

A. INTRODUCTION

Field Note A4. The Study Area - Hydrology

Three rivers cross the Study Area: the Heuningnes and the Kars Rivers in the west, and the Salt River (which flows into the De Hoop Vlei) in the middle. The Breede River, in the east, is outside the Study Area (Figure 1).

There are four periodical lakes (vleis) in the Study Area: the Soetendalsvlei, the Karsrivierlei, the South Droërvier – Muelvlei and Voëlvlei (also Vogelvlei) system, all of which are in the southwest, and the De Hoop Vlei in the middle of it (Figure 1).

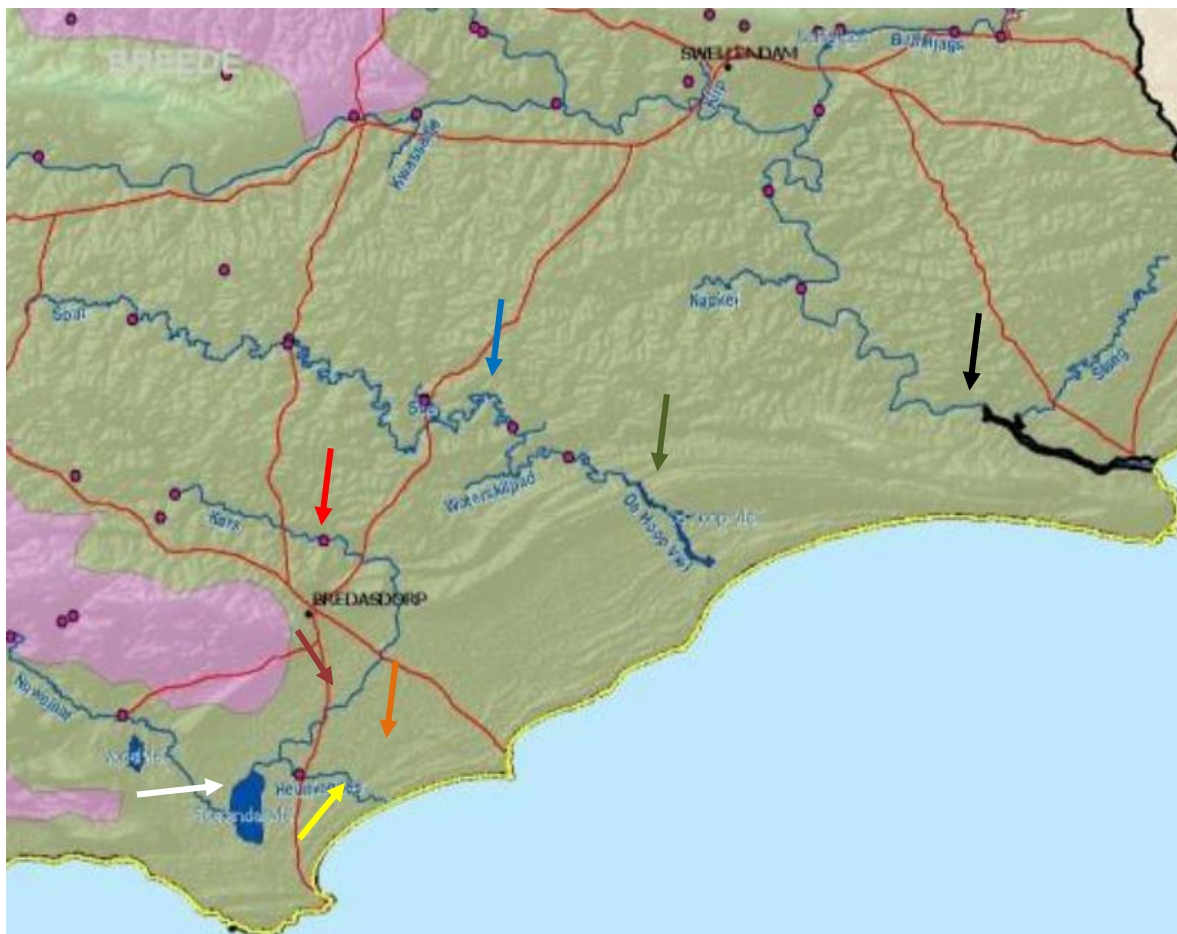


Figure 1. Map showing the rivers and the vleis in the area. The rivers are: the Heuningnes (yellow arrow) and the Kars (red arrow) Rivers in the southwest, the Salt River (blue arrow) in the middle and the Breede River (black arrow) in the northeast. The vleis are the Soetendalsvlei (white arrow) the Karsrivierlei (purple arrow), the Muelvlei - Voëlvlei (orange arrow) and the De Hoop Vlei (green arrow).

The hydrological regimes of the Heuningnes, Kars and Salt Rivers, as well as the lakes (vleis) associated with them, are quite unique. They are described in detail in other chapters of the Website. For the purposes of this introduction, only a few images, maps and photos are presented.

The Heuningnes River

The Heuningnes (also Heuningness and Heunings) River starts at the Soetendalsvlei (which gets its water from the Nuwejaar River, west of and outside the Study Area). On its way to the sea it collects the water of the Kars River (Figures 2, 3 and 4).

The Heuningnes (and Kars) Rivers have been flooding the very low relief, nearly flat area of the Bredasdorp Plain. To control the floods, a weir was built on the Kars River, east of Bredasdorp, and the Heuningnes River Estuary was artificially opened to the sea (see Chapter I).



Figure 2. Satellite image showing the entry point (yellow arrow) of the Nuwejaar River into the Soetendalsvlei (white arrow), the start (blue arrow) of the Heuningnes River (orange arrow) and its outlet into the sea (red arrow). The purple arrow points to the entry point of the Kars River into the Heuningnes River. The black arrow points to the Voëlvlei.

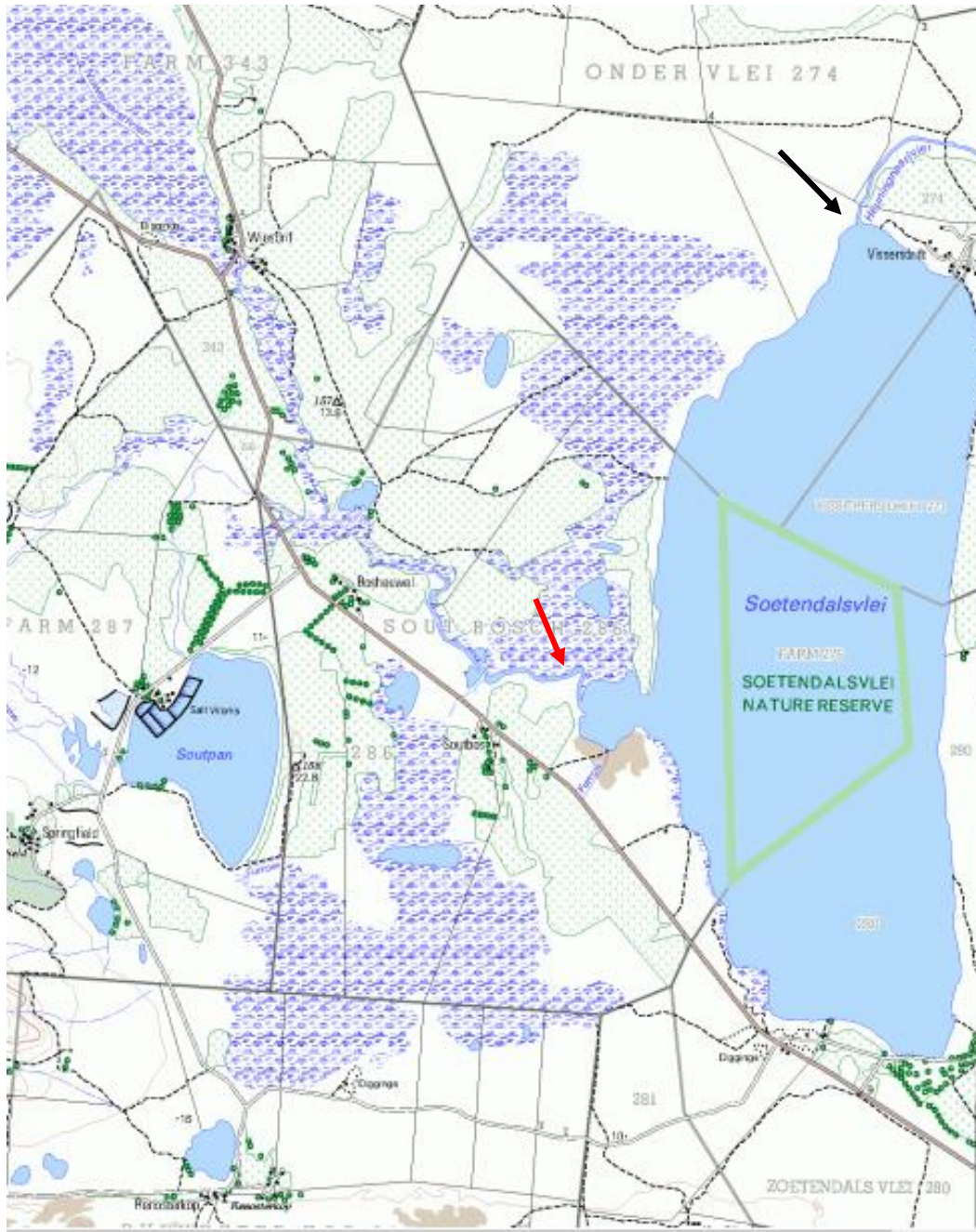


Figure 3. Topographical map showing the entry point (red arrow) of the Nuwejaar River into the Soetendalsvlei and the start (black arrow) of the Heuningnes River.



Figure 4. View of the Soetendalsvlei.

Source: GJ van der Ende, 2015. Salinity and relative sea level rise in Heuningnes River, SA.

There are two Droëivers on the Bredasdorp plain. The north Droëriver drains the area around Bredasdorp (also via furrows) and disappears south of the town (Figure 5).

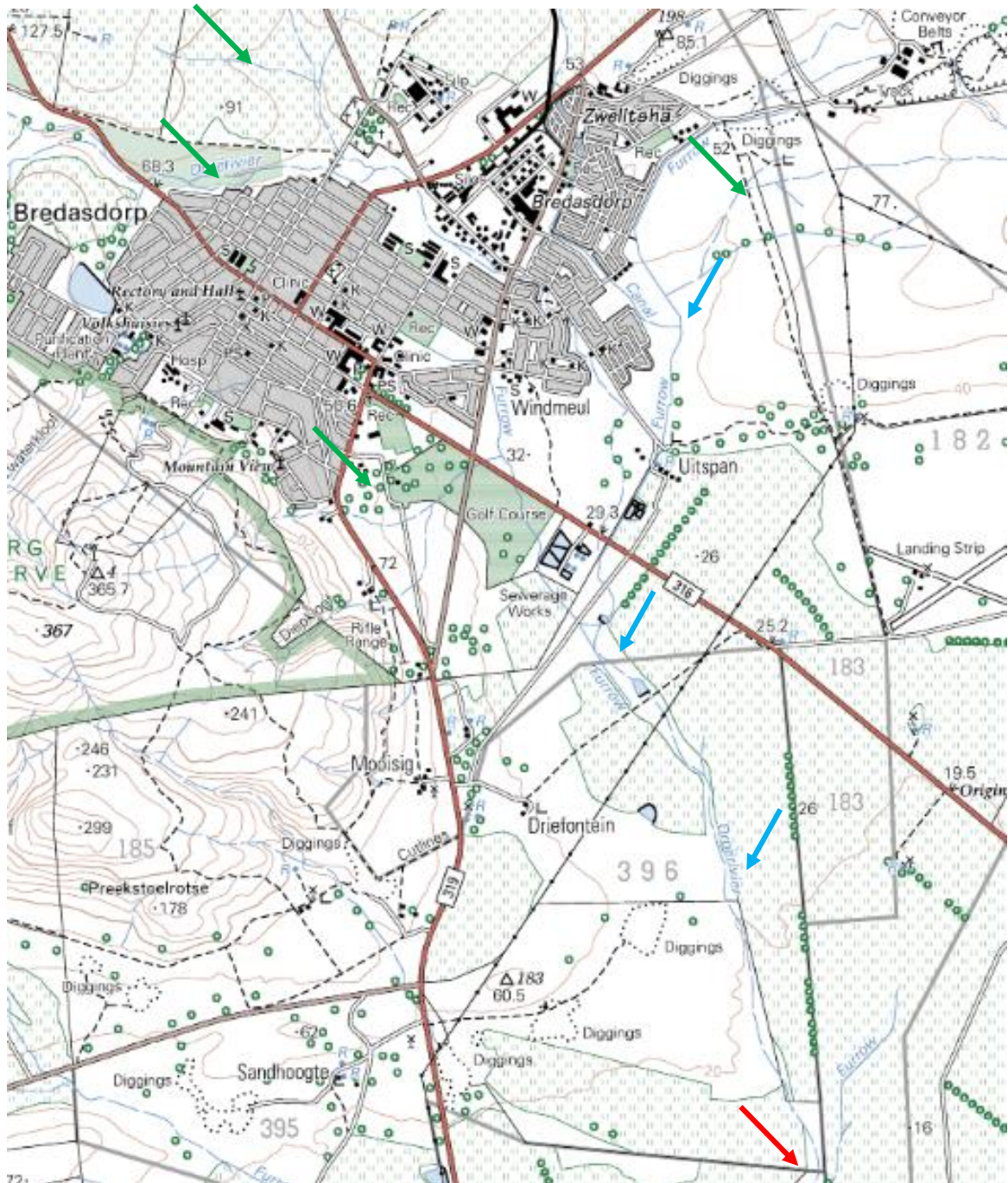


Figure 5. Topographical map showing the tributaries (green arrows) of the North Droëriver (blue arrows) and the point where it disappears (red arrow).

The South Droërvier (runs from the area northeast of Princekraal (Figure 6) through Meulvlei and Voëlvlei (Figures 7 and 8) into the Heuningnes River (Figures).

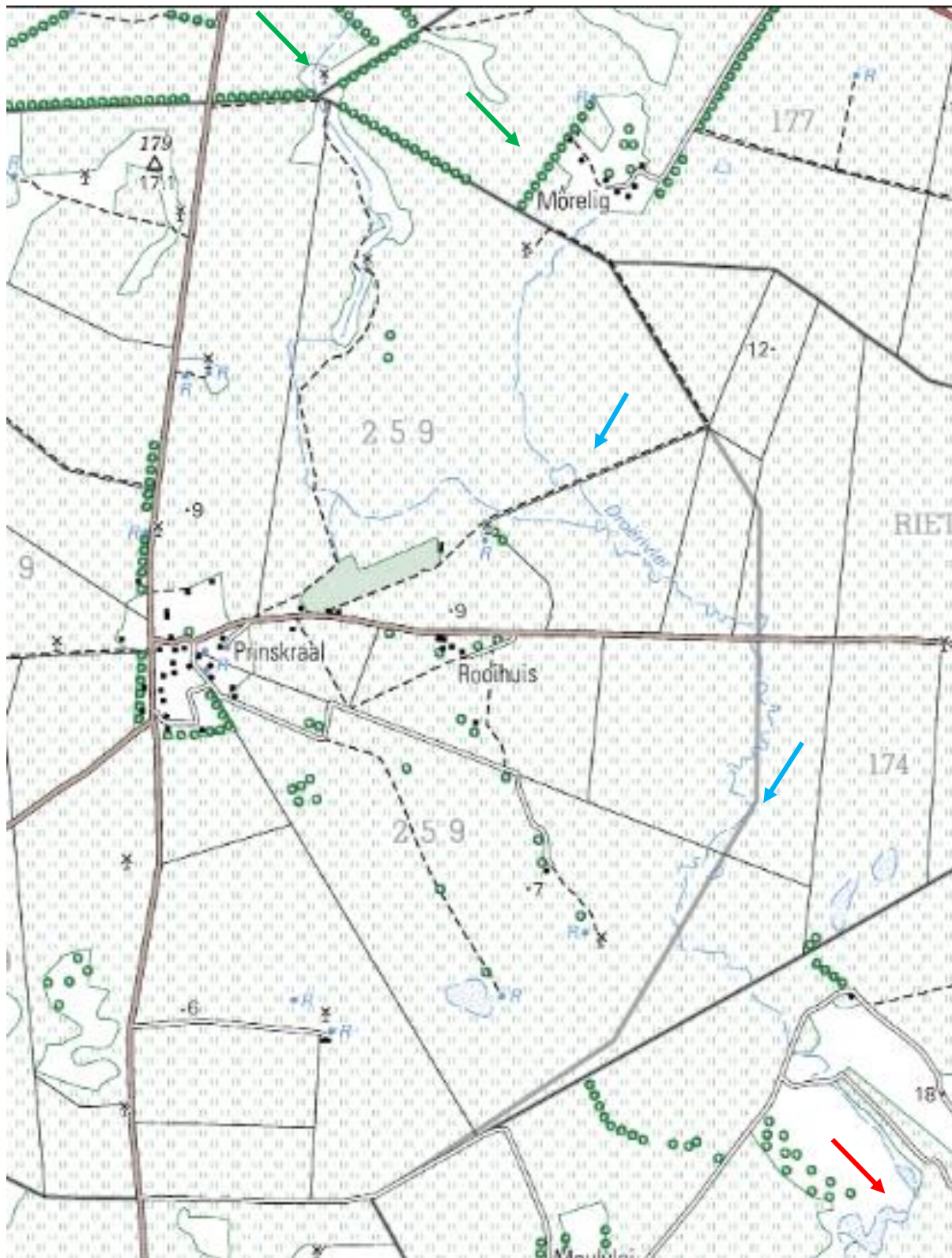


Figure 6. Topographical map showing the tributaries (green arrows) of the South Droërvier (blue arrows) and the point where it enters the Meulvlei (red arrow).

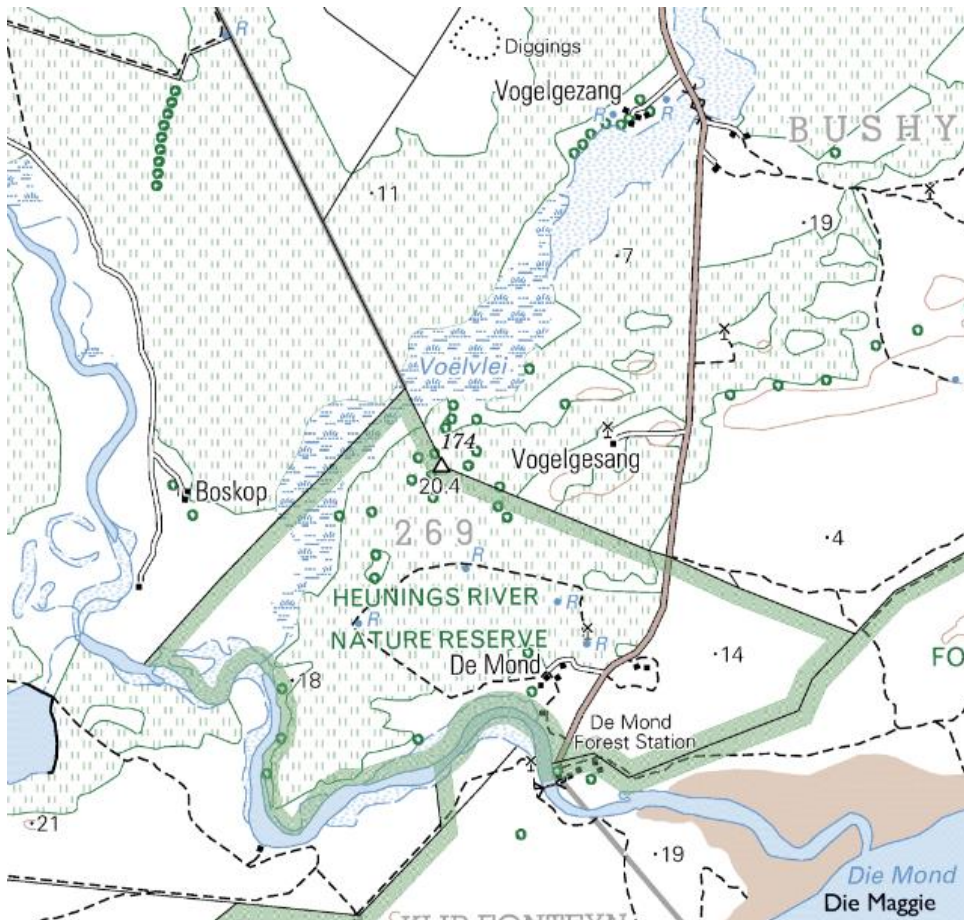
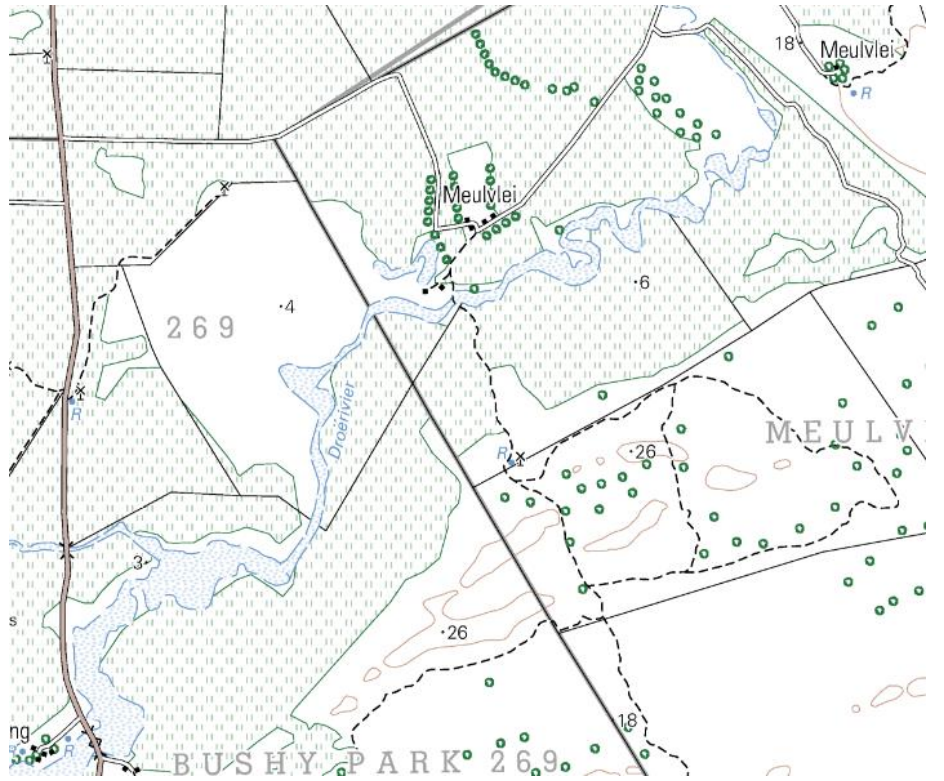


Figure 7. Topographic map of the South Droërivier. Top - the Meulvlei, Bottom - the Voëlvlei.



Figure 8. Satellite image from 2005, when the vleis were full.

The South Droërivier goes into the Heuningnes River (Figures 9 and 10).



Figure 9. Satellite image of the lower section of the Heuningnes River, showing where the vleis connect with it (arrow).



Figure 10. The Heuningnes River Estuary. View to the northeast.

The Kars River

The Kars River starts north of Napier, some 30 km northwest of the Study Area (Figure 11). It crosses the Hard Dunes through a gorge, some 8 km east of Bredasdorp (Figure 12).



Figure 11. Satellite image showing the course of the Kars River from a point near the town of Napier (yellow arrow), through a gorge (white arrow) cut in the Hard Dunes, under the R316 (blue arrow) and into the (dry in the image) Kars River Vlei (black arrow).



Figure 12. The Kars River flows southwards through a gorge within the Hard Dunes.

The Kars River flows southwardly under the R316 (Figure 13) and then disappears into the Kars River Vlei (Figures 14 to 16).



Figure 13. The Kars River under the R316. View to the north.

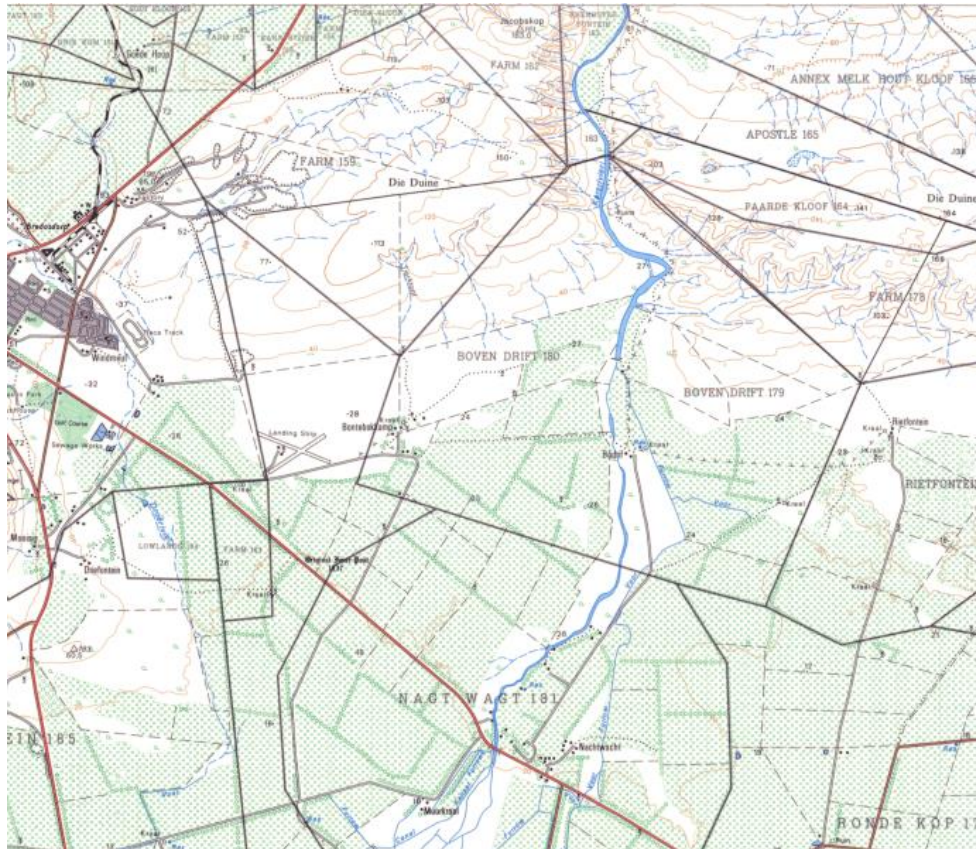


Figure 14. Topographic map showing the Kars River flowing southwards into the Kars River Vlei.

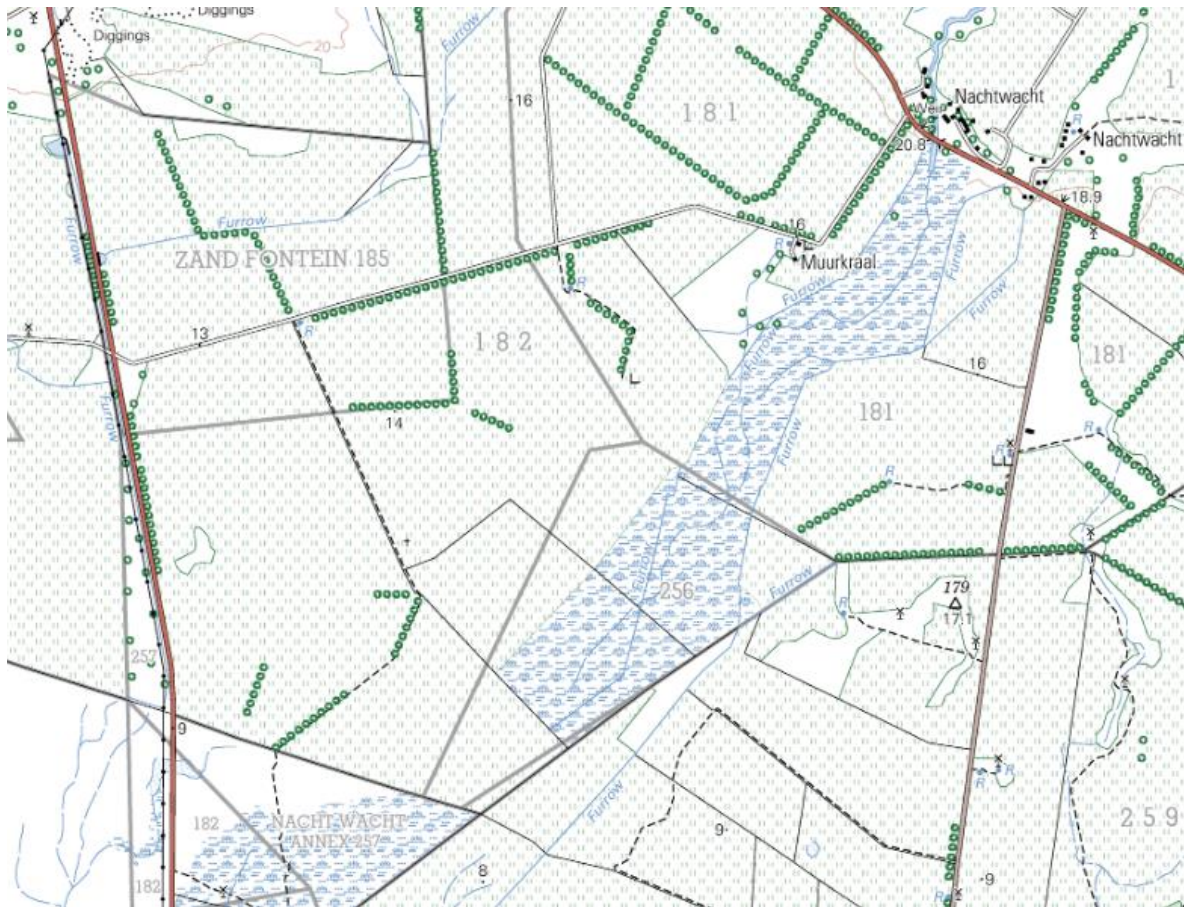


Figure 15. Topographic map of the Kars River Vlei.



Figure 16. Satellite image of the Kars River Vlei (dry in this image).

The Salt River

The Salt River starts east of Caledon, some 60 km east of the Study Area, meanders through the Ruëns (Figures 17 to 22), goes via the Salt River Gorge, which is cut into the Hard Dunes and flows into the De Hoop Vlei, which (currently) has no outlet to the sea. There are historical records of flood periods of the De Hoop Vlei, during which water flowed to the sea southwest of Die Mond (see Chapters L, M and M).



Figure 17. The western part of the Salt River. Arrow points to Caledon.



Figure 18. The eastern part of the Salt River. Arrow points to the Salt River Gorge.



Figure 19. Satellite image of the Salt River which meanders in places along straight lines (white arrows), north of the Hard Dunes. The yellow arrow points to River Gorge.



Figure 20. The Salt River flows through the Ruëns.



Figure 21. The Salt River in the Salt River Gorge. View to the southeast.

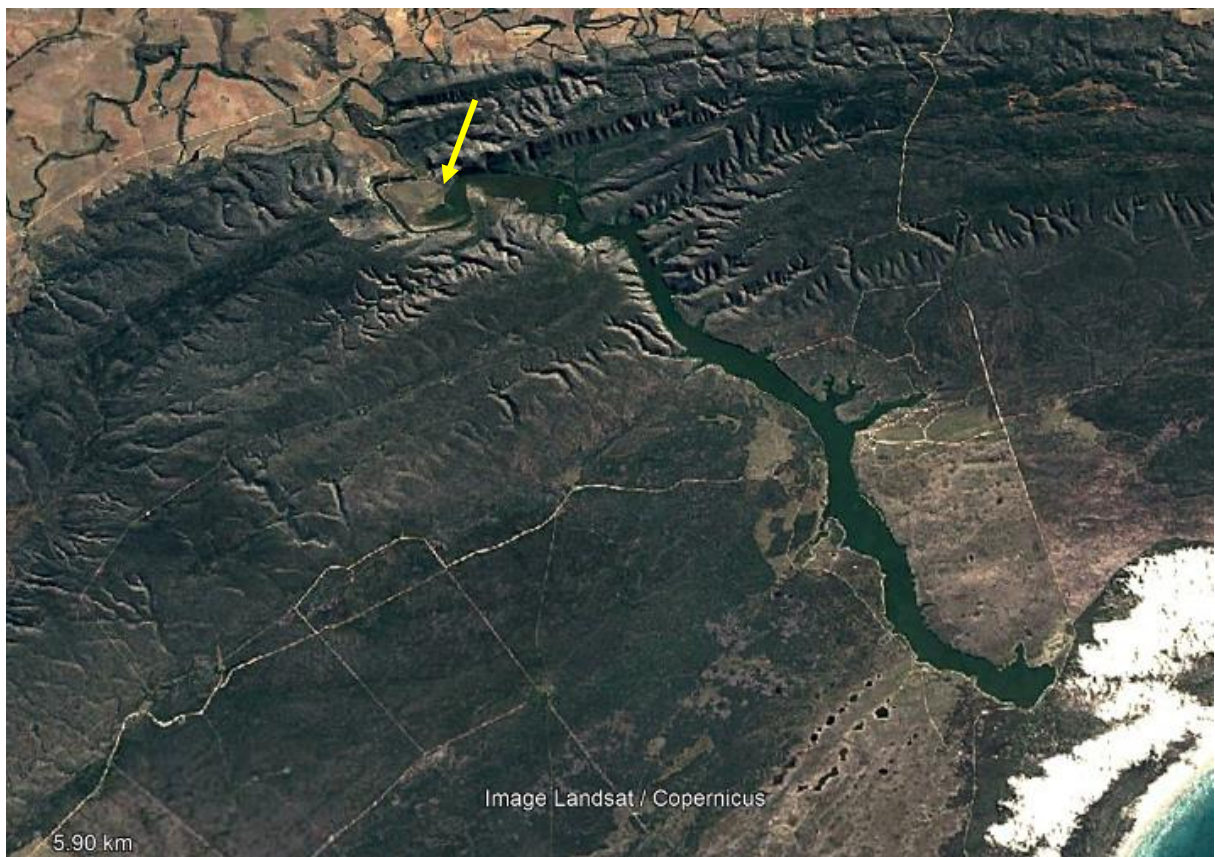


Figure 22. Satellite image of the De Hoop Vlei. Arrow points to the Salt River Gorge.

The Breede River

The Breede River, which drains a very large area north of the Study Area, reaches the sea immediately north of Cape Infanta (Figures 23 and 24). The river is outside the Study Area.



Figure 23. The Breede River (yellow arrow) flows north of Potberg (white arrow) and into the sea north of Cape Infanta (orange arrow).



Figure 24. The Breede River estuary north of Cape Infanta.