES IN THE GENERAL AREA

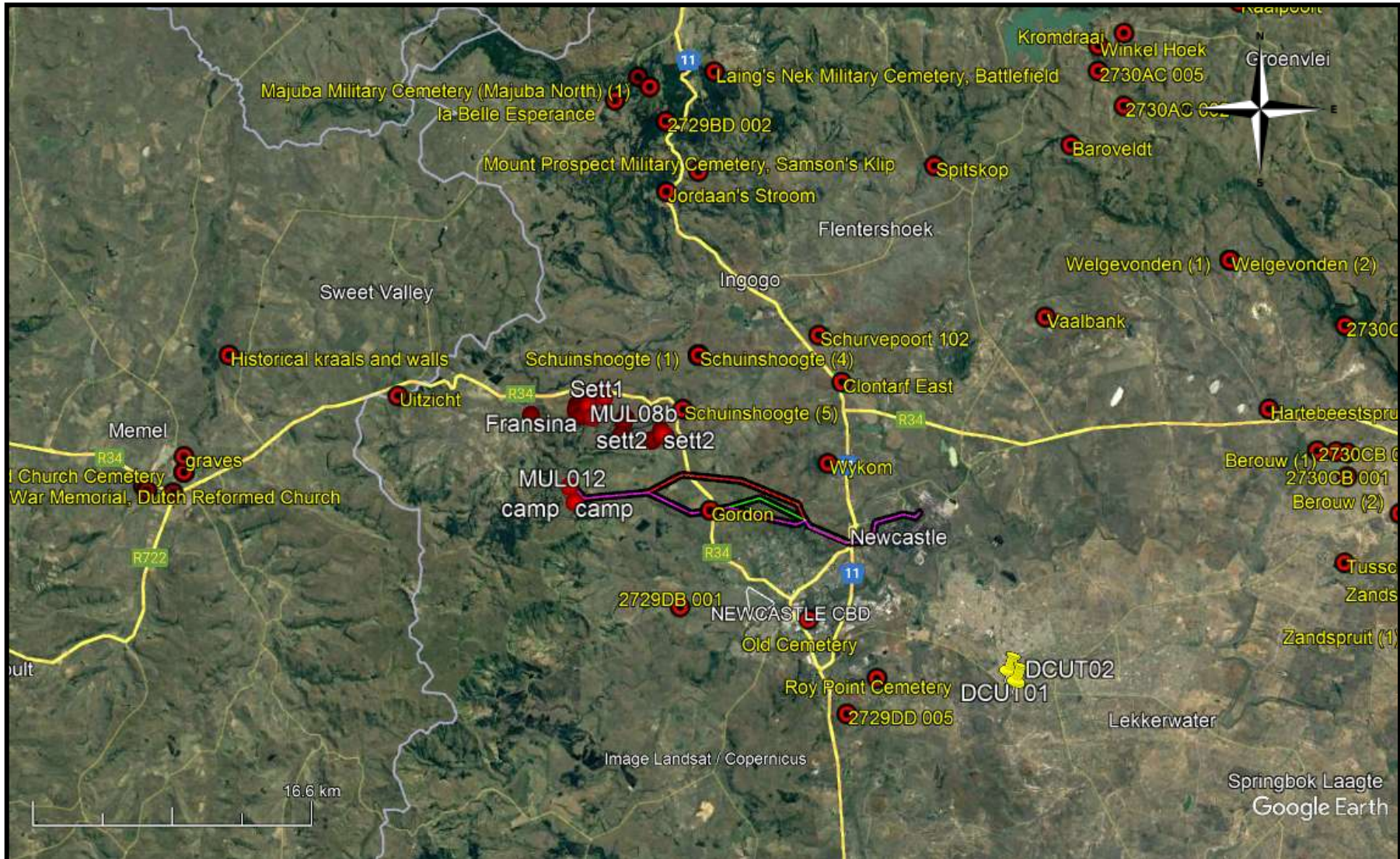


FIG. 5: LOCATION OF RECORDED SITES

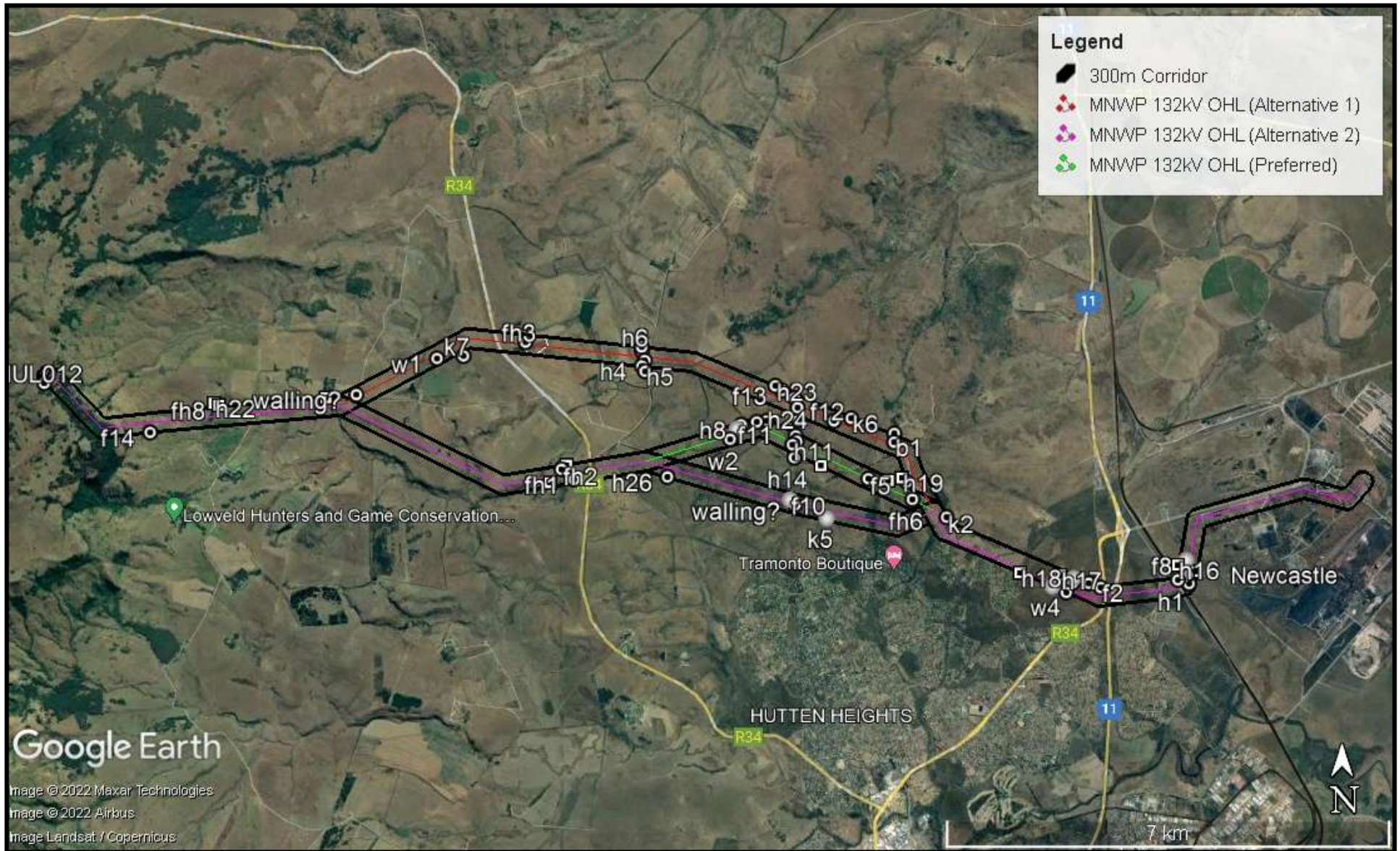


FIG. 6: SURVEYOR GENERAL MAP OF ROOSE BLOOM

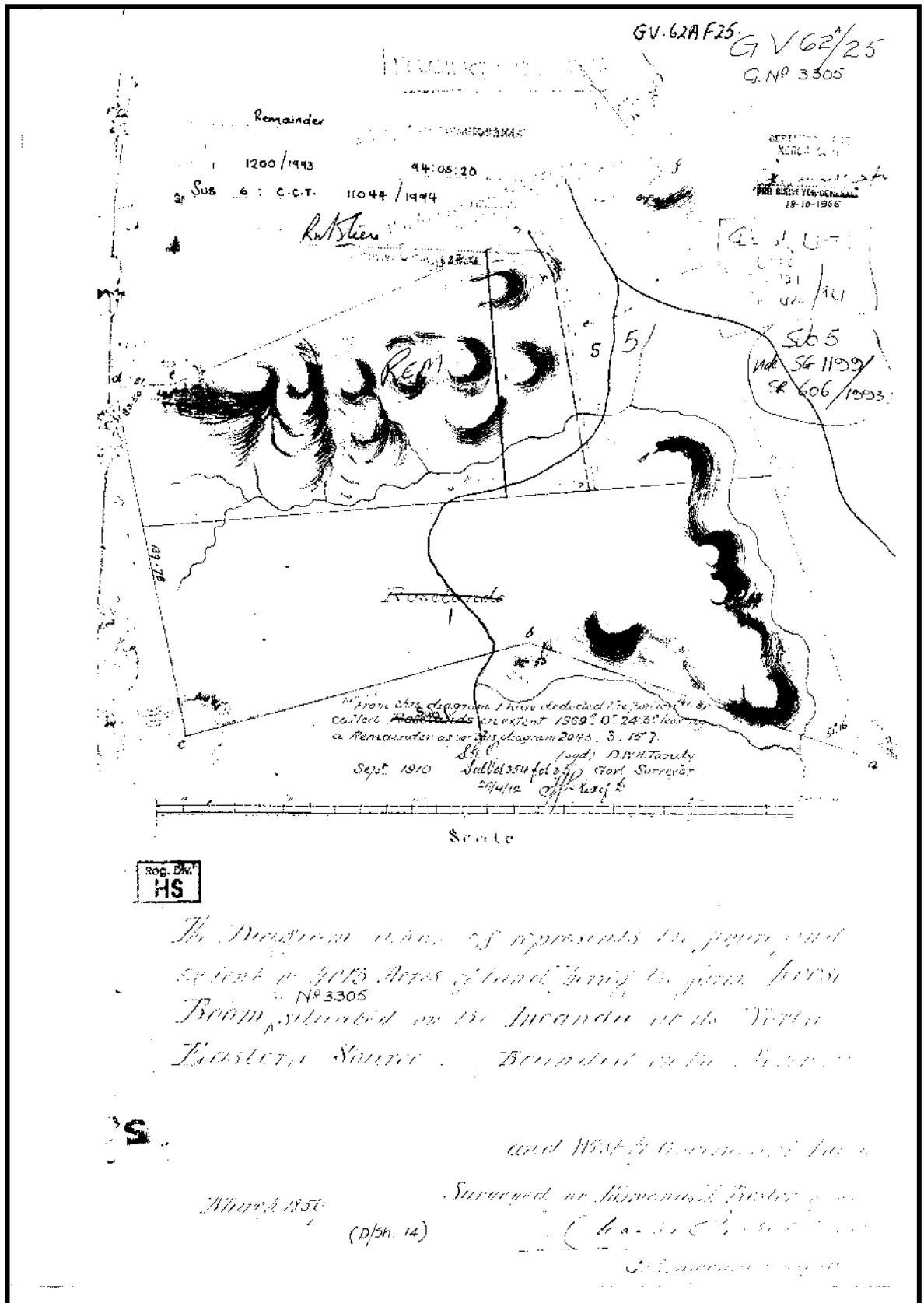
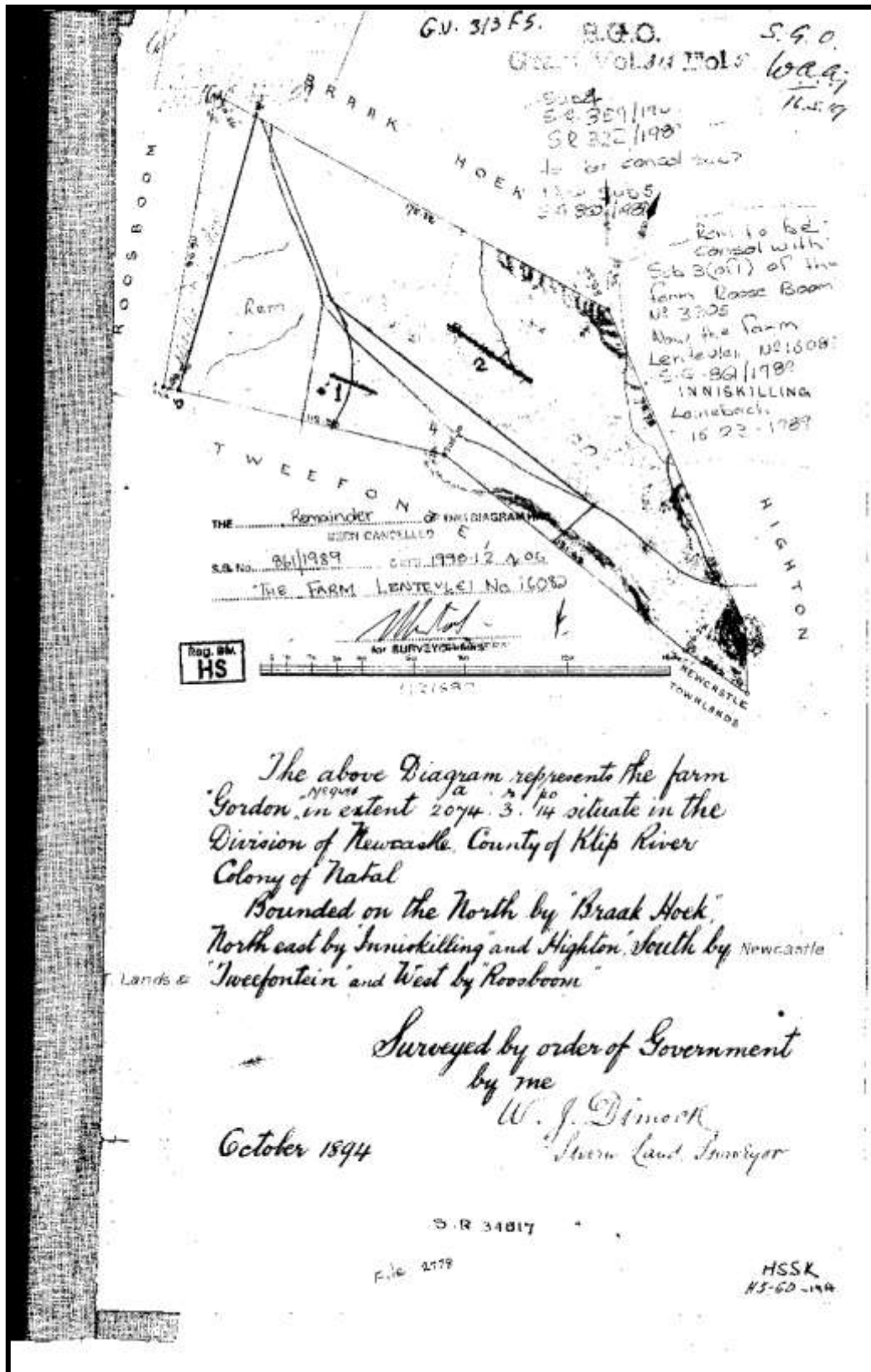


FIG. 7: SURVEYOR GENERAL MAP OF GORDON



MITIGATION

A field survey will be undertaken in January 2023 to verify this desktop study. The desktop study noted various types of heritage sites that occur along each alignment corridor. All of these sites can be avoided with minor re-adjustments to the location and/or angle of the pylon. Alternatively each site can be mitigated in the following manner if there is no technical possibility of re-aligning the pylon.

Any site within 50m of the pylon requires buffering and demarcation as well as the following:

1. Farm houses:
 - 1.1. Photograph and general map
 - 1.2. Sample/excavate old middens that will be affected
 - 1.3. Monitor areas for possible middens during construction
 - 1.4. Existing buildings and/or ruins cannot be disturbed otherwise a permit is required.
 - 1.5. Permit will require additional assessment from the Built Environment specialist
2. Features
 - 2.1. Fully recorded, map and photograph
 - 2.2. Permits will be required if (partially) damaged
3. General buildings
 - 3.1. Photograph and general map
 - 3.2. Permits will be required if (partially) damaged
4. Graves
 - 4.1. May not impact on graves
 - 4.2. Keep 20m buffer from all graves.
 - 4.3. No permits will be issued
5. Houses
 - 5.1. Pre-1960 houses need to be mapped and photographed
 - 5.2. Possibility of subsurface graves
 - 5.3. Permits will be required if (partially) damaged

6. Kraals
 - 6.1. Fully recorded, map and photograph
 - 6.2. Assess for graves
 - 6.3. Permits will be required if (partially) damaged
7. Stone walling
 - 7.1. Fully recorded, map and photograph
 - 7.2. Assess for graves
 - 7.3. Permits will be required if (partially) damaged

Any built structure .or midden over 60 years in age will require a permit to partially damage/alter/demolish and to sample or excavate.

TABLE 3: IMPACTS AND MITIGATION MEASURES FOR ALL PHASES OF THE PROPOSED DEVELOPMENT.

POTENTIAL ISSUE	ALT	DESCRIPTION / SOURCE OF IMPACT	NATURE	TYPE	CONSEQUENCE	EXTENT	DURATION	PROBABILITY	REVERSIBILITY	IRREPLACEABLE LOSS	MITIGATION POTENTIAL	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
PLANNING AND DESIGN PHASE														
Farm houses	Preferred	<p>The planned layout and siting of construction activities and infrastructure may result in the partial destruction of built structures and historical middens during the construction phase.</p> <p>The foundations for the pylons and the laying of the cables have the potential to damage heritage sites.</p>	Negative	Direct, cumulative	Severe	Localised	Permanent	Possible	Irreversible	Resource will be lost	Easily achievable	To be determined	<ol style="list-style-type: none"> 1. Photograph and general map 2. Sample/excavate old middens that will be affected 3. Monitor areas for possible middens during construction 4. Existing buildings and/or ruins cannot be disturbed, otherwise a permit is required. 5. Permit will require additional assessment from the Built Environment specialist 	low
Features	Preferred	<p>The planned layout and siting of construction activities and infrastructure may result in the partial destruction of built structures and historical middens during the construction phase.</p> <p>The foundations for the pylons and the laying of the cables have the potential to damage heritage sites.</p>	Negative	Direct, cumulative	Severe	Localised	Permanent	Possible	Irreversible	Resource will be lost	Easily achievable	To be determined	<ol style="list-style-type: none"> 1. Fully recorded, map and photograph 2. Permits will be required if (partially) damaged 	low

POTENTIAL ISSUE	ALT	DESCRIPTION / SOURCE OF IMPACT	NATURE	TYPE	CONSEQUENCE	EXTENT	DURATION	PROBABILITY	REVERSIBILITY	IRREPLACEABLE LOSS	MITIGATION POTENTIAL	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
General buildings	Preferred	The planned layout and siting of construction activities and infrastructure may result in the partial destruction of built structures and historical middens during the construction phase. The foundations for the pylons and the laying of the cables have the potential to damage heritage sites.	Negative	Direct, cumulative	Severe	Localised	Permanent	Possible	Irreversible	Resource will be lost	Easily achievable	To be determined	1. Photograph and general map 2. Permits will be required if (partially) damaged	low
Graves	Preferred	The planned layout and siting of construction activities and infrastructure may result in the partial destruction of built structures and historical middens during the construction phase. The foundations for the pylons and the laying of the cables have the potential to damage heritage sites.	Negative	Direct, cumulative	Severe	Localised	Permanent	Possible	Irreversible	Resource will be lost	Easily achievable	HIGH	1. May not impact on graves 2. Keep 20m buffer from all graves. 3. Demarcate before construction 4. No permits will be issued	low
Houses	Preferred	The planned layout and siting of construction activities and infrastructure may result in the partial destruction of built structures and historical middens during the construction phase. The foundations for the pylons and the laying of the cables have the potential to damage heritage sites.	Negative	Direct, cumulative	Severe	Localised	Permanent	Possible	Irreversible	Resource will be lost	Easily achievable	To be determined	1. Pre-1960 houses need to be mapped and photographed 2. Possibility of subsurface graves 3. Permits will be required if (partially) damaged	low

POTENTIAL ISSUE	ALT	DESCRIPTION / SOURCE OF IMPACT	NATURE	TYPE	CONSEQUENCE	EXTENT	DURATION	PROBABILITY	REVERSIBILITY	IRREPLACEABLE LOSS	MITIGATION POTENTIAL	SIGNIFICANCE WITHOUT MITIGATION	MITIGATION MEASURES	SIGNIFICANCE WITH MITIGATION
Kraals	Preferred	<p>The planned layout and siting of construction activities and infrastructure may result in the partial destruction of built structures and historical middens during the construction phase.</p> <p>The foundations for the pylons and the laying of the cables have the potential to damage heritage sites.</p>	Negative	Direct, cumulative	Severe	Localised	Permanent	Possible	Irreversible	Resource will be lost	Easily achievable	To be determined	1.1. Fully recorded, map and photograph 1.2. Assess for graves 1.3. Permits will be required if (partially) damaged	low
Stone walling	Preferred	<p>The planned layout and siting of construction activities and infrastructure may result in the partial destruction of built structures and historical middens during the construction phase.</p> <p>The foundations for the pylons and the laying of the cables have the potential to damage heritage sites.</p>	Negative	Direct, cumulative	Severe	Localised	Permanent	Possible	Irreversible	Resource will be lost	Easily achievable	To be determined	1.1. Fully recorded, map and photograph 1.2. Assess for graves 1.3. Permits will be required if (partially) damaged	low
Open Stone tool scatters	Preferred	<p>The planned layout and siting of construction activities and infrastructure may result in the partial destruction of built structures and historical middens during the construction phase.</p> <p>The foundations for the pylons and the laying of the cables have the potential to damage heritage sites.</p>	Negative	Direct, cumulative	Severe	Localised	Permanent	Possible	Irreversible	Resource will be lost	Easily achievable	low	None required	low

CONCLUSION

A desktop heritage survey was undertaken for the proposed Mulilo Newcastle Wind Power Grid Connection. The field survey will be undertaken in early 2023 to assess the sites. A total of 68 heritage sites were noted within the 300m corridor; however only 24 sites occur within 50m of the current route.

All of the sites can be managed through some form of mitigation. The mitigation is firstly to re-locate the position of the pylons. Where this is not possible, mitigation can be in the form of sampling and/or excavations. Only one site on Alternative 1 requires realignment as it is directly over an existing household.

There is no preference for a route alignment in terms of the heritage at the moment. This needs to be confirmed by fieldwork.

REFERENCES

1:50 000 Topographical Maps

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Aerial Photographs

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107_012_38376

107_014_38351

Database

KZN Museum

SHARIS

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EXPERIENCE OF THE HERITAGE CONSULTANT

Gavin Anderson has a M. Phil (in archaeology and social psychology) degree from the University of Cape Town. Gavin has been working as a professional archaeologist and heritage impact assessor since 1995. He joined the Association of Professional Archaeologists of Southern Africa in 1998 when it was formed. Gavin is rated as a Principle Investigator with expertise status in Rock Art, Stone Age and Iron Age studies. In addition to this, he was worked on both West and East Coast shell middens, Anglo-Boer War sites, and Historical Period sites.

DECLARATION OF INDEPENDENCE

I, Gavin Anderson, declare that I am an independent specialist consultant and have no financial, personal or other interest in the proposed development, nor the developers or any of their subsidiaries, apart from fair remuneration for work performed in the delivery of heritage assessment services. There are no circumstances that compromise the objectivity of my performing such work.

A handwritten signature in black ink, appearing to read 'G. Anderson', with a horizontal line underneath.

Gavin Anderson
Archaeologist/Heritage Impact Assessor