

# Archaeological Impact Assessment

## Proposed upgrade of Merweville Waste Water Treatment Works, Merweville, Beaufort West Municipality, Central Karoo

prepared for

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by



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## **Executive Summary**

*On 25 January 2010 an Archaeological Impact Assessment (AIA) was conducted for the above-named project. Apart from the fenced WWTW, the study area was accessible on foot and archaeological visibility was very good.*

*The bulk of the study area is disturbed by recent human activities including the WWTW, vehicle, pedestrian and domestic animal tracks.*

*No earlier archaeological work was conducted in the study area or immediate surroundings. Apart from an old cemetery, no tangible heritage resources were recorded in the study area. While no objections regarding the cemetery were raised during the Public Participation process, the burial ground is considered significant and is protected by the National Heritage Resources Act (Act 25 of 1999). The placement of the proposed extension to the WWTW will have a direct and permanent negative impact on the old cemetery.*

*The following recommendations are made;*

- It is recommended that the old cemetery be fenced in the original style with stone corner fence posts, wooden fence droppers and wire. This will ensure the long term protection and conservation of the heritage feature.*
- Minimally, the proposed western fence of the WWTW should be placed along the alignment indicated in Figure 3 (also see Table 1). Because the proposed alignment is not precise, the placement of this part of the fence should be undertaken in consultation with a professional archaeologist.*
- If, as a result of the above, the extension of the WWTW needs reconsideration, then extending in a southerly direction is suitable with respect to heritage resources.*

*Note that;*

- If archaeological materials, particularly unmarked graves, are exposed during earth moving activities, then they must be dealt with in accordance with the National Heritage Resources Act (No. 25 of 1999). If human remains are exposed during construction, the matter will fall into the domain of Heritage Western Cape (Mr. Nick Wiltshire – if prehistoric) or the South African Heritage Resources Agency (Ms Mary Leslie – if historic) and will require a professional archaeologist to undertake mitigation if needed.*

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## **1. Introduction**

### **1.1 Background**

Regarding the proposed upgrade of Merweville Waste Water Treatment Works, Merweville, Beaufort West Municipality, Heritage Western Cape (HWC) issued a RoD (RoD ID no. 732) requiring the following:

1. An Archaeological Impact Assessment
2. A desktop Palaeontological Impact Assessment
3. The reports must be sent to SAHRA BGG in addition to HWC with all previous relevant documentation for comment on the graveyard
4. Evidence of thorough public participation pertaining to the impacts on the graveyard through enlargement of the WWTW plant must be presented before SAHRA BGG and HWC

This report deals with the Archaeological Impact Assessment (AIA), Mr John Almond is responsible for point 2 while Mr. Patrick Killick of Aurecon South Africa (Pty) Ltd will submit documentation - referred to in points 3 and 4 - to HWC and SAHRA. Mr. Killick appointed CHARM to conduct the AIA for the proposed upgrade of Merweville Waste Water Treatment Works (WWTW; Figures 1 through 3 and Plates 1 & 2).

The AIA focused on the affected portion of the property and not its entirety. The layout plan and specifications for upgrading the WWTW is included with documentation submitted by Mr. Killick. Planned activities associated with the proposed upgrade of the WWTW may have a permanent negative impact on heritage related resources.

### **1.2. Purpose and Scope of the Study**

Objectives of the Archaeological Impact Assessment are:

- To assess the study area for traces of archaeological and heritage related resources;
- To identify options for archaeological mitigation in order to minimize potential negative impacts; and
- To make recommendations for archaeological mitigation where necessary.

Terms of Reference (ToR):

- a) Locate boundaries and extent of the study area.
- b) Conduct a foot survey of the study area to identify and record archaeological and heritage related resources.
- c) Assess the impact of the proposed development on above-named resources.
- d) Recommend mitigation measures where necessary.
- e) Prepare and submit a report to the client that meets standards required by Heritage Western Cape (HWC) in terms of the National Heritage Resources Act, No. 25 of 1999.

### **1.3 Study Area**

The town of Merweville is situated 45km (39km in straight line) NNW of Prince Albert Road on the N1 (Figure 1). The study area – 1.7km SW of Merweville's centre - was reached via the gravel road between Prince Albert Road and Meweille, the gravel road to Sutherland and a single vehicle gravel track to the WWTW (Figure 1).

The area studied is approximately 1.8ha in extent, and centered on S32.67712 E21.50612 (WGS84, Lat/Lon dec.deg.). Coordinate data for boundary points were not

available at the time of compiling this report. The topography, natural sediments and vegetation of the study area are shown in Plates 1 & 2. The WWTW is situated in a low lying area immediately west of the Van Der Byls River and is not readily visible from the town or the Sutherland road (Plates 1 & 2). Nearly the entire study area was disturbed during construction of the existing WWTW (see Figures 3 & 4 and Plates 1 & 2).

#### **1.4 Approach to the Study**

No earlier archaeological work was conducted in the study area or its immediate surroundings. Though a total station (EDM) is ideal to survey the exact perimeter of the old cemetery, the extent of the latter was mapped via GPS (Figure 3 and Table 1).

Survey tracks were fixed with a hand held Garmin Camo GPS – using map datum WGS84 - to record the searched area (Figures 2 & 3, gpx tracking file submitted to HWC and is available from author). Observations and photo localities were also fixed by GPS (Figure 3 and Table 1). Digital audio notes and a high quality, comprehensive digital photographic record were also made (full data set available from author). Numbers on Plates denote waypoint numbers and compass bearing names indicate the direction of views. Photo locality information is given in Figure 3 and Table 1.

## **2. Results**

In 3.5 hours of survey an area of about 1.8ha was covered, of which an average of around 80% provided good archaeological visibility.

The eastern edge of an old cemetery borders on the western fence of the existing WWTW and is not described here, but the author concurs with the basic observations made by Schulz and De Kock (2009). The perimeter of the burial ground was walked and fixed by GPS revealing that it is approximately 3000m<sup>2</sup> in extent (Figure 3, Plates 1 & 2 and Table 1). Although no objections concerning the old cemetery were raised during the Public Participation Process, the feature is protected by the National Heritage Resources Act (Act 25 of 1999) and must be treated accordingly.

#### **Waypoint 40, 41 and 42**

Large stones, in one instance associated with a nearly filled pit that likely supported an up ended stone – in all probability were used as corner fence posts (SE, SW & NW) for an earlier fence enclosing the cemetery (Figure 3, Plates 1 & 3 and Table 1). Barbed wire is associated with two of these occurrences. It appears that the stones were pulled apart when the fence was removed or vandalized, but are in close proximity and occur in three distinct clusters (Plate 3). No additional evidence of fence droppers or wire was observed. The latter were probably removed when the fence was pulled down or vandalized.

Apart from the above, no tangible heritage resources were recorded in the study area.

**Table 1. Coordinate & descriptive data for observations and proposals**

<b>Name</b>	<b>Description</b> img=image and snd=sound files	<b>Datum: WGS 84 Lat/Lon</b> <b>dec.degrees</b>	<b>Datum: WGS 84</b> <b>SA National</b>	<b>Grid:</b>
35	img 6216-6221 snd 6221	S32.67629 E21.50653	21 Y-047509 X3616962	
36	proposed fence point	S32.67640 E21.50699	21 Y-047552 X3616974	
37	proposed fence point	S32.67635 E21.50684	21 Y-047538 X3616968	
38	proposed fence point	S32.67664 E21.50616	21 Y-047475 X3617000	
39	proposed fence point	S32.67712 E21.50612	21 Y-047470 X3617054	
40	probable old fence post	S32.67761 E21.50581	21 Y-047441 X3617107	
41	probable old fence post	S32.67756 E21.50551	21 Y-047413 X3617102	
42	probable old fence post	S32.67714 E21.50561	21 Y-047423 X3617056	
43	img 6243-6247 snd 6247	S32.67705 E21.50534	21 Y-047397 X3617045	
44	img 6248-6251 snd 6251	S32.67799 E21.50654	21 Y-047510 X3617150	
45	img 6252-6254 snd 6254	S32.67642 E21.50708	21 Y-047561 X3616976	
46	existing fence	S32.67739 E21.50610	21 Y-047468 X3617083	
47	existing fence	S32.67771 E21.50651	21 Y-047507 X3617119	
48	existing fence	S32.67721 E21.50705	21 Y-047558 X3617064	
MC1	cemetery boundary points	S32.67671 E21.50585	21 Y-047445 X3617008	
MC10	cemetery boundary points	S32.67699 E21.50606	21 Y-047465 X3617039	
MC11	cemetery boundary points	S32.67692 E21.50604	21 Y-047463 X3617031	
MC12	cemetery boundary points	S32.67679 E21.50604	21 Y-047463 X3617017	
MC13	cemetery boundary points	S32.67673 E21.50606	21 Y-047465 X3617010	
MC2	cemetery boundary points	S32.67685 E21.50582	21 Y-047443 X3617023	
MC3	cemetery boundary points	S32.67694 E21.50575	21 Y-047436 X3617034	
MC4	cemetery boundary points	S32.67694 E21.50569	21 Y-047430 X3617034	
MC5	cemetery boundary points	S32.67704 E21.50563	21 Y-047424 X3617044	
MC6	cemetery boundary points	S32.67756 E21.50551	21 Y-047413 X3617102	
MC7	cemetery boundary points	S32.67761 E21.50581	21 Y-047441 X3617107	
MC8	cemetery boundary points	S32.67731 E21.50604	21 Y-047462 X3617074	
MC9	cemetery boundary points	S32.67725 E21.50607	21 Y-047466 X3617068	
WWTW	coordinates from the client	S32.67703 E21.50705	21 Y-047558 X3617044	

### 3. Sources of Risk, Impact Identification and Assessment

The placement of the proposed extension to the WWTW, particularly the planned alignment of the western fence, will have a direct and permanent negative impact on the eastern extent of the old cemetery. At a minimum, burial grounds are considered to be of high local significance and therefore, impact on the old cemetery adjacent to the WWTW must be avoided.

**Table 2. Impact on and loss of archaeological resources with and without mitigation.**

	With Mitigation	Without Mitigation
<b>Extent</b>	Local	Local
<b>Duration</b>	Permanent	Permanent
<b>Intensity</b>	Low	High
<b>Probability</b>	Low	High
<b>Significance</b>	Low	High
<b>Confidence</b>	High	High

Provided that effective mitigation measures – if and as approved by Heritage Western Cape - are implemented, it is suggested that the proposed upgrade of the Merweville Waste Water Treatment Works be approved.

#### **4. Required and Recommended Mitigation Measures**

*Required mitigation measures:*

- In the event that vegetation clearing and earthmoving activities expose archaeological, palaeontological or heritage related resources, such activities must stop, and Heritage Western Cape must be notified immediately. Archaeological materials must be dealt with in accordance with the National Heritage Resources Act (No. 25 of 1999) and at the expense of the developer(s) and/or property owner(s).
- Unmarked human burials may occur since the study area contains an old cemetery and may be exposed during earthmoving activities. Human remains are protected by law and are dealt with by the State Archaeologist at the South African Heritage Resources Agency (Mrs. Mary Leslie who can be reached at 021 462 4502).

*Recommended mitigation measures:*

- It is recommended that the old cemetery be fenced in the original style with stone corner fence posts, wooden fence droppers and wire. This will ensure the long term protection and conservation of the heritage feature.
- Minimally, the proposed western fence of the WWTW should be placed along the alignment indicated in Figure 3 (also see Table 1). Because the proposed alignment is not precise, the placement of this part of the fence should be undertaken in consultation with a professional archaeologist.
- If, as a result of the above, the extension of the WWTW needs reconsideration, then extending in a southerly direction is suitable with respect to heritage resources.

Provided that effective mitigation measures are implemented to protect and conserve the old cemetery, the proposed project should be approved.

#### **Reference**

Schulz, K. and De Kock, S. 2009. Proposed upgrade of the Merweville Waste Water Treatment Works: Preliminary Heritage Survey prepared for Aurecon South Africa (Pty) Ltd.

#### **Figures and Plates (on following pages)**









Figure 2. Enlarged area as indicated in Figure 1 showing the WWTW, studied area and walk tracks are in yellow.



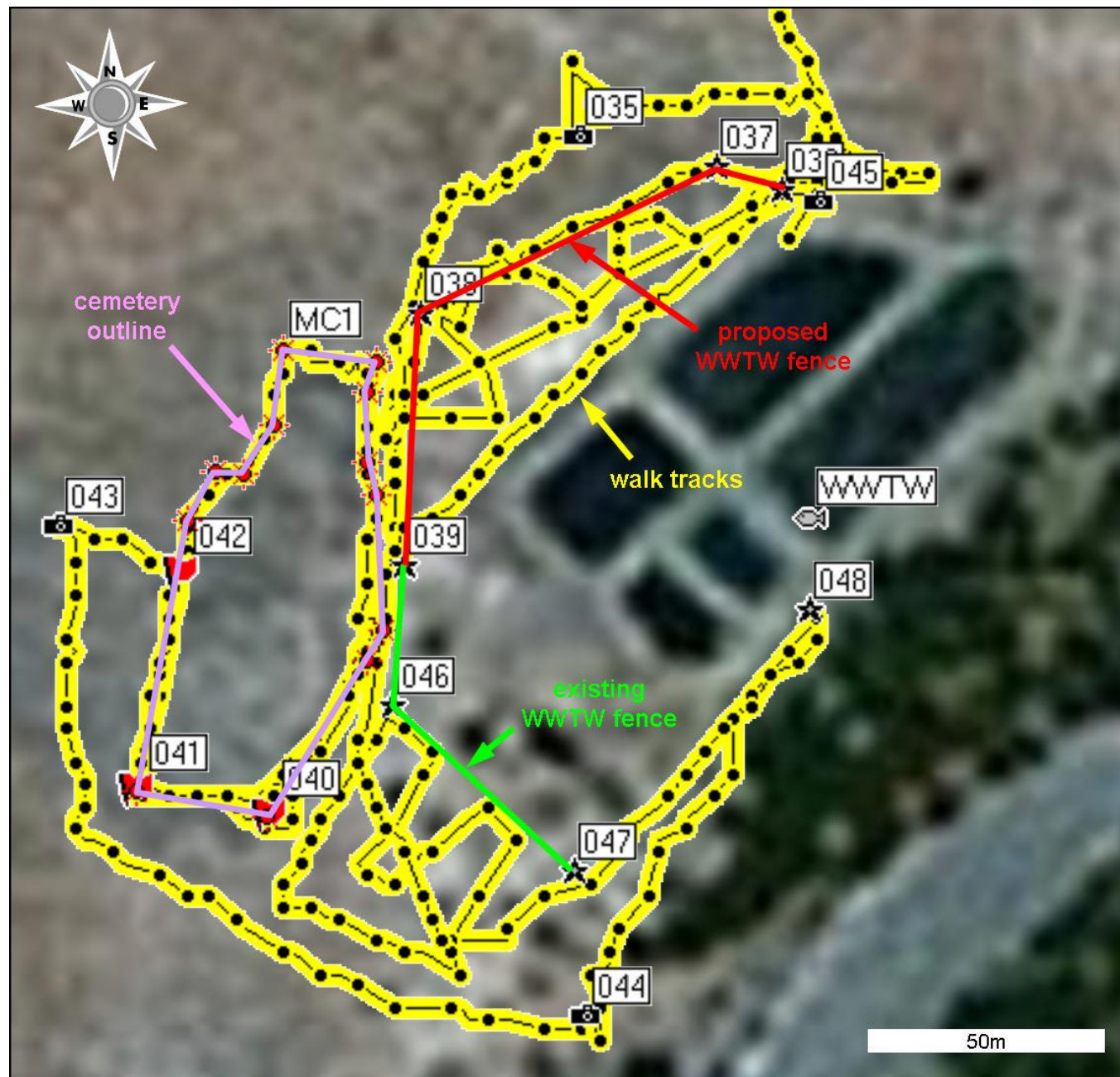


Figure 3. Enlarged area shown in Figure 2 displaying the WWTW, waypoints, cemetery, existing and proposed fencing (see Plates & Table 1).





Plate 1. Panoramas - study area and old cemetery. Compass bearing names indicate view and see Figure 3 and Table 1 for photo localities.



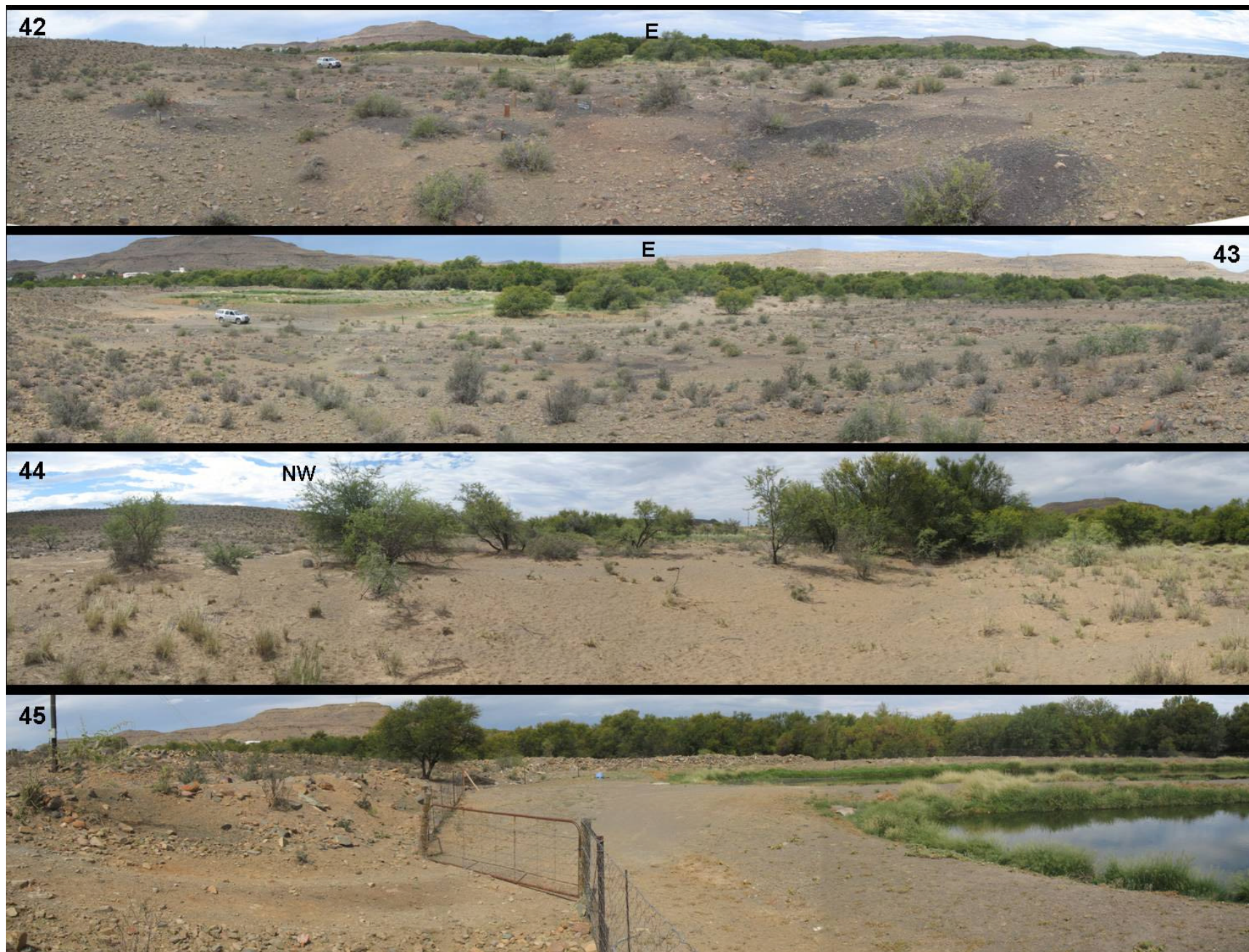


Plate 1. Panoramas - study area and old cemetery. Compass bearing names indicate view and see Figure 3 and Table 1 for photo localities.



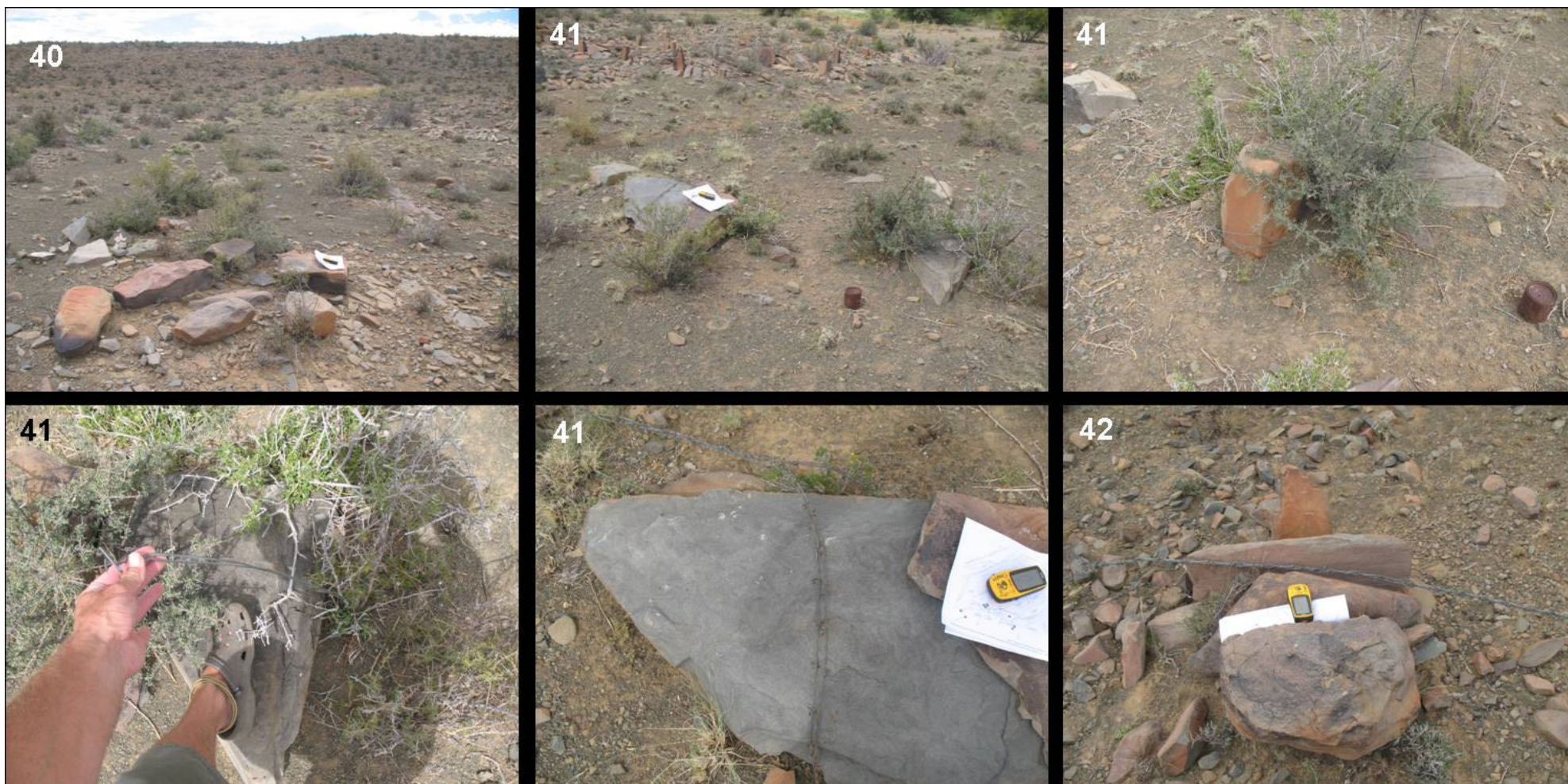


Plate 3. The three clusters of large stones described in the text as fence posts. Note the associated barbed wire in 41 and 42. Numbers denote waypoint names and see Figure 3 and Table 1 for photo localities and further information.