CHAPTER S. SHALE HILLS

Field Note S6a. Possible Stone Age workshops SW of Swellendam

Possible site of Stone Age tool making at Muurkop.

CHAPTER S. SHALE HILLS

Field Note S6a. Possible Stone Age workshops SW of Swellendam

1. Introduction

A. Prehistorical tool making

From Wikipedia:

A *stone tool* is, in the most general sense, any tool made either partially or entirely out of stone. Although stone tool-dependent societies and cultures still exist today, most stone tools are associated with prehistoric (particularly Stone Age) cultures that have become extinct. Archaeologists often study such prehistoric societies and refer to the study of stone tools as lithic analysis. Ethnoarchaeology has been a valuable research field, in order to further the understanding and cultural implications of stone tool use and manufacture.

Stone has been used to make a wide variety of different tools throughout history, including arrowheads, spearheads, and querns. Stone tools may be made of either ground stone or chipped stone, and a person who creates tools out of the latter is known as a flintknapper. (See 'Knapping' below; YE).

Chipped stone tools are made from cryptocrystalline materials such as chert or flint, radiolarite, chalcedony, obsidian, basalt, and quartzite via a process known as lithic reduction. One simple form of reduction is to strike stone flakes from a nucleus (core) of material using a hammerstone or similar hard hammer fabricator. If the goal of the reduction strategy is to produce flakes, the remnant lithic core may be discarded once it has become too small to use. In some strategies, however, a flintknapper reduces the core to a rough unifacial, or bifacial preform, which is further reduced using soft hammer flaking techniques or by pressure flaking the edges.

More complex forms of reduction include the production of highly standardised blades, which can then be fashioned into a variety of tools such as scrapers, knives, sickles, and microliths. In general terms, chipped stone tools are nearly ubiquitous in all pre-metal-using societies because they are easily manufactured, the tool stone is usually plentiful, and they are easy to transport and sharpen.

B. Middle Stone Age (MSA) / Middle Paleolithic (MP) technologies

From the Internet:

Between about 400,000 and 200,000 years ago, the pace of innovation in stone technology began to accelerate very slightly. By the beginning of this time, handaxes were made with exquisite craftsmanship, and eventually gave way to smaller, more diverse toolkits, with an emphasis on flake tools rather than larger core tools. These toolkits were established by at least 285,000 years in some parts of Africa, and by 250,000-200,000 years in Europe and parts of western Asia.

One of the main innovations was the application of 'prepared core technique,' in which a core was carefully flaked on one side so that for a flake of predetermined size and shape could be produced in a single blow. This technique probably raised the level of standardisation and predictability in stone technology.

Middle Stone Age toolkits included points, which could be hafted on to shafts to make spears. When smaller points were eventually made, they could be attached to smaller, sleeker shafts to make darts, arrows, and other projectile weapons. Stone awls, which could have been used to perforate hides, and scrapers that were useful in preparing hide, wood, and other materials, were also typical tools of the Middle Stone Age.

The term ‘Middle Stone Age’ includes a variety of toolkits from Africa and the toolkits usually referred to as the Middle Paleolithic in Europe. These toolkits last until at least 50,000 to 28,000 years ago. In Africa, the Middle Stone Age toolkits sometimes include blades and other types of archeological evidence (beads and artifacts that indicate the use of color and symbols) that are typical of the Upper Paleolithic in Europe.

C. *Middle Stone Age tools in the Cape Coastal Zone*

From: “Provenancing silcrete in the Cape coastal zone: implications for Middle Stone Age research in South Africa. By David J. Nash, Sheila Coulson, Sigrid Staurset, Martin P. Smith, J. Stewart Ullyott, 2003”:

Silcrete is a term first used by Lamplugh to describe a highly resistant and well-cemented near-surface crust formed as a result of silica accumulating within and cementing a pre-existing soil, sediment, rock or weathered material. It is widespread in southern Africa, with some of the most extensive outcrops occurring around the Cape coast of South Africa. In this region, silcretes demarcate ancient marine-planed surfaces, alluvial plains and river terraces, and display a range of features indicative of the role of pedogenic- and/or groundwater-related processes in their formation. The majority of the outcrops are at considerable elevation relative to present-day sea level.

Silcrete is also a major archaeological raw material in the South African Stone Age. Due to its knapping properties, it has been used to make a variety of tool types and is one of the most widely utilised materials for artifact manufacture in the southwestern and southern Cape. Silcrete is prevalent in lithic assemblages from the Middle Stone Age (MSA), particularly in those with Still Bay or Howiesons Poort components. Silcrete artifacts have been used to infer a range of behavioral traits during the MSA, including local vs. long-distance acquisition, increased mobility, exchange networks, technological complexity, knapping strategies, intentional heat treatment, stylistic change and even symbolic behavior. However, all of these inferences hinge upon first establishing the provenance of the silcrete raw material - whether as an indication of the distance of transport by early humans or as an initial step in the selection of materials for experimental replication studies.

The potential for using silcrete in provenancing studies in South Africa has been hinted at over the last decade. Roberts*, for example, suggests that “since the character of silcrete [in the Cape] varies geographically and since its occurrence is frequently localised” it might be used to infer Stone Age migration patterns. Ambrose*, referring to geochemical data within Roberts’ memoir, states that regional differences in the bulk chemistry of Cape silcretes are “large enough to suggest that trace element and isotopic methods could be used to clearly differentiate sources.” However, in a more recent review, Ambrose suggests that “chemical compositions of raw materials such as silcretes are similar over great distances”.

(*- see bibliography in Chapter Z).

2. *Silcrete in the Study Area*

The Study Area is dotted with more than 200 silcrete-capped hills and small ridges, and ferruginised, silicified outcrops of shales on hilltops and hillslopes (Figure 1). (See Field Notes in Chapter D, for the various types of silcrete and ferricrete and their spatial distribution). In the Study Area, apart for very few, and very small outcrops of non-pedogenic silcrete, the majority of pedogenic silcretes – which was used for tool making - are present on hilltops and hillslopes.

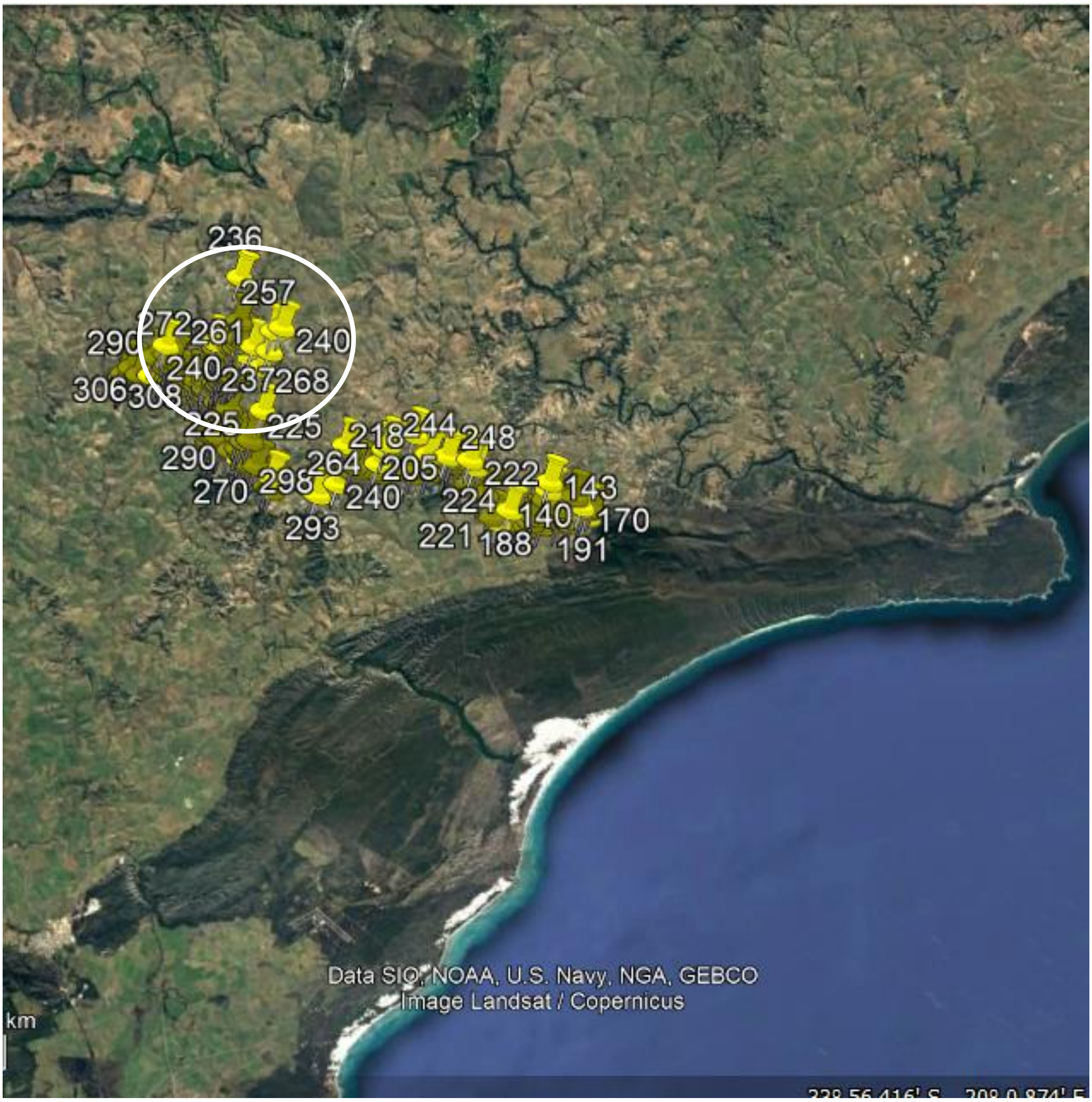

Figure 1. Satellite image showing the northern part of the Study Area. Pins and numbers are the locations and elevations (in meters above sealevel) of silcrete capped hills and ridges. (Note that because of the scale of the image, many pins overlap each other). The hills, which are the subject of this Field Note, are within the white circle.

3. Availability of workable silcrete

There are many silcrete habits, of different compositions and textures, all of which are well-cemented and highly resistant and thus very difficult, if not impossible, to cut to size and shape, or they lack the required knapping properties (see below). On most of the silcrete-capped hills in the Study Area, amorphous chunks and pieces of naturally disintegrated silcrete form aprons on the hillslopes (Figure 2).

Figure 2. Top and bottom – aprons of naturally disintegrated, amorphous silcrete chunks are typical of the slopes of silcrete-capped hills and ridges.

4. *Silcretes with knapping properties*

From Wikipedia:

Knapping is the shaping of flint, chert, obsidian or other conchoidal fracturing stone through the process of lithic reduction to manufacture stone tools, strikers for flintlock firearms, or to produce flat-faced stones for building or facing walls, and flushwork decoration. The original Germanic term *knopp* meant to strike, shape, or work, so it could theoretically have referred equally well to making statues or dice. Modern usage is more specific, referring almost exclusively to the hand-tool pressure-flaking process pictured. It is distinguished from the more general verb "chip" (to break up into small pieces, or unintentionally break off a piece of something) and is different from "carve" (removing only part of a face), and "cleave" (breaking along a natural plane). Examples of Stone Age tools, knapped to size and shape, are given in Figure 3.

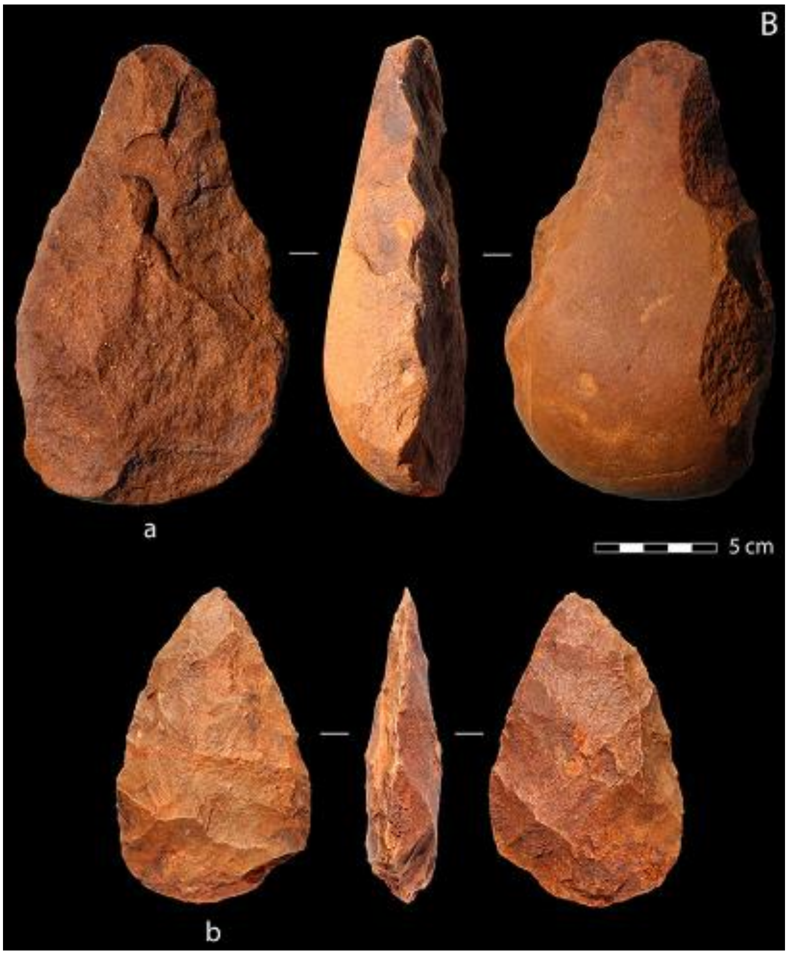

Figure 3. Stone Age tools.
Source: E Hallinan and J Parkington, 2017: Stone Age landscape use in the **Olifants R**iver Valley, Clanwilliam, Western Cape South Africa

The author is not aware of any research, which indicates a site, where silcrete was used as raw material for tool making in the Study Area (or on the Cape South Coast). During his research (to October 2022), the author noticed that on a few hills in the north of the Study Area there are rock pieces, which are unlikely the products of natural erosion and disintegration. Whereas no tools or other artefacts were found, unnaturally cut lithics are present. These findings led the author to believe that the silcrete outcrops and ferruginised, silicified shale protrusions (see the Field Guides in Chapter D) on these hills may have been sources of raw material for tool making.

Chunks of all sizes and shapes are abundant around silcrete-capped hills. On many hills, some of the silcrete pieces do not look like the result of natural disintegration of silcrete outcrops (as shown in Figure 2 above). This Field Note is about possible workshops for tool making on hills SW of Swellendam.

5. Hills 316 and 297

Hill 316 (on Aandblom Farm) is situated morth of the gravel road to Protem, where some lithics, which look unnaturally cut, were found (Figure 4).

Figure 4. The northern slope of Hill 316. Top – an area where amorphous, naturally disintegrated pieces are present. Bottom – silcrete lithics which are unlikely the result of natural disintegration, found within the patch shown in the top photograph.

Similarly, on Hill 297, (on Uitvlug Farm) some lithics, which do not look naturally cut, were found (Figure 5).

Figure 5. The eastern slope of Hill 297. Top – an area where amorphous chunks of naturally disintegrated pieces are present. Bottom – silcrete lithics, most of which are unlikely to be the result of natural disintegration, found within the patch shown in the top photograph.

6. Seweneskop and Muurkop (on Muurkraal Farm)

The above two hills are just examples of many hills where silcrete pieces, which are unlikely the result of natural disintegration, where found. Nevertheless, on two other hills in the Study Area, the number of such pieces and the presence of other lithics, combined with some geological observation, made the author suggest that they have been workshops for tool making.

These two hills are Seweneskop and Muurkop, located some 25 km SW of Swellendam (Figures 6 and 7).

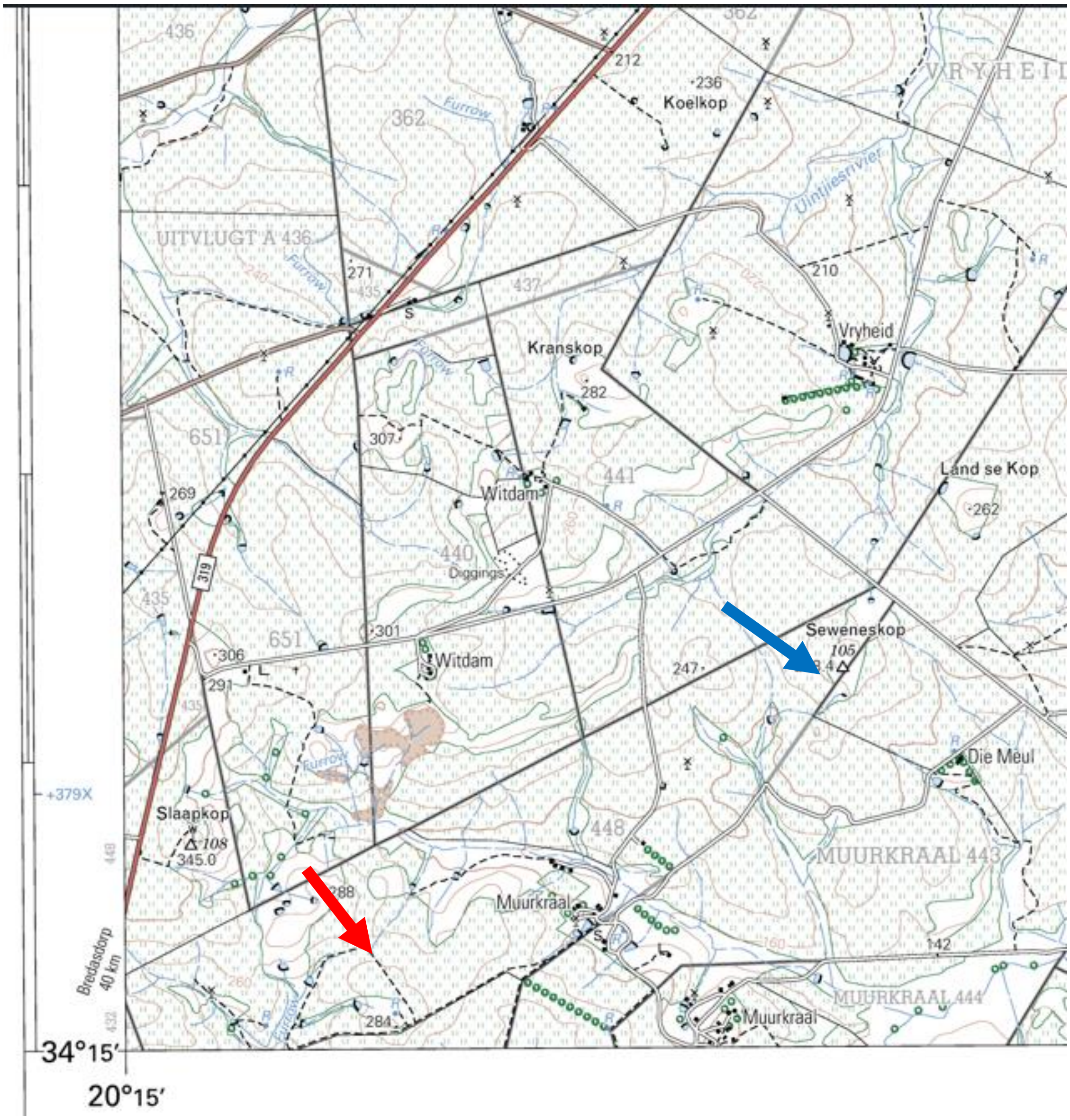

Figure 6. Topography map (the SW section of the Swellendam sheet 3420AB, 1:50,000, 2016) of the Witdam and Muurkraal Farms area east of the R319, about 25 km SW of Swellendam. The red arrow points to Muurkop (name given by the author; on all maps until 1989 and - as on the geology map below - the hill name was Klaaskaffersheuwel); the blue arrow points to Seweneskop.

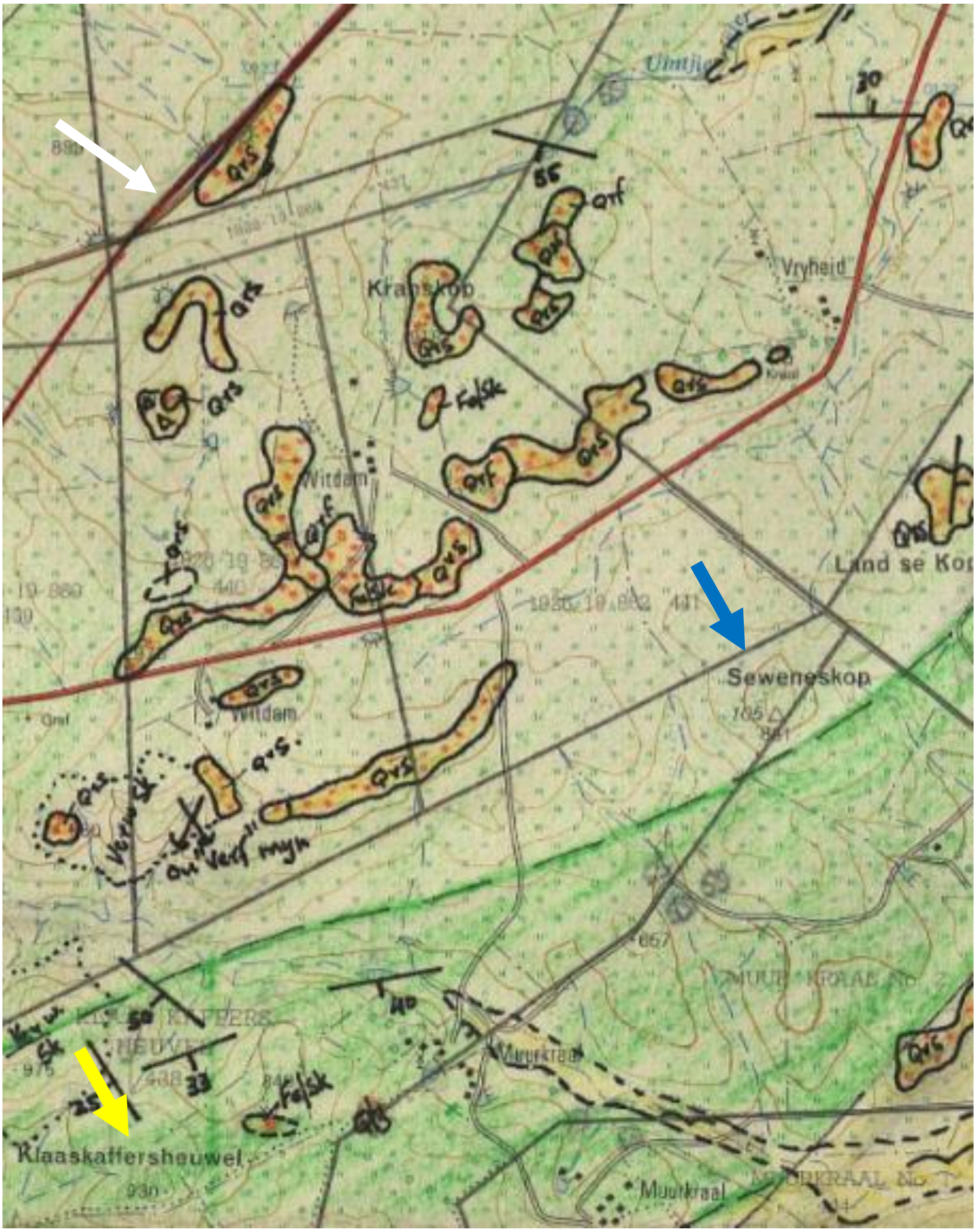

Figure 7. Geology map (south-west corner of the 3420AB Swellendam field sheet, 1:50,000, compiled by HP Siegfried, 1984) of an area some 25 km SW of Swellendam. The patches with red dots are: Qrs indicates silcrete; Qrf indicates ferricrete; the symbol Fe/sk indicates ferruginised shales. Blue arrow points to Seweneskop (which was, by omission of the map's compiler, not marked with the silcrete symbol); yellow arrow points to Muurkop (the symbol Fe/sk was incorrectly put east of the hill). The green areas are shales of the Bokkeveld Formations. The white arrow points to the R319.

7. *Seweneskop*

Seweneskop is a silcrete-capped hill. On the west side, a few metres below the top, there is a hillslope protrusion of heavily ferruginised, silicified shales (Figure 8). (See "Silcretised landscape morphology – A field guide" in Chapter D).

Figure 8. Seweneskop. Top - satellite image. Bottom – view from the southwest: white arrow points to a lightly ferruginised silcrete outcrop. Yellow arrow points to the heavily ferruginised, silicified protrusion of shales.

The silicified and heavily ferruginised protrusion at Seweneskop (Figure 9) still preserves, in places, the layered nature of the shales with cleavage planes, which made it easier for humans to cut out small pieces (Figure 10).

Figure 9. The hillslope silicified and heavily ferruginised shales protrusion at Seweneskop.

Figure 10. The heavily ferruginised, silicified, layered shale protrusion on Seweneskop. Top – oblique layers; bottom – horizontal layers. Dashed lines indicate directions of cleavage planes.

The area in front of the protrusion is covered with naturally disintegrated pieces, as well as with lithics, which the author suggests, have been cut by humans (Figures 11 and 12).

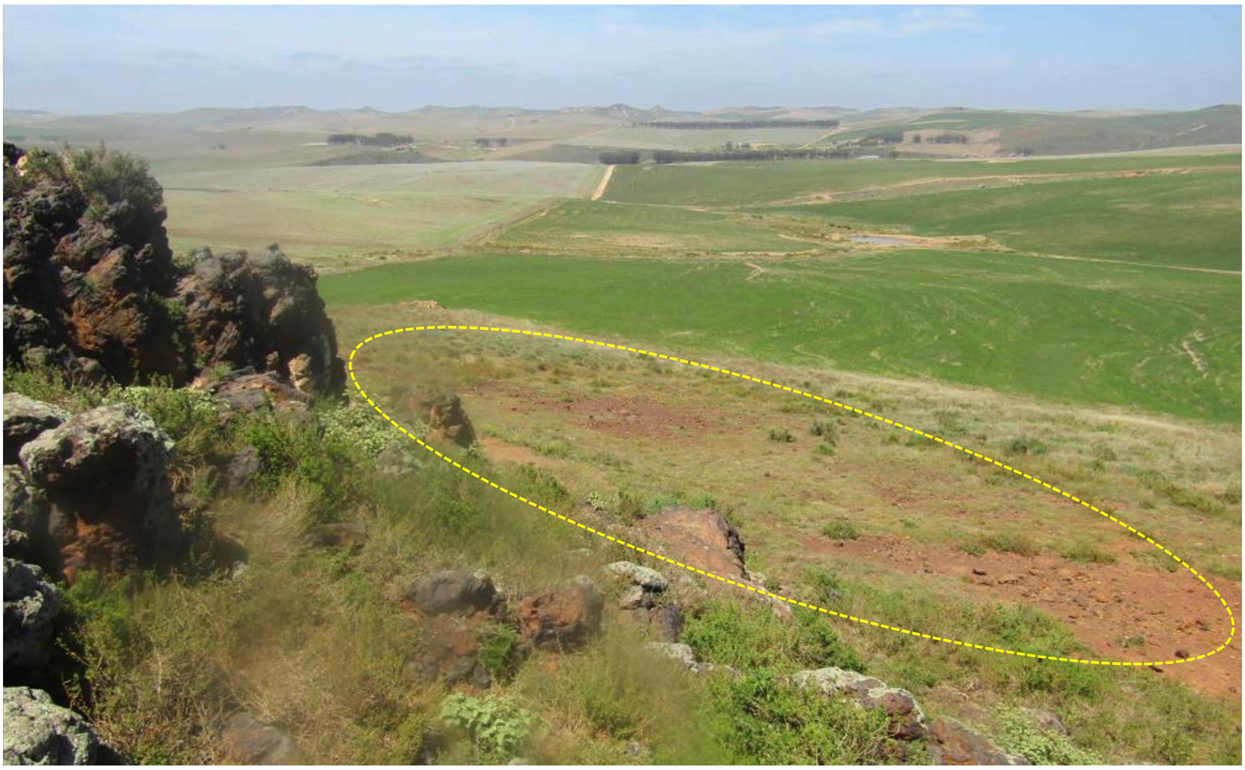

Figure 11. The area in front of the ferrruginised, silcrete protrusion. Ellipsoid indicates the area where small, amorphous chunks, resulting from the natural disintegration of the outcrop are present, together with flakes and lithics which have probably been cut to size and shape by humans. Top – view to the NW. Bottom – view to the SW. The layer of flakes is thick, preventing growth of vegetation.

Figure 12. Top and bottom: rock pieces, most of which are amorphous and the products of natural disintegration, with many flakes and pieces, which were not cut naturally, in front of the outcrop. Some quartz pieces, which do not belong in the geology of this hillslope are also present.

Several lithics, which are unlikely to be the products of natural processes and may have been reduced to their sizes and shapes by humans (to be designed as hand tools but were abandoned for better lithics) were found at Seweneskop (Figure 13).

Figure 13. Top and bottom – lithics, which have likely been reduced to size and shape by humans, found in front of the outcrop, amongst many other unnaturally-cut pieces.

Other lithics, made of rocks which are not the products of natural disintegration, or do not belong in the geology of the site, have also been found (Figure 14).

Figure 14. Other lithics found on Seweneskop. Top - lithics, probably rounded by humans. Bottom – quartz lithics, which do not belong in the geology of Seweneskop; although these lithics are similar in size to hand tools, they may have been used as means for knapping.

8. Muurkop

As mentioned above, the original hill name '*Klaaskaffersheuwel'* was dropped from the maps after 1989 for obvious reasons, and for ease of reference the author named it '*Muurkop'*. While surrounded by several silcrete-capped hills, it is one of a few hills in the Study Area where ferruginised, silicified shale sheets, protrude the ground (see Field Note D7b). On this hill, a cluster of nearly vertical sheets rises some 7 metres above the immediate surroundings. South of this cluster, some individual sheets rise nearly vertically to hights of 1 to 3 metres above the ground (Figures 15 to 17).

Figure 15. Satellite image of Muurkop, showing the protruding sheet cluster (white arrow) and the individual protruding sheets (yellow arrows).

Figure 16. Muurkop. Top – view from the northwest on the heavily ferruginised, silicified sheet cluster protrusion. Bottom – view to the west on one of the nearly vertical individual protruding sheets.

Figure 17. The sheet cluster protrusion. Top – view from the west; note the boulders in front of the protrusion - the result of natural disintegration of the outcrop. Bottom – view from the east.

Naturally disintegrated pieces of the outcrop are present below the protrusion (Figure 18).

Figure 18. Aprons of naturally disintegrated pieces of the outcrop. Top – eastern apron. Bottom – northern apron.

In the southern section of the protrusion the sheets are relatively thin and easier to break and cut tools from (Figure 19).

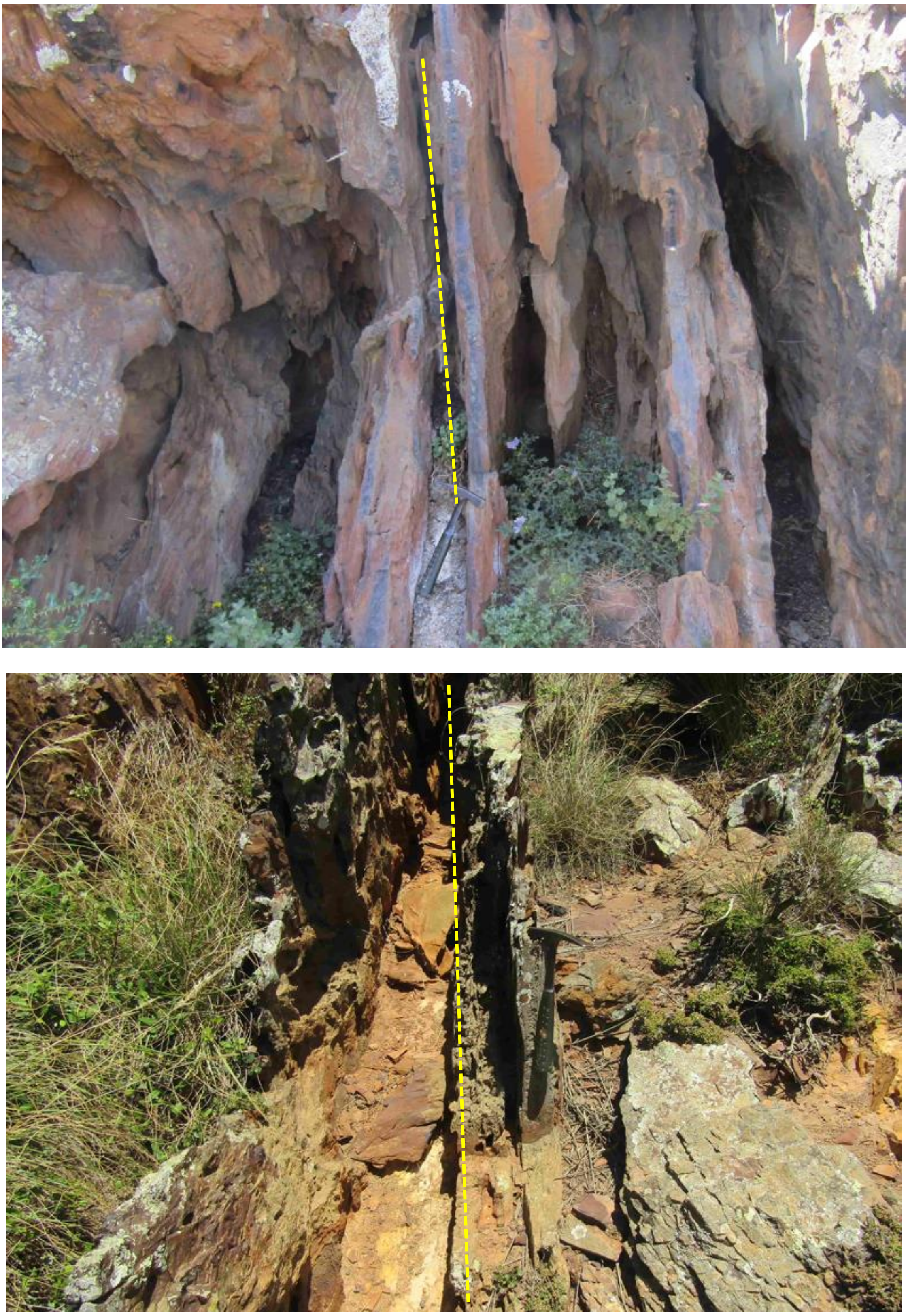

Figure 19. Top and bottom: cleavage planes (indicated by dotted lines) have made the sheets on this side of the outcrop easier to break into small pieces, and then reduce them to shape and size for hand tools.

The southern slope is covered with lithics, which are unlikely the products of natural disintegration and weathering (Figure 20). Some of them are shown in Figure 21.

Figure 20. Top and bottom: the southern apron comprises (except for the few naturally disintegrated large chunks) a thick layer of lithics and flakes, which are probably the result of knapping by humans. As on Seweneskop, this layer prevented the growth of vegetation.

Figure 21. Lithics, which are unlikely to have been the products of natural disintegration of the protrusion, found on Muurkop, amongst many other unnaturally cut pieces.

9. Conclusion

The literature about raw material for tool making in the Cape South Coast is very general. The author is not aware of any particular site, which was pointed out as a place where, tools were manufactured.

Whereas no tools were found, it is suggested here that the hills, which were the subject of this note, constituted Stone Age workshops for tool making, where silcrete and ferruginised shale outcrops were used as raw material.

The author showed the distinction between assemblages, which consist of naturally disintegrated, amorphous rock pieces, and lithics, which the author suspects to be the products of knapping by humans, who gave them their unique shape and size. Also, the author pointed out to thick layers of flakes covering the floor of the workshops, which prevent growth of vegetation.

Whereas it is possible to find many similarly cut pieces within the myriads of silcrete and ferricrete pieces in the study area, the presence of several of them in the confined areas on hilltops and hillslopes as described above, support the author's suggestion that a geological process is unlikely to account for the lithics found. The presence of rock pieces, which do not belong in the geology of the hills also support the author's suggestion that humans worked on these sites.

The author believes that the lithics, which are cut to shape and size, are unfinished tools. They were left behind as not fit for purpose by those who knapped them.

10. The workshops in the context of SW Cape Stone Age archaeological sites

Tens of sites along the Southwestern Cape were investigated by archaeologists. The most important of them are shown in Figure 22.

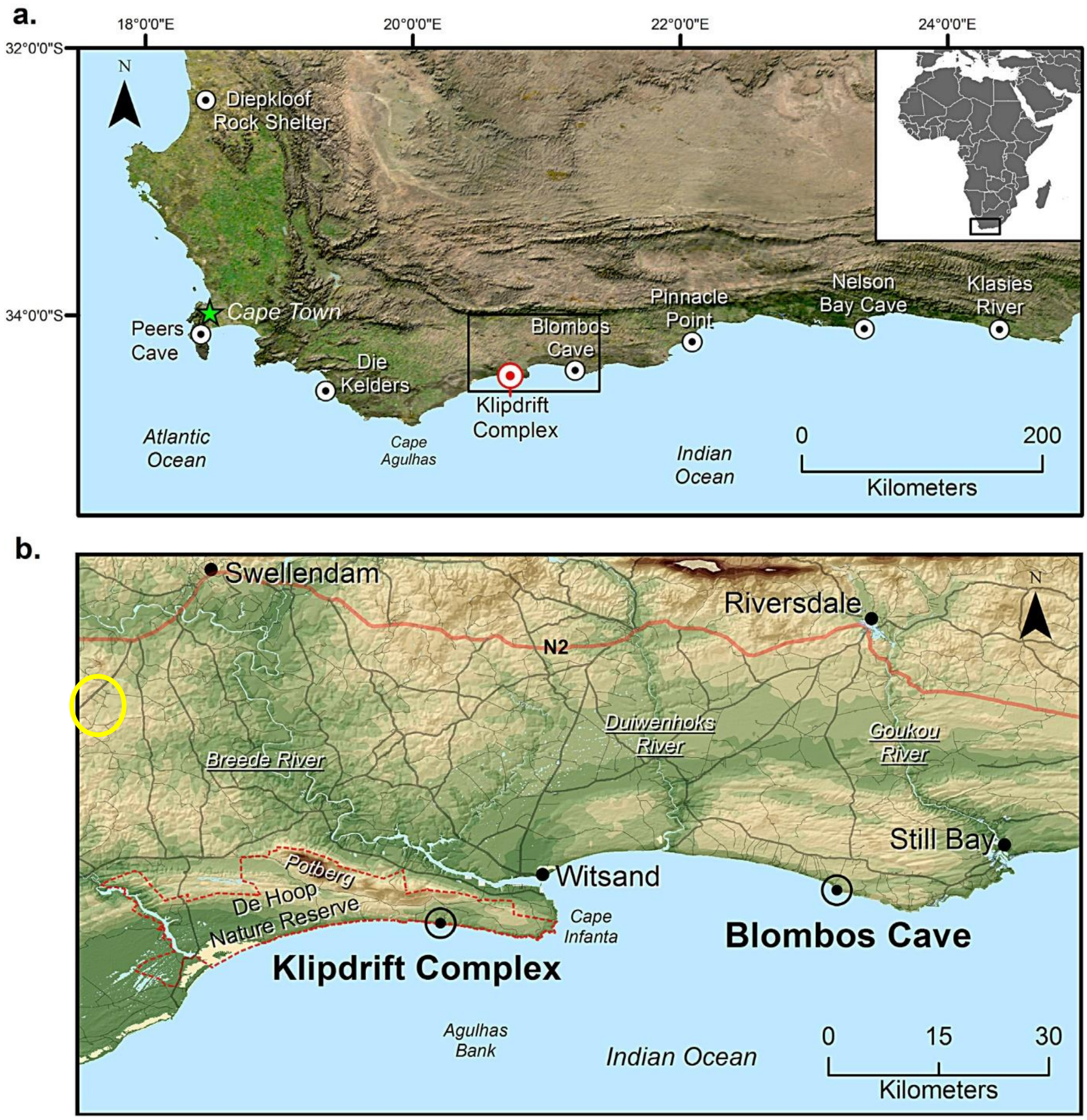

Figure 22. Top – map showing the main archaeological sites along the Cape South Coast. Box is enlarged as the map in the bottom. Circle indicates the approximate location of the four hills, which are the subject of this Field Note.

Source: CS Henshilwood et al, 2014. Klipdrift Shelter, Southern Cape, South Africa: Preliminary report on the Howiesons Poort layers.

The Klipdrift Complex is the site, which is the closest to the hills in question, where the archaeological findings are from a period, which spans about twenty thousand years (between seventy to fifty thousand years before present). About 30% of the lithics found in this cave were made of silcrete. There is no silcrete in the vicinity of the cave, and the nearest available silcrete is on the hills situated a few kilometres west of the northwestern extent of the Potberg Mountains, or about 25 km NW of Klipdrift, whereas the hills described above are some 50 km NW of it (Figure 23).

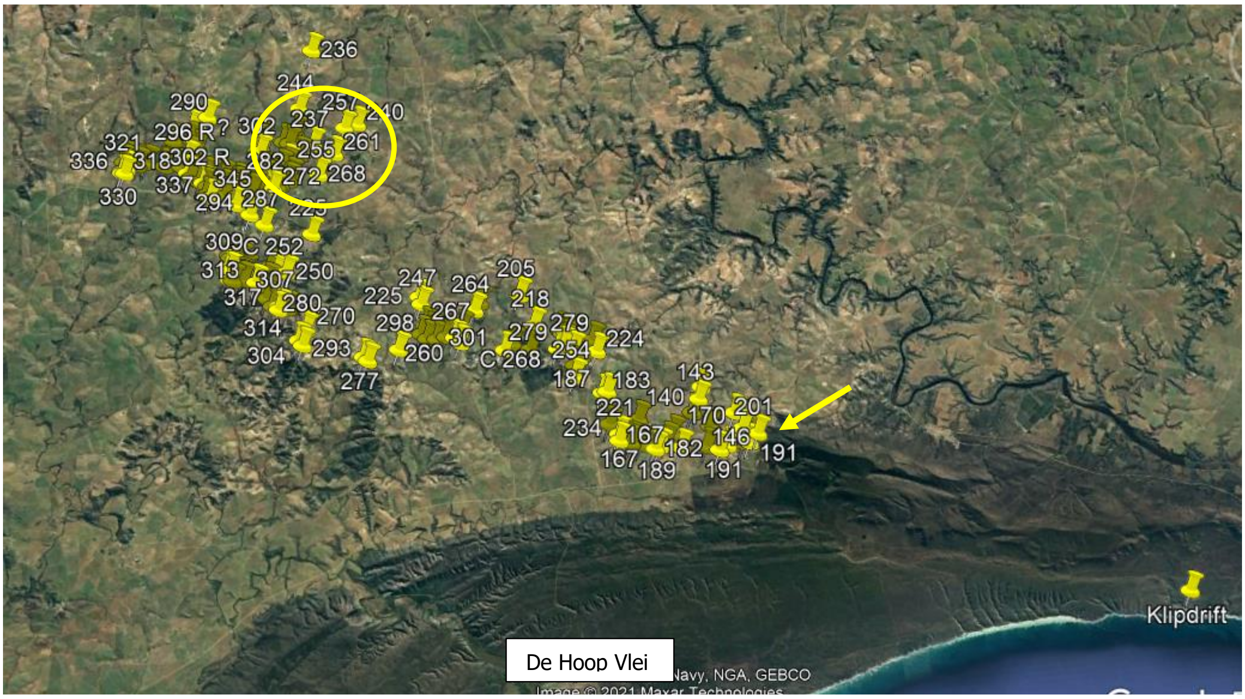

Figure 23. Satellite image showing the distribution of some silcrete-capped hills, northwest of the Klipdrift Complex. Pins and number are the locations and elevations (in meters above sealevel) of silcrete capped hills (note that because of the scale of the image, many pins overlap each other). The distance from the Klipdrift Complex to the nearest available (but largely unworkable) silcrete (yellow arrow) is 25 km, and to the hills described in this Field Note (yellow circle) is 50 km.

During the Late Pleistocene parts of the Palaeo Agulhas Plain was exposed, and the shoreline was many kilometres south of the current shoreline. It is possible that silcrete was formed on this plain and was used by the Stone Age people for tool making.

It is suggested that the people who inhabited the Klipdrift Complex have visited the hills to the northwest, where they could source raw material for tool making. The hills described in this Field Note might have been some of these hills.

See the next Field Note, about another possible Stone-Age workshop, near Gourikwa Reserve, between Gouritsmond and Still Bay, some 45 km east of the Blombos Cave, as well as the notes on Noetsie and the archaeology study of Klipdift Complex in Chapter U.