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PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT REPORT ON MINING ZONES 0 – 24 AND ABUTTING AREAS ON THE REMAINING EXTENT OF FARM SCHMIDTSDRIFT 248, AT SCHMIDTSDRIFT, PIXLEY KA SEME DISTRICT MUNICIPALITY, NORTHERN CAPE PROVINCE.

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EXECUTIVE SUMMARY

The purpose of this study was to determine if any archaeological sites were present in currently accessible Mining Zones 0 – 15, each ~600 ha in extent, that are located on farms Boomplaats 21, Schmidtsdrift 22, and Plaatdrift 41, and to establish if any pre-1950 graves or structures were also present on adjacent farms Baviaanskrantz 22, Sivonel 42, and Sivonel 43, all 70 km west of Kimberley in the Pixley ka Seme District Municipality of the Northern Cape Province. To that end two younger and fitter assistants, namely Wilhelm Schoembie and Johan Jooste, were recruited, given two days training, mainly in how to identify stone artefacts, after which a foot survey of the above-listed properties commenced, beginning on 9 March, and ending on 11 May 2012, bar weekends, during which time ~15 Stone Age sites, 32 structures, and 45 grave sites / yards, with a total of > 3 500 interments, were located and plotted. The oldest clear date on a headstone was June 1883. Structures were seen to be seldom more than a few courses high, but of greater note were the lithic sites, which included *in situ* Early – Middle Acheulean artefacts still in pristine condition, a number of late Acheulean localities with associated blades and in a sedimentary context, as also a single rare Early Fauresmith occurrence.

These field observations lead me to recommend that all the gravesites be fenced, with an additional 10 m buffer zone around this in Mining Zones, that all of the identified Stone Age sites should have buffer zones at 20 m from their midpoints, and that an archaeologist should monitor further mining operations on a three monthly basis to ensure compliance with Section 36(6) of Act 25 of 1999.

BACKGROUND INFORMATION

New Diamond Corporation (Pty.) Ltd. (NDC), a subsidiary of Lonrho Mining Limited since 2005, has been prospecting for diamonds on six contiguous farms along the west bank of the Vaal River in the Schmidtsdrift vicinity for over a decade, most recently by way of a new order Prospecting Right granted by the Department of Minerals and Energy (DME) in 2006. Operations latterly are via Schmidtsdrift Mining Enterprises (Pty.) Ltd (SME), ~75% owned by NDC and 25% by the Schmidtsdrift Communal Property Association (SCPA), the holder of the surface rights, in terms of an agreement between NDC and the SCPA, in which NDC pays a royalty of 5% of gross diamond sales to the SPCA in exchange for mining access to the alluvial gravels. Most recently, an application for a new order Mining Right, together with all related environmental and heritage documentation, is being prepared by M&S Consulting of Kimberley, which led them to ask me to undertake the Phase 1 Archaeological Impact Assessment, given the current unavailability of D Morris, and the high costs of bringing in consultants from the Free State or beyond.

My terms of reference were to detail observations based on a field survey of the terrain and to assess the significance of heritage impacts, should the proposed mining go ahead. Such a report is required by Section 38 of the National Heritage Resources Act (no. 25 of 1999), which states that no development of any sort may take place without heritage assessment and approval.

LOCAL ARCHAEOLOGY

In 1960 quarrying for the R64, at a point ~30 km east of Schmidtsdrift, led to the exposure of many Acheulean artefacts lying ~1.5m below the modern surface, and, three years later, to excavations there by R.J. Mason, assisted by G.J. Fock and H.J. and J. Deacon. That investigation (Mason 1988: 623 – 626) produced ~1 900 specimens lying on an old pan margin that sloped north to south (Butzer 1984), with test pits further indicating that similar material extended a further ~0.8 m down, and covered an area much larger than the sampled extent. The retrieved assemblage, largely based on andesite, has a formal tool component dominated by handaxes, often of oval form, cleavers, and picks, that was referred to the Late Acheulean, which is recorded as including a few blades, but no cores that are of Victoria West ascription.

And a similar distance upstream of Schmidtsdrift is Muirton, where excavations in 1963 (Sampson 1972) and 1968 (Humphreys 1969) led to the retrieval of ~1 000 slightly smoothed artefacts, including nine small (10 cm long) handaxes and two cleavers, all based on quartzite. This lithic sample, lying on calcified silts and below Hutton Sands, is said to have been transported by colluvial action from an initial location closer to nearby Muirton Koppie, with sections further indicating that the silts overlie Rietputs A & B (Helgren 1978).

But closest to Schmidtsdrift, directly across the Vaal river on the farm Rooipoort, is the Bushman's Fountain locality, a ~9 ha hill is covered by over 4 500 engravings (Wilman 1933; Fock 1979), mainly produced by pecking (hammering). Some of those seemingly depict a semi-tropical fauna, as evidenced by hippo, sable, and waterbuck images (Morris 1990), which has been linked to a warmer and wetter climate 3 kyr ago, inferred from the closeby Klipfontein spring sediments (Butzer *et al.* 1979). Recently, a Cultural Resources Impact Assessment by van Ryneveld (2005) has resulted in the location of other archaeological sites there, of which particular importance attaches to a Rietputs exposure with abundant fresh Acheulean with blades, and, a few kilometres further south, and Early Fauresmith surface occurrence on a calcrete surface, that, judging from test pit findings, appears to extend downwards.

PROPERTY DESCRIPTION

The contiguous farms that would be affected by the proposed mining of SCPA-owned gravels are, from north to south, Boomplaats 21, Schmidtsdrift 22, Plaatdrift 41, Sivonel 42, and Sivonel 43, with a total lower Vaal river frontage of over 39 km, and all located some 70 km west of Kimberley in the Pixley ka Seme District Municipality of the Northern Cape Province (Figs. 1 & 2). Given that extent, and a report completion date at end May 2012, some assistance was clearly required, to which end M&S Consulting managed to recruit two young men in their mid-30's, by name Johan Jooste and Wilhelm Schoembie, the latter a former member of the South African Defense Force at Schmidtsdrift, who, amongst other accomplishments, is an expert tracker with exceptional powers of observation. After discussion, it was further agreed that a major cause of friction was often the inadvertent destruction of unmarked graves during alluvial mining, and that, to circumvent this, a very thorough search of the entire SCPA property (including the farm Baviaanskranz 22, which lies away from the river) for graves and structures should be undertaken, to supplement information on such sites that could be obtained from local communities. The terrain searched for lithic sites was much smaller, being confined to potentially impacted areas of Mining Zones 0 – 24, each 600 ha in extent, that lay between the river and the flanking footslope of the Ghaap Escarpment, a kilometer or so to the west, and was further constrained by the small San (!Kung) group living on Sivonel 42 & 43, who, claiming that ground as their own, locked all access gates. Our survey was thus, perforce, confined to the alluvial flats in mining Zones 0 – 15, bar mined out areas that are fairly extensive in Mining Zones 1 & 3, with the approximate extent of the total area that was inspected being ~9 000 ha, much (ca. 60 – 70%) of which is covered by beige – grey silt flats transected by erosions gullies, with lithics largely confined to upslope portions abutting on rubble-coated hillsides.

Fieldwork spanned two days on site showing Johan and Wilhelm how to identify graves and stone artefacts, followed by surveys that began on 9 March and ended on 11 May 2012, during which time all located sites were photographed and their co-ordinates taken with a Topcon differential GPS, prior to all amassed data being filed in M&S Consulting computers.

SUPERFICIAL SEDIMENTS

Ongoing isostatic uplift of the subcontinent has resulted in erosion being the dominant geological force acting on the landscape of central South Africa since at least the onset of the Cenozoic. The major counteracting one there has probably been the accretions of aeolian Kalahari sands during major dry glacials (e.g. Bateman et al. 2003) subsequent to the onset of 100 kyr climate cycles ~600 kyr ago (Schefuß et al. 2003). Other include sediment accumulations in dolines, as at Kathu Pan, deposit formation in old caves, such as Wonderwerk Cave, and, in particular, fluvial aggradations, such as those in the Vaal – Orange catchment. It is these latter that hold the key to a viable techno-typological and temporal reconstruction of the earlier major portion of human history in South Africa.

Unfortunately for archaeology, the Vaal and Orange River sediments also contain diamonds, and have consequently, particularly during the last three decades, been largely mined away. Indeed, the significance of the Schmidtsdrift farms is that they represent, literally, the last significant stretch of Vaal Gravels that still remain intact. And, although studies at Windsorton (e.g. van Riet Lowe 1937; Butzer 1984) and at Canteen Koppie (McNabb & Beaumont 2011) have provided data bearing on the Acheulean sequence in Rietputs A – B times, little is yet known of changes in the Late Acheulean, which is well-represented at Schmidtsdrift. To clarify what lithic changes took place in that interval, which probably ranges between 1.2 and 0.7 Myr ago (Beaumont 2011) will, however, take a very substantial research effort.

Perhaps a useful start in that regard would be to decipher the overall litho-stratigraphic succession in the Schmidtsdrift vicinity (Fig. 3), where some preliminary observations suggest the following sequence of superficial sediments, beginning with the earliest of them:

1. Over a thousand drill holes and a helicopter-borne electromagnetic survey indicate that the entire western flank of the current Vaal channelway is underlain at an up to ~10 m depth, by a succession of three gravels, with a mean thickness of ~1.7 m, resting on bedrock (Williams & McKibben 2008). These presumably correlate with Rietputs A – C at Windsorton (e.g. Butzer 1984), for which cosmogenic burial ages range back, in Pit 1 there, to ~1.8 Myr (Gibbon et al. 2009). M&S Consulting

estimates that the mining of the Pleistocene gravels at Schmidtsdrift could well take 15 – 20 years.

2. Multiple episodes of fine alluvium deposition, ranging up to >9.5 m above the Vaal, followed by their calcretisation, with Early and late Acheulean in the ca. 1.4 – 0.8 Myr range seen to occur in and on various sections.
3. Aggradation of unconsolidated grey overbank silts that extend up to ~11 m above the Vaal, and which may well correspond to the 11 m thick older overbank silt (Stratum 2) at Pniel 6 (e.g. Beaumont 2004), which covers colluvial rubble with Fauresmith likely predating 0.5 Myr (Porat et al. 2009).
4. A thin discontinuous accumulation of aeolian Kalahari /Hutton Sands on Ghaap Escarpment slopes, particularly further south, in Mining Zones 12 – 15, and which, at two spots, has a coating of ELSA-type lithics that most likely date to before ~12 kyr ago.

HERITAGE FINDINGS

1. Grave sites (GS)

Some 45 grave sites / burial grounds were identified on the SCPA-owned farms, now known as the remaining Extent of Schmidtsdrift 248, of which ~80% were identified, after due compensation for their time, by long-term residents in the local communities, and the balance during the subsequent foot survey. Our informants often identified a particular burial ground as, for example, 'Tswana' or 'Coloured', but, given that most graves had no associated text, that claim could often not be independently corroborated, and has been omitted from our site descriptions, as has the equally problematical matter of whether or not a given grave predates 1950. Most of the inspected interments consisted of a low mound of locally available stones with a round or oval plan-form, sometimes accompanied by a headstone of a natural slab of softer rock (e.g. Karoo-aged shale) on which an inscription had been hand carved, occasionally with some ornamental decoration. Of note was the location of graves belonging to the Schmidt family, the finding that the earliest date on a headstone was 7 June 1883, and evidence that graves were sometimes 'modernized' by way of a machine-made headstone, with the earlier hand-carved one then laid directly on the grave. GPS readings were taken at the corners of each burial ground, a count was made of the number of graves it contained, which was sometimes difficult, as many had a heavy plant (some with thorns) cover, and informants were also asked whether or not the site was still in use. Details and photos of each of these locations may be found in annexure A.

2. Walling sites (WS)

Some 32 walling sites were identified during the field survey of the remaining Extent of Schmidtsdrift 248, of which all consisted of little else but foundations, and, at some, a few courses of the original walling, almost invariably less than a meter high. Such walling, when present, was either of stone slabs or calcrete clasts, seemingly on the basis of preference or local availability, with a clay plaster, that, unshielded by a roof, has largely washed away over time, thereby causing the wall to collapse. In a few cases we also saw multiple generations of walling in the same vicinity, with the most recent including some cement usage, particularly for the front wall and the stoep. Foundations indicated that most of the structures were for houses of modest dimensions, and built by way of a rectangular pattern, which suggests that this new notion was widely use locally by a

century ago, in contrast to the Kuruman region further north, where traditional round Tswana huts persisted to a few decades ago. Associated litter was usually found scattered around, rather than disposed of in a closeby trash heap, and comprised rusted tins, nails, glass, and ceramic fragments, the latter two usually derived from bottles of various sizes, and cups, that are typical of 1900 – 1950 times. Some instances of irregular and curved walling, *sans* foundations, were also seen and taken to be enclosures of some sort. All of the walling sites are taken to be of minimal heritage significance, but photos and GPS readings for each were nevertheless taken. The site code, co-ordinates and photos of all 32 are provided in Annexure B.

3. Lithic sites (LS)

Some 16 stone artefact sites were found during the field inspection of Mining Zones 0 – 15 flanking the Vaal River (Fig. 4), with the word 'site' raising the matter of definition. Our survey showed that the footslopes of the Ghaap escarpment locally were fairly evenly coated by tens of thousands of stone artefacts that showed vastly differing scar-bed patination and scar-ridge smoothing states. The majority of these are best taken to reflect some two million years of *ad hoc* knapping of suitable hillside stones, and variable subsequent downslope gravitation, to extents dependent on topography. Such occurrences represent admixtures and not sites. Similarly, extensive silt-covered flats bordering the Vaal River were found to have a very sparse cover of lithics, usually fresh and of likely LSA ascription, but with a large fraction of more weathered earlier material. The former likely represent between-site discard events, whereas the earlier items, most often found in gullies, have, almost certainly, been flushed there from upslope sources. Such finds are also not taken to represent sites. That usage is here confined to an artefact scatter of definable extent in which all specimens have a closely comparable patination and abrasion states on their scar-beds and arrisses. All of our 16 lithic sites conform to these criteria.

Typological criteria used for defining phases of the ESA and MSA follow Beaumont (2011) (Fig. 5), except that the MSA is now more explicitly taken to comprise two techno-typological groupings. The older one, the Early MSA (= old First Intermediate) encompasses industries with convergent points and blades, but that includes a variable component of often small handaxes, and ranges in age between ca. 700 and 270 kyr ago. Then follows the conventional MSA, also with convergent points and blades, but entirely

without bifaces, and with a ~275 – 43 / 22 kyr age timespan. In terms of this scheme, most of the listed sites fall within the Acheulean, which may well reflect warmer and wetter regional conditions, with a larger cover of savanna grasslands, supporting more game animals, prior to the Mid Pleistocene Transition at before 900 kyr ago (Shefuß et al. 2003). Another matter of interest concerns technical blades, which are, in South Africa, well-developed by Middle Fauresmith times, some 540 kyr ago (Porat et al. 2010). Schmidtsdrift sites, such as MZ 1 / LS 02, indicate their earlier presence in the regional Acheulean proper, thereby confirming such a description by Malan (1947). All this means that technical blades in South Africa are of great antiquity, and long predate their earliest published presence elsewhere, in East Africa, at ~0.5 Myr ago (Johnson & McBrearty 2010). The MSA *sensu latu* is only represented by one site, while the three ELSA occurrences likely result from the presence of reliable Vaal River water during arid Last Glacial times prior to ~12 kyr ago.

Site codes, co-ordinates, stratigraphic context, and typological description for each of the lithic sites are listed in Table 1. Photos of each site and of the more distinctive artefact types they include, may be found in Annexure C.

CONCLUSIONS

Field observations lead me to recommend that the proposed further mining of the Rietputs gravels in Mining Zones 0 – 15 on the remaining Extent of the farm Schmidtsdrift 248, if the application by NDC / Lonhro for a new order Mining Right approval by the Department of Minerals and Energy, be approved, subject to the following mitigation measures being implemented:

1. That all located grave sites be fenced in accordance with the listed corner co-ordinates, and that no mining should take place within a buffer zone 5 m beyond each of the graveyard corners. It is presumed that fencing would be the obligation of the Schmidtsdrift Communal Property Association in the case of burial grounds outside Mining Zones 1 – 24, and of New Diamond Corporation / Lonrho in the case of those falling in the mining area.
2. That lithic sites 1 – 16 should all be preserved by way of a buffer zone with a radius of 20 m from the listed center-point co-ordinates of each locality, with the exception of the site MZ8 LS 1A&B, which is of minimal heritage significance. It is hoped to find some MA or PhD aspirants who are interested in the further investigation of the more interesting sites, such as M20 LS 1 and M20 LS 2, where re-fitting in the 1 – 1.5 Myr range may be possible.
3. That monitoring of the mining operation on a quarterly basis be undertaken in order to ensure that mitigation measures are adhered to, and in view of the ineffectiveness, in practice, of Section 36(6) of the National Heritage resources Act (no, 25 of 1999). A report on each visit, at developers cost, should be submitted to NDC / Lonhro, the SPCA at Schmidtsdrift, and to SAHRA. Stone artefacts salvaged during such visits, and any Phase 2 study material that may arise, should be deposited for safekeeping in the Archaeology Department of the McGregor Museum.

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Table 1

Site codes, co-ordinates, stratigraphic content and typological description of Lithic Sites on the Remaining Extent of the Farm Schmidtsdrift 248

TABLE 1.

	LITHIC SITES: MINING ZONE 0		
Lithic Site	1	2	3
Co-ordinates	24° 6' 38.475" E, 28° 36' 16.857" S	24° 6' 40.955" E, 28° 36' 14.575" S	24° 5' 48.138" E, 28° 35' 51.401" S
Site altitude	1034.4773 m About 7.2 m above river	1036.5868 m About 9.3 m above river	1058.132 m About 31 m above river
Stratigraphy	Artefacts in hillside rubble partly buried by unconsolidated grey overbank silts seen to directly overlie calcrete further downslope	Calcrete adhesions show that the artefacts are lying directly on calcrete, locally thinly covered by unconsolidated grey silts	Artefacts on localized Hutton sands being eroded by an adjacent gully
Site extent	Visible area some 4 x 10 m	Visible area about 5 x 12 m	About 4 x 6 m
Artefacts seen	± 55 specimens	± 30 specimens	± 30 specimens
Materials used	Usually grey quartzite; also off-white quartzite and chert?	Preponderantly andesite	Mainly deep grey quartzite. Also brown quartzite, andesite?, brown jasper and black chert
Scar bed state	Light grey patination	Mid-grey patination	Entirely unpatinated
Scar ridge state	Entirely fresh	Entirely fresh	Entirely fresh
Tool types	2 scrapers, one straight-edged, other convex-edged.	1 convex-edged scraper	2 largish thick scrapers
Core forms	± 6 giant cores; 1 small polyhedron	Giant irregular core 30 cm long	Irregulars only
Flake forms	Mainly smallish thick irregulars; 1 small technical blade? Only 1 -2 show coarse platform preparation	Thick irregular side and end-struck specimens, including one that is ~~20 cm across. None show clear signs of platform preparation	Entirely irregular; many broken. No trace of platform preparation
Cultural ID	ESA. Probably Middle Acheulean	ESA. Probably Early Acheulean	LSA. Probably Oakhurst
Comments	Appears to represent an *in situ* workshop site long buried by silts that rose to 10 m above river level. Possibly associated are a few small (< 1 cm across) river pebbles and a damaged quartz crystal	Appears to represent an *in situ* workshop site buried by unconsolidated grey silts that rose to ~10-11 m above river level, and latterly partly exposed by road construction. Subcontinentally unique in that it could generate refits in the ca. 1.5 Myr range.	The scrapes are larger than those normally found in the Wilton and later industries of central South Africa.

Figures

TABLE 1 (contd.).

	LITHIC SITES: MINING ZONE 1	
Lithic Site	1	2
Co-ordinates	24° 5' 41.375" E, 28° 35' 59.163" S	24° 6' 17.753" E, 28° 36' 31.599" S
Site altitude	1085.0144 m About 58 m above river	1036.191 m About 9 m above river
Stratigraphy	Artefacts occur on and in thin (<10 cm thick) hillside soil with many subangular – subrounded clasts on Karoo-aged shale	Up to ~3m thick calcrete with unstratified subangular – subrounded clasts and artefacts in gully walls, particularly its upper reaches
Site extent	± 10 x 10 m	20 length of exposures
Artefacts seen	± 60 specimens	± 90 specimens
Materials used	Mainly grey quartzite / siltstone. Minor fraction of brown quartzite, brown jasper and chert	Mainly grey-black siltstone and quartzite
Scar bed state	Light grey – pale brown patination	Pale grey patination
Scar ridge state	Entirely fresh	Entirely fresh
Tool types	1 large core scraper	2 typical cleavers, a cleaver with a narrow blade, a mini cleaver, and 2 flakes with straight scraper edges
Core forms	Largish irregular cores and 1 centripetal prepared core on banded ironstone. A somewhat more weathered Victoria West 1 core was also found close by	Mainly polyhedrons and adjacent platform types. Another specimen resembled a small Victoria West 2 core.
Flake forms	Mainly largish side-struck irregulars with plain platforms, but with a few showing coarse (fortuitous) faceting	Largely irregulars, a few of which show coarse platform faceting. Also present were some undoubted blades
Cultural ID	ESA	ESA. Late Acheulean
Comments	This material is certainly ESA, with the close by Victoria West 1 core suggesting that it postdates the Middle Acheulean	This locality provides further support for the regular presence of technical blades in the regional Acheulean subsequent to Rietputs A & B times, as first documented by Malan (1947). Note that a very similar mini cleaver was found in a Rietputs C context on the farm Erindale near Delportshoop (my Phase 1 EIA dated 29 July 2010)

TABLE 1 (contd.).

	LITHIC SITES: MINING ZONE 3
Lithic Site	1
Co-ordinates	24° 4' 45.233" E, 28° 37' 56.869" S
Site altitude	1049.5805 m About 27 m above river
Stratigraphy	Artefacts come from an up to ~0.4m thick unconsolidated colluvial rubble of subangular – subrounded clasts, perhaps derived Older Gravels, in a shallow gully that was dug over decades ago
Site extent	Two early digger dumps examined. About 8 x 8 m
Artefacts seen	± 110 specimens
Materials used	Mainly grey and brown quartzite. Also occasionally present were white quartzites, grey-black chert and brown jasper
Scar bed state	Lightly patinated. Subsurface rotting present
Scar ridge state	Mainly fresh. Slight smoothing in a few cases
Tool types	2 handaxes, both with cortex patches; 1 biface rotting at one end, and a Victoria West core-derived flake cleaver with a damaged blade end
Core forms	Irregulars, adjacent platform types, a few polyhedrals
Flake forms	Irregular end and side-struck specimens of all sizes, occasionally with coarse platform faceting. One or two with blade-like removals on dorsal surfaces
Cultural ID	ESA. Probably Middle Acheulean
Comments	Most of the smaller flakes were found on examining the 'fines' dump

TABLE 1 (contd.).

	LITHIC SITES: MINING ZONE 6		
Lithic Site	1	2A	2B
Co-ordinates	24° 3' 46.629"E, 28° 41'30.307"S	24° 3' 47.880" E, 28° 41' 33.632" S	24° 3' 49.891" E, 28° 41' 35.729" S
Site altitude	1042.694 m About 20 m above river	1036.6092 m About 14.0 m above river	1036.939 m About 14.4 m above river
Stratigraphy	Artefacts on flat calcrete terrace surface that was seen in a downslope exposure to be successively underlain by ~0.5m of soft calcrete, Karoo shale pinching out backwards, and then Precambrian dolomite	The southern slopes of a deep gully (Gully 1) was seen to be comprised of up to 4m thick calcrete with unstratified angular – subangular clasts, that are progressively replaced by horizontally bedded Karoo shales further up along it	Some 200m south is another gully (Gully 2), the northern slopes of which are also comprised of calcrete with unstratified angular – subrounded clasts, whereas its southern side is entirely Karoo shale with a loose rubble coating
Site extent	About 15 x 15 m, then sparser	Examined slope about 15 x 4 m	Examined slope about 20 x 20 m
Artefacts seen	± 90 specimens	± 120 specimens	± 60 specimens
Materials used	Mainly deep grey quartzite. Minor pale grey-black chert, chalcedony, banded ironstone and vein quartz	Mainly deep grey quartzite. Minor brown and white quartzite, dolomite, andesite, black chert, brown jasper and vein quartz	Mainly deep grey quartzite. Minor brown quartzite, black chert and vein quartz
Scar bed state	Unpatinated	Light grey patination	Light grey patination
Scar ridge state	Entirely fresh	Preponderantly fresh	Preponderantly fresh
Tool types	1 thick flake with scraper edge. A river pebble with a smoothed area	2 oval handaxes	2 flake cleavers
Core forms	Irregulars, some with small blade removals	Largely irregular. A few blade cores	Largely irregular. Also single and double-ended blade cores
Flake forms	Mainly irregulars with plain platforms. Also one or two blades	Largely irregulars, occasionally with coarse faceting. Also some longish (~10 cm long) blades	Mainly end struck. Platforms often small. A few with coarse preparation. Some large flakes then used as cores
Cultural ID	LSA. Possibly late ELSA (Robberg)	ESA. Late Acheulean	ESA. Late Acheulean
Comments	Also present was some low stone walling, with which was found iron strips ½" and ¾" wide, an iron nail?, as also glass and porcelain fragments likely dating to the early 20th century	Blades compare well with those from a similar calcrete and rubble context at site 2 in Mining Zone 1. Of note is the entire absence at both localities of the Victoria West cores typical of regional Middle Acheulean occurrences	Sites 2A and B findings indicate that the entire calcrete outcrop bounded by two gullies, contains the same cultural material, apparently throughout its ~4m thickness

TABLE 1 (contd.).

	LITHIC SITES: MINING ZONE 6 (contd.)
Lithic Site	3
Co-ordinates	24° 3' 59.072" E, 28° 41' 43.327" S
Site altitude	1043.7337 m About 15.5 m above river
Stratigraphy	Artefacts occur on an undulating calcrete surface pocked further northwards by old digger dumps in a shallow gully.
Site extent	Examined area about 20 x 30 m
Artefacts seen	± 85 specimens
Materials used	Mainly deep grey quartzite. Trace of black chert.
Scar bed state	Unpatinated
Scar ridge state	Entirely fresh
Tool types	1 possible scraper
Core forms	Mainly irregular. A few show multiple flakes from a single edge.
Flake forms	All irregular, often side-struck. A fair number retain some cortex on dorsals. No signs of platform preparation. One or two blades.
Cultural ID	LSA. Perhaps ELSA
Comments	That identification, if correct, would suggest that humans moved to areas with more reliable water and animal protein sources during the cool dry conditions of the last glacial, as was the case at the Kathu Pan 5 doline, where the ELSA in Stratum 3 ranges back to >32 kyr ago (Beaumont 1990).

TABLE 1 (contd.).

	LITHIC SITES: MINING ZONE 7		
Lithic Site	1	2	3
Co-ordinates	24° 3' 43.873" E, 28° 43' 13.120" S	24° 3' 54.738" E, 28° 43' 0.205" S	24° 3' 59.807" E, 28° 42' 54.948" S
Site altitude	1036.8075 m About 8.4 m above river	1034.8372 m About 6.4 m above river	1039. 309 m About 11 m above the river
Stratigraphy	Thin grey surface silt overlying a <10cm thick gravel lense that seemingly overlies calcrete	Gullies through the unconsolidated grey silts have exposed a thin gravel (< 10cm thick) with lithics on calcrete	A ~3.5 m high flat-topped Rietputs gravel outcrop that has been re-exposed by erosion of the abutting unconsolidated grey silts that previously covered it
Site extent	Examined area ~ 30 x 40 m	Examined area ~ 15 x 20 m	Examined area ~20 x 30 m
Artefacts seen	± 150 specimens	± 170 specimens	± 110 specimens
Materials used	Mainly grey and brown quartzite. Minor amounts of white quartzite, siltstone, andesite?, chert, chalcedony and brown jasper	Mainly deep grey quartzite. Also siltstone?, chalcedony and brown jasper, derived from river cobbles	Mainly grey quartzite
Scar bed state	Lightly patinated	Lightly patinated	Brown patination. Some subsurface rotting
Scar ridge state	Mainly fresh; some lightly smoothed	Mainly fresh. A few slightly smoothed	Fresh – lightly smoothed
Tool types	1 handaxe roughout, 2 flakes with lateral retouch	1 coarse scraper	None
Core forms	Mainly irregular, a few with some lateral preparation	Mainly irregular. A few prepared	Irregular and adjacent platform types predominate. A few specimens show coarse preparation
Flake forms	Mainly irregular, many with some dorsal cortex. A few show coarse faceting. One or two rough blades	Mainly elongated irregulars. A fair number of blades and blade fragments. Some of the latter come from long ≥ 20 cm) specimens. Some platforms faceted. Also 2 large convergent points, both partly broken.	Mainly thick irregulars. Many have patches of dorsal cortex. One or two have coarsely faceted platforms, two rough blades
Cultural ID	ESA. Late Acheulean?	Early MSA. Early Fauresmith	ESA. Perhaps Middle Acheulean
Comments	Could represent an early interval within that phase	The inspected sample was dominated by flakes and flake fragments (> 80%). Material matches best with Early Fauresmith, typified by the presence of often remarkably long blades	The gravel surface was seen to include a few entirely fresh and heavily smoothed specimens, but the dominant fraction (>80 %) had patinated but unsmoothed surfaces

TABLE 1 (contd.).

	LITHIC SITES: MINING ZONE 8	
Lithic Site	1A	1B
Co-ordinates	24°3'30.753" E, 28°43'36.448" S	24°3'32.337" E, 28°43'35.938" S
Site altitude	1038.0263 m Both about 10 m above river	1038.8657 m
Stratigraphy	Two now-scattered piles of stone slabs lying on unconsolidated beige-grey silts	
Site extent	About 20 m^2 in total	
Artefacts seen	± 20 specimens together	
Materials used	Mainly grey quartzite	
Scar bed state	Entirely fresh	
Scar ridge state	Entirely fresh	
Tool types	None	
Core forms		
Flake forms	All irregulars with many cortex dorsals	
Cultural ID	Modern	
Comments	A number of the slabs show knapping directed at removing projections or squaring edges, and that could have been done with a heavy hammer. We subsequently saw identically shaped slabs in house-walls that had been built by the military within the past three decades	

TABLE 1 (contd.).

	LITHIC SITES: MINING ZONE 12	
Lithic Site	1	2
Co-ordinates	24° 1' 53.305" E, 28° 43' 58.989" S	24° 1' 37.571" E, 28° 44' 16.692" S
Site altitude	1042.6037 m About 9.5 m above river	1049.245 m About 21 m above river
Stratigraphy	Sterile calcrete overlain by a veneer of subangular – subrounded clasts, buried further downslope by unconsolidated grey silts	Artefacts on a hillside surface mainly covered by subangular – subrounded quartzite rubble
Site extent	Examined area about 30 x 40 m	About 10 x 50 m (upslope)
Artefacts seen	± 80 specimens	± 160 specimens
Materials used	Mainly deep grey quartzite. Also some brown quartzite, andesite and black chert	Mainly grey quartzite. Also some brown quartzite and minor black chert
Scar bed state	Lightly patinated	Crystalline – lightly smoothed
Scar ridge state	Very lightly smoothed	Fresh – lightly smoothed
Tool types	None	None
Core forms	Irregulars, polyhedrals, two specimens with single prepared surfaces, a single platform core with a blade removal, one Victoria West 1 specimen.	Irregulars predominate. A few prepared and blade cores
Flake forms	Mainly irregulars, a few of which show coarse platform faceting, and one or two blades	Predominantly thick irregulars with patches of dorsal cortex. A small number of definite blades. One or two flakes re-used as cores
Cultural ID	ESA. Middle Acheulean	ESA, likely Late Acheulean
Comments	The combination of a Victoria West 1 core and a few blades would suggest that this material lies late in the Middle Acheulean	Artefacts followed upslope to a rock ledge on which there was much small debitage and a few red pigment fragments derived from a nearby lens of Karoo shale

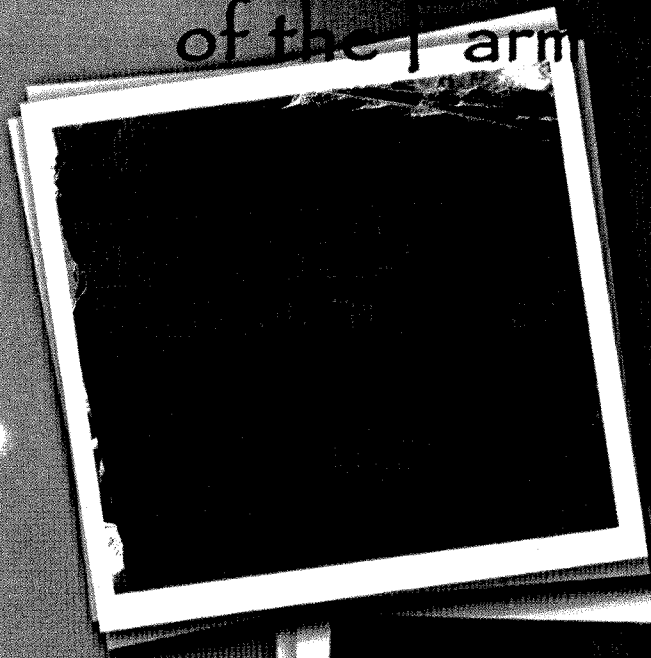
TABLE 1 (contd.).

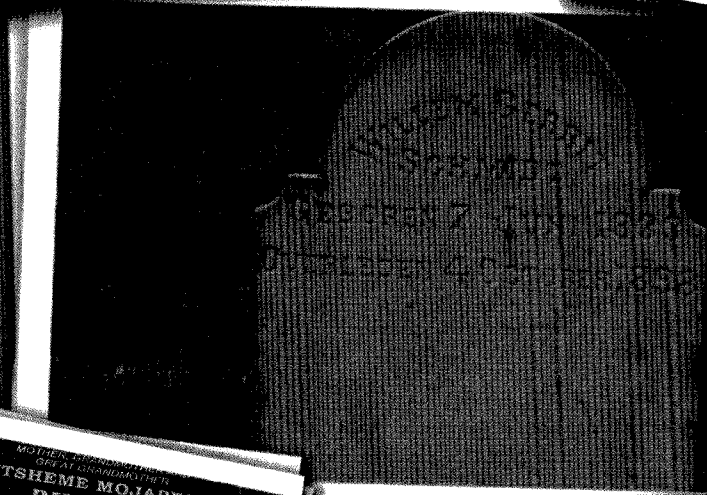
	LITHIC SITES: MINING ZONE 14
Lithic Site	1
Co-ordinates	24° 0' 50.771" E, 28° 46' 5.531" S
Site altitude	1065.3255 m About 37 m above river
Stratigraphy	Artefacts on Hutton sands in the vicinity of man-made stone slab 'piles' and 'walls'
Site extent	About 15 x 20 m
Artefacts seen	± 70 specimens
Materials used	Mainly deep grey quartzite. Also brown quartzite, black chert, brown jasper and quartz crystal
Scar bed state	Fresh – very slightly patinated
Scar ridge state	Fresh
Tool types	1 largish convex-edged scraper on a re-utilized flake. A flat slab with a smoothed patch on it
Core forms	Irregular and single platform types, usually 2 -3 cm in length
Flake forms	Small irregulars predominate. One or two bladelets
Cultural ID	LSA. Likely ELSA
Comments	Erosion of Hutton Sands has lowered surface by up to ~ 0.7 m in places, thereby causing slab structures to collapse. The stone for them came from the lower reaches of a hillside rubble 20 m further upslope

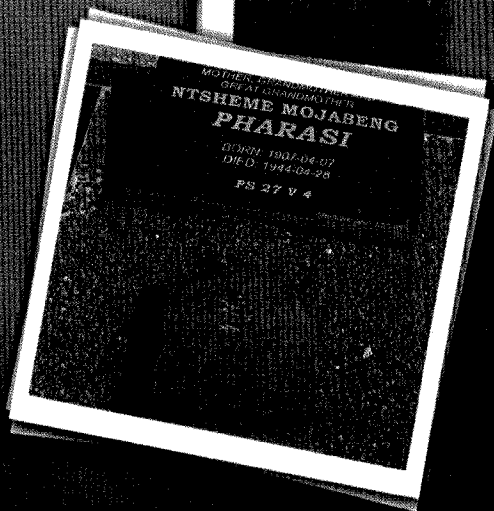
Annexure A

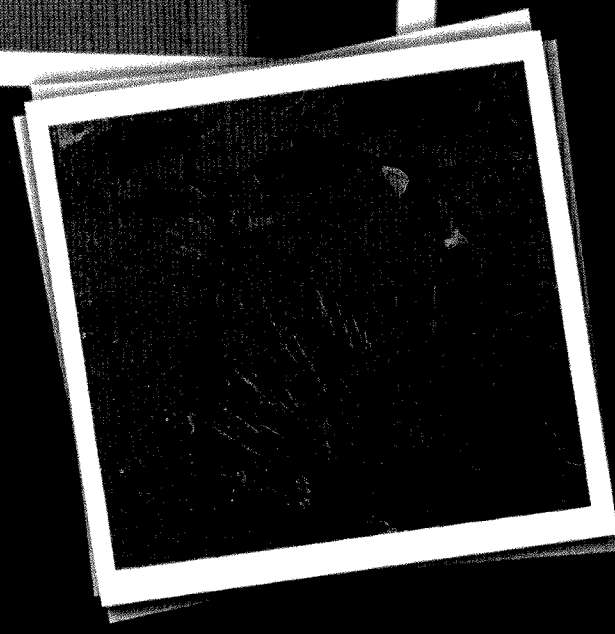
Burial Grounds and Grave Sites on the Remaining Extent of the Farm Schmidtsdrift 248

Burial Gro
found on th
of the Farm









This report details the burial grounds and grave sites that were identified on the Remaining Extent of the Farm Schmidtsdrif 248, Herbert District, Northern Cape Province during a field survey conducted by P. Beaumont (independent Archaeologist), S.W. Schoombie and J. Jooste, both representing M&S Consulting, during 9 March 2012 to 23 May 2012. Find attached hereto as Appendix 'A' the photo template.

Much appreciated help with the location of the burial grounds and grave sites was provided by the following community members:

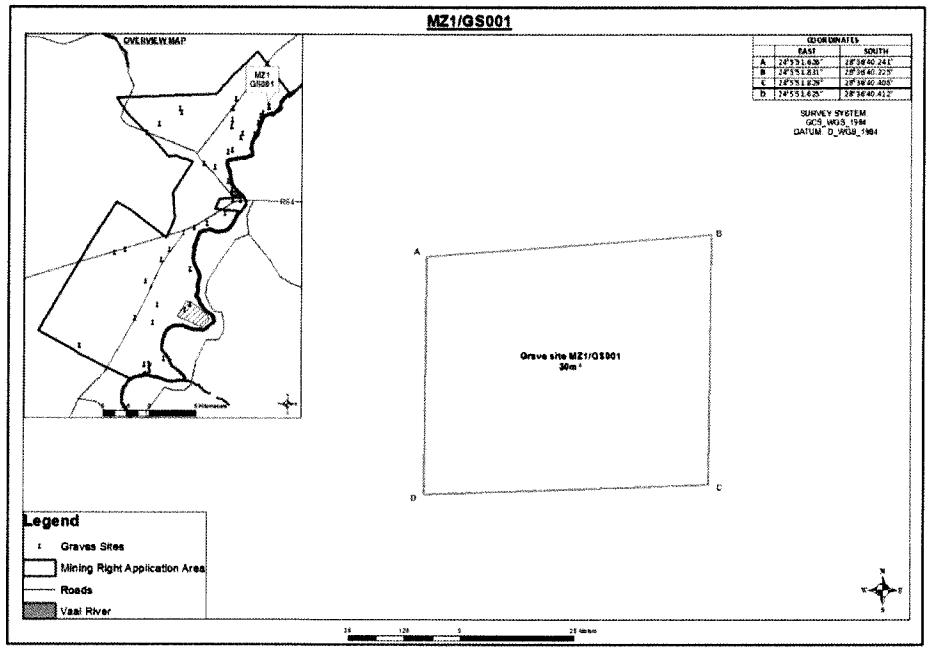
- Ismael Merahe
- Moses Jogom
- Nethian Letebele
- Jeremia Sebolao
- James Melaketso
- Lazarus Dibako
- Jack Senye
- Lukas Mnazana
- Doreen Lekwene
- Samuel Lekwene
- Frank Tshelane
- Michael Mokgoro
- Petrus Automover
- Stheoya Tombo
- Freddie Kambonde
- Petrus Kalish
- Manjenela Wehemba
- Fersiano Kambinda
- Willem Steenkamp
- Dirk Baardman
- Alwyn Jacobs
- Heindrich Steenkamp
- L. Sibako

Section 35 – 36 of the National Heritage Resources Act (no. 25 of 1999) protects all archaeological and palaeontological sites, as also any structures and human remains that are older than 60 years. Any mitigation of a heritage nature in the Northern Cape Province presently requires a permit issued by the South Africa Heritage Resources Agency, acting on an agency basis for the Provincial Heritage Agency.

This report was compiled in compliance with the mining rights environmental requirements as set out in Section 22, read with Regulations 50 and 51, of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002).

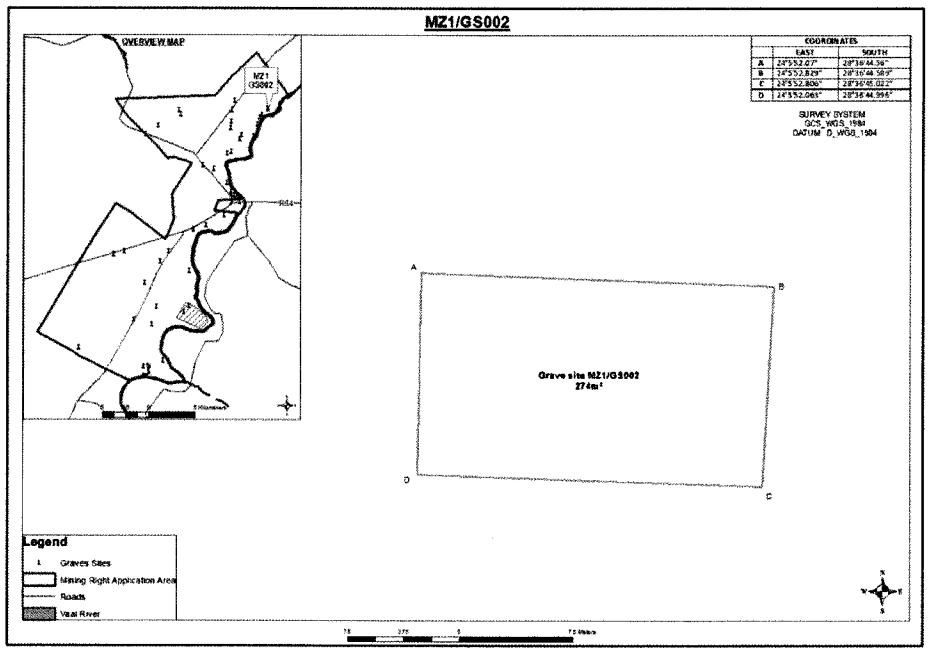
It is recommended that the identified burial grounds and grave sites, be conserved and that no mining take place within these areas. It is furthermore recommended that a five meter no mining buffer zone must be placed around each of these sites.

1. Gravesite MZ1/GS001



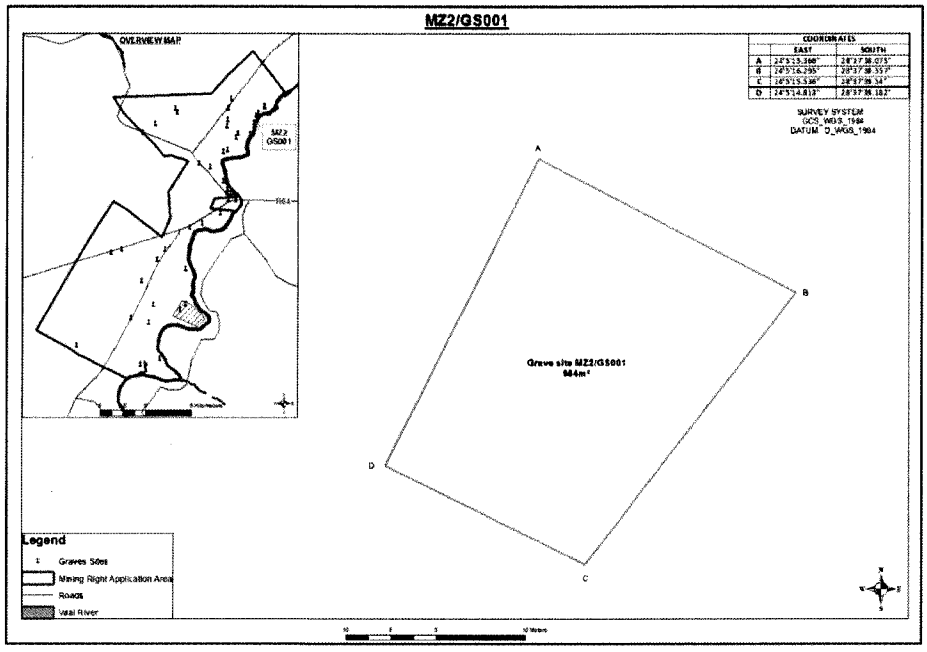
The gravesite covers an area of 30m^2 and consists of 2 unmarked graves. This gravesite is not in use anymore.

2. Gravesite MZ1/GS002



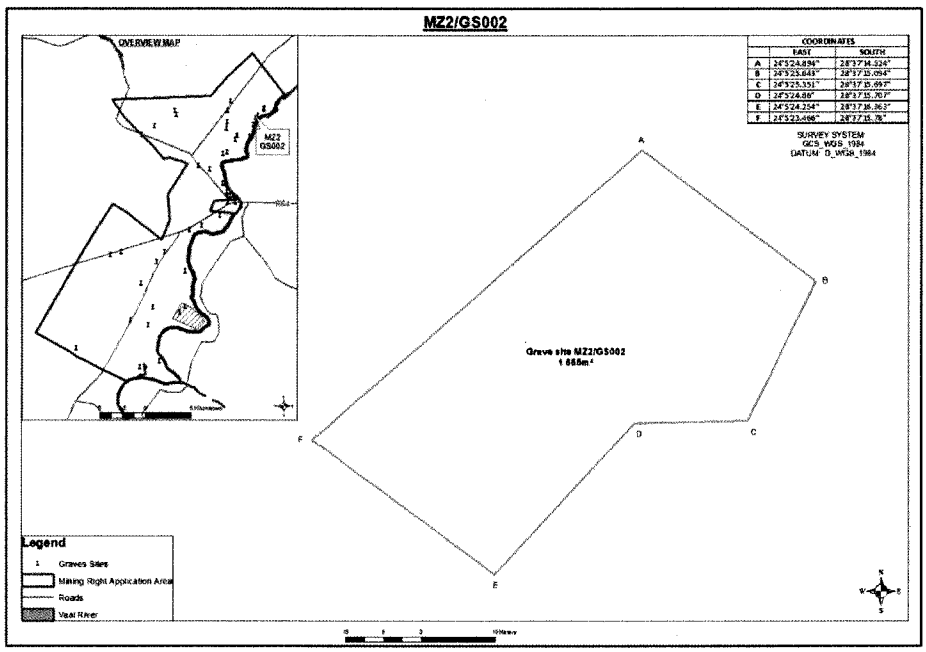
The gravesite covers an area of 274m^2 and consists of 30 unmarked graves. This gravesite is not in use anymore.

3. MZ2/GS001



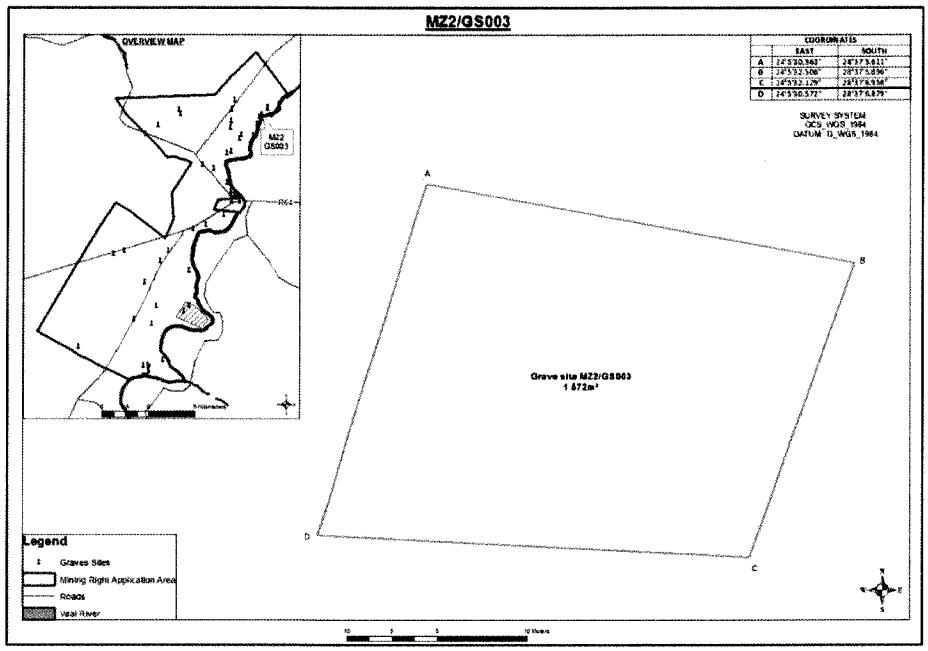
The gravesite covers an area of 954m^2 and consists of 40 unmarked graves. This gravesite is not in use anymore.

4. MZ2/GS002



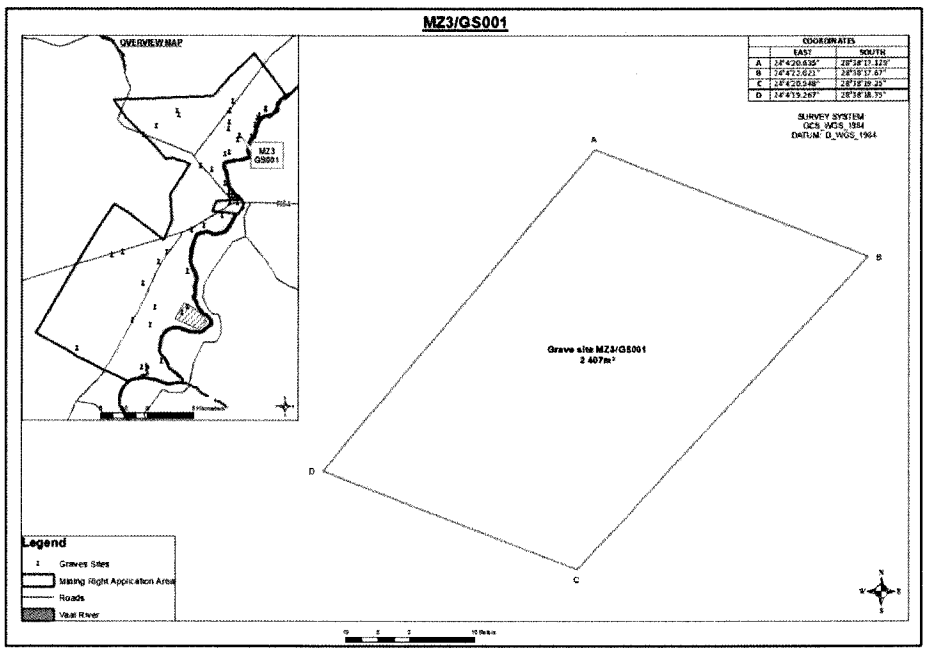
The gravesite covers an area of 1 555m^2 and consists of an unknown number of unmarked graves. This gravesite is not in use anymore.

5. MZ2/GS003



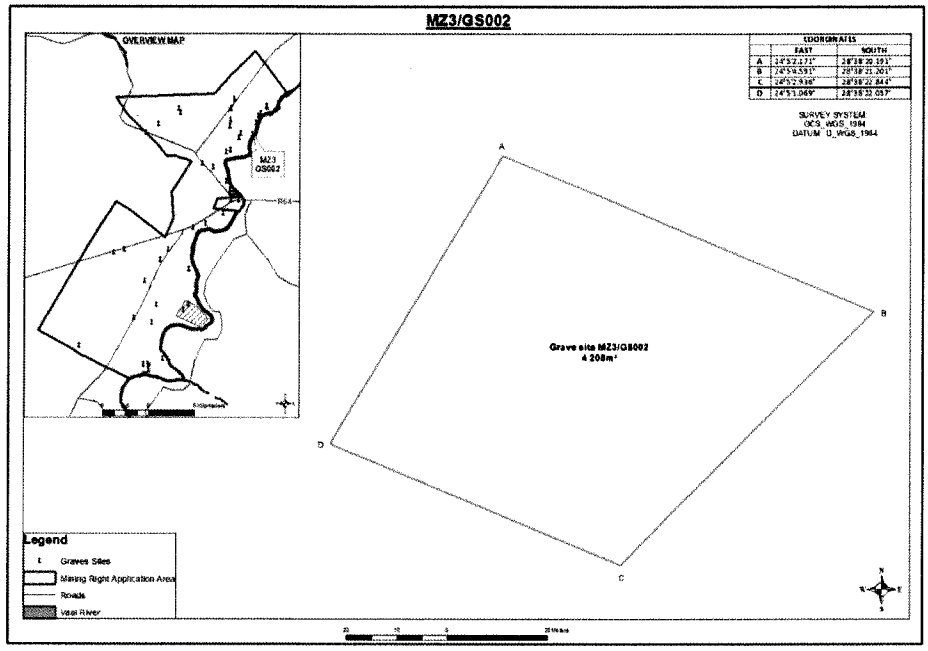
The gravesite covers an area of 1 572m^2 and consists of 40 unmarked graves. This gravesite is not in use anymore.

6. MZ3/GS001



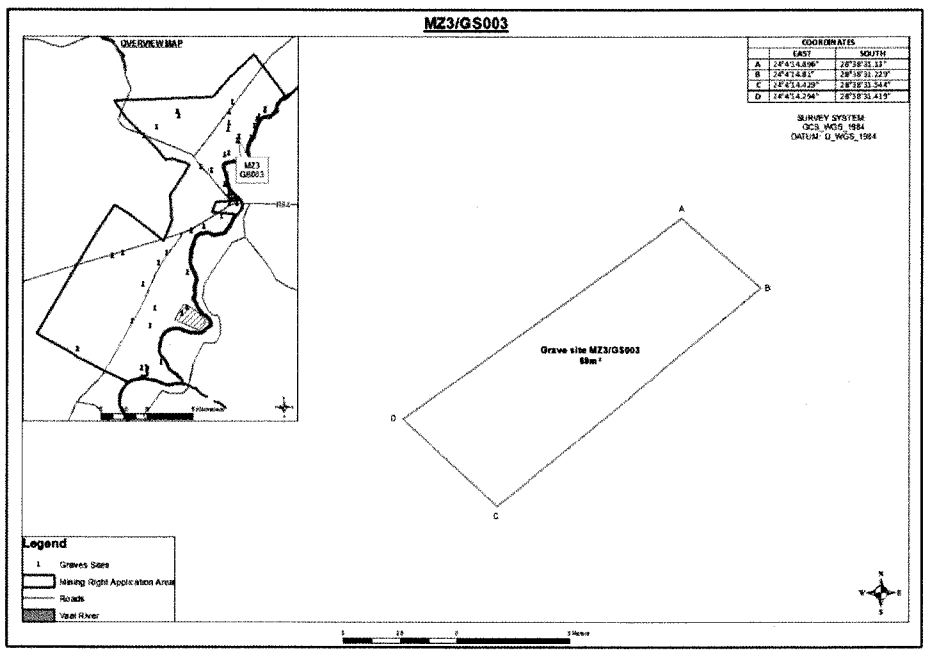
The gravesite covers an area of 2 407m^2 and consists of 80 graves. Some of these graves are unmarked and a number of graves have been hand marked. This gravesite is still in use.

7. MZ3/GS002



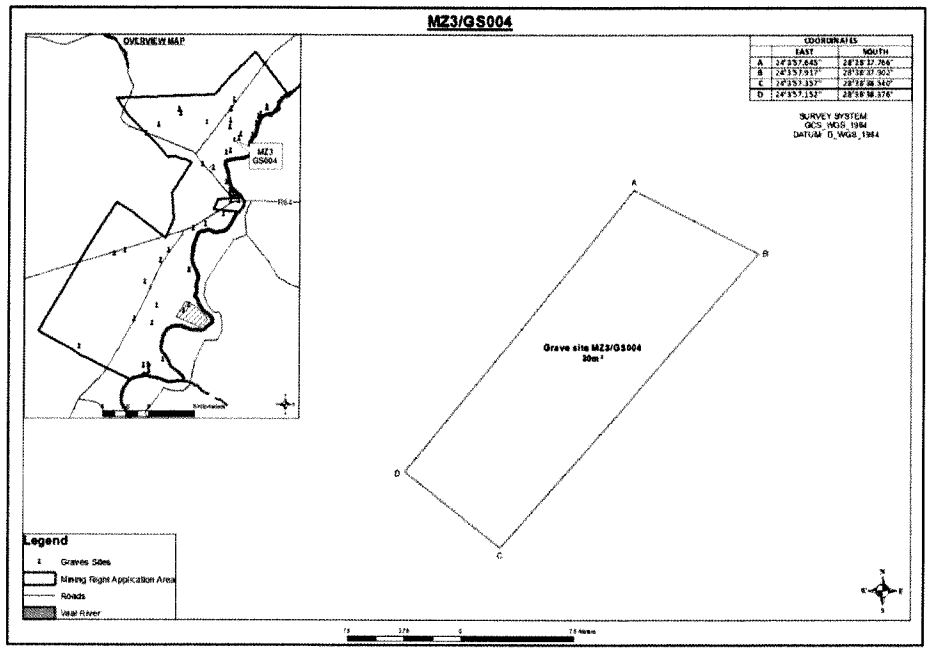
The gravesite covers an area of 4 205m^2 and consists of 40 unmarked graves. This gravesite is not in use anymore.

8. MZ3/GS003



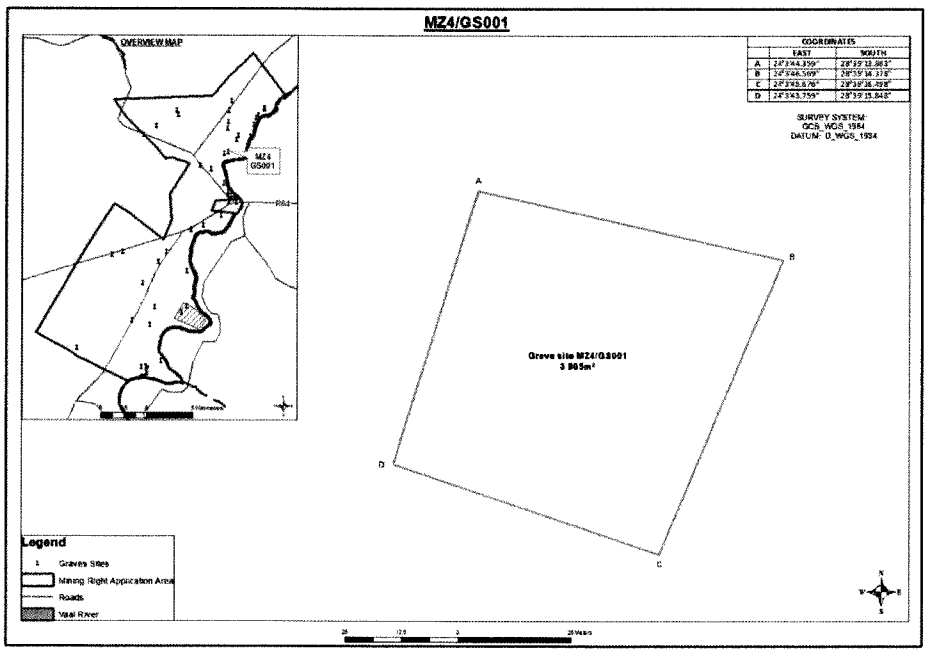
The gravesite covers an area of 69m^2 and consists of 8 unmarked graves. This gravesite is not in use anymore.

9. MZ3/GS004



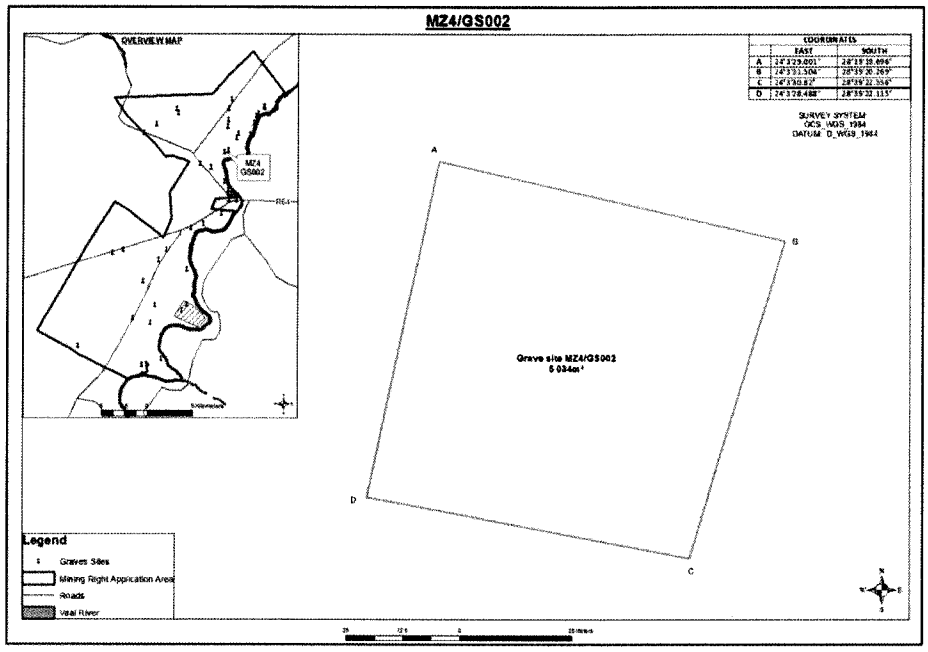
The gravesite covers an area of 30m^2 and consists of 6 unmarked graves. This gravesite is not in use anymore.

10. MZ4/GS001



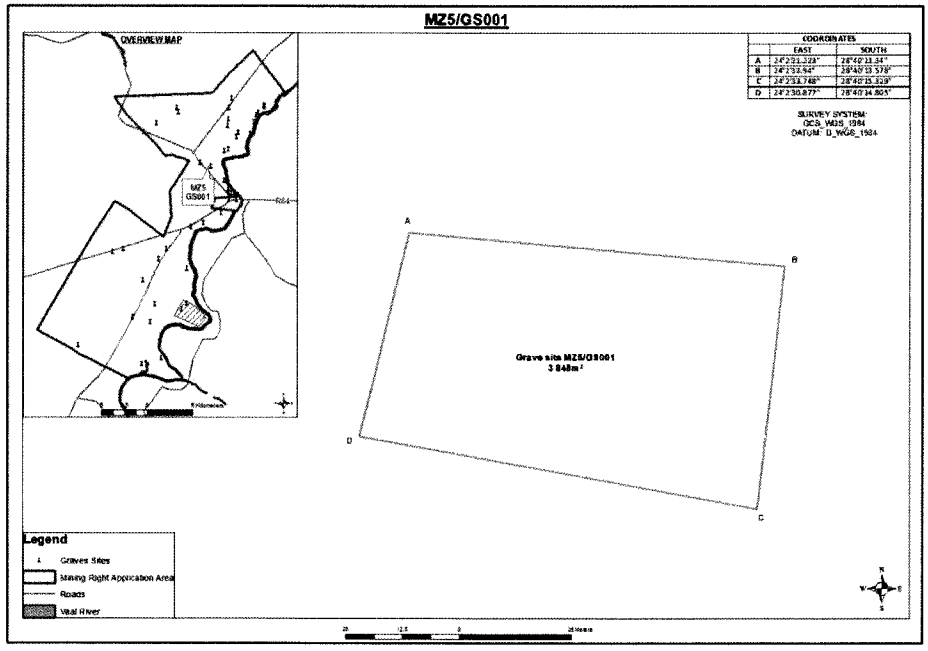
The gravesite covers an area of 3 905m^2 and consists of 80 unmarked graves. This gravesite is not in use anymore.

11. MZ4/GS002



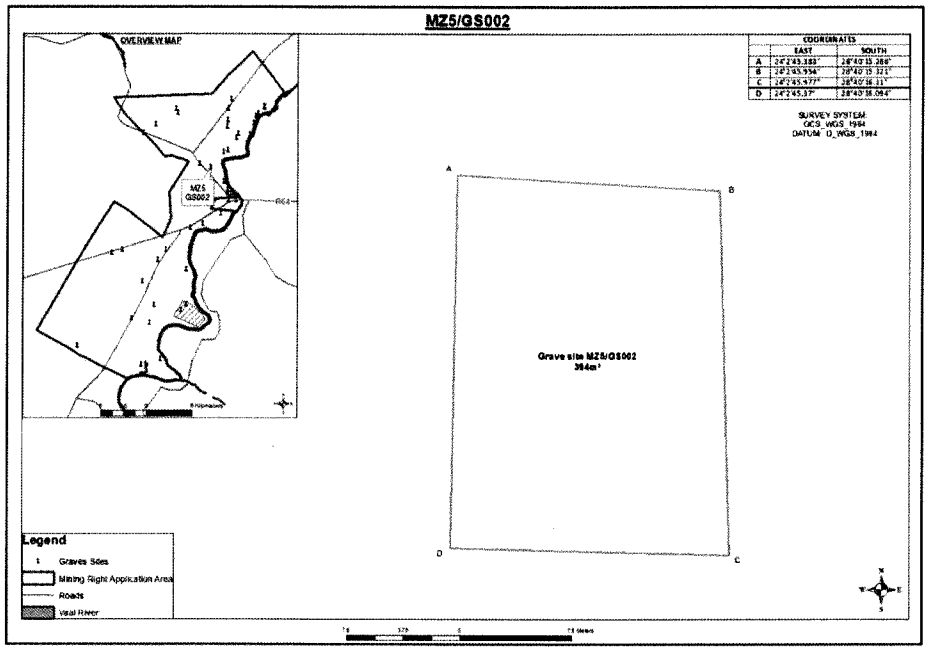
The gravesite covers an area of 5 034m^2 and consists of 100 graves. Some of these graves are unmarked and some are hand marked. There are few graves of which the hand marked headstone were replaced by granite, after which the original hand crafted headstone was placed on the grave. This gravesite is not in use anymore.

12. MZ5/GS001



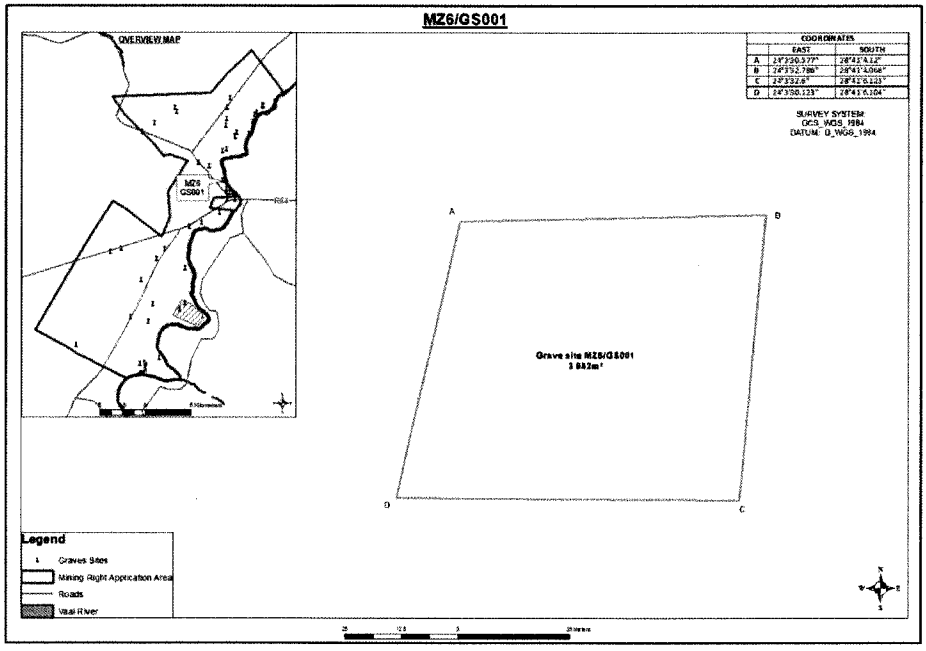
The gravesite covers an area of 3 848m^2 and consists of 60 graves. Some of these graves are unmarked and some are hand marked. There is one grave of which the hand marked headstone was replaced by granite, after which the original hand crafted headstone was placed on the grave. This gravesite is not in use anymore.

13. MZ5/GS002



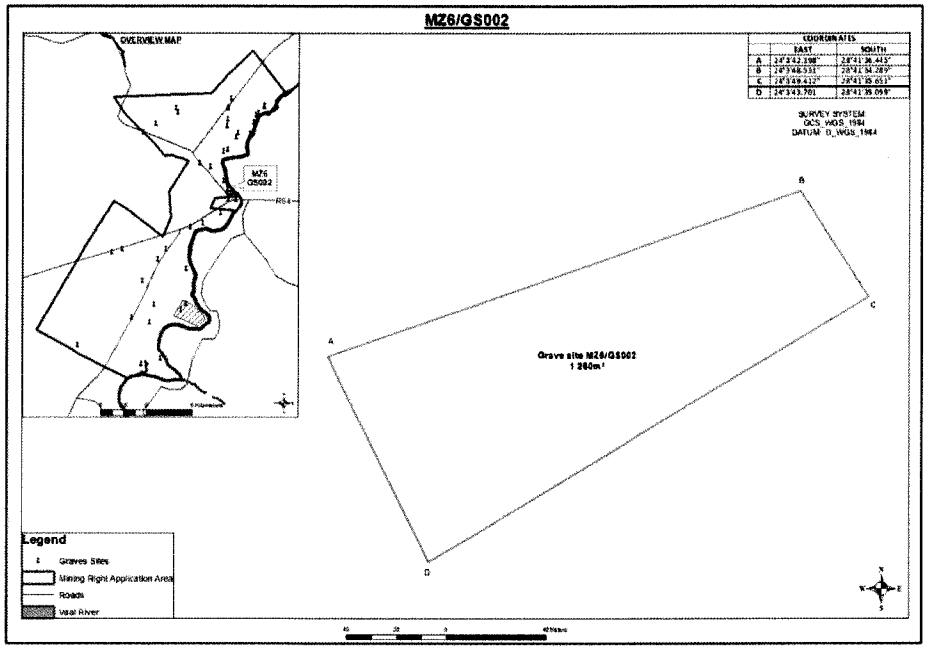
The gravesite covers an area of 394m^2 and consists of 18 graves. Some of these graves are unmarked and some are hand marked. There are few graves of which the hand marked headstone was replaced by granite, after which the original hand crafted headstone was placed on the grave. This gravesite is not in use anymore.

14. MZ6/GS001



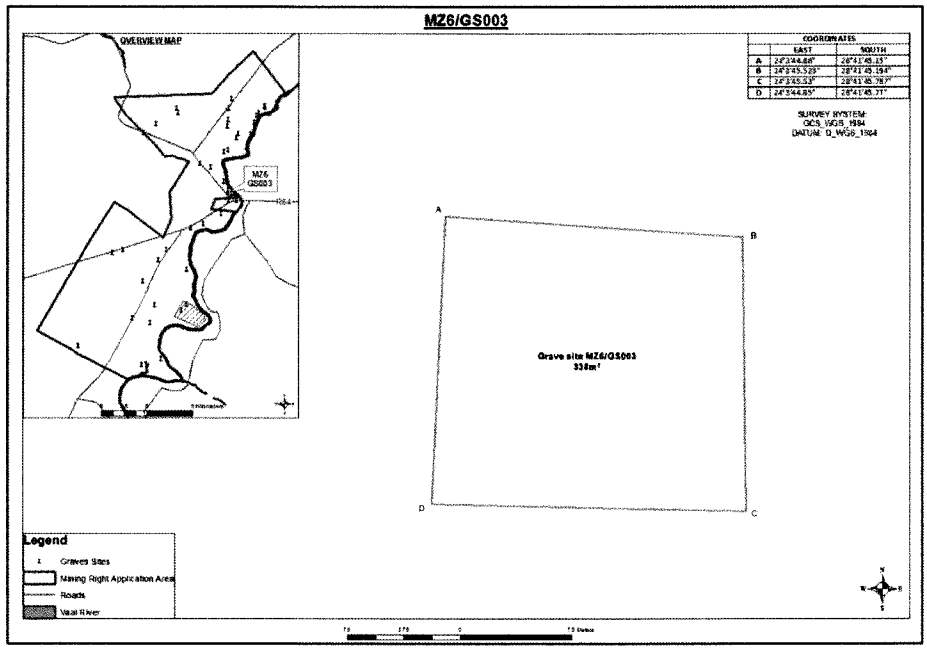
The gravesite covers an area of 3 982m^2 and consists of 160 graves. Some of these graves are unmarked and the remainder of graves are hand marked. This gravesite is not in use anymore.

15. MZ6/GS002



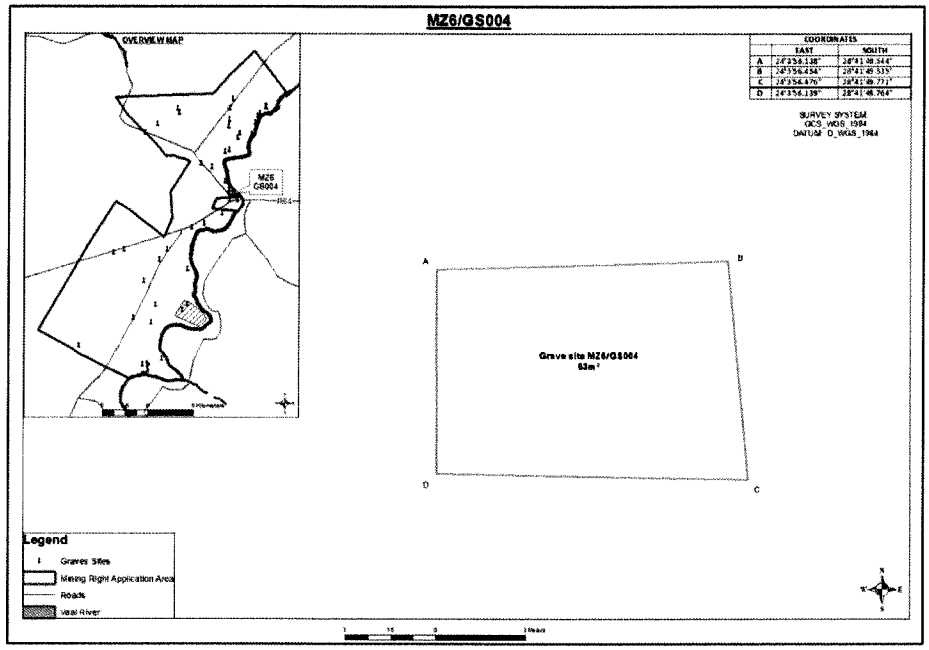
The gravesite covers an area of 1 260m^2 and consists of 250 graves. Some of these graves are unmarked, some are hand marked and there are some which have been fitted with granite headstones. Located in this gravesite is a grave which is orientated north-south. This is the only grave on the entire property that is oriented in this way, the rest of the graves are all orientated west-east. This gravesite is not in use anymore.

16. MZ6/GS003



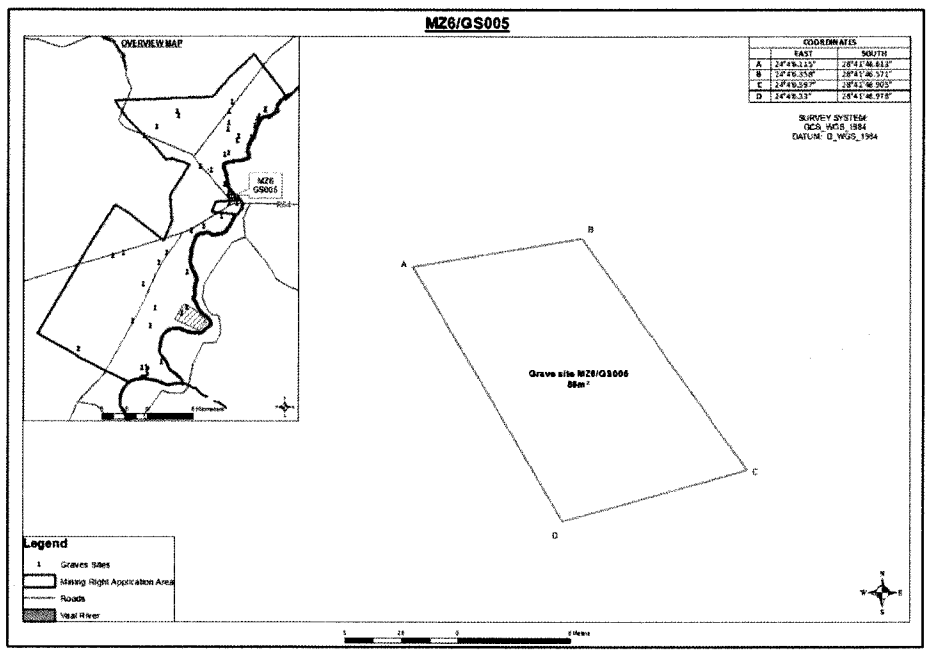
The gravesite covers an area of 338m^2 and consists of 9 unmarked graves. This gravesite is still in use.

17. MZ6/GS004



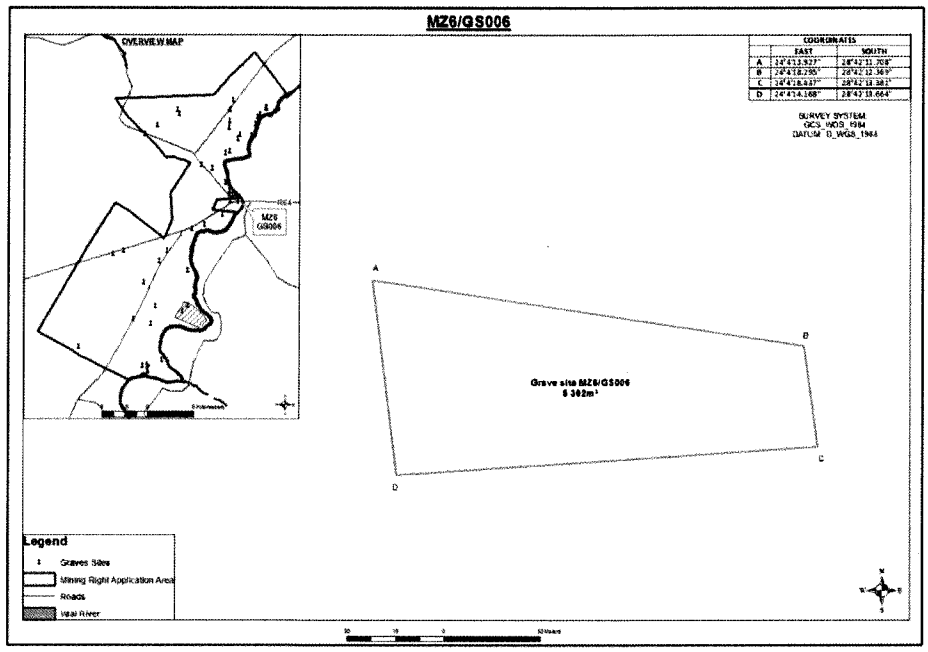
The gravesite covers an area of 63m^2 and consists of 3 unmarked graves. This gravesite is not in use anymore.

18. MZ6/GS005



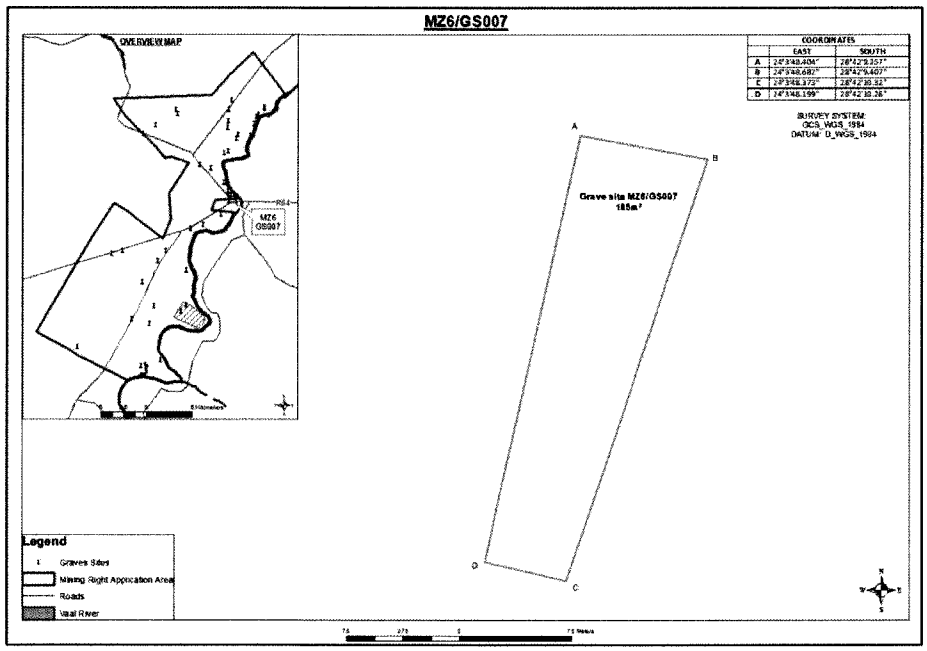
The gravesite covers an area of 86m^2 and consists of 4 unmarked graves. This gravesite is not in use anymore.

19. MZ6/GS006



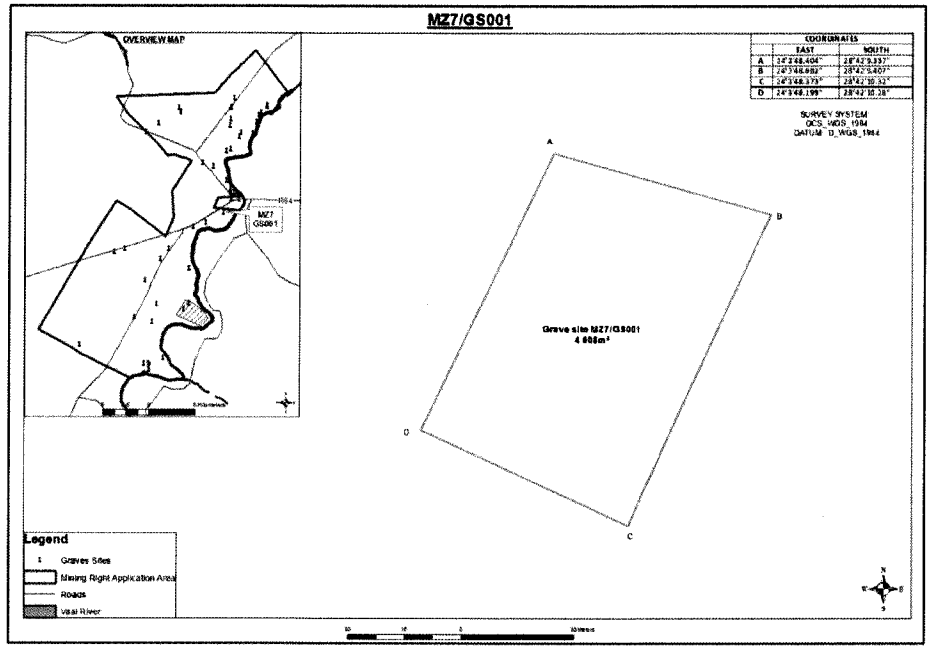
The gravesite covers an area of 5 362m^2 and consists of 180 graves. Some of these graves are unmarked, some are hand marked and there are a couple which have been fitted with a granite headstone. It should be noted that the oldest grave in this site is dated 7 June 1883. This gravesite is not in use anymore.

20. MZ6/GS007



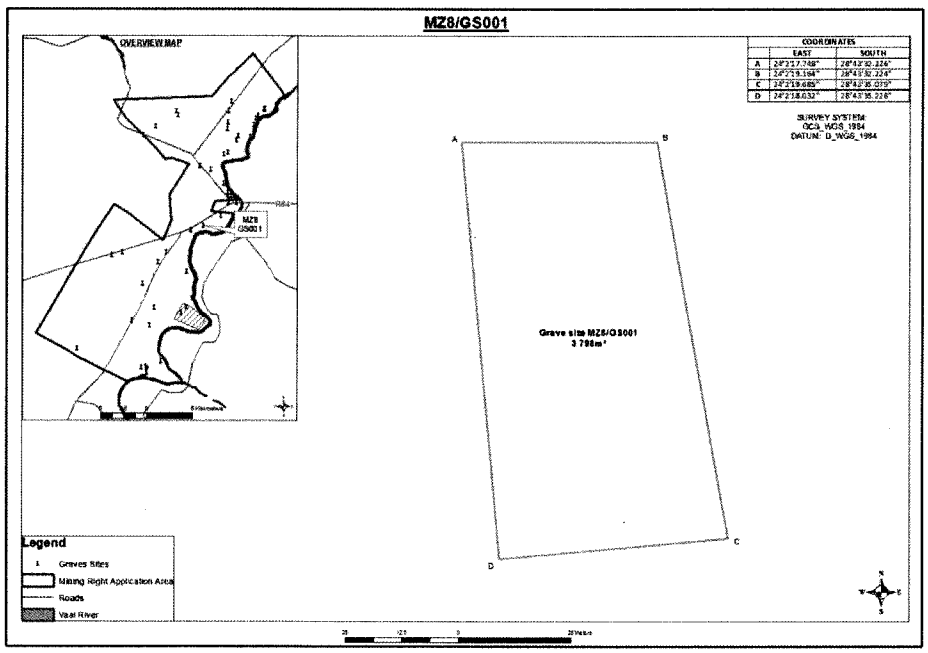
The gravesite covers an area of 185m^2 and consists of 20 graves. All of these graves have granite headstones. This is the graveyard of the Schmidt Family, after whom the property has been named. The oldest grave in this site is dated 4 October 1897, the grave of Mr. Willem Gerrit Schmidt. This gravesite is not in use anymore.

21. MZ7/GS001



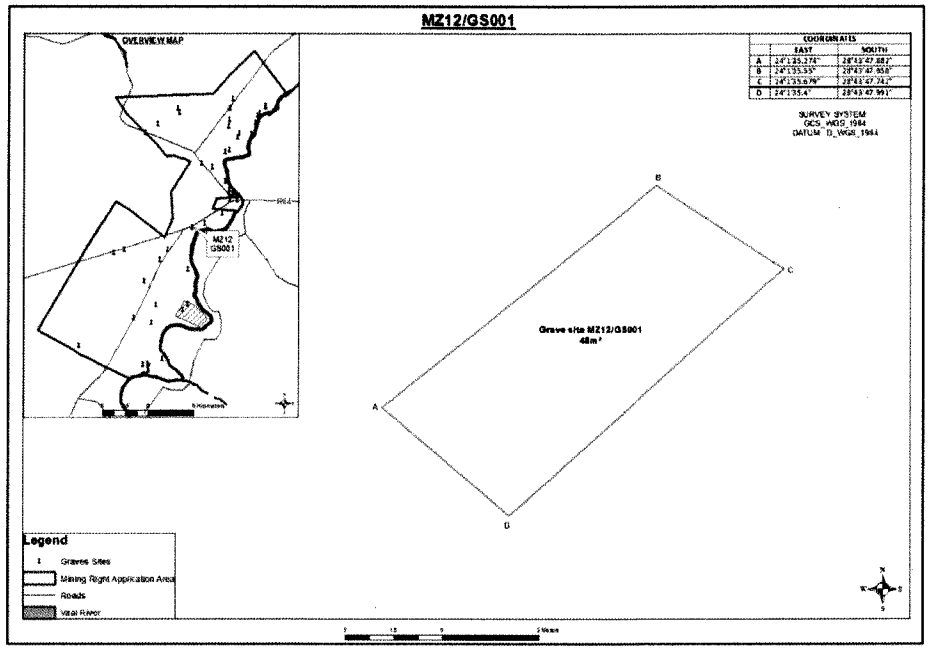
The gravesite covers an area of 4 608m^2 and consists of 160 graves. Most of these graves are unmarked and some are hand marked. This gravesite is not in use anymore.

22. MZ8/GS001



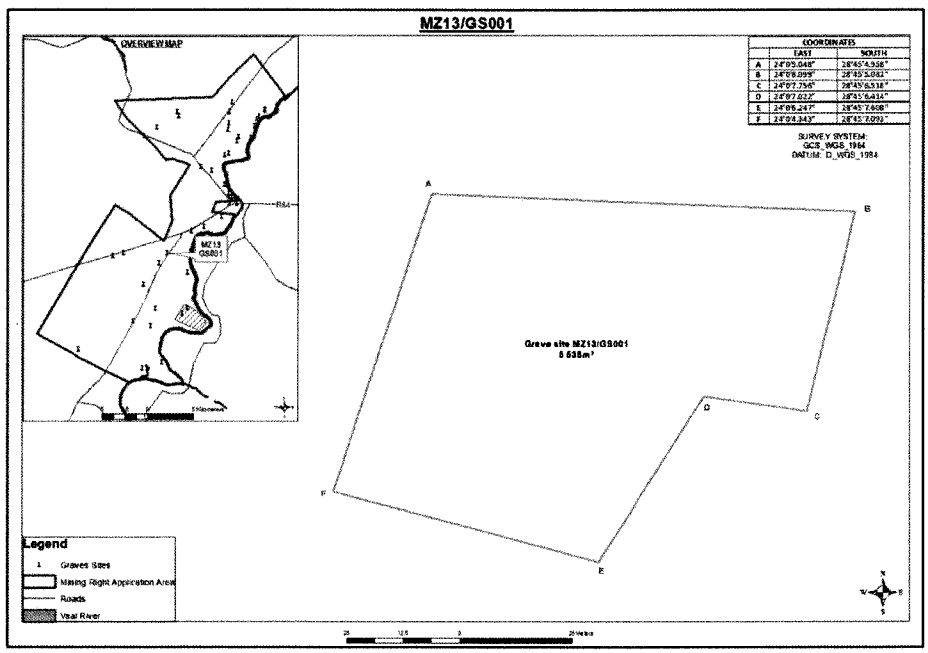
The gravesite covers an area of 3 798m^2 and consists of 160 graves. Some of these graves are unmarked and some are hand marked. This gravesite is not in use anymore.

23. MZ12/GS001



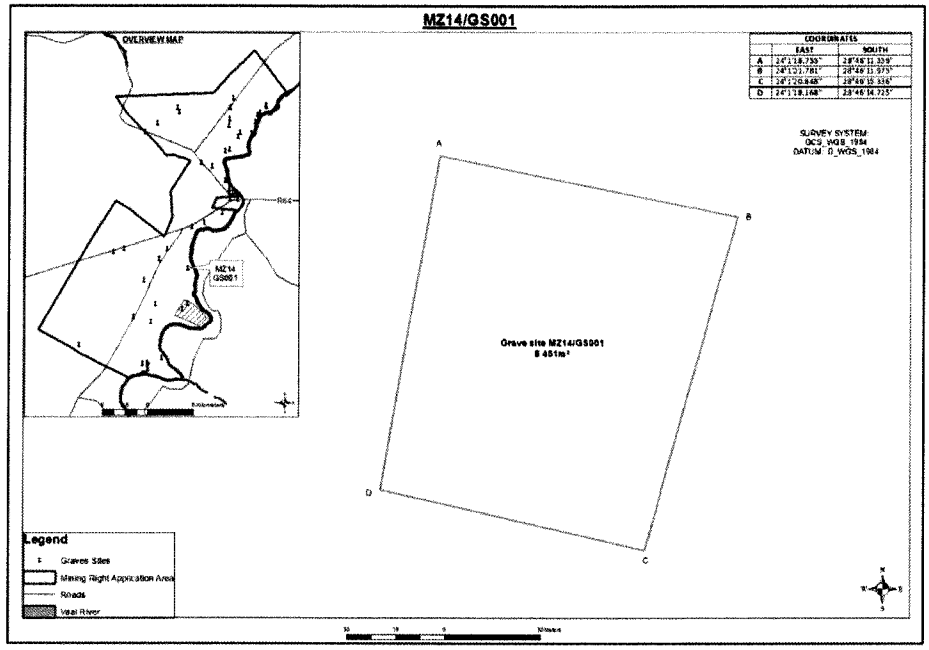
The gravesite covers an area of 48m^2 and consists of 9 unmarked graves. This gravesite is not in use anymore.

24. MZ13/GS001



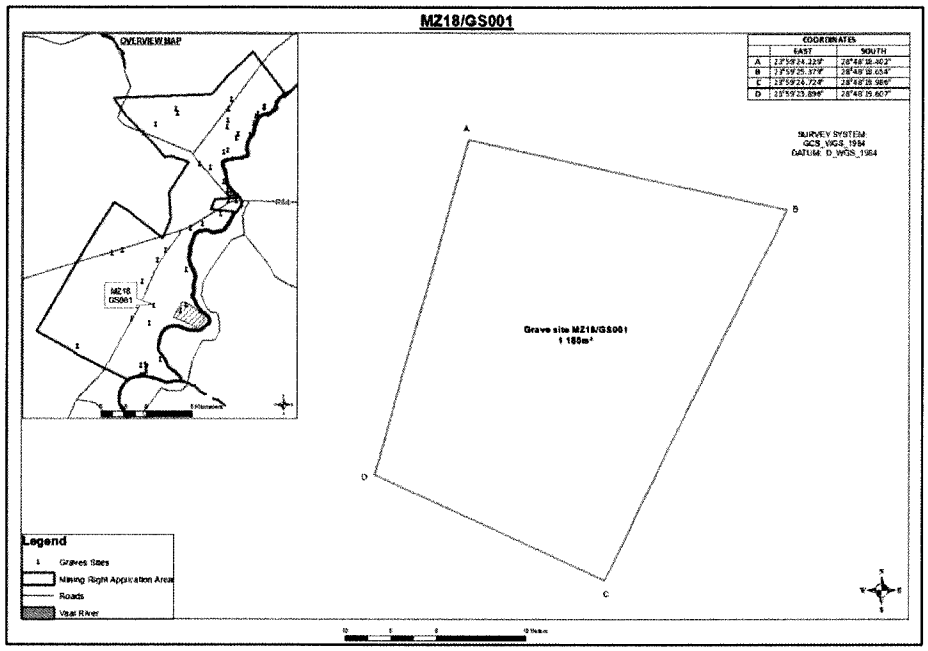
The gravesite covers an area of 5 538m^2 and consists of 90 (divided in two areas containing 40 graves and 50 graves respectively) graves. Some of these graves are unmarked and some are hand marked. This gravesite is not in use anymore.

25. MZ14/GS001



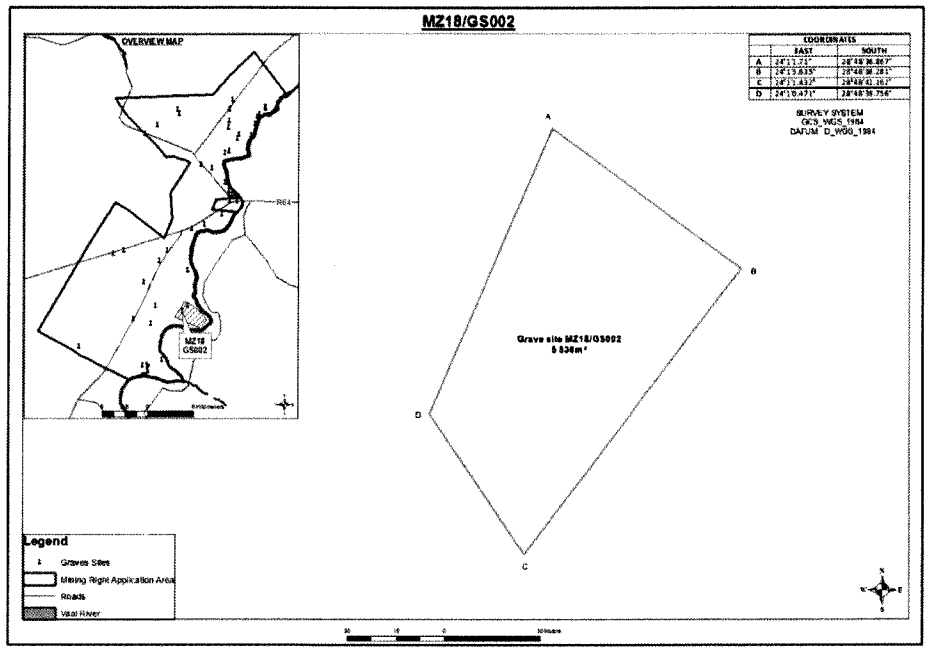
The gravesite covers an area of 8 451m^2 and consists of 160 graves. Some of these graves are unmarked and some are hand marked. This gravesite is not in use anymore.

26. MZ18/GS001



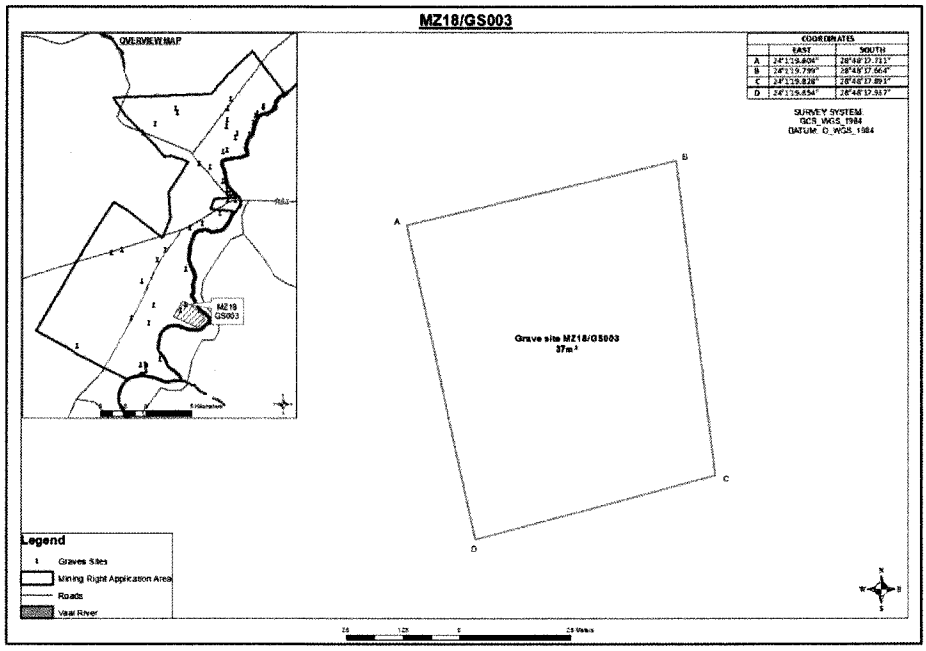
The gravesite covers an area of 1 185m^2 and consists of 30 graves. Some of these graves are unmarked, some are hand marked and there are a couple which have been fitted with granite headstones. This gravesite is not in use anymore.

27. MZ18/GS002



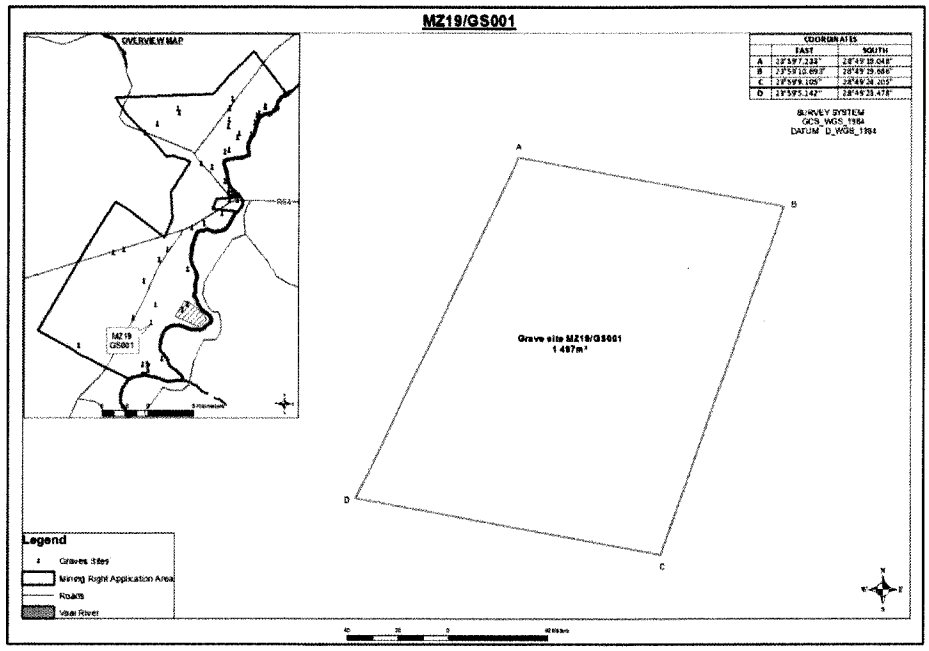
The gravesite covers an area of 5 536m^2 and consists of 158 graves. Some of these graves are unmarked and some are hand marked. This gravesite is not in use anymore.

28. MZ18/GS003



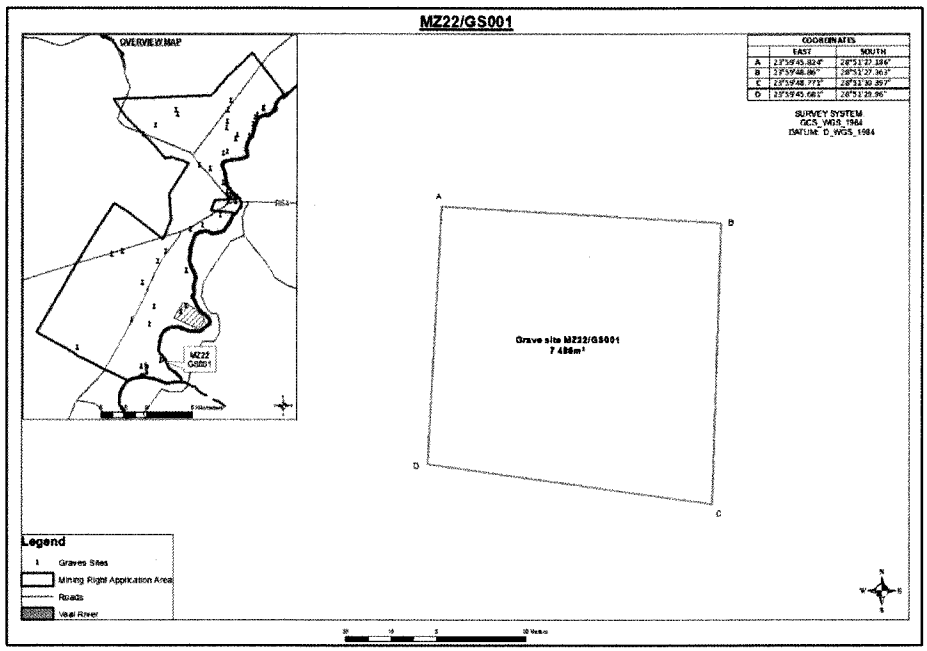
The gravesite covers an area of 37m^2 and consists of 3 unmarked graves. This gravesite is not in use anymore.

29. MZ19/GS001



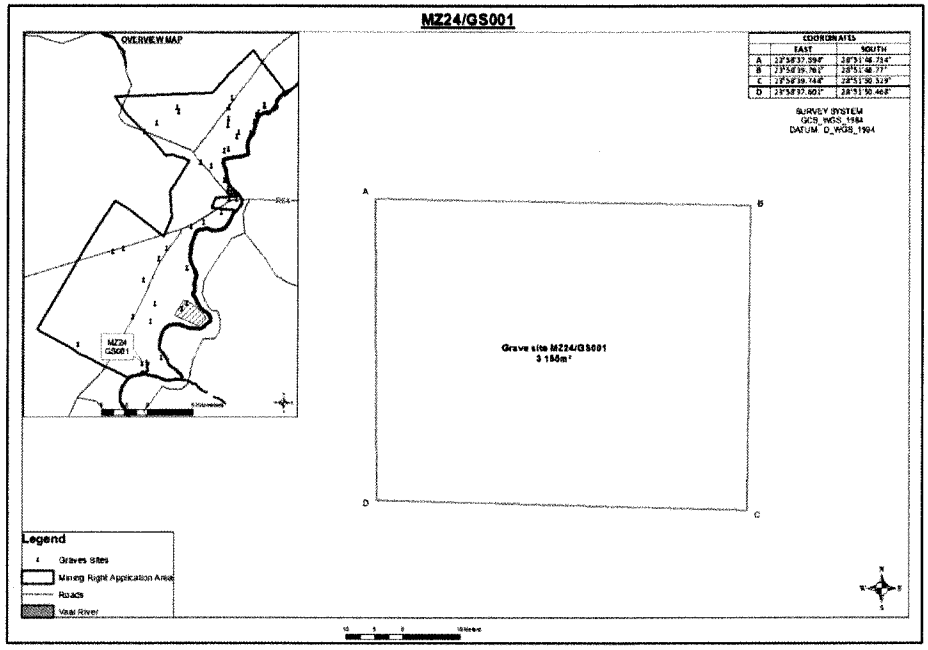
The gravesite covers an area of 1 497m^2 and consists of 500 mostly unmarked !Xun and Khwe graves. This gravesite is still in use.

30. MZ22/GS001



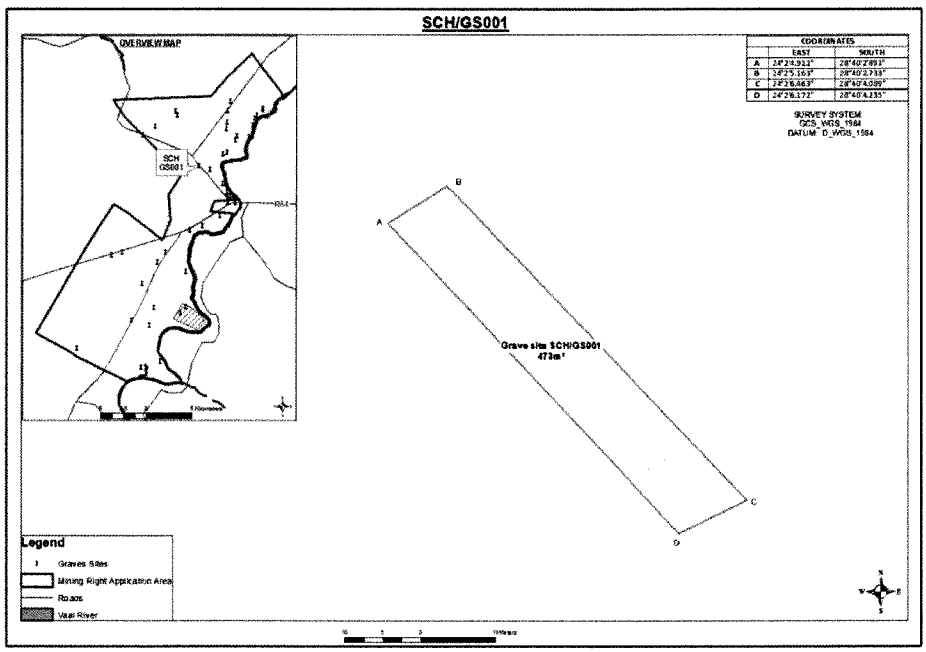
The gravesite covers an area of 7 496m^2 and consists of 80 hand marked graves. This gravesite is not in use anymore.

31. MZ24/GS001



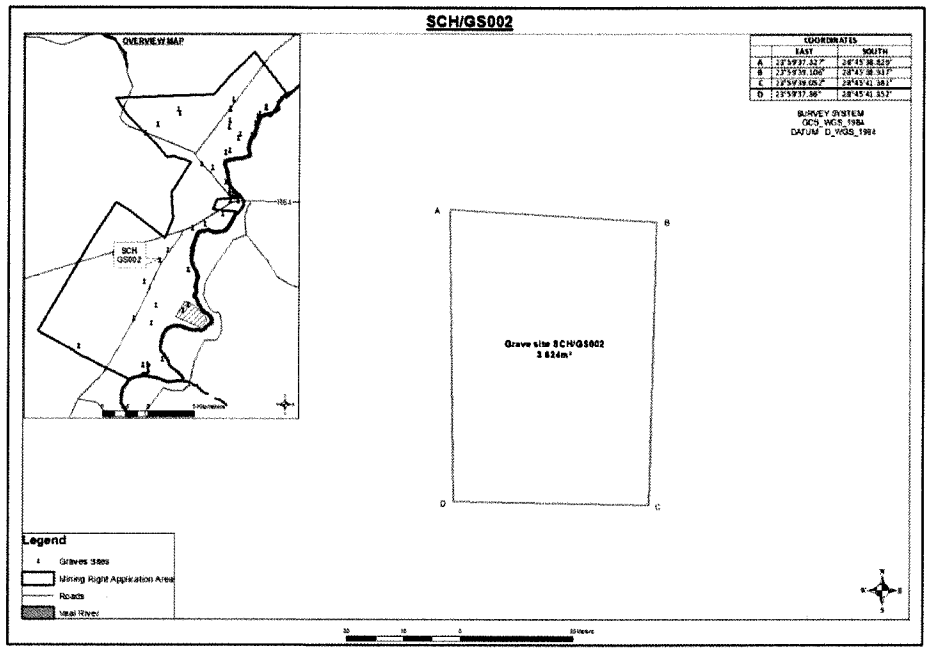
The gravesite covers an area of 3 155m^2 and consists of 45 unmarked and hand marked graves. This gravesite is not in use anymore.

32. SCH/GS001



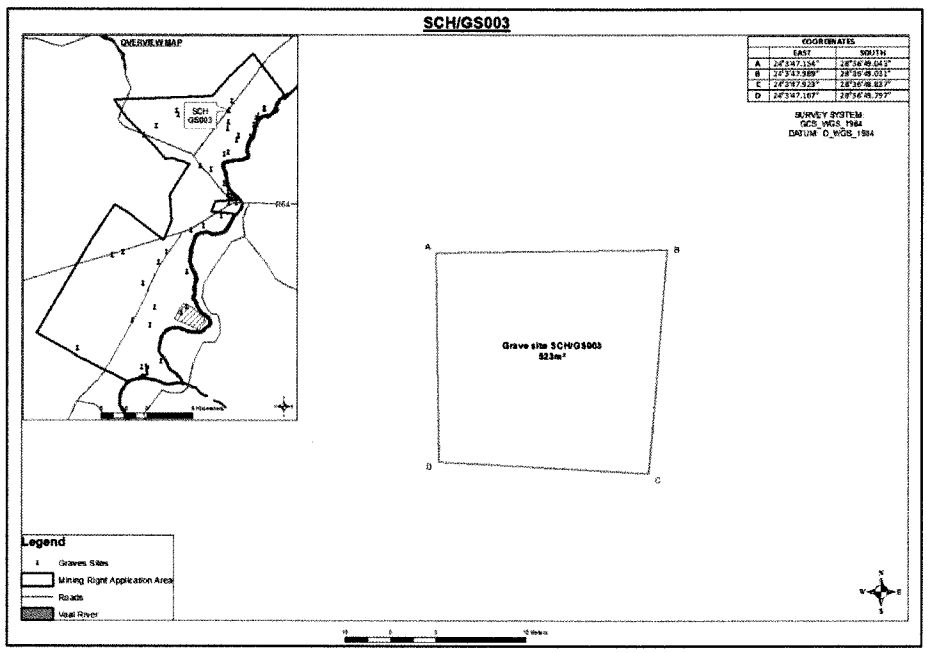
The gravesite covers an area of 473m^2 and consists of 6 unmarked graves. This gravesite is not in use anymore.

33. SCH/GS002



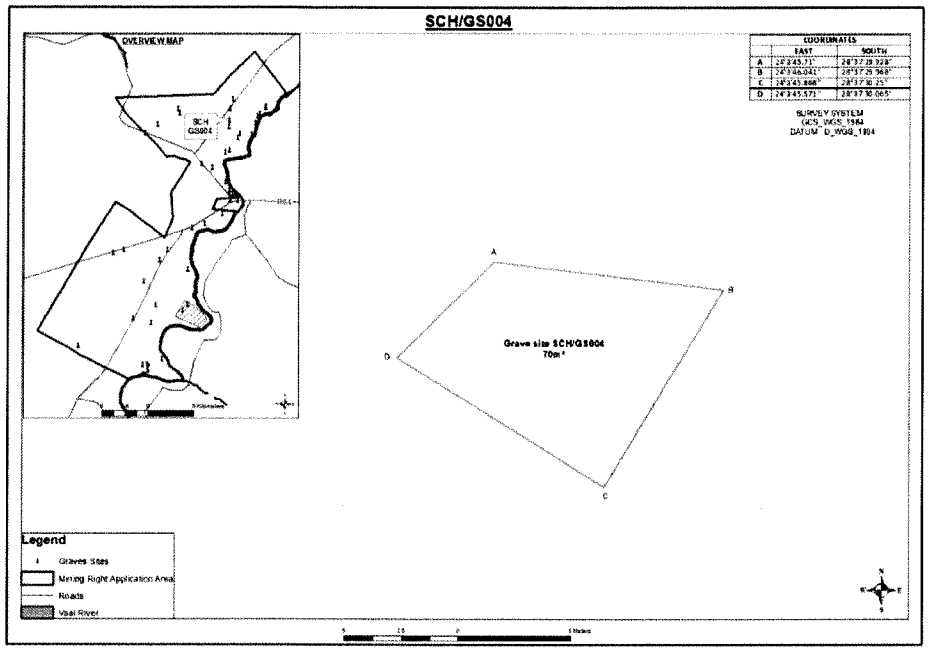
The gravesite covers an area of 3 624m^2 and consists of 170 graves. Some of these graves are unmarked, some are hand marked and there are a couple which have been fitted with granite headstones. There are few graves of which the hand marked headstone were replaced by granite, after which the original hand crafted headstone were placed on the grave. This gravesite is still in use.

34. SCH/GS003



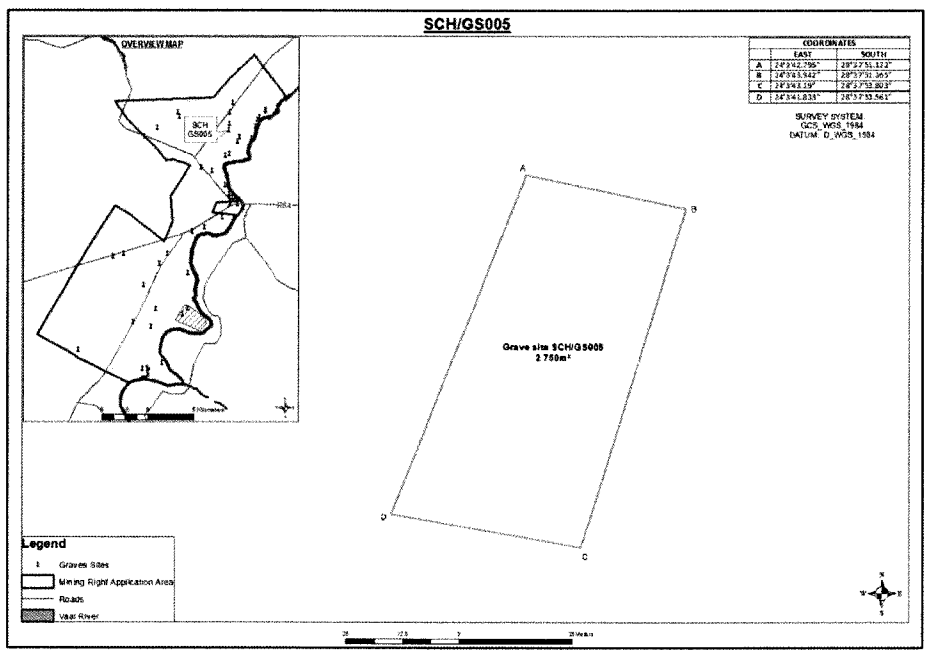
The gravesite covers an area of 523m^2 and consists of an unknown number of unmarked graves. This gravesite is not in use anymore.

35. SCH/GS004



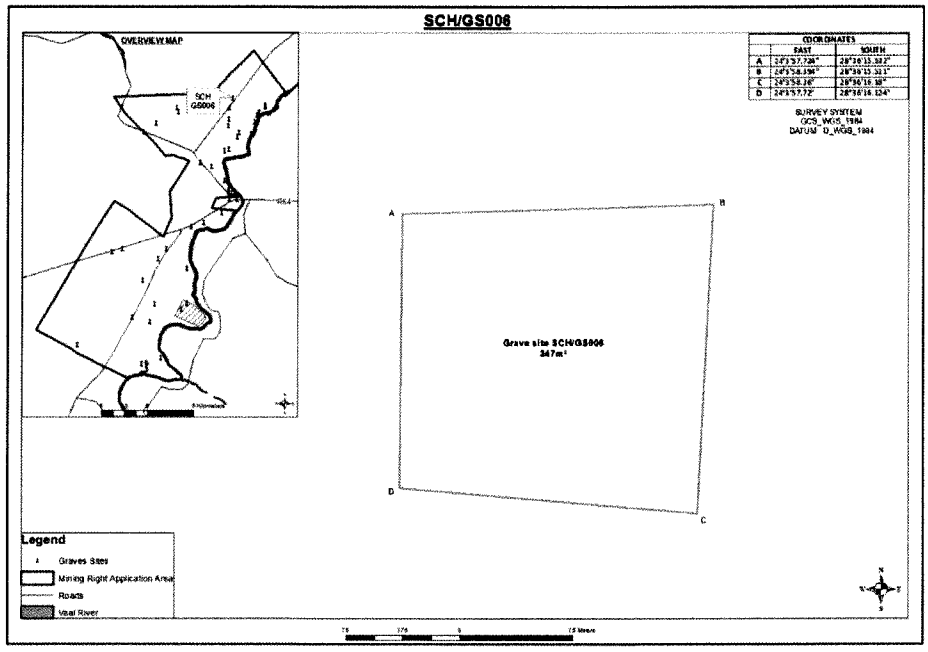
The gravesite covers an area of 70m^2 and consists of 30 unmarked graves. This gravesite is not in use anymore.

36. SCH/GS005



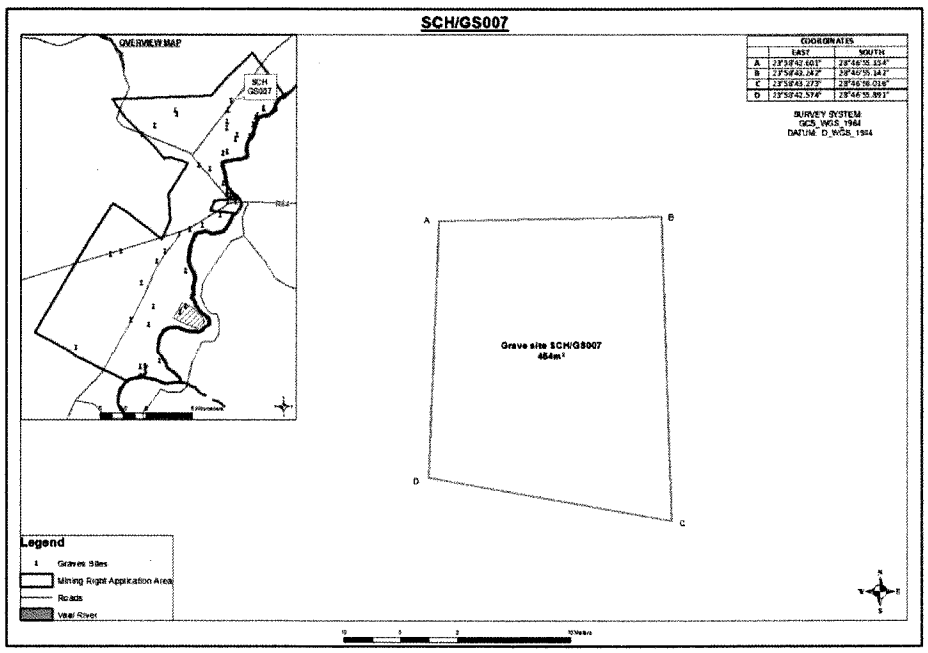
The gravesite covers an area of 2 750m^2 and consists of 140 unmarked and hand marked graves. This gravesite is not in use anymore.

37. SCH/GS006



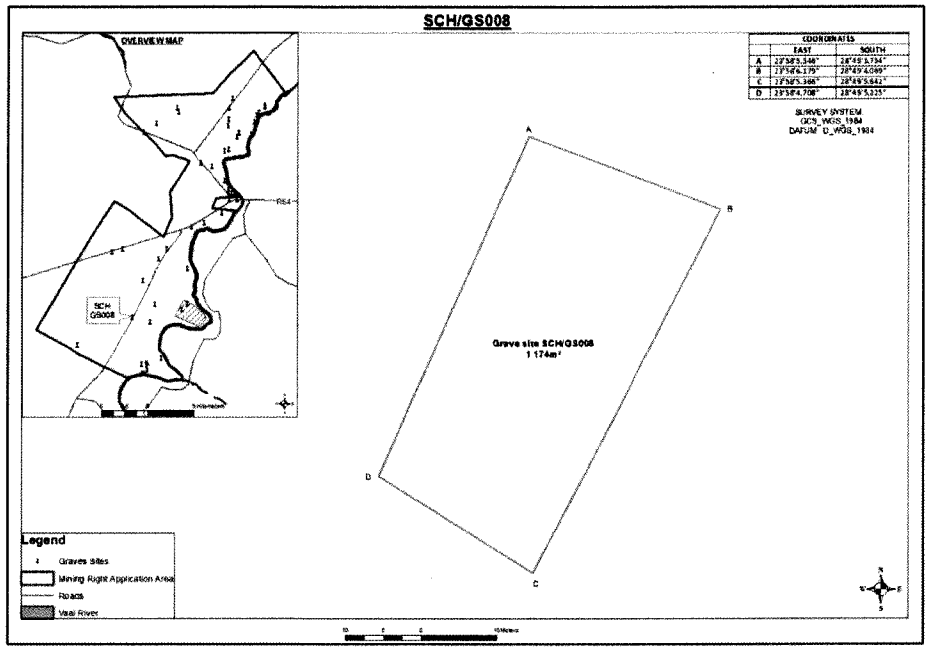
The gravesite covers an area of 347m^2 and consists of 1 grave with a granite headstone. This gravesite is not in use anymore.

38. SCH/GS007



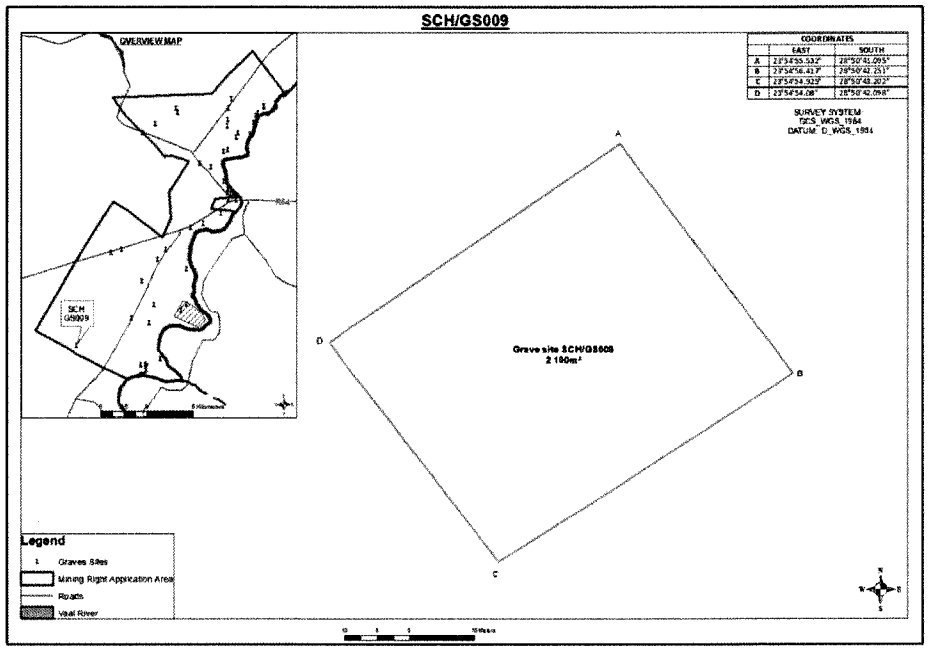
The gravesite covers an area of 454m^2 and consists of 15 unmarked graves. This gravesite is not in use anymore.

39. SCH/GS008



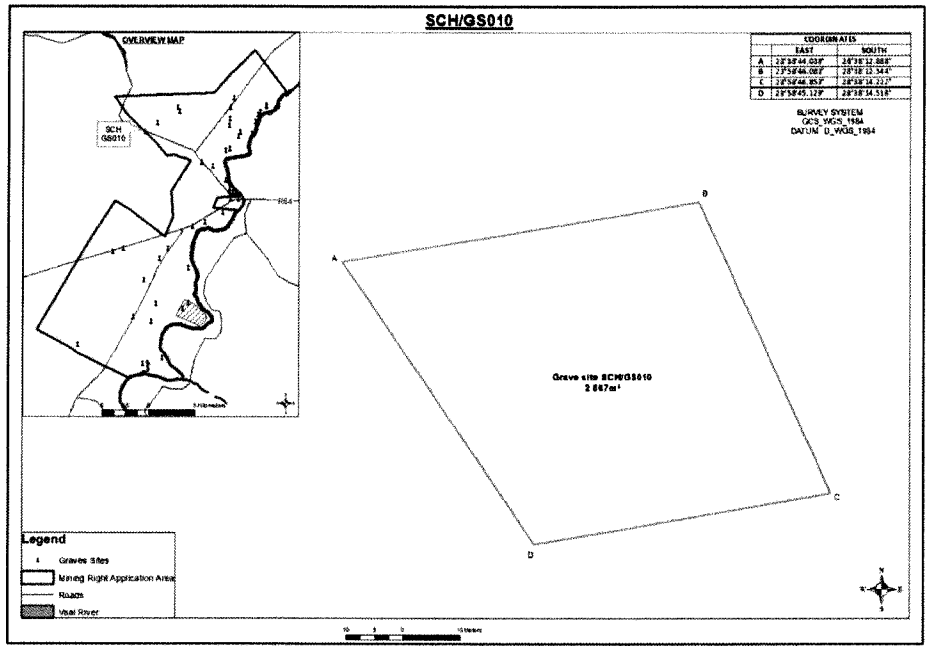
The gravesite covers an area of 1 174m^2 and consists of 30 unmarked and hand marked graves. This gravesite is not in use anymore.

40. SCH/GS009



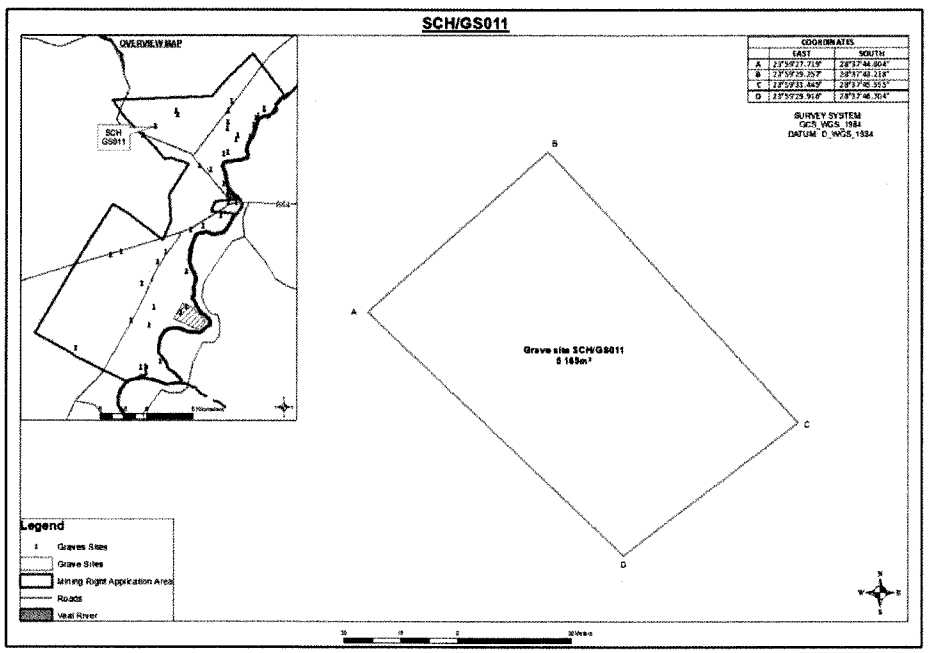
The gravesite covers an area of 2 100m^2 and consists of 200 graves. Some of these graves are unmarked, some are hand marked and there are a couple which have been fitted with granite headstones. This gravesite is not in use anymore.

41. SCH/GS010



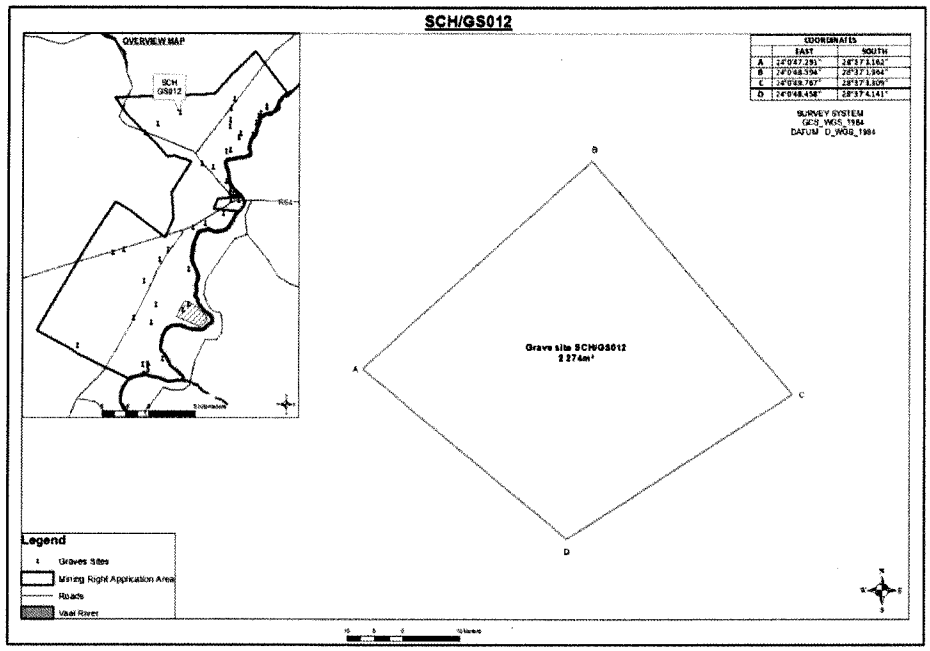
The gravesite covers an area of 2 867m^2 and consists of 40 unmarked graves. This gravesite is not in use anymore.

42. SCH/GS011



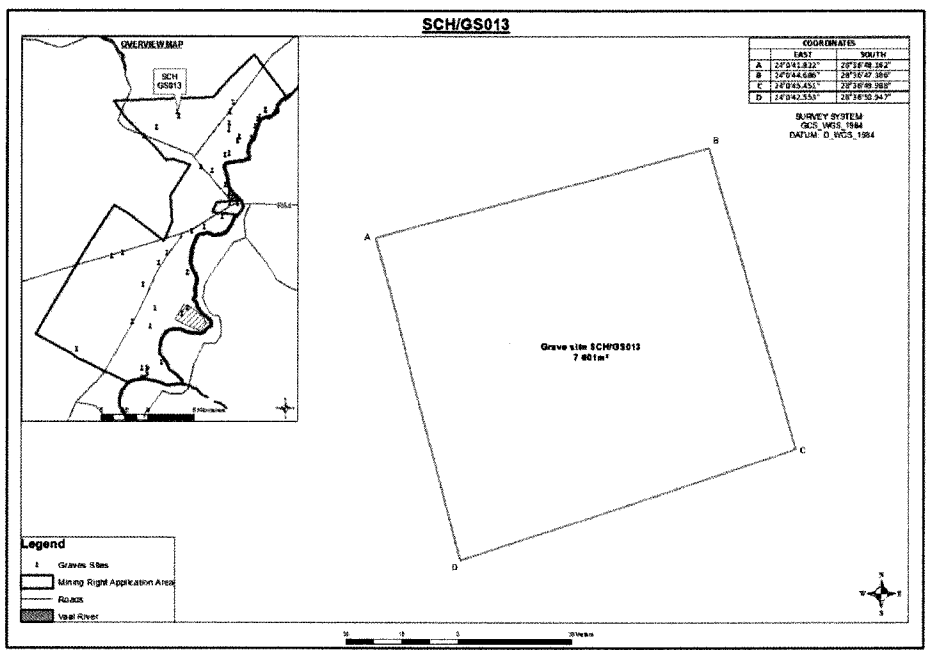
The gravesite covers an area of 5 185m^2 and consists of 135 graves. Some of these graves are unmarked, some are hand marked and there are a couple which have been fitted with granite headstones. This gravesite is still in use.

43. SCH/GS012



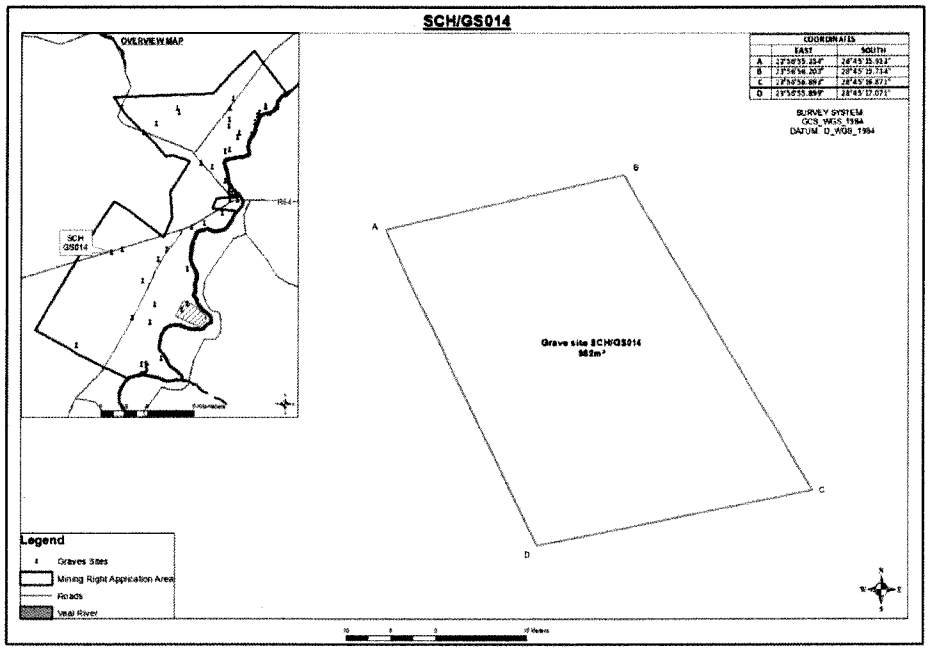
The gravesite covers an area of 2 274m^2 and consists of 40 unmarked graves. This gravesite is not in use anymore.

44. SCH/GS013



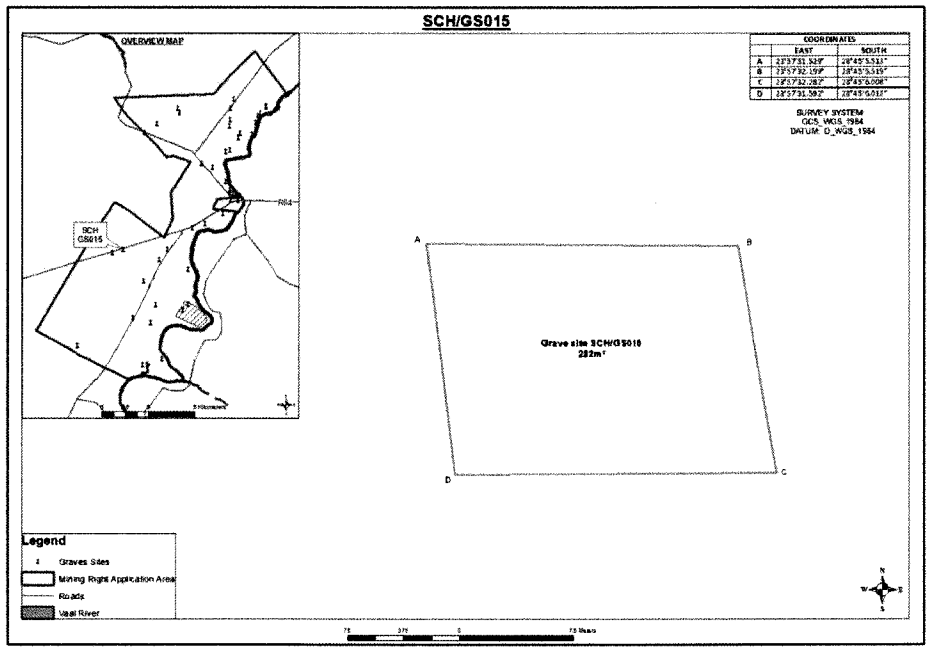
The gravesite covers an area of 7 061m^2 and consists of 200 unmarked and hand marked graves. This gravesite is not in use anymore.

45. SCH/GS014



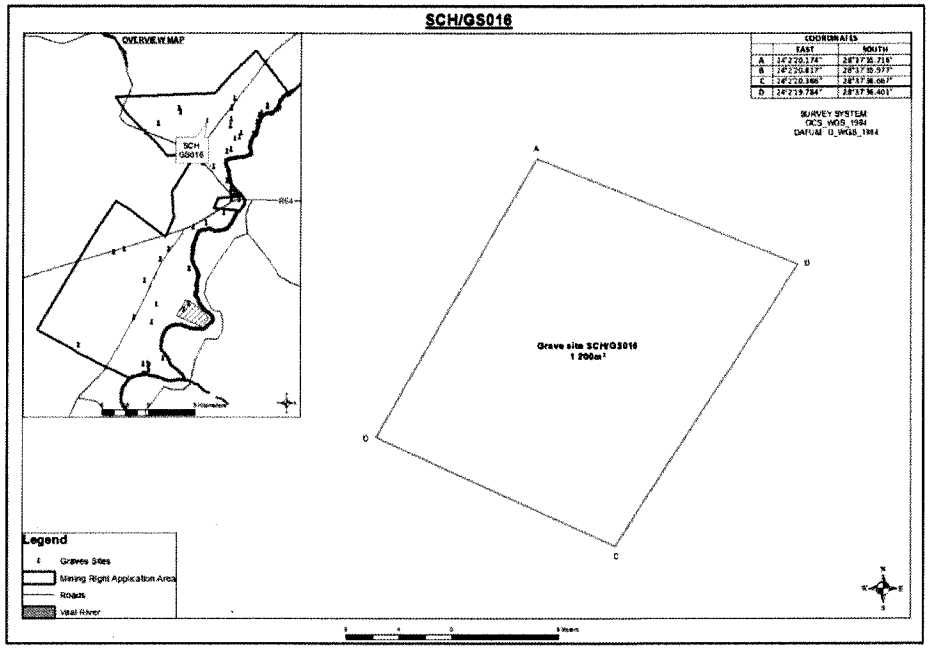
The gravesite covers an area of 982m^2 and consists of 21 graves. Some of these graves are hand marked and there are a couple which have been fitted with granite headstones. This gravesite is not in use anymore.

46. SCH/GS015



The gravesite covers an area of 282m^2 and consists of 1 grave which has been fitted with a granite headstone. This gravesite is not in use anymore.

47. SCH/GS016



The gravesite covers an area of 1 200m^2 and consists of 45 unmarked graves. This gravesite is not in use anymore.

48. CONCLUSION

The assessment of the burial grounds and grave sites on the Remaining Extent of Schmidtsdrift 248 identified a total of 47 sites with approximately 3 539 graves, keeping in mind that two of the sites have an unknown number of graves.

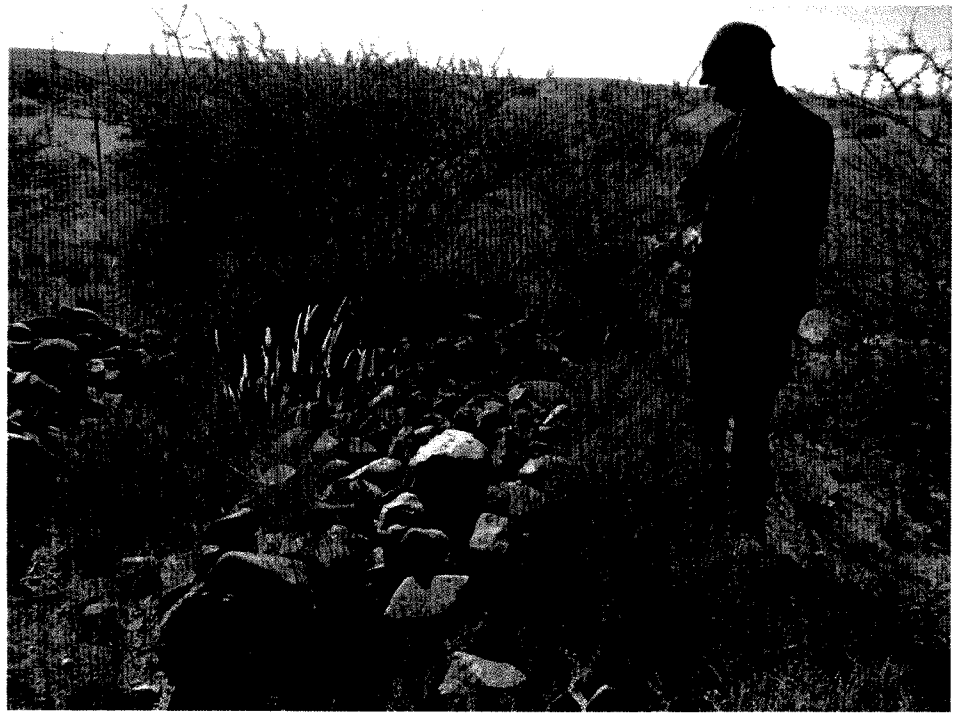
According to Section 35 – 36 of the National Heritage Resources Act (no. 25 of 1999) all identified burial grounds and grave sites, must be conserved and no mining may take place within these areas. It is recommended that a five meter no mining buffer zone must be placed around each of these sites.

MZ1/GS001

MZ1/GS002

MZ2/GS001

MZ2/GS002



MZ2/GS003

MZ3/GS001

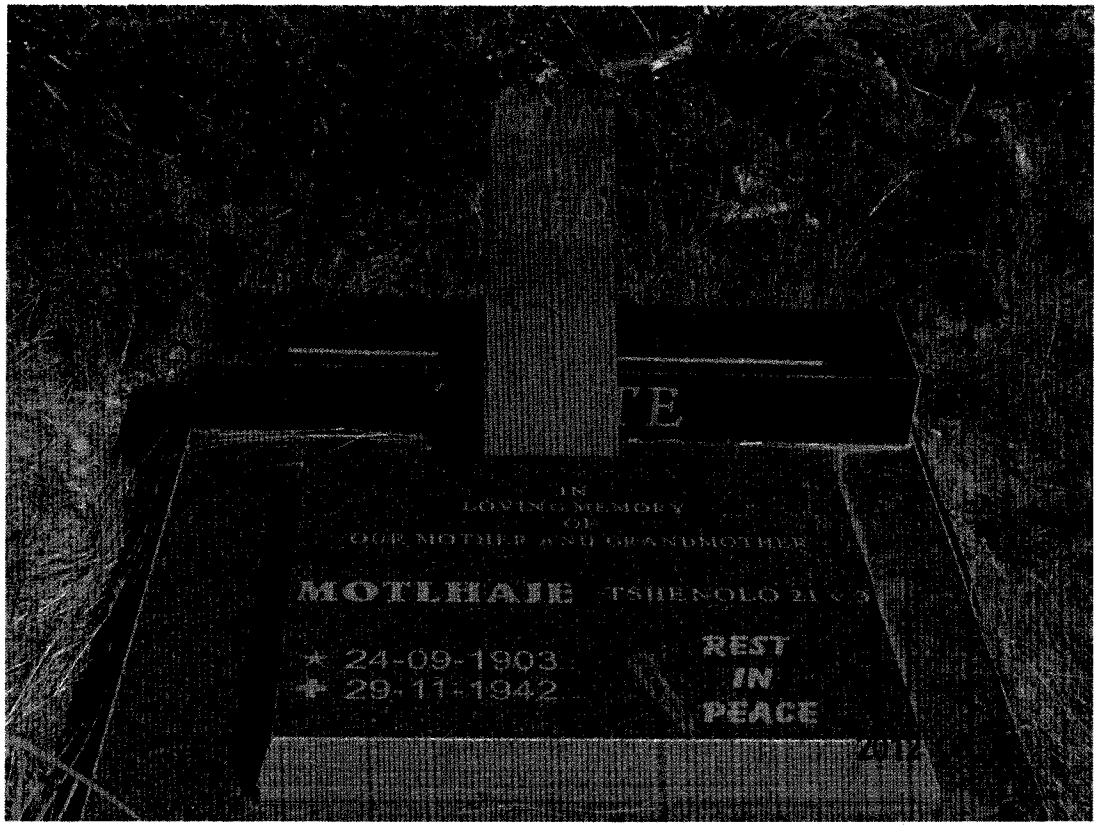
MZ3/GS002

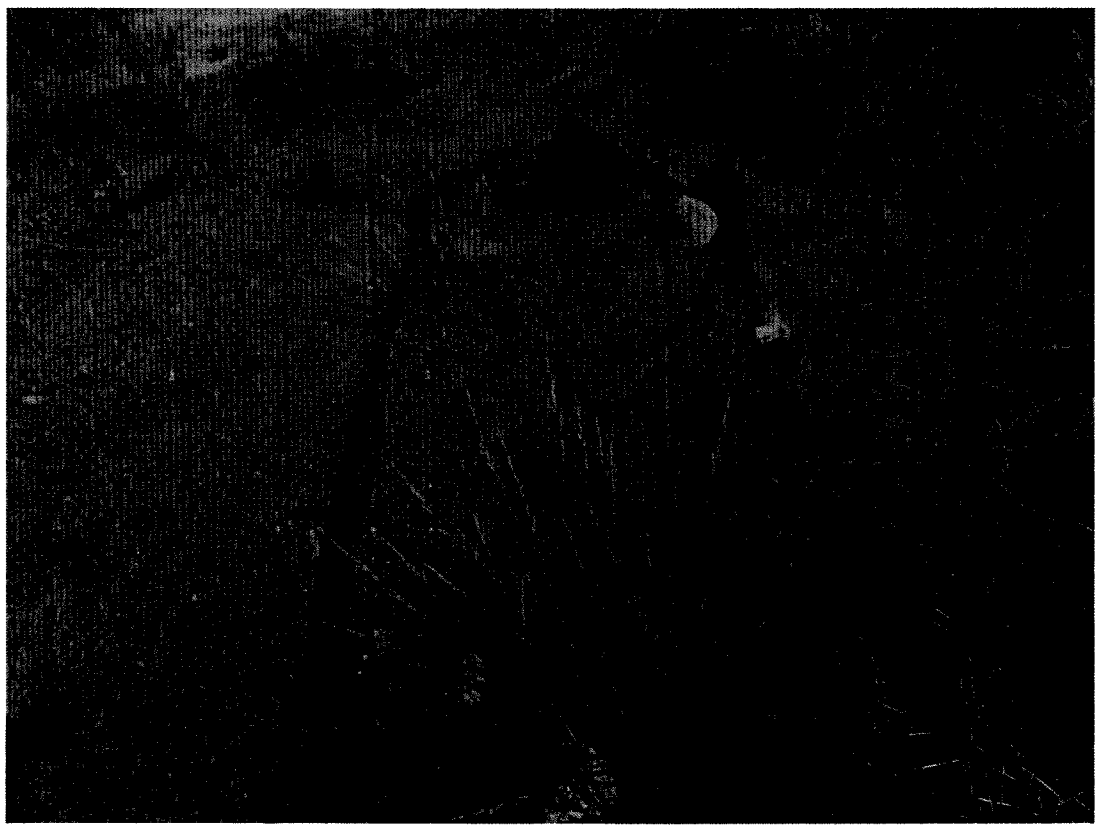
MZ3/GS003

MZ3/GS004

MZ4/GS001

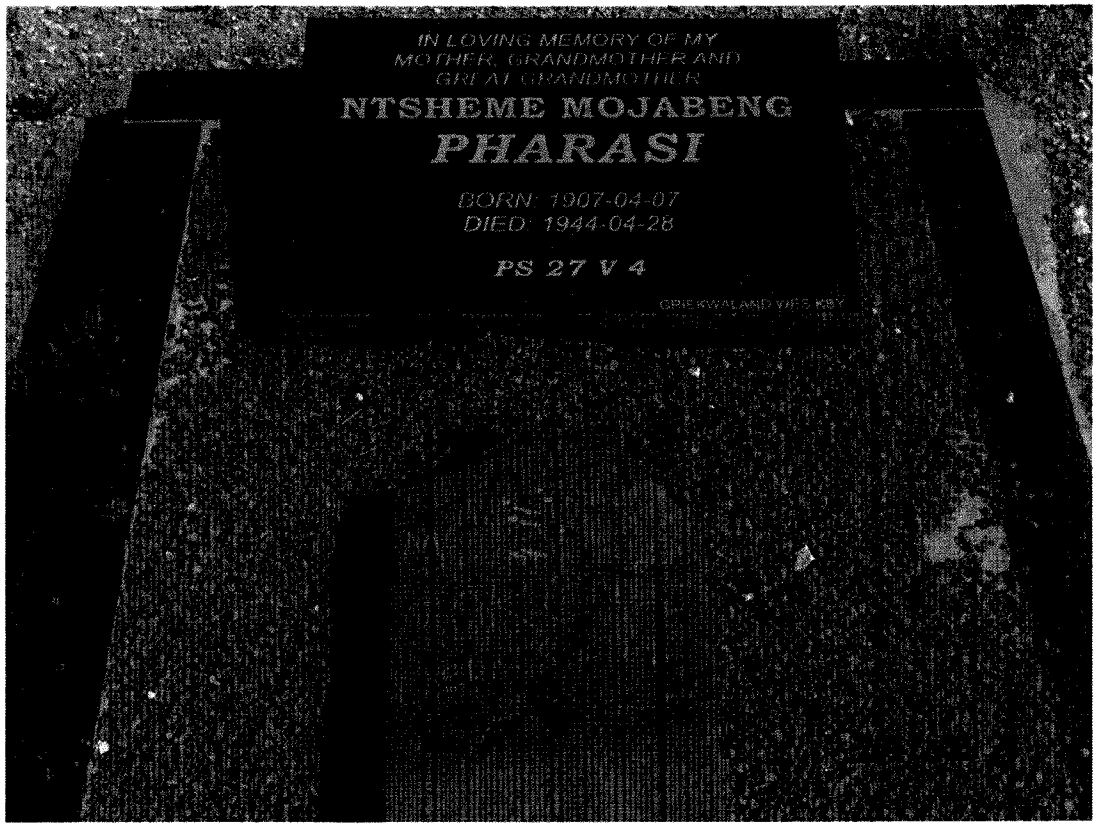
MZ4/GS002

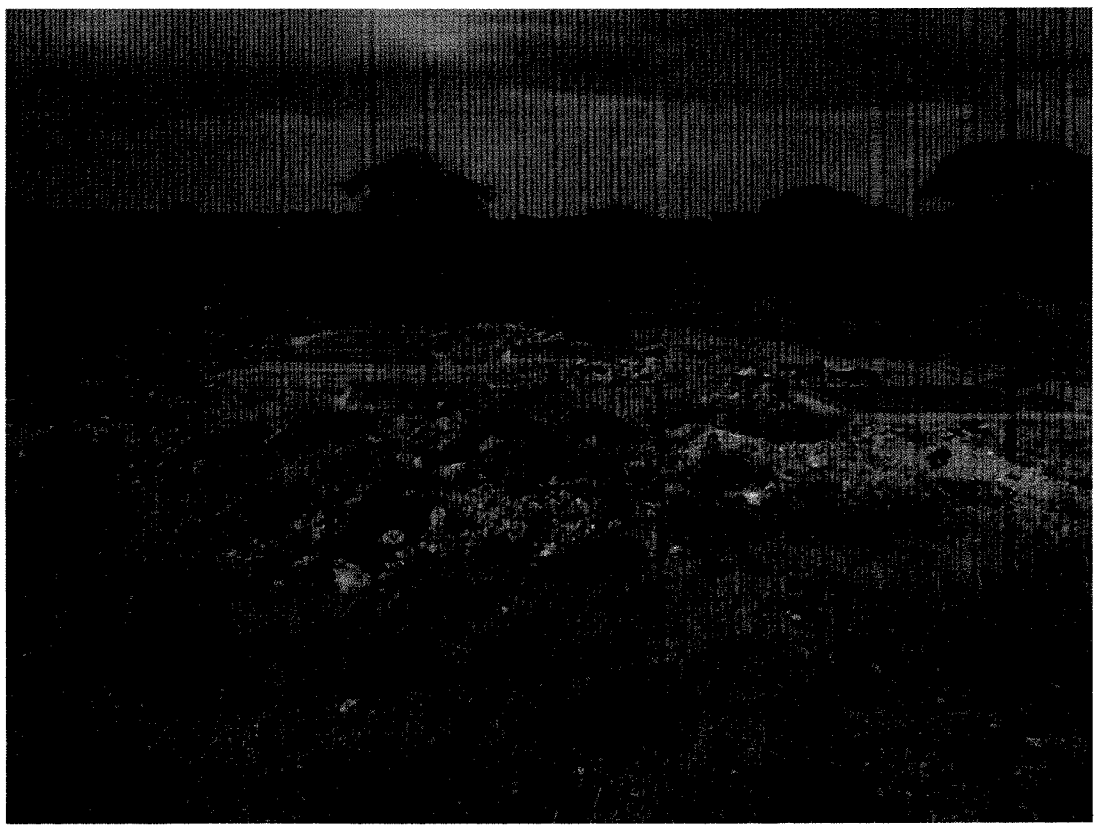

IN
LOVING MEMORY
OF
OUR MOTHER AND GRANDMOTHER
MOTLHAJE TSHENOLO
★ 24-09-1903
✝ 29-11-1942
REST
IN
PEACE



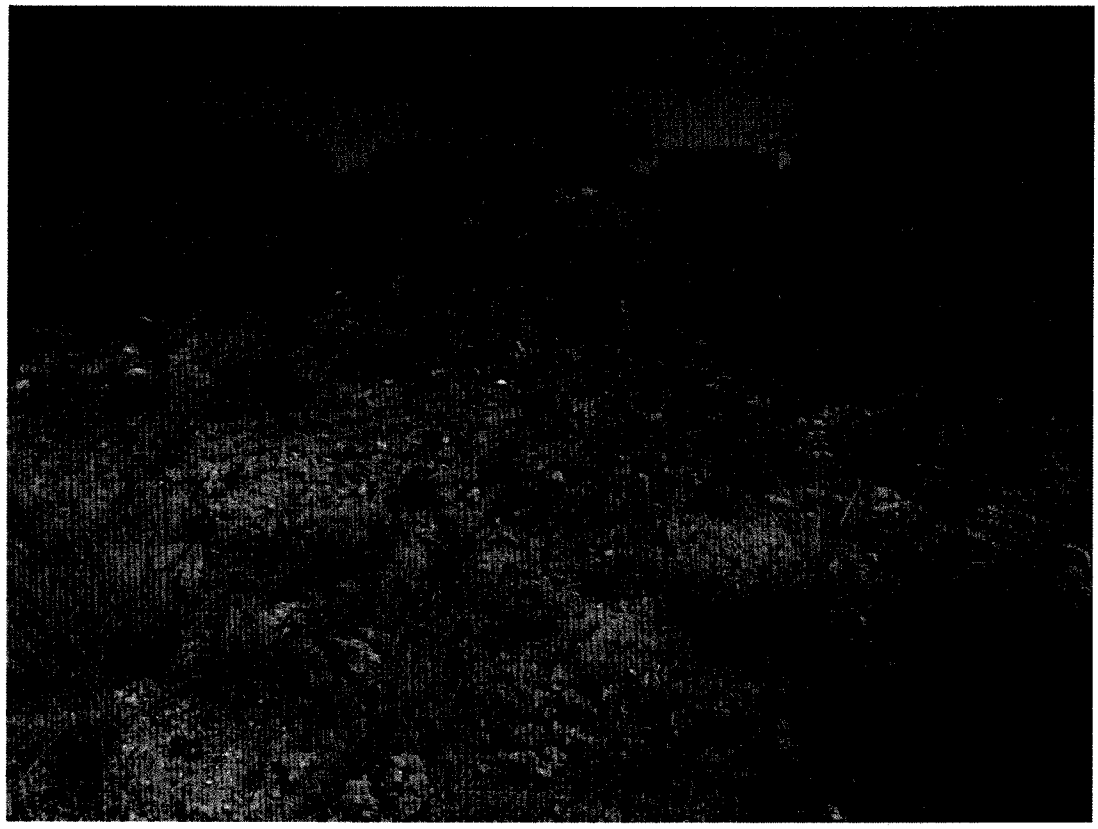
MZ5/GS001

MZ5/GS002

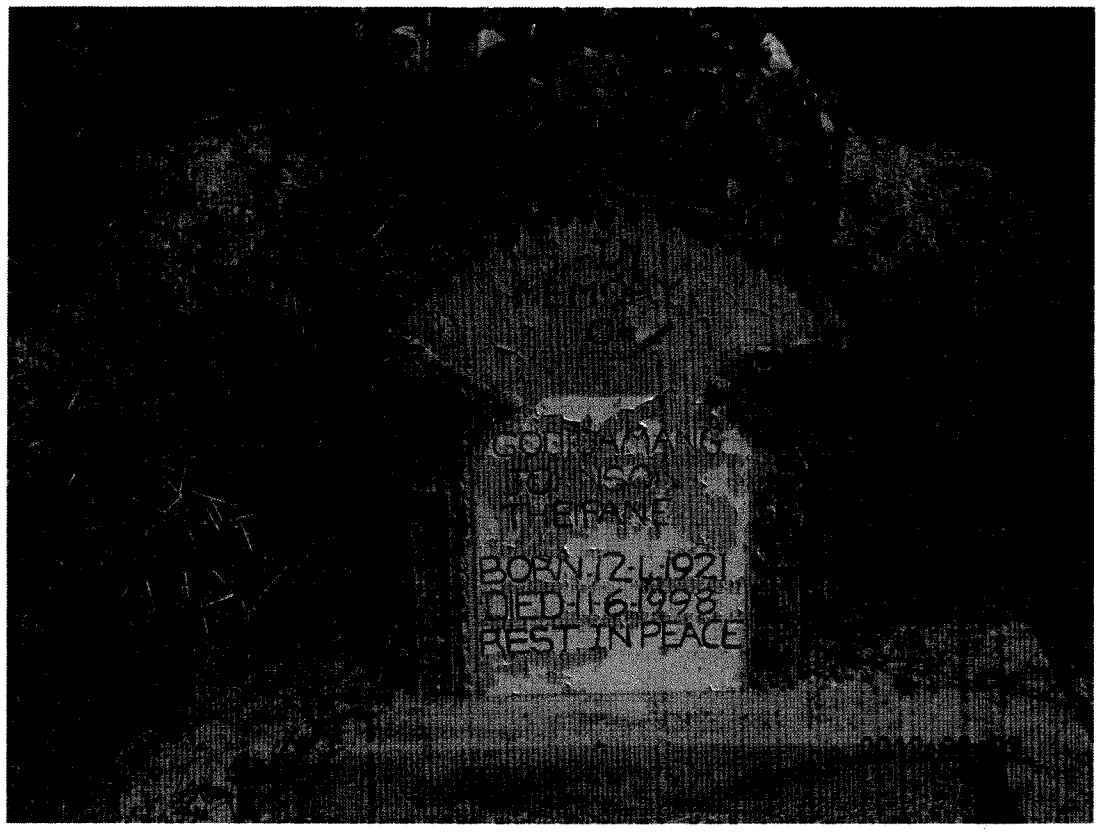

IN LOVING MEMORY OF MY
MOTHER, GRANDMOTHER AND
GREAT GRANDMOTHER
NTSHEME MOJABENG
PHARASI
BORN: 1907-04-07
DIED: 1944-04-28
PS 27 V 4



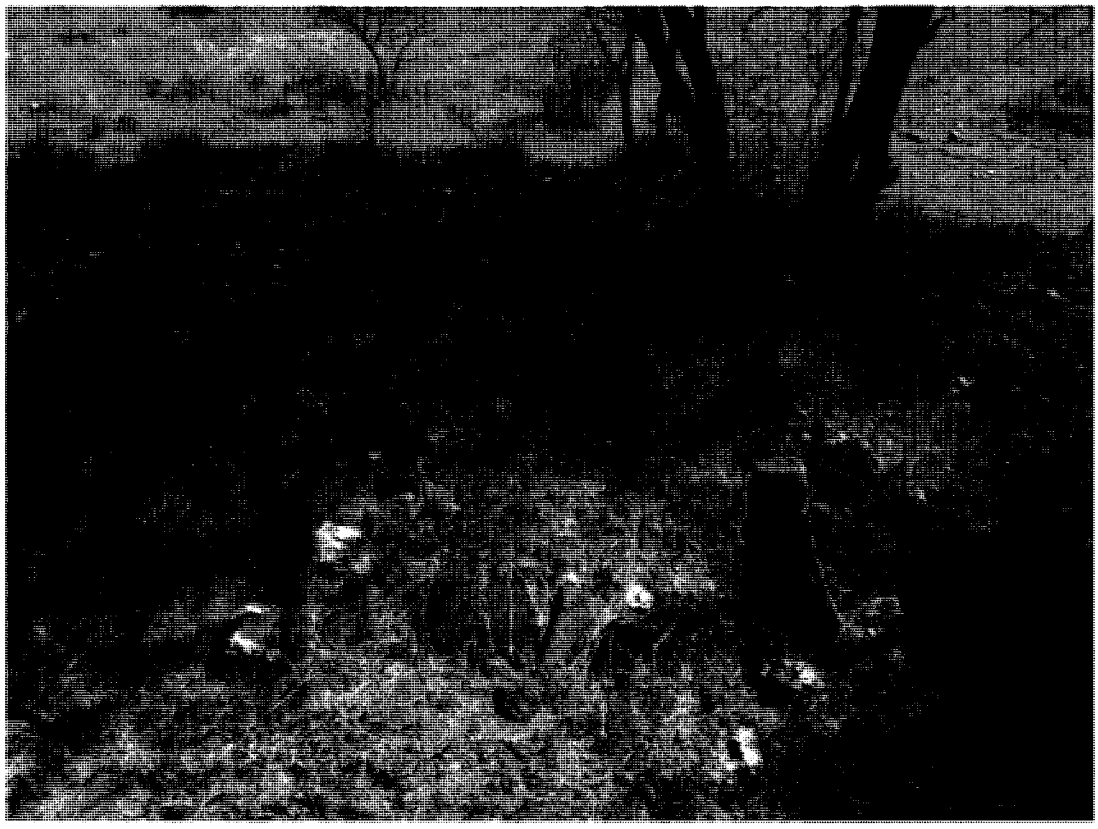
MZ6/GS001



MZ6/GS002

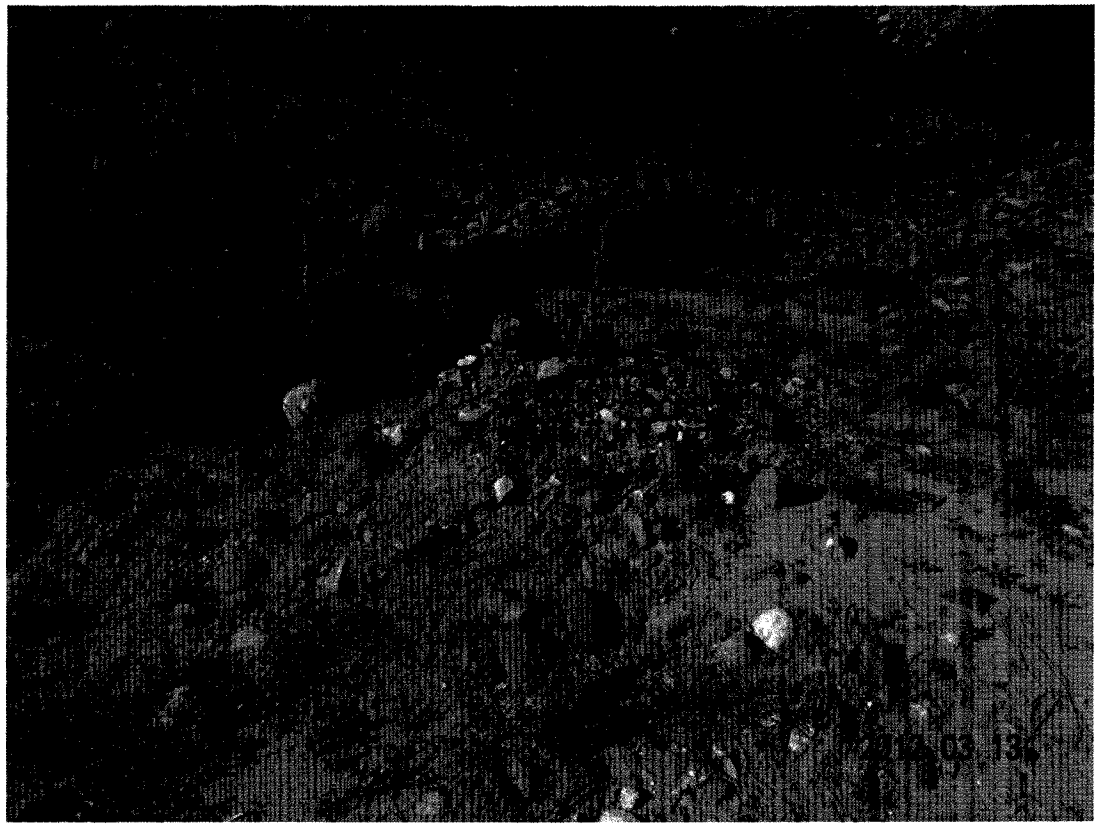


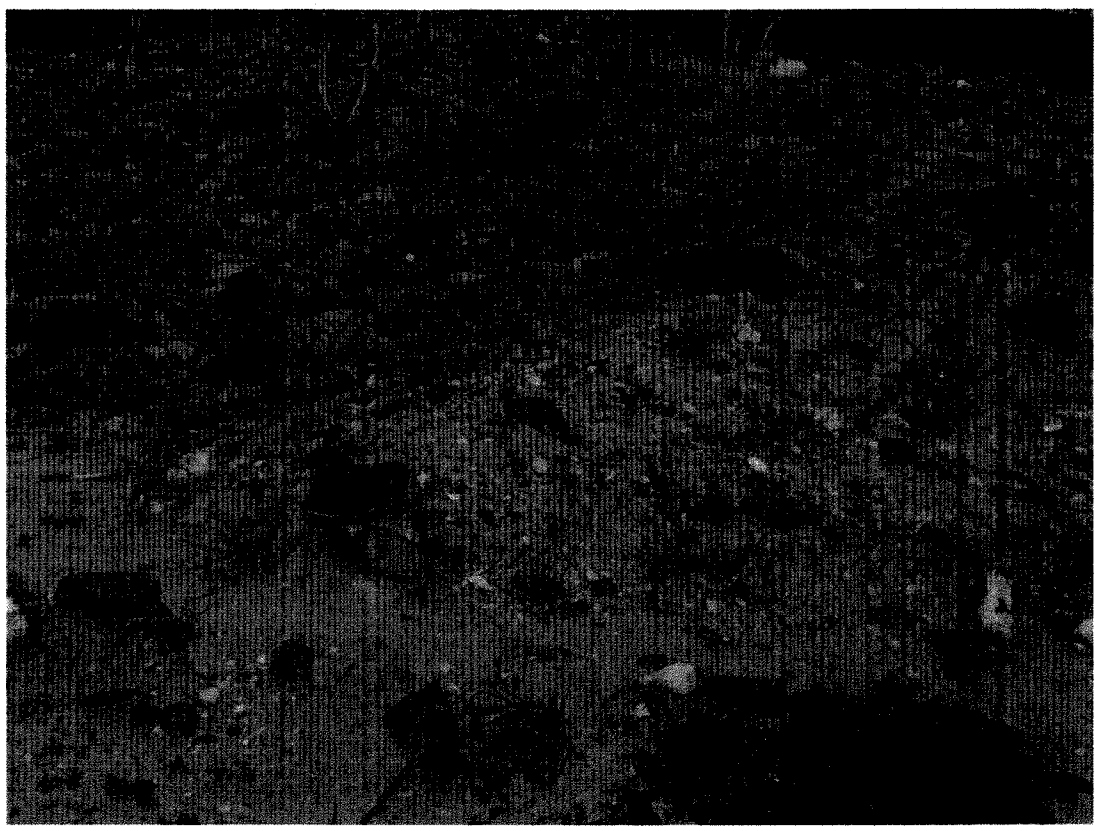
MZ6/GS003



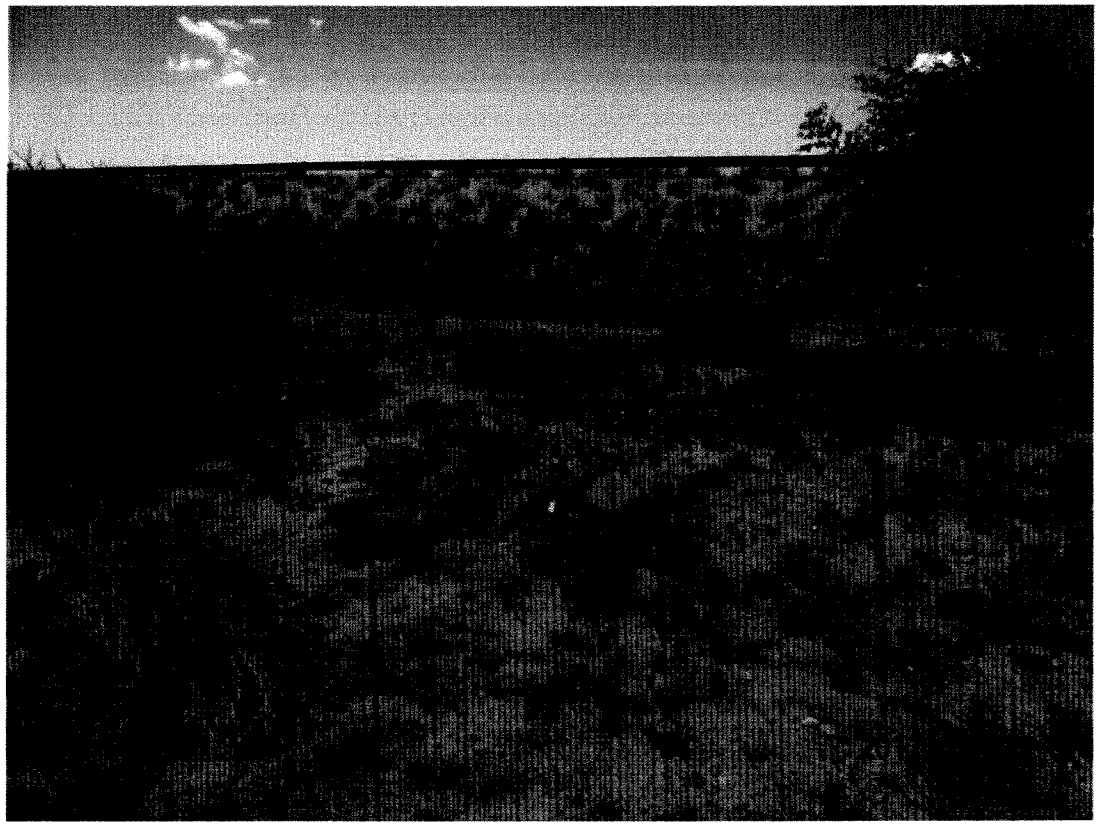
MZ6/GS004

MZ6/GS005

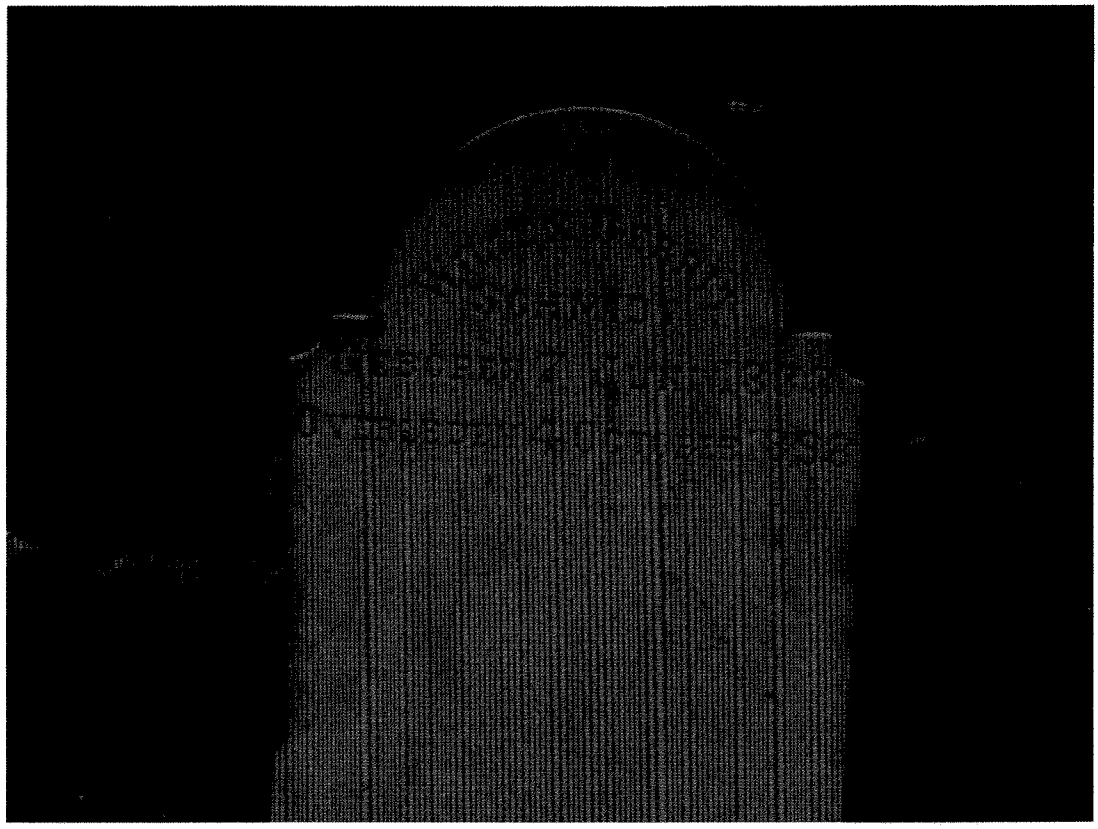


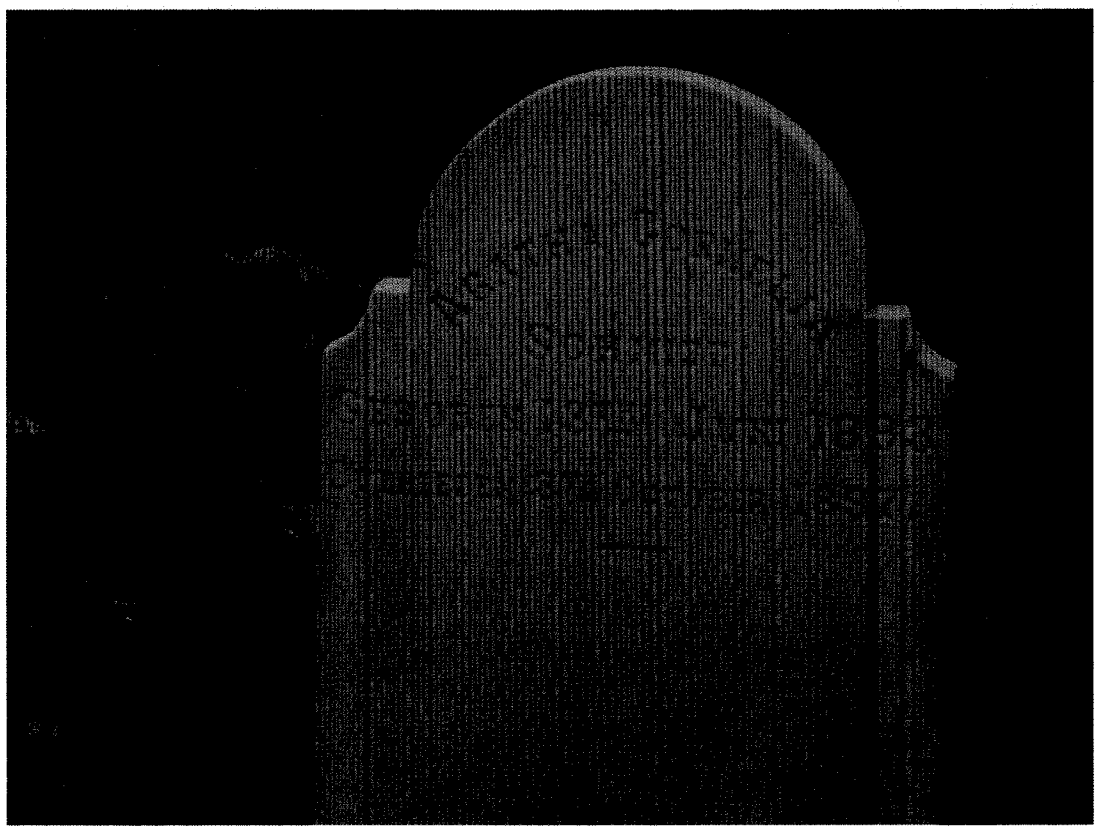


MZ6/GS006

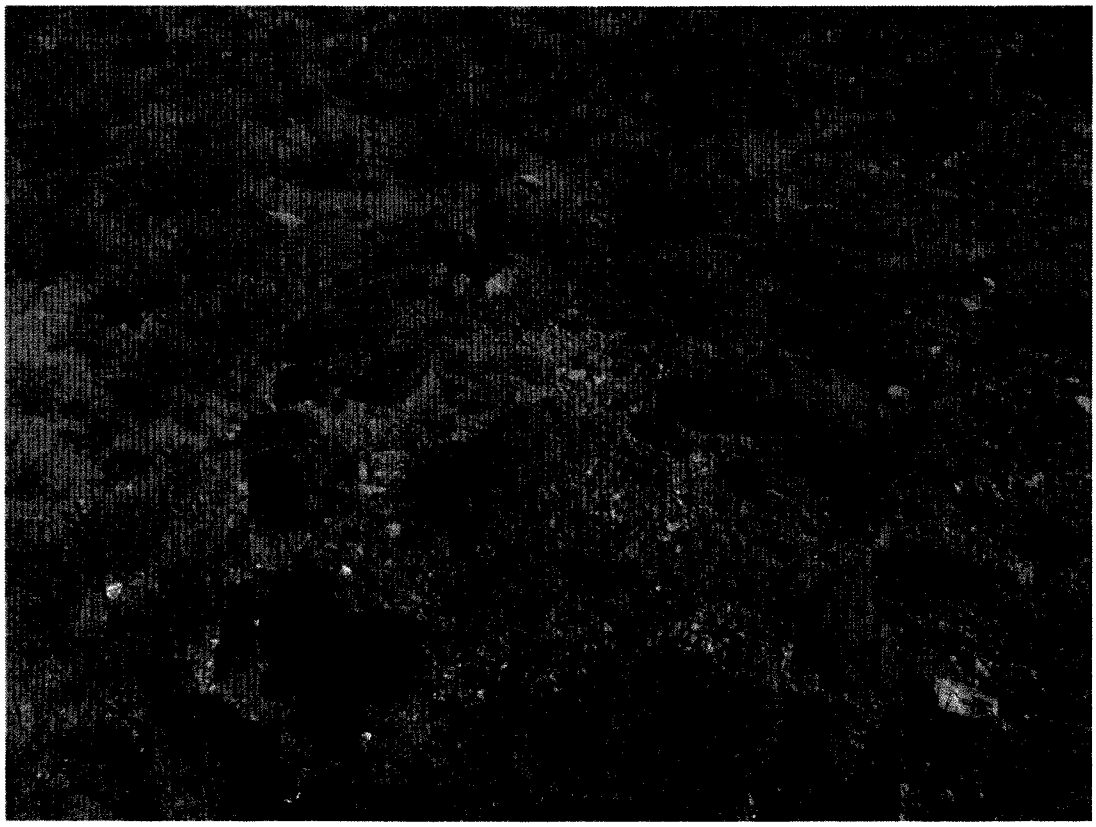


MZ6/GS007

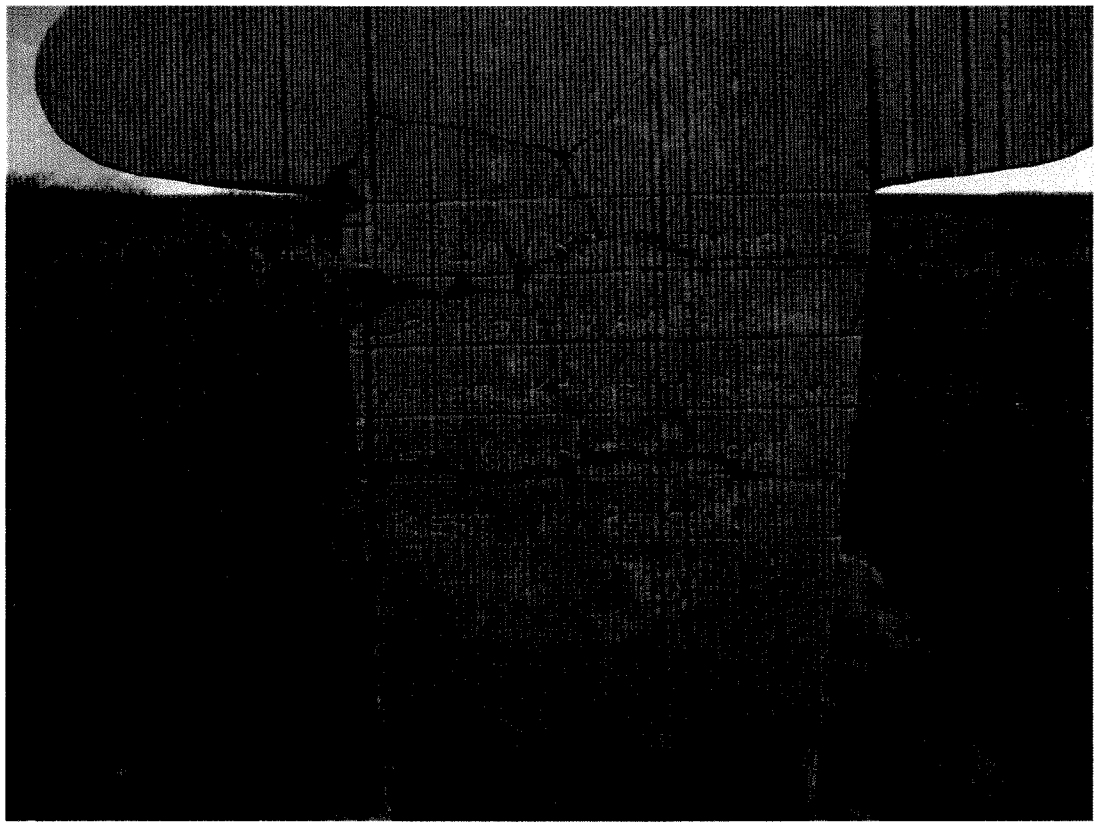




MZ7/GS001



MZ8/GS001

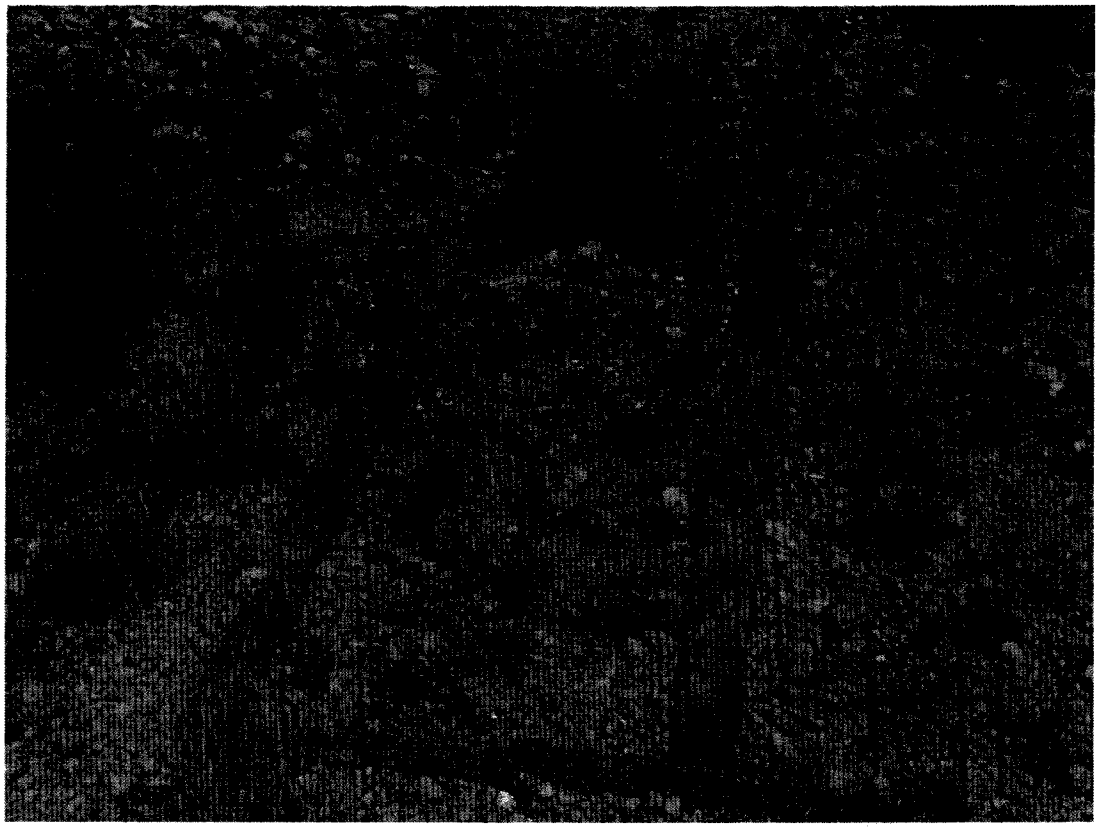


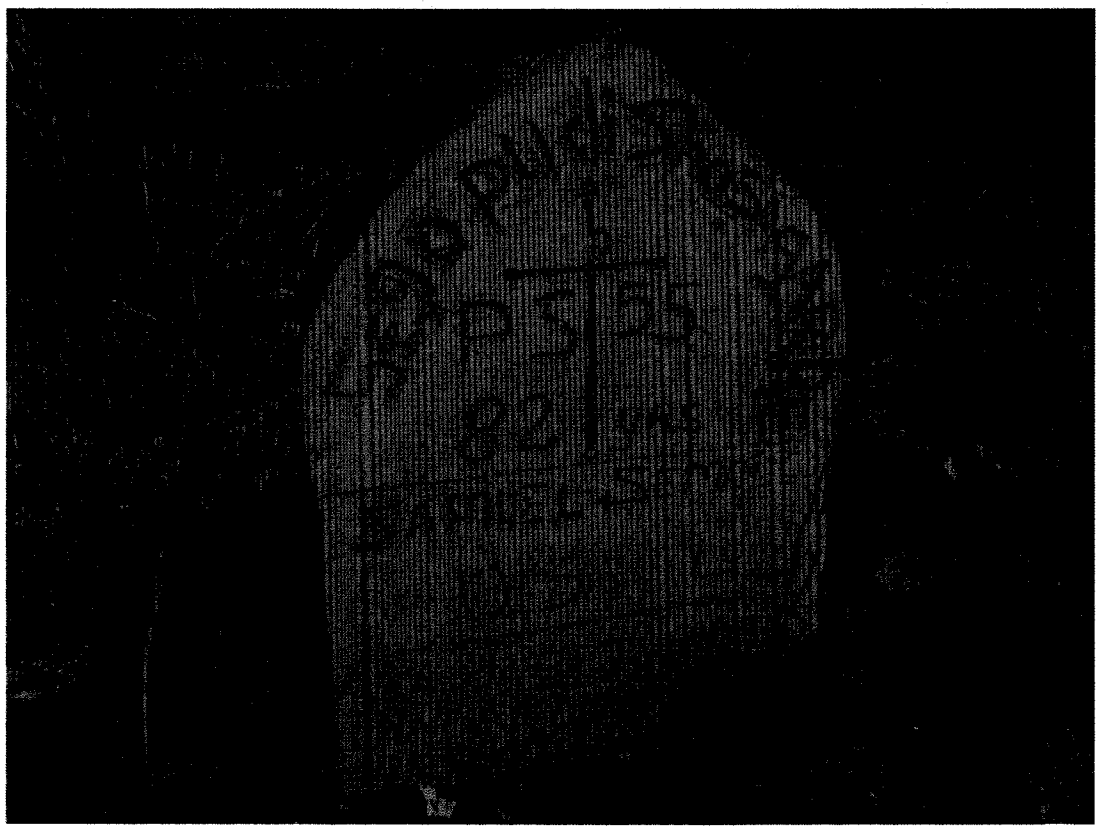
MZ12/GS001

MZ13/GS001

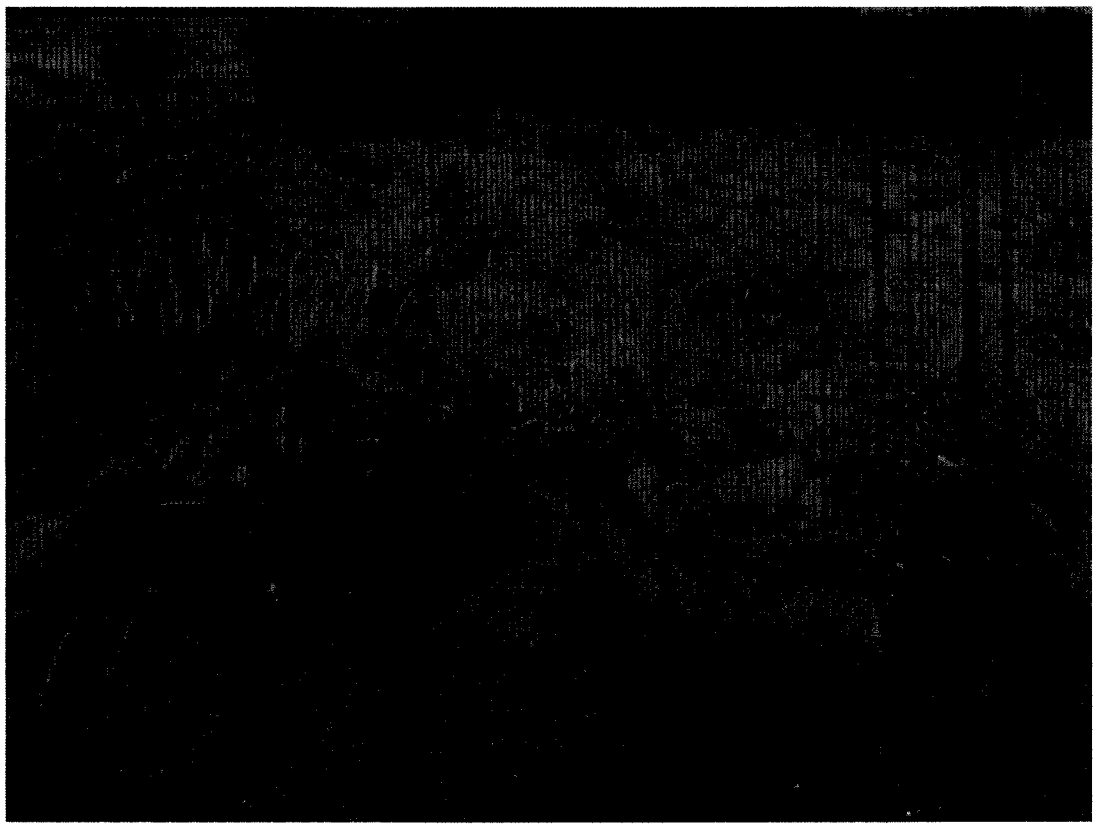
MZ14/GS001

MZ18/GS001



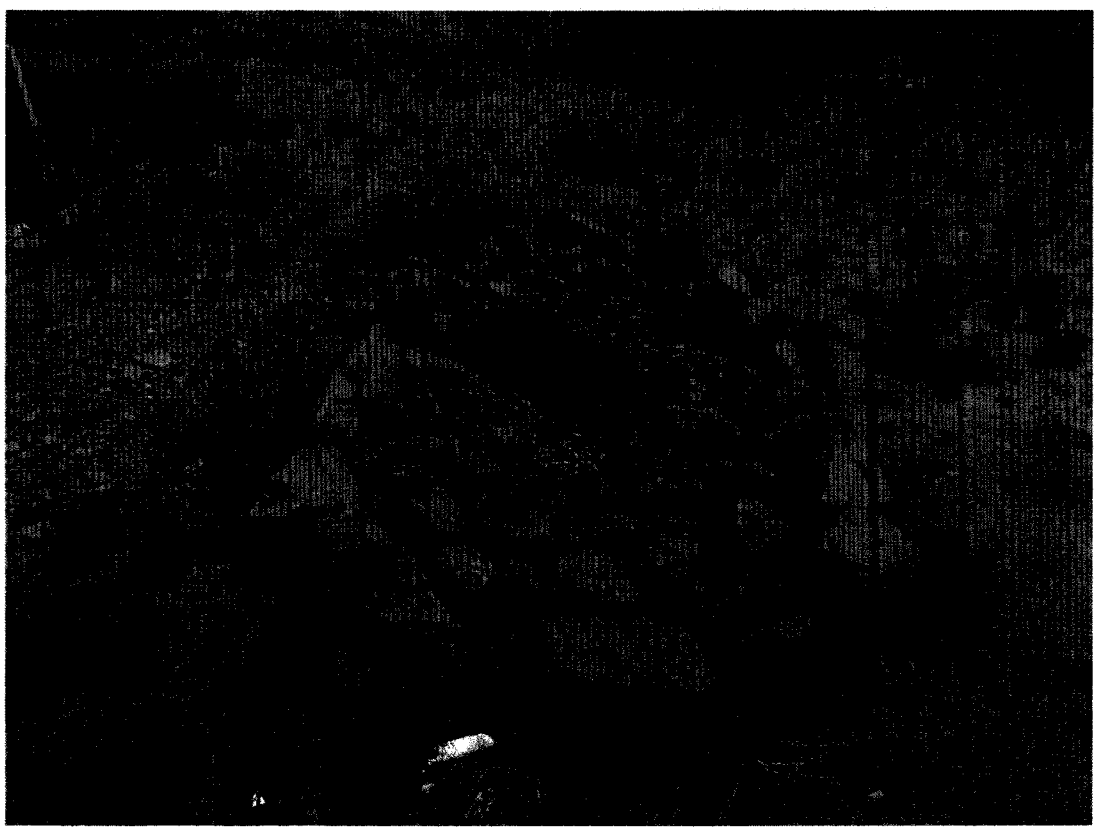


MZ18/GS002



MZ18/GS003

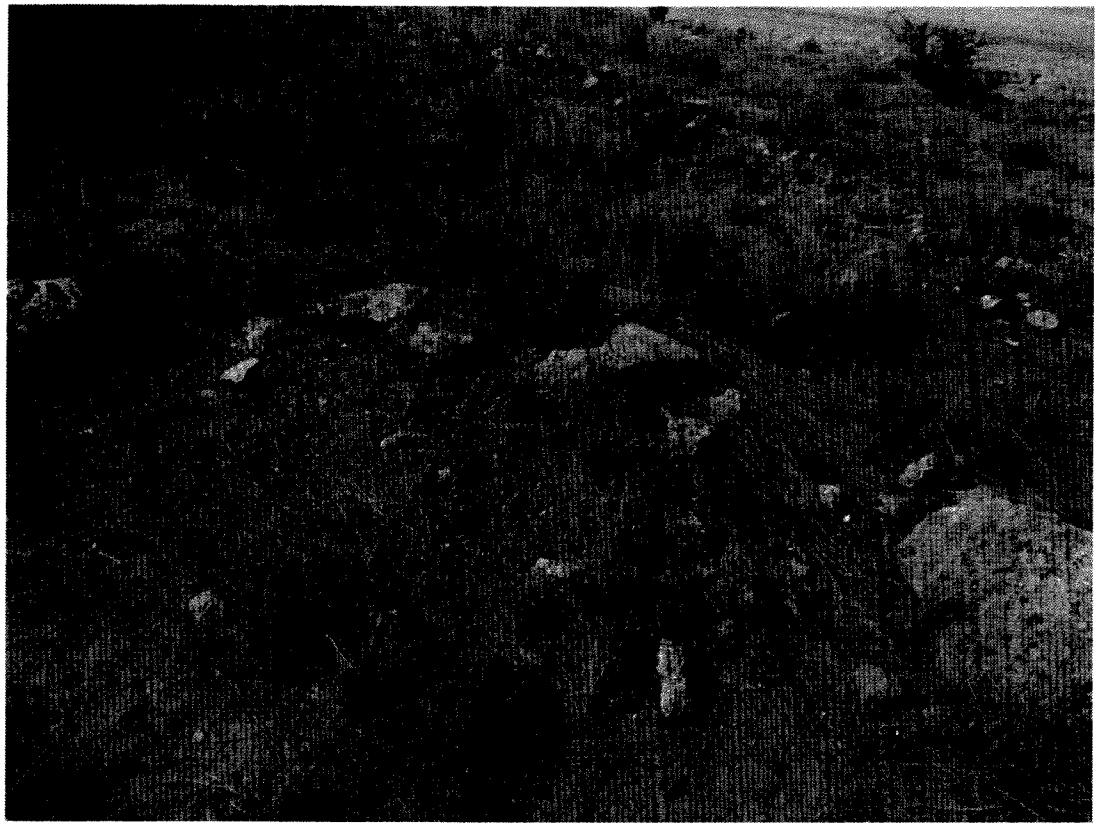
MZ19/GS001



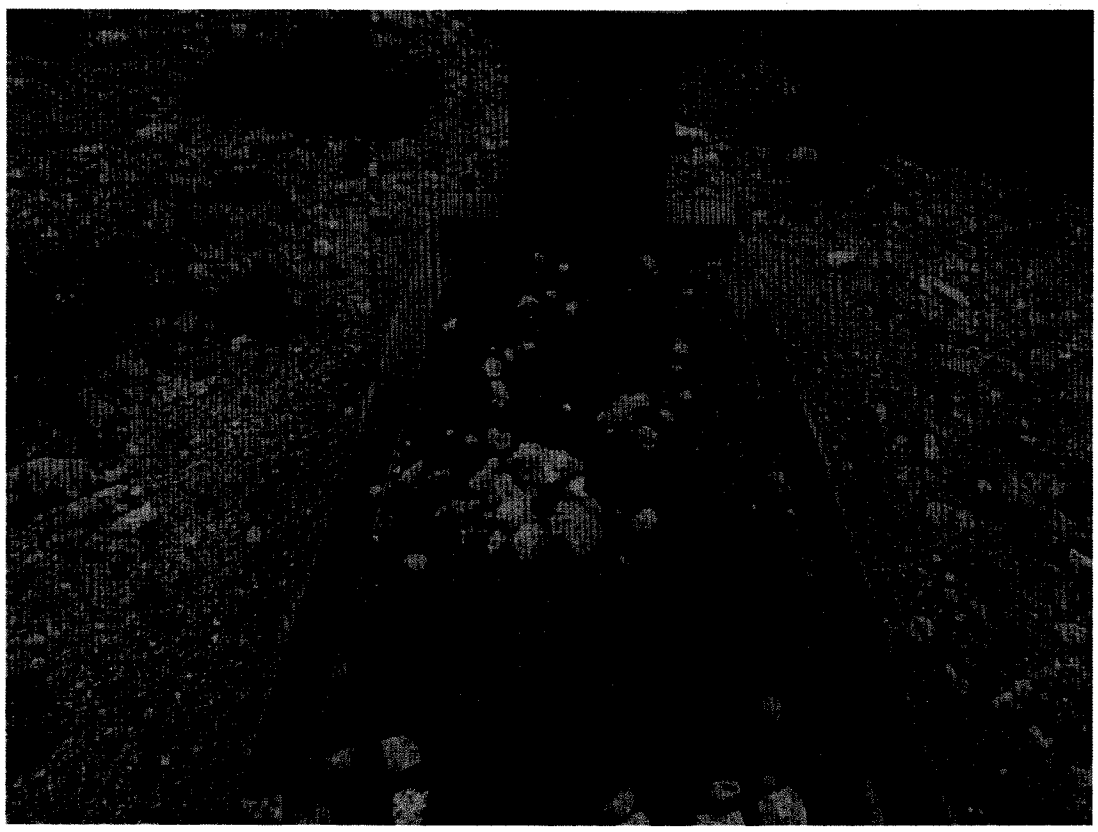
MZ22/GS001

MZ24/GS001

SCH/GS001



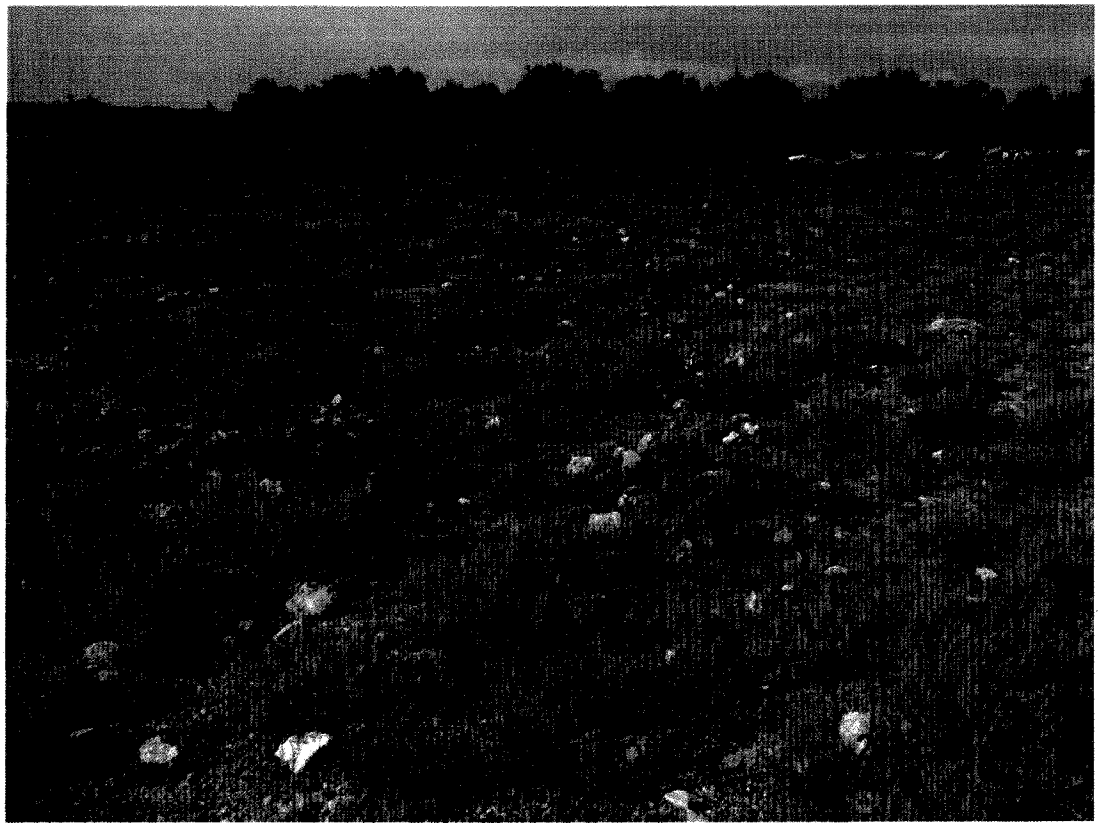
SCH/GS002

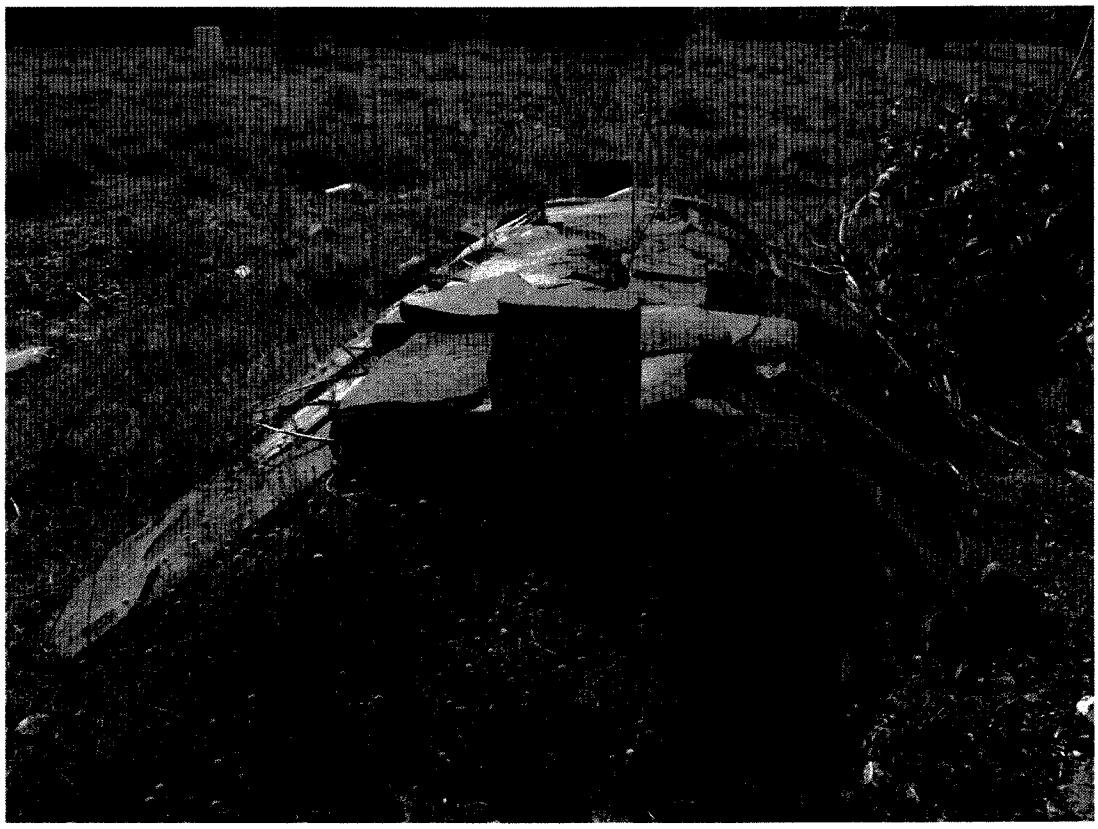


SCH/GS003

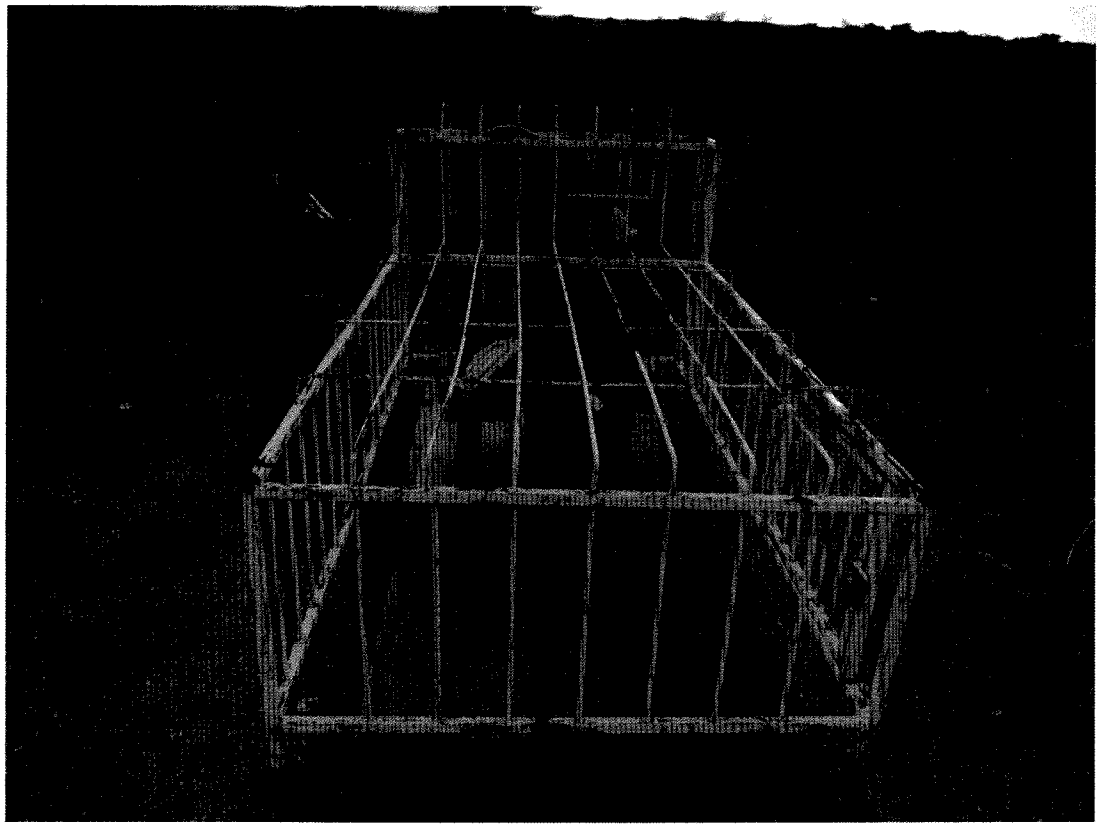
SCH/GS004

SCH/GS005

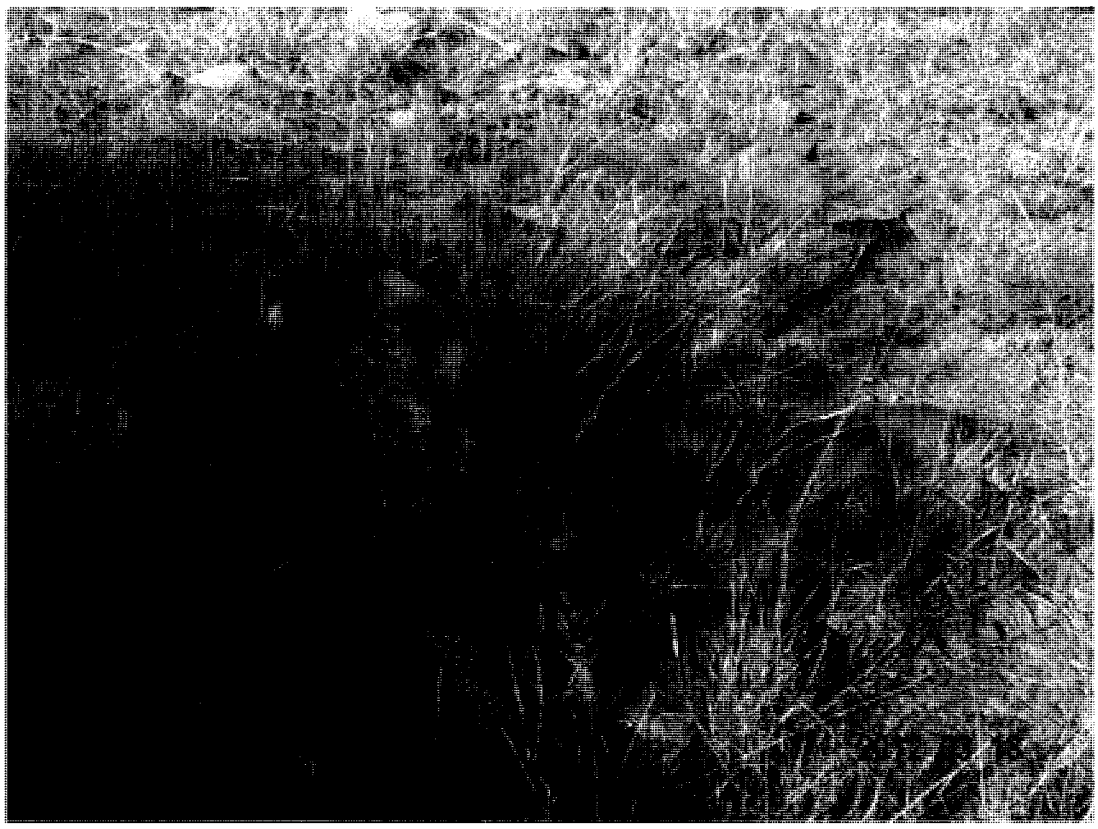




SCH/GS006

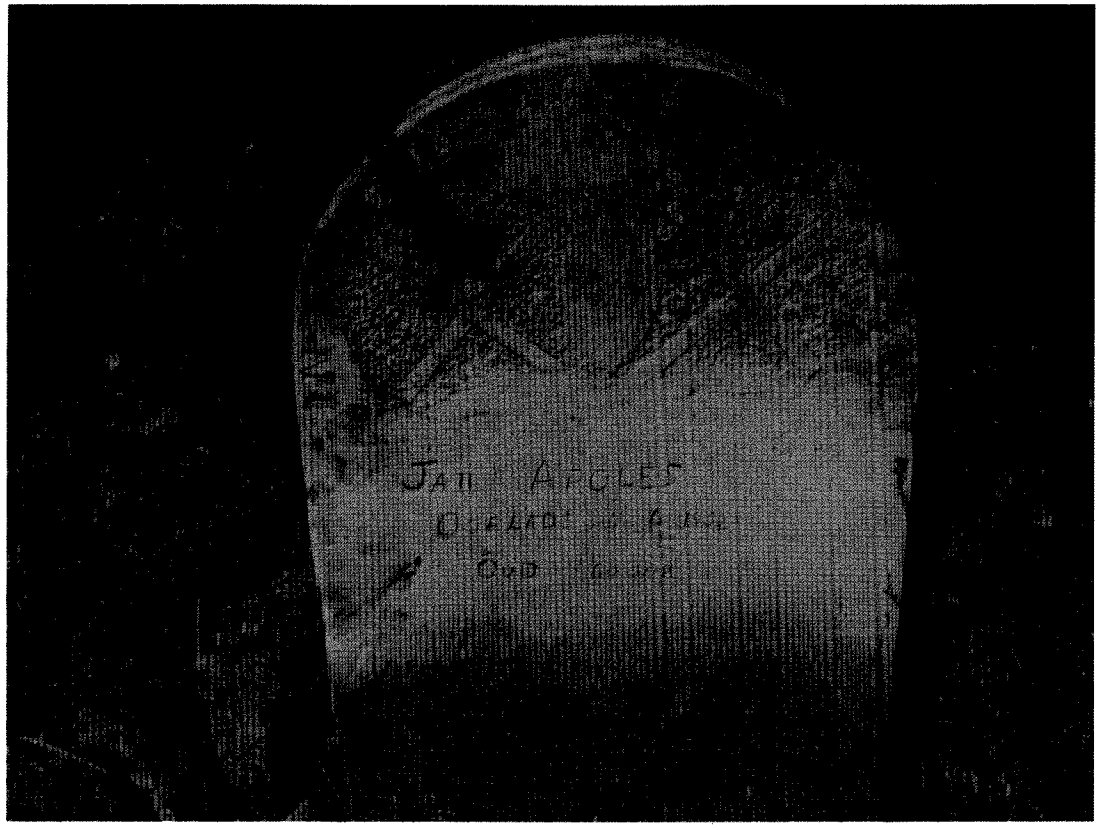


SCH/GS007



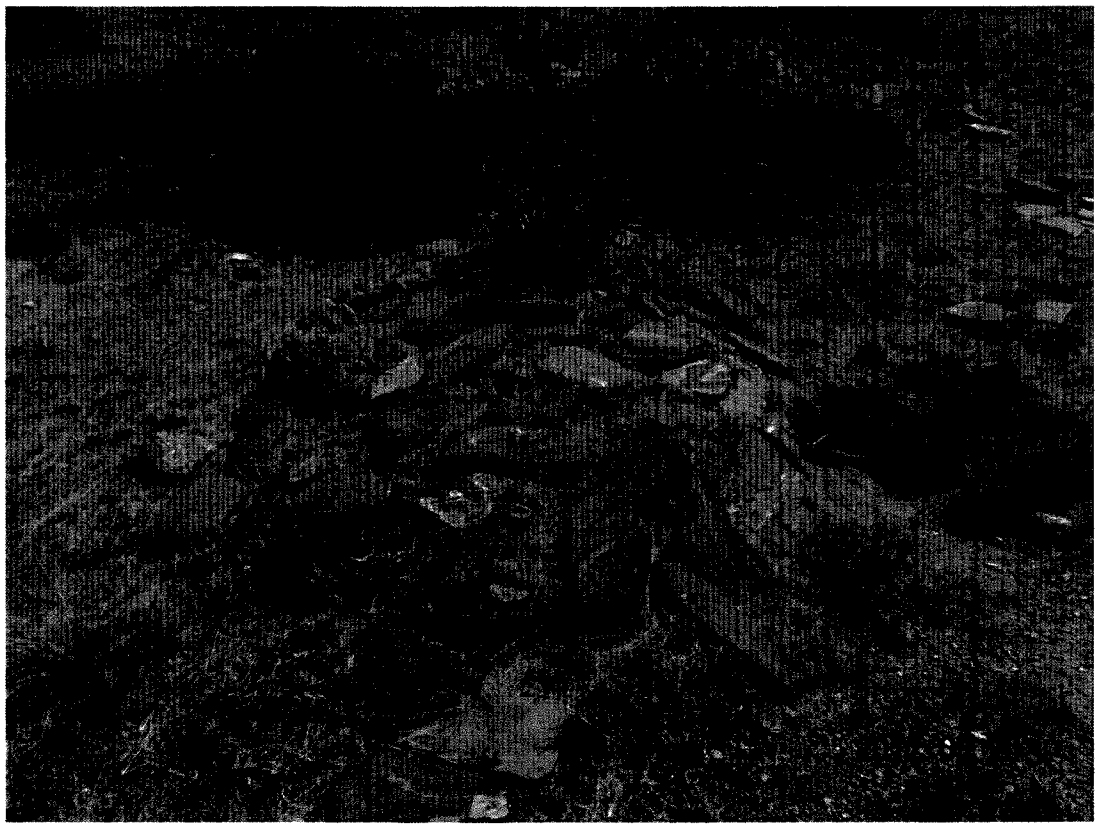
SCH/GS008

SCH/GS009

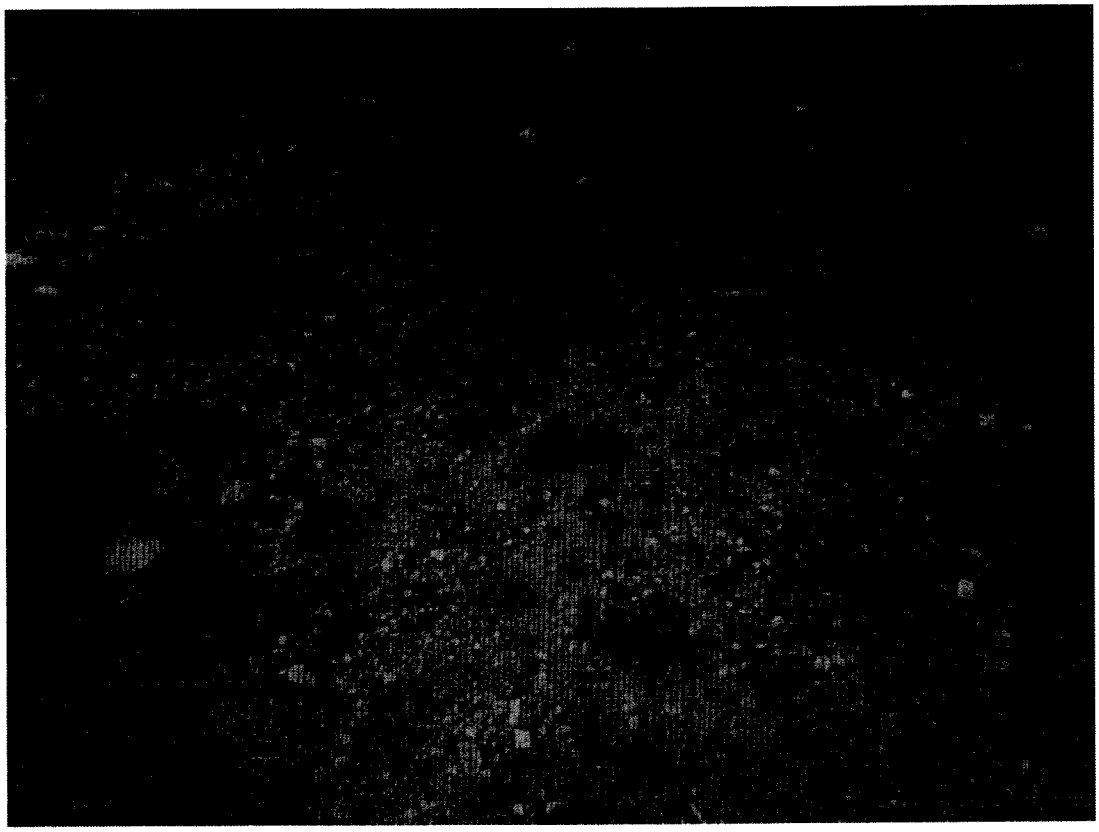


SCH/GS010

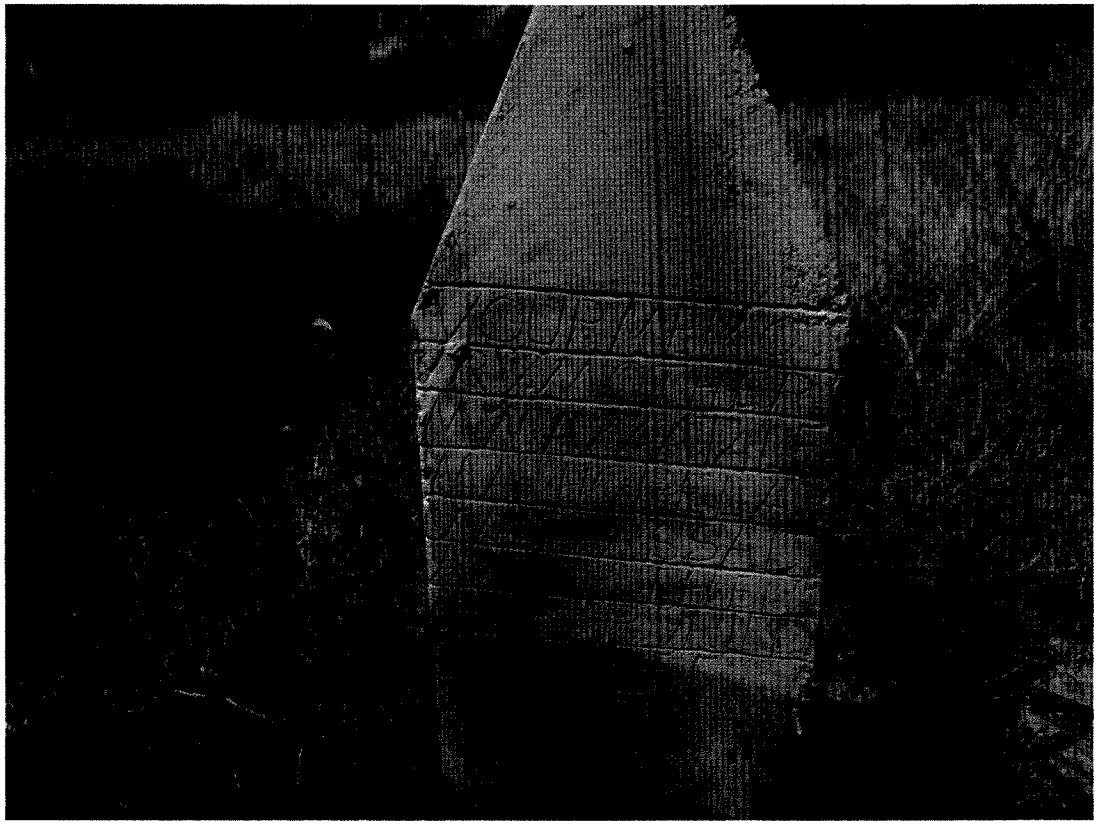
SCH/GS011



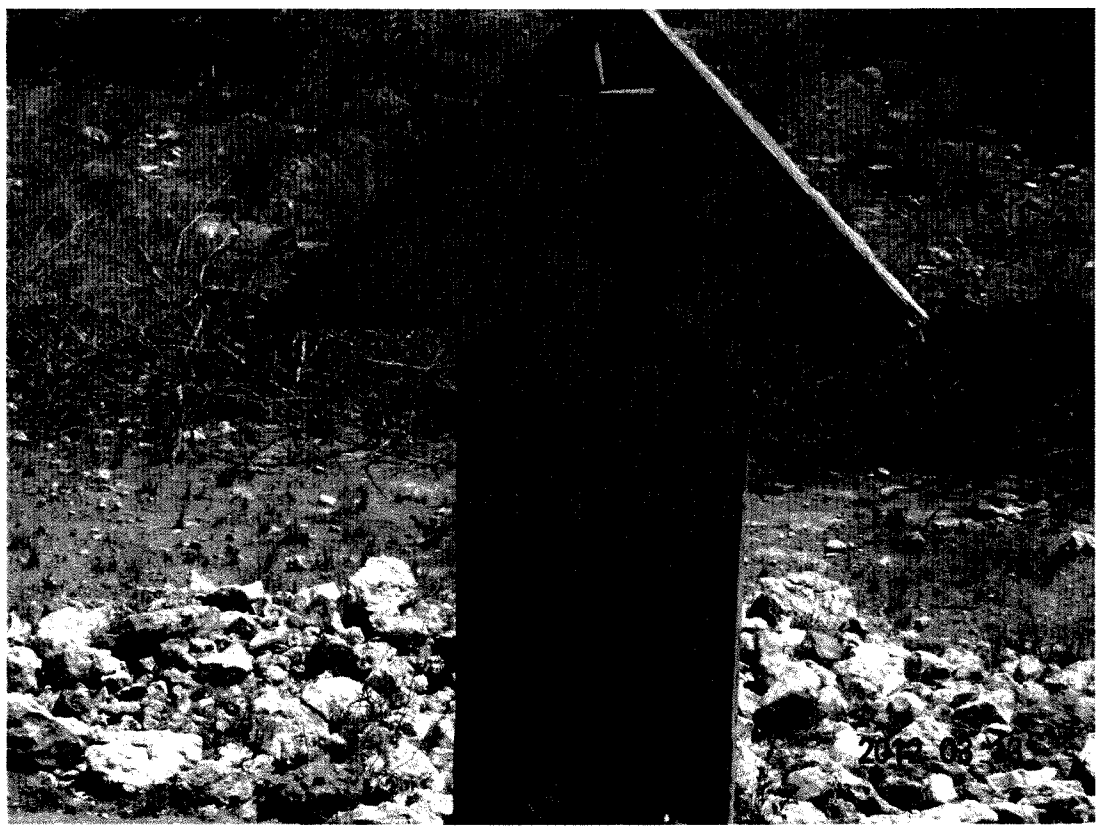
SCH/GS012



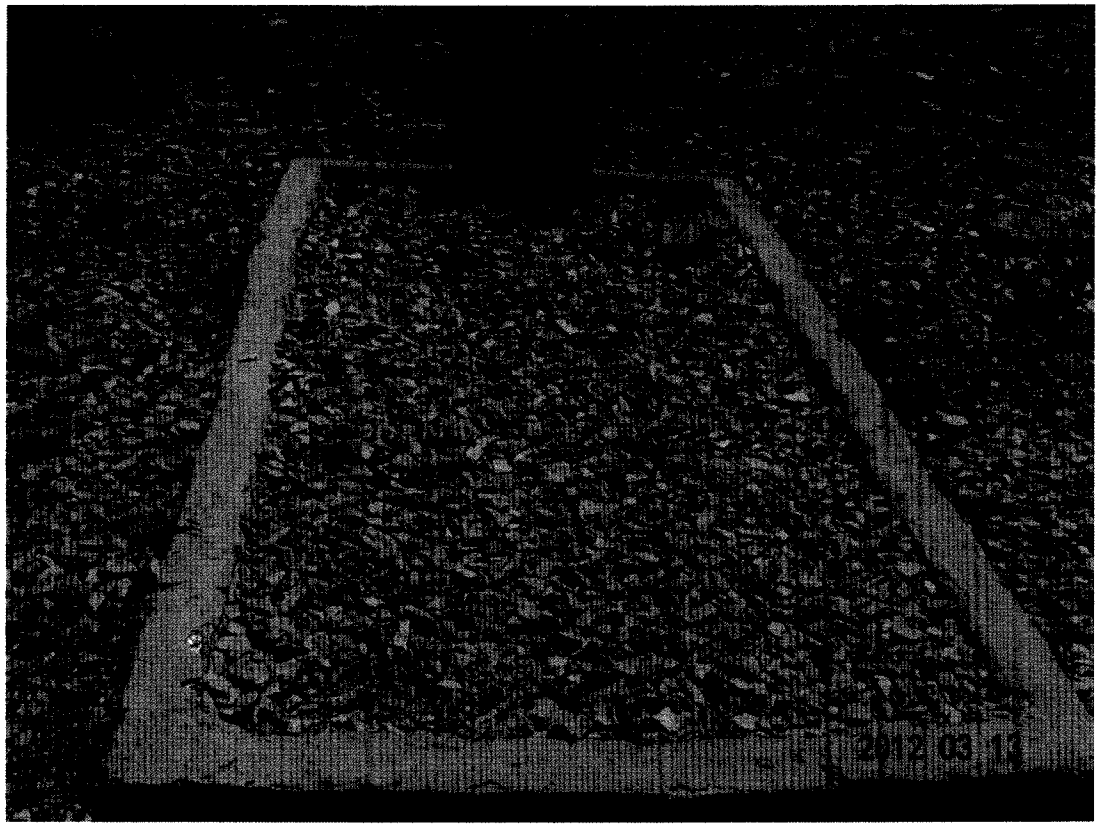
SCH/GS013



SCH/GS014



SCH/GS015



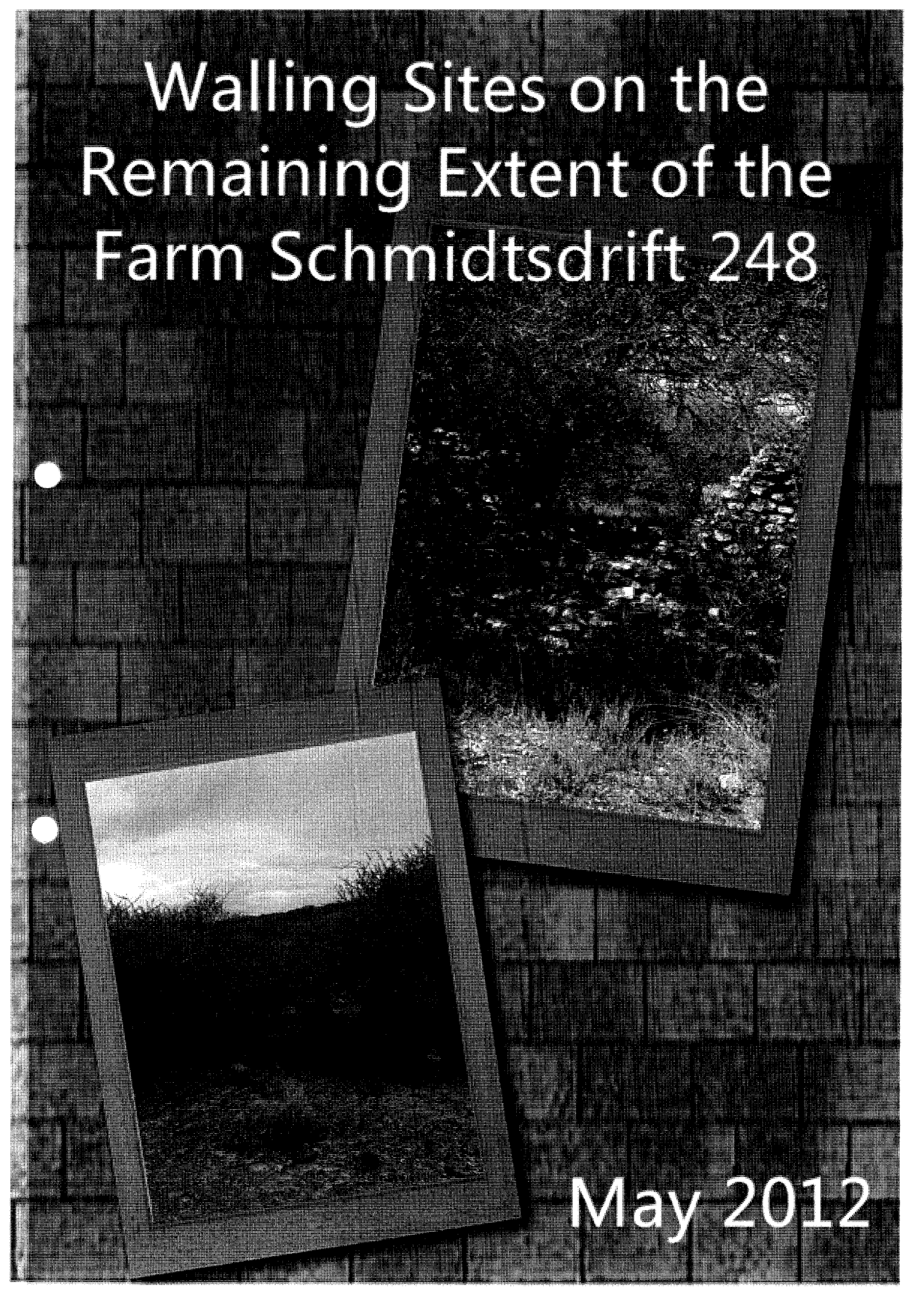
SCH/GS016

COMMUNITY MEMBERS ASSISTING INDENTIFICATION OF SITES

Annexure B

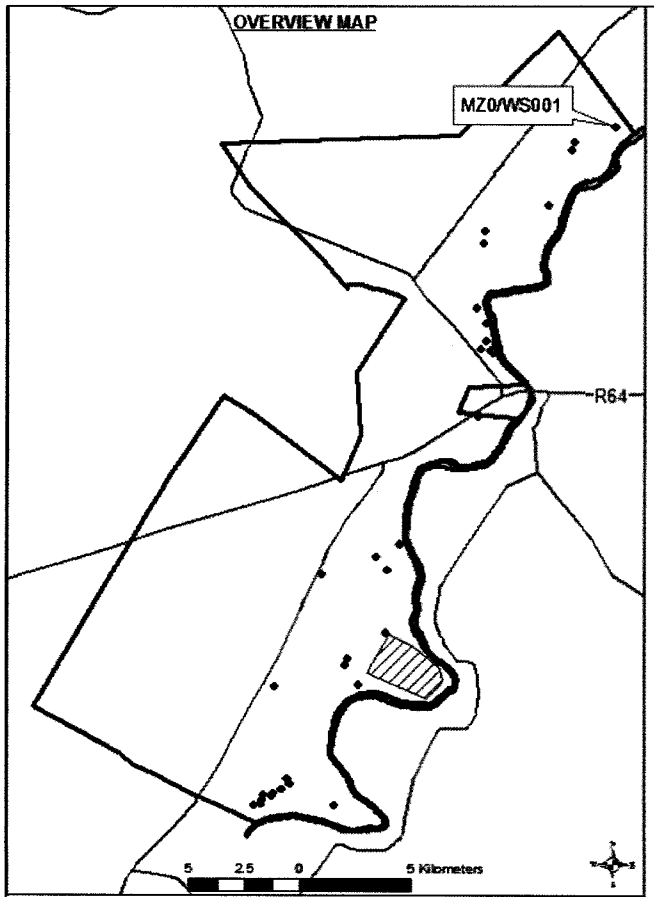
Walling Sites on the Remaining Extent of the Farm Schmidtsdrift 248

Walling Sites on the Remaining Extent of the Farm Schmidtsdrift 248



May 2012

MZ0/WS001



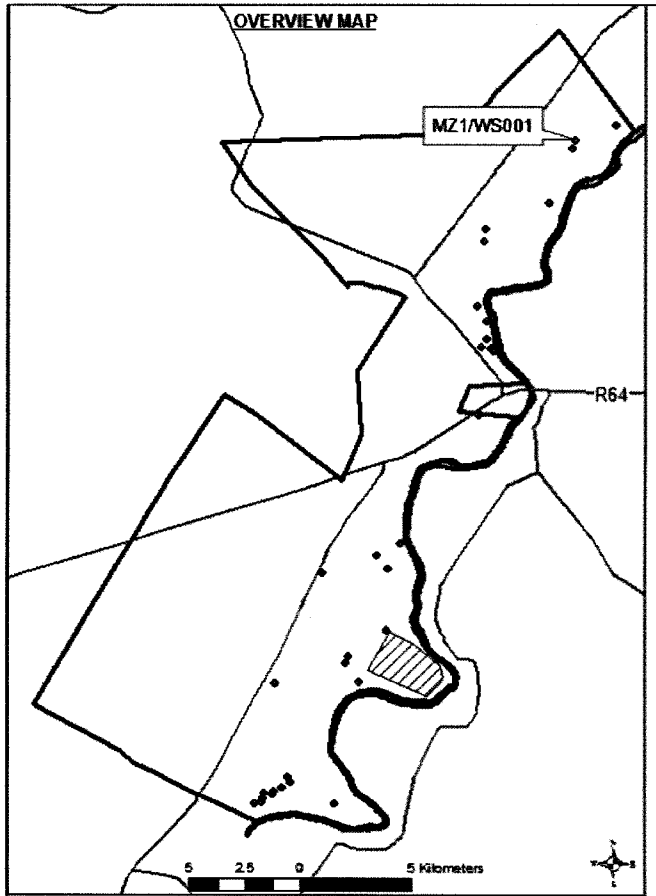
CENTRE COORDINATE
24°0'50.771"E
28°46'5.531"S

SURVEY SYSTEM:
TRANSVERSE MERCATOR
CENTRAL MERIDIAN: 25°
GCS_WGS_1984
DATUM: D_WGS_1984

Legend

- Walling Sites
- Excluded areas right
- Mining Right Application Area
- Roads
- Vaal River

MZ1/WS001



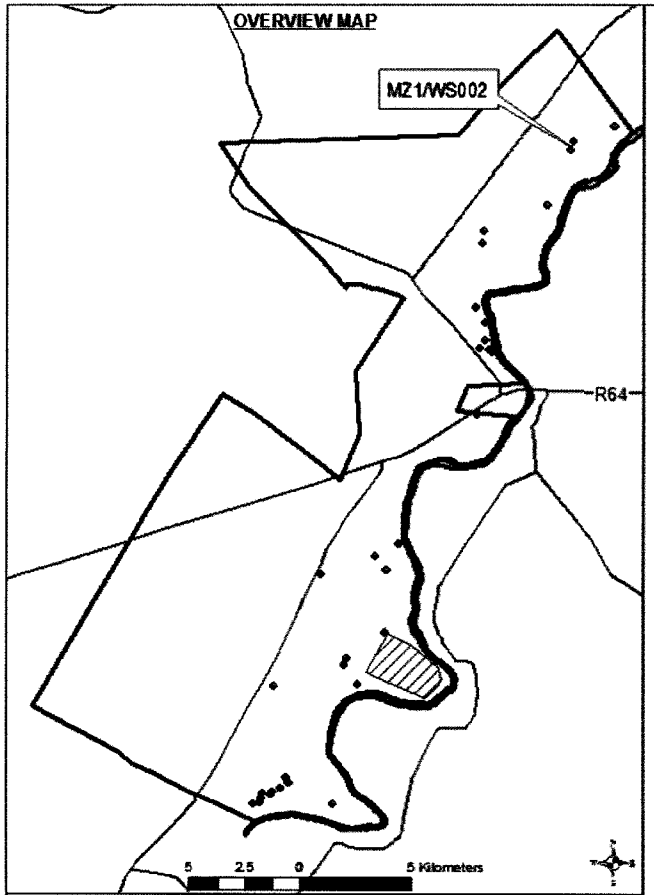
CENTRE COORDINATE
24°5'33.95"E
28°36'8.754"S

SURVEY SYSTEM:
TRANSVERSE MERCATOR
CENTRAL MERIDIAN: 25°
GCS_WGS_1984
DATUM: D_WGS_1984

Legend

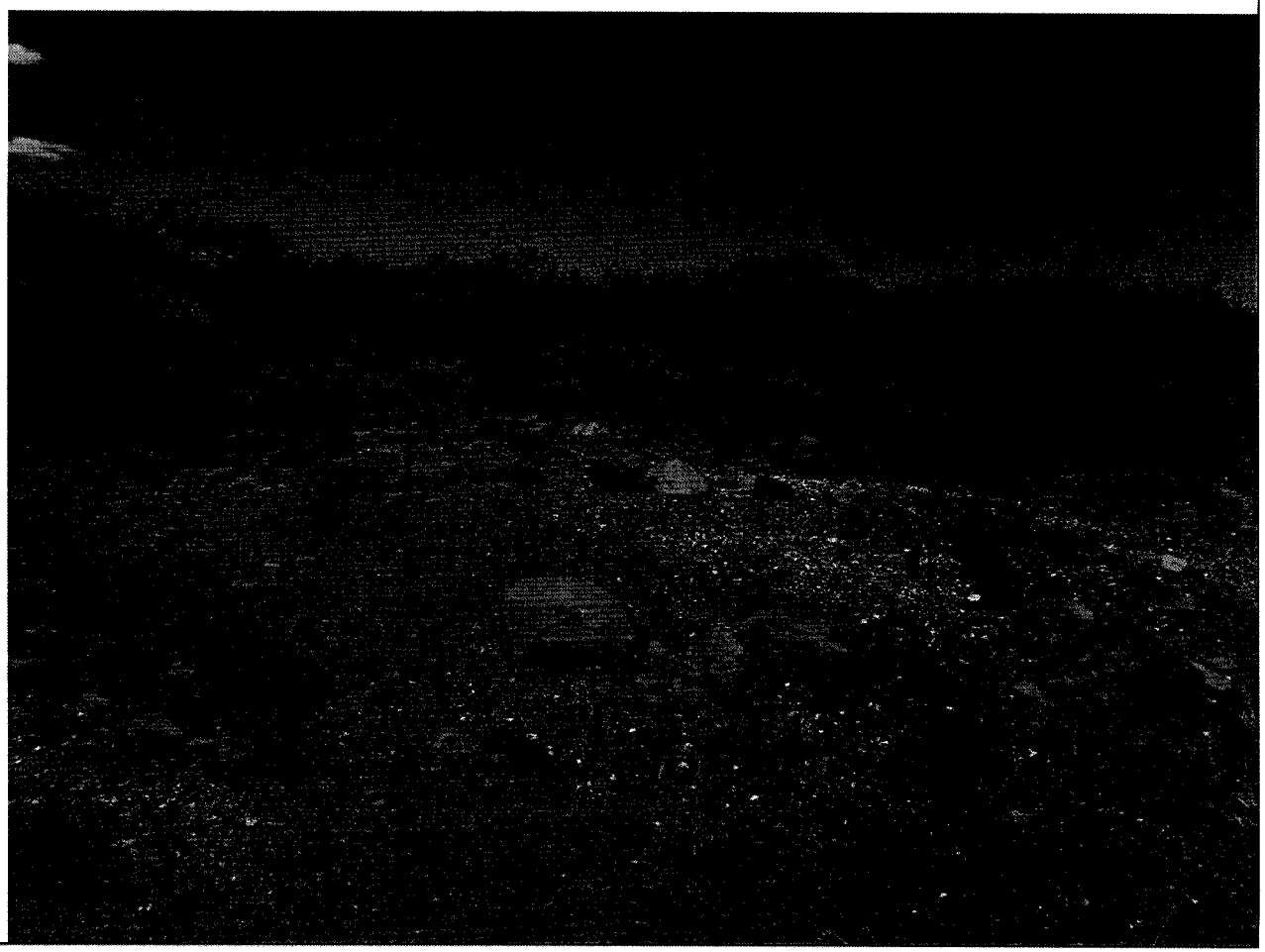
- Walling Sites
- Excluded areas right
- Mining Right Application Area
- Roads
- Vaal River

MZ1/WS002



CENTRE COORDINATE
24°5'30.36"E
28°36'21.446"S

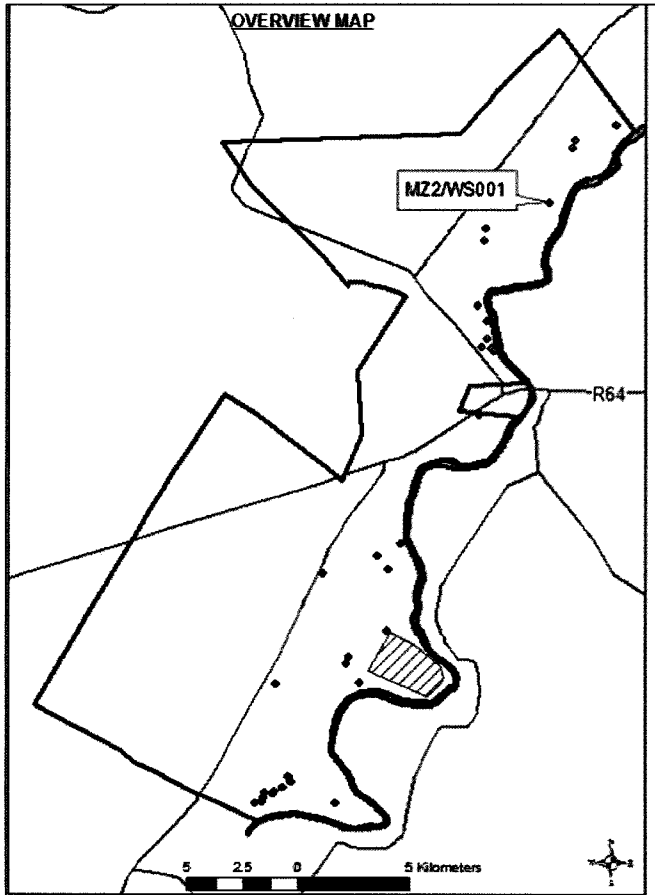
SURVEY SYSTEM:
TRANSVERSE MERCATOR
CENTRAL MERIDIAN: 25°
GCS_WGS_1984
DATUM: D_WGS_1984



Legend

- Walling Sites
- Excluded areas right
- Mining Right Application Area
- Roads
- Vaal River

MZ2/WS001



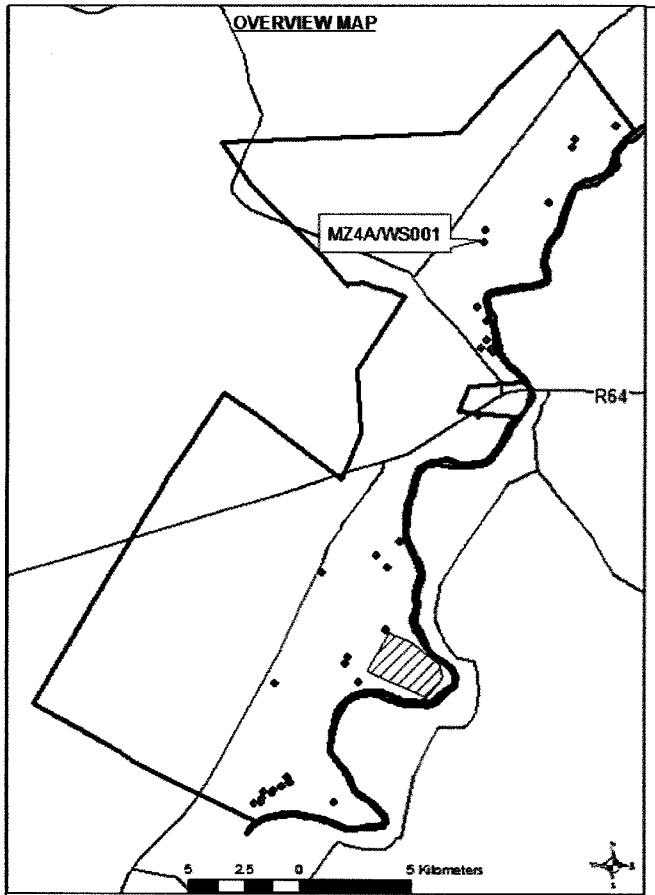
CENTRE COORDINATE
24°4'56.963"E
28°37'40.775"S

SURVEY SYSTEM:
TRANSVERSE MERCATOR
CENTRAL MERIDIAN: 25°
GCS_WGS_1984
DATUM: D_WGS_1984

Legend

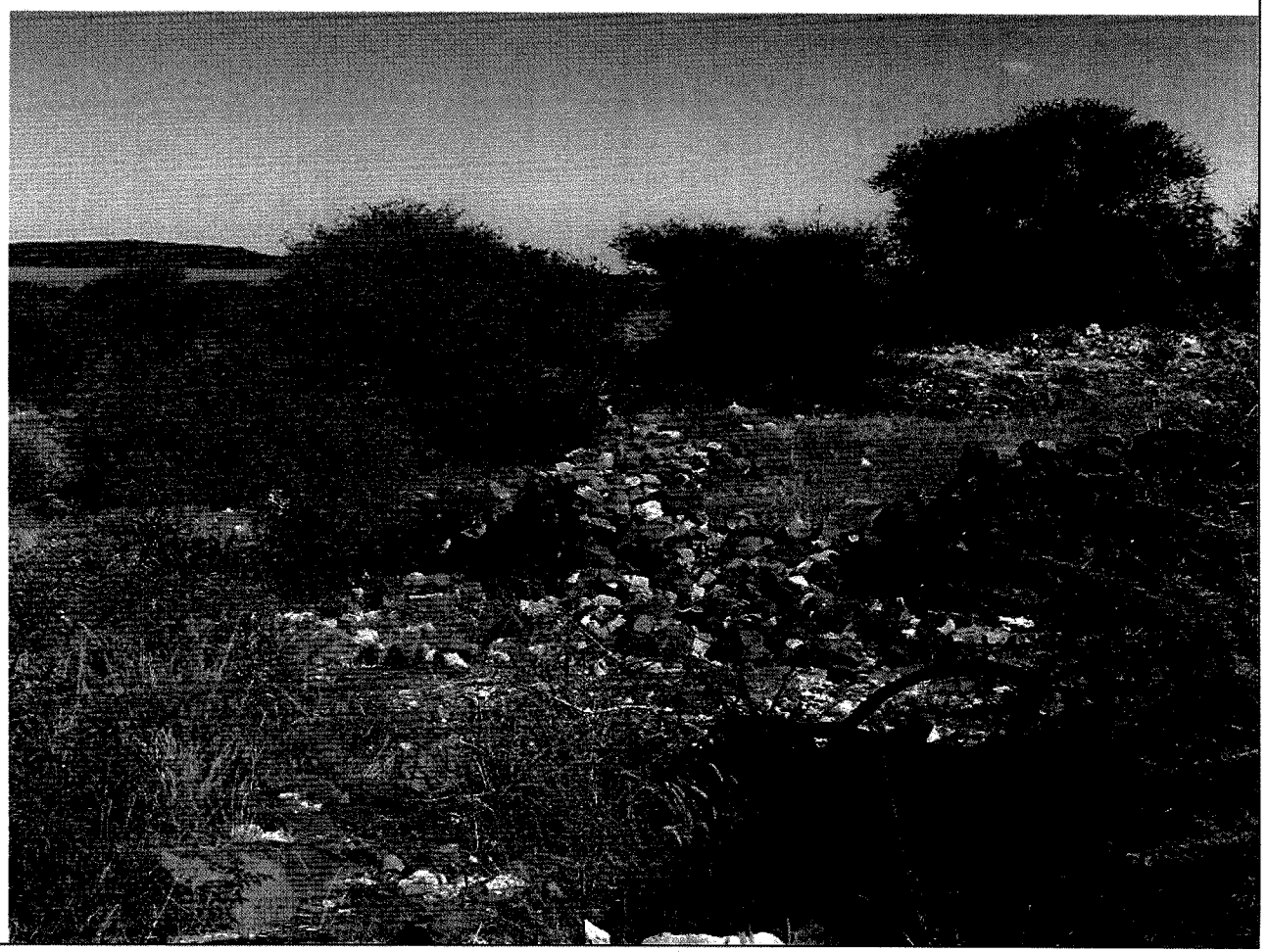
- Walling Sites
- Excluded areas right
- Mining Right Application Area
- Roads
- Vaal River

MZ4A/WS001



CENTRE COORDINATE
24°5'30.36"E
28°36'21.446"S

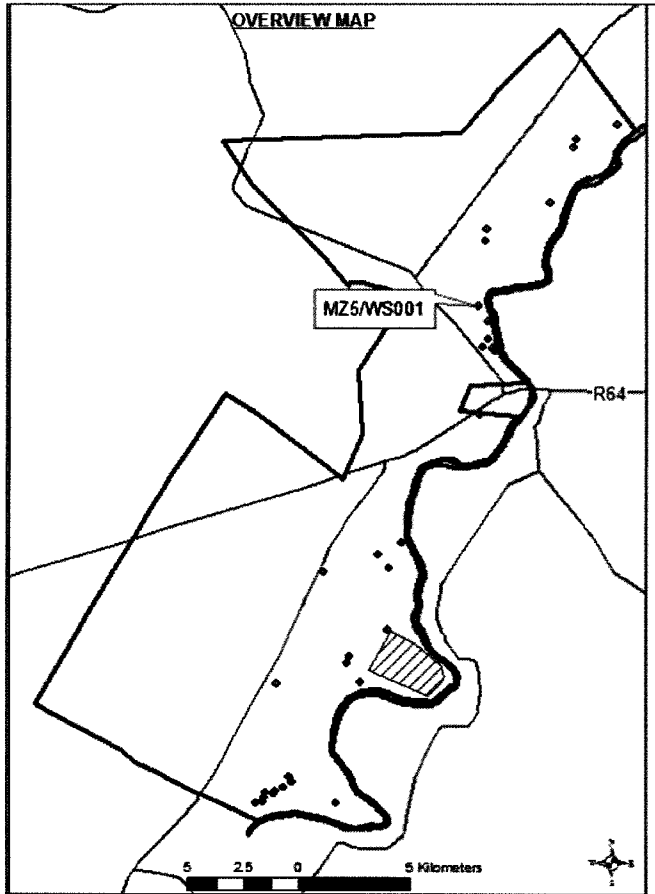
SURVEY SYSTEM:
TRANSVERSE MERCATOR
CENTRAL MERIDIAN: 25°
GCS_WGS_1984
DATUM: D_WGS_1984



Legend

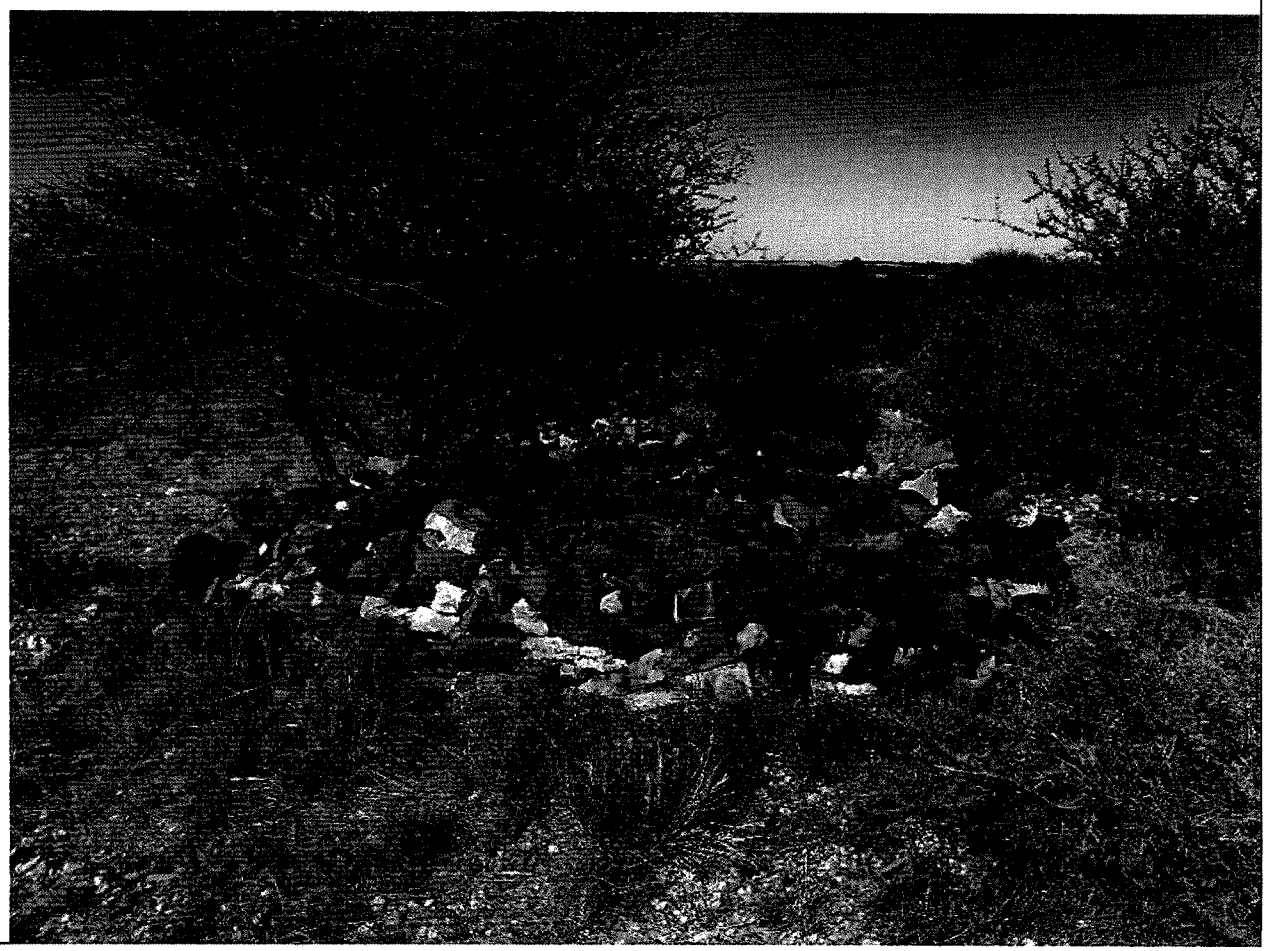
- Walling Sites
- Excluded areas right
- Mining Right Application Area
- Roads
- Vaal River

MZ5/WS001



CENTRE COORDINATE
24°3'13.744"E
28°40'11.64"S

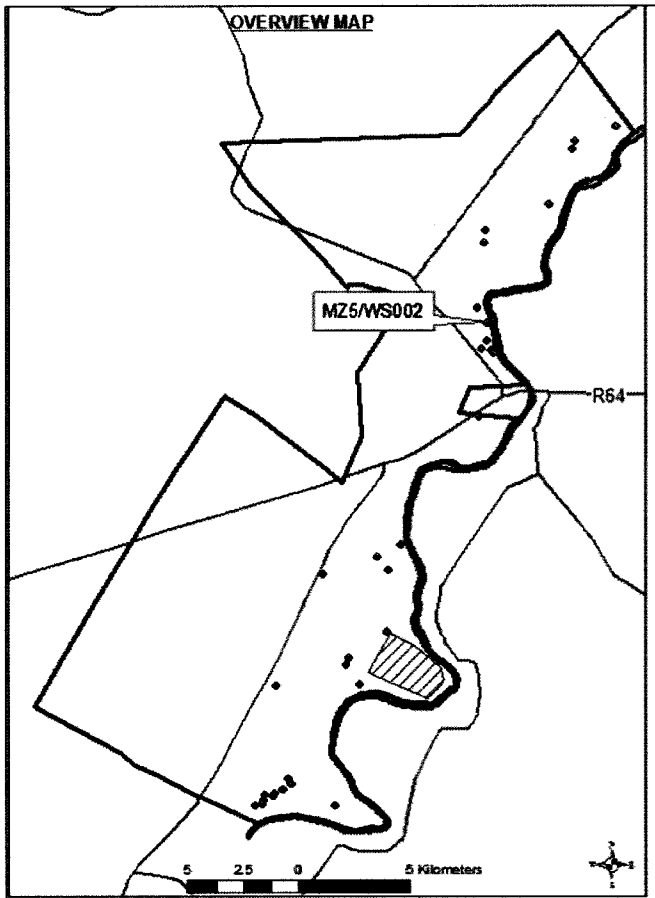
SURVEY SYSTEM:
TRANSVERSE MERCATOR
CENTRAL MERIDIAN: 25°
GCS_WGS_1984
DATUM: D_WGS_1984



Legend

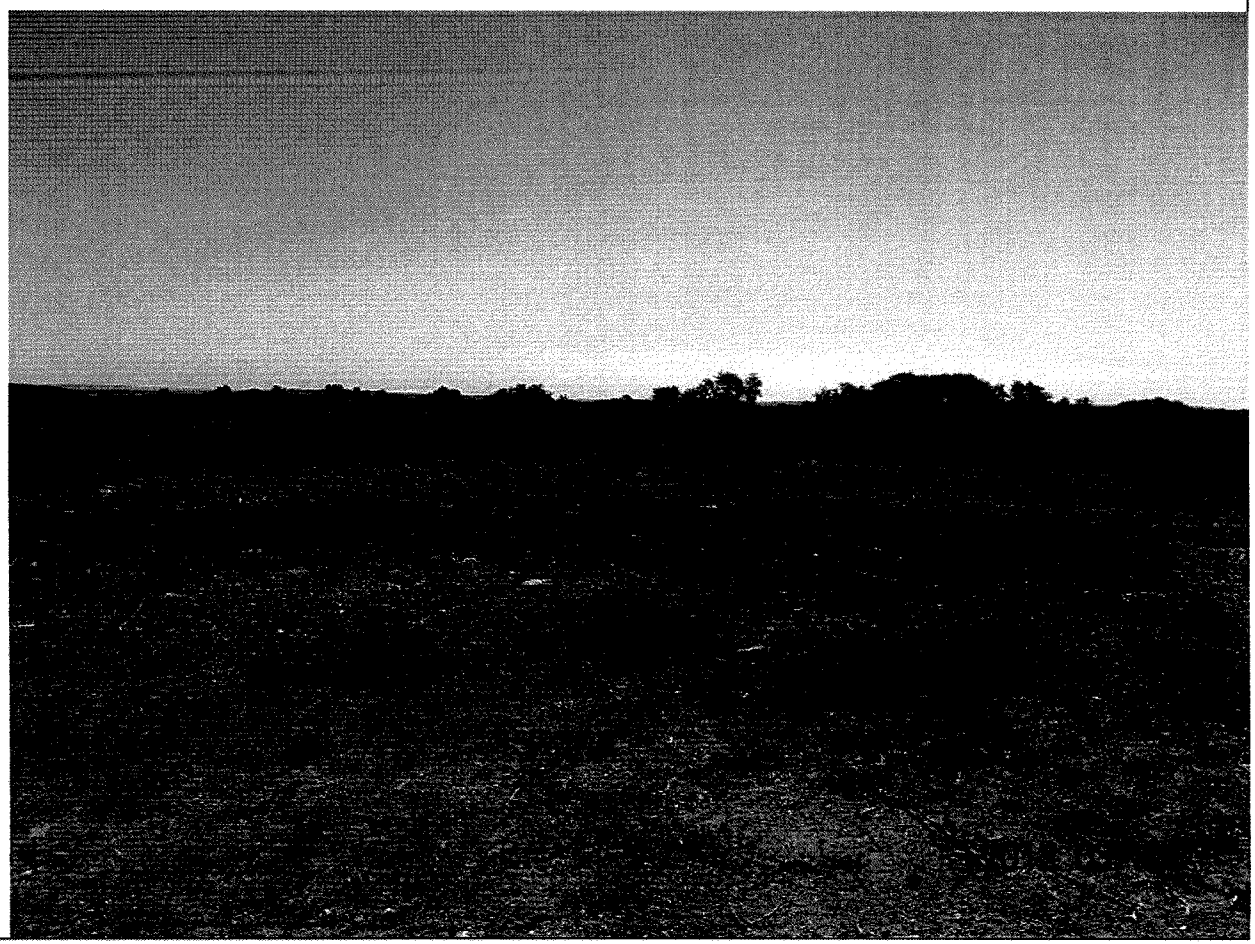
- Walling Sites
- Excluded areas right
- Mining Right Application Area
- Roads
- Vaal River

MZ5/WS002



CENTRE COORDINATE
24°3'26.514"E
28°40'32.555"S

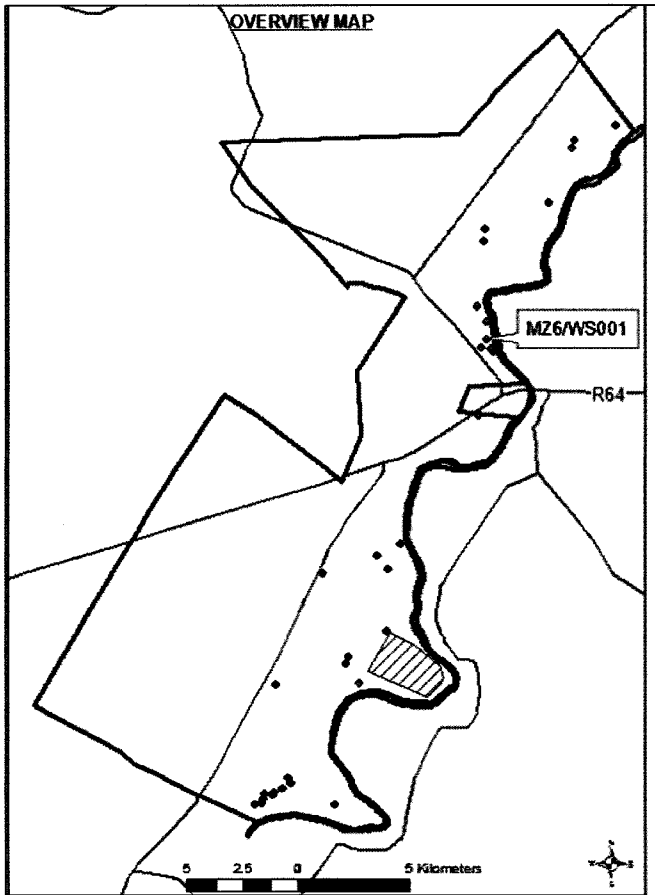
SURVEY SYSTEM:
TRANSVERSE MERCATOR
CENTRAL MERIDIAN: 25°
GCS_WGS_1984
DATUM: D_WGS_1984



Legend

- Walling Sites
- Excluded areas right
- Mining Right Application Area
- Roads
- Vaal River

MZ6/WS001



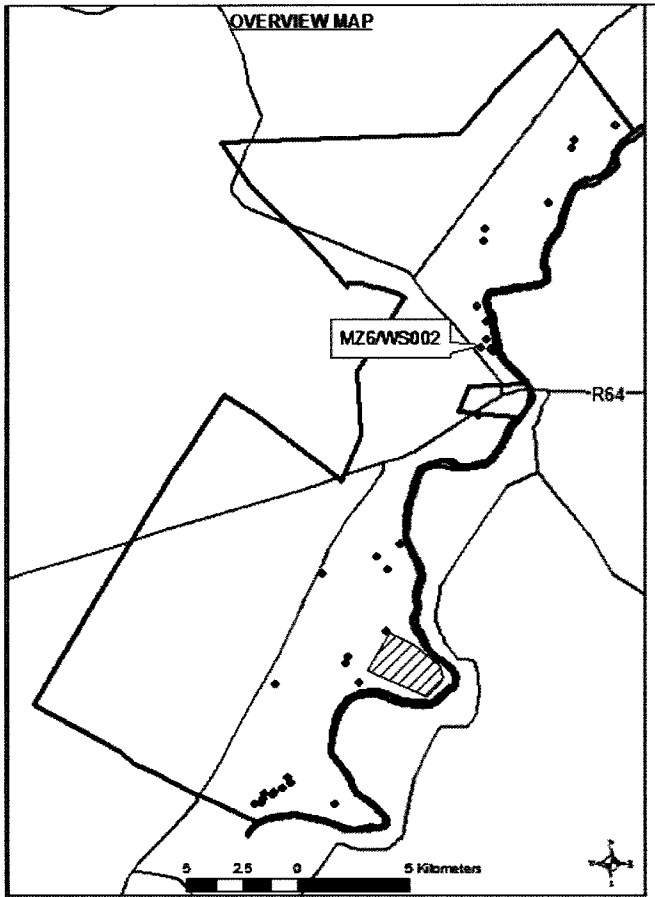
CENTRE COORDINATE
24°3'13.744"E
28°40'11.64"S

SURVEY SYSTEM:
TRANSVERSE MERCATOR
CENTRAL MERIDIAN: 25°
GCS_WGS_1984
DATUM: D_WGS_1984

Legend

- Walling Sites
- Excluded areas right
- Mining Right Application Area
- Roads
- Vaal River

MZ6/WS002



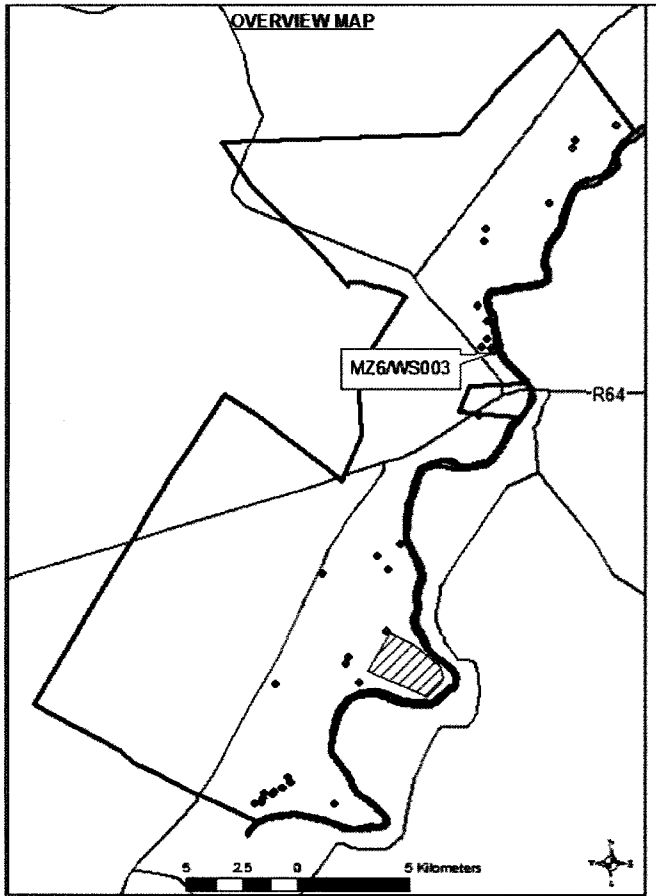
CENTRE COORDINATE
24°3'19.536"E
28°41'11.779"S

SURVEY SYSTEM:
TRANSVERSE MERCATOR
CENTRAL MERIDIAN: 25°
GCS_WGS_1984
DATUM: D_WGS_1984

Legend

- Walling Sites
- Excluded areas right
- Mining Right Application Area
- Roads
- Vaal River

MZ6/WS003



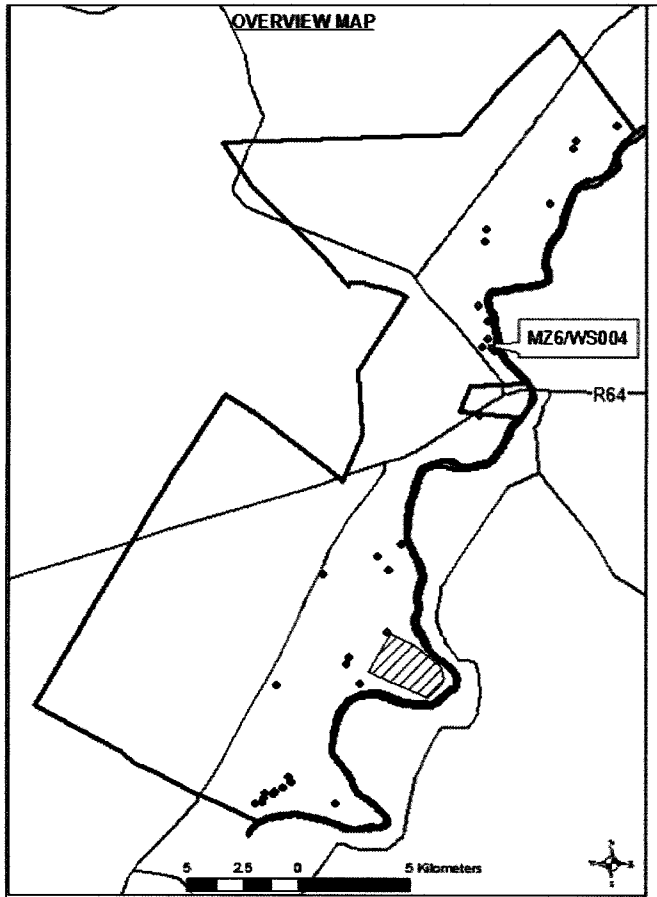
CENTRE COORDINATE
24°3'19.536"E
28°41'11.779"S

SURVEY SYSTEM:
TRANSVERSE MERCATOR
CENTRAL MERIDIAN: 25°
GCS_WGS_1984
DATUM: D_WGS_1984

Legend

- Walling Sites
- Excluded areas right
- Mining Right Application Area
- Roads
- Vaal River

MZ6/WS004



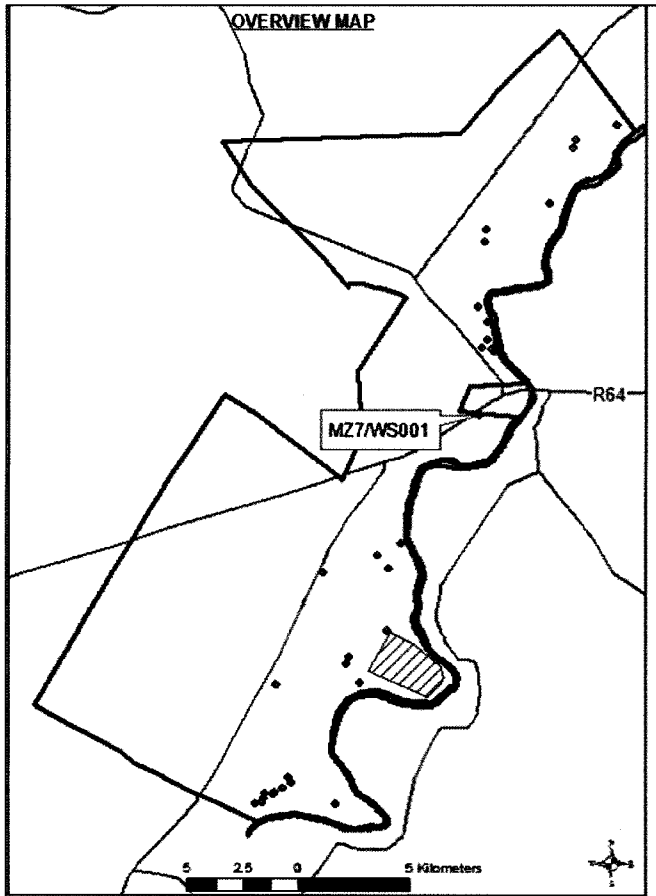
CENTRE COORDINATE
24°3'33.397"E
28°41'13.424"S

SURVEY SYSTEM:
TRANSVERSE MERCATOR
CENTRAL MERIDIAN: 25°
GCS_WGS_1984
DATUM: D_WGS_1984

Legend

- Walling Sites
- Excluded areas right
- Mining Right Application Area
- Roads
- Vaal River

MZ7/WS001



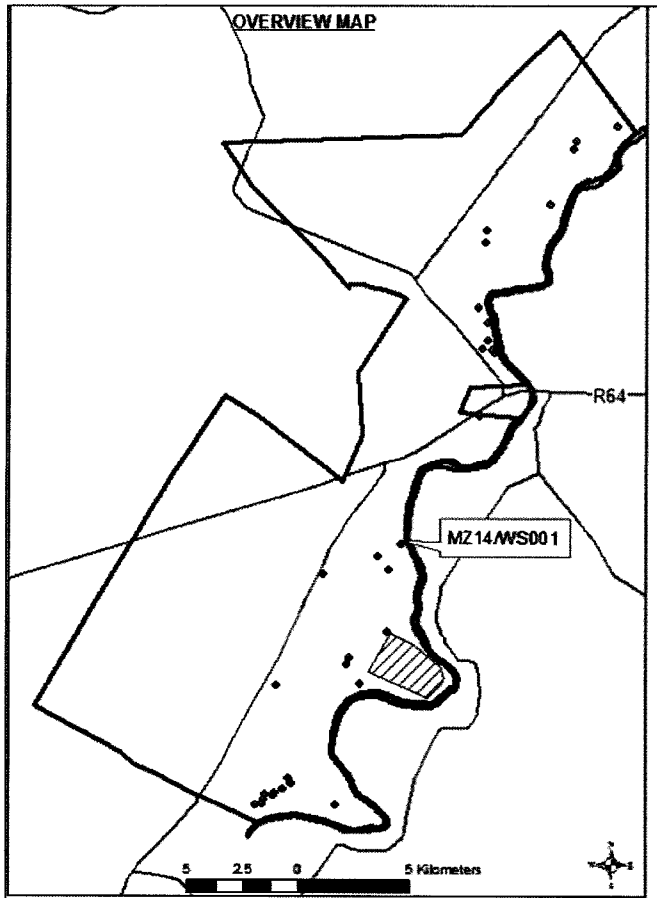
CENTRE COORDINATE
24°3'15.346"E
28°42'49.943"S

SURVEY SYSTEM:
TRANSVERSE MERCATOR
CENTRAL MERIDIAN: 25°
GCS_WGS_1984
DATUM: D_WGS_1984

Legend

- Walling Sites
- Excluded areas right
- Mining Right Application Area
- Roads
- Vaal River

MZ14/WS001



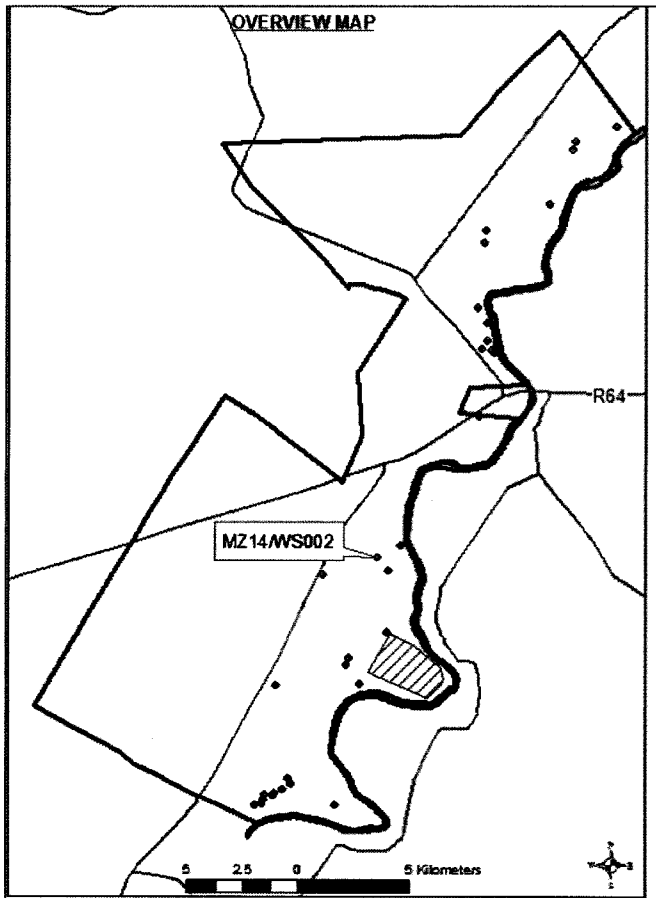
CENTRE COORDINATE
24°3'15.346"E
28°42'49.943"S

SURVEY SYSTEM:
TRANSVERSE MERCATOR
CENTRAL MERIDIAN: 25°
GCS_WGS_1984
DATUM: D_WGS_1984

Legend

- Walling Sites
- Excluded areas right
- Mining Right Application Area
- Roads
- Vaal River

MZ14/WS002



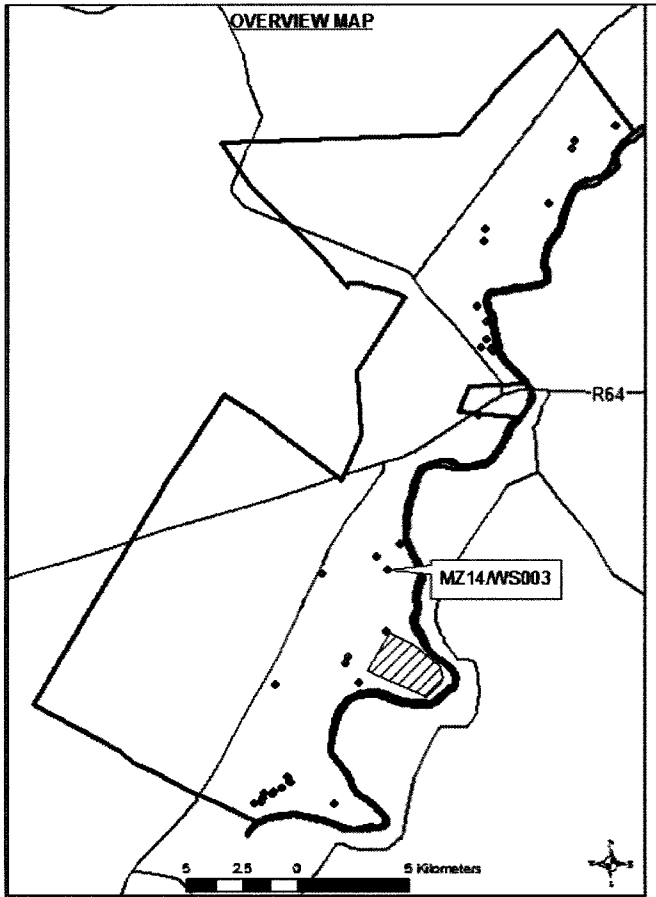
CENTRE COORDINATE
24°0'47.293"E
28°46'13.627"S

SURVEY SYSTEM:
TRANSVERSE MERCATOR
CENTRAL MERIDIAN: 25°
GCS_WGS_1984
DATUM: D_WGS_1984

Legend

- Walling Sites
- Excluded areas right
- Mining Right Application Area
- Roads
- Vaal River

MZ14/WS003



CENTRE COORDINATE
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28°46'33.024"S

SURVEY SYSTEM:
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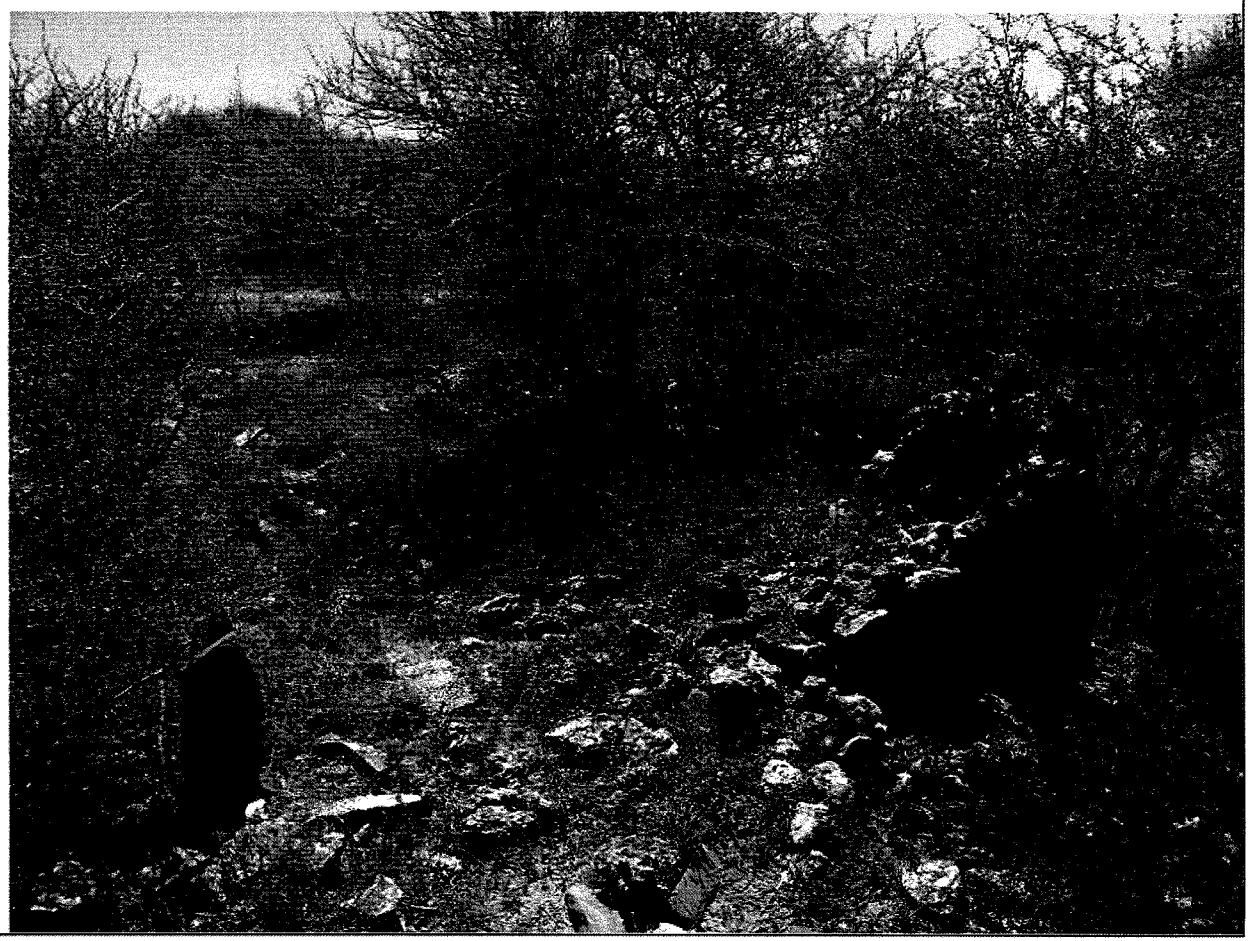
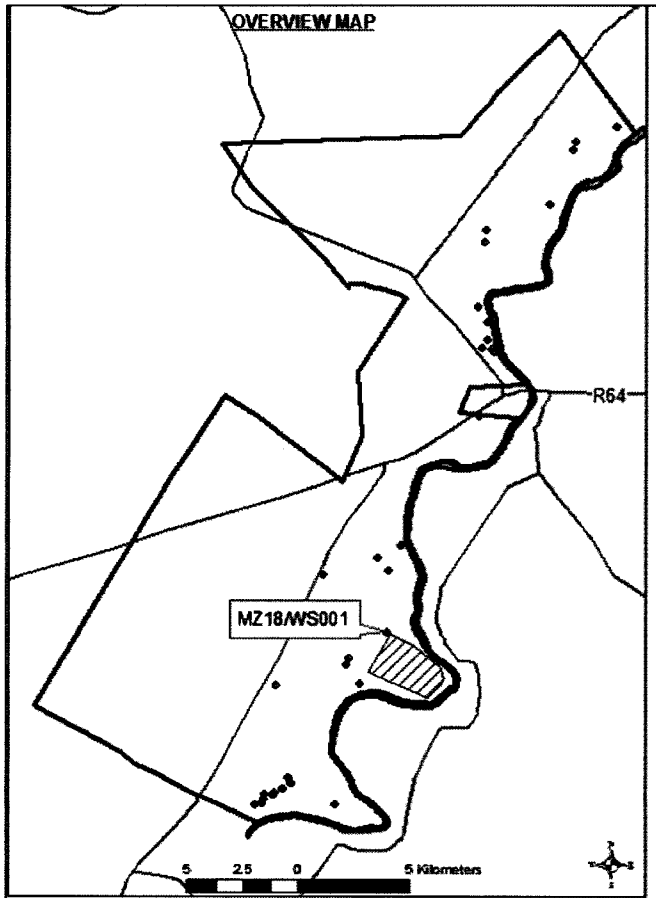
CENTRAL MERIDIAN: 25°
GCS_WGS_1984
DATUM: D_WGS_1984



Legend

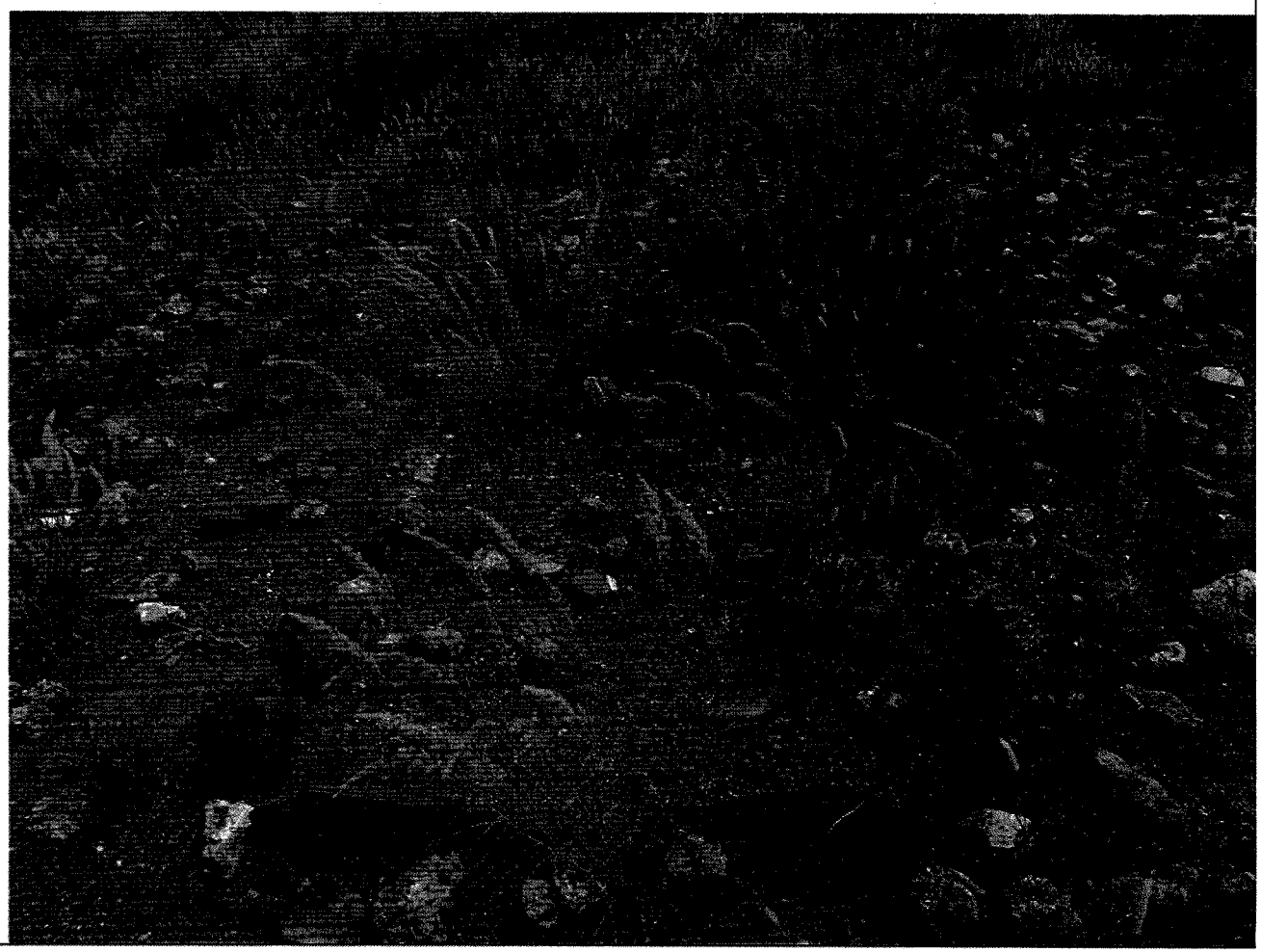
- Walling Sites
- Excluded areas right
- Mining Right Application Area
- Roads
- Vaal River

MZ18/WS001



CENTRE COORDINATE
24°1'1.729"E
28°48'2.239"S

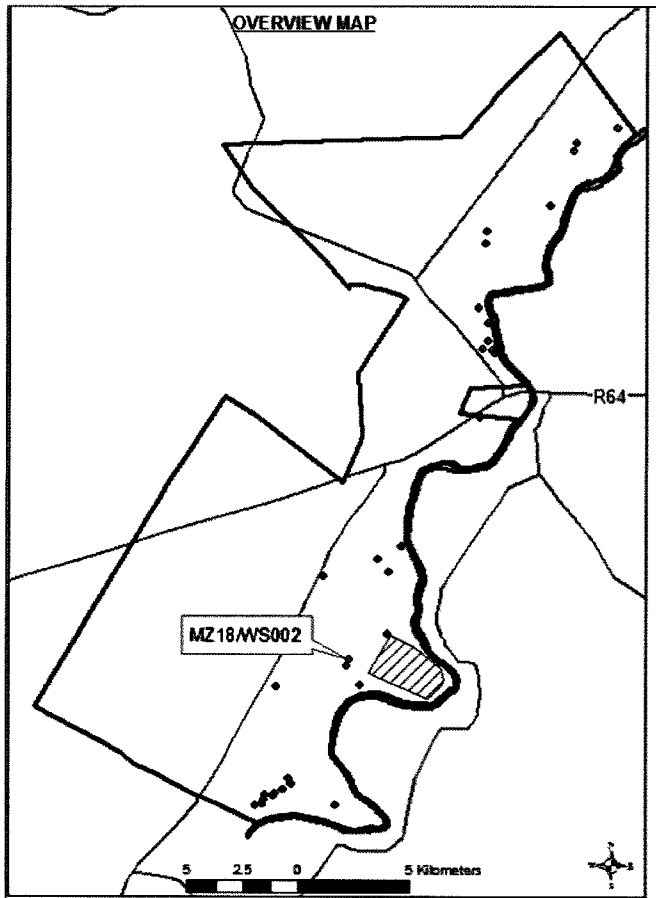
SURVEY SYSTEM:
TRANSVERSE MERCATOR
CENTRAL MERIDIAN: 25°
GCS_WGS_1984
DATUM: D_WGS_1984



Legend

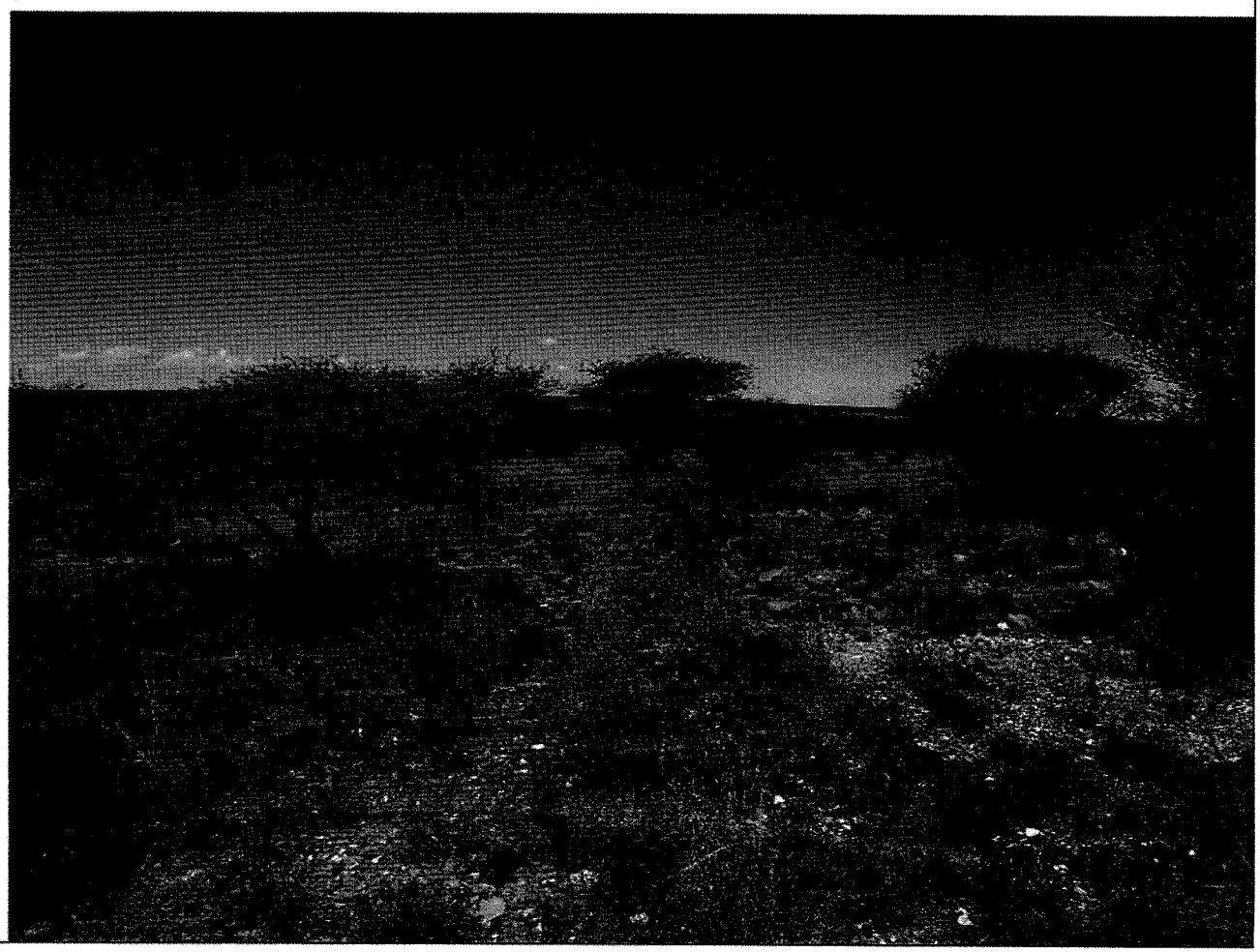
- Walling Sites
- Excluded areas right
- Mining Right Application Area
- Roads
- Vaal River

MZ18/WS002



CENTRE COORDINATE
24°0'4.739"E
28°48'41.251"S

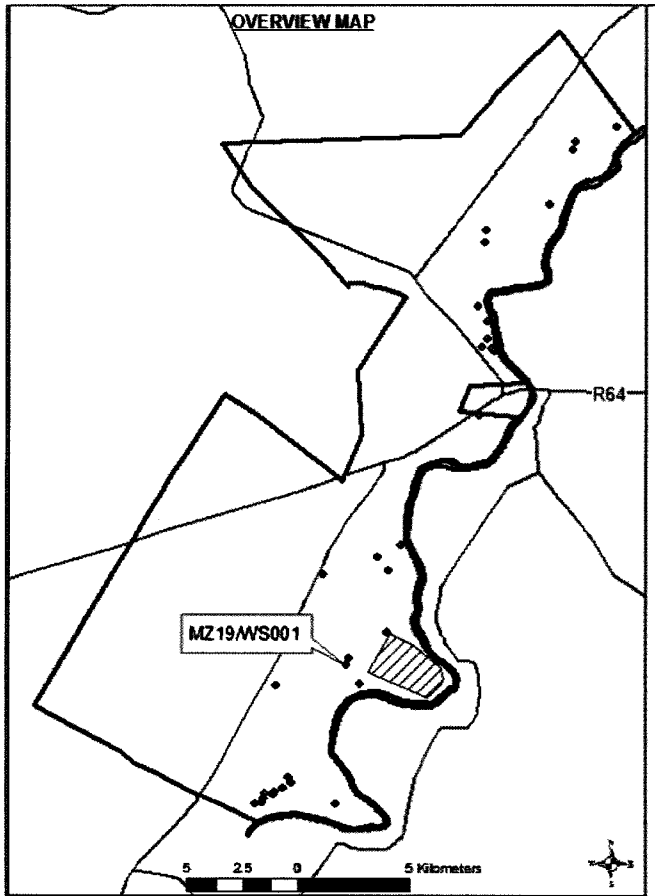
SURVEY SYSTEM:
TRANSVERSE MERCATOR
CENTRAL MERIDIAN: 25°
GCS_WGS_1984
DATUM: D_WGS_1984



Legend

- Walling Sites
- Excluded areas right
- Mining Right Application Area
- Roads
- Vaal River

MZ19/WS001



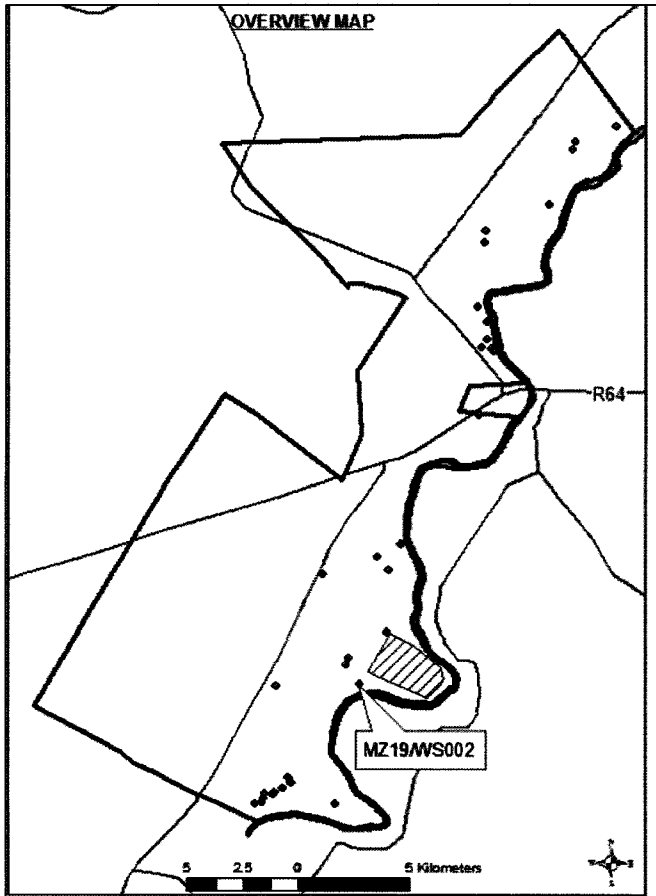
CENTRE COORDINATE
24°0'0.257"E
28°48'51.2"S

SURVEY SYSTEM:
TRANSVERSE MERCATOR
CENTRAL MERIDIAN: 25°
GCS_WGS_1984
DATUM: D_WGS_1984

Legend

- Walling Sites
- Excluded areas right
- Mining Right Application Area
- Roads
- Vaal River

MZ19/WS002



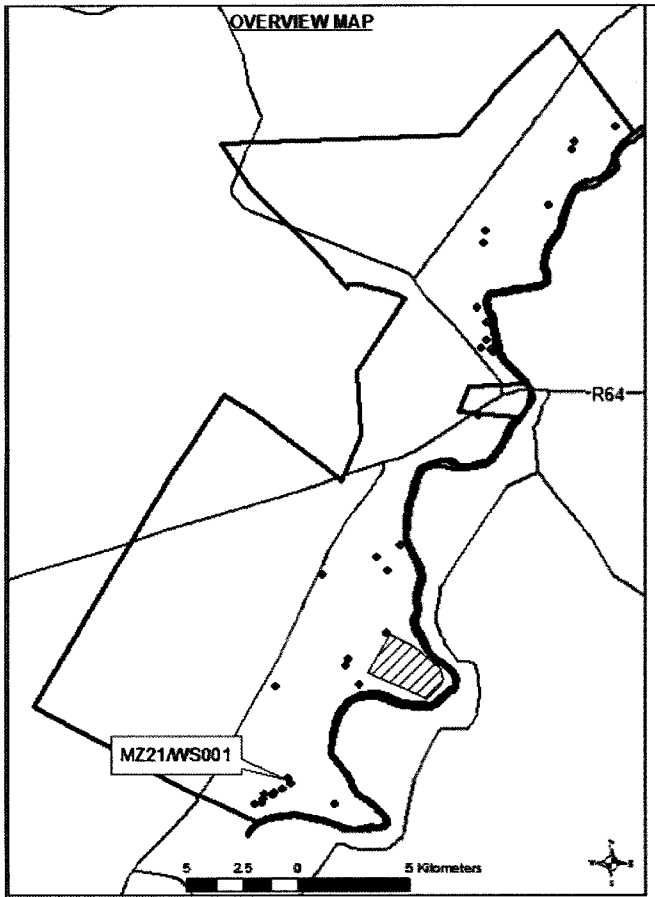
CENTRE COORDINATE
24°0'21.866"E
28°49'18.497"S

SURVEY SYSTEM:
TRANSVERSE MERCATOR
CENTRAL MERIDIAN: 25°
GCS_WGS_1984
DATUM: D_WGS_1984

Legend

- Walling Sites
- Excluded areas right
- Mining Right Application Area
- Roads
- Vaal River

MZ21/WS001



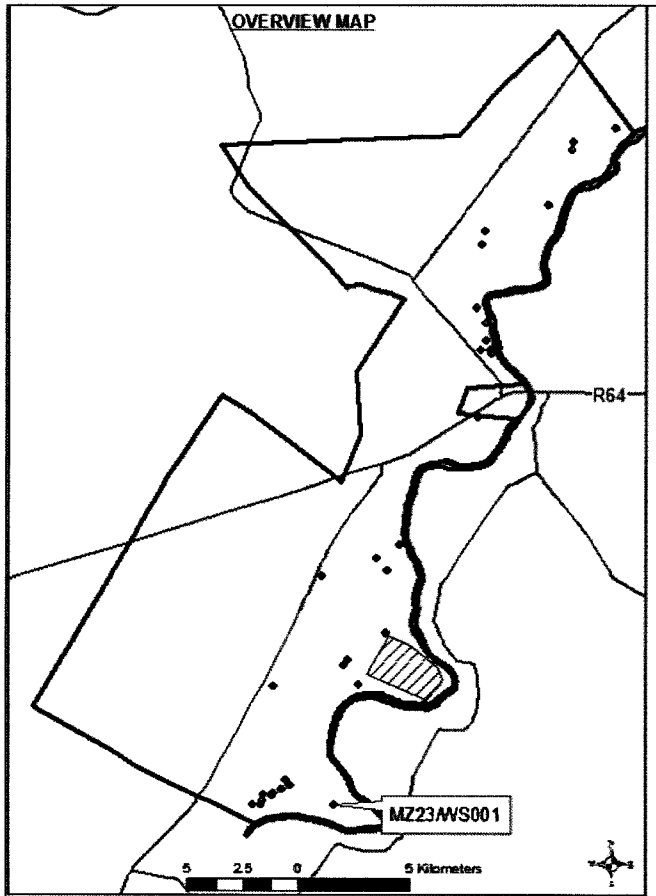
CENTRE COORDINATE
23°58'36.293"E
28°51'35.84"S

SURVEY SYSTEM:
TRANSVERSE MERCATOR
CENTRAL MERIDIAN: 25°
GCS_WGS_1984
DATUM: D_WGS_1984

Legend

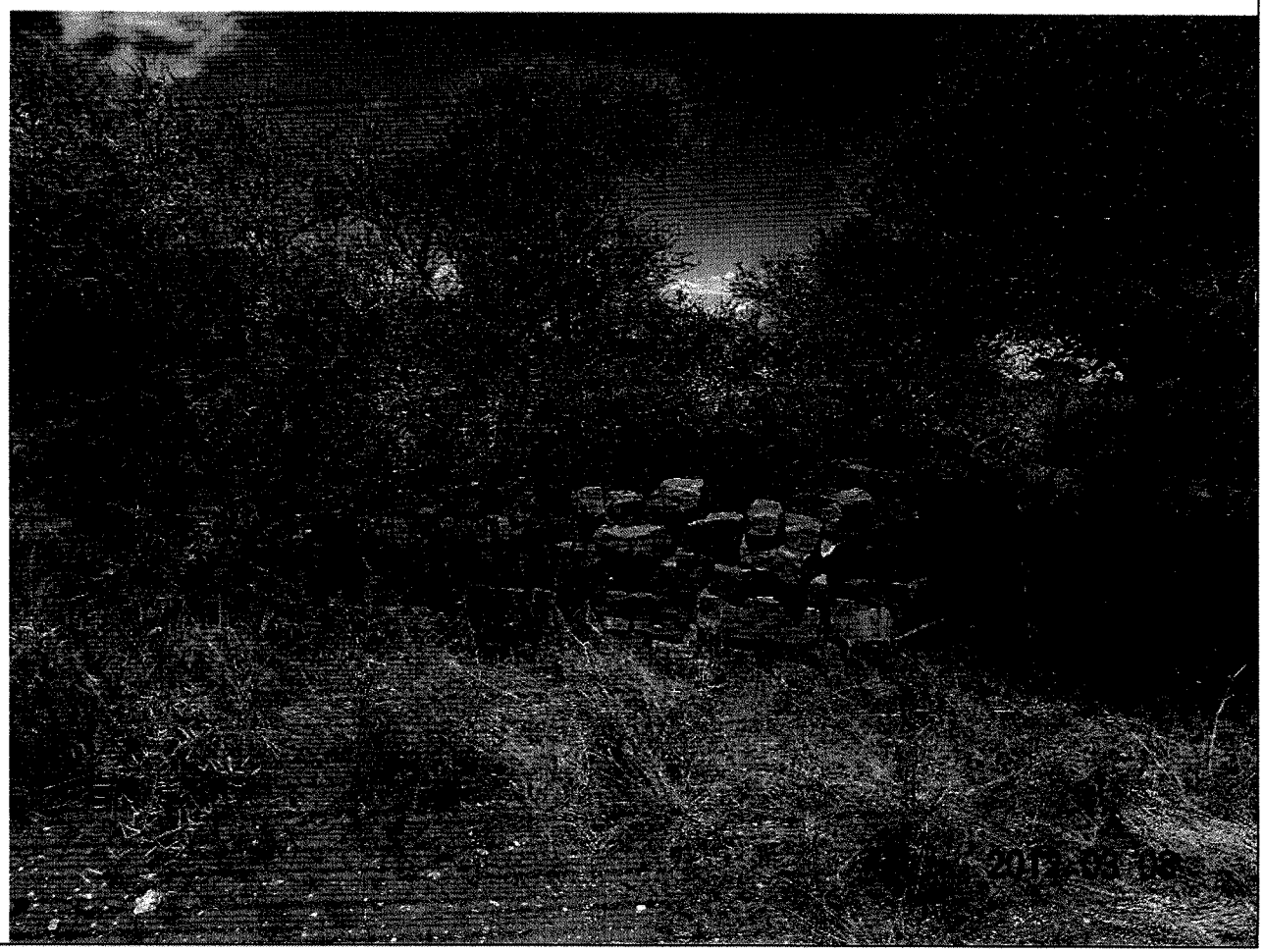
- Walling Sites
- Excluded areas right
- Mining Right Application Area
- Roads
- Vaal River

MZ23/WS001



CENTRE COORDINATE
23°59'46.036"E
28°52'14.263"S

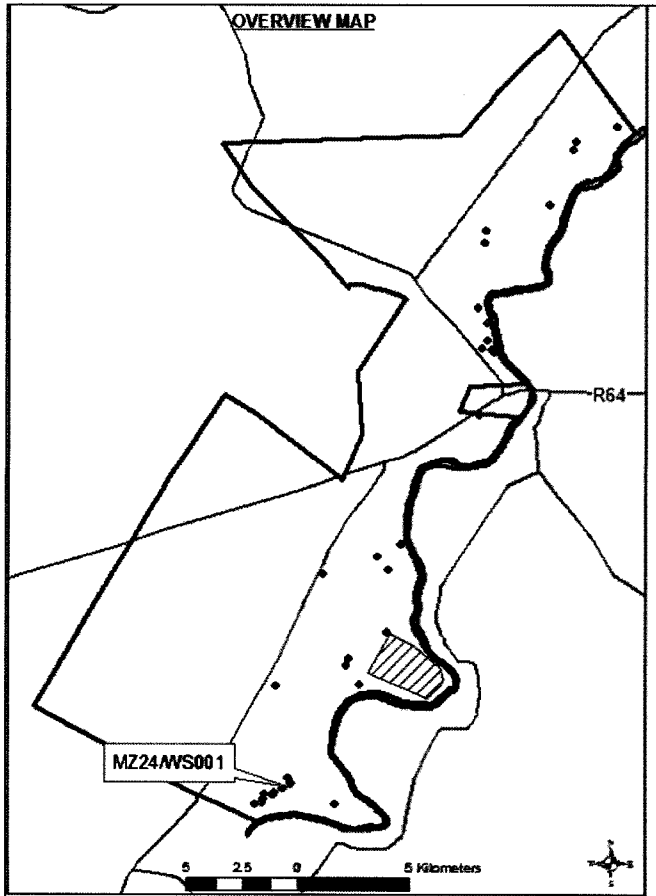
SURVEY SYSTEM:
TRANSVERSE MERCATOR
CENTRAL MERIDIAN: 25°
GCS_WGS_1984
DATUM: D_WGS_1984



Legend

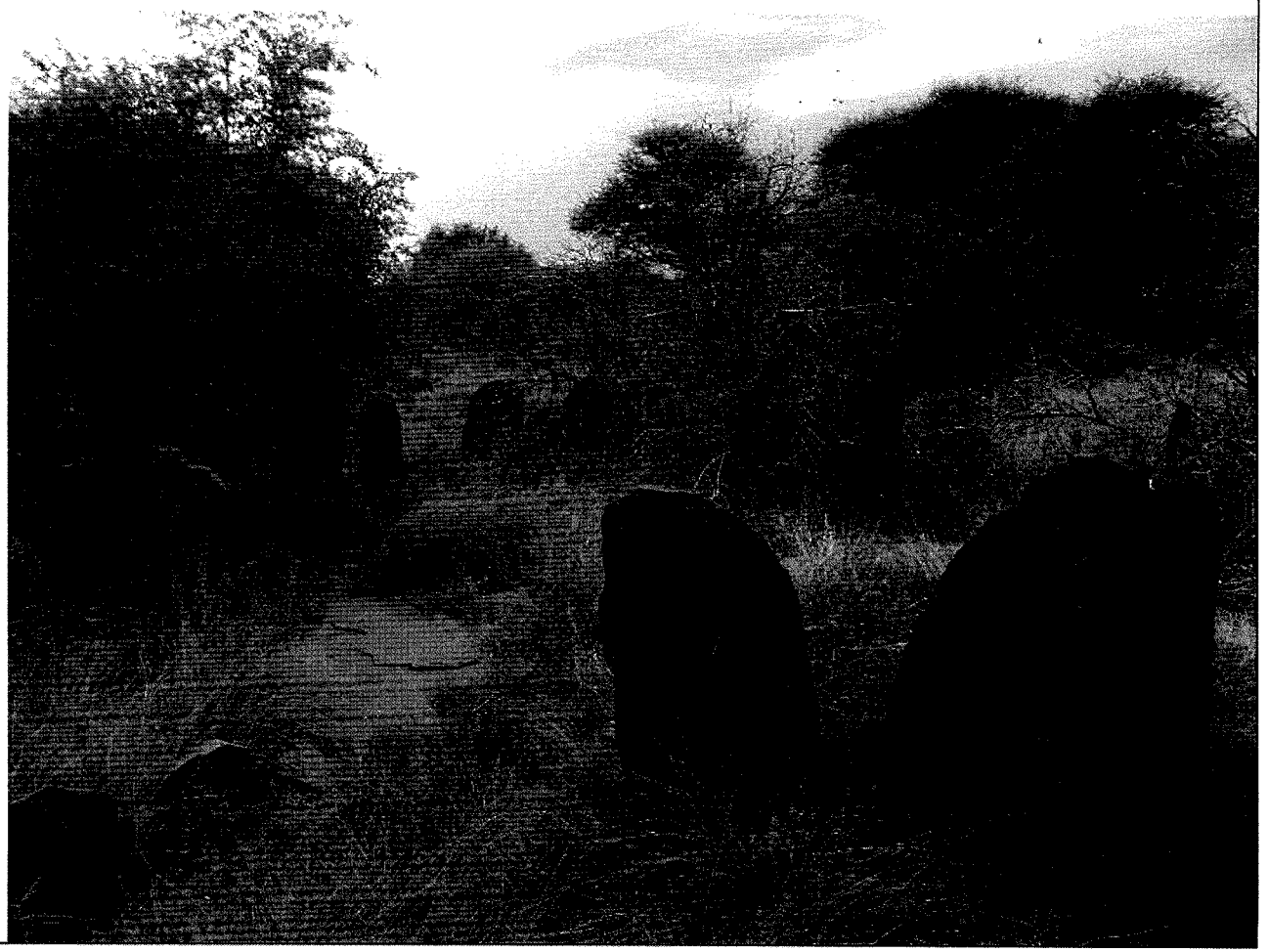
- Walling Sites
- Excluded areas right
- Mining Right Application Area
- Roads
- Vaal River

MZ24/WS001



CENTRE COORDINATE
23°58'41.492"E
28°51'43.806"S

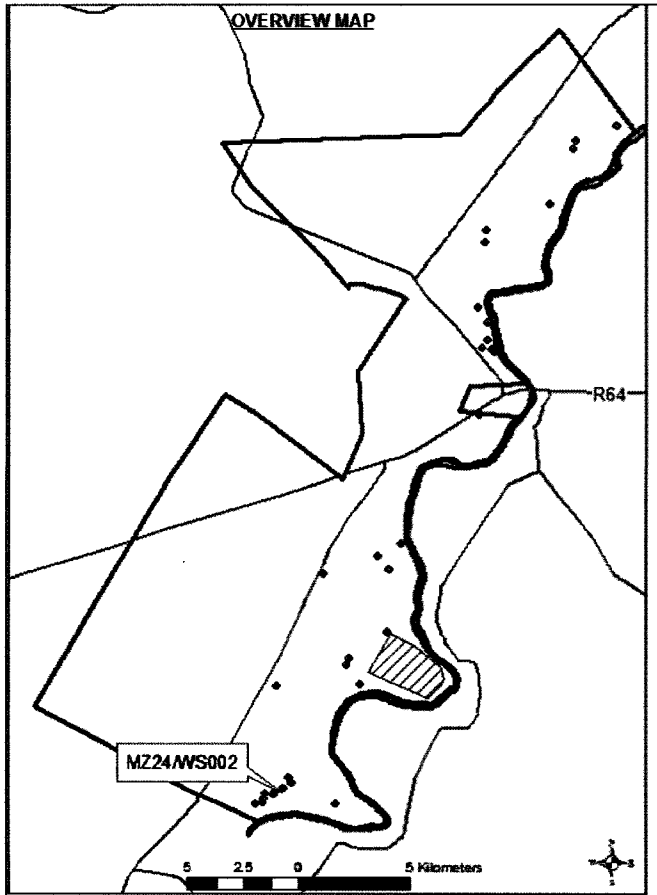
SURVEY SYSTEM:
TRANSVERSE MERCATOR
CENTRAL MERIDIAN: 25°
GCS_WGS_1984
DATUM: D_WGS_1984



Legend

- Walling Sites
- Excluded areas right
- Mining Right Application Area
- Roads
- Vaal River

MZ24/WS002



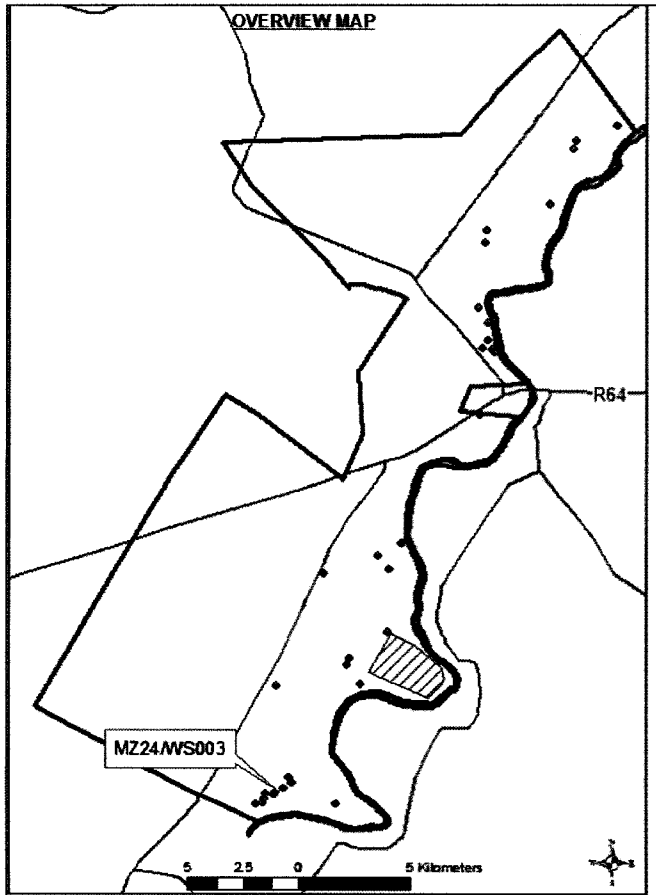
CENTRE COORDINATE
23°58'29.012"E
28°51'49.915"S

SURVEY SYSTEM:
TRANSVERSE MERCATOR
CENTRAL MERIDIAN: 25°
GCS_WGS_1984
DATUM: D_WGS_1984

Legend

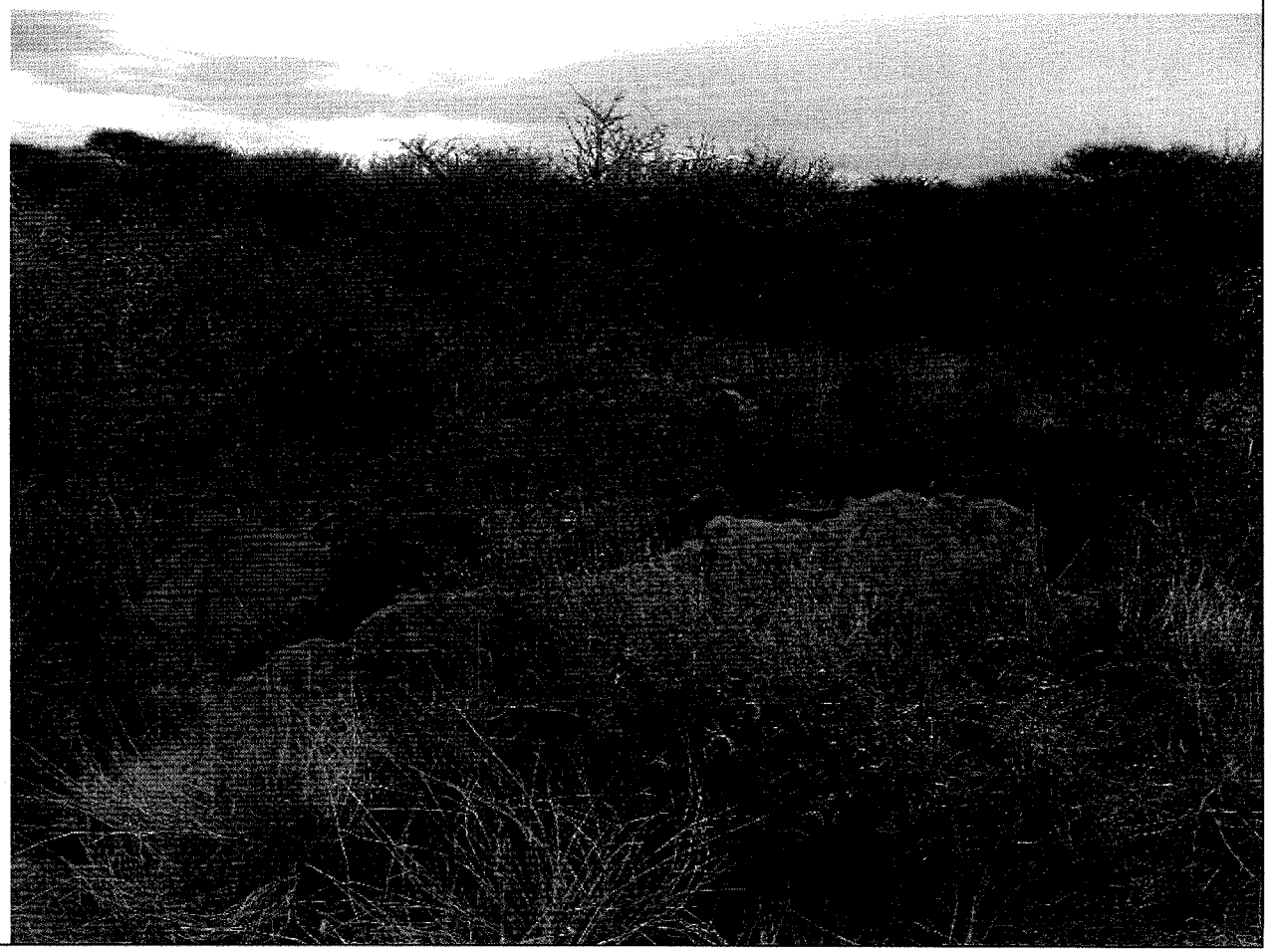
- Walling Sites
- Excluded areas right
- Mining Right Application Area
- Roads
- Vaal River

MZ24/WS003



CENTRE COORDINATE
23°58'18.193"E
28°51'56.609"S

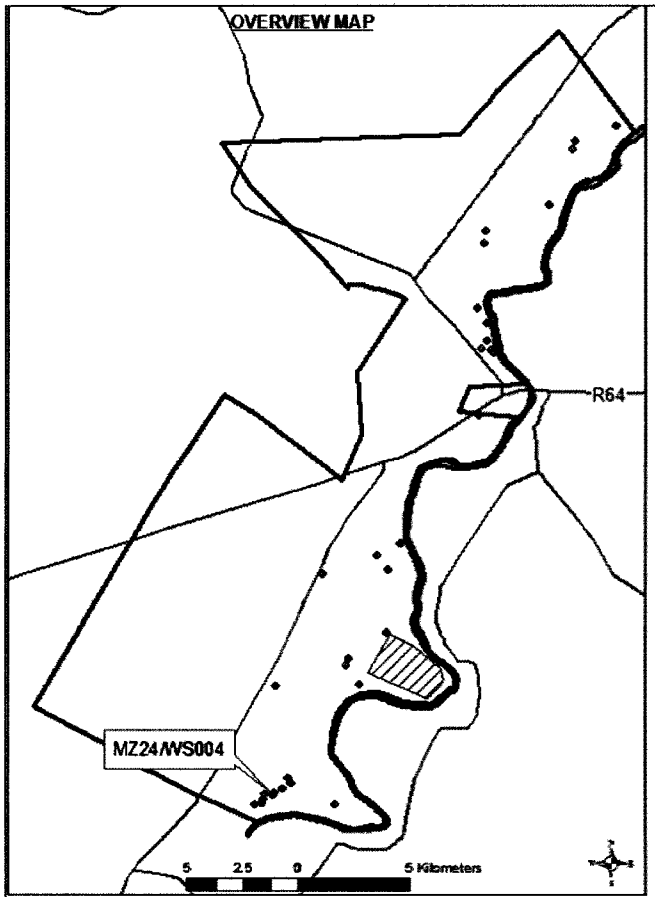
SURVEY SYSTEM:
TRANSVERSE MERCATOR
CENTRAL MERIDIAN: 25°
GCS_WGS_1984
DATUM: D_WGS_1984



Legend

- Walling Sites
- Excluded areas right
- Mining Right Application Area
- Roads
- Vaal River

MZ24/WS004



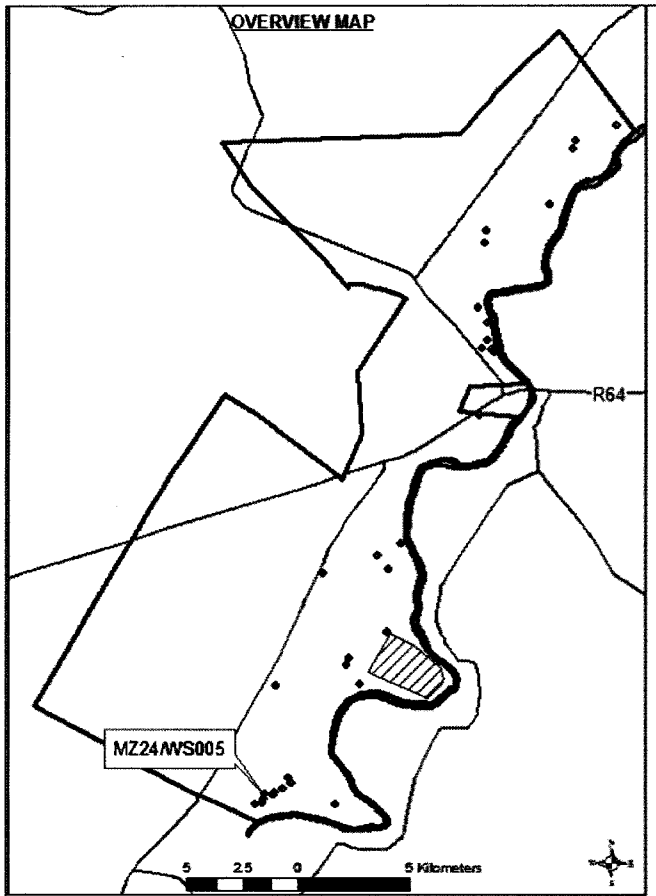
CENTRE COORDINATE
23°58'15.654"E
28°52'0.558"S

SURVEY SYSTEM:
TRANSVERSE MERCATOR
CENTRAL MERIDIAN: 25°
GCS_WGS_1984
DATUM: D_WGS_1984

Legend

- Walling Sites
- Excluded areas right
- Mining Right Application Area
- Roads
- Vaal River

MZ24/WS005



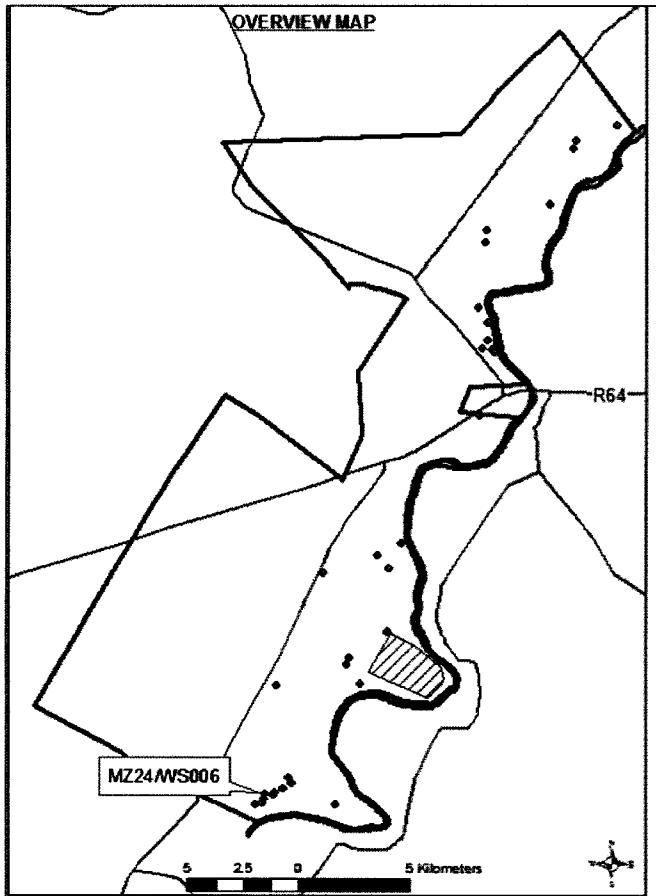
CENTRE COORDINATE
23°58'2.79"E
28°51'58.471"S

SURVEY SYSTEM:
TRANSVERSE MERCATOR
CENTRAL MERIDIAN: 25°
GCS_WGS_1984
DATUM: D_WGS_1984

Legend

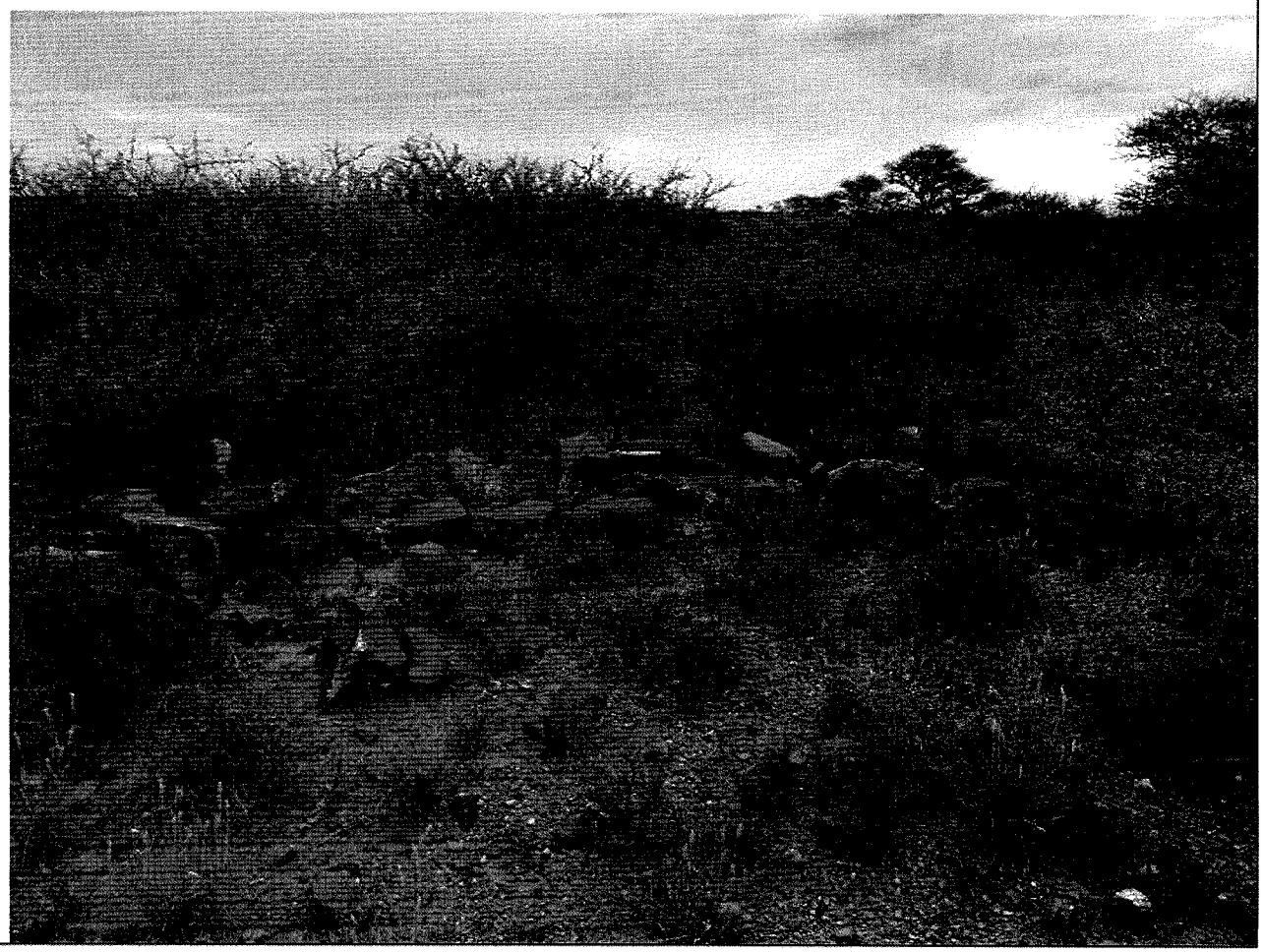
- Walling Sites
- Excluded areas right
- Mining Right Application Area
- Roads
- Vaal River

MZ24/WS006



CENTRE COORDINATE
23°58'2.79"E
28°51'58.471"S

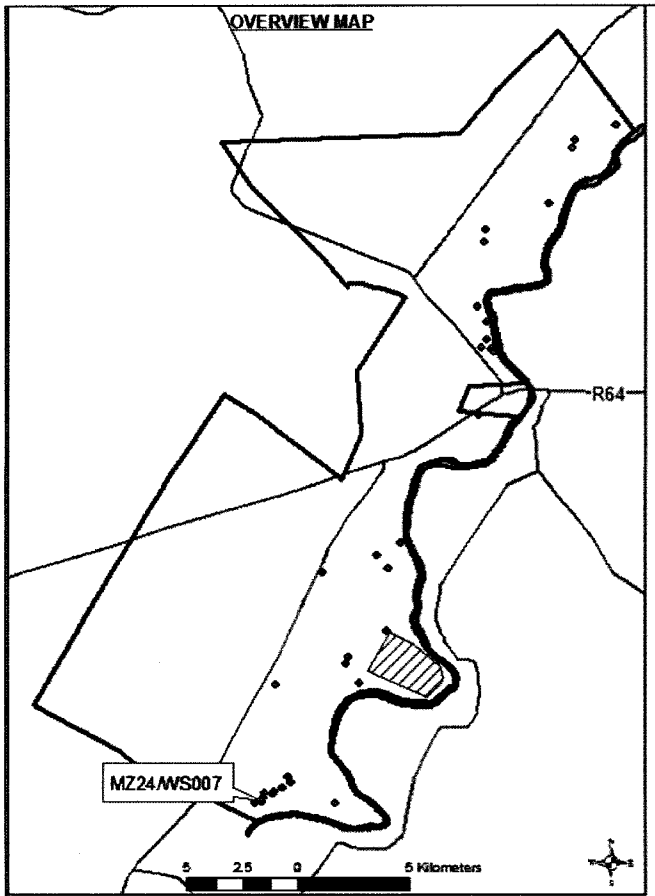
SURVEY SYSTEM:
TRANSVERSE MERCATOR
CENTRAL MERIDIAN: 25°
GCS_WGS_1984
DATUM: D_WGS_1984



Legend

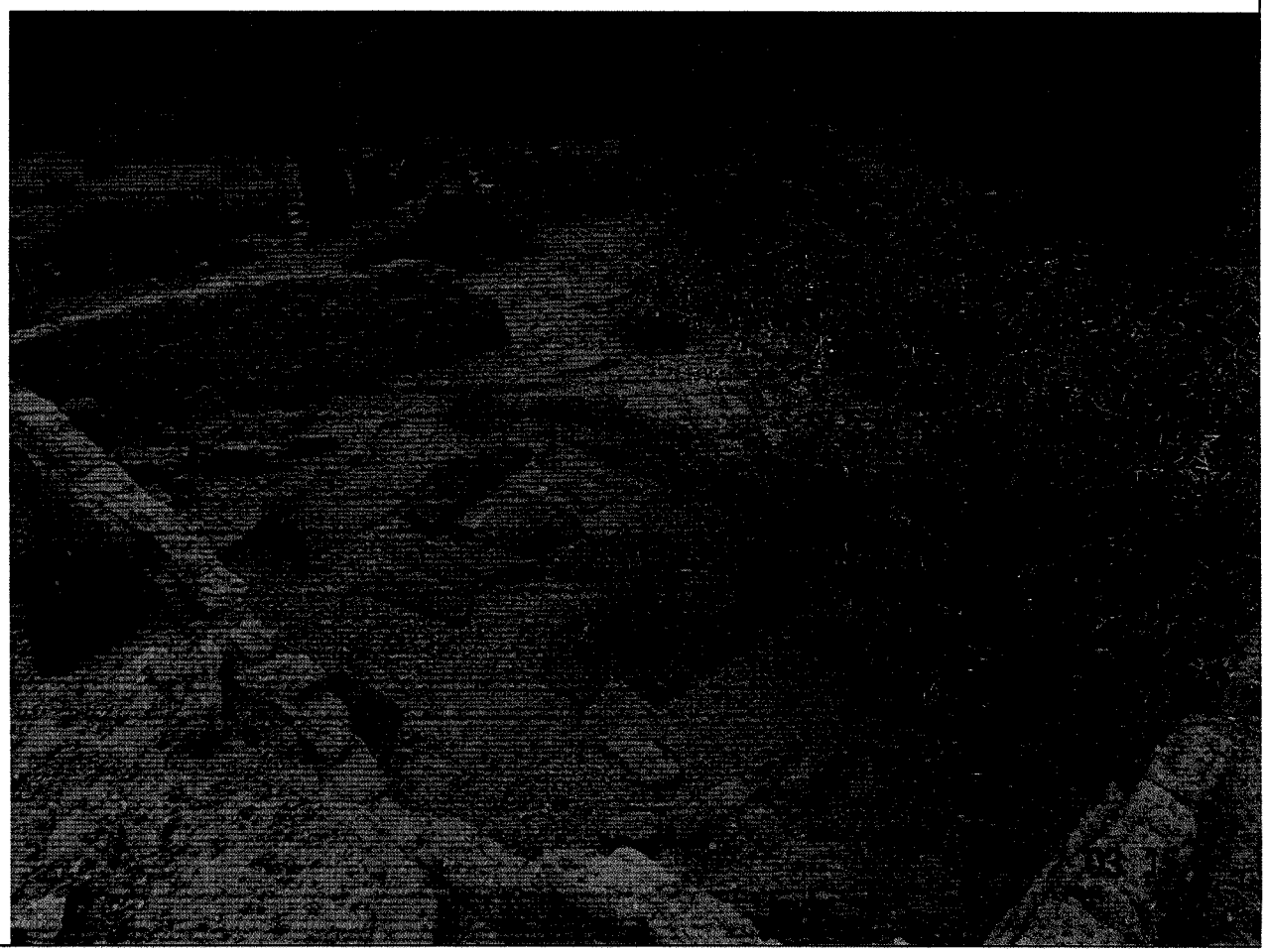
- Walling Sites
- Excluded areas right
- Mining Right Application Area
- Roads
- Vaal River

MZ24/WS007



CENTRE COORDINATE
23°58'1.153"E
28°52'7.473"S

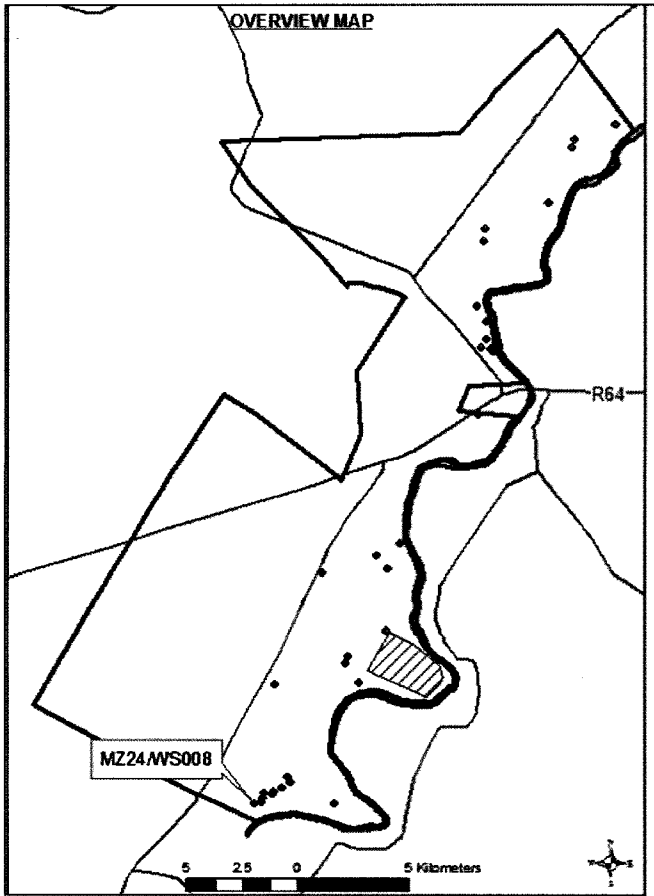
SURVEY SYSTEM:
TRANSVERSE MERCATOR
CENTRAL MERIDIAN: 25°
GCS_WGS_1984
DATUM: D_WGS_1984



Legend

- Walling Sites
- Excluded areas right
- Mining Right Application Area
- Roads
- Vaal River

MZ24/WS008



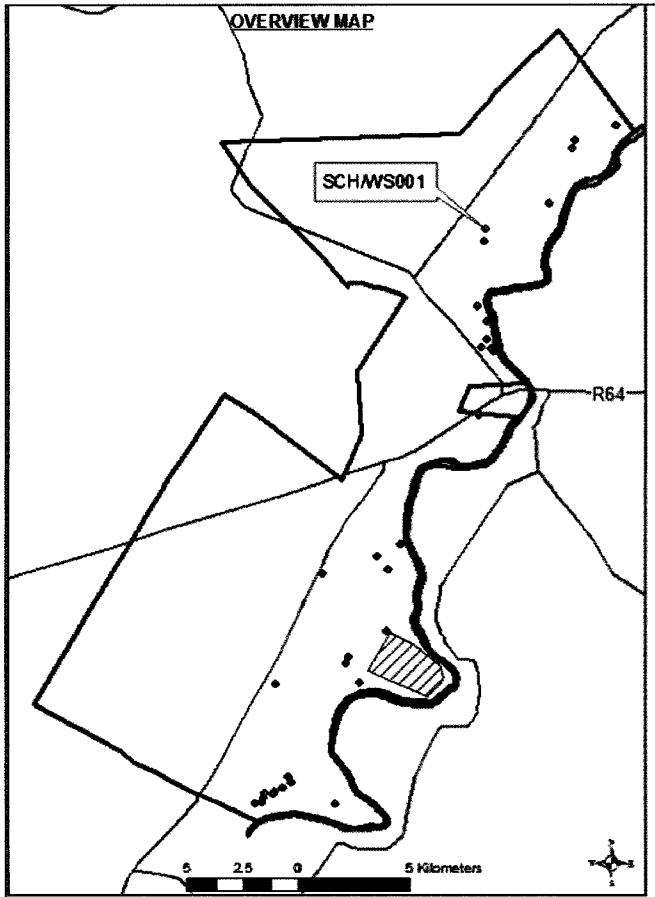
CENTRE COORDINATE
23°57'48.401"E
28°52'14.933"S

SURVEY SYSTEM:
TRANSVERSE MERCATOR
CENTRAL MERIDIAN: 25°
GCS_WGS_1984
DATUM: D_WGS_1984

Legend

- Walling Sites
- Excluded areas right
- Mining Right Application Area
- Roads
- Vaal River

SCH/WS001



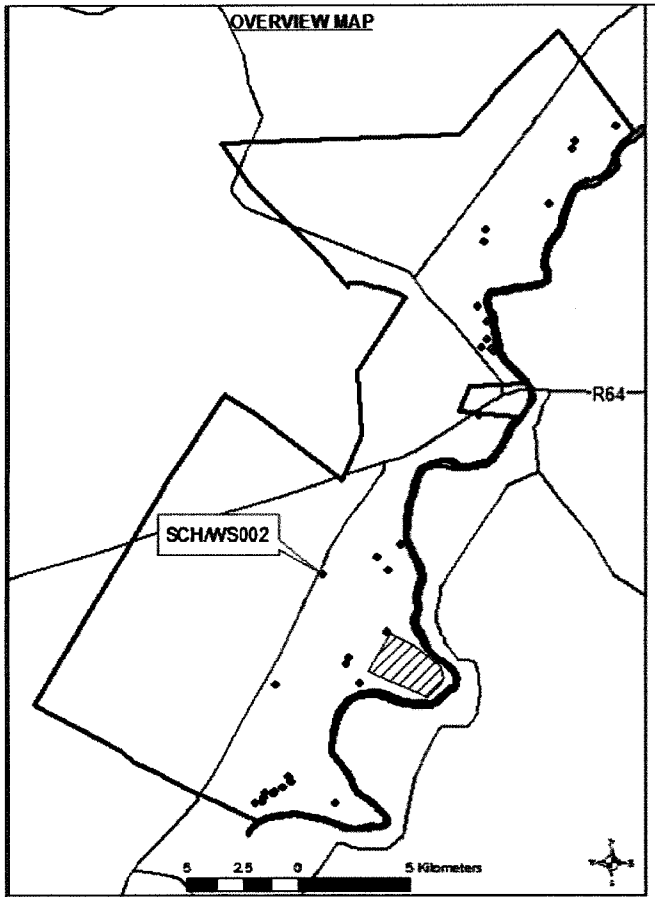
CENTRE COORDINATE
24°3'25.856"E
28°38'19.693"S

SURVEY SYSTEM:
TRANSVERSE MERCATOR
CENTRAL MERIDIAN: 25°
GCS_WGS_1984
DATUM: D_WGS_1984

Legend

- Walling Sites
- Excluded areas right
- Mining Right Application Area
- Roads
- Vaal River

SCH/WS002



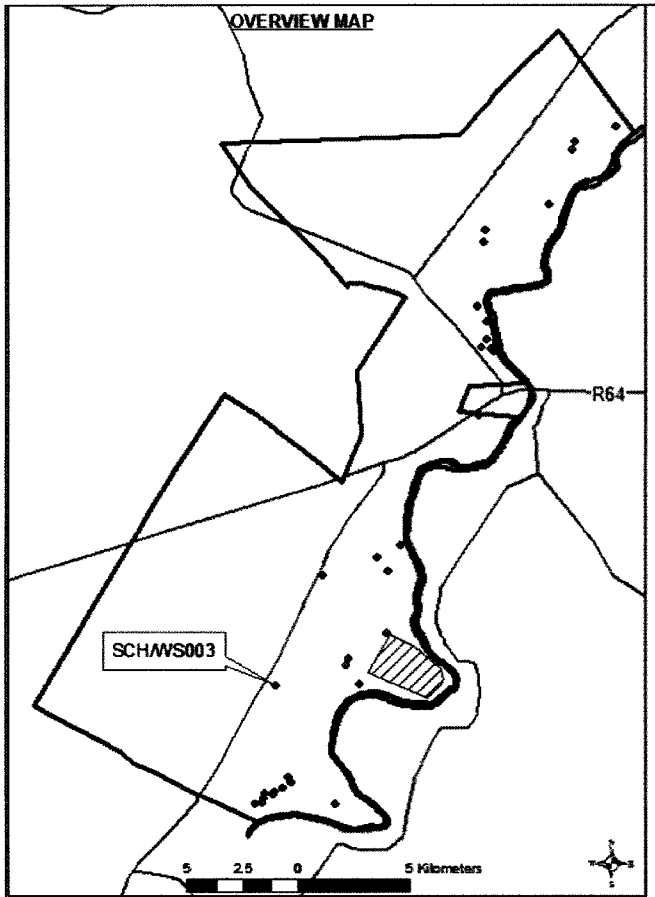
CENTRE COORDINATE
23°59'26.918"E
28°46'39.506"S

SURVEY SYSTEM:
TRANSVERSE MERCATOR
CENTRAL MERIDIAN: 25°
GCS_WGS_1984
DATUM: D_WGS_1984

Legend

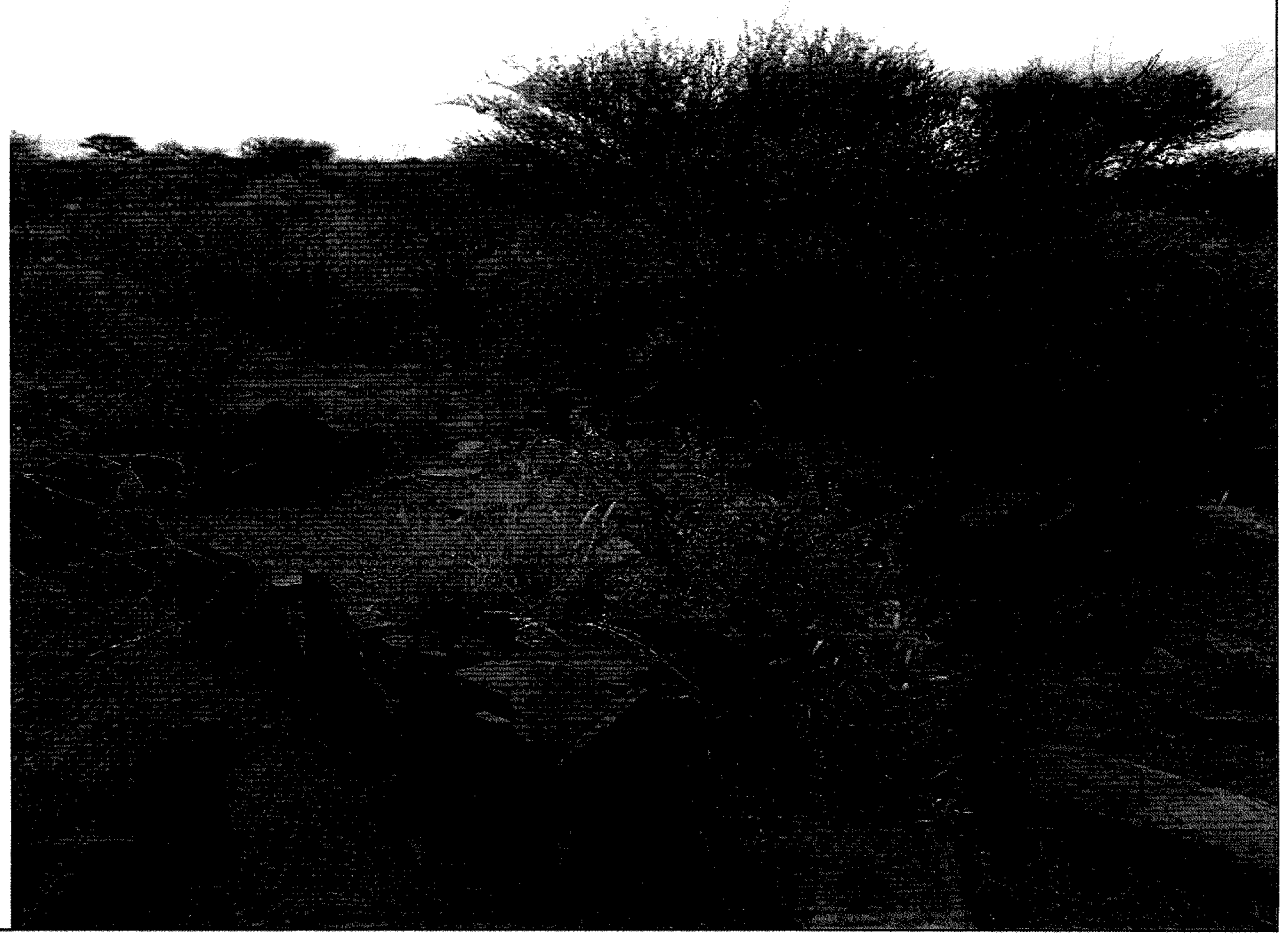
- Walling Sites
- Excluded areas right
- Mining Right Application Area
- Roads
- Vaal River

SCH/WS003



CENTRE COORDINATE
23°58'18.283"E
28°49'20.732"S

SURVEY SYSTEM:
TRANSVERSE MERCATOR
CENTRAL MERIDIAN: 25°
GCS_WGS_1984
DATUM: D_WGS_1984



Legend

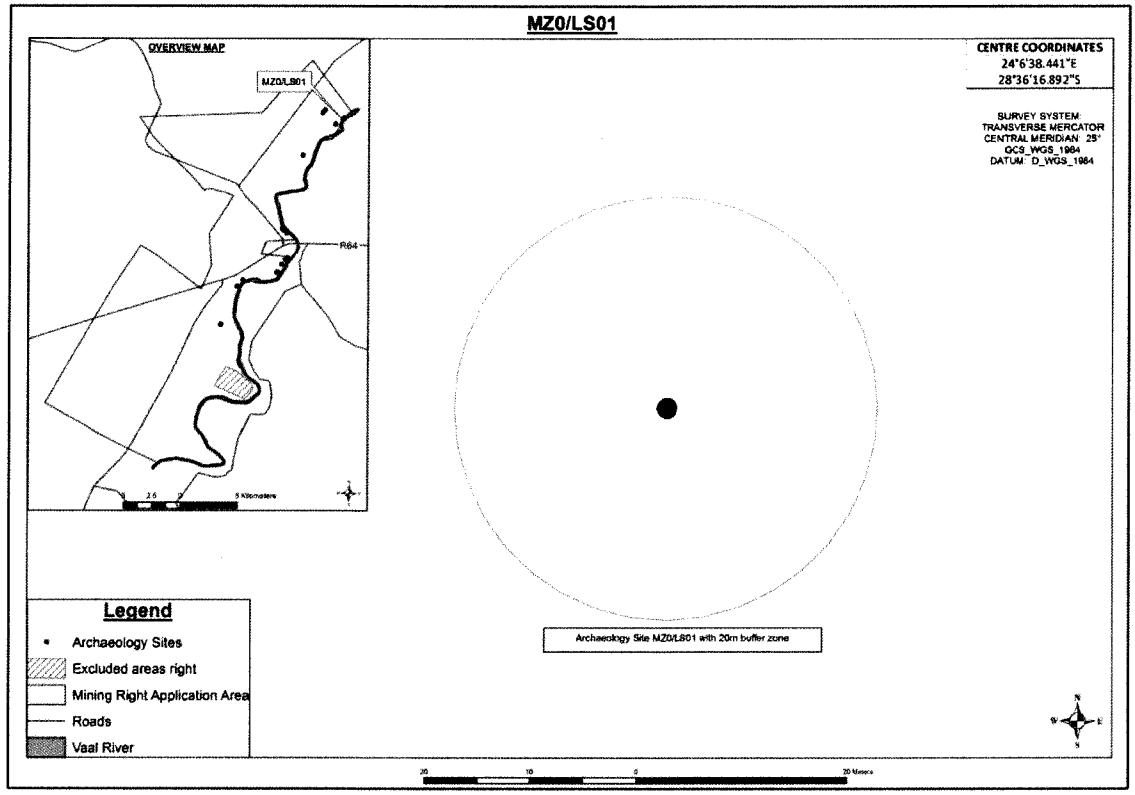
- Walling Sites
- Excluded areas right
- Mining Right Application Area
- Roads
- Vaal River

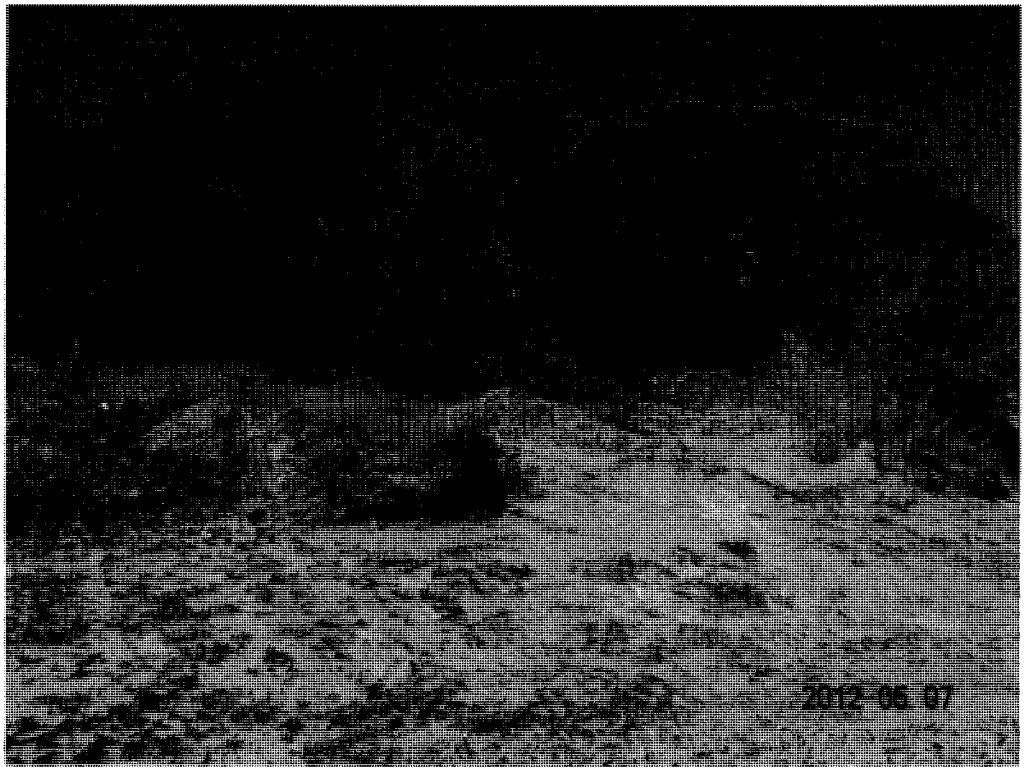
Annexure C

Lithic Sites on the Remaining Extent of the Farm Schmidtsdrift 248

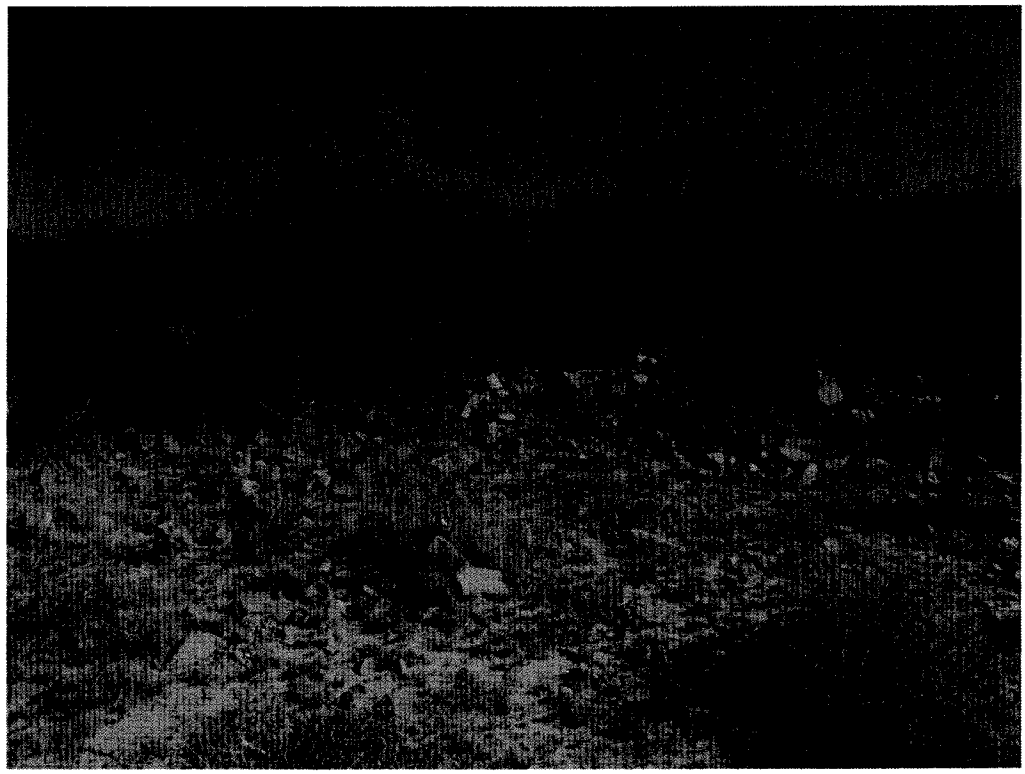

Lithic Sites found at
Remaining Extent of
Farm Schmidtsdrift 248
May 2012

MZ0/LS01





View towards the river of unconsolidated grey silts

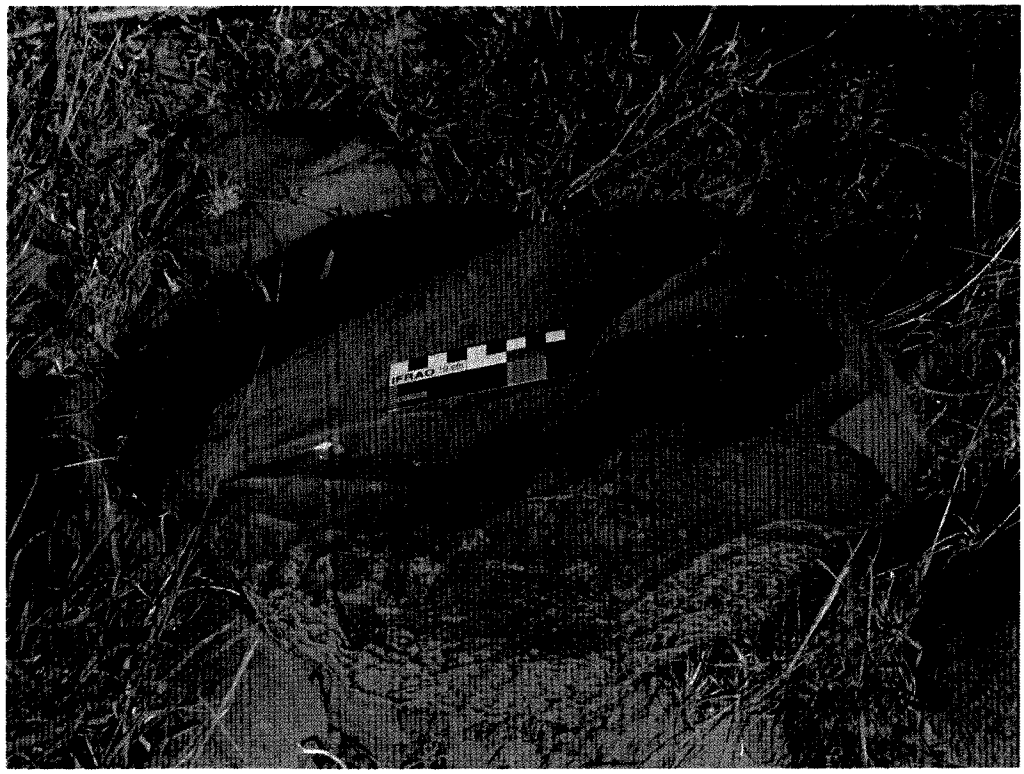


Upslope view of the hillside rubble

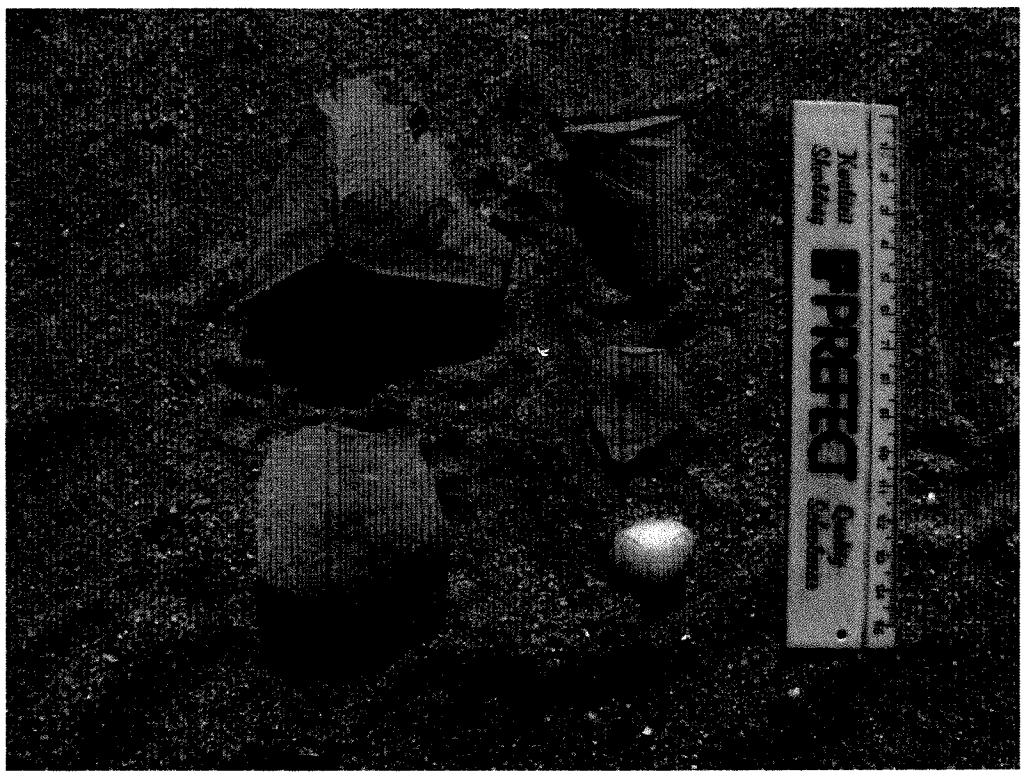
One of the giant cores *in situ*

One of the giant cores *in situ*

One of the giant cores *in situ*

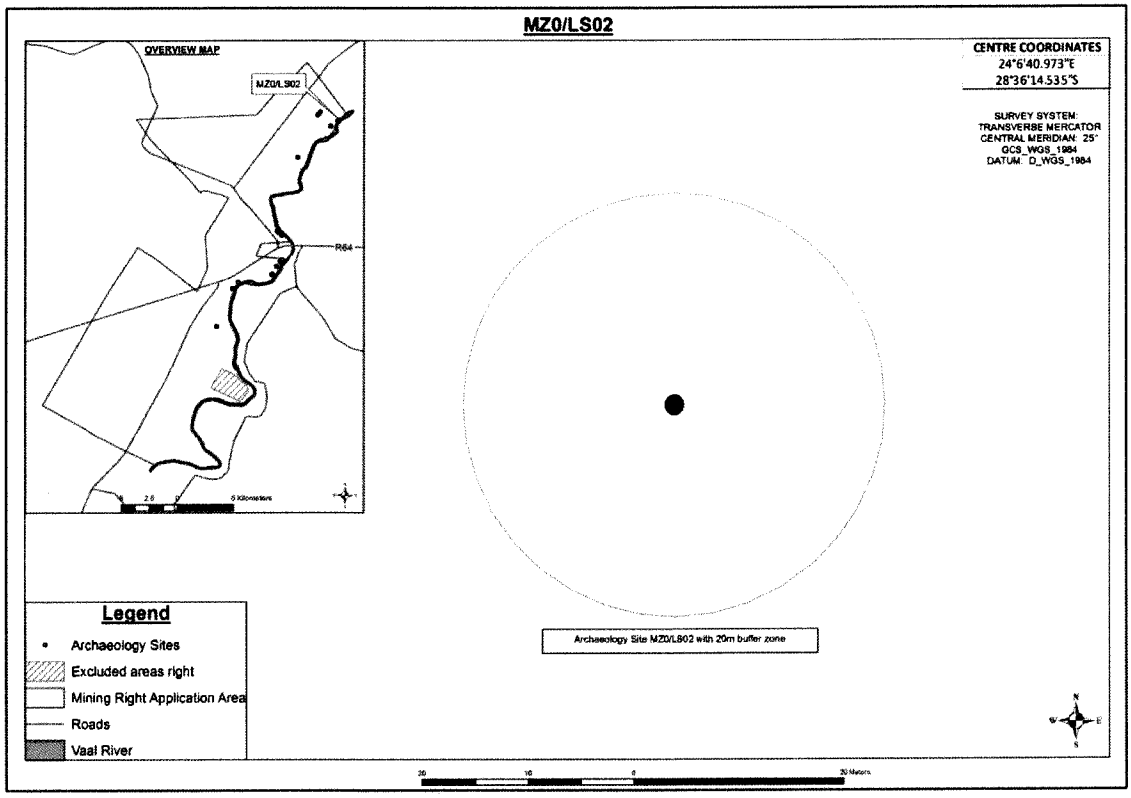


One of the giant cores *in situ*



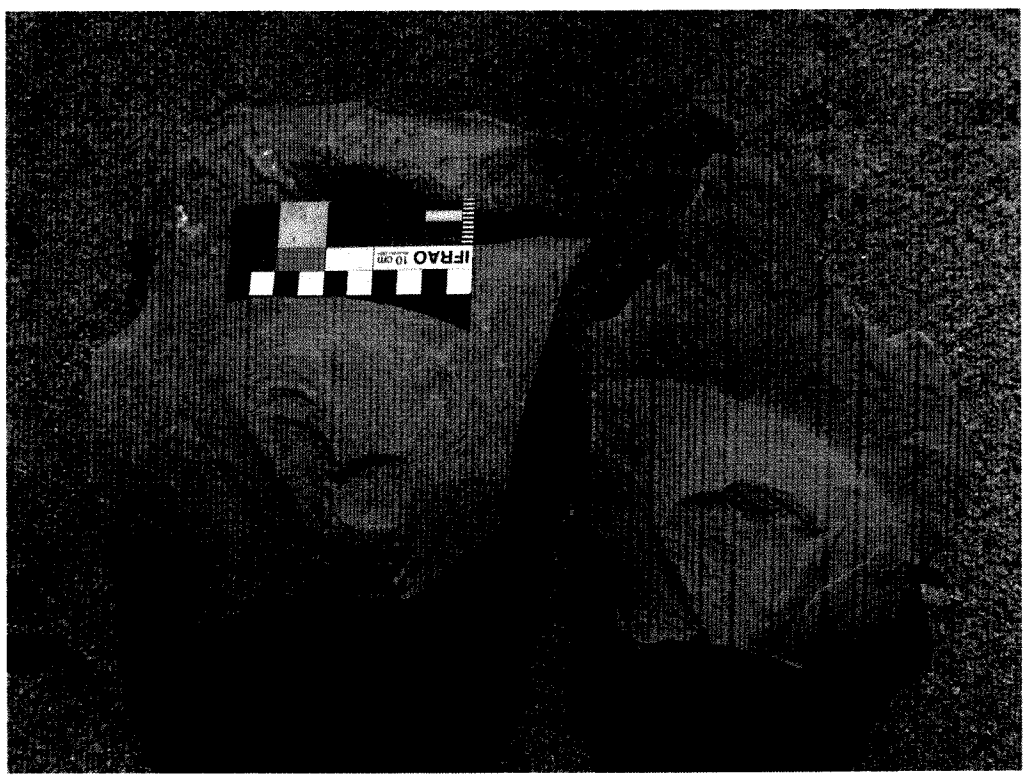
A sample of the inspected lithic assemblage. Note the pristine condition of artefact surfaces. The quartz pebble may or may not be associated.

MZ0/LS02



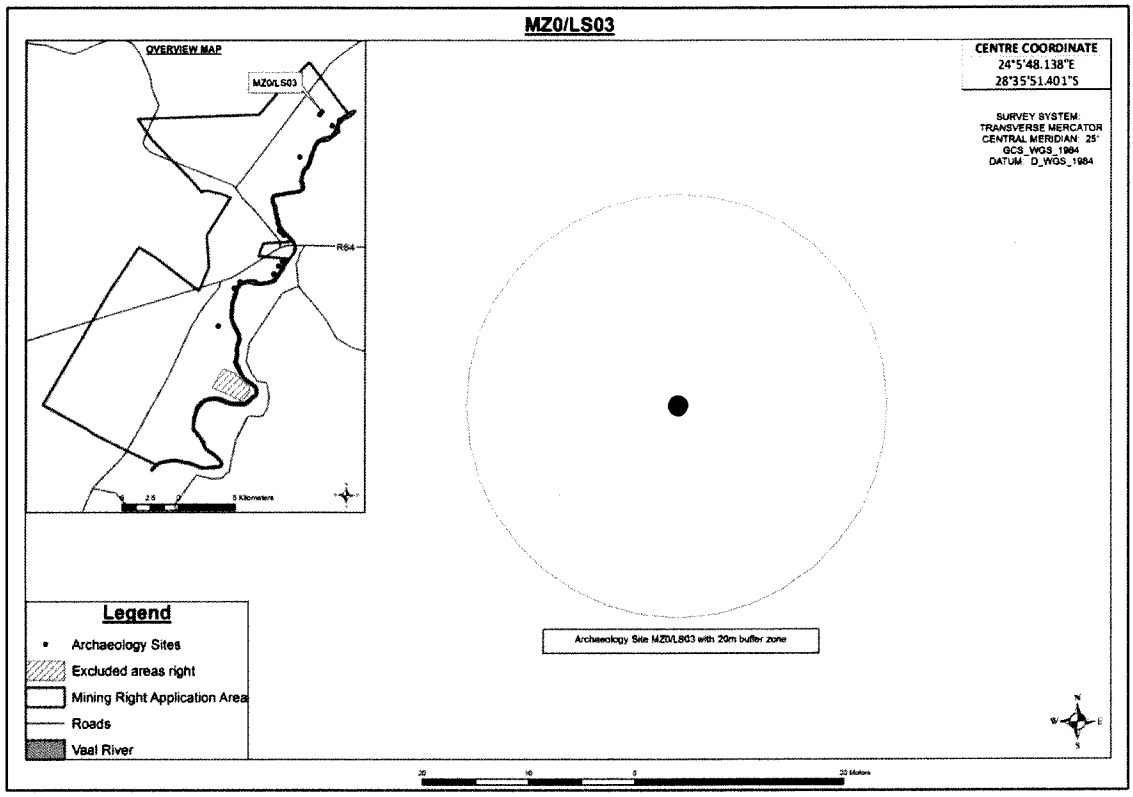
View along track showing hillside rubble on left and overbank silts on right

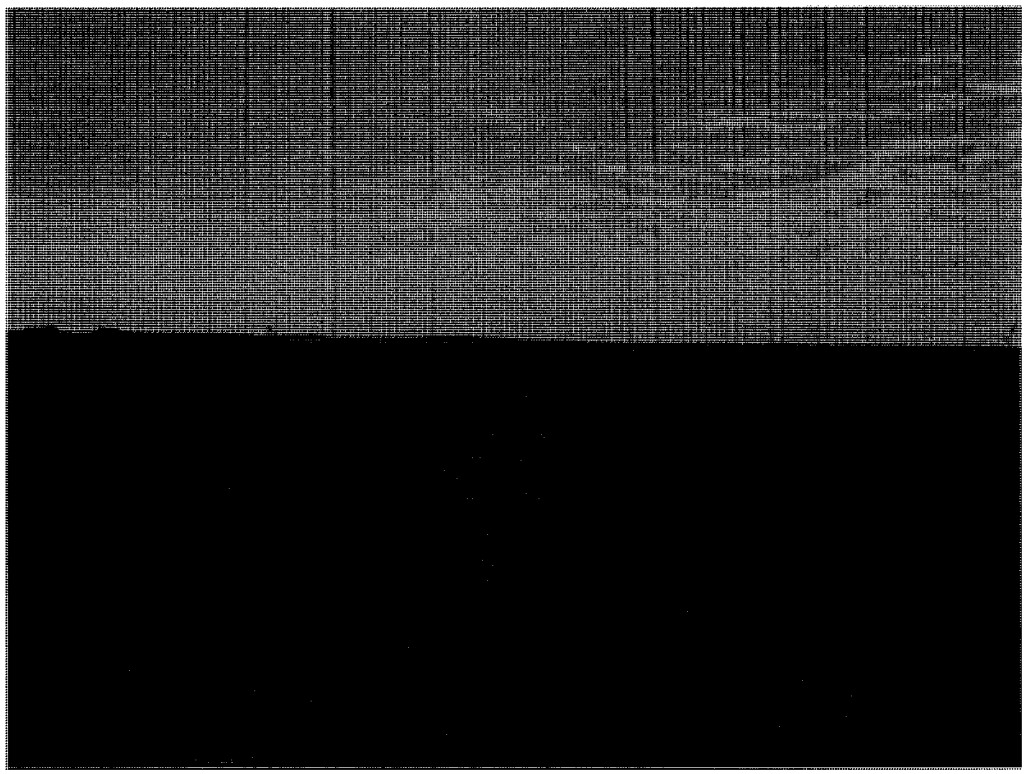
The ~30cm long giant core



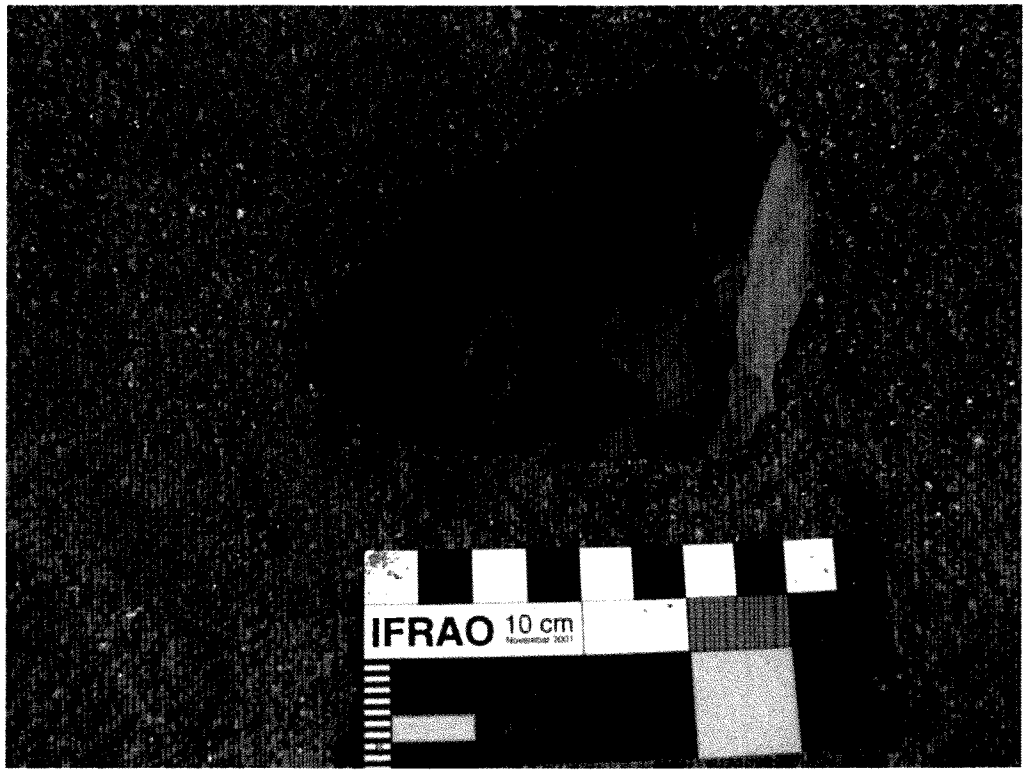
Two giant irregular flakes. The one is some 7cm thick.

MZ0/LS03



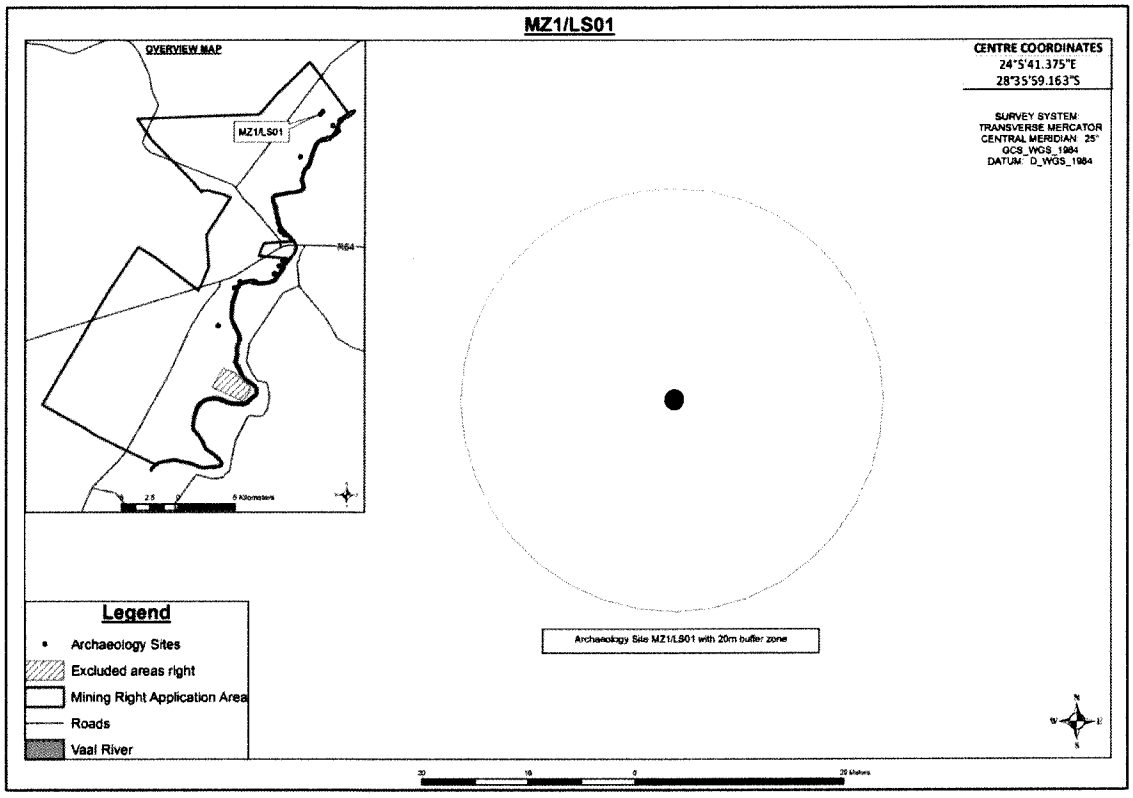


The localized reddish Hutton Sands flanking a gully.

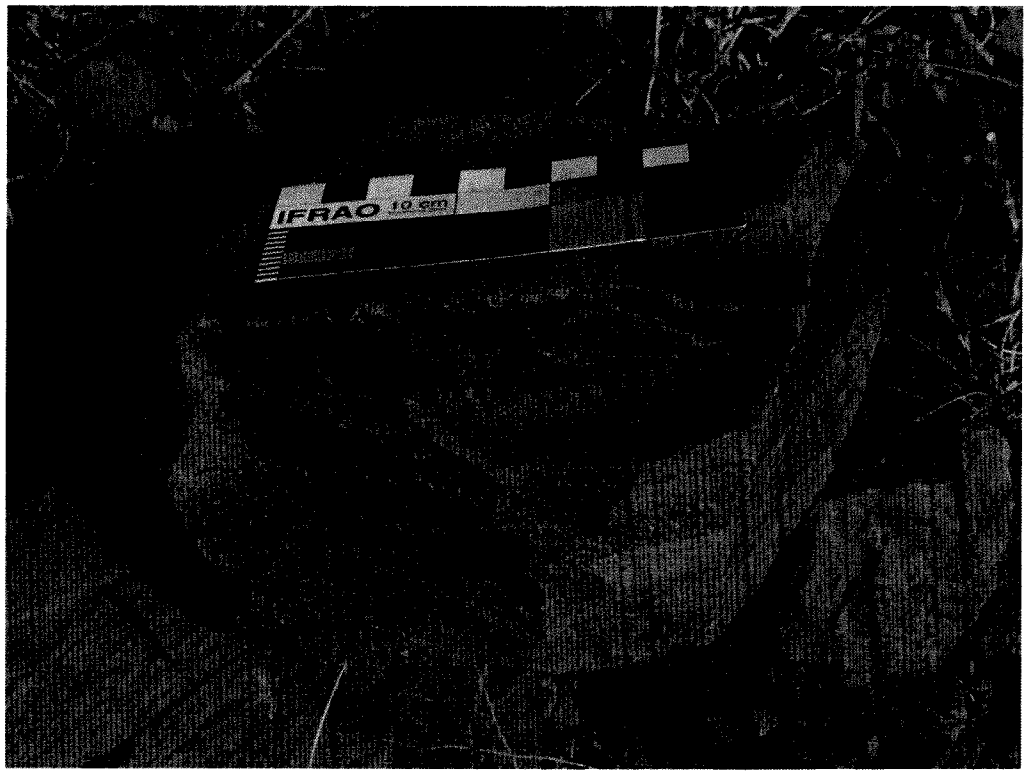


The edge of one of the thick coarse scrapers.

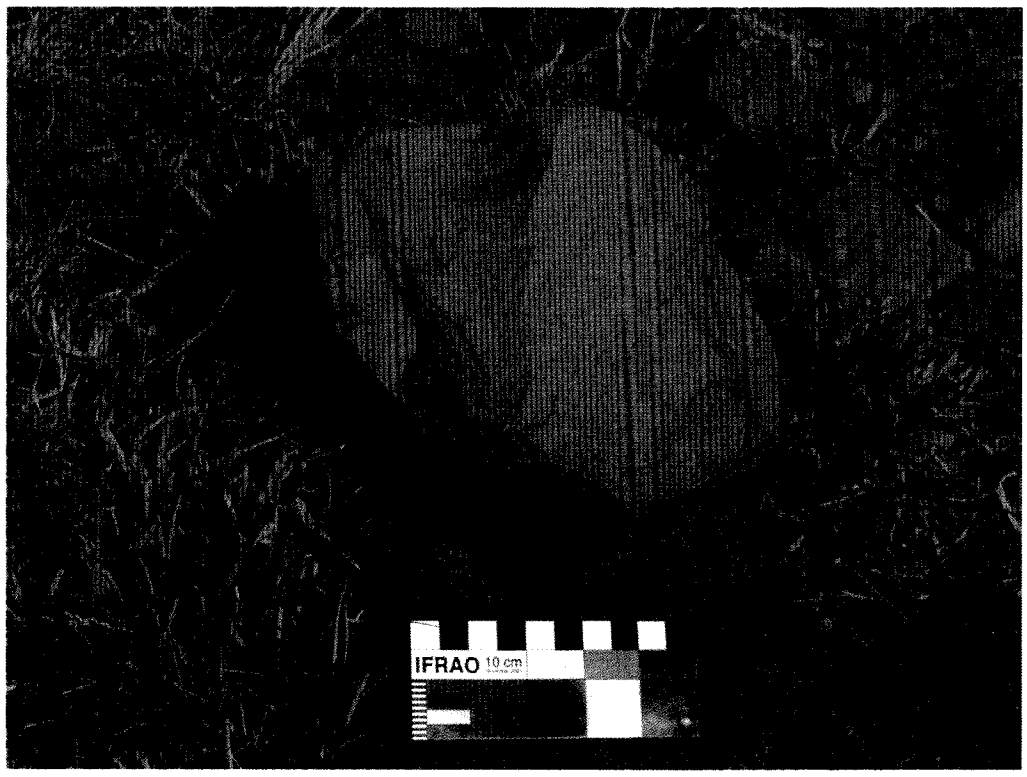
MZ1/LS01



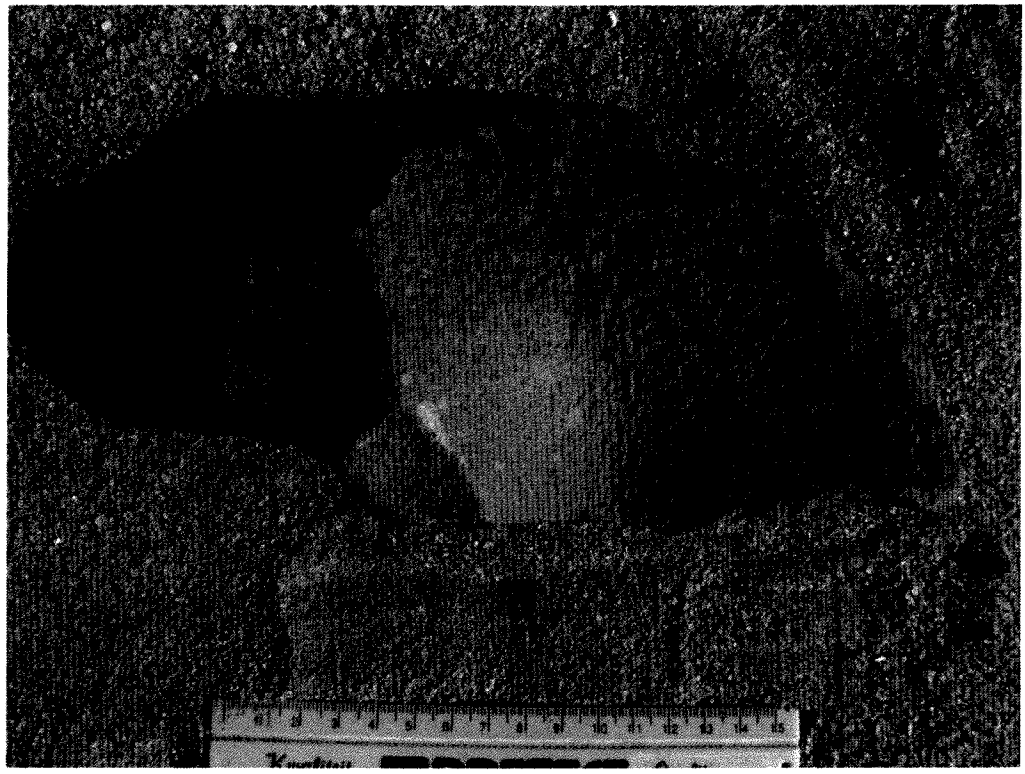
The site lies two-thirds of the way up the *Acacia detinens* - coated hillside



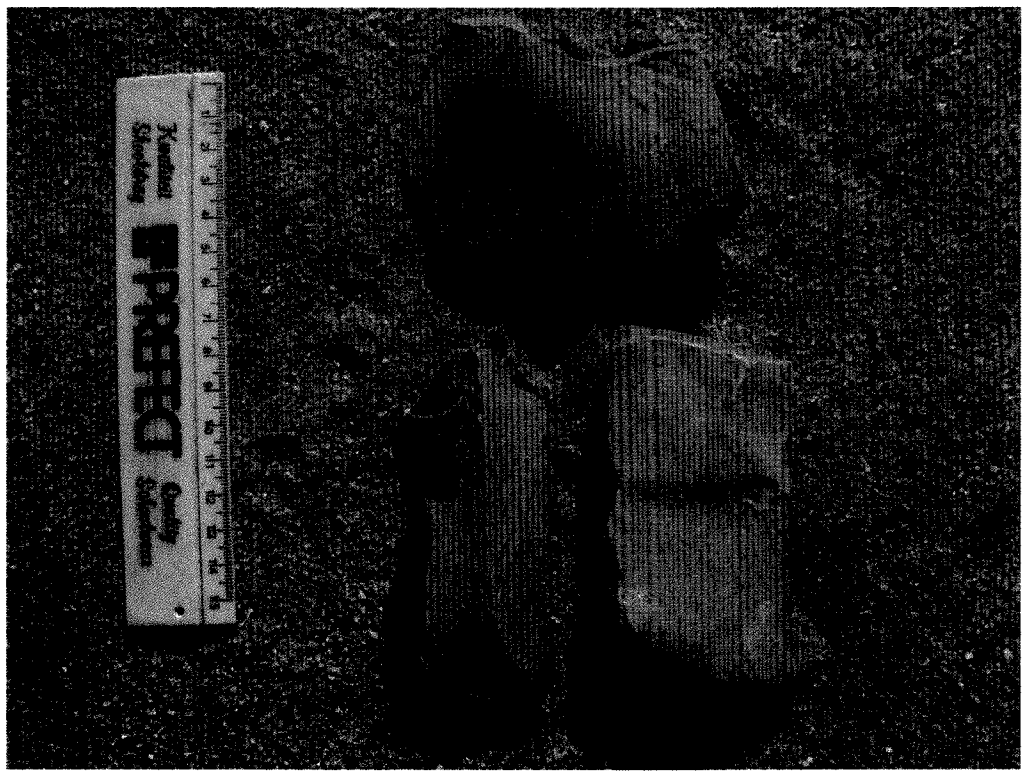
One of the large quartzite cores



One of the large quartzite cores

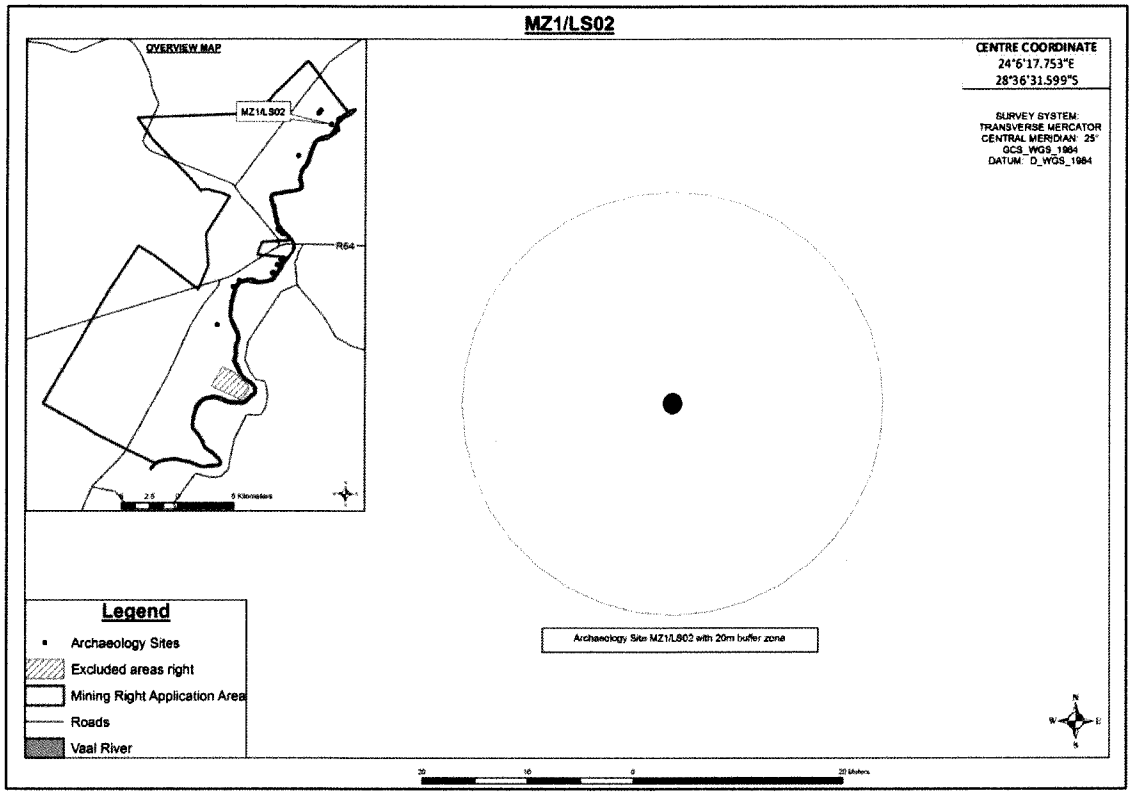


A more patinated Victoria West core found closeby.



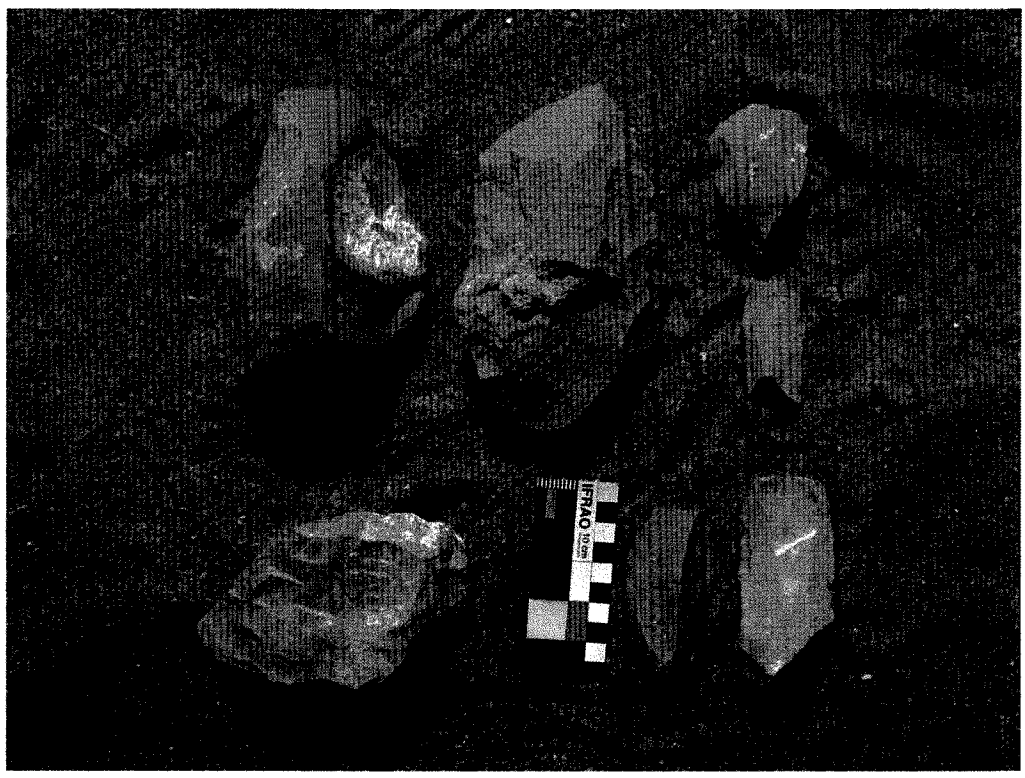
Some typical largish end- and side-struck irregular flakes.

MZ1/LS02



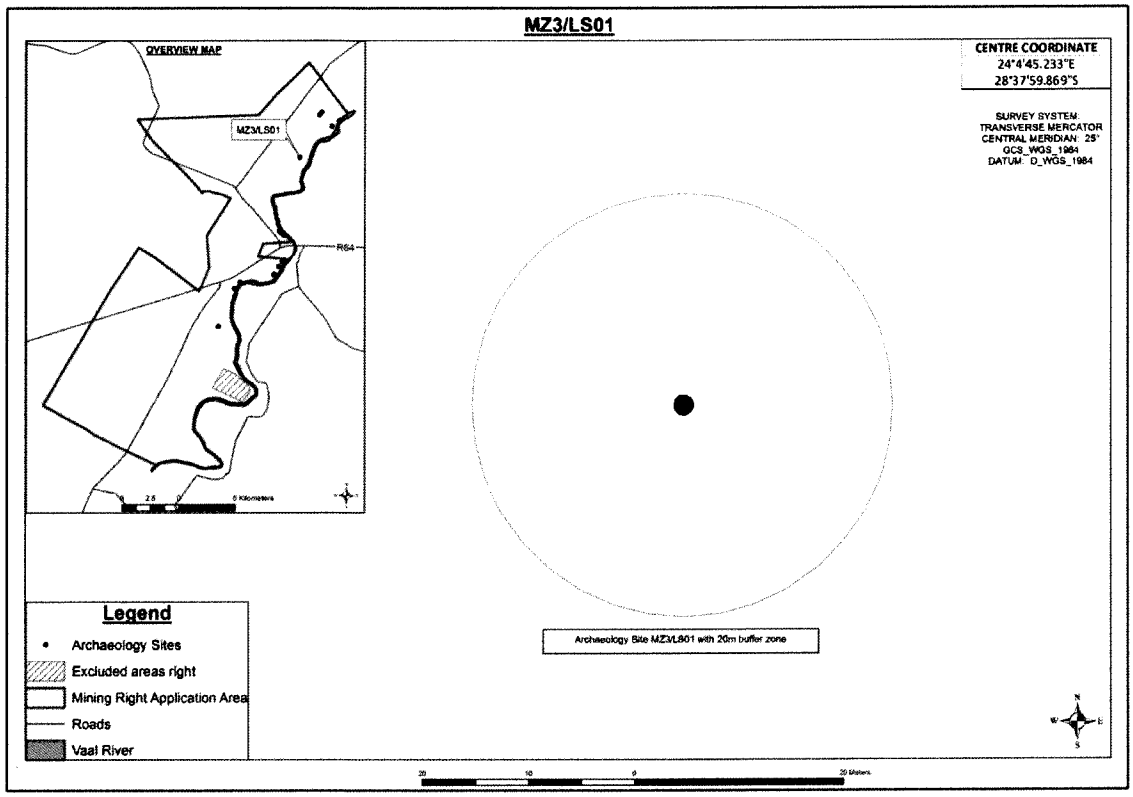
One of the examined calcrete sections in the gully.

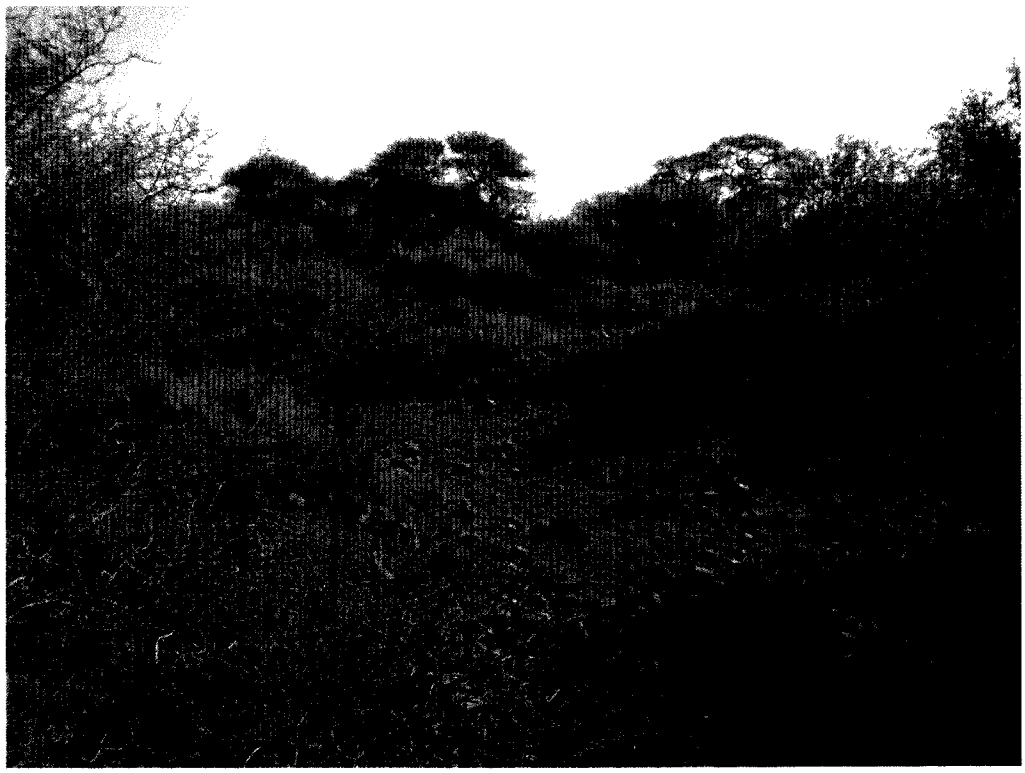
Another one of the gully profiles



Some of the stone artefacts, namely (top row) two normal-sized cleavers and a minor cleaver, and (bottom row) a large flake derived from a Victoria West core and three technical blades.

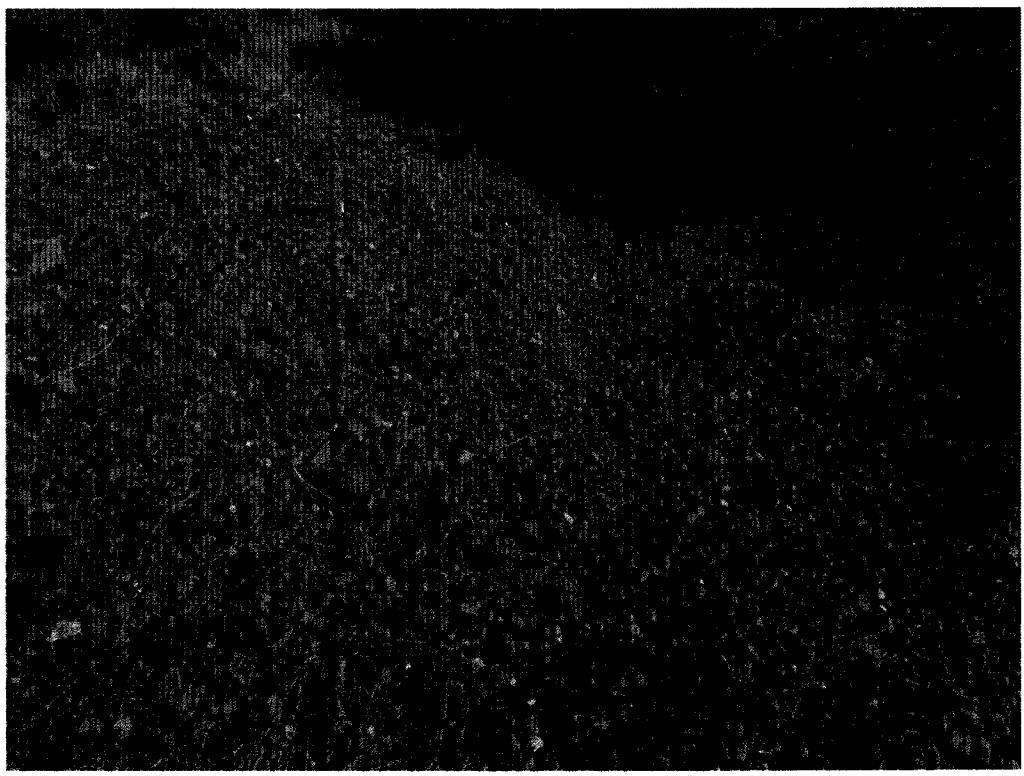
MZ3/LS01



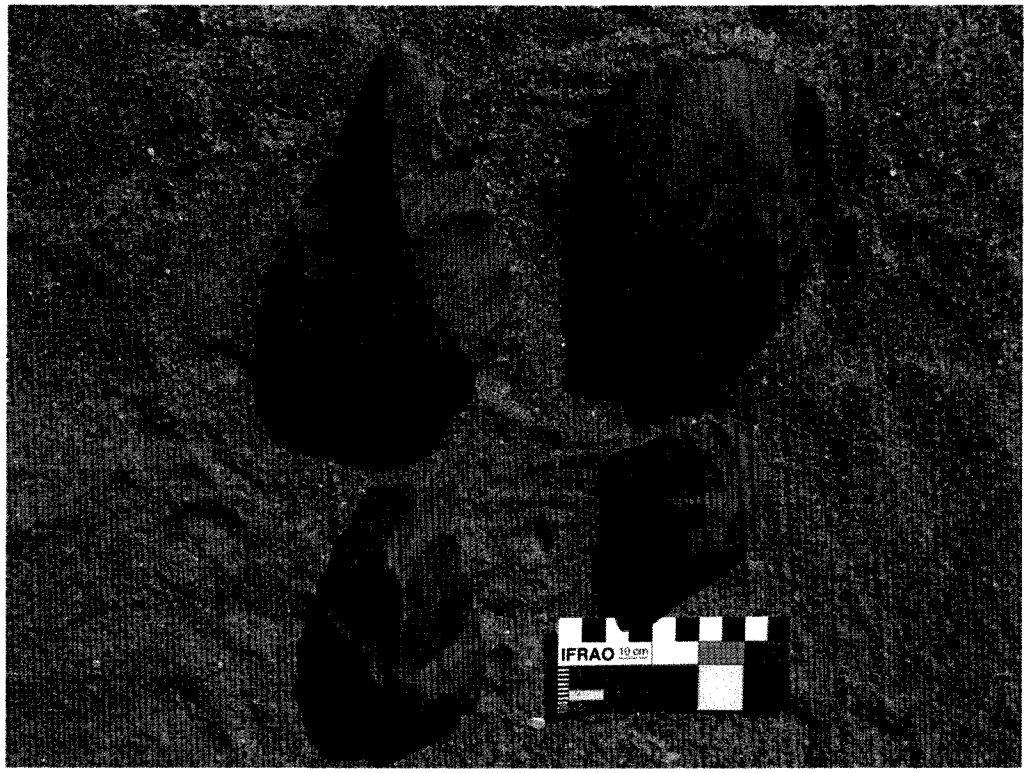


The shallow gully floor lowered by early diggers.

Examined digger dump of coarse clasts.

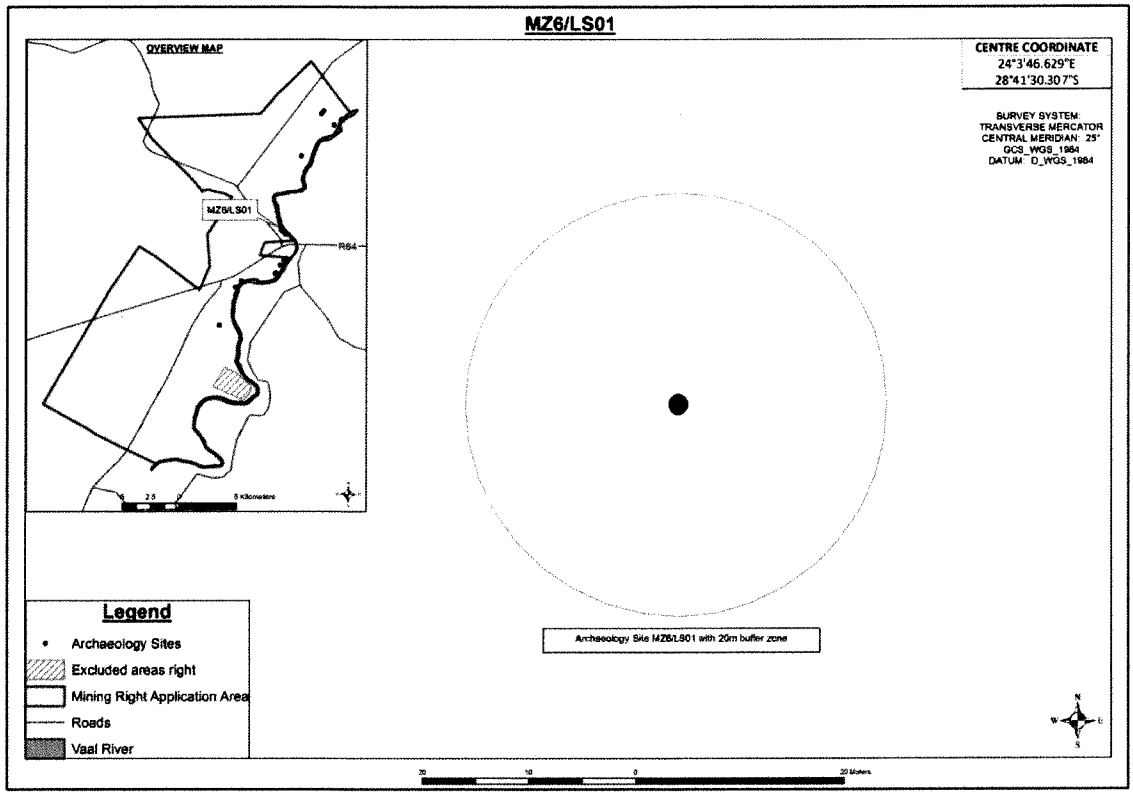


Examined digger dump of finer material.

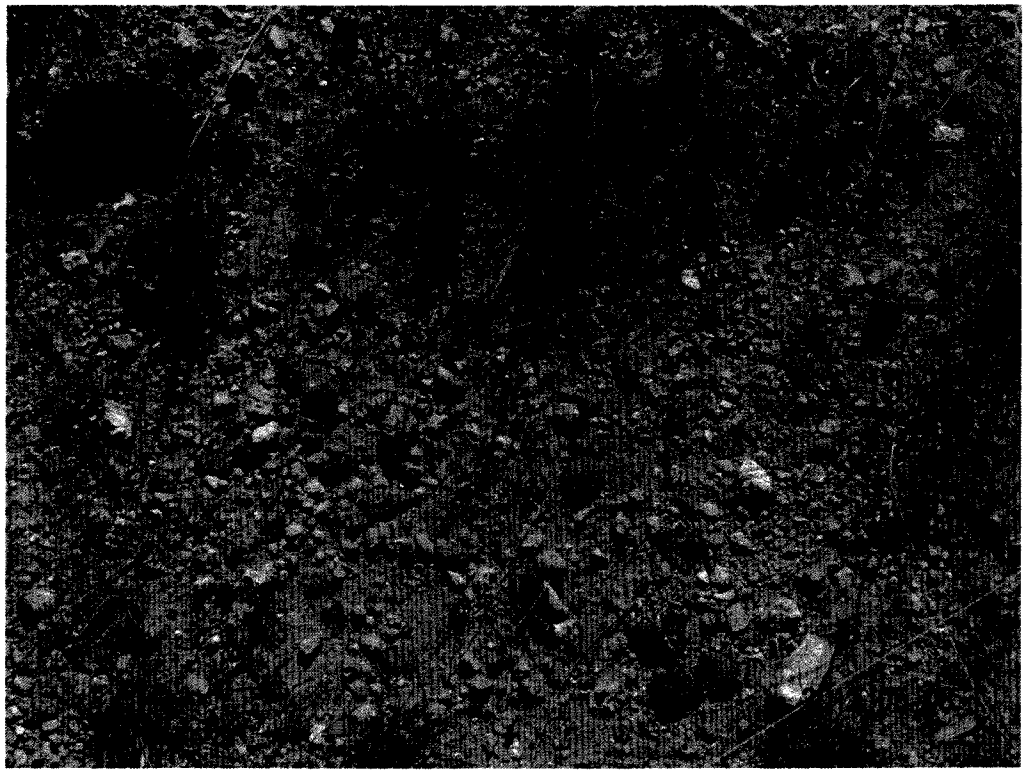


Some of the stone artefacts, namely (left) two handaxes and (right) a cleaver and a core showing blade-like scars.

MZ6/LS01



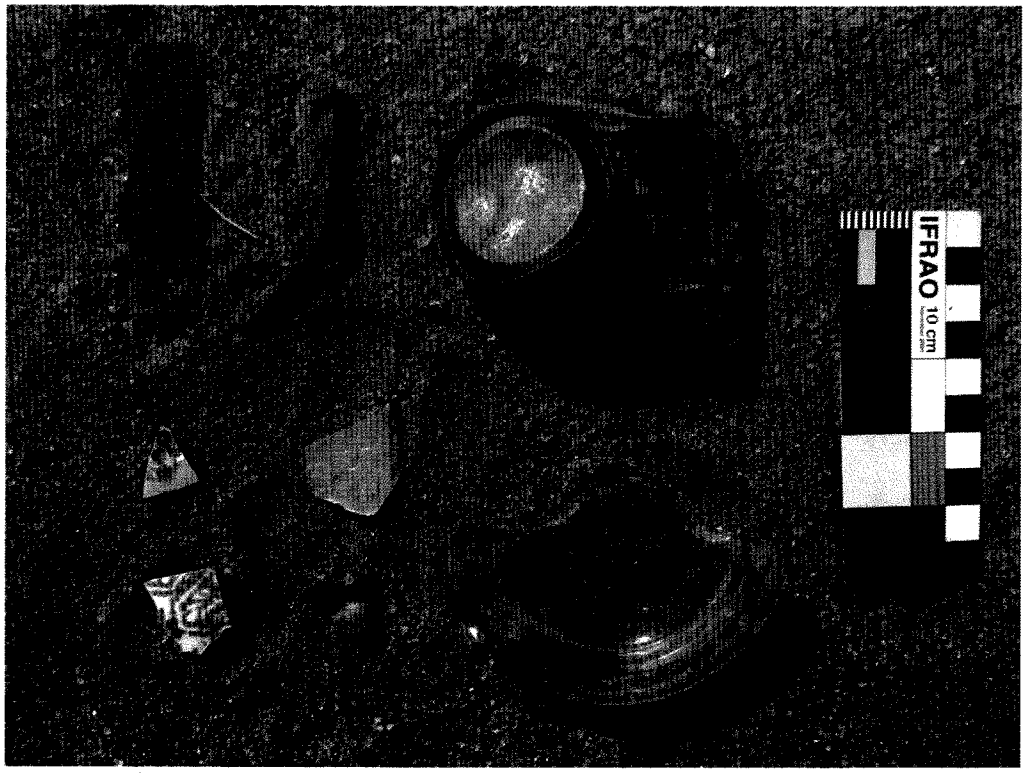
General view of the flat calcrete-surface area



Close-up of calcrete surface, with artefacts and exotic pebbles.

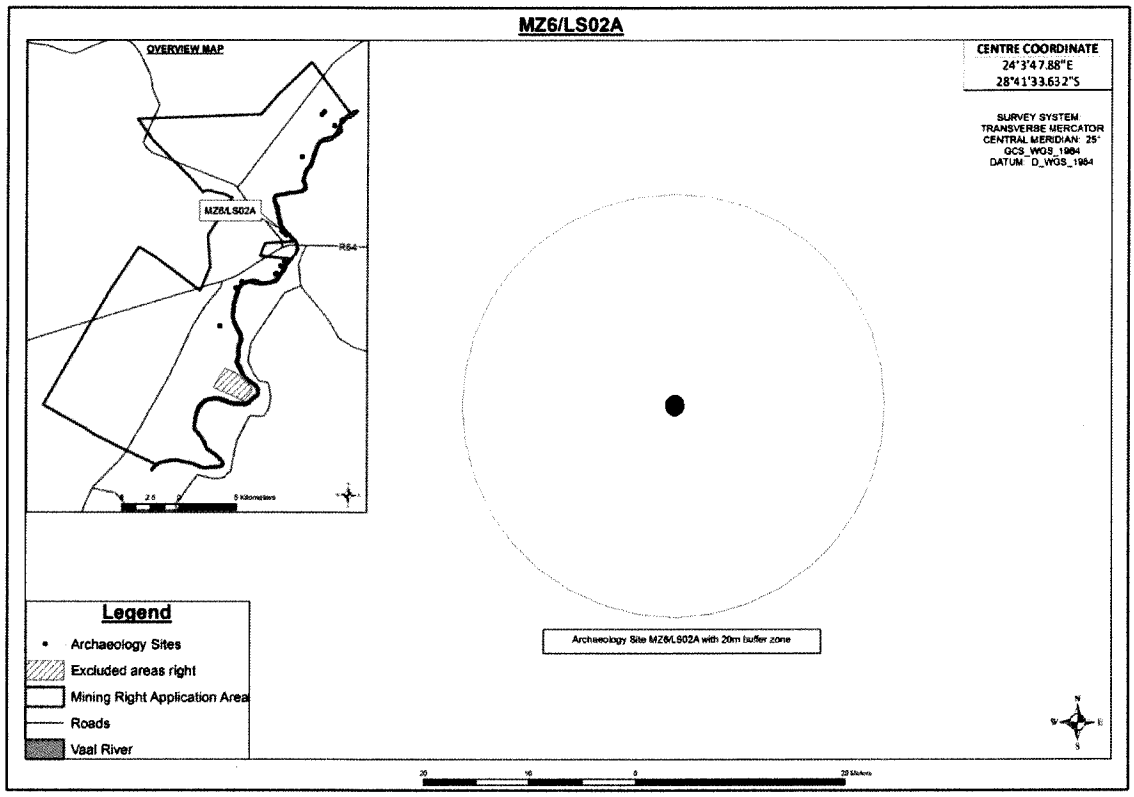
Some of the early 20th century stone walling. Vaal River in the distance.

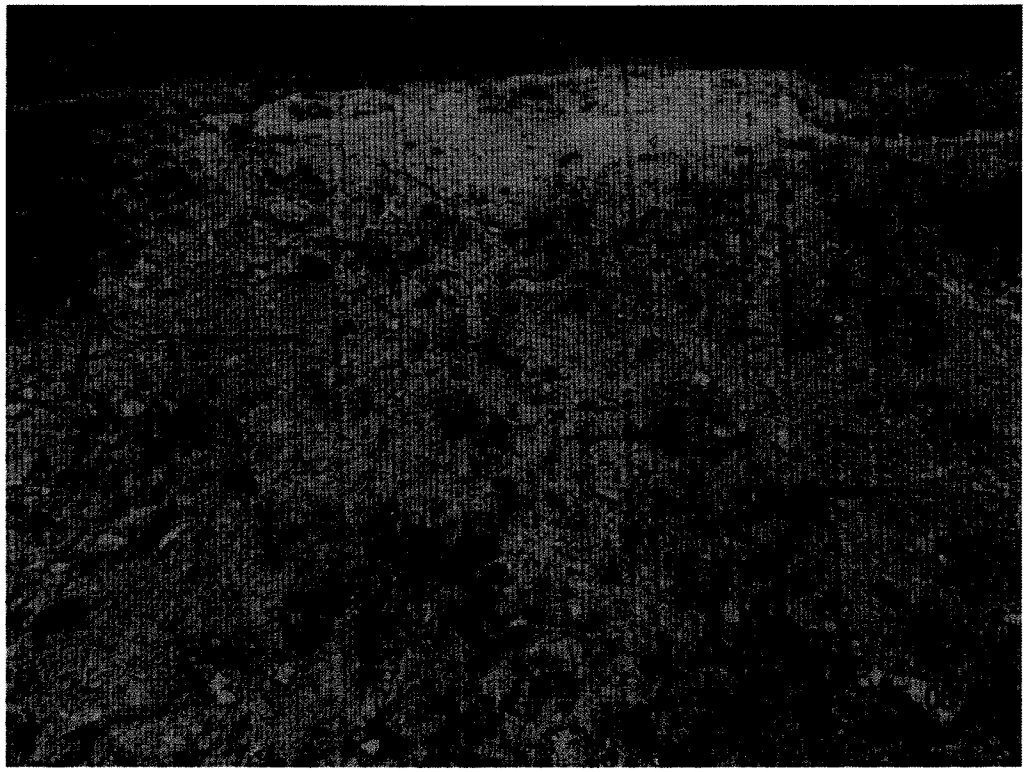
Some of the artefacts, namely (top row) largish coarse scraper and partly smoothed cobble, plus (bottom row) potlid-fractured item, small cores, one bipolar, and flakes, mainly bladelets.



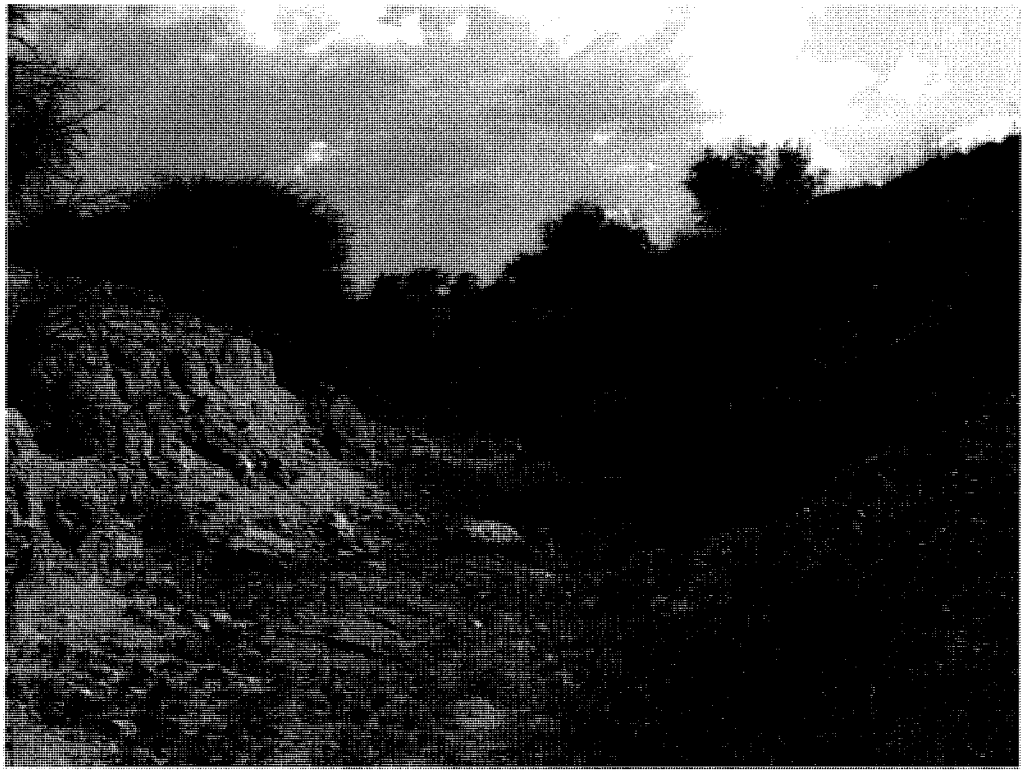
Some early 20th items, namely, a strip of 1" iron, perforated at one end, an iron nail, a tin, glass and ceramic fragments.

MZ6/LS02A





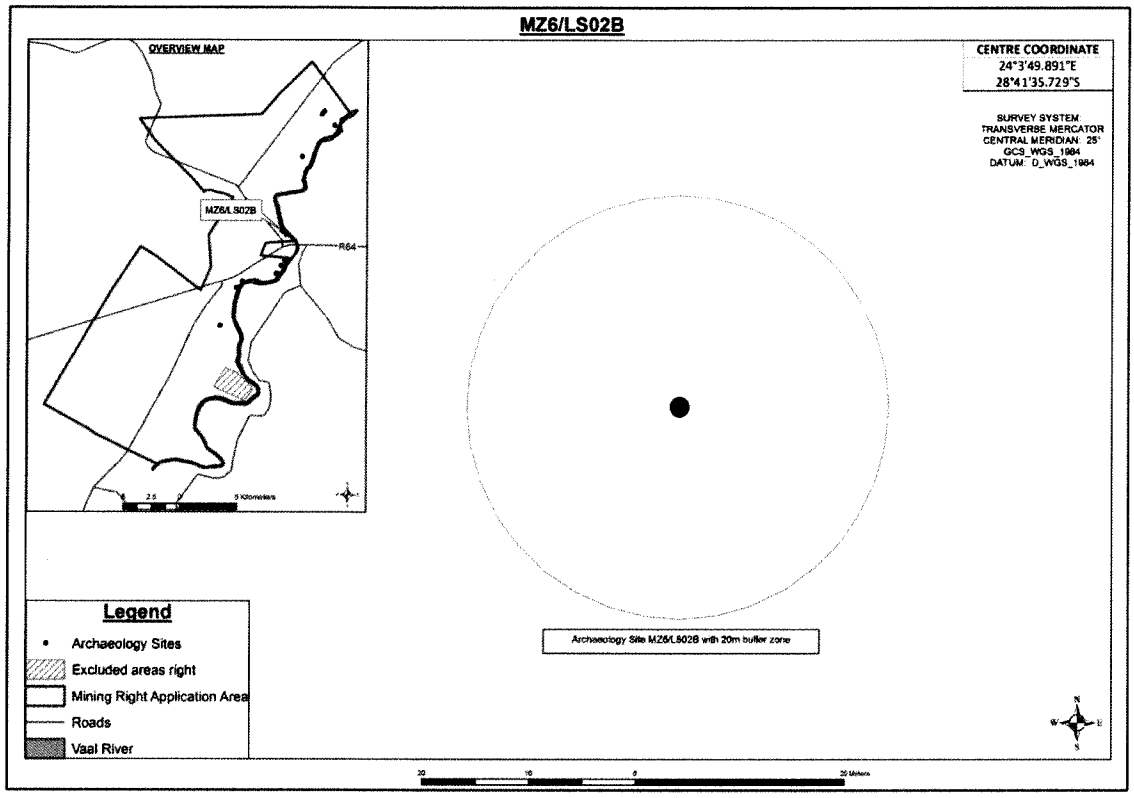
The up to ~4m thick calcrete in Gully 1.



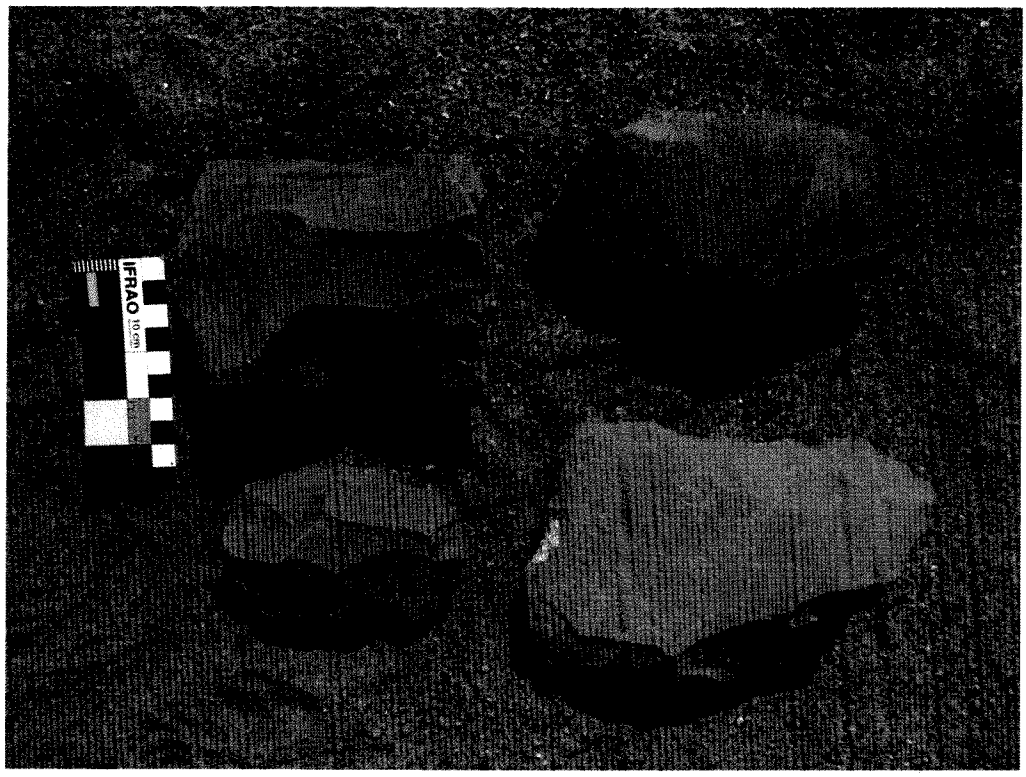
A view upslope of narrowing Gully 1.

Some of the artefacts, namely (top row) two sub-oval handaxes and (bottom row) three technical blades, the left one a proximal piece.

MZ6/LS02B

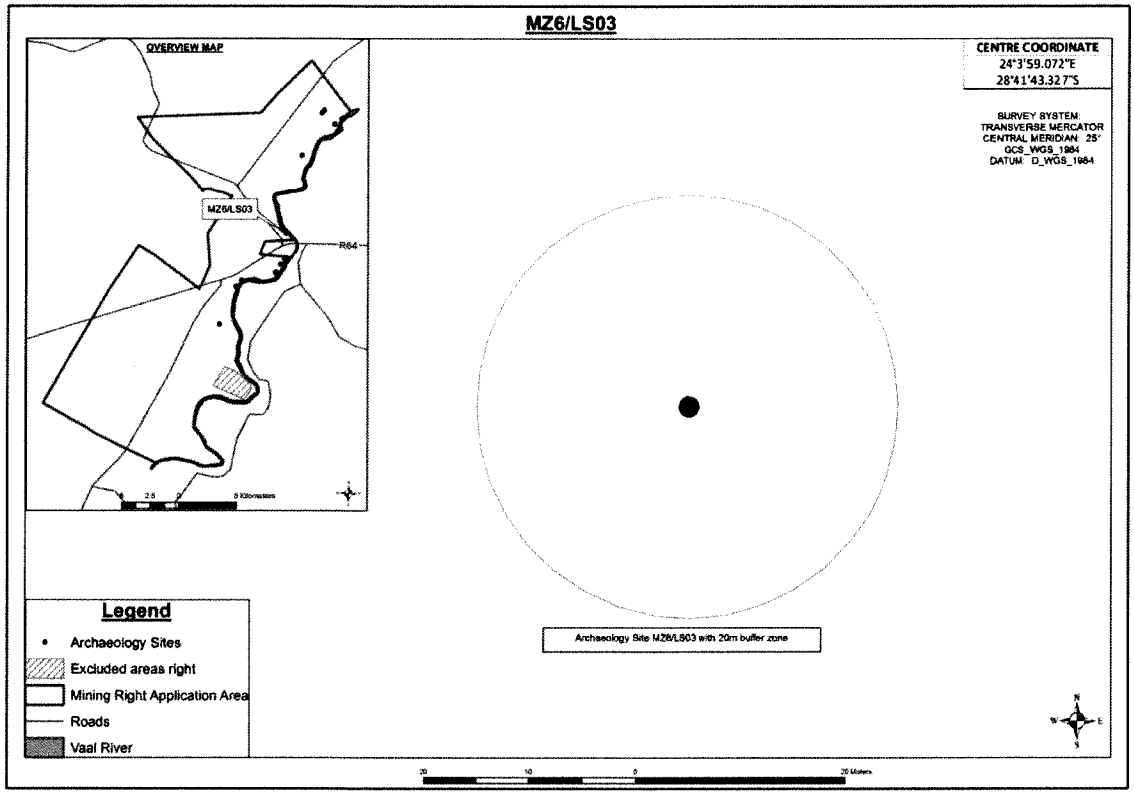


View of the calcrete surface southwards to Gully 2, which is covered by Karoo shale on its far side.



Some of the artefacts, namely (top row) two cleavers and (bottom row) a blade core and a prepared core with flake removal from opposing ends.

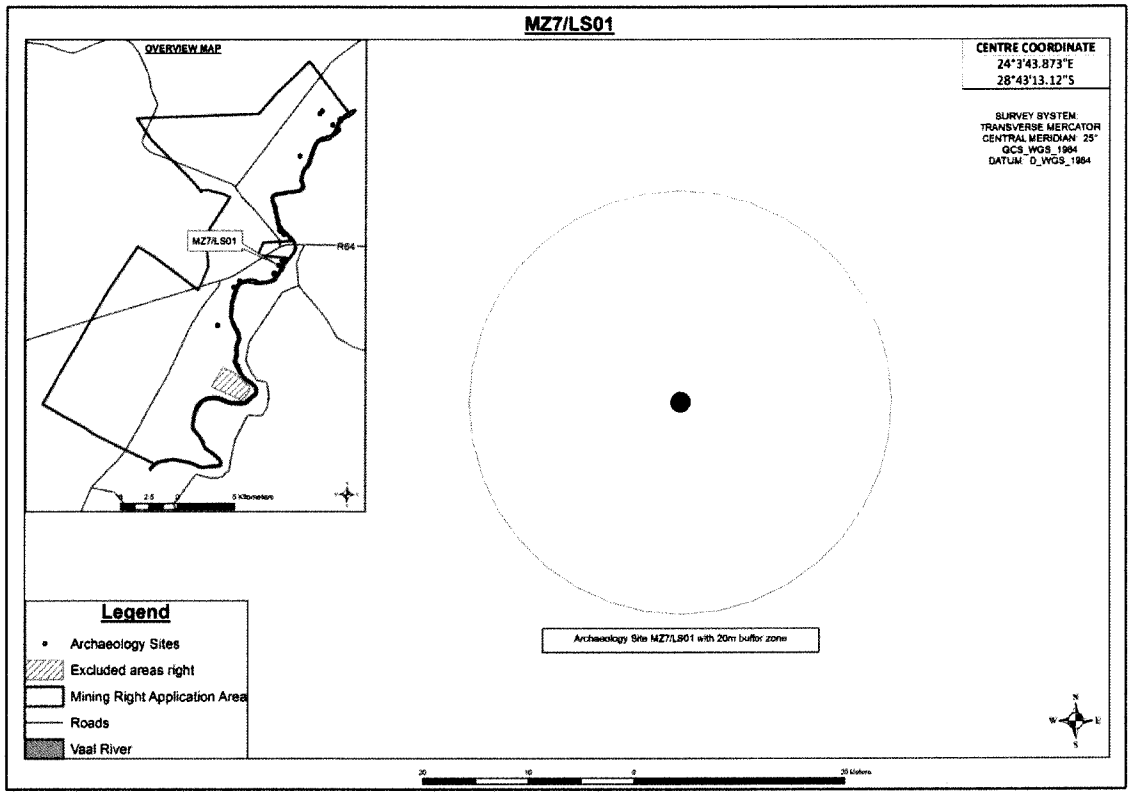
MZ6/LS03



General view of the calcrete surface

Some of the artefacts, namely (top row) side view of a largish straight-edged scraper, a typical irregular flake and a blade.

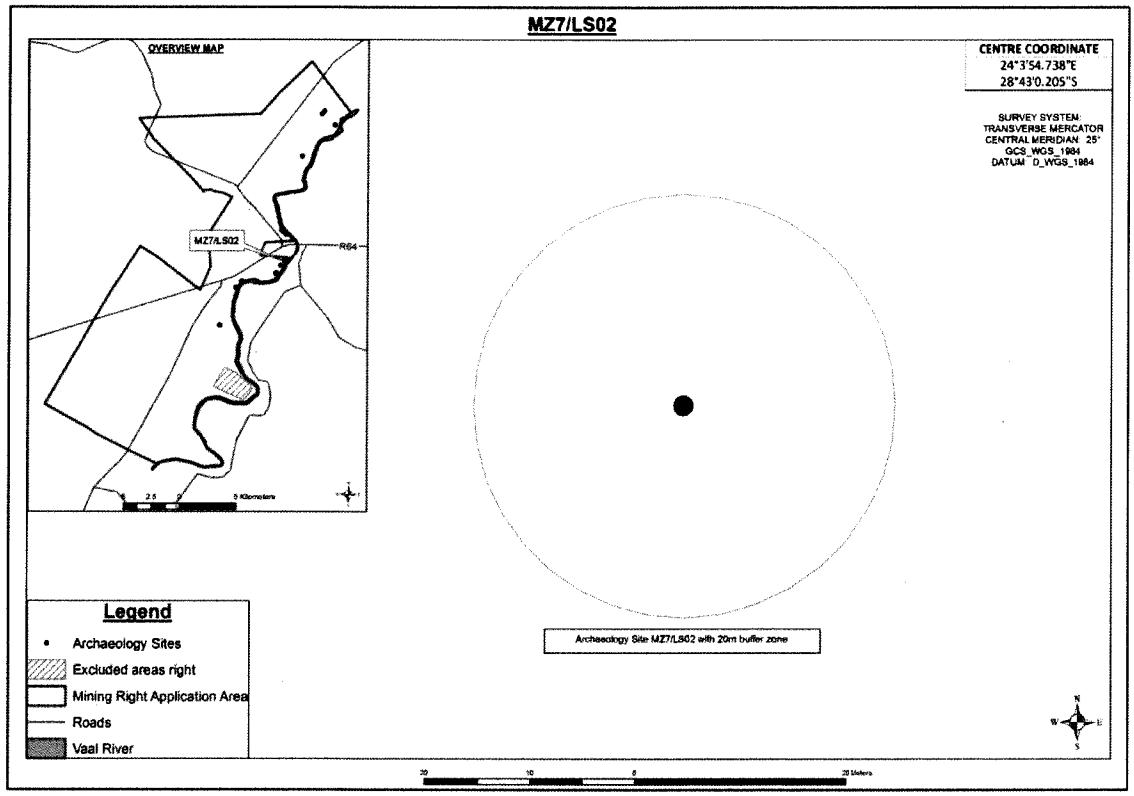
MZ7/LS01



General view of calcrete surface, close to Eskom power line.

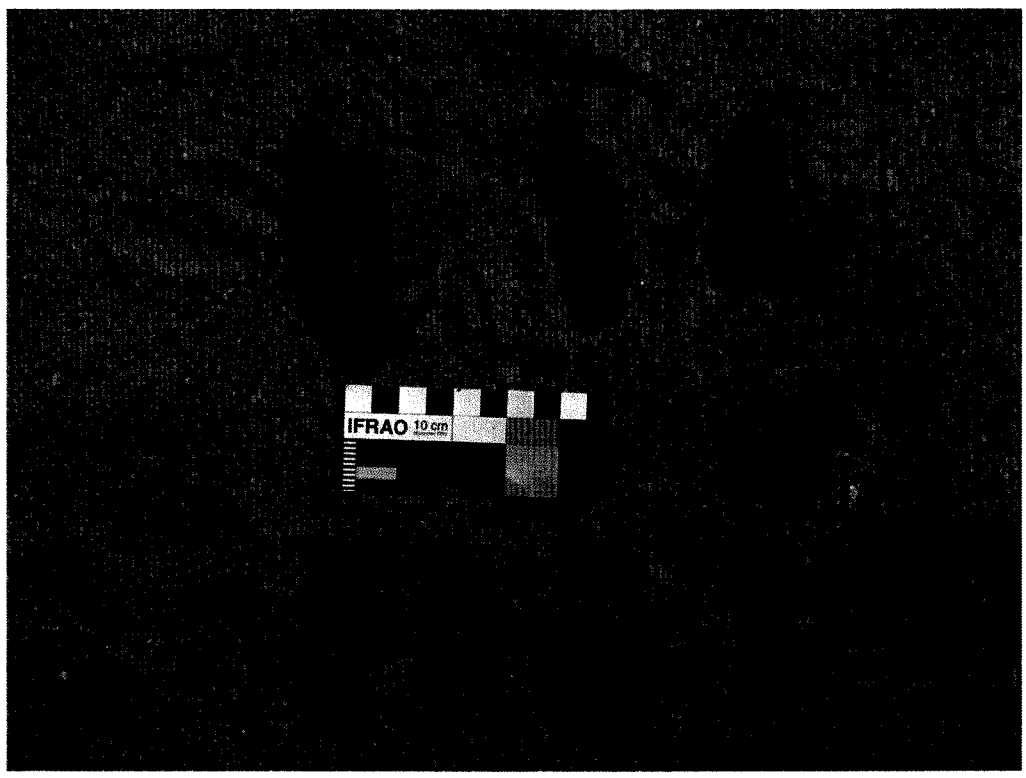
Some of the artefacts, namely (top row) a handaxe and a coarse blade core, plus (bottom row) two technical blades, the right one broken at both ends.

MZ7/LS02



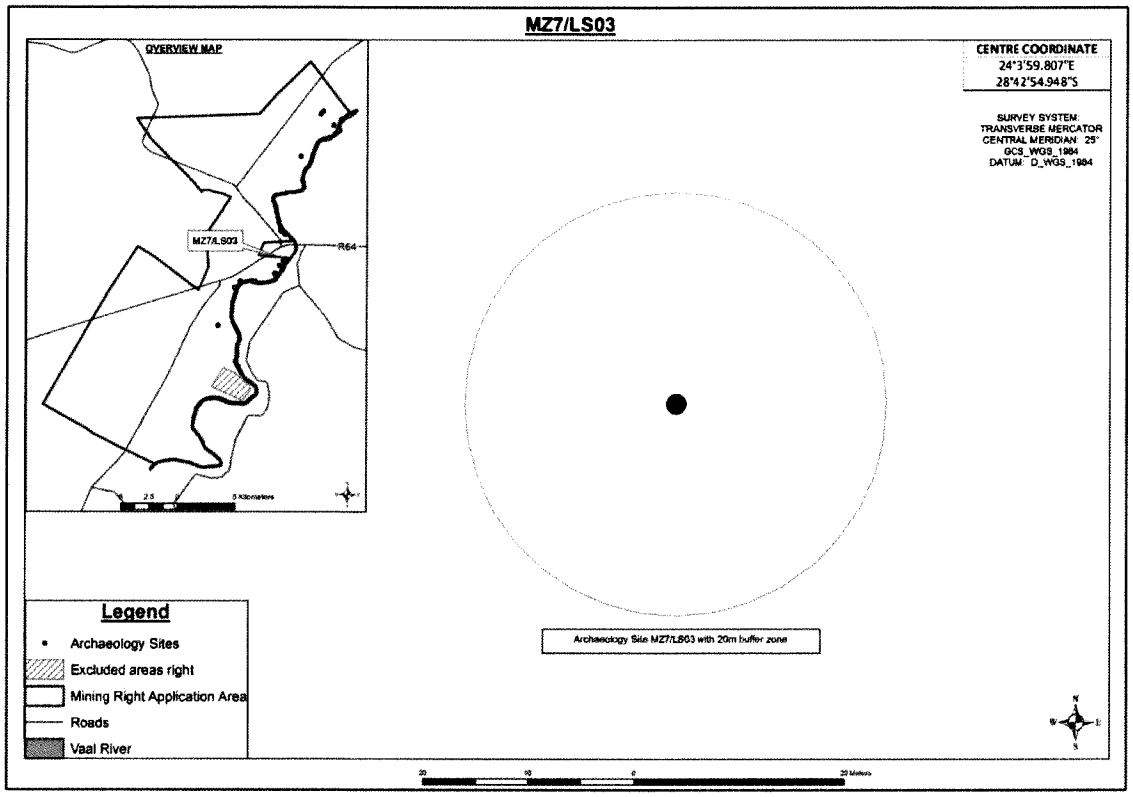
General view of the site area.

Close-up of the surface in it.

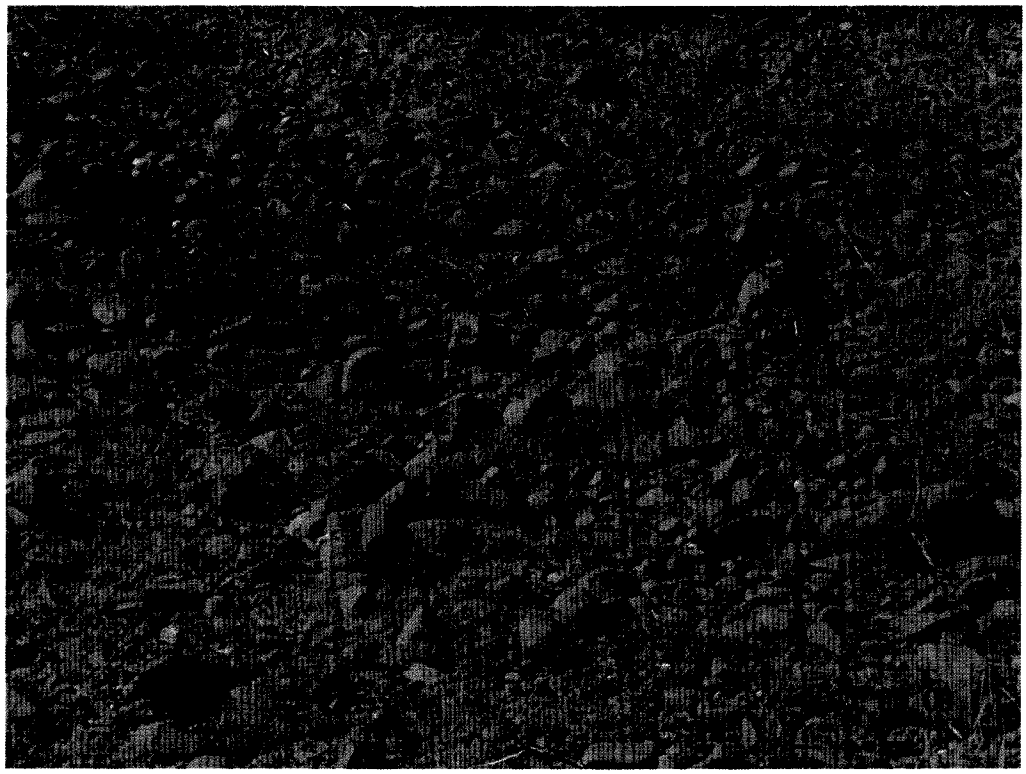


Some of the artefacts, namely (top row) two convergent points, one damaged laterally, the other with a missing tip, and a prepared core, plus (bottom row) a number of technical blades, some broken.

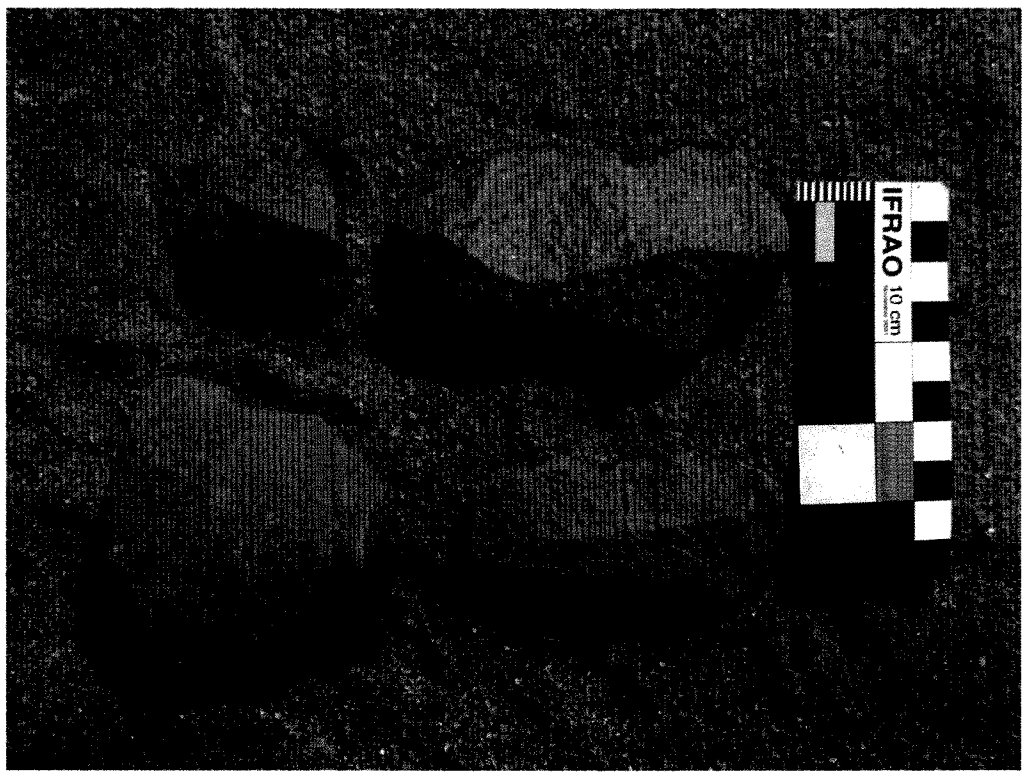
MZ7/LS03



General view of the gravel exposure

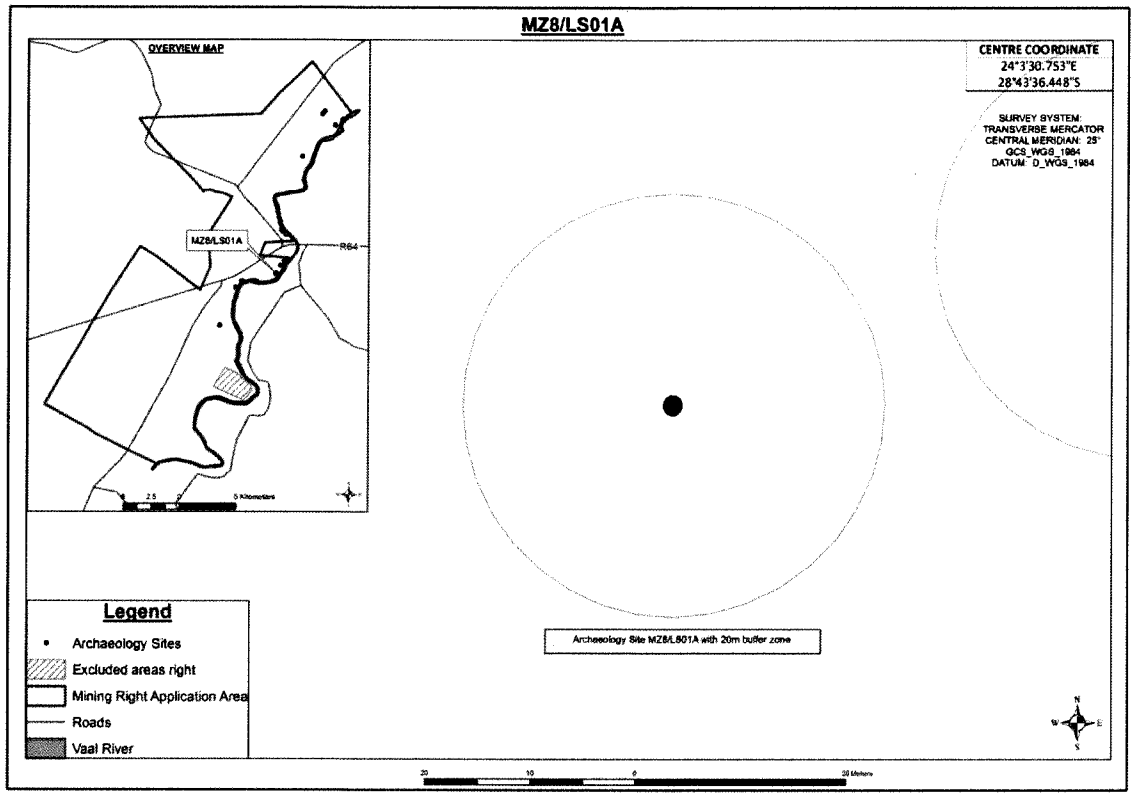


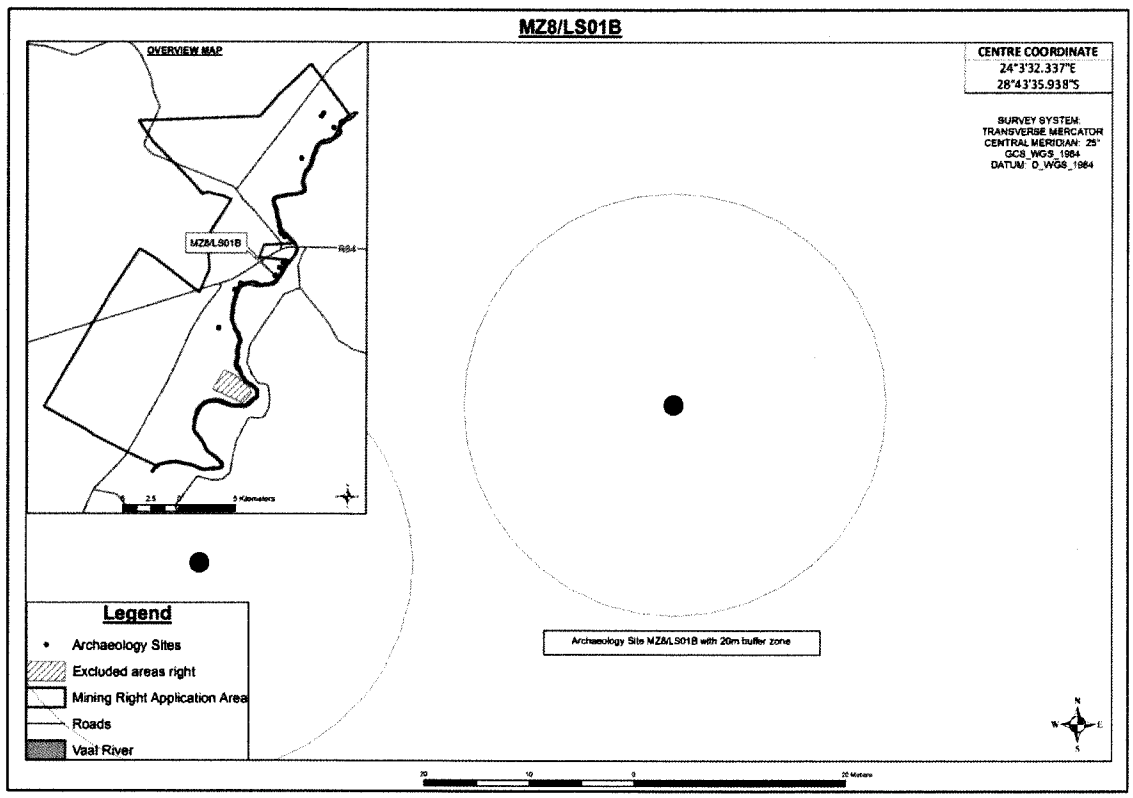
Close-up of the gravel surface



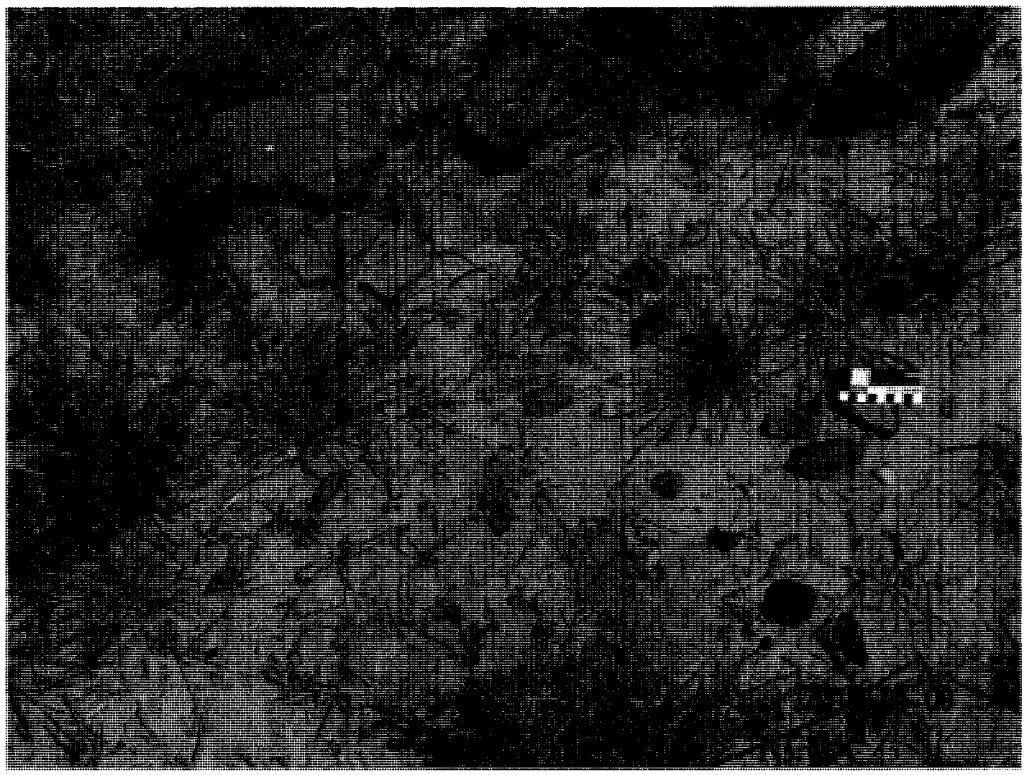
Some of the artefacts, namely (top row) two technical blades and (bottom row) two typical irregular flakes.

MZ8/LS01A & B

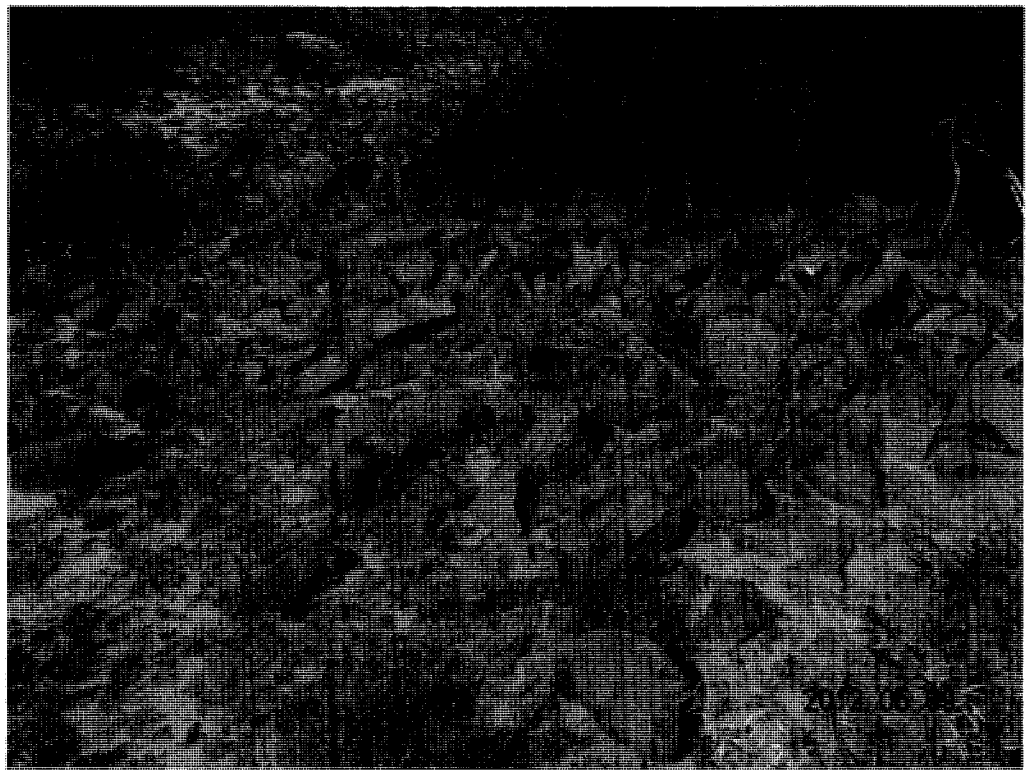

MZ8/LS01A
OVERVIEW MAP
MZ8/LS01A
R64
CENTRE COORDINATE
24°3'30.753"E
28°43'36.448"S
SURVEY SYSTEM:
TRANSVERSE MERCATOR
CENTRAL MERIDIAN: 25°
GCS_WGS_1984
DATUM: D_WGS_1984
Legend
Archaeology Sites
Excluded areas right
Mining Right Application Area
Roads
Vaal River
Archaeology Site MZ8/LS01A with 20m buffer zone


MZ8/LS01B
OVERVIEW MAP
MZ8/LS01B
R64
CENTRE COORDINATE
24°3'32.337"E
28°43'35.938"S
SURVEY SYSTEM:
TRANSVERSE MERCATOR
CENTRAL MERIDIAN: 25°
GCS_WGS_1984
DATUM: D_WGS_1984
Legend
Archaeology Sites
Excluded areas right
Mining Right Application Area
Roads
Vaal River
Archaeology Site MZ8/LS01B with 20m buffer zone

General view of site 1A



Detached flakes at Site 1A

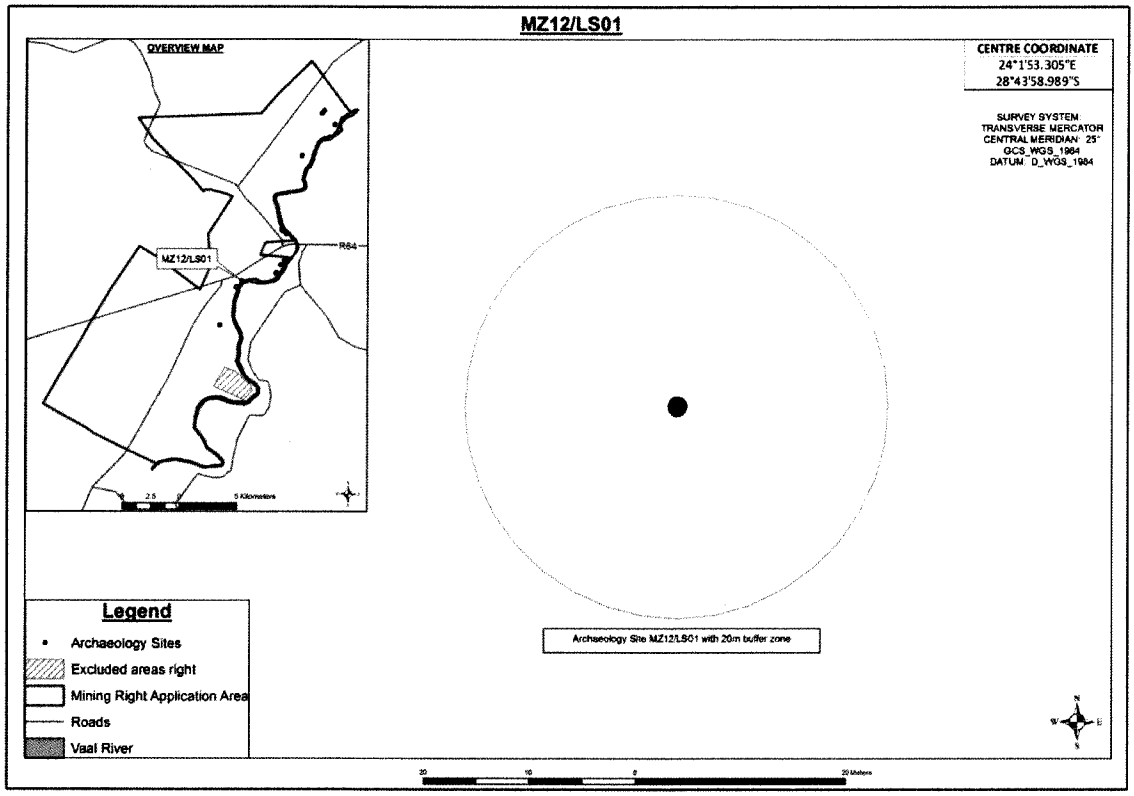


General view of Site 1B

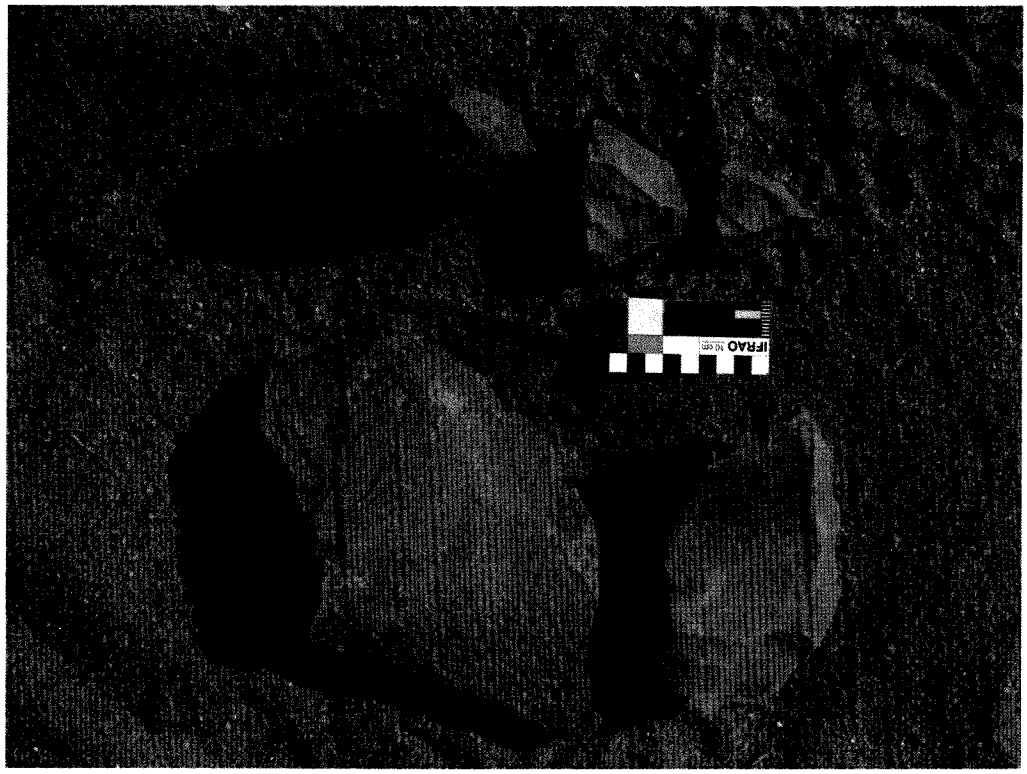
Trimmed slab at Site 1B

Close-up of the irregular flakes from Sites 1A & B

MZ12/LS01

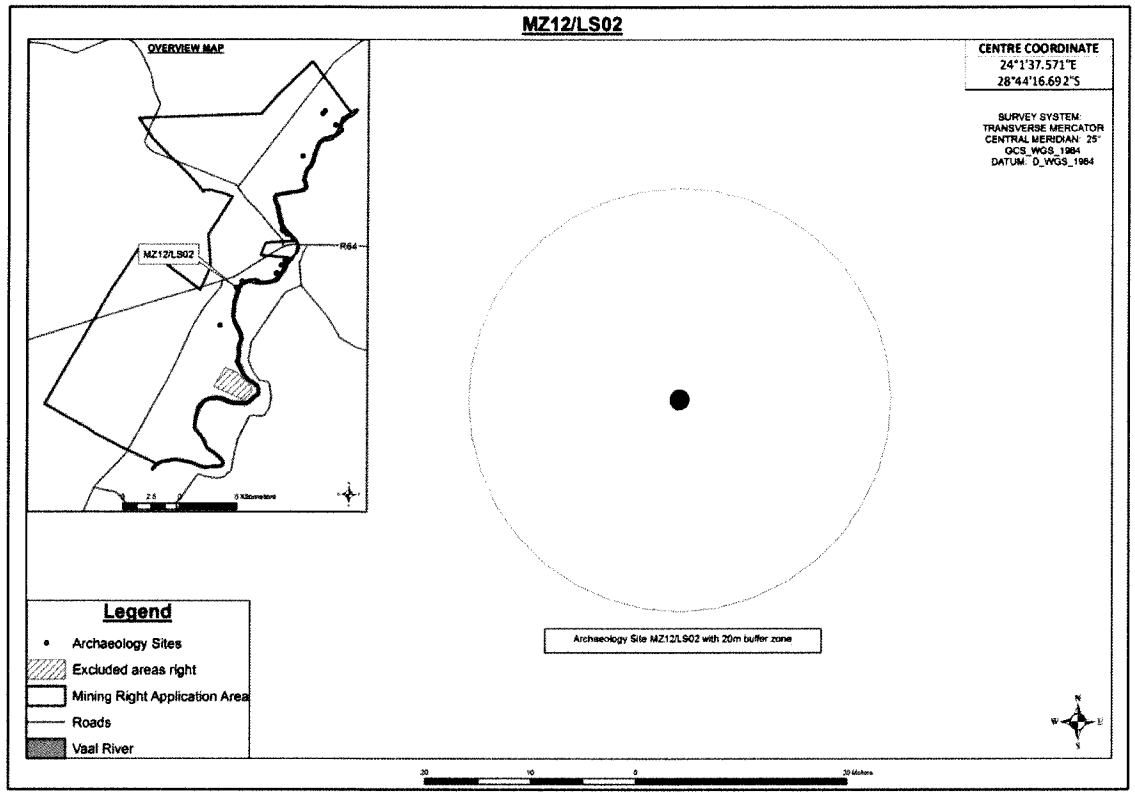


General view of the site area

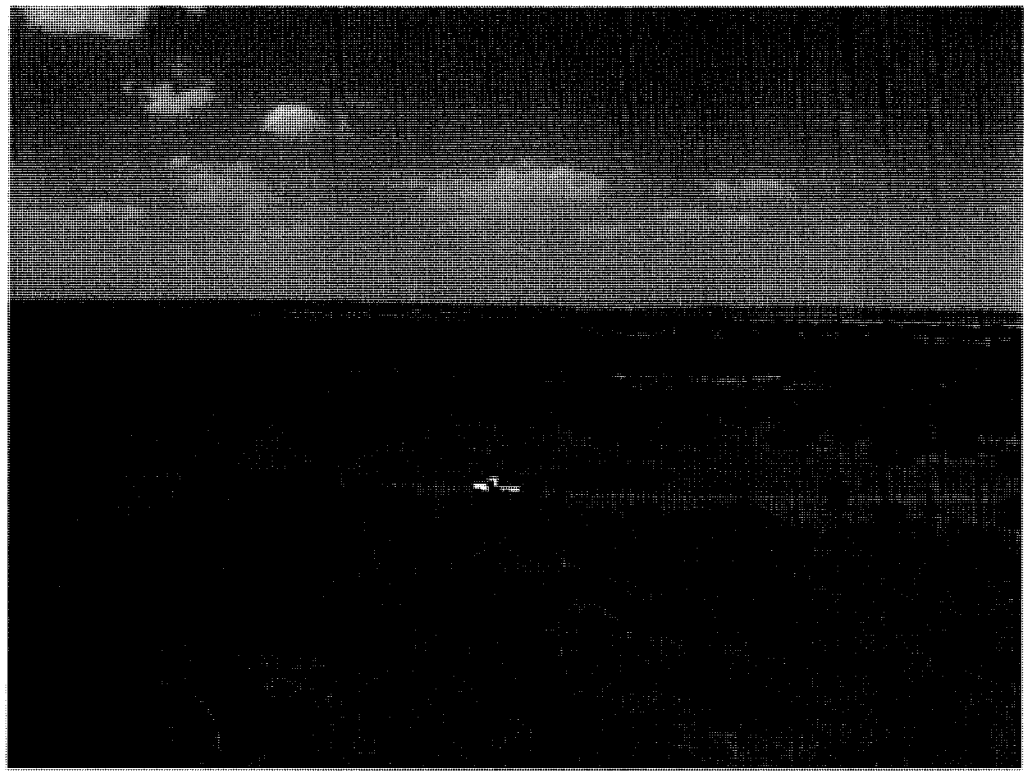


Some of the artefacts, namely (top row) a large irregular flake and a blade core, plus (bottom rows) a Victoria West 1 core, a single platform prepared core, and a slab trimmed to a point, a form most often found in the Acheulean.

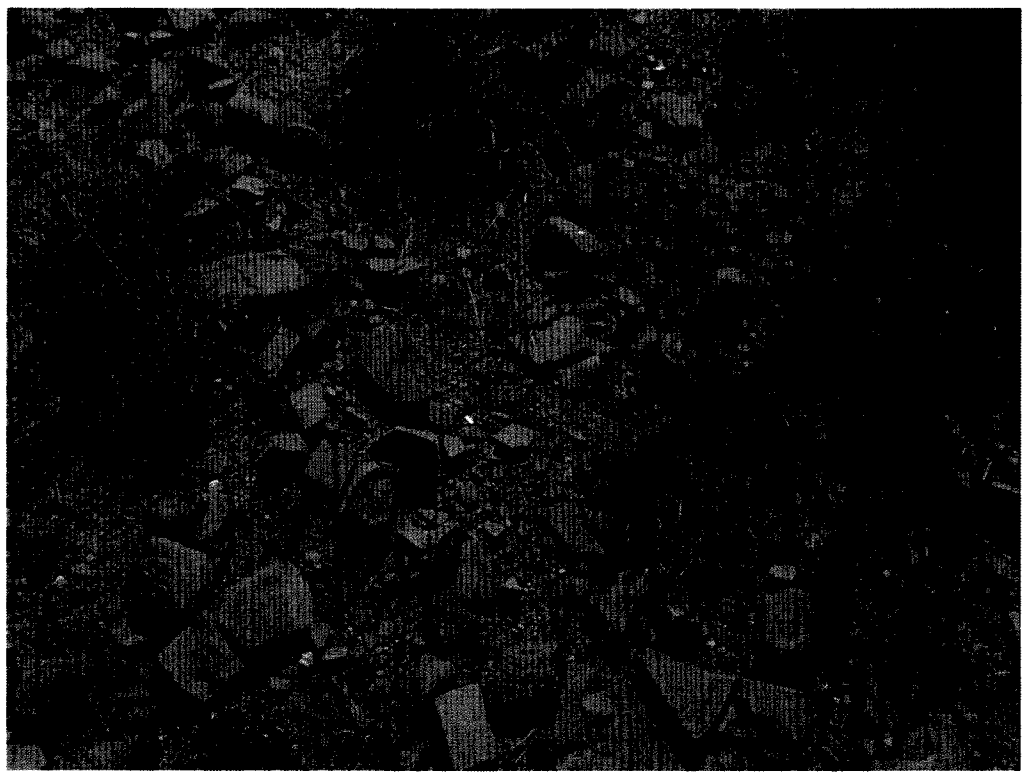
MZ12/LS02



General view of the site area



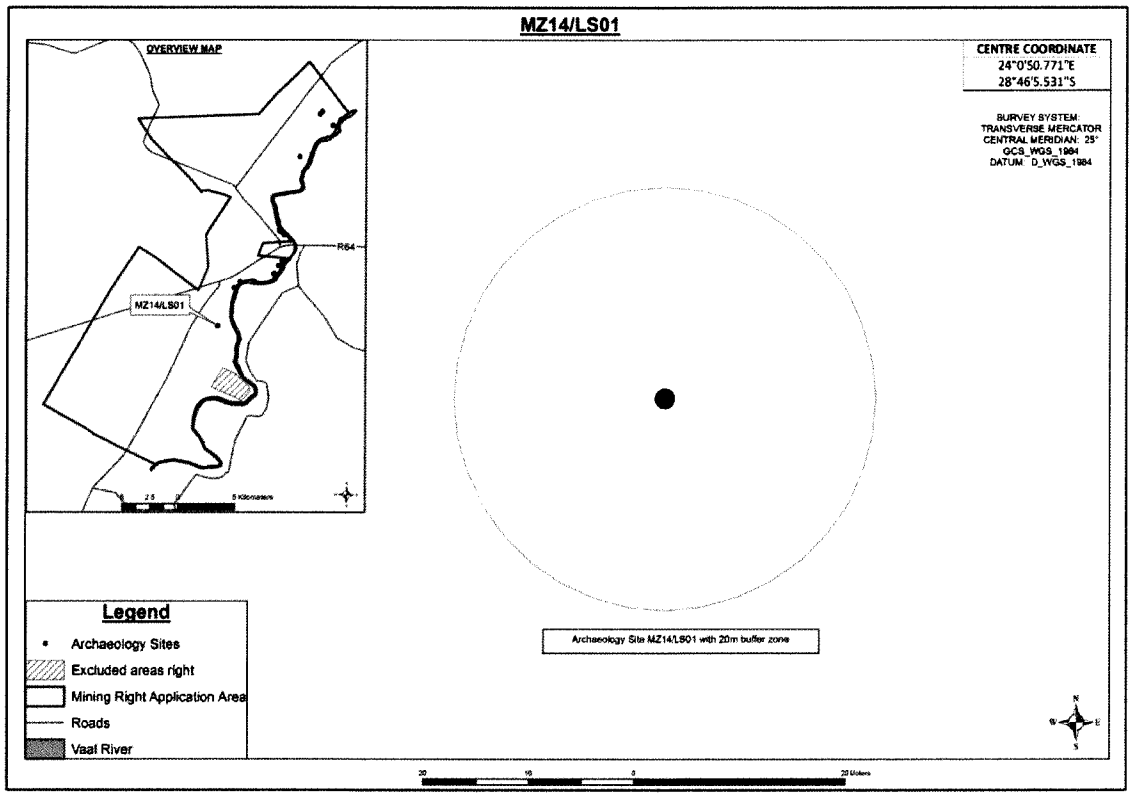
View towards the Vaal River from upslope ledge

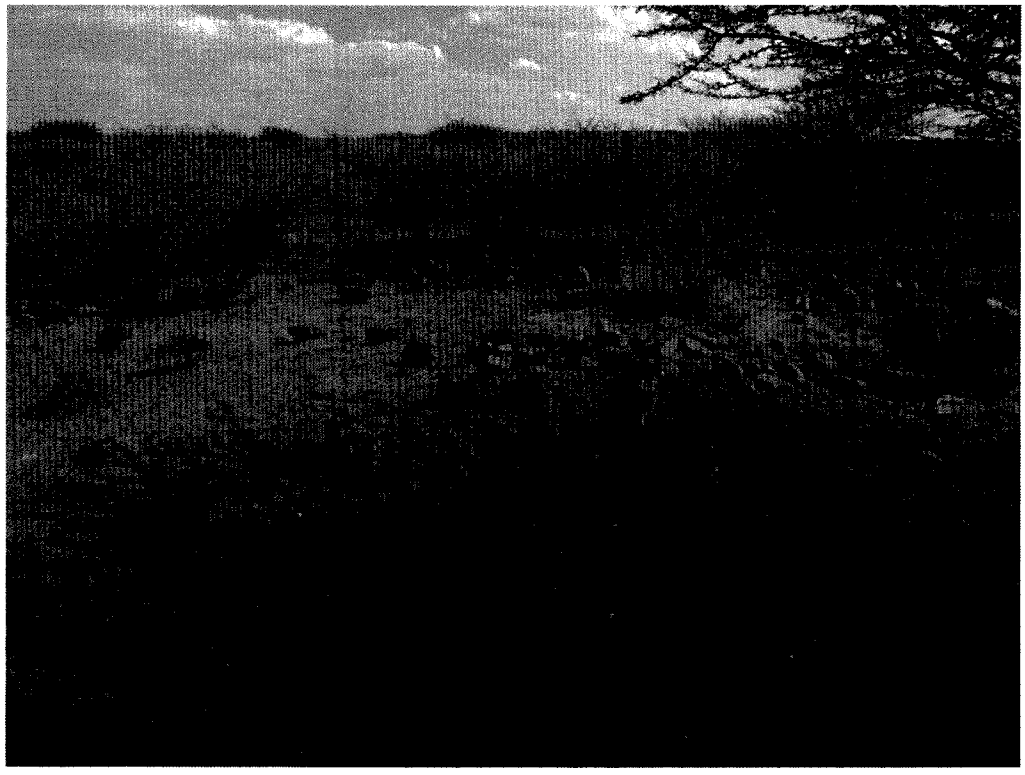


Rubble and flaking debris on the ledge

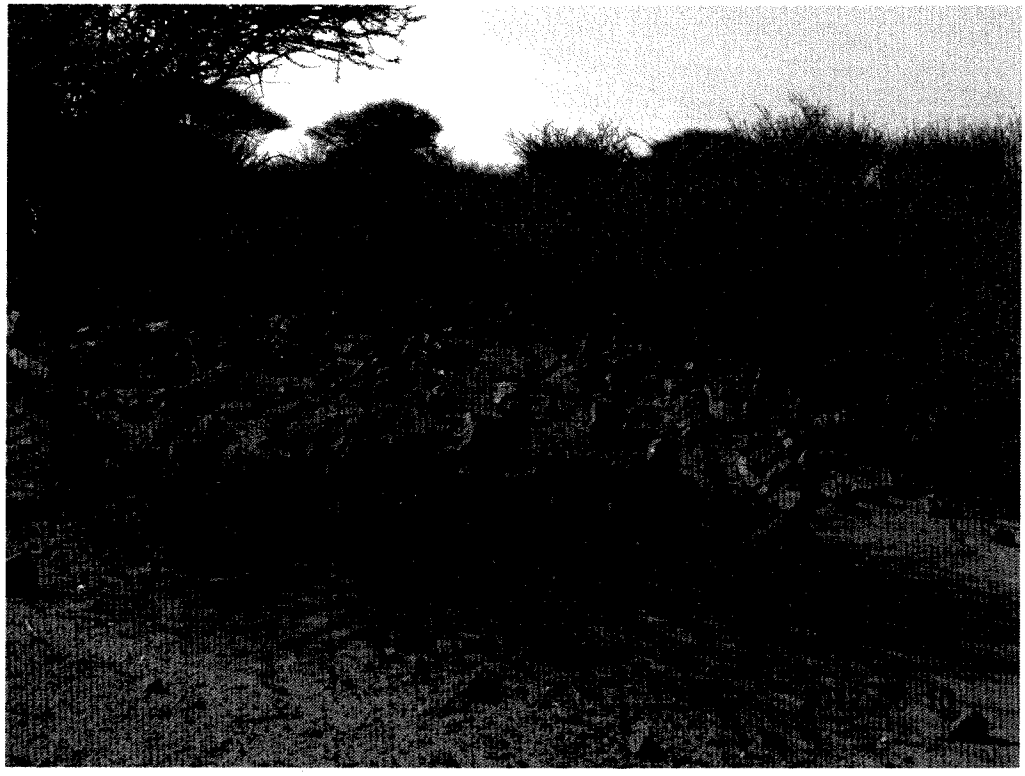
Some of the artefacts, namely (top row) blade cores and a prepared discoid, plus (bottom row) three technical blades. Also found were some red pigment pieces, possibly associated.

MZ14/LS01





General view of the site area



Possibly a collapsed stone circle

Some typical arefacts, namely (top row) a convex-edged scraper on a patinated older flake, and a rock slab with a smoothed area, plus (bottom row) a small core, a scaled piece, small, mainly irregular, flakes and a potlid-fractured item.