PRE-CONSTRUCTION ARCHAEOLOGICAL SURVEY OF THE AUTHORISED 140MW SUTHERLAND WIND ENERGY FACILITY AND ASSOCIATED GRID CONNECTION INFRASTRUCTURE, NORTHERN & WESTERN CAPE PROVINCES

Required as a condition of authorisation.

Sutherland WEF SAHRIS Case IDs: 9622, 10500, 14522
Sutherland Grid & MTS SAHRIS Case IDs: 10493, 14379, 16771, 17529, 17531
Sutherland Grid & MTS HWC Case Nos.: 17020605AS0207M, 19042402AS0521M
MTS HWC Case No.: 21052101AM0615E
SAHRIS Case ID: 17107 (Access Road)

Report for:

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On behalf of:

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SUMMARY

ASHA Consulting (Pty) Ltd was appointed by Nala Environmental (Pty) Ltd to conduct pre-construction field surveys of the authorised 140 megawatt (MW) Sutherland Wind Energy Facility (WEF) and its associated infrastructure (12/12/20/1782/2/AM6), as well as the proposed onsite substation and associated electrical grid infrastructure to support the authorised WEF (14/12/16/3/3/1/2077/AM2, 14/12/16/3/3/1/2458 & 14/12/16/3/3/1/2457/AM1).

New surveys were carried out of the authorised WEF road layout and some sections of the powerline that had not been examined before. One section running down a steep mountain ridge was not surveyed due to the expectation that no heritage resources would occur there. Similarly, a short section of active river floodplain was also not examined because similar areas in the vicinity had proved completely sterile.

Many sites were found, with the majority being historical stone-walled sites (located in both Northern Cape and Western Cape). Some are large or unusual and should be avoided rather than subjected to mitigation work. Others, however, could be recorded/excavated, as required, if they cannot be avoided. These sites range from ruined farm complexes to small, isolated shelters as well as the stone kraals and walls around the current Nooitgedacht farmstead. Associated artefacts occur at times, but seldom in high densities. Aside from a few kraals/possible kraals, Stone Age materials were virtually absent from the Northern Cape section, but below the escarpment some geometric finger-painted rock art was found, along with a further historical engraving.

Due to the relatively high density of heritage resources, the final approved footprint to be developed must be re-examined and certain areas may still need further field survey prior to the commencement of site clearing activities if they are deemed potentially sensitive.

It is recommended that the Sutherland WEF and associated grid connection should proceed to construction using the current layout, but subject to the following conditions:

- The sites identified for avoidance must be avoided (Northern Cape and Western Cape);
- Flagging of no-go areas is required for sites less than 30 m from the project footprint (Northern Cape and Western Cape). This must be done before construction and the sites must be monitored for compliance during construction by the ECO (at least weekly while construction is busy in the relevant areas);
- Additionally, because of its visual prominence, the historical site at waypoint 497 must be flagged as a no-go area and monitored for compliance;
- The possible grave at waypoint 503 (Koring MTS, Western Cape) must be carefully tested prior to commencement of construction and, if found to be a grave, it must be closed up and, in consultation with HWC, the appropriate grave relocation process followed;
- The suite of historical/recent engravings at waypoints 497-502 & 1154 (Koring MTS, Western Cape) must be fully recorded *in situ* and then moved to an appropriate location to be determined in consultation with HWC;
- The historical/recent engraving at waypoint 506 (Koring MTS, Western Cape) must be fully recorded *in situ* and then protected;
- Unsurveyed sections of the approved final layout must be checked in the field prior to commencement of construction in case of further small sites requiring recording or mitigation (Northern Cape and Western Cape);
- If road widening occurs at waypoint 560 (Northern Cape) then no material may be disposed of down the slope;

- No stones may be removed from any heritage sites (Northern Cape and Western Cape);
- All construction work must occur within the demarcated project footprints and vehicles may not move outside of these areas (Northern Cape and Western Cape);
- A Workplan application must be lodged with HWC for all mitigation required in Western Cape;
- A Permit application must be lodged with SAHRA for any mitigation required in Northern Cape (currently none is needed); and
- The developer is reminded that if any archaeological material or human burials are uncovered during the course of development then work in the immediate area should be halted. The find would need to be reported to the heritage authorities (SAHRA or HWC as appropriate) and may require inspection by an archaeologist. Such heritage is the property of the state and may require excavation and curation in an approved institution.

Glossary

Early Stone Age: Period of the Stone Age extending approximately between 2 million and 200 000 years ago.

Handaxe: A bifacially flaked, pointed stone tool type typical of the Early Stone Age Acheulian Industry. It is also referred to as a large cutting tool.

Holocene: The geological period spanning the last approximately 10-12 000 years.

Hominid: a group consisting of all modern and extinct great apes (i.e. gorillas, chimpanzees, orangutans and humans) and their ancestors.

Later Stone Age: Period of the Stone Age extending over the last approximately 20 000 years.

Middle Stone Age: Period of the Stone Age extending approximately between 200 000 and 20 000 years ago.

Pleistocene: The geological period beginning approximately 2.5 million years ago and preceding the Holocene.

Abbreviations

APHP: Association of Professional Heritage Practitioners

ASAPA: Association of Southern African Professional Archaeologists

CRM: Cultural Resources Management

DFFE: Department of Forestry, Fisheries and the Environment

EGI: Electricity Grid Infrastructure

EMPr: Environmental Management Program

ESA: Early Stone Age

GP: General Protection

GPS: global positioning system

HIA: Heritage Impact Assessment

HWC: Heritage Western Cape

LSA: Later Stone Age

MSA: Middle Stone Age

NBKB: Ngwao-Boswa Ya Kapa Bokoni

NCW: Not Conservation Worthy

NEMA: National Environmental Management Act (No. 107 of 1998)

NHRA: National Heritage Resources Act (No. 25) of 1999

REDZ: Renewable Energy Development Zone

SAHRA: South African Heritage Resources Agency

SAHRIS: South African Heritage Resources Information System

Contents

1. INTRODUCTION

ASHA Consulting (Pty) Ltd was appointed by Nala Environmental (Pty) Ltd to conduct pre-construction field surveys of the Sutherland Wind Energy Facility (WEF) (12/12/20/1782/2/AM6), due to be constructed some 35 km southeast of Sutherland, as well as its grid connection and associated Main Transmission Substation (MTS) (14/12/16/3/3/1/2077/AM2, 14/12/16/3/3/1/2458 & 14/12/16/3/3/1/2457/AM1). The access road to the site that will need to be upgraded was to also be included in the mapping, but no new survey was required as there were no changes. The Sutherland WEF is mostly in Northern Cape, but one small section extends into Western Cape, while the grid connection falls into both provinces but is largely within the latter (Figures 1 to 4). An approximate centre point for this project is S32° 38' 20" E20° 57' 00". The affected farms are listed in Table 1.

Table 1: *List of farms and project components.*

Farm name & number	Project	Registration Division, Province
Portion 1 of Boschmans Kloof 9	Sutherland WEF	Laingsburg, Western Cape
Remainder of Botmanshoek 10	Sutherland WEF	Laingsburg, Western Cape
Remainder of Nooitgedacht 148	Sutherland WEF	Sutherland, Northern Cape
Remainder of Beerenvalley 150	Sutherland WEF	Sutherland, Northern Cape
Portion 1 of Beerenvalley 150	Sutherland WEF	Sutherland, Northern Cape
Remainder of Lange Kuil 136	Access Road	Sutherland, Northern Cape
Portion 1 of Nooitgedacht 148	Access Road	Sutherland, Northern Cape
Remainder of Hartebeestefontein 147	132 kV Grid connection	Sutherland, Northern Cape
Remainder of Farm 219	132 kV Grid connection	Sutherland, Northern Cape
Portion 1 of Farm 219	132 kV Grid connection	Sutherland, Northern Cape
Remainder of Farm 280	132 kV Grid connection	Laingsburg, Western Cape
Portion 1 of Rheebokkenfontein 4	132 kV Grid connection	Laingsburg, Western Cape
Portion 2 of Rheebokkenfontein 4	132 kV Grid connection	Laingsburg, Western Cape
Portion 2 of De Molen 5	132 kV Grid connection	Laingsburg, Western Cape
Portion 6 of Hamelkraal 16	132 kV Grid connection	Laingsburg, Western Cape
Portion 7 of Hamelkraal 16	132 kV Grid connection Koring MTS 400 kV Grid connection	Laingsburg, Western Cape
Remainder of Spitzkop 20	400 kV Grid connection	Laingsburg, Western Cape

It must be noted that this WEF project and its associated grid infrastructure and substations have had multiple applications over many years (see case numbers on cover). Collating and presenting all the data in this report is thus extremely challenging and the approach taken is to only deal with the recorded heritage resources that lie within or close to the project footprints (i.e. any that are deemed to be at potential risk) and provide recommendations for those only. However, all known points are mapped.

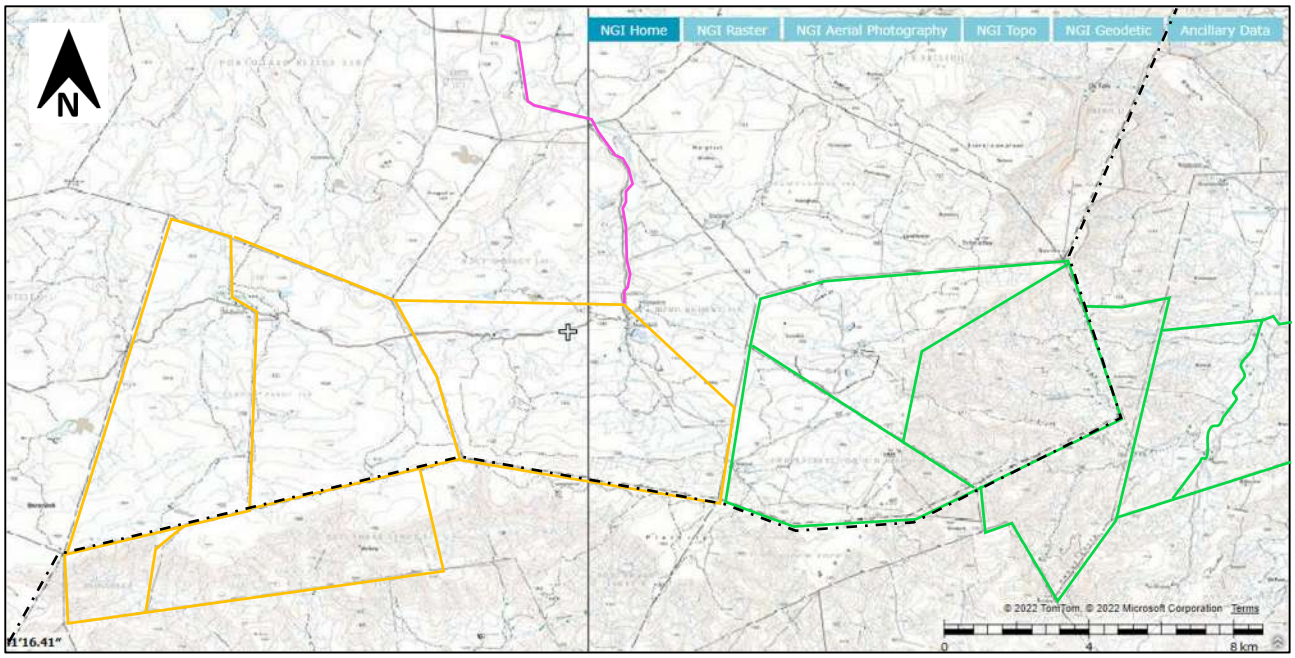


Figure 1: *Extract from 1:50 000 topographic map 3220DB & 3221CA showing the location of the Sutherland WEF project (yellow farm portions) and the western half of the grid corridor (green farm portions). The WEF access road is in pink. Provincial boundary indicated by black dashed line. Source of basemap: Chief Directorate: National Geo-Spatial Information. Website: www.ngi.gov.za.*

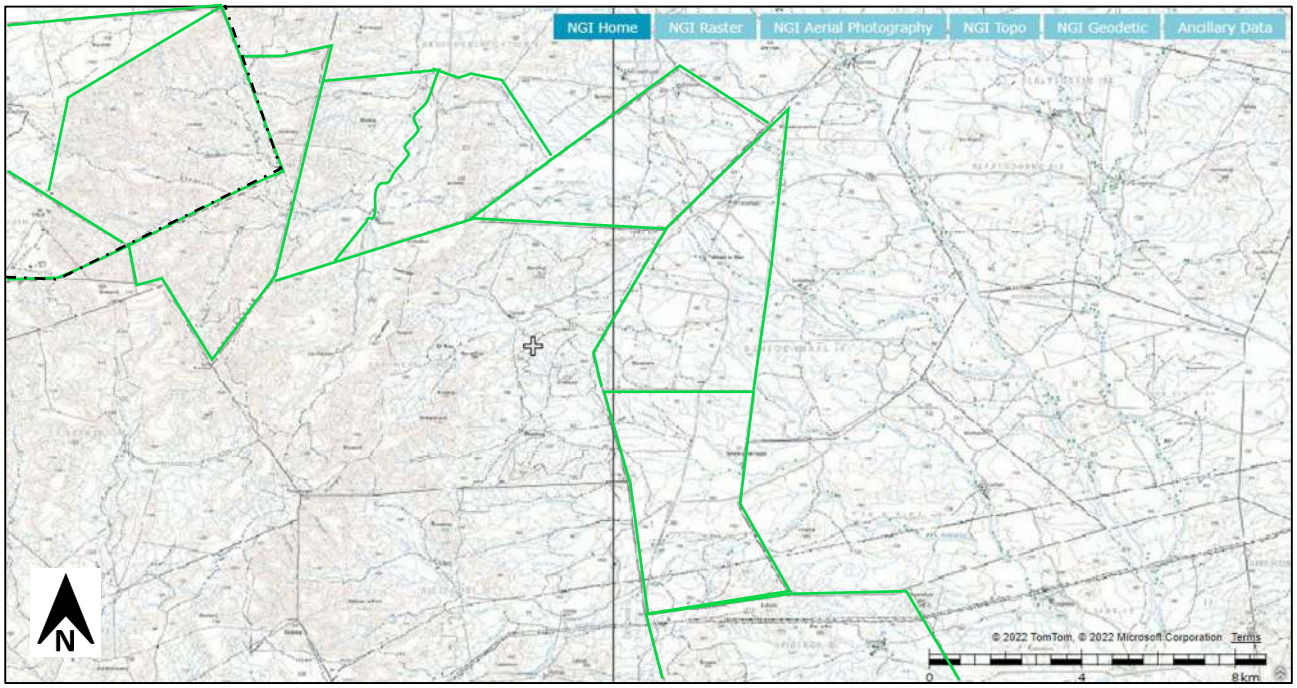


Figure 2: *Extract from 1:50 000 topographic map 3221CA & 3221CB showing the location of the eastern half of the grid corridor (green farm portions). Provincial boundary indicated by black dashed line. Source of basemap: Chief Directorate: National Geo-Spatial Information. Website: www.ngi.gov.za.*

Figure 3: *Aerial view of the study area showing the location of the project (turbine hardstands are white labelled stars, roads in black). Small, coloured polygons represent substations. Orange polygons are the affected properties and the access road is in white. The grid connection extends towards the east (pink) with its properties outlined in green.*

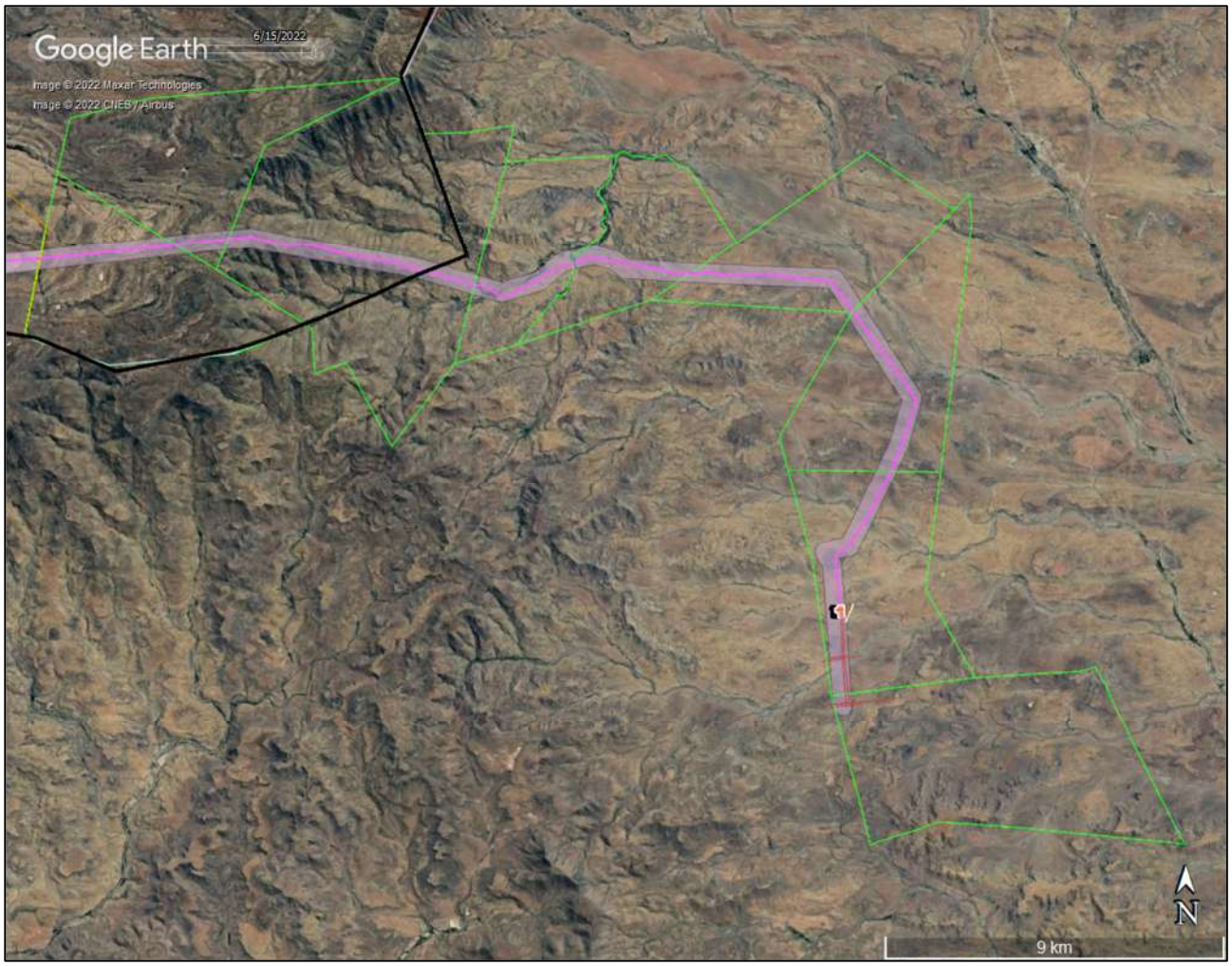


Figure 4: *Aerial view of the study area showing the location of the grid connection (farm portions in green, 132 kV powerline = pink line within 500 m wide approved corridor, Main Transmission Substation (MTS) in black and white in the southeast, 400 kV powerline connecting to existing 400 kV lines in red).*

1.1. The proposed project

Sutherland Wind Farm (Pty) Ltd received an Environmental Authorisation (EA) (DFFE Ref: 12/12/20/1782/2), dated 22/02/2012, for the development of the 140MW Sutherland Wind Energy Facility (WEF) and associated infrastructure near Sutherland, and located within the Komsberg Renewable Energy Development Zone (REDZ), in the Northern and Western Cape Provinces, with further amendments to the EA as stated below:

- Replacement of the first issue EA Reference: 12/12/20/1782/2 issued on 10 November 2016.
- First Amendment - Amendment of Listed activities on the EA Reference: 12/12/20/1782/2/AM1 issued on 25 November 2016.
- Second Amendment – Amendment of turbine specifications & change of technical details of the proposed facility EA Reference: 12/12/20/1782/2/AM2 issued on: 25 August 2017.
- Third Amendment – Change in contact details of the holder of the EA & selected project description changes EA Reference: 12/12/20/1782/2/AM3 issued on 10 March 2020.
- Fourth Amendment - Name correction EA Reference: 12/12/20/1782/2/AM4 issued on 08 June 2020.

- Fifth Amendment – Extension and name change to SPV EA Reference 12/12/20/1782/2/AM5 issued on 20 July 2021.
- Sixth Amendment - Amendment to the co-ordinates of the access road EA Reference: 12/12/20/1782/2/AM6 issued on 06 December 2021.

The project will include:

- Up to 34 wind turbines with a height of up to 200m and rotor diameter of up to 200m.
- The wind turbines will be connected to another by means of medium voltage cable.
- An internal gravel road network will be constructed to facilitate movement between turbines on site. These roads will include drainage and cabling.
- A hard standing laydown area of a maximum of 10 000 m^2 will be constructed.
- A temporary site office will be constructed on site for all contractors, this would be approximately 5000m^2 in size.
- A 120 000 m^2 batching plant would be located to the north of the WEF (to be shared with the Rietrug WEF).
- A 10 km portion of the existing access road will be upgraded and widened to a width of 7 m, to facilitate abnormal loads to the Sutherland WEF site.

The properties associated with the Sutherland WEF include:

- Portion 1 of Beeren Valley Farm 150.
- Remaining Extent of Beeren Valley Farm 150.
- Portion 1 of Boschmanskloof Farm 9.
- Remaining Extent of Nooitgedacht Farm 148.

The Sutherland Wind Farm (Pty) Ltd also received EAs for a new proposed onsite substation and associated electrical grid infrastructure, issued on 14 March 2022, for the Sutherland WEF in the Northern Cape Province of South Africa. The EA for the onsite substation has been split into an Independent Power Producer (IPP) Portion (EA Reference: 14/12/16/3/3/1/2458), Switching Station Portion and 132kV powerline (EA Reference 14/12/16/3/3/1/2457).

The infrastructure associated with the IPP Portion of the on-site substation (DFFE Ref: 14/12/16/3/3/1/2458) is located on Remaining Extent of Nooitgedacht Farm 148 and includes:

- An IPP portion of the on-site substation (Acrux).
- Laydown area.
- Operation & Maintenance (O&M) Building.
- Fencing of the proposed on-site substation.
- Battery Energy Storage Infrastructure (BESS).

The infrastructure associated with the Switching Station Portion of the on-site substation and 132kV powerline (DFFE Ref: 14/12/16/3/3/1/2457/AM1) is located on Remaining Extent of Nooitgedacht Farm 148 and includes:

- Switching Station portion of the on-site substation.
- Fencing.
- 132kV distribution line from the proposed Sutherland WEF on-site substation to the Koring MTS third party substation, including tower/pylon infrastructure and foundations.
- Connection to the Koring MTS third party substation.
- Service road below the powerline.

Sutherland Wind Farm (Pty) Ltd has also been issued with an EA for electrical grid infrastructure that supports the Sutherland, Sutherland 2 and Rietrug WEF projects, within the Northern & Western Cape Provinces (DFFE Ref: 14/12/16/3/3/1/2077/AM2), authorised within a 500m grid corridor.

The infrastructure associated with the electrical grid infrastructure project includes:

- Koring MTS, including O&M building and laydown area.
- Fencing of the proposed on-site substation.
- Overhead 132kV powerline from the Sutherland WEF on-site substation to the Koring MTS.
- Overhead 400kV powerline connecting to the proposed 400kV Koring MTS and an existing 400kV Eskom powerline.
- Service roads will be constructed below the powerline (jeep tracks).

The properties associated with the Electrical Grid Infrastructure to support the Sutherland WEF includes:

- Remaining extent of Hartebeeste Fontein Farm 147;
- Remaining Extent of Nooitgedacht Farm 148;
- Remaining Extent of Beeren Valley Farm 150;
- Portion 1 of Farm 219;
- Remaining extent of Farm 219;
- Remaining extent of Farm 280;
- Portion 1 of Rheebokkenfontein Farm 4;
- Portion 2 of Rheebokkenfontein Farm 4;
- Portion 2 of De Molen Farm 5;
- Portion 6 of Hamelkraal Farm 16;
- Portion 7 of Hamelkraal Farm 16; and
- Remainder of Spitzkop Farm 20.

The Sutherland WEF has been awarded preferred bidder status in round 5 of the Renewable Energy IPP Procurement Programme (REIPPPP), and in order to meet financial close requirements and comply with the requirements of the EAs (as amended), as per conditions 16 and 18 of the EAs which specify that the applicant must submit a Final Layout Plan and EMPr to DFFE for written approval prior to commencement of the activity.

Nala Environmental (Pty) Ltd has been commissioned to undertake the Final Layout plan and EMPr approval process associated with the authorised WEF and its authorised grid infrastructure. As per the conditions of the relevant EAs, various specialist pre-construction walkthroughs have been undertaken to inform the placement of infrastructure for the Final Layout.

1.2. Terms of reference

ASHA Consulting was asked to survey the layouts of the WEF, access road and grid connection, including all associated powerlines and electrical infrastructure, with a view to providing any last sensitivities so that the final project footprints could be designed in such a way as to have the absolute minimum impact on heritage resources. The buildable area and access road layout was used at the time of the survey, in order to cover all possible turbine positions and provide input into the final layout. A report was to be prepared indicating where sensitive features are located and, if appropriate, what mitigation measures may still be required following final layout approval and prior to construction.

1.3. Scope and purpose of the report

This report is intended to identify any remaining sensitive heritage features within the final project footprint, so that final approval for the project layout and Environmental Management Programmes (EMPrs) can be obtained from the National Department of Forestry, Fisheries and the Environment (DFFE). The report will also enable the South African Heritage Resources Agency (SAHRA) to issue a comment on the heritage aspects for the Northern Cape section of the WEF and powerline and Heritage Western Cape (HWC) to do the same for the Western Cape sections of each.

1.4. The author

Dr Jayson Orton has an MA (UCT, 2004) and a D.Phil (Oxford, UK, 2013), both in archaeology, and has been conducting Heritage Impact Assessments and archaeological specialist studies in South Africa (primarily in the Western Cape and Northern Cape provinces) since 2004 (please see curriculum vitae included as Appendix 1). He has also conducted research on aspects of the Later Stone Age in these provinces and published widely on the topic. He is an accredited heritage practitioner with the Association of Professional Heritage Practitioners (APHP; Member #43) and also holds archaeological accreditation with the Association of Southern African Professional Archaeologists (ASAPA) CRM section (Member #233) as follows:

- Principal Investigator: Stone Age, Shell Middens & Grave Relocation; and
- Field Director: Colonial Period & Rock Art.

1.5. Declaration of independence

ASHA Consulting (Pty) Ltd and its consultants have no financial or other interest in the proposed development and will derive no benefits other than fair remuneration for consulting services provided.

2. LEGISLATIVE CONTEXT

2.1. National Heritage Resources Act (NHRA) No. 25 of 1999

The NHRA protects a variety of heritage resources as follows:

- Section 34: structures older than 60 years;
- Section 35: prehistoric and historical material (including ruins) more than 100 years old as well as military remains more than 75 years old, palaeontological material and meteorites;
- Section 36: graves and human remains older than 60 years and located outside of a formal cemetery administered by a local authority; and
- Section 37: public monuments and memorials.

Following Section 2, the definitions applicable to the above protections are as follows:

- Structures: "*any building, works, device or other facility made by people and which is fixed to land, and includes any fixtures, fittings and equipment associated therewith*";

- Palaeontological material: "*any fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial use, and any site which contains such fossilised remains or trace*";
- Archaeological material: a) "*material remains resulting from human activity which are in a state of disuse and are in or on land and which are older than 100 years, including artefacts, human and hominid remains and artificial features and structures*"; b) "*rock art, being any form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and which is older than 100 years, including any area within 10m of such representation*"; c) "*wrecks, being any vessel or aircraft, or any part thereof, which was wrecked in South Africa, whether on land, in the internal waters, the territorial waters or in the maritime culture zone of the Republic, as defined respectively in sections 3, 4 and 6 of the Maritime Zones Act, 1994 (Act No. 15 of 1994), and any cargo, debris or artefacts found or associated therewith, which is older than 60 years or which SAHRA considers to be worthy of conservation*"; and d) "*features, structures and artefacts associated with military history which are older than 75 years and the sites on which they are found*";
- Grave: "*means a place of interment and includes the contents, headstone or other marker of such a place and any other structure on or associated with such place*"; and
- Public monuments and memorials: "all monuments and memorials a) "erected on land belonging to any branch of central, provincial or local government, or on land belonging to any organisation funded by or established in terms of the legislation of such a branch of government"; or b) "*which were paid for by public subscription, government funds, or a public-spirited or military organisation, and are on land belonging to any private individual*."

Section 3(3) describes the types of cultural significance that a place or object might have in order to be considered part of the national estate. These are as follows:

a) its importance in the community, or pattern of South Africa's history;
b) its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;
c) its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
d) its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;
e) its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
f) its importance in demonstrating a high degree of creative or technical achievement at a particular period;
g) its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;
h) its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa; and
i) sites of significance relating to the history of slavery in South Africa.

2.2. Approvals and permits

If archaeological or palaeontological mitigation is required prior to or during construction, then the appointed archaeologist or palaeontologist would need to obtain a permit from SAHRA or a Workplan Approval from HWC (depending on which province the work would be in). This would be

issued in their name. This is so that the heritage authority can ensure that the appointed practitioner has proposed an appropriate methodology that will result in the mitigation being implemented properly.

3. METHODS

3.1. Literature survey and information sources

A survey of available literature was carried out to assess the general heritage context into which the development would be set and help understand the significance of any newly reported finds. The information sources used in this report are presented in Table 2, with relevant dates of each source referenced in the text as needed. Data were also collected via a field survey. The data quality is suitable for the purpose of informing this report, although it is acknowledged that after all environmental sensitivity themes were considered (i.e. terrestrial ecology, bats, avifauna, aquatic etc.) and due to technical and topographic constraints some sections of the final layout had to be placed outside of the buildable areas considered during the heritage survey.

Table 2: *Information sources used in this report.*

Data / Information	Source	Date	Type	Description
Maps	Chief Directorate: National Geo-Spatial Information	Various	Spatial	Historical and current 1:50 000 topographic maps of the study area and immediate surrounds
Aerial photographs	Google Earth	Various	Spatial	Recent and historical aerial photography of the study area and immediate surrounds
Cadastral data	Chief Directorate: National Geo-Spatial Information	Various	Survey diagrams	Historical and current survey diagrams, property survey and registration dates
Background data	South African Heritage Resources Information System (SAHRIS)	Various	Reports	Previous impact assessments for any developments in the vicinity of the study area
Background data	Books, journals, websites	Various	Books, journals, websites	Historical and current literature describing the study area and any relevant aspects of cultural heritage.

3.2. Field survey

The WEF layout and its powerline and substations were subjected to detailed foot surveys at various times since 2011. The original impact assessment survey was undertaken by Halkett and Webley (2011) but subsequent surveys have been carried out for further impact assessments and for the recent pre-construction surveys. These latter surveys took place on 15th, 17th and 18th November 2016 with one archaeologist, and 25th and 26th February 2022 with two archaeologists. The previously authorised WEF road layout was covered fully, while work on the powerline was limited to areas not covered before, but noting that a section of steep terrain running down the escarpment

and a short section across an active floodplain were not covered because heritage resources other than fossils (which are covered by another specialist) are not expected there. The access road was also not resurveyed because its alignment remains unchanged. These 2016 and 2022 surveys were undertaken during summer. Given the relatively dry area, ground visibility to spot archaeological materials was not compromised. Other heritage resources are not affected by seasonality. During the survey, the positions of finds and survey tracks were recorded on a hand-held Garmin Global Positioning System (GPS) receiver set to the WGS84 datum (Figures 5 to 7; access road tracks are not shown as they simply follow the road which was largely surveyed from the vehicle). Photographs were taken at times in order to capture representative samples of both the affected heritage and the landscape setting of the project.

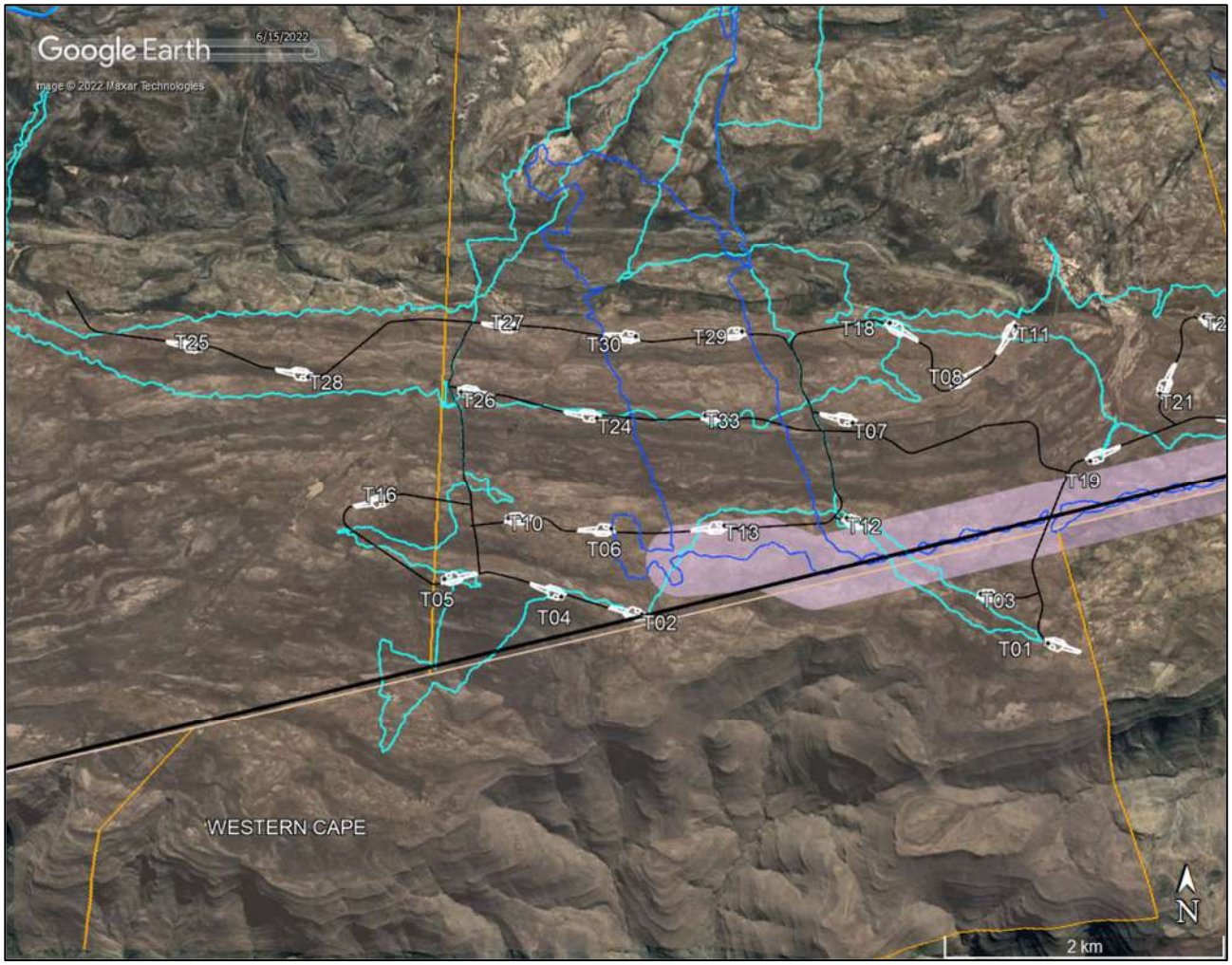


Figure 5: *Aerial view of the western part of the WEF study area (key as per Figure 2) showing the survey tracks (blue [2016] and turquoise [2022] lines).*

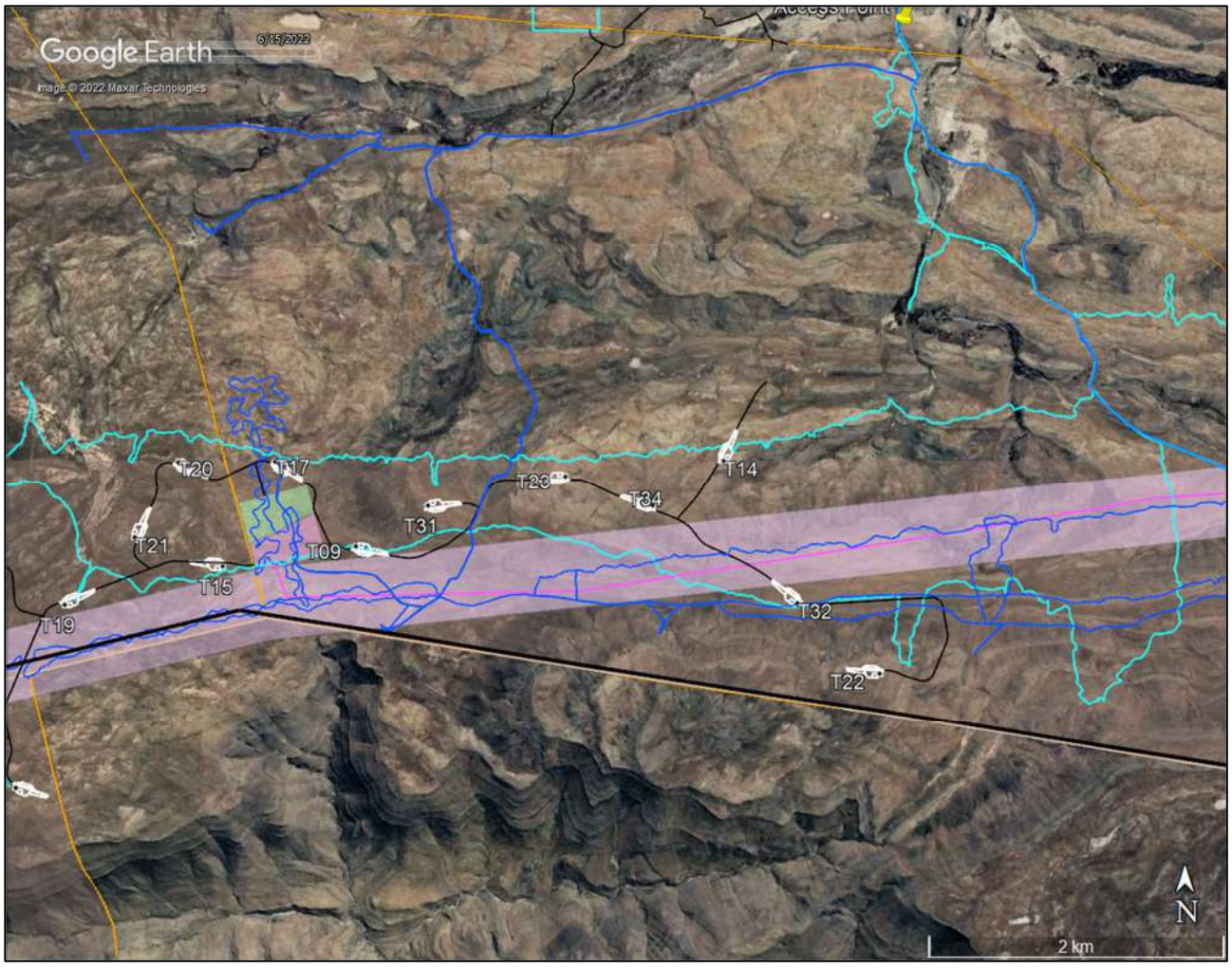


Figure 6: *Aerial view of the eastern part of the WEF study area (key as per Figure 2) showing the survey tracks (blue [2016] and turquoise [2022] lines).*

3.3. Grading

S.7(1) of the NHRA provides for the grading of heritage resources into those of National (Grade I), Provincial (Grade II) and Local (Grade III) significance. Grading is intended to allow for the identification of the appropriate level of management for any given heritage resource. Grade I and II resources are intended to be managed by the national and provincial heritage resources authorities respectively, while Grade III resources would be managed by the relevant local planning authority. These bodies are responsible for grading, but anyone may make recommendations for grading.

It is intended under S.7(2) that the various provincial authorities formulate a system for the further detailed grading of heritage resources of local significance but this is generally yet to happen. SAHRA (2007) has formulated its own system[1] for use in provinces where it has commenting authority. In this system sites of high local significance are given Grade IIIA (with the implication that the site should be preserved in its entirety) and Grade IIIB (with the implication that part of the site could be mitigated and part preserved as appropriate) while sites of lesser significance are referred to as having 'General Protection' (GP) and rated as GP A (high/medium significance, requires mitigation), GP B (medium significance, requires recording) or GP C (low significance, requires no further action).

[1] The system is intended for use on archaeological and palaeontological sites only.

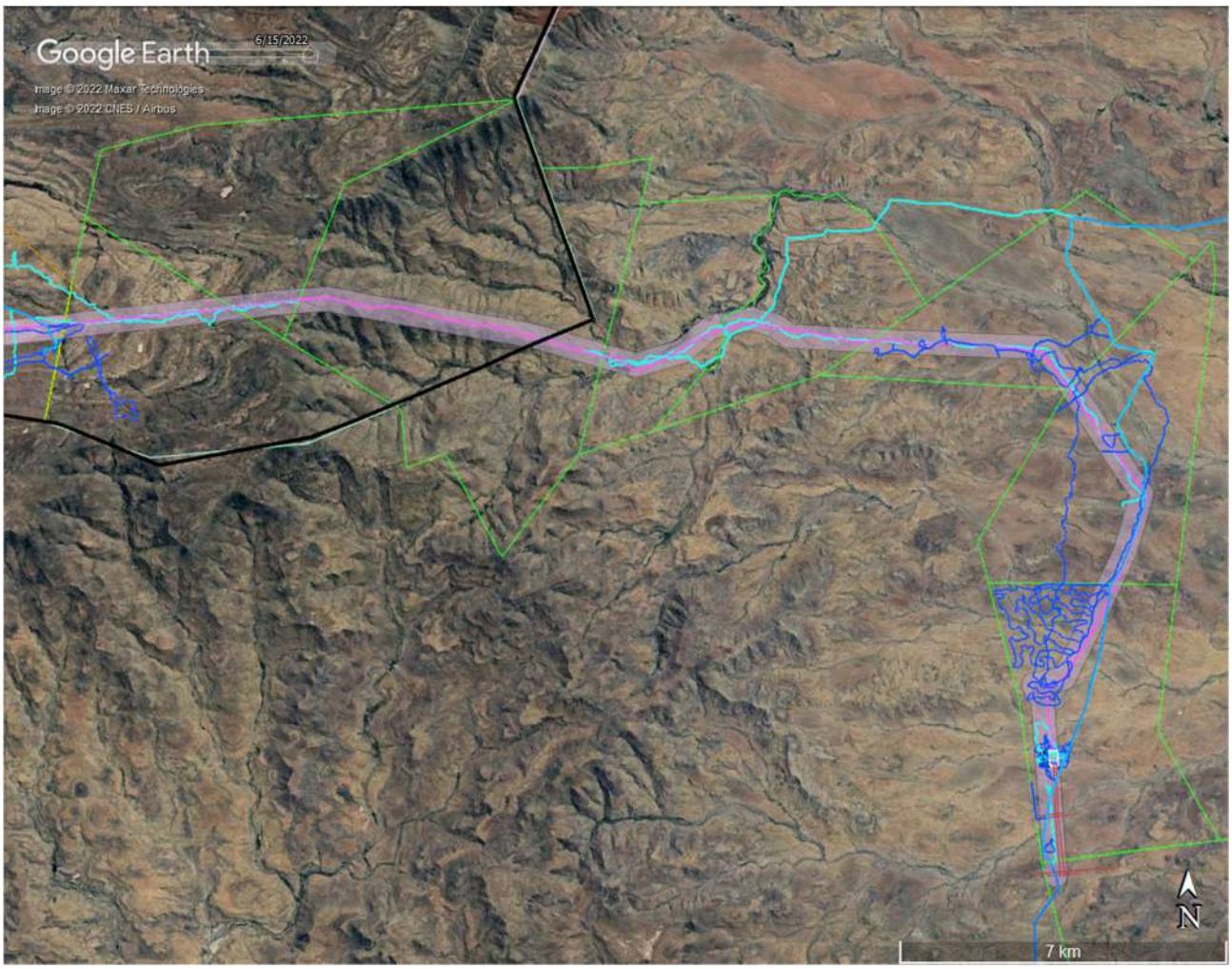


Figure 7: *Aerial view of the central and eastern parts of the powerline corridor (key as per figure 2) showing the survey tracks (blue [2016] and turquoise [2022] lines).*

Heritage Western Cape (HWC) (2016), however, has developed a provincial system in which resources of local significance are divided into Grade IIIA, IIIB and IIIC. These approximately equate to high, medium and low local significance, while sites of very low or no significance (and generally not requiring mitigation or other interventions) are referred to as Not Conservation Worthy (NCW).

3.4. Assumptions and limitations

The field study was carried out at the surface only and hence any completely buried archaeological sites would not be readily located. Similarly, it is not always possible to determine the depth of archaeological material visible at the surface. These restrictions are assumed to not be a concern in this study area due to the generally rocky nature of the substrate with much exposed bedrock in the WEF study area and the generally eroding/deflating nature of the eastern part of the powerline corridor. The survey did not include the steep ridge down which the powerline will run from the escarpment, because it was assumed that this steep, exposed area would be free of archaeology due to the nature of the terrain. Similarly, a section of active floodplain was omitted based on the assumption that it would be free of archaeology, as was the case with all other similar areas previously examined in the vicinity.

4. PHYSICAL ENVIRONMENTAL CONTEXT

4.1. Site context

The area is a remote, rural area dominated by livestock farming. The study area lies completely within the Komsberg Renewable Energy Development Zone (REDZ) and within the Central Electricity Grid Infrastructure (EGI) Corridor.

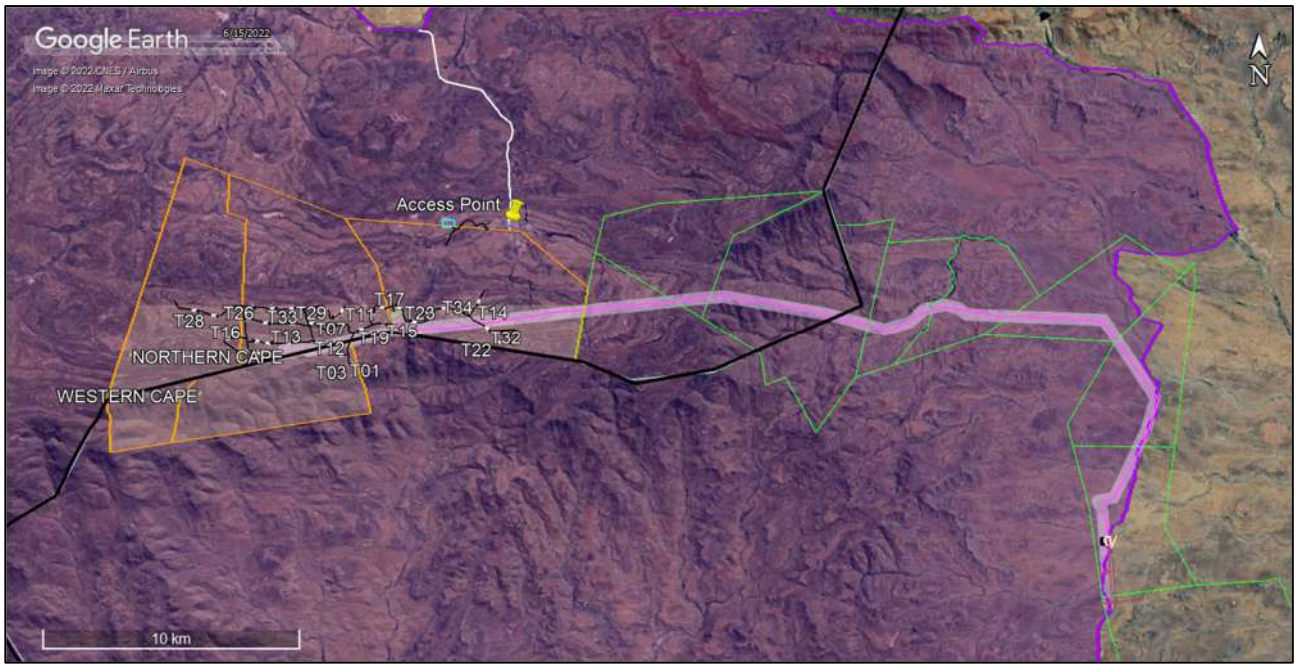


Figure 8: *The WEF lies entirely with the Komsberg REDZ (purple) but tiny sections of the grid connection in the east fall outside of it. The entire map area is within the Central EGI Corridor.*

4.2. Site description

Both the Sutherland and Rietrug[2] WEF sites appear very similar due to their elongated, parallel footprints and shared geology and vegetation. The grid corridor is shared by both projects. For convenience they are thus described as one.

Both WEF sites are composed of undulating terrain rising towards the south, with the Sutherland project being slightly higher overall due to its being on the southern side. There are several linear rocky outcrops and ridges running east to west through the area with flat gravelly terrain in between. The small ridges sometimes have low, mostly north-facing cliffs of 1 to 4 m height. Much of the study area has bedrock at or very close to the surface, with the result that it is covered in rocks and gravel. There are several small river beds in the study area, generally draining the escarpment in the south and gathering towards the north. The powerline corridor crosses this terrain and then proceeds down a steep rocky ridge. It then crosses the undulating foothills of the escarpment before crossing the flat, variably silty, sandy and gravelly plains in the east. Figures 9 to 13 show views of the WEF study area, while Figures 14 to 17 show the grid corridor below the escarpment, proceeding from west to east.

[2] Reported on separately.

Figure 9: *Looking towards the west through the centre of the study area. The Rietrug WEF would be in the centre and right side of this view with the Sutherland WEF towards the left.*

Figure 10: *Looking northeast in the north-western part of the Rietrug study area.*

Figure 11: *Looking east in the central part of the Sutherland WEF study area on a rare, very flat sandy plain.*

Figure 12: *Looking west in the central part of the Sutherland WEF study area showing exposed bedrock and loose rocks.*

Figure 13: *Looking north in the western part of the Sutherland WEF study area and into the western part of the Rietrug WEF area.*

Figure 14: *Looking east from the base of the ridge which the powerline will use to descend the escarpment. This is the westernmost point of the survey below the escarpment.*

Figure 15: *Looking east along the powerline route from the point where it leaves the foothills of the escarpment and goes onto the plains west of Merweville.*

Figure 16: *Looking northwest along the powerline route below the escarpment.*

Figure 17: *Looking north from near the south-eastern end of the powerline route below the escarpment.*

5. FINDINGS

5.1. Desktop study

The Karoo region has a long history going back to the Early Stone Age (ESA), as testified to by occasional diagnostic artefacts from this period (generally handaxes). Middle Stone Age (MSA) artefacts are the most commonly encountered stone age materials in the Karoo. Later Stone Age (LSA) finds are less common but generally of higher significance because of their better contexts (Orton *et al.* 2016).

Prior to the colonial incursion into the interior of southern Africa the Bushmen and, more recently, the Khoekhoen occupied the area. Very little archaeological research has been undertaken in the area, although a number of impact assessments have been carried out, especially in connection with proposed renewable energy facilities, including those surveyed here. Most surveys found Stone Age material to be rare on the landscape, although scatters of Early (ESA), Middle (MSA) and Late Stone Age (LSA) material have been reported (Hart *et al.* 2010; Halkett & Webley 2011; Orton 2021a). Occasional small rock shelters are known from the area (e.g. Evans *et al.* (1985), Hart (2005), Orton & Halkett 2011)), with one having been excavated. This one yielded a typical LSA assemblage with small scrapers, thin-walled potsherds, ostrich eggshell beads and some *Nassarius kraussianus* beads (Evans *et al.* 1985). The latter are estuarine shells that must have been obtained from the coast.

A very important aspect of the pre-colonial archaeology of the area is the many stone-built *kraals* (livestock enclosures) that have been recorded in various areas. The vast majority are in the Seacow River valley far to the east (Hart 1989; Sampson 1985, 2008), but excellent examples have also been reported from the Sutherland area. One on the southern edge of Sutherland town was a complex of 13 interlocking enclosures (Hart 2005). Another example is within the far eastern end of the Sutherland WEF study area and has about 27 enclosures with minimal associated stone artefacts and ostrich eggshell fragments (Orton 2017a, 2017b, 2017c). A few more occur to the west of the study area (Orton 2022). Stone Age *kraals* are important sites and are as yet poorly understood.

Along the dry river beds at the base of the escarpment Hart *et al.* (2010) also identified sites which they thought were large Khoekhoe encampments situated among the Kameeldoring trees in the bottom of valleys. The sites contained thin-walled, burnished pottery, stone features, stone artefacts, grinding surfaces and graves, some of which have broken grindstones on them. Also evident were discreet ash middens and animal bone. Hart *et al.* (2010) noted colonial period artefacts (19th century glass and ceramics) on some of the sites, possibly indicating continuous use of the area by Khoekhoe herders into the colonial period.

Although geometric rock art has been mapped by researchers across large swathes of South Africa, there has long been a gap in the distribution surrounding the study area (Orton 2013; Russell 2012; Smith & Ouzman 2004). Nevertheless, atypical geometric rock art has been documented in the area in recent times. With one exception, the imagery is all finger painted with vertical smears dominating. One site lies just south of Sutherland (Orton & Halkett 2011), others lie to the south of the escarpment edge (Halkett & Webley 2011), while another was recorded by Orton (2017a, 2017b, 2017c) along the eastern section of the powerline for the present project. The exception is a fine-line painting located below the escarpment, some 11 km south of the study area. It is poorly preserved but may have an ostrich, an eland and some figures (CTS 2021).

Historical archaeology abounds in the area with many ruined stone-built structures being present (e.g. CTS 2021; Hart *et al.* 2010; Hart 2015; Halkett & Webley 2011; Kaplan 2009; Orton 2017a, 2017b, 2017c, 2019, 2022). Because they are ruined and in a state of disuse, they would fall into the category of archaeological resources rather than built environment heritage resources. The types of structures included here are:

- Various boundary markers, cairns and beacons (e.g. Hart *et al.* 2010; Orton & Halkett 2011). They may have been built when the original farm surveys took place in the 19th century;
- Military structures occur in places, most notably on Jakkalsvalley, 25 km northeast of the study area (Orton & Halkett 2011). Many of these are ruined and would technically be archaeological sites; and
- Houses, outbuildings and shepherd huts and related features such as *kraals* and boundary walls occur widely, sometimes built from dressed stone but usually not.

These features often have artefactual material (broken ceramics and glass, metal items, etc.) scattered about them. Occasionally a refuse midden is found alongside an old farmstead. These middens reflect the material remains of domestic life on the early frontier farms and relate to the European occupation of the Roggeveld Mountains after the 18th century expansion into the area of farmers from the Cape Colony.

An unusual feature of the area below the escarpment is the occasional finding of enigmatic engravings on weathered rocks referred to locally as koffieklip. Such finds have been made along

the powerline route (Orton 2019) as well as further to the east (Tusenius 2013) and are probably all historical.

Hart *et al.* (2010) and Halkett & Webley (2011) recorded numerous graveyards, generally associated with homesteads and with abandoned settlements. Graveyards were also recorded

There are also many tracks which are likely to have their origins in the 19th century wagon routes between farms, although these are perhaps better regarded as elements of the cultural landscape.

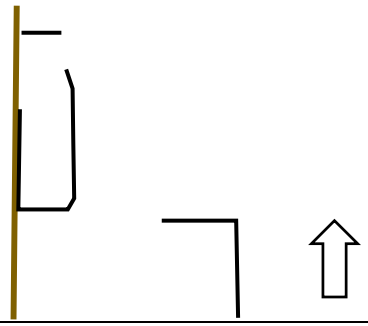
5.2. Site visit

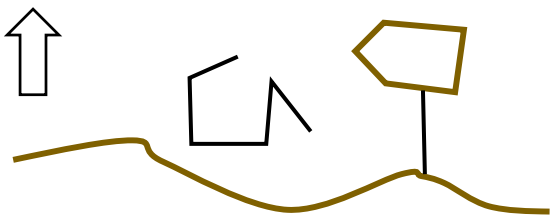
This section describes the archaeological heritage resources recorded in the WEF study areas and grid connection corridor during the course of the project. Although the focus is on archaeology, other types of heritage were considered, but none were found. Table 4 provides a full list of finds, while a selection of these from both WEF projects (Sutherland and Rietrug) and the powerline corridor are illustrated below to provide the reader with a better understanding of the archaeology. Locations are mapped in Appendix 2. Given the number of finds and the cumulative density of survey tracks, there are likely to be many more heritage resources in the general area. Note that only new finds are listed and described below, with other finds being recorded in the previous reports for these projects. However, the discussion of impacts will, where necessary, take account of all previously recorded finds.

Table 3: *List of finds made during the 2022 surveys of the Sutherland (SL) and Rietrug (RR) WEF sites and their grid connection corridor. Only finds from the Sutherland WEF (SL), powerline (Grid) and access road are relevant to the present report but the other new finds from the survey (in grey text) are provided for extra context.*

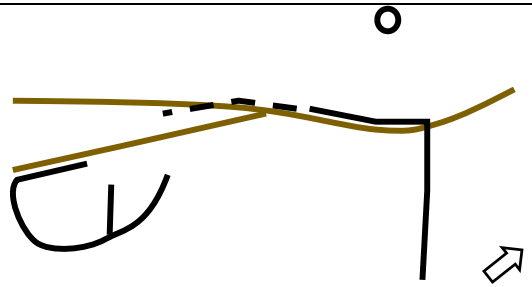
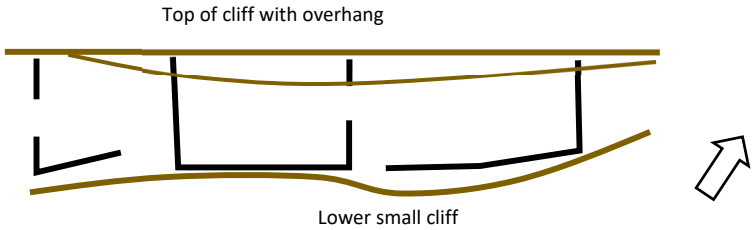
Province	Waypoint	WEF/ grid	Co-ordinates	Description	Significance	Grade
Western Cape	586	Grid	S32 43 05.2 E21 15 34.6	A small, circular stone-walled ruin with the walls only about 40 cm high. There is an indistinct opening facing north. The structure is located on a low rocky ridge.	Low	IIIC **Avoid**
Western Cape	1152	Grid	S32 42 21.5 E21 15 28.7	Ephemeral scatter of large stone artefacts. They are probably MSA.	Very low	NCW
Western Cape	1154	MTS	S32 42 45.5 E21 15 28.9	Well patinated historical engraving with some parallel lines and some writing. It is too weathered to be legible, but possibly with ideal lighting it might be feasible to determine at least some of the text.	Medium	IIIB
Northern Cape	587	RR	S32 37 03.5 E20 54 32.6	Dam wall with stone lining.	Very Low	GPC
Northern Cape	588	RR	S32 37 13.8 E20 54 14.9	Small stone structure measuring about 1x1 m and about 0.5 m high. No associated artefacts.	Low	GPB **Avoid**
Northern Cape	589	RR	S32 37 44.1 E20 53 50.3	Scatter of refined white earthenware (transfer-printed, hand-painted), course porcelain and brown stoneware fragments. The scatter is not associated with any historical structures/ruins.	Very Low	GPC
Northern Cape	590	RR	S32 37 43.6 E20 53 47.4	Possible wide stone walling. Looks like an elongated pile.	Very Low	GPC
Northern Cape	591	RR	S32 37 45.8 E20 53 03.3	Circular stone-walled structure of 8 m diameter. There are no associated artefacts so not possible to determine whether this is a historical or Stone Age kraal, but the latter may be more likely.	Low	GPA **Avoid**
Northern Cape	592	SL	S32 38 01.0 E20 52 39.0	Small two-roomed house with the rooms offset from one another so that the structure is similar to an"8" in shape. A small midden of about 1 m diameter lies a few meters away. The midden has green, blue, pink and clear glass and lots of burnt bone.	Medium	IIIB **Avoid**
Northern Cape	593	SL	S32 38 06.4 E20 53 58.9	Stone cairn on a low rock outcrop with a small circular feature a few meters away.	Very Low	GPC

Northern Cape	594	SL	S32 38 00.6 E20 53 59.1	Stone cairn on a rock outcrop. Very close to cairn recorded by Halkett & Webley (2011) as waypoint K038 but 594 not along the fence.	Very Low	GPC
Northern Cape	595	RR	S32 37 37.4 E20 54 12.5	Small section of stone walling about 1 m long and 0.3 m high.	Very Low	GPC
Northern Cape	596	RR	S32 36 25.0 E21 00 33.2	Small stone cairn.	Very Low	GPC
Northern Cape	597	RR	S32 36 39.6 E21 00 39.8	Stone-walled enclosure around an agricultural field and with a smaller enclosure of about 3x4 m in the northwest corner. The enclosed field is 60 to 80 m wide and 270 m long. Recorded by Halkett & Webley (2011) as waypoint K052 which was placed at the opposite end of the site.	Medium	IIIB **Avoid**
Northern Cape	598	RR	S32 36 51.6 E21 00 42.0	Small stone-walled kraal alongside a scarp. Recorded by Halkett & Webley (2011) as waypoint K053	Low	GPA **Avoid**
Northern Cape	599	RR	S32 36 51.4 E21 00 40.8	Stone-walled kraal of 15x20 m alongside a scarp and with a smaller enclosure built against the scarp in its centre. Recorded by Halkett & Webley (2011) as waypoints D102 & D103.	Low	GPA **Avoid**
Northern Cape	600	Grid (just outside)	S32 37 51.4 E21 04 24.3	Section of stone walling alongside a streambed.	Low	GPB **Avoid**
Northern Cape	601	Grid (just outside)	S32 37 52.4 E21 04 23.4	An oval stone-walled ruin of 6x4 m and with its entrance towards the northeast. The walls are about 1 m high. Lying on the ground adjacent were some glass fragments (clear, pink, green, black), some refined white earthenware (lined industrial) and some metal (including a tin lid and a potjie fragment).	Low	GPA **Avoid**
Western Cape	767	Grid	S32 38 09.6 E21 09 31.2	A small pile of stones about 50 cm high that is clearly deliberately stacked under a low overhang. Their function is unknown.	Very Low	NCW
Western Cape	768	Grid	S32 38 12.6 E21 09 43.5	A piece of 'koffieklip' rock with a name and date scratched onto it. The text is very weathered and hard to read but the date looks like "14-06-1_95". Given how weathered it is, it is assumed to be 1895 and not 1995.	Low	IIIC **Avoid**
Western Cape	769	Grid	S32 38 13.6 E21 10 03.2	A row of stones on the silty floodplain terrace of a river. It may be an agricultural terrace or perhaps more likely, it is the base of an old fence line. A few fragments of refined white earthenware were seen in the area. Only one was decorated and was a hand-painted sherd.	Very Low	NCW

Western Cape	770	Grid	S32 37 53.6 E21 11 11.7	A rock painting site with many red finger stripes in several panels. Most of the stripes are vertical but a few horizontal ones create crosses and H-shapes.	High	IIIA
Western Cape	771	Grid	S32 37 53.1 E21 11 11.4	A rock painting site with many red and black vertical finger stripes. There is one main panel with lots of stripes and two other panels with fewer stripes.	High	IIIB
Western Cape	772	Grid	S32 37 52.8 E21 11 11.4	A rock painting site with a few red finger-painted stripes and some black lines that look like drawn stripes rather than painted.	High	IIIA
Western Cape	773	Grid	S32 38 32.0 E21 15 55.1	A pile of rocks on a hill that looks like a collapsed stone beacon.	Very Low	NCW
Northern Cape	774	RR	S32 36 54.7 E20 55 07.7	A small, rectangular 'clearing' among loose rocks lying on open bedrock.	Very Low	GPC
Northern Cape	775	RR	S32 37 05.7 E20 54 57.6	A small rectangular stone-walled structure built against an east-facing scarp and with its entrance to the north. Some stones are placed on the scarp as well to bring the walls to a similar height, though overall, the tops of the walls slope down towards the north. The structure is about 2x1 m in size. Some ephemeral walling (L-shape) occurs to the east and southeast (just a single row high and may not be anything). No associated artefacts. 	Low	GPB **Avoid**
Northern Cape	776	RR	S32 37 38.1 E20 54 45.7	Roughly circular stone-walling and other stone walling at the base of a south-facing scarp. Also a section of walling to the east that links the scarp with a boulder about 2 m away to the south. Not examined in detail. Recorded by Halkett & Webley (2011) as waypoint K037 with another site D073 just to the east was two	Low	GPB **Avoid**

				stones balanced on top of a boulder. Another small stone feature was recorded by Orton (2017b) to the west as waypoint 575. 		
Northern Cape	777	SL	S32 39 07.2 E20 53 42.8	A small cairn of rocks. It appears to have a cavity in the middle.	Very Low	GPC
Northern Cape	778	SL	S32 38 46.9 E20 54 08.7	A circular stone feature on the south side of a low rocky hill and with entrance facing towards the east. No associated artefacts.	Low	GPB **Avoid**
Northern Cape	779	SL	S32 38 46.3 E20 54 08.9	A circular stone feature on the east side of a low rocky hill (same hill as waypoint 778) and with entrance facing towards the northeast. No associated artefacts.	Low	GPB **Avoid**
Northern Cape	780	SL	S32 38 34.7 E20 53 33.5	A very ephemeral semi-circular stone enclosure against the south side of a scarp. It is about 12 m wide (east-west) and 10 m deep (north-south). If this is a real enclosure, then it might be a Stone Age kraal feature. No associated artefacts.	Low	GPB **Avoid**
Northern Cape	781	SL	S32 38 24.1 E20 54 01.9	A ruined historical farmstead with house and two kraals. These were not examined in detail due to time constraints and it is clear that they have been avoided. Several other small features appear to be visible on aerial photography to the west of the large ruins. Note that this waypoint does not mark a specific feature but just serves to locate the entire complex. Recorded by Halkett & Webley (2011) as waypoints D062-D067 and H041a-H041e.	Medium-High	IIIB **Avoid**
Northern Cape	782	SL	S32 38 18.0 E20 54 04.3	A light scatter of refined white earthenware (all transfer-painted) and stoneware fragments on and alongside a farm road.	Very Low	GPC
Northern Cape	785	RR	S32 36 59.9 E21 00 43.9	A circular stone-walled ruin of 3 m diameter and with door facing to the east.	Low	GPA **Avoid**
Northern Cape	786	RR	S32 37 08.5 E21 00 39.8	A semi-circular stone-walled ruin (presumably was a kraal) built against the low cliff on the side of a river valley. It has been cut through by a farm road.	Very Low	GPC

Northern Cape	787	RR	S32 37 00.3 E21 00 43.8	A roughly circular stone-walled structure of about 13 m diameter. There is some green glass and a refined white earthenware fragment alongside it. From the size and relatively flat bedrock floor it may have been a threshing floor.	Low	GPB **Avoid**
Northern Cape	788	RR	S32 37 35.7 E21 01 17.4	A line of widely spaced stone fence posts running north-south.	Very Low	GPC
Northern Cape	789	RR	S32 37 36.0 E21 00 22.5	A very small stone cairn.	Very Low	GPC
Northern Cape	790	RR	S32 37 40.3 E21 00 12.9	Semi-circular collapsed stone walling of about 9 m diameter. This may be a Stone Age feature and, although poorly preserved, is graded GPB for precautionary reasons.	Low	GPB **Avoid**
Northern Cape	791	RR	S32 37 42.3 E21 00 00.1	A Stone Age kraal complex with four circular enclosures and an open enclosure formed by two walls. It is on the south side of a low rocky ridge. The enclosures are poorly preserved and there were no associated artefacts.	Medium	IIIB **Avoid**
	792		S32 37 42.6 E21 00 00.3			
	793		S32 37 42.8 E20 59 59.9			
	794		S32 37 42.2 E20 59 59.8			
	795		S32 37 42.1 E20 59 59.5			
	796		S32 37 42.5 E20 59 59.7			
Northern Cape	797	RR	S32 37 43.7 E20 59 51.3	The remains of a small dam wall whose earth has eroded away leaving behind two lines of stones.	Very Low	GPC
Northern Cape	798	RR	S32 37 44.7 E20 58 54.6	An earthen-walled dam with some stones lining one face.	Very Low	GPC
Northern Cape	799	RR	S32 37 45.0 E20 56 34.4	A historical stone-walled complex with a wall extending out from and along the top of a scarp and a small, heavily collapsed dwelling structure right up against the scarp. The upper edge of the kraal has some walling on the scarp edge. A small stone cairn lies above the site (to the north). No associated artefacts.	Low	GPA **Avoid**
	800		S32 37 44.7 E20 56 33.6			
	801		S32 37 45.2 E20 56 32.9			
	802		S32 37 45.4 E20 56 32.7			

	803 804 805		S32 37 45.6 E20 56 32.9 S32 37 44.6 E20 56 33.0 S32 37 46.1 E20 56 32.7			
Northern Cape	806	SL	S32 37 51.1 E20 56 40.0	A stone-walled dwelling structure built onto a ledge between two low cliffs at the top of a scarp. There are three enclosures with the middle one having the tallest walls. Three thin logs were lying inside it. The north-eastern room is partially collapsed. The entrances to the central and north-eastern rooms are very narrow and the cliff overhangs them. Their floors are about 1 m at the base of the cliff and their lengths are about 2 m and 2.5 m respectively. The south-western room has lower walls and likely did not serve a residential function. This manner of construction is very unusual. The site was recorded by Halkett & Webley (2011) as waypoint D076.  	Medium	IIIB **Avoid**
Northern Cape	807	SL	S32 38 09.0 E20 56 58.4	A stone-lined square dam with wind pump.	Low	GPB **Avoid**
Northern Cape	808	SL	S32 38 12.9 E20 57 24.4	A circular pile of rocks that looks like a collapsed structure (the centre of the pile is slightly lower).	Very Low	GPC
Northern Cape	809	SL	S32 38 05.2 E20 58 12.8	A stone cairn on a ridge.	Very Low	GPC

Northern Cape	810	SL	S32 38 32.4 E21 00 37.6	Some walling below a cliff which once enclosed a space below the slight overhang. Fresh rockfall has obscured part of the walling.	Very Low	GPC
Northern Cape	811	Access road	S32 35 31.6 E21 00 36.7	A small pile of stones that is highly unlikely to represent a grave. It is well away from the road and far from danger.	Very low	GPC

The earlier survey by Halkett and Webley (2011) noted stone artefacts in a number of places, but these seemed to be focused on the northern parts of the farms and not on the higher-lying land to the south where the present survey was focused. **Just one stone artefact was seen during the present survey in this area. No impacts to any significant stone artefact scatters are expected.** The only Stone Age features seen were some very poorly preserved stone-walled kraals. One, at waypoint 780 (Sutherland WEF; Northern Cape), was a semi-circular feature located against a low scarp (Figure 18). Another similar feature at waypoint 790 (Rietrug WEF; Northern Cape) did not make a full circle (Figure 19). A clearer but still ephemeral site was a small kraal complex with five enclosures. This one was at waypoints 791-796 (Rietrug WEF; Northern Cape; Figures 20 to 23). None of these sites had any associated artefactual material to confirm their age but their form and preservation state do suggest that an ascription to the LSA is most likely.

Figure 18: *An ephemeral semi-circular stone-walled feature at waypoint 780 in Northern Cape and likely to be a LSA kraal.*

Figure 19: *An ephemeral almost circular stone-walled feature at waypoint 790 in Northern Cape and likely to be a LSA kraal.*

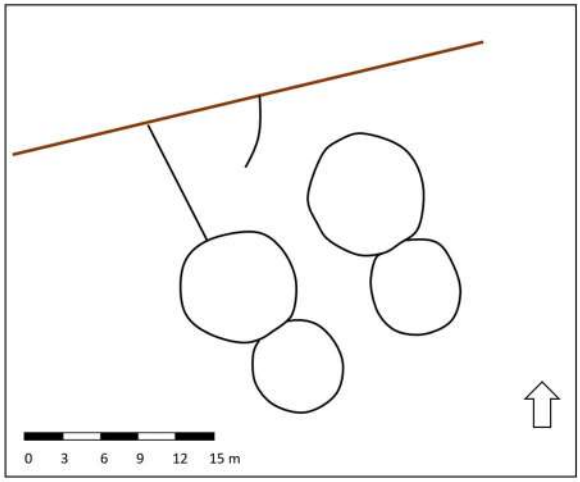


Figure 20: *An ephemeral stone-walled kraal complex at waypoints 791-796 in Northern Cape. The brown line is a natural scarp.*

Figure 21: *A view across the kraal complex showing one of the clearest enclosures at waypoints 791-796.*

Figure 22: *A view across the kraal complex at waypoints 791-796.*

Figure 23: *A view across the kraal complex showing one of the smaller enclosures at waypoints 791-796.*

The only other Stone Age finds were a series of geometric rock paintings located at waypoints 770, 771 and 772 in a small, steep-sided kloof along the powerline corridor, **but away from the preferred route**, below the escarpment (Grid; Western Cape; Figures 24 & 25). Most of the painting was at waypoints 770 and 771 with 772 only having a few ephemeral smears. Unusually, there was also some black paint preserved (Figures 26 & 27).

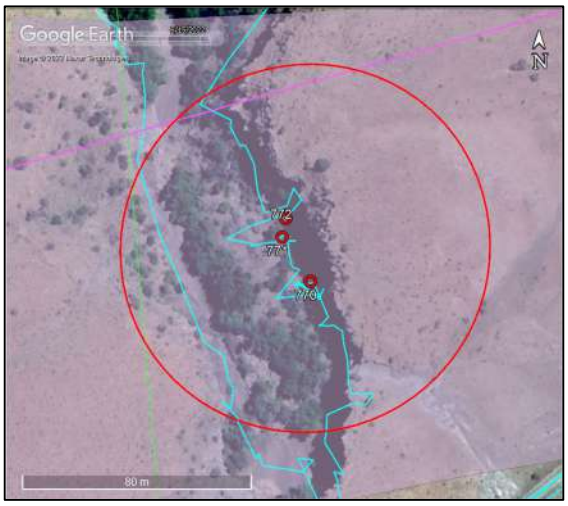


Figure 24: *Aerial view of the small kloof containing the rock art in Western Cape.*

Figure 25: *View into the kloof. The rock art is to the left behind the trees.*

Figure 26: *Finger smears at waypoint 770. Scale in cm.*

Figure 27: *Finger smears at waypoint 771. Scale in cm.*

All other finds were historical with the vast majority being small, stone-walled features, likely mostly shepherd's huts. Figures 28 to 31 show examples of these sites. A far better preserved and very unusual structure was located at waypoint 806 (Sutherland WEF; Northern Cape). Here the dwelling (if that is what it was) was built onto a rock ledge on the face of a low cliff (Figures 32 to 34). This gives the site a good view over the surrounding area and also means that one side is a solid rock wall – this is no doubt a reason for the good preservation of the stone walling. Halkett and Webley (2011) also recorded this site and noted how unusual it was. One large, ruined farm complex was also noted at waypoint 781 (Sutherland WEF; Northern Cape; Figure 35) but was not recorded in detail as this was done by Halkett and Webley (2011; their waypoints D062-D067 and H041a-H041e). Associated historical archaeological materials tend to be very rare with just the occasional ceramic, glass or metal fragment being seen with these stone-walled sites. Halkett & Webley (2011) did note the presence of a dump at the farm complex just mentioned, while during the present survey a small scattering of ceramic fragments was found along a current farm road at waypoint 782 (Sutherland WEF; Northern Cape). Most were blue and white transfer-printed refined white earthenware, but one lined industrial ware and three stoneware fragments were also present (Figures 36 & 37).

Figure 28: *The only new stone-walled feature recorded in Western Cape at waypoint 586 (grid).*

Figure 29: *A small, circular stone-walled shelter at waypoint 778 in Northern Cape (Sutherland WEF).*

Figure 30: *Low stone-walled kraal at waypoint 787 in Northern Cape (Rietrug WEF).*

Figure 31: *Collapsed circular stone-walled structure at waypoint 808 in Northern Cape (Sutherland WEF).*

Figure 32: *View towards the northeast of the structure at waypoint 806 in Northern Cape (Sutherland WEF) with a low-walled enclosure in the foreground.*

Figure 33: *View towards the southwest of the structure at waypoint 806 with the cliff to the right.*

Figure 34: *View from the north-eastern room into the central room of the structure at waypoint 806.*

Figure 35: *View across the ruined farm complex at waypoint 781 in Northern Cape (Sutherland WEF). A house lies at farleft, a kraal in the centre and a second kraal in the background. The site was recorded in detail by Halkett & Webley (2011).*

Figure 36: *Ceramics from waypoint 782 in Northern Cape (Sutherland WEF).*

Figure 37: *Ceramics from waypoint 782 in Northern Cape (Sutherland WEF).*

Two further historical engravings on "koffieklip" were found in Western Cape, along the grid connection route. One was at waypoint 768. It appears to be a name and a date. The letter "E" is very prominent, probably followed by "l", but the rest of the name cannot be determined (Figure 38). The date looks like it may be "14-06-1_95". Given the obvious weathering of the stone within the engraved lines, it is assumed that the missing number was an "8", or possibly a "7". This site lies atop a small hill at the base of the escarpment.

Figure 38: *Rock with a name and date scratched onto it at waypoint 768 in Western Cape.*

The second was within the MTS site and was a well-weathered set of engravings on two adjoining rock slabs (Figures 39 to 42). Both had a series of parallel lines accompanied by cursive writing illegible in the prevailing light conditions.

Figure 39: *Rock with lines and writing engraved on it at waypoint 1154 in Western Cape.*

Figure 40: *Rock with lines and writing engraved on it at waypoint 1154 in Western Cape.*

Figure 41: *Close up of engraving on the Figure 34 rock at waypoint 1154 in Western Cape.*

Figure 42: *Close up of engraving on the Figure 35 rock at waypoint 1154 in Western Cape.*

5.3. Statement of significance and provisional grading

Section 38(3)(b) of the NHRA requires an assessment of the significance of all heritage resources. In terms of Section 2(vi), ''cultural significance'' means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance. The reasons that a place may have cultural significance are outlined in Section 3(3) of the NHRA (see Section 2 above).

The Stone Age archaeological resources are deemed to have high cultural significance at the local level for their scientific value and can be graded up to IIIA for the rock art and up to IIIB for the Stone Age kraals. The historical ruins are seen as of variably medium to low local significance for their architectural, historical and social values and are considered to be up to IIIB resources.

Graves are deemed to have high cultural significance at the local level for their social value. Although none were seen in the layout footprint, the possibility exists that graves could occur in the landscape and they would be allocated a grade of IIIA.

6. CONCLUSIONS

Many of the archaeological resources are of relatively low significance, but a number of more important sites do occur within the overall study area. Table 4 lists all those resources occurring

very close to or within the project layout. In general, 50 m buffers have been used as a management guideline in order to determine which sites to consider as potential issues for discussion in this report. These buffers are displayed in the illustrations that follow Table 4 (Figures 43 to 58). All sites whose 50 m buffers are intersected are listed in Table 4, but in one instance a very important site lying further away (Issue 9 in Table 4) has been included because its active management will be important. Figures 59 and 60 show the locations of all the issues together.

Management guidelines consider the following:

- Where sites are visually prominent, they need to be flagged as no-go areas because curiosity may draw unwanted attention to them;
- Sites that are not visually prominent and are located more than 30 m from the footprint should not be flagged, as it is preferable to not draw attention to them; and
- All sites lying less than 30 m from the footprint are assumed to be at risk from construction work and should be flagged as no-go areas;
- All flagged no-go areas must be monitored by the Environmental Control Officer (ECO). Weekly inspections are suggested, but only during periods when construction work is active near each relevant locality.

Table 4: *Summary list of heritage resources falling within or very close to the development footprints and currently of potential concern. Note that grades for the older records have been estimated from the available information. All sites where the development will come within 50 m are listed, but some important sites occurring slightly further away are also noted for precautionary reasons. *Note that non-archaeological features are not supposed to be graded according to the SAHRA system but an indictive grade is given here for convenience.*

Issue	Way-point	Project component	Province	Report	Type of resource	Grade	Direct impact	Comment Mitigation
1	780	Sutherland WEF	Northern Cape	Current	Possible LSA kraal	GPB	No	WEF road to pass about 25 m from site. **Avoid, flag no-go area and monitor compliance.**
2	K038	Sutherland WEF	Northern Cape	Halkett & Webley 2011	Stone boundary cairn	GPA	No	WEF will reuse a farm road 20 m from cairn. **Avoid, flag no-go area and monitor compliance.**
3	K039	Sutherland WEF	Northern Cape	Halkett & Webley 2011	Stone ruin	GPA	No	WEF road to pass about 25 m from site. **Avoid, flag no-go area and monitor compliance.**
4	D075	Sutherland WEF	Northern Cape	Halkett & Webley 2011	Stone cairn (possible grave)	NCW/IIIA	No	WEF road to pass about 45 m from site. **Avoid (does not need to be marked).**
5	805	Sutherland WEF	Northern Cape	Current	Stone ruins	GPA	No	Turbine hardstand extends to within 45 m of site. **Avoid, flag no-go area and monitor compliance.**
6	581, 582, 583	132 kV grid connection	Northern Cape	Orton 2019	Stone fence posts	GPC	Possible	Some posts may be impacted. **Service track and pylons to avoid (but not mandatory).**
7	768	132 kV grid connection	Western Cape	Current	Historical/ recent engraving	IIIC	No	Powerline to pass about 15 m from site. **Avoid, flag no-go area and monitor compliance.**
8	770-772	132 kV grid connection	Western Cape	Current	Rock art	IIIA	No	Powerline to pass about 40 m from nearest site. **Avoid (does not need to be marked).**

9	497	132 kV grid connection	Western Cape	Orton 2017a, b, c	Stone ruined farm complex	IIIA	No	Powerline to pass about 75 m from nearest feature. Should be safe but the site is of high significance and is visually prominent. **Avoid, flag no-go area and monitor compliance.**
10	610	132 kV grid connection	Western Cape	Orton 2019	Old road	IIIC	**Yes**	Powerline to cross road. **None**
11	1785-5, 497-502	Koring MTS	Western Cape	Orton 2019 Orton 2021a	Historical/ recent engravings	IIIB	**Yes**	In substation footprint. **Record *in situ* then move to safety out of footprint (suggest next to waypoint 506).**
12	1154	Koring MTS	Western Cape	Orton 2019	Historical/ recent engraving	IIIB	Possible	Substation within about 15 m of site. Best considered together with above sites. **Record *in situ* then move to safety out of footprint (suggest next to 506).**
13	503	Koring MTS	Western Cape	Orton 2021a	Possible grave	NCW/IIIA	**Yes**	In substation footprint. **Test excavation to determine status prior to construction / clearing activities, then take further decision based on Chance Finds Protocol.**
14	506	Koring MTS	Western Cape	Orton 2021a	Historical/ recent engraving	IIIB	No	Substation within about 40 m of site. Best considered together with above sites. **Record *in situ*. Avoid, flag no-go area and monitor compliance.**
15	507-512	Koring MTS	Western Cape	Orton 2021a	Stone artefacts	IIIB	No	Substation within about 40 m of site. **Avoid, flag no-go area and monitor compliance.**
16	782	400 kV grid connection	Western Cape	Orton 2019	Stone-lined dam	IIIC	No	Powerline to pass within about 7 m of site. **Avoid, flag no-go area and monitor compliance.**
17	561	Access road	Northern Cape	Orton 2021b	Road culvert	GPC	**Yes**	Culvert may require demolition and reconstruction.

								None required, but permit application to NBKB will be needed.
18	560	Access road	Northern Cape	Orton 2021b	Road retaining wall	GPC	Possible	Located about 1 m from current road edge. **Avoid, flag no-go area and monitor compliance. Road widening, if required, to happen towards the west.**
19	557-559	Access road	Northern Cape	Orton 2021b	Stone ruined farm complex	GPA	No	Located about 10 m from current road edge. **Avoid, flag no-go area and monitor compliance.**
20	578	Access road	Northern Cape	Orton 2021b	Stone kraal	GPB	Possible	Located about 5 m from current road edge. **Avoid, flag no-go area and monitor compliance.**
21	579	Access road	Northern Cape	Orton 2021b	Stone kraal	GPB	No	Located about 15 m from current road edge. **Avoid, flag no-go area and monitor compliance.**

In Figures 43 to 58, the WEF roads are yellow lines, the turbines are white shapes, the 132 kV power line is pink, the 400 kV powerlines are red and the Koring MTS is black and pink. Heritage sites are coloured according to their grade (see Table 4).

Figure 43: *Issue 1, Waypoint 780 (Sutherland WEF; Northern Cape). 50 m buffer indicated.*

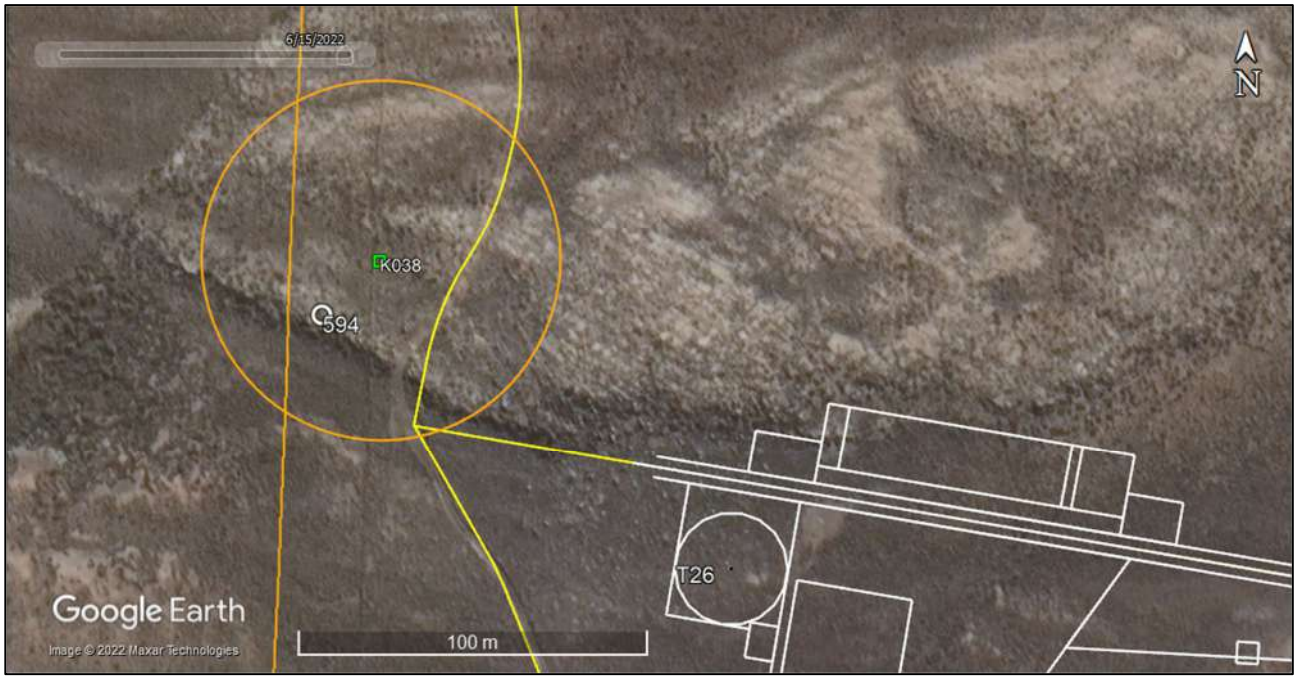


Figure 44: *Issue 2, Waypoint K038 (Sutherland WEF; Northern Cape). Waypoint 594 is another cairn graded GPC (current report). 50 m buffer from K038 indicated.*

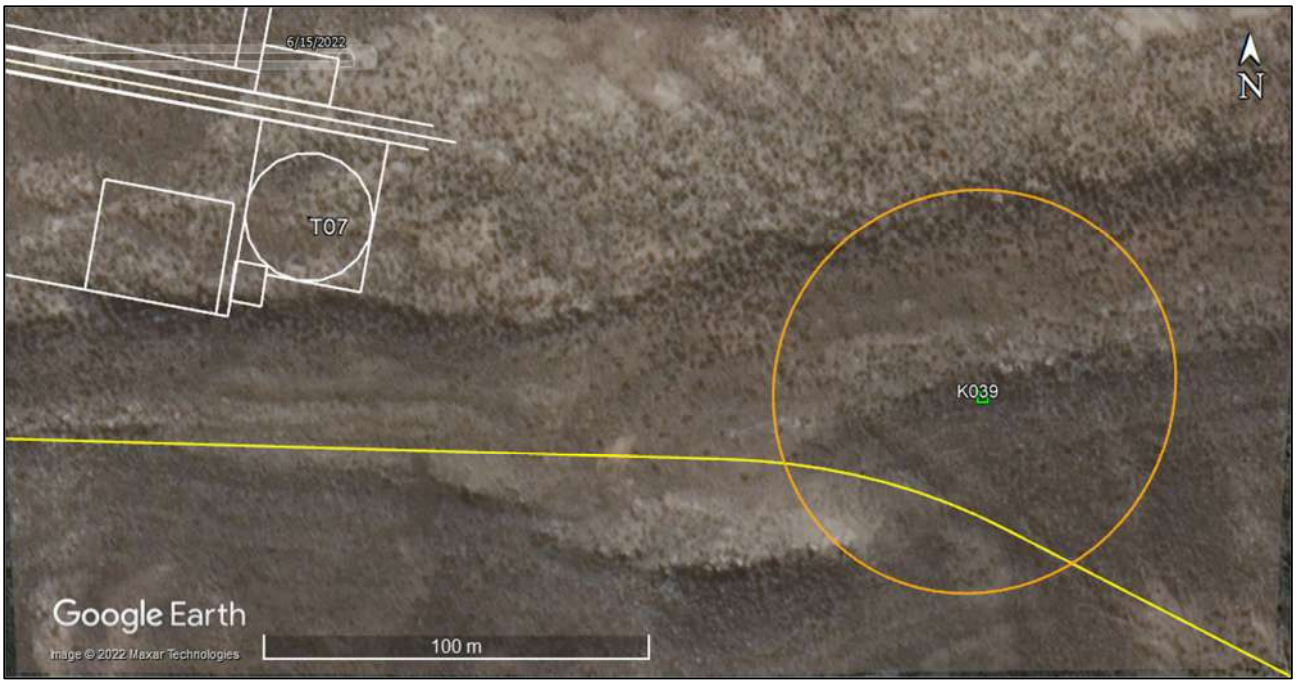


Figure 45: *Issue 3, Waypoint K039 (Sutherland WEF; Northern Cape). 50 m buffer indicated.*

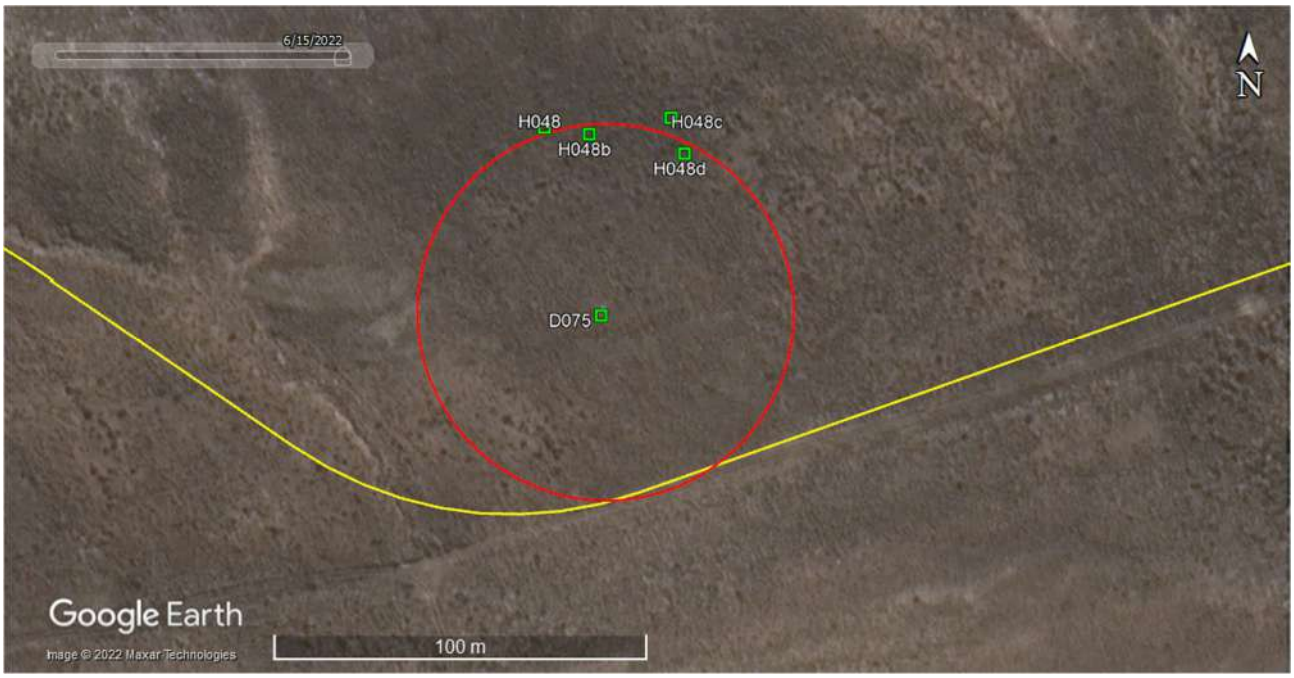


Figure 46: *Issue 4, Waypoints D075 (Sutherland WEF; Northern Cape). 50 m buffer indicated.*

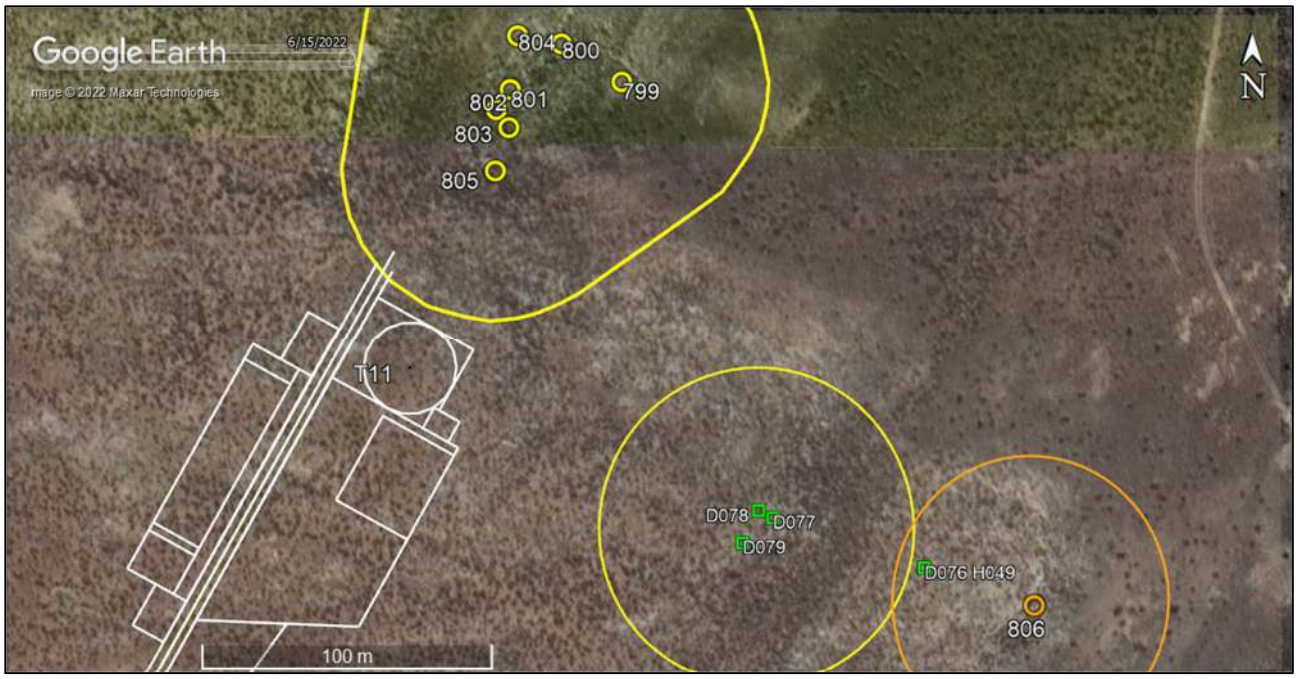


Figure 47: *Issue 5, Waypoints 799-805 (Sutherland WEF; Northern Cape). The other points to the east are well away from the development footprint. 50 m buffers indicated.*

Figure 48: *Issue 6, Waypoints 581-583 (132 kV grid connection; Northern Cape). No buffer provided here.*

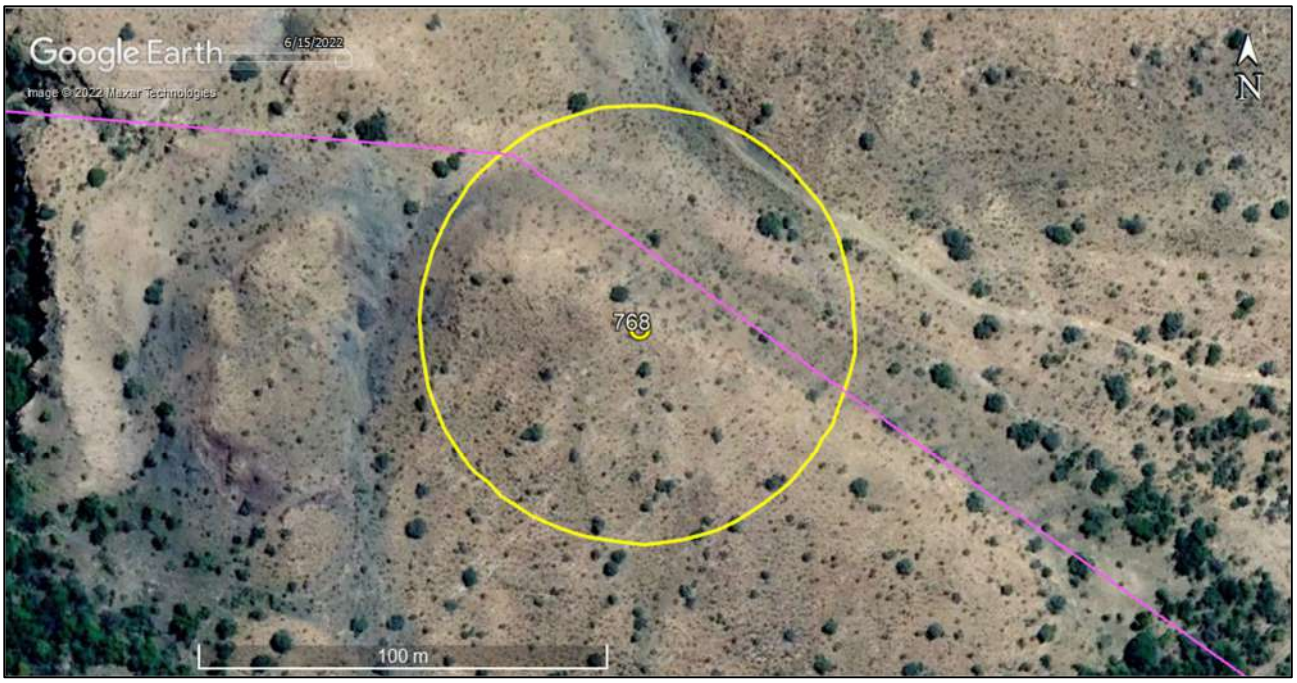


Figure 49: *Issue 7, Waypoint 768 (132 kV grid connection; Western Cape). Site outlined. 50 m buffer indicated.*

Figure 50: *Issue 8, Waypoints 770-772 (132 kV grid connection; Western Cape). 50 m buffer indicated.*

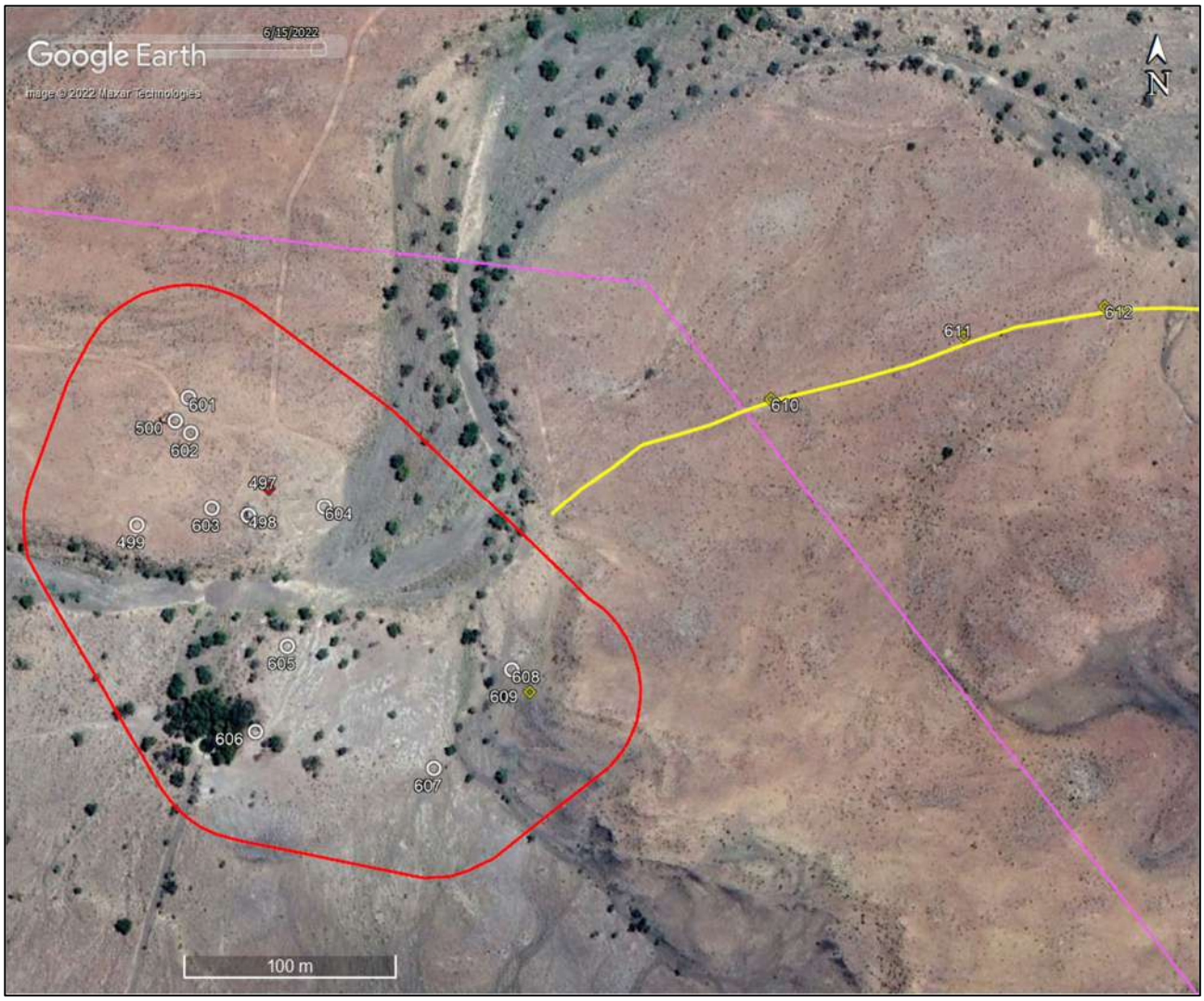


Figure 51: *Issue 9, Waypoints 497 and others; and Issue 10, waypoints 610-611 (132 kV grid connection; Western Cape). 50 m buffer indicated for 497 but none for 610-612.*

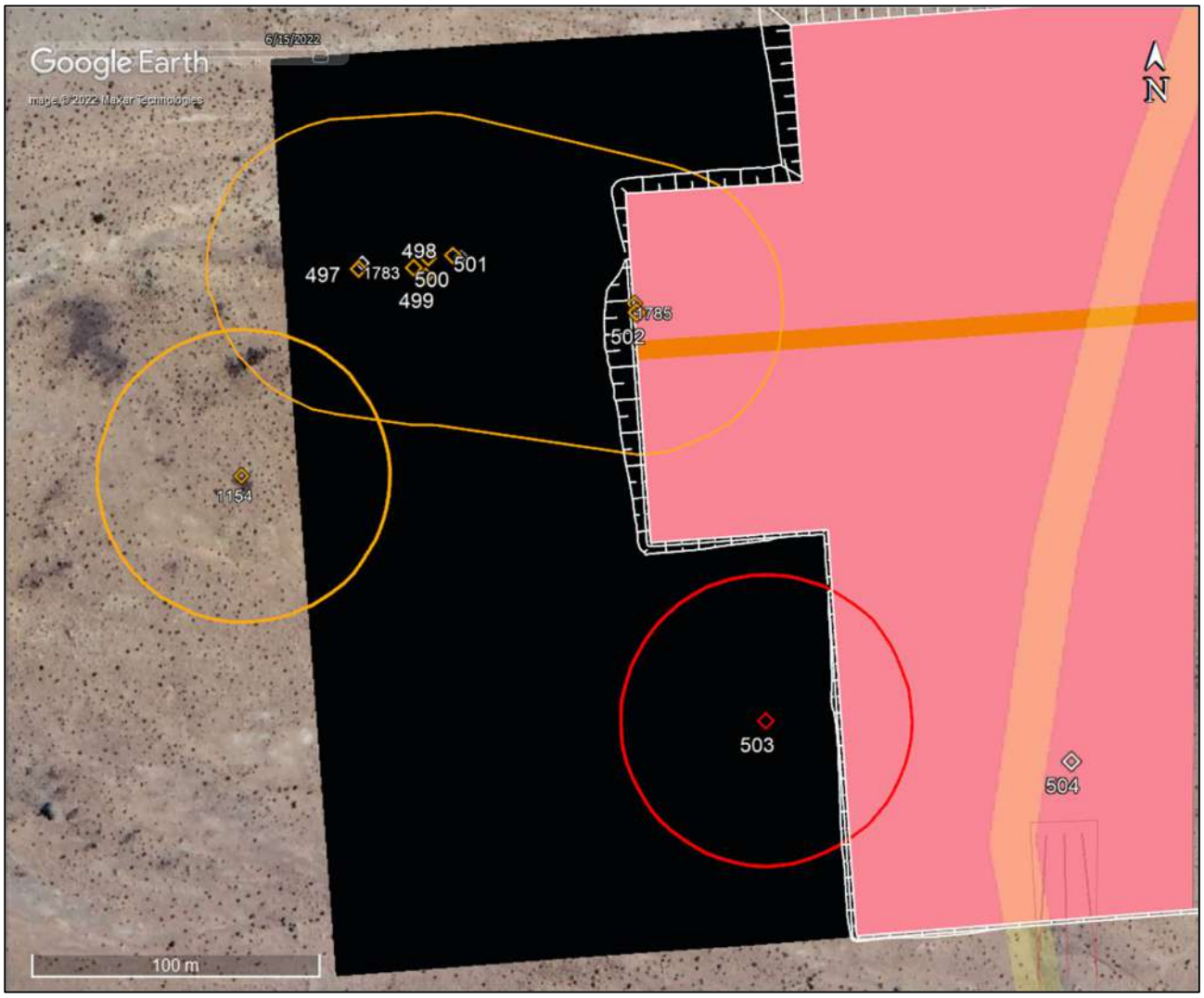


Figure 52: *Issue 11, Waypoints 497-502; Issue 12, waypoint 1154; and Issue 13, waypoint 503 (Koring MTS; Western Cape). 50 m buffers indicated.*

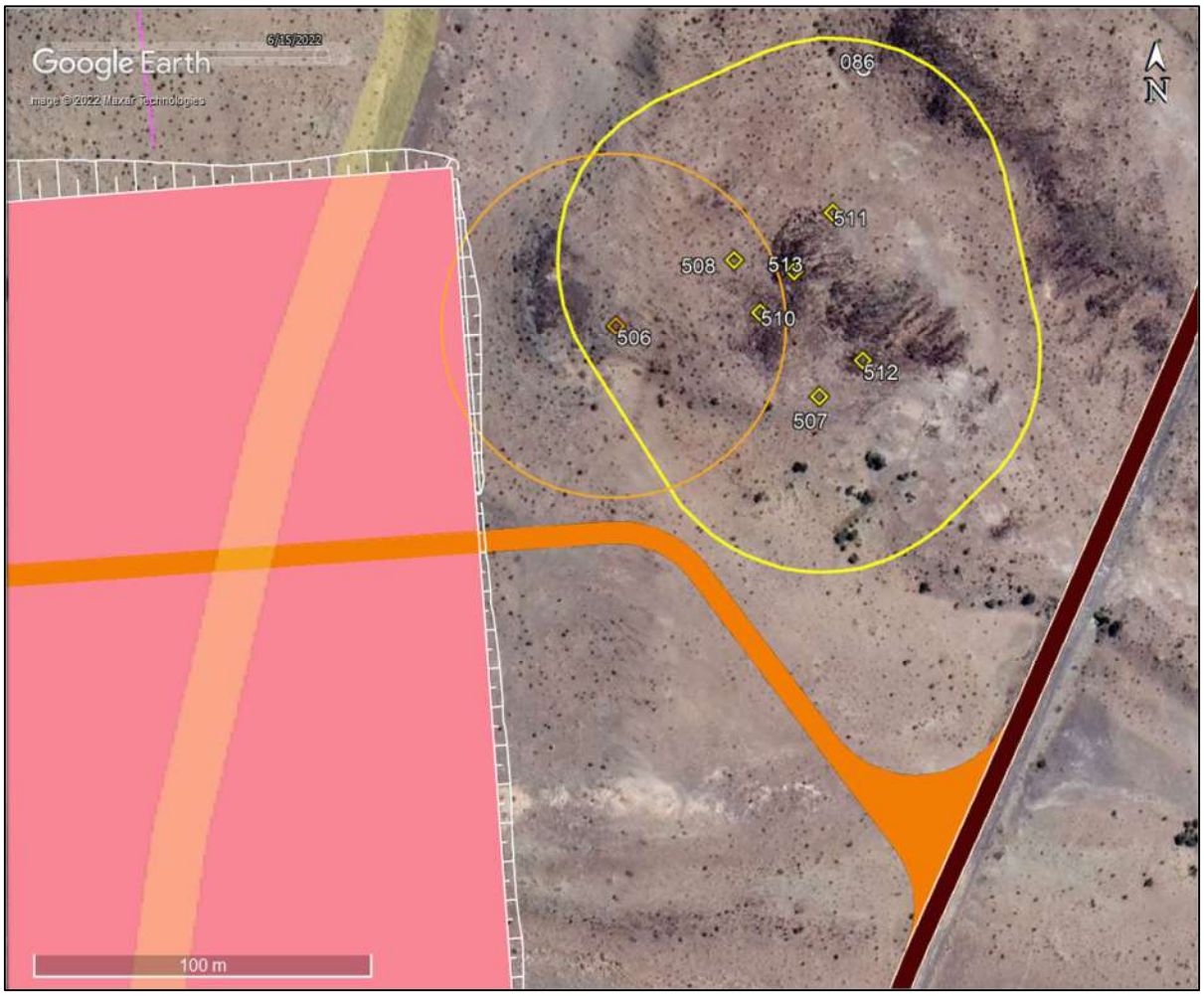


Figure 53: *Issue 14, Waypoint 506; and Issue 15, waypoints 507-512 (Koring MTS; Western Cape). 50 m buffers indicated.*

Figure 54: *Issue 16, Waypoint 1782 (400 kV grid connection; Western Cape). 50 m buffer indicated.*

Figure 55: *Issue 17, Waypoint 561 (Access road; Northern Cape). 50 m buffer indicated.*

Figure 56: *Issue 18, Waypoint 560 (Access road; Northern Cape). No buffer indicated here. Extent of walling and 50 m buffer indicated.*

Figure 57: *Issue 19, Waypoints 557-559; and Issue 20, waypoint 578 (Access road; Northern Cape).*

Figure 58: *Issue 21, Waypoint 579 (Access road; Northern Cape). Note existing borrow pit immediately east of walling.*

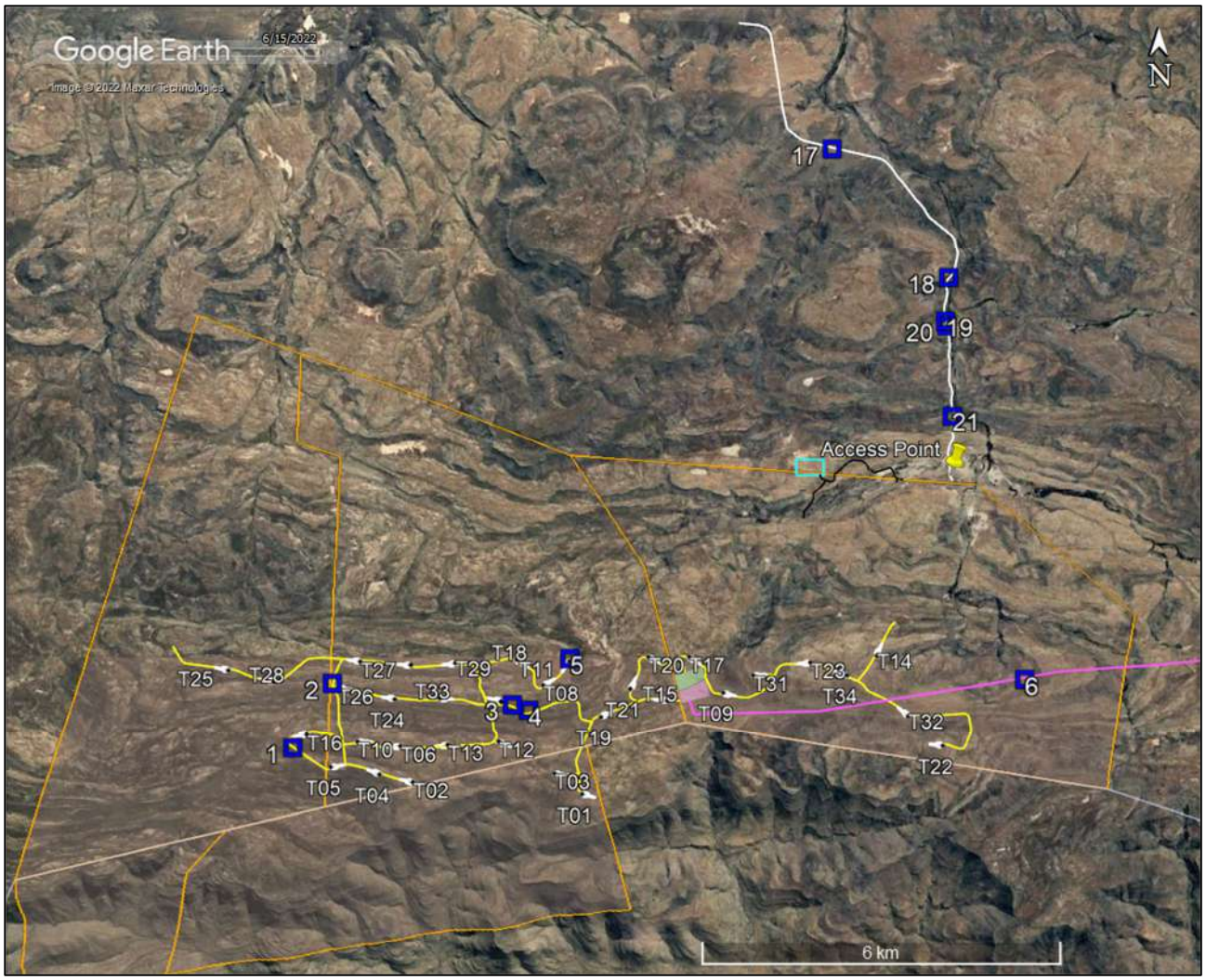


Figure 59: *Aerial view of the Sutherland project showing the locations of the issues in the WEF project area and western section of the grid connection.*

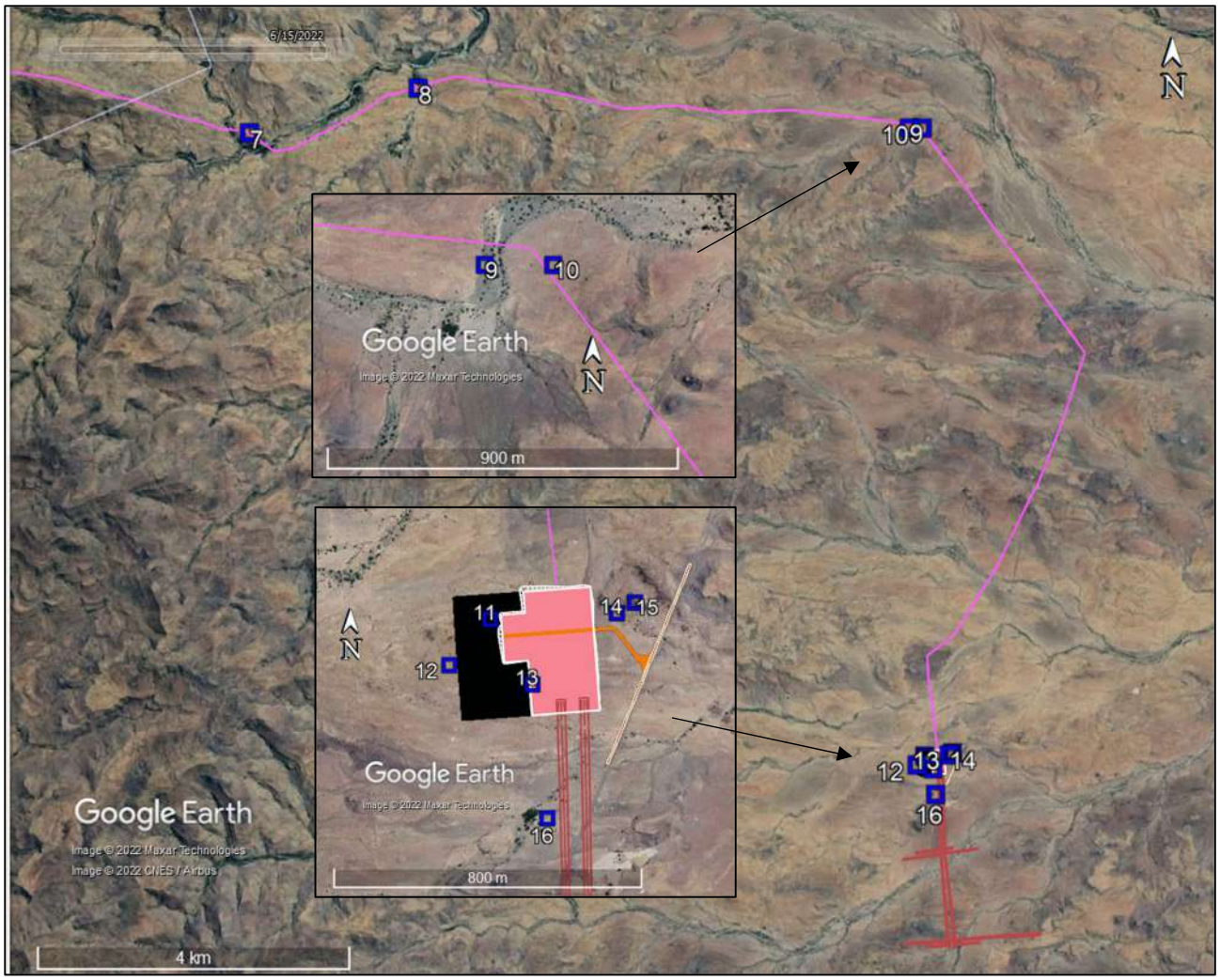


Figure 60: *Aerial view of the eastern part of the grid connection and MTS showing the locations of the issues along the powerlines and in the MTS area.*

It is clear that there are many heritage resources in close proximity to the WEF, access road, powerlines and Koring MTS layouts. **However, in almost all instances direct impacts have been avoided by the final layout**. Outstanding concerns are:

1. Some sites within the Koring MTS (Western Cape) will require archaeological mitigation prior to construction; and
2. The development of the final layout after the final survey was undertaken using the buildable areas, access roads and taking into consideration various other environmental sensitivity themes. This has meant that some areas have not been looked at in the field. Given the number of surveys that have been carried out over the years, there is a reasonable chance that all significant sites have been avoided, but it is still possible that some smaller sites may not yet have been identified in these areas and they will still need to be checked following the approval of this final layout and prior to commencement of site clearing activities.

In general, however, the **layout being proposed for approval is deemed acceptable and can be approved**. It is understood that many environmental sensitivities have been identified by many different specialists and no layout will ever be ideal for all disciplines. **With careful management, however, it is expected that impacts will be minimised and cultural significance conserved**.

7. RECOMMENDATIONS

It is recommended that the Sutherland WEF and associated grid connection should proceed to construction using the current layout, but subject to the following conditions:

- The sites identified for avoidance must be avoided (Northern Cape and Western Cape);
- Flagging of no-go areas is required for sites less than 30 m from the project footprint (Northern Cape and Western Cape). This must be done before construction and the sites must be monitored for compliance during construction by the ECO (at least weekly while construction is busy in the relevant areas);
- Additionally, because of its visual prominence, the historical site at waypoint 497 must be flagged as a no-go area and monitored for compliance;
- The possible grave at waypoint 503 (Koring MTS, Western Cape) must be carefully tested prior to commencement of construction and, if found to be a grave, it must be closed up and, in consultation with HWC, the appropriate grave relocation process followed;
- The suite of historical/recent engravings at waypoints 497-502 & 1154 (Koring MTS, Western Cape) must be fully recorded *in situ* and then moved to an appropriate location to be determined in consultation with HWC;
- The historical/recent engraving at waypoint 506 (Koring MTS, Western Cape) must be fully recorded *in situ* and then protected;
- Unsurveyed sections of the approved final layout must be checked in the field prior to commencement of construction in case of further small sites requiring recording or mitigation (Northern Cape and Western Cape);
- If road widening occurs at waypoint 560 (Northern Cape) then no material may be disposed of down the slope;
- No stones may be removed from any heritage sites (Northern Cape and Western Cape);
- All construction work must occur within the demarcated project footprints and vehicles may not move outside of these areas (Northern Cape and Western Cape);
- A Workplan application must be lodged with HWC for all archaeological mitigation required in Western Cape;
- A Permit application must be lodged with SAHRA for any archaeological mitigation required in Northern Cape (currently none is needed);
- A permit application must be lodged with NBKB for demolition or alteration of the culvert structure if remedial work is required; and
- The developer is reminded that if any archaeological material or human burials are uncovered during the course of development then work in the immediate area should be halted. The find would need to be reported to the heritage authorities (SAHRA or HWC as appropriate) and may require inspection by an archaeologist. Such heritage is the property of the state and may require excavation and curation in an approved institution.

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APPENDIX 1 – Curriculum Vitae

Curriculum Vitae

Jayson David John Orton

ARCHAEOLOGIST AND HERITAGE CONSULTANT

Contact Details and personal information:

Address: 23 Dover Road, Muizenberg, 7945
Telephone: (021) 788 1025
Cell Phone: 083 272 3225
Email: jayson@asha-consulting.co.za

Birth date and place: 22 June 1976, Cape Town, South Africa
Citizenship: South African
ID no: 760622 522 4085
Driver's License: Code 08
Marital Status: Married to Carol Orton
Languages spoken: English and Afrikaans

Education:

SA College High School	Matric	1994
University of Cape Town	B.A. (Archaeology, Environmental & Geographical Science)	1997
University of Cape Town	B.A. (Honours) (Archaeology)*	1998
University of Cape Town	M.A. (Archaeology)	2004
University of Oxford	D.Phil. (Archaeology)	2013

*Frank Schweitzer memorial book prize for an outstanding student and the degree in the First Class.

Employment History:

Spatial Archaeology Research Unit, UCT	Research assistant	Jan 1996 – Dec 1998
Department of Archaeology, UCT	Field archaeologist	Jan 1998 – Dec 1998
UCT Archaeology Contracts Office	Field archaeologist	Jan 1999 – May 2004
UCT Archaeology Contracts Office	Heritage & archaeological consultant	Jun 2004 – May 2012
School of Archaeology, University of Oxford	Undergraduate Tutor	Oct 2008 – Dec 2008
ACO Associates cc	Associate, Heritage & archaeological consultant	Jan 2011 – Dec 2013
ASHA Consulting (Pty) Ltd	Director, Heritage & archaeological consultant	Jan 2014 –

Professional Accreditation:

Association of Southern African Professional Archaeologists (ASAPA) membership number: 233
CRM Section member with the following accreditation:

- Principal Investigator: Coastal shell middens (awarded 2007)
  Stone Age archaeology (awarded 2007)
  Grave relocation (awarded 2014)
- Field Director: Rock art (awarded 2007)
  Colonial period archaeology (awarded 2007)

Association of Professional Heritage Practitioners (APHP) membership number: 43

- Accredited Professional Heritage Practitioner

➢ *Memberships and affiliations:*

South African Archaeological Society Council member	2004 – 2016
Assoc. Southern African Professional Archaeologists (ASAPA) member	2006 –
UCT Department of Archaeology Research Associate	2013 –
Heritage Western Cape APM Committee member	2013 –
UNISA Department of Archaeology and Anthropology Research Fellow	2014 –
Fish Hoek Valley Historical Association	2014 –
Kalk Bay Historical Association	2016 –
Association of Professional Heritage Practitioners member	2016 –

Fieldwork and project experience:

Extensive fieldwork and experience as both Field Director and Principle Investigator throughout the Western and Northern Cape, and also in the western parts of the Free State and Eastern Cape as follows:

Feasibility studies:

- Heritage feasibility studies examining all aspects of heritage from the desktop

Phase 1 surveys and impact assessments:

- Project types
  - Notification of Intent to Develop applications (for Heritage Western Cape)
  - Desktop-based Letter of Exemption (for the South African Heritage Resources Agency)
  - Heritage Impact Assessments (largely in the Environmental Impact Assessment or Basic Assessment context under NEMA and Section 38(8) of the NHRA, but also self-standing assessments under Section 38(1) of the NHRA)
  - Archaeological specialist studies
  - Phase 1 archaeological test excavations in historical and prehistoric sites
  - Archaeological research projects
- Development types
  - Mining and borrow pits
  - Roads (new and upgrades)
  - Residential, commercial and industrial development
  - Dams and pipe lines
  - Power lines and substations
  - Renewable energy facilities (wind energy, solar energy and hydro-electric facilities)

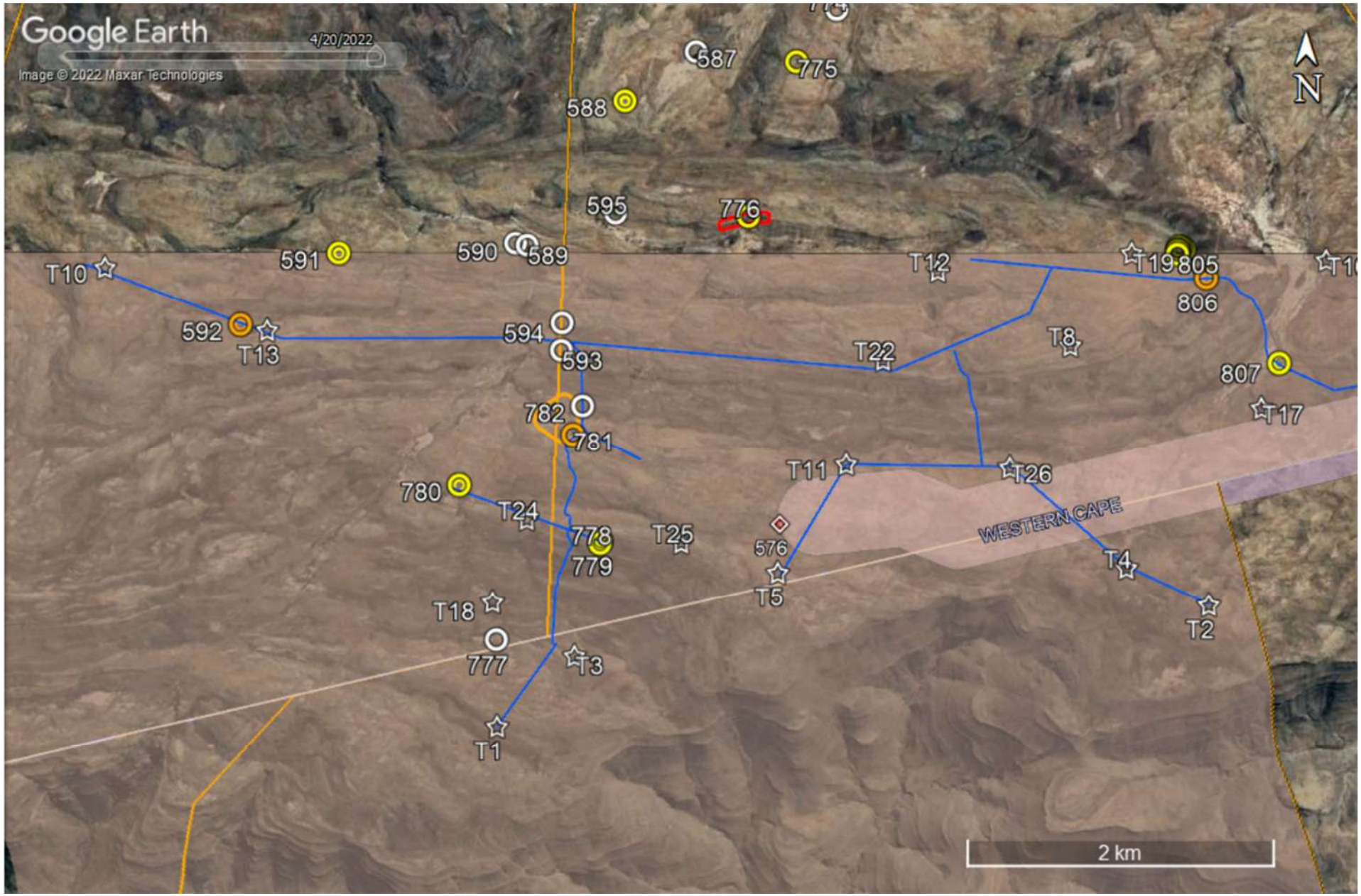
Phase 2 mitigation and research excavations:

- ESA open sites
  - Duinefontein, Gouda, Namaqualand
- MSA rock shelters
  - Fish Hoek, Yzerfontein, Cederberg, Namaqualand
- MSA open sites
  - Swartland, Bushmanland, Namaqualand
- LSA rock shelters
  - Cederberg, Namaqualand, Bushmanland
- LSA open sites (inland)
  - Swartland, Franschhoek, Namaqualand, Bushmanland
- LSA coastal shell middens
  - Melkbosstrand, Yzerfontein, Saldanha Bay, Paternoster, Dwarskersbos, Infanta, Knysna, Namaqualand
- LSA burials
  - Melkbosstrand, Saldanha Bay, Namaqualand, Knysna
- Historical sites
  - Franschhoek (farmstead and well), Waterfront (fort, dump and well), Noordhoek (cottage), variety of small excavations in central Cape Town and surrounding suburbs
- Historic burial grounds
  - Green Point (Prestwich Street), V&A Waterfront (Marina Residential), Paarl

Awards:

Western Cape Government Cultural Affairs Awards 2015/2016: Best Heritage Project.

APPENDIX 2 – Mapping


Google Earth
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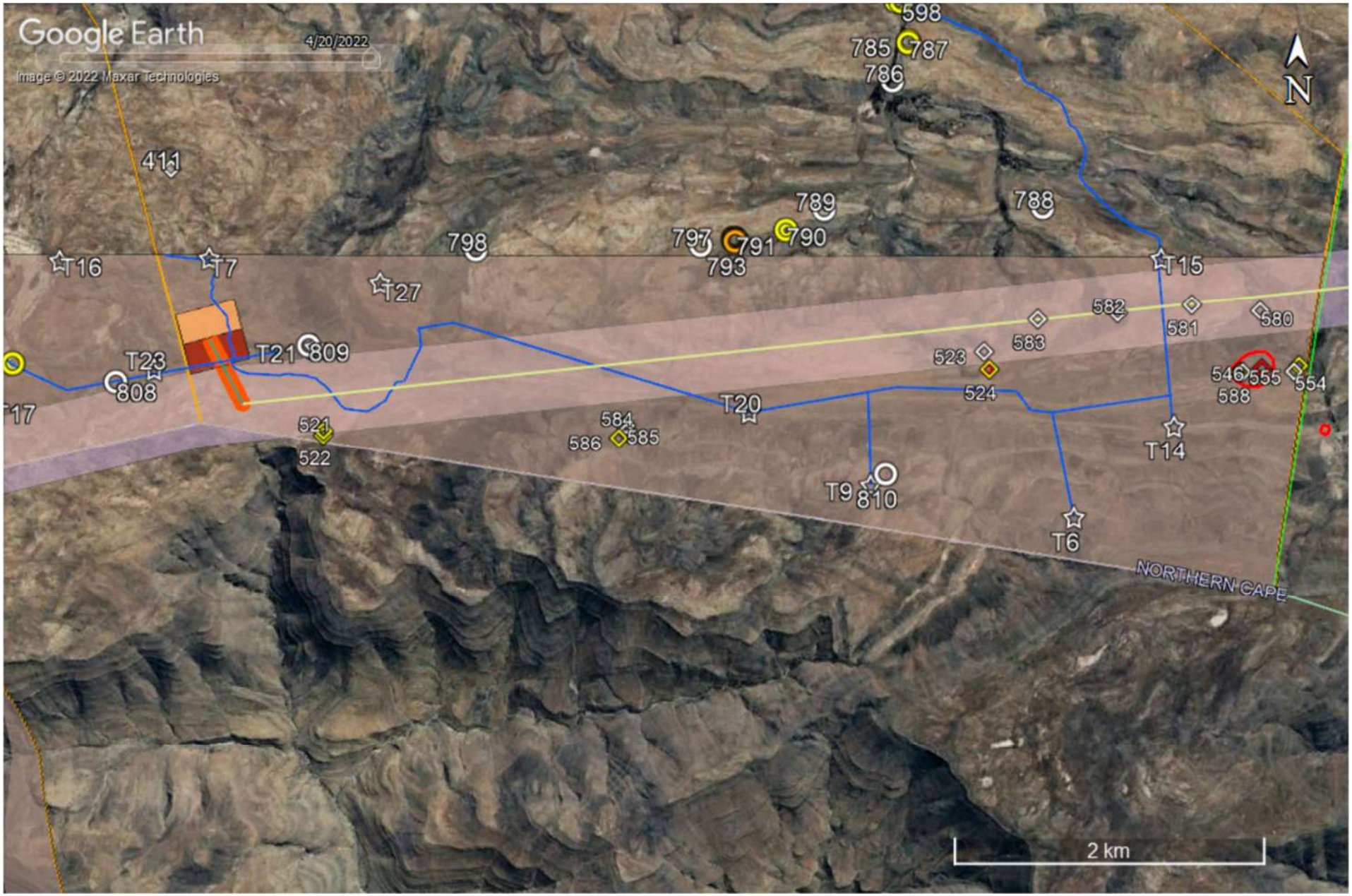
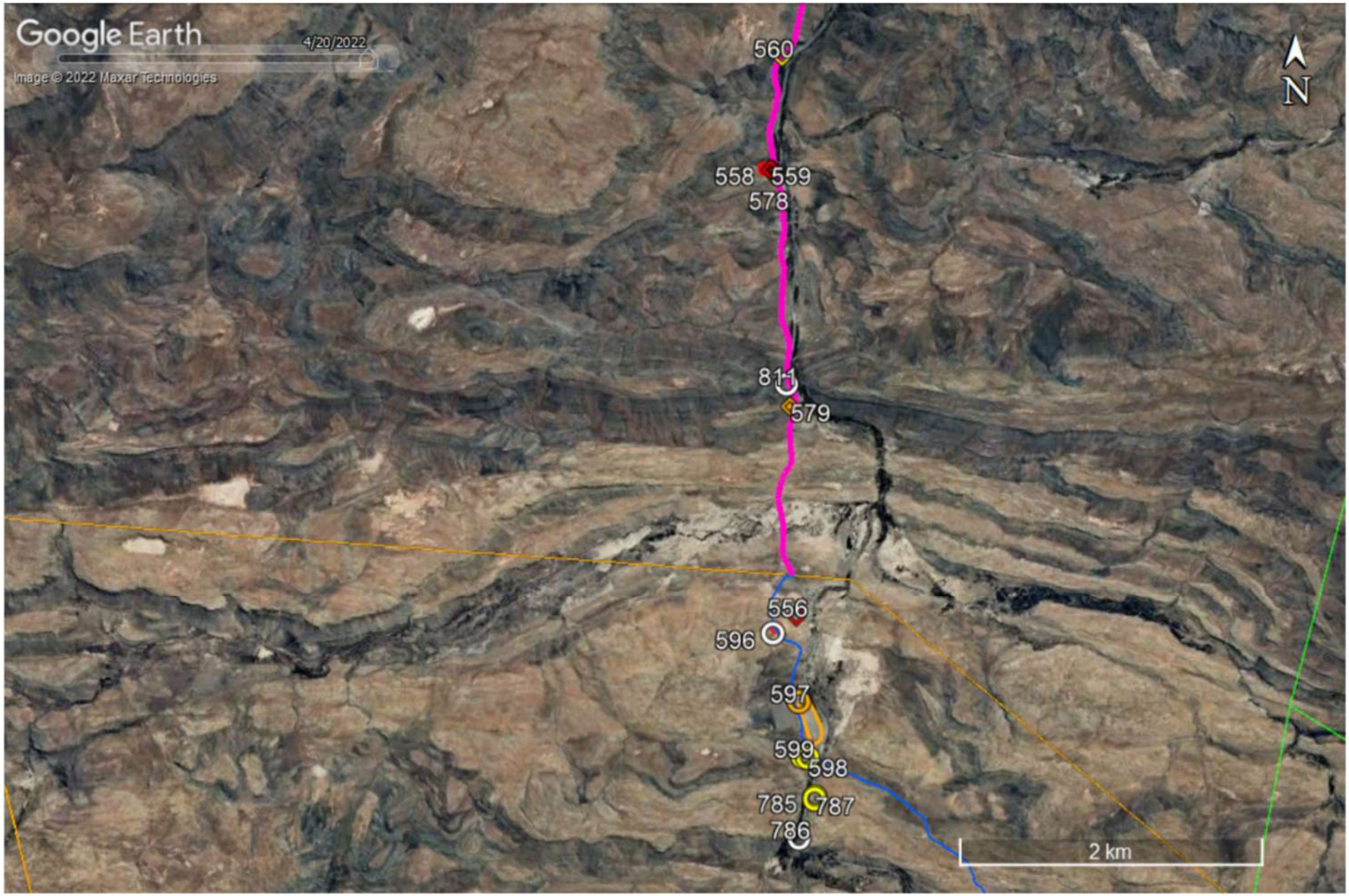
576
WESTERN CAPE
T4
T5
T18
T2
777
T3
T1
2 km


Google Earth
4/20/2022
Image © 2022 Maxar Technologies
N
598
785
787
786
411
789
788
798
797
791
790
793
T16
T7
T27
T15
582
581
580
583
523
T23
T21
809
808
524
546
555
554
588
T17
T20
584
521
586
585
522
T14
T9
810
T6
NORTHERN CAPE
2 km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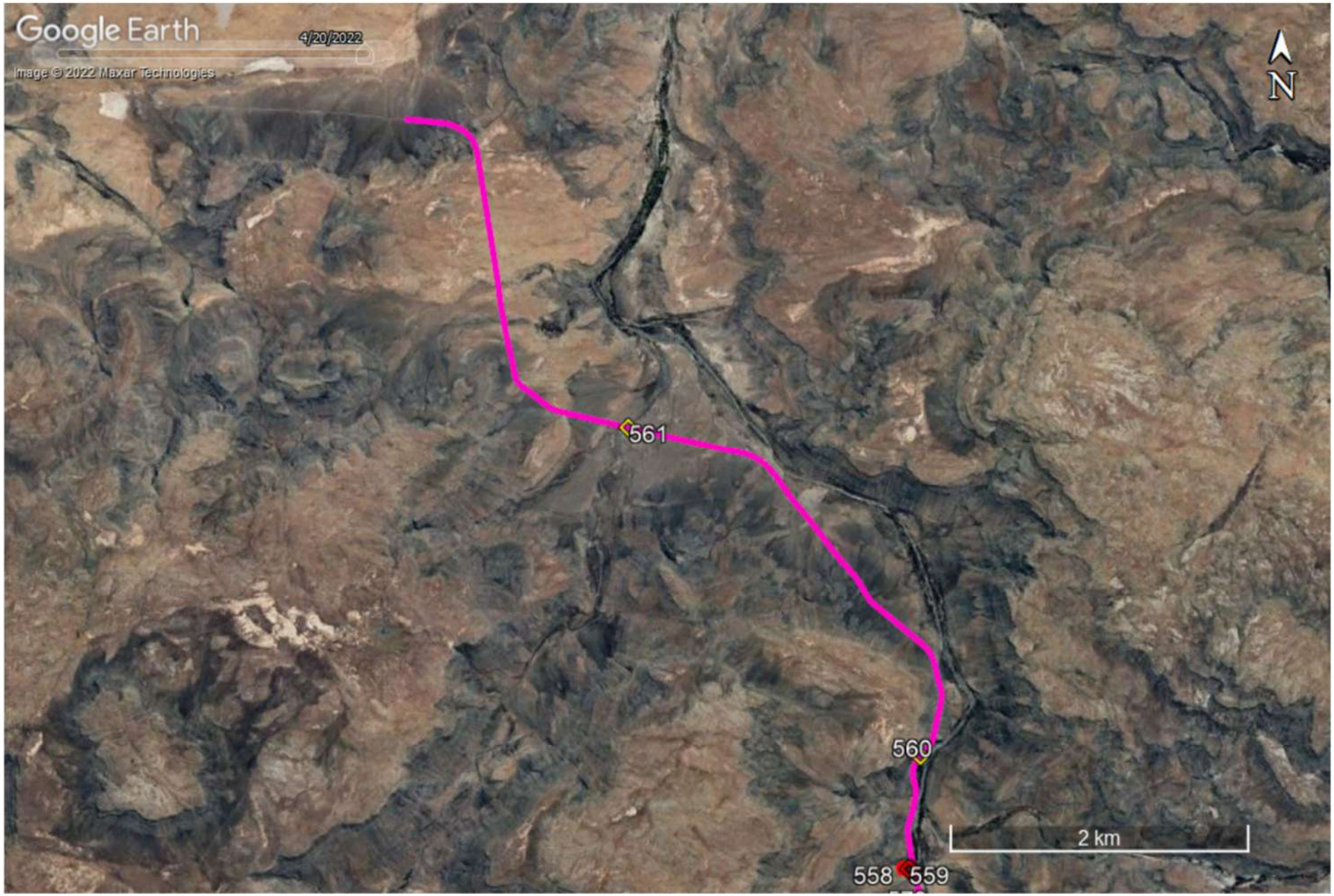
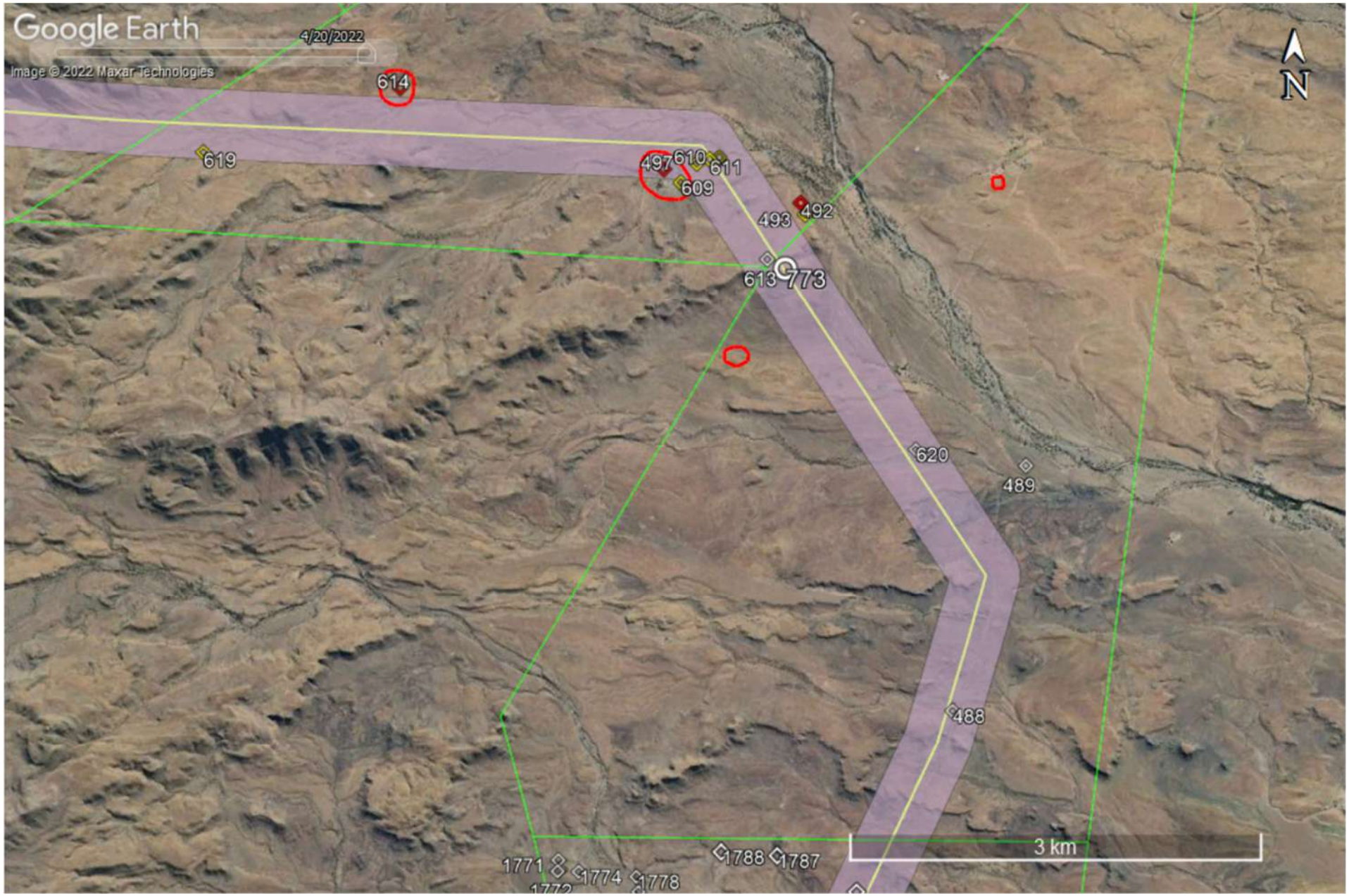
4/20/2022
Image © 2022 Maxar Technologies
N
560
558
559
578
811
579
556
596
597
599
598
785
787
786
2 km


Google Earth
4/20/2022
Image © 2022 Maxar Technologies
N
561
560
2 km
558
559


Google Earth
4/20/2022
Image © 2022 Maxar Technologies
N
601
600
580
555
554
NORTHERN CAPE
2 km


Google Earth
4/20/2022
Image © 2022 Maxar Technologies
N
771
772
767
768
769
619
3 km


Google Earth
4/20/2022
Image © 2022 Maxar Technologies
N
614
619
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611
609
493
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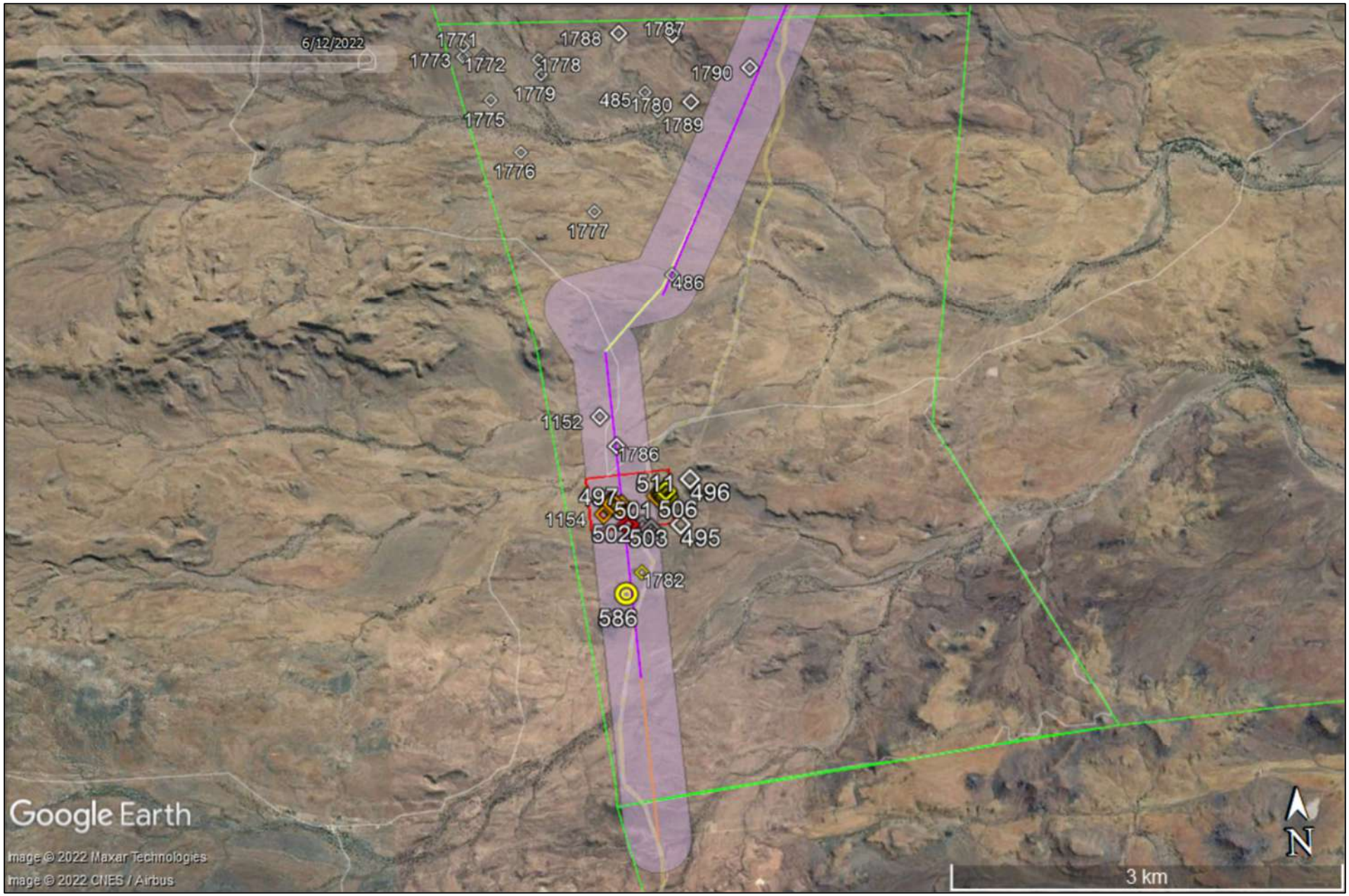
613
773
620
489
488
1771
1774
1778
1788
1787
3 km


6/12/2022
1771
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486
1152
1786
511
496
497
501
506
1154
502
503
495
1782
586
Google Earth
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3 km
N