N. DE HOOP VLEI GORGE

Field note N3. Vlei bathymetry (submerged bottom topography)

The water level of the De Hoop Vlei (Figure 1) is constantly changing as a response to the rainfall over the catchment area of the Salt River, and so is the depth to its bottom at any given point. To study the exact topography of the vlei floor, a detailed echosounder survey is required.

Figure 1. Satellite image of the De Hoop Vlei Gorge area.

Bathymetry data of the De Hoop Vlei was only obtained by the late S Butcher, as part of her 1993 thesis on the water regime of the De Hoop Vlei. Mrs Butcher ran several intersects across the vlei (Figures 2 to 9; all drawings are from her thesis). The profiles show the shape of the bottom of the vlei across its axis.

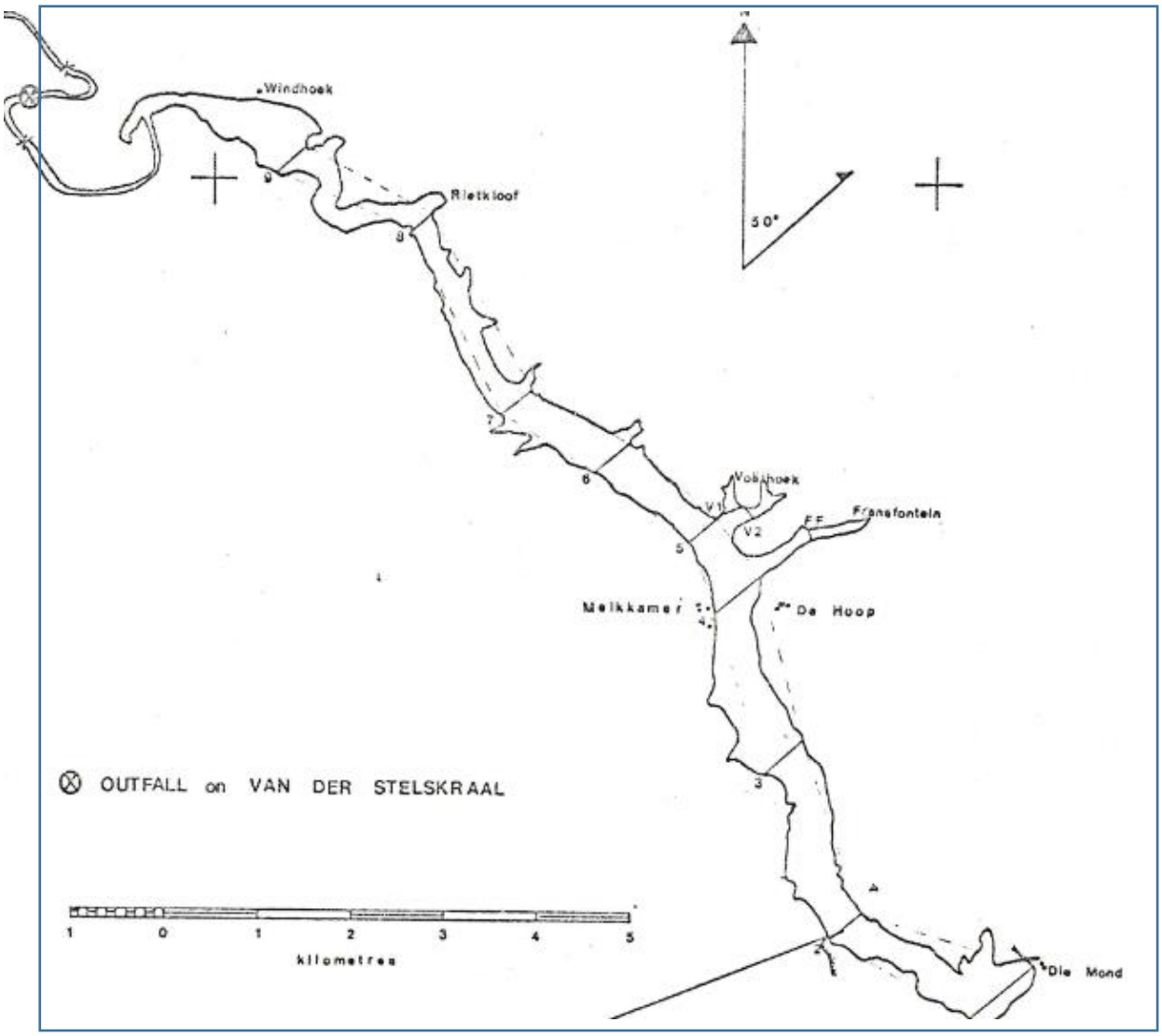

Figure 2. Map of the bathymetry survey lines, run by S Butcher.

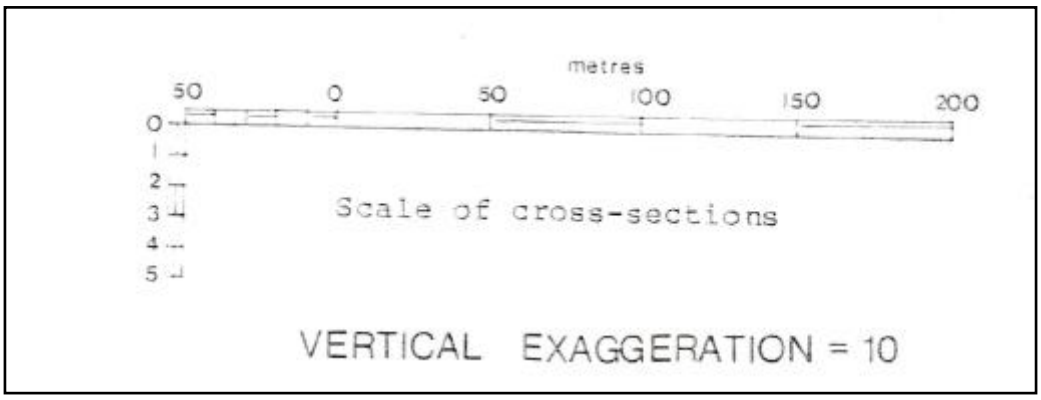

Figure 3. Scale of the bathymetry profiles.

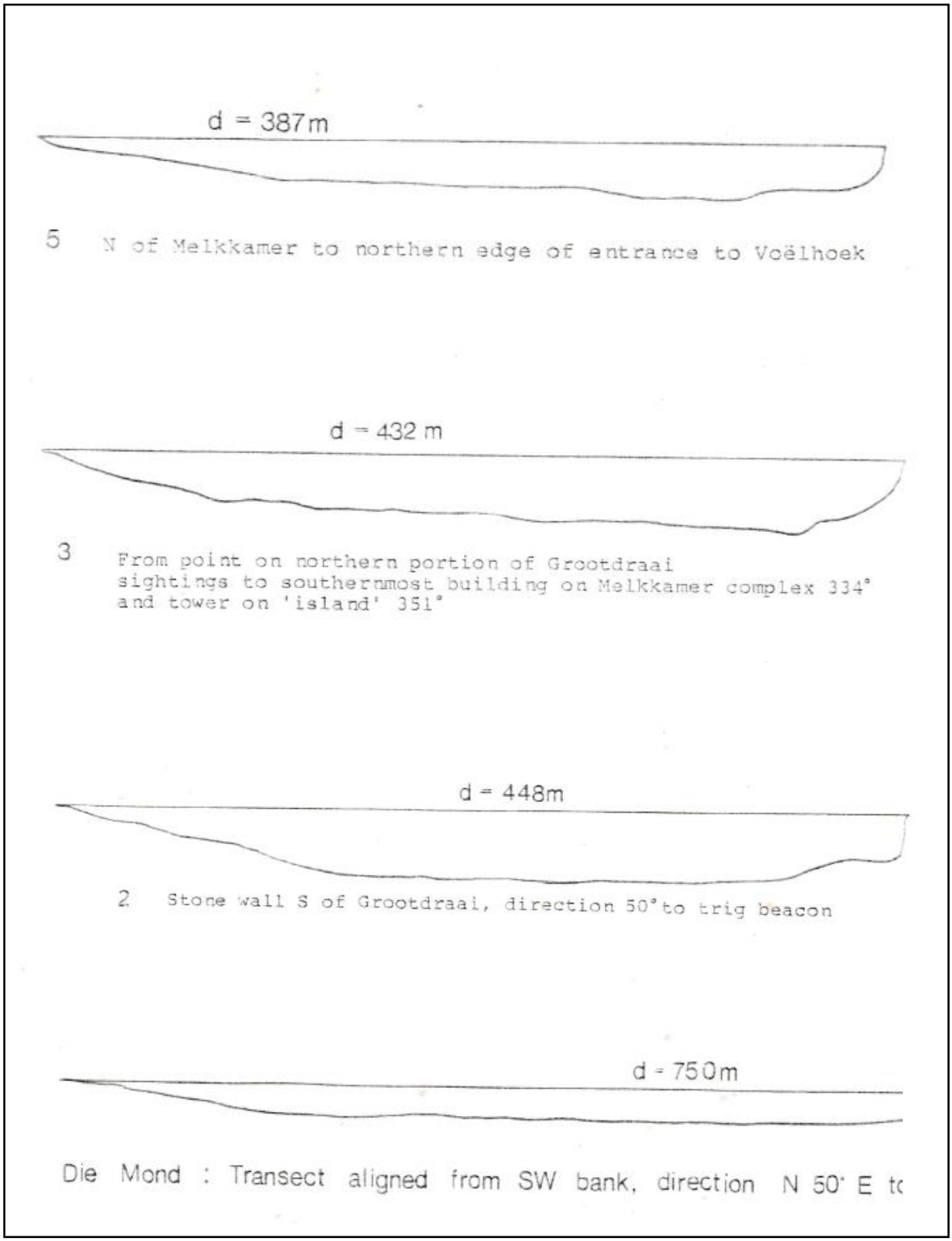

Figure 4. The southern profiles 1 (at the bottom) 2,3 and 5. See Figure 5 for exact locations.

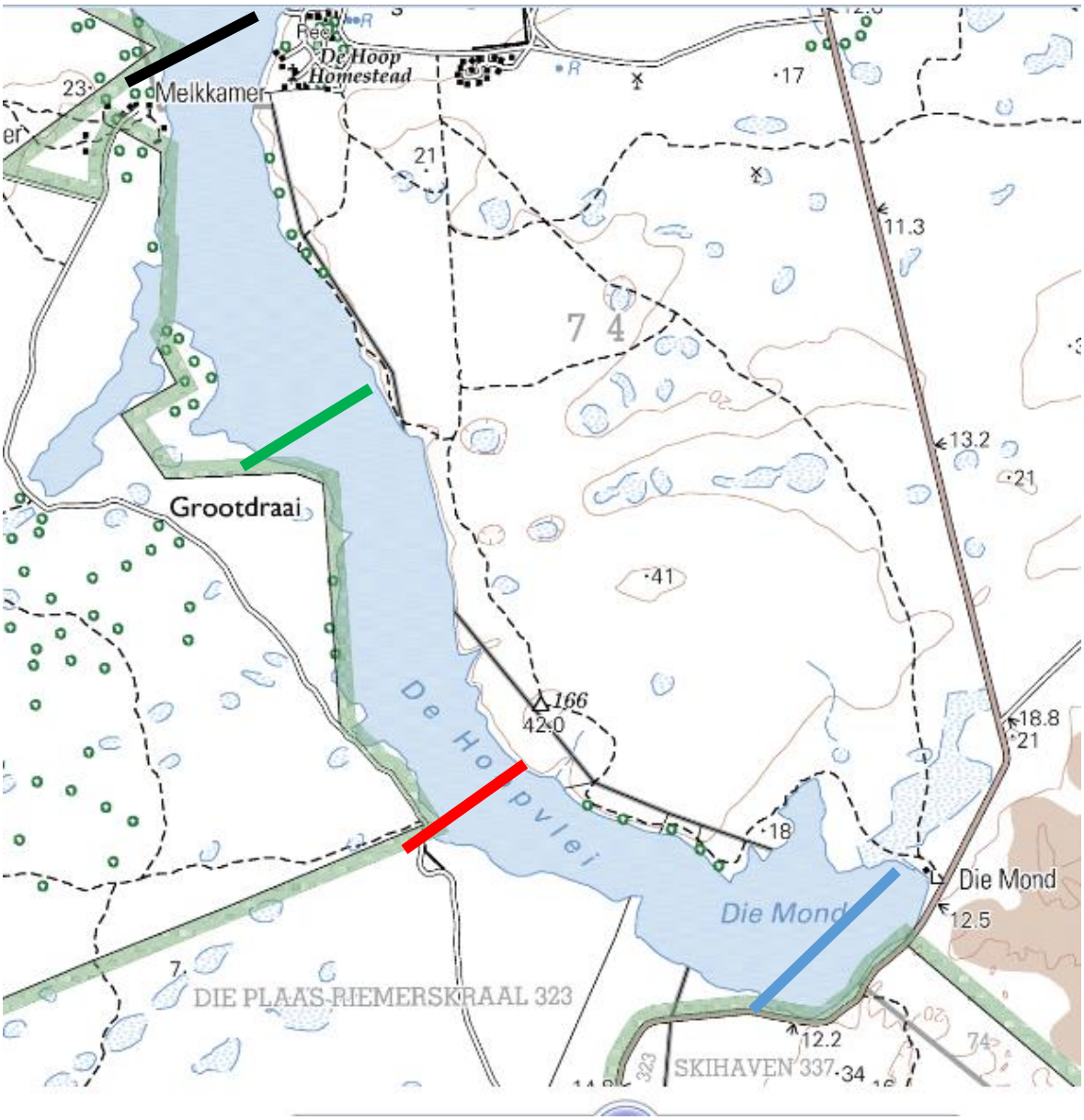

Figure 5. Locations of the southern profiles. 1- blue; 2 - red; 3- green; 4- black (profile not shown).

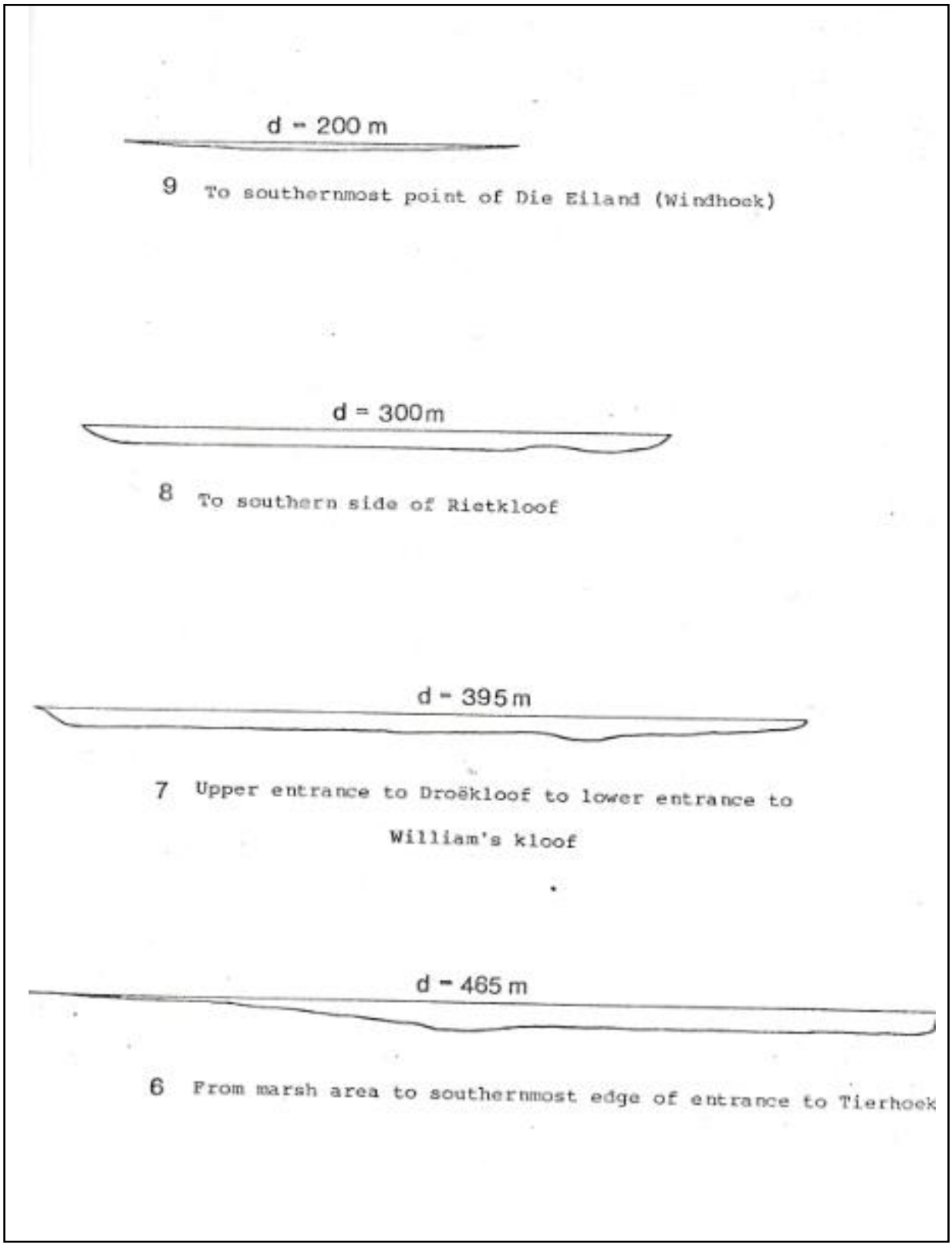

Figure 6. The northern profiles 6,7,8 and 9. See Figure 7 for exact locations.

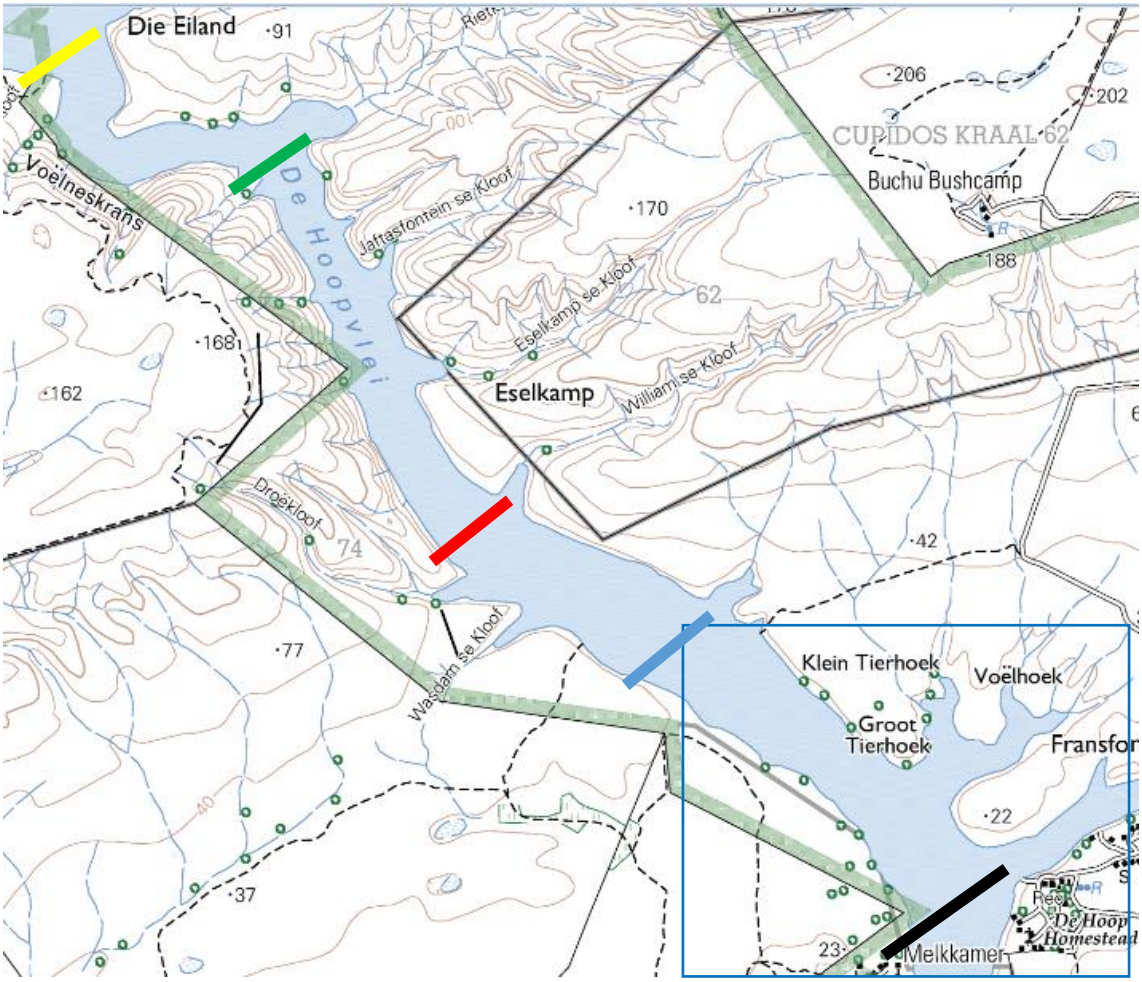

Figure 7. Locations of the northern profiles: 5- black; 6- blue; 7-red; 8- green; 9 – yellow.

Figure 8. Locations of the Fransfontein (FF, blue) and Voëlhoek profiles (V1, black) and V2, red) (enlargement of the box in Figure 7). See profiles in Figure 9.

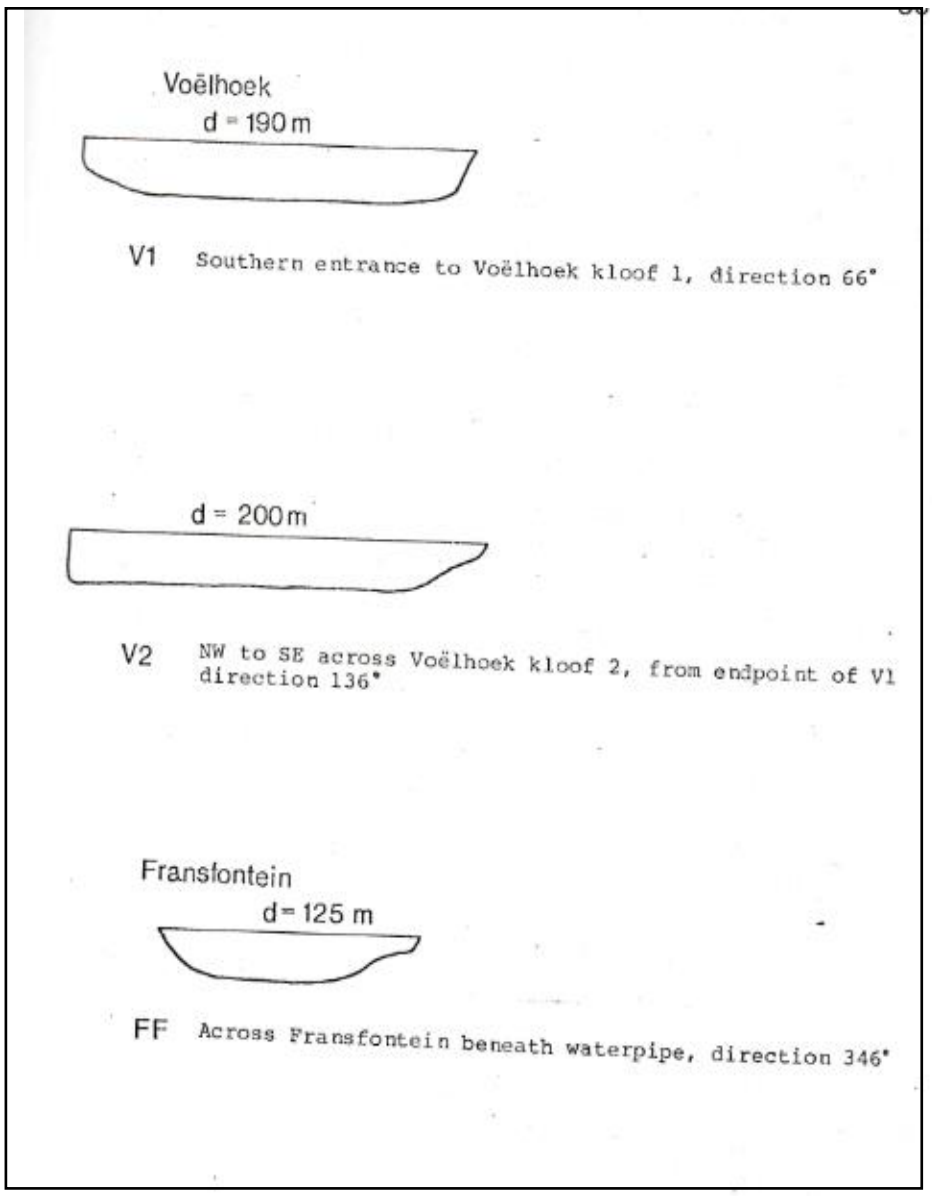

Figure 9. The FF, V1 and V2 profiles.

Summarising the above survey, the vlei bottom in the northern half is quite flat. The bottom of the southern half has somewhat deeper banks. The deepest part of the vlei is in the Fransfontein – Groot Tierhook area.

The above 9 profiles across the vlei (more than a kilometre apart on average) only provide partial picture of the vlei's floor. Comparing satellite images when the vlei level is relatively high, with images when the level is lower (Figures 10 and 11), show that as the water level drops, the shore at several points extends into the vlei, and 'islands' and stonewalls emerge from the water (Figures 12 to 14).

Figure 10. Satellite image of the De Hoop Veli when it was flooded (2014).

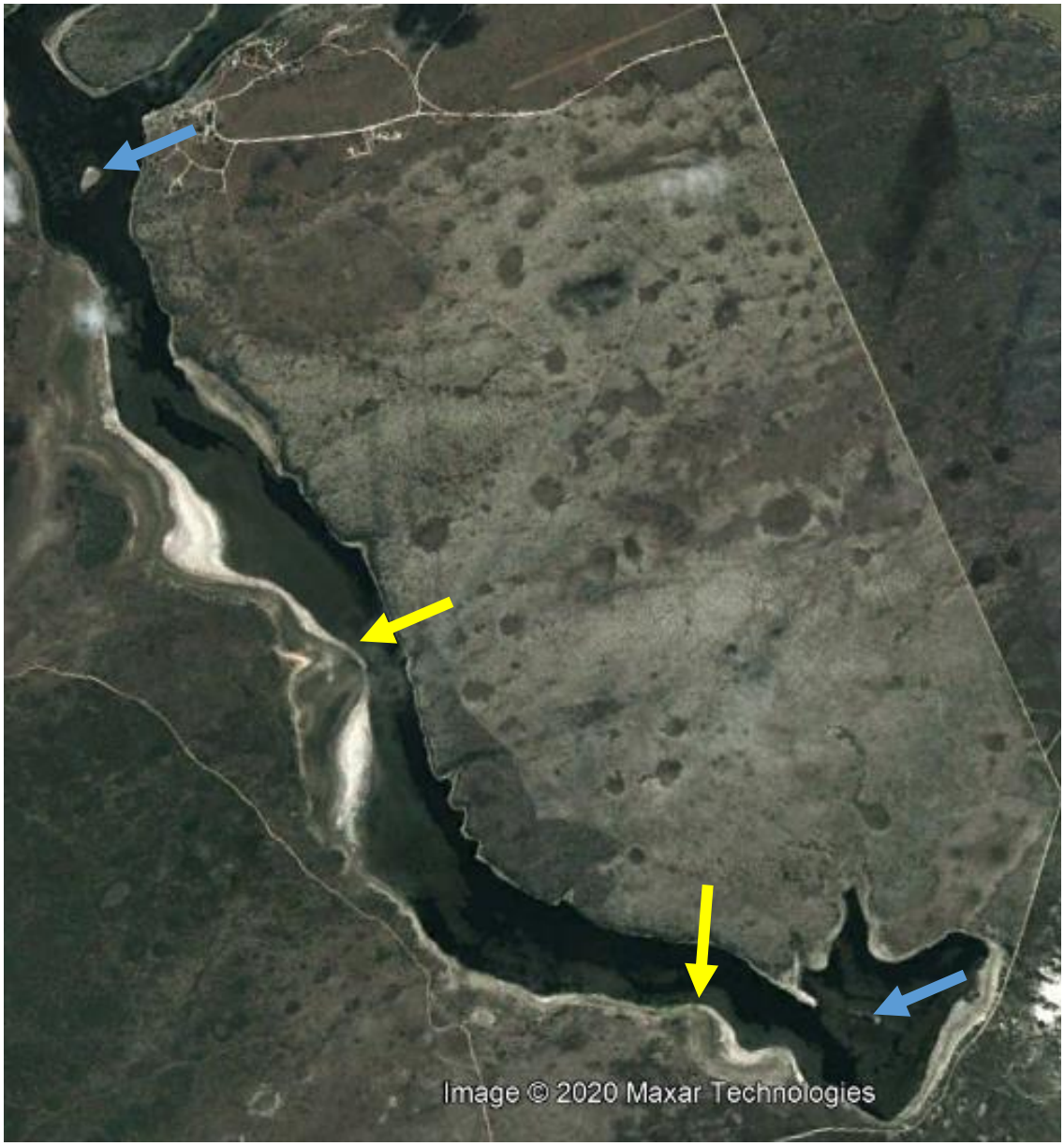

Figure 11. Satellite image of the De Hoop Vlei after the water has receded. Arrows point to places where the shore extends into the veli (yellow arrows) and where 'islands' emerged (blue arrows).

Figure 12. 'Islands' emerge through the surface when the water level in the vlei drops. Top and middle – the 'island' between the hotel and Melkkamer; bottom – an 'island' in Die Mond.

Figure 13. Arrow points to an extension of the shore into the middle of the vlei, during periods of low water levels.

Figure 14. Stonewalls across the vlei are exposed when the water level drops.