PHASE 1
HERITAGE IMPACT ASSESSMENT REPORT

PROPOSED COAL MINE ON THE REMAINING EXTENT OF THE DUEL 186 MT (SUBIFLEX (PTY) LTD) VHEMBE DISTRICT MUNICIPALITY LIMPOPO

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Executive Summary

This report addresses the development of a coal mine on the farm The Duel 186 MT Remaining Extent located north of Makhado in the Vhembe District Municipality.

The original field survey was undertaken in September 2014 and the follow-up confirmation field assessment was carried out in February 2019.

During the survey no significant heritage resources were observed, this is in contrast to adjacent farm to the west of the project area. Archaeological remains in the form of isolated Stone Age material and a scattering of potsherds were recorded. The lack of Iron Age remains is mainly attributed to geomorphological conditions. However, the area falls in the RED category of SAHRA's Palaeontological Sensitivity Map, which means that a palaeontological assessment is required. This was conducted by Dr. Barry Millsteed of BM Geological Services and titled Desktop Palaeontological Heritage Impact Assessment Report On the Site of Subiflex (Pty) Ltd's Proposed Coal Mine to Be Located on the Farms Lotsieus 176 MT, Kranspoort 180 MT, Nairobi 181 MT and The Duel 186 MT, approximately 54 Km North of Makhado, Limpopo Province. August 2015. Subsequently, Chris Jones (Pr.Sci.Nat) of the University of Limpopo revisited the project site in February 2019 and has submitted a confirmation statement in support of the assessment of BM Geological services.

No specific mitigation and management measures are recommended. The discovery of undetected heritage remains must be reported to the archaeologist as chance finds, who will then comply with the necessary minimum standards required by the Heritage Authority.During the ongoing social consultative process, local communities may furnish heritage issues which concerning them.

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1. INTRODUCTION AND TERMS OF REFERENCE

Project Description – The Duel Coal Project

This report addresses the proposed development of a coal mine on the farm The Duel 186 MS Remaining Extent in the Soutpansberg Coalfield. The proposed mine development is located 54 km north of Makhado town (previously Louis Trichardt) in the Makhado Local Municipal area, Ward 21 in the Vhembe District.

Activity description

The Duel Coal Project will be a combination of opencast and underground mining and has a potential Life-of-Mine (LOM) of 24 years.

The envisaged mining method for the opencast area is a conventional drill and blast operation with truck and shovel, load and haul.

Underground mining operations will commence from year 10 onwards for a period of 5 years. Access will be from selected positions in the open pit and the coal will be mined through the long-wall methodology. After underground activities have been completed, the access to the underground areas will be closed followed by the final rehabilitation of the open pit.

The proposed infrastructure to be developed includes:

- Coal Handling Processing Plant
- Overburden Waste Dump
- Temporary Discard Dump
- Haul roads
- Pollution Control Dams
- Raw water storage facility and distribution systems
- Access road
- Auxiliary infrastructure including a workshop and store, office and change house, electrical power supply and security fencing.

The washed coal will be transported via road to a nearby siding.

The final discard material from the plant will be disposed of in the mined-out open pit. In the event that the pit is unavailable due to existing mining activities, the discard material will be placed on an interim surface discard dump, from where it will be reclaimed and dumped into the mined-out open pit towards the end of the mine life as part of the rehabilitation of the mining site.

Terms of reference

Undertake a Phase 1 Heritage Impact Assessment and submit a specialist report, which addresses the following:

- Executive summary;
- Scope of work undertaken, assumptions and limitations;
- Methodology used to obtain supporting information;
- Overview of relevant legislation;
- Results of all investigations;
- Interpretation of information;
- Assessment of impacts (including cumulative impacts) associated with all the stages of the project (construction, operation, closure and post closure);
- Assessment of effectiveness of management measures proposed by the client;

- Recommendations on other management measures;
- References.

Terrain description

The project area is dominated by Mopane veld and forms part of the Mutamba River drainage area. The southern most part is elevated and the surface is rock strewed. Northwards the terrain becomes sandy and exhibits much surface erosion. The central part is mountainous, stony and rugged, while the northern part is mostly undulated. The stones were a readily source for the Stone Age implements found on the terrain. The terrain generally has few areas with deep soils that are suitable for cultivation – this occurs mainly is the southern lower lying and sandy area.

2. RELEVANT LEGISLATION

Two sets of legislation are relevant for this study with regard to the protection of heritage resources and graves.

2.1 The National Heritage Resources Act (25 of 1999) (NHRA)

This Act established the South African Heritage Resources Agency (SAHRA) and makes provision for the establishment of Provincial Heritage Resources Authorities (PHRA). The Act makes provision for the undertaking of heritage resources impact assessments for various categories of development as determined by Section 38. It also provides for the grading of heritage resources (Section 7) and the implementation of a three-tier level of responsibilities and functions for heritage resources to be undertaken by the State, Provincial authorities and Local authorities, depending on the grade of the Heritage resources (Section 8).

In terms of the National Heritage Resources Act (1999) the following is of relevance:

Historical remains

Section 34(1) No person may alter or demolish any structure or part of a structure, which is older than 60 years without a permit issued by the relevant provincial heritage resources authority.

Archaeological remains

Section 35(3) Any person who discovers archaeological or palaeontological objects or material or a meteorite in the course of development or agricultural activity must immediately report the find to the responsible heritage resources authority or to the nearest local authority or museum, which must immediately notify such heritage resources authority.

Subsection 35(4) No person may, without a permit issued by the responsible heritage resources authority-

(a) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;
(b) destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;
(c) trade in, sell for private gain, export or attempt to export from the republic any category of archaeological or palaeontological material or object, or any meteorite; or

(d) bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist with the detection or recovery of metals or archaeological material or objects, or use such equipment for the recovery of meteorites.

Subsection 35(5) When the responsible heritage resources authority has reasonable cause to believe that any activity or development which will destroy, damage or alter any archaeological or palaeontological site is under way, and where no application for a permit has been submitted and no heritage resources management procedures in terms of section 38 has been followed, it may-

(a) serve on the owner or occupier of the site or on the person undertaking such development an order for the development to cease immediately for such period as is specified in the order;
(b) carry out an investigation for the purpose of obtaining information on whether or not an archaeological or palaeontological site exists and whether mitigation is necessary;
(c) if mitigation is deemed by the heritage resources authority to be necessary, assist the person on whom the order has been served under paragraph (a) to apply for a permit as required in subsection (4); and
(d) recover the costs of such investigation form the owner or occupier of the land on which it is believed an archaeological or palaeontological site is located or from the person proposing to undertake the development if no application for a permit is received within two weeks of the order being served.

Subsection 35(6) The responsible heritage resources authority may, after consultation with the owner of the land on which an archaeological or palaeontological site or meteorite is situated; serve a notice on the owner or any other controlling authority, to prevent activities within a specified distance from such site or meteorite.

Burial grounds and graves

Subsection 36(3)

(a) No person may, without a permit issued by SAHRA or a provincial heritage resources authority-
(c) destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or
(d) bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation equipment, or any equipment which assists in detection or recovery of metals.

Subsection 36(6) Subject to the provision of any law, any person who in the course of development or any other activity discovers the location of a grave, the existence of which was previously unknown, must immediately cease such activity and report the discovery to the responsible heritage resources authority which must, in co-operation with the South African Police Service and in accordance with regulations of the responsible heritage resources authority-

(a) carry out an investigation for the purpose of obtaining information on whether or not such grave is protected in terms of this Act or is of significance to any community; and
(b)if such grave is protected or is of significance, assist any person who or community which is a direct descendant to make arrangements for the exhumation and re-interment

of the content of such grave or, in the absence of such person or community, make any such arrangement as it deems fit.

Culture Resource Management

Subsection 38(1) Subject to the provisions of subsection (7), (8) and (9), any person who intends to undertake a development***** …

must at the very earliest stages of initiating such development notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

***'development'** means any physical intervention, excavation, or action, other than those caused by natural forces, which may in the opinion of the heritage authority in any way result in a change to the nature, appearance or physical nature of a place, or influence its stability and future well-being, including-

(a) construction, alteration, demolition, removal or change of use of a place or a structure at a place;
(b) carry out any works on or over or under a place*****;
(e) any change to the natural or existing condition or topography of land, and
(f) any removal or destruction of trees, or removal of vegetation or topsoil;

"place** means a site, area or region, a building or other structure** ..."

***"structure** means any building, works, device or other facility made by people and which is fixed to the ground …"

2.2 The Human Tissues Act (65 of 1983)

This Act protects graves younger than 60 years. These fall under the jurisdiction of the National Department of Health and the Provincial Health Departments. Approval for the exhumation and re-burial must be obtained from the relevant Provincial MEC as well as the relevant Local Authorities.

3. METHODOLOGY

3.1 Sources of information

Most of the information was obtained through the field survey of the area supplemented by relevant HIA-reports. The topocadastral 1:50000 map and especial Google Earth was studied for sign of archaeological or historical sites. Standard archaeological observation practices were followed. Aspects such as favorable geographical and ecological conditions were considered with regard to suitable habitation in the past and such places were inspected where potential heritage remains may be located. Locations of noteworthy heritage remains were recorded by a handheld GPS and plotted on Google Earth. Archaeological material and the general conditions of the terrain were photographed with a NIKON Digital camera.

3.2 Limitations and assumptions

No limitations were experienced. It must be noted that most archaeological and palaeotological remains are subterranean and there is always a chance that archaeological material may be exposed during earthworks.

3.3 Categories of significance

The significance of archaeological sites is ranked into the following categories.

1.	No significance: sites that do not require mitigation.
2.	Low significance: sites that *may* require mitigation after further assessment.
3.	Medium significance: sites that require mitigation.
4.	High significance: sites that must not be disturbed at all or require special mitigation.

The significance of an archaeological site is based on the amount of deposit, the integrity of the context, the kind of deposit and the potential to help answer present research questions. Historical structures are defined by Section 34 of the National Heritage Resources Act, 1999, while other historical and cultural significant sites, places and features, are generally determined by community preferences.

A crucial aspect in determining the significance and protection status of a heritage resource is often whether or not the sustainable social and economic benefits of a proposed development outweigh the conservation issues at stake. Many aspects must be taken into consideration when determining significance, such as rarity, national significance, scientific importance, cultural and religious significance, and not least, community preferences. When, for whatever reason the protection of a heritage site is not deemed necessary or practical, its research potential must be assessed and mitigated in order to gain data / information which would otherwise be lost. Such sites must be adequately recorded and sampled before being destroyed. These are generally sites graded as of low or medium significance.

3.4 Terminology

Early Stone Age: Predominantly the Acheulean hand axe industry complex dating to ± 1 Myr – 250 000 yrs. before present.

Middle Stone Age: Various lithic industries in SA dating from ± 250 000 yrs. - 22 000 yrs. before present.

Late Stone Age: The period from ± 22 000 yrs. to the contact period with either Iron Age farmers or European colonists.

Early Iron Age: Most of the first millennium AD.

Middle Iron Age: 10th to 13th centuries AD.

Late Iron Age: 14th century to colonial period. *The entire Iron Age represents the spread of Bantu speaking peoples.*

Historical: Mainly cultural remains of western influence and settlement from AD 1652 onwards – mostly structures older than 60 years in terms of Section 34 of the NHRA.

Phase 1 assessment: Scoping surveys to establish the presence of and to evaluate heritage resources in a given area.

Phase 2 assessment: In depth culture resources management studies which could include major archaeological excavations, detailed site surveys and mapping

/ plans of sites, including historical / architectural structures and features. Alternatively, the sampling of sites by collecting material, small test pit excavations or auger sampling.

Sensitive: Often refers to graves and burial sites although not necessarily a heritage place, as well as ideologically significant sites such as ritual / religious places. *Sensitive* may also refer to an entire landscape / area known for its significant heritage remains.

4. BASELINE INFORMATION

In terms of Huffman's (2007) distribution sequences of the Iron Age, the project area may contain the remains of the under-mentioned culture historical groups:

- ***Urewe Tradition***, originating in the Great Lakes area of Central Africa, was a secondary dispersal centre for eastern Bantu speakers. It represents the eastern stream of migration into South Africa.

    - Kwale Branch:
      Mzonjani facies (Broederstroom) AD 450 – 750 (Early Iron Age)

    - Moloko (Sotho-Tswana) Branch (Late Iron Age)
      Icon facies AD 1300 – 1500: This pottery is associated with the first Sotho Tswana people entering the country.

- ***Kalundu Tradition***, originating in the far North of Angola, was another secondary dispersal centre for eastern Bantu speakers and represents the western stream of migration into South Africa.
    - Benfica Sub-branch:
      Bambata facies AD 150 – 650 (Early Iron Age)

    - Happy Rest Sub-branch:
      Happy Rest facies AD 500 – 750 (Early Iron Age)
      Malapati facies AD 750 – 1030 (Early Iron Age)
      Eiland facies AD 1000 – 1300 (Middle Iron Age)
      Mapungubwe facies AD 1250 – 1300 (Middle Iron Age)
      Mutamba facies AD 1250 – 1450 (Middle Iron Age)
      Khami facies AD 1430 – 1680 (Late Iron Age)
      Tavatshena facies AD 1450 – 1600 (Later Iron Age)
      Letaba facies AD 1600 – 1840 (Later Iron Age)

The project area lies adjacent to the Makhado Colliery for which the author had undertaken heritage impact studies during the period 2008 - 2011. Numerous heritage sites and the presence of heritage remains were recorded on the adjacent farms Windhoek 649 MS, Tanga 648 MS, Fripp 645 MS, Lukin 643 MS and Salaita 188 MT. This varied from Stone Age, Iron Age and recent historical sites, including pottery from the Mutamba facies AD 1250 – 1450 (Middle Iron Age), Tavatshena facies AD 1450 – 1600 (Later Iron Age) and Letaba facies AD 1600 – 1840 (Later Iron Age).

In addition, a number of Venda related archaeological sites have been identified by Loubser (1991), while doing research on Venda ethno-archaeology for his PhD during the mid-1980's, which is included here in the form of a Google image showing the locations of sites within approximately 30 km of the proposed development.

Loubser integrated oral traditions, archaeology and ethnography to show that the Venda people originated locally and inhabited the Zoutpansberg a century before the Singo conquest of the current ruling lineages. The archaeology shows a local development of a Venda ceramic style (called Letaba) from the overlap between Shona and Sotho styles and independently supports linguistic evidence that the Venda language is an amalgamation of Shona and Sotho.

Loubser (1991) distinguishes five (5) settlement patterns in the Zoutpansberg area according to a chronological order. The first and presumably the oldest is the **central cattle pattern**, where settlements have one or several contiguous dung concentrations and the settlement is arranged around the dung concentration.

The second settlement pattern is the **Zimbabwe pattern**, characterized by regularly coursed-walls arranged in tight semi-circles and irregular enclosures along the upper portion of the site. Dwelling remains occur among the walls, but also extends well beyond the limits of the walls.

Loubser also distinguishes the **Dzata** pattern, which is very similar to the Zimbabwe pattern, but are characterised by short sections of walls that are semi-coursed and long sections of roughly stacked walls. The semi-coursed walls occur either in isolation or as part of roughly stacked walls.

The fourth is the **Mutzheto** pattern where settlements have stacked terraced walls (mutzheto). The walls demarcate the main residential area and are arranged in interlinking terraced enclosures along the upper portion of the settlement. Dwellings sometimes occur in a wide arc below the main walled cluster. Mutzheto sites share features with both Zimbabwe and Dzata patterns.

Lastly, from the 1830's conquered chiefs were forced to abandon their Mutzheto settlements by their victors and forced to settle on the open flats; the **Dzanani** pattern. This was also the case after the Boers defeated the Ramabulana Singo in 1889. The subsequent re-settlement programme under British rule from 1902 forced the Western Venda to settle on the plains. Thereafter western Venda villages seldom included stone walling.

5. RESULTS OF THE SURVEY

5.1 Palaeontology

Plant fossils have been observed in the project area. SAHRA has developed a Palaeontological Sensitivity Map. The map is colour-coded with RED indicating a very high sensitivity. The project area falls within SAHRA's red category where the prescribed action is "…*a field assessment and protocol for finds is required*"

This means that a SAHRA recognised palaeontologist must be employed to undertake at least a desktop palaeontological assessment of the project area. BM Geological services was contracted to prepare a Desktop Palaeontological Heritage Assessment Report. The study was carried out in August 2015. Subsequently, Chris Jones (Pr.Sci.Nat) of the University of Limpopo revisited the project site in February 2019 and has submitted a confirmation statement supporting the assessment of BM Geological services.

5.2 Stone Age remains

There is ample evidence for Stone Age remains in the affected area. Recordings 2 – 6 represent some of these finds. Although Stone Age remains are scattered throughout most eroded areas, no intact primary sites with high concentrations of material was found and no formal tools were observed. The most prominent scattered material seems to be Middle Stone Age flakes. Isolated Earlier Stone Age material is also present. No Later Stone Age material was noted. It is the contention of the author that no further assessment is necessary. Significance: Low.

The terrain is not suitable for Rock Art as there are no large lose-standing boulders or rock overhangs which facilitates rock art.

5.3 Iron Age

No Iron Age sites were recorded. A scattering of non-diagnostic potsherds was recorded at coordinates S22º45'30.1" E30º02'06.9" (recording 1) and surrounding area. This was probably the result of agricultural activities in the past. Significance: Low

5.4 Intangible Heritage

No signs of ritual use or the presence of graves were noted in the project area. The area is used for the collecting of natural resources such as wood, plants and clay by the Makhushu community. During the ongoing social consultative process, local communities may come up with heritage issues concerning them not yet addressed in this report.

5.5 The built environment

The built environment mainly consists of the Makhushu village. The village is not under threat. This part of the farm contains no original farmstead buildings. No threat exists for the built environment.

6. DISCUSSION

Previously surveyed areas along the foothills of the Soutpansberg to the west of The Duel have yielded numerous heritage remains and archaeological sites. Notwithstanding this, the project area on The Duel contains no definite archaeological sites, although scatterings of archaeological remains in the form of Stone Age material and some potsherds were observed. The reason that no Iron Age sites were located seems to be two-fold. Firstly, the area is mostly mountainous and/or rocky and not suitable for past settlement and secondly, the sandy soils where habitation may have been possible is highly eroded. The MSA is regarded as of low significance and can be dealt with as chance finds when exposed.

7. EVALUATION AND STATEMENT OF SIGNIFICANCE

7.1 Significance criteria in terms of Section 3(3) of the National Heritage Resources Act.

Significance		Rating
1.	The importance of the cultural heritage in the community or pattern of South Africa's history (Historic and political significance)	Low
2.	Possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage (Scientific significance).	None

3.	Potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage (Research/scientific significance)	Low: Stone Age
4.	Importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects (Scientific significance)	None
5.	Importance in exhibiting particular aesthetic characteristics valued by a community or cultural group (Aesthetic significance)	None
6.	Importance in demonstrating a high degree of creative or technical achievement at a particular period (Scientific significance)	None
7.	Strong or special association with a particular community or cultural group for social, cultural or spiritual reasons (Social significance)	Low
8.	Strong or special association with the life and work of a person, group or organization of importance in the history of South Africa (Historic significance)	None
9.	The significance of the site relating to the history of slavery in South Africa.	None

7.2 Section 38(3) (c) An assessment of the impact of the development on such heritage resources.

The development will have a negligible effect on heritage remains.

7.3 *Section 38(3) (d) An evaluation of the impact of the development on heritage resources relative to the sustainable economic benefits to be derived from the development*.

None of the recorded heritage remains within the direct mining area are uncommon, rare or unique. The sustainable economic benefits outweigh the conservation benefits.

7.4 *Section 38(3) (e) The results of consultation with the communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources*.

Social consultative process is ongoing.

7.5 Section 38(3)(f) If heritage resources will be adversely affected by the proposed development the consideration of alternatives.

No viable alternatives exist.

7.6 Section 38(3)(g) Plans for mitigation of any adverse effects during and after the completion of the proposed development.

No specific mitigation plans are recommended other than the development of a chance finds protocol.

8 RECOMMENDATIONS FOR MANAGEMENT AND MITIGATION MEASURES

From a heritage resources management point of view, we have no objection with regard to the development.

The discovery of undetected heritage remains must be reported to the archaeologist as chance finds, who will then comply with the necessary minimum standards required by the Heritage Authority.

9. REFERENCES

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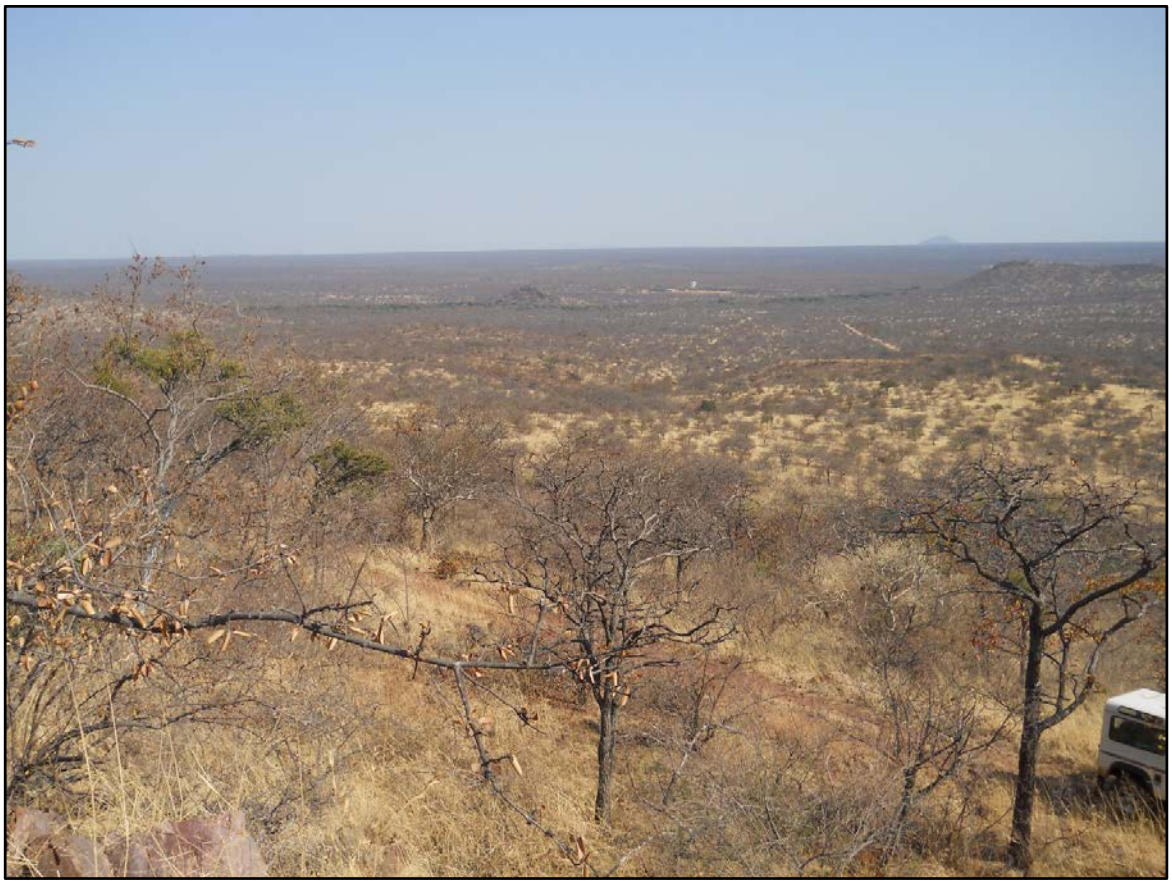

Figure 1. General view of northern part of the project area.

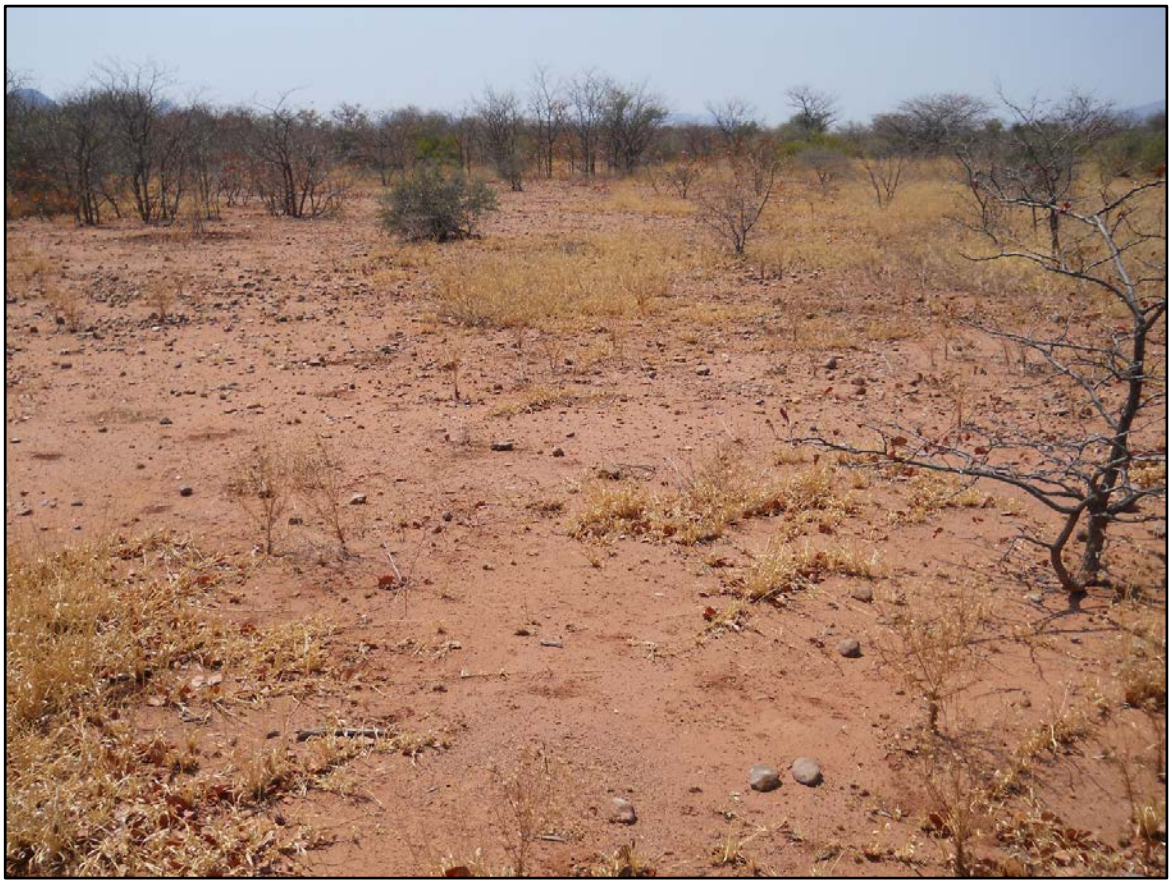

Figure 2. View of a typical rocky area where scattered Stone Age material occurs – mid southern area.

Figure 3. A Middle Stone Age flake.

Figure 4. Scattering of potsherds at recording 1.

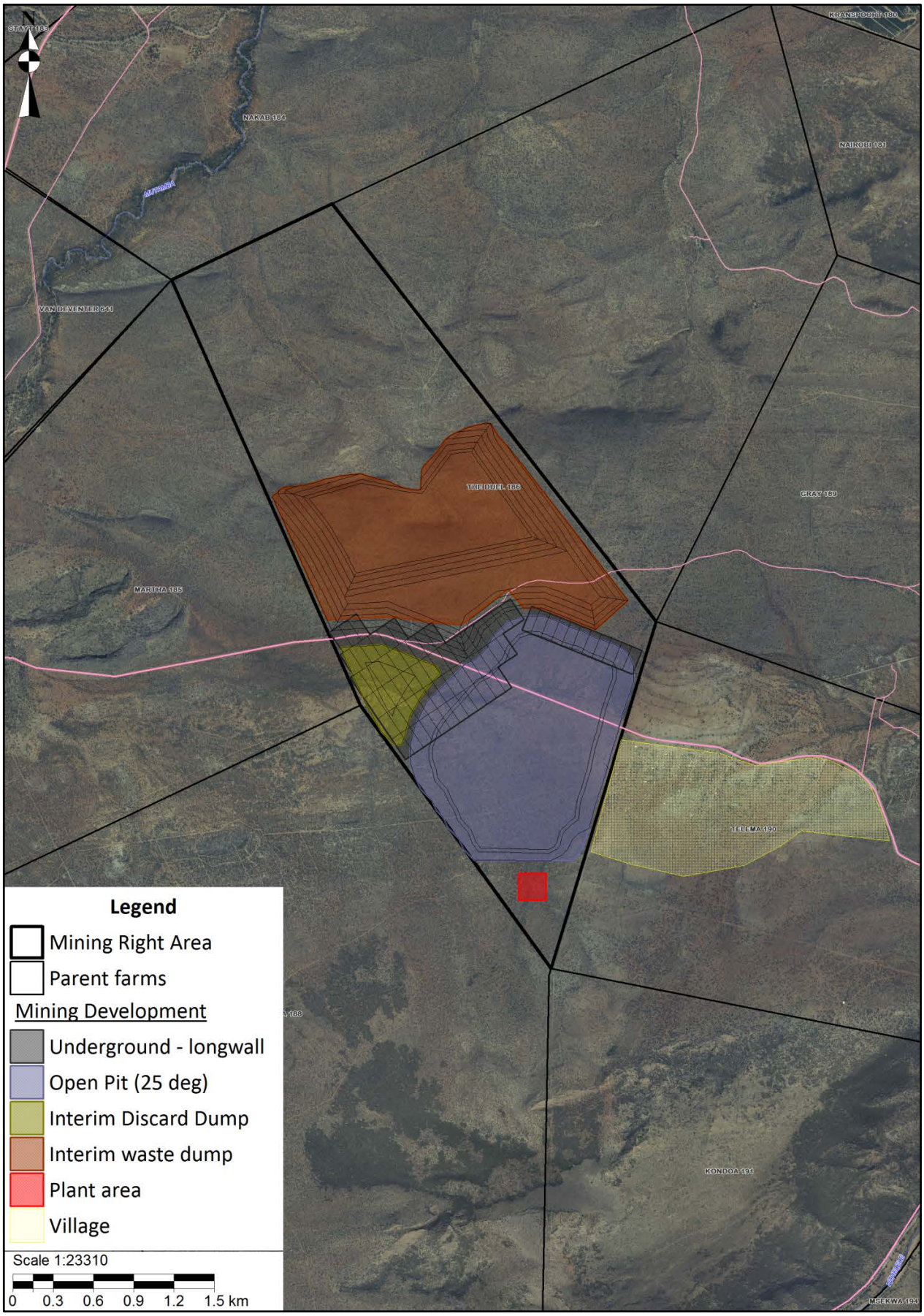

Figure 5. Google Map Mining area.

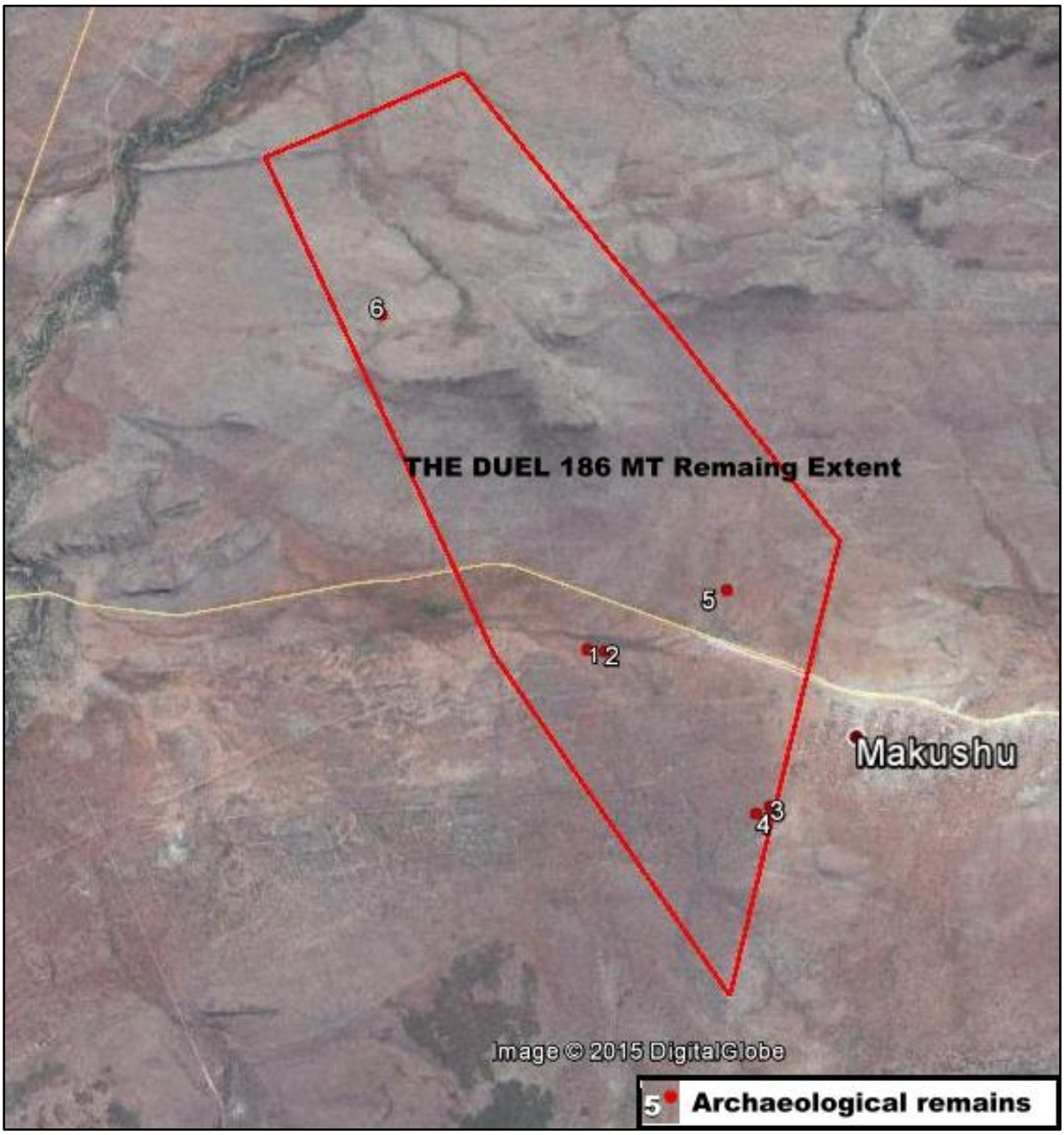

Figure 6. Google Map of project area showing recorded finds.

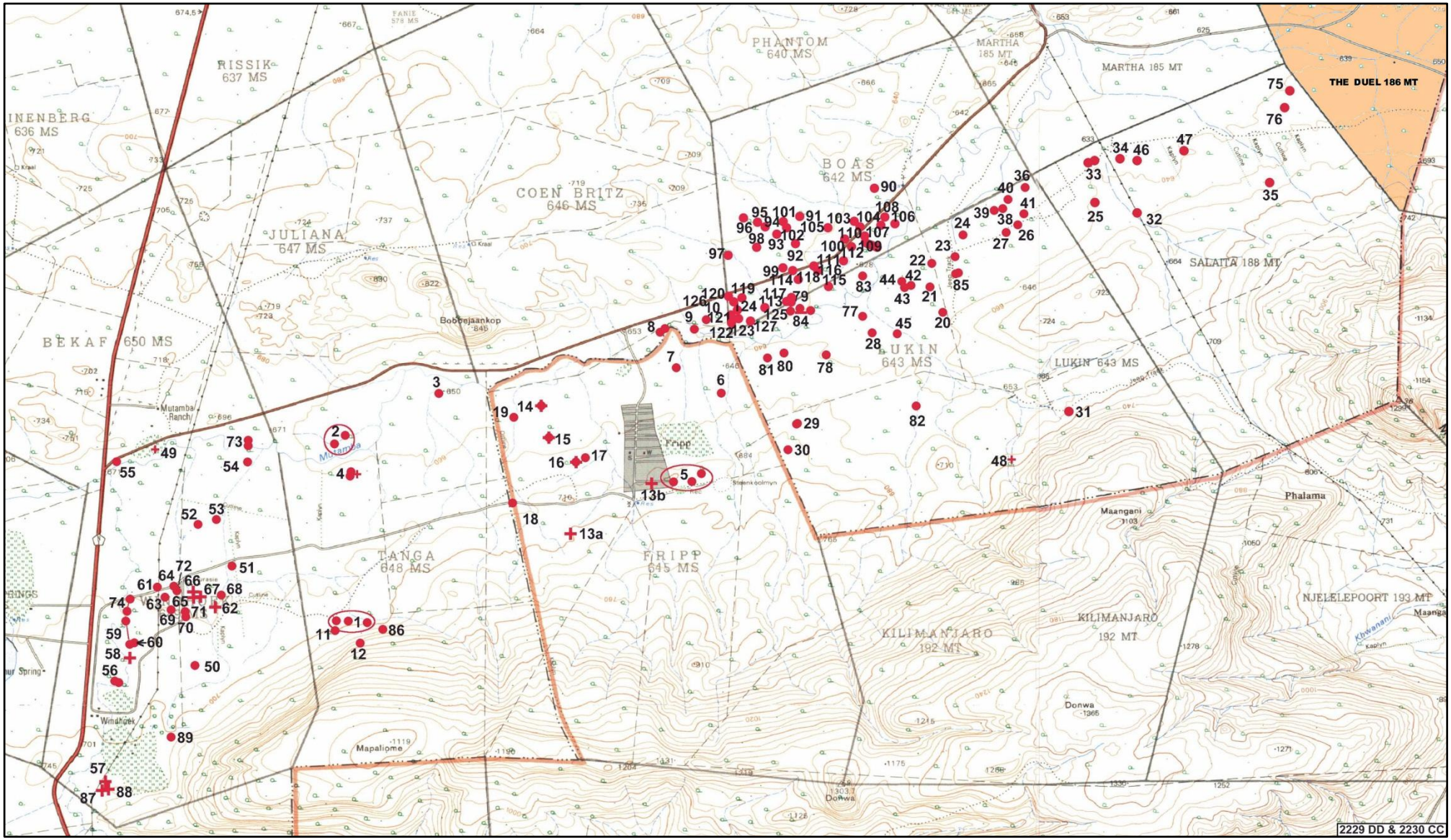

Figure 7. 1:50 000 2229 DD & 2230 CC Map showing find sites at the Makhado Colliery in relation to The Duel.

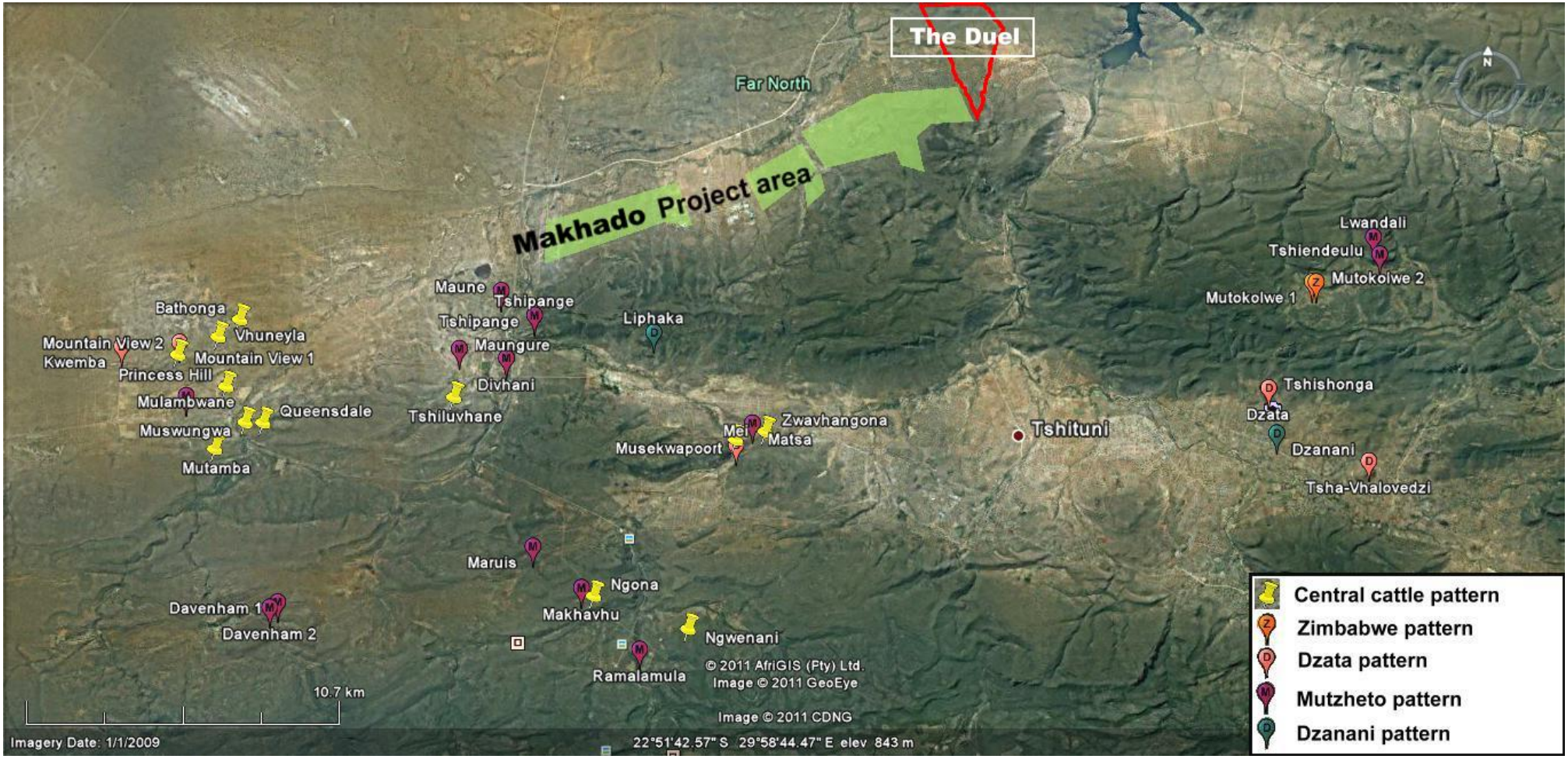

Figure 8. Archaeological sites recorded in Loubser (1991) in relation to The Duel.