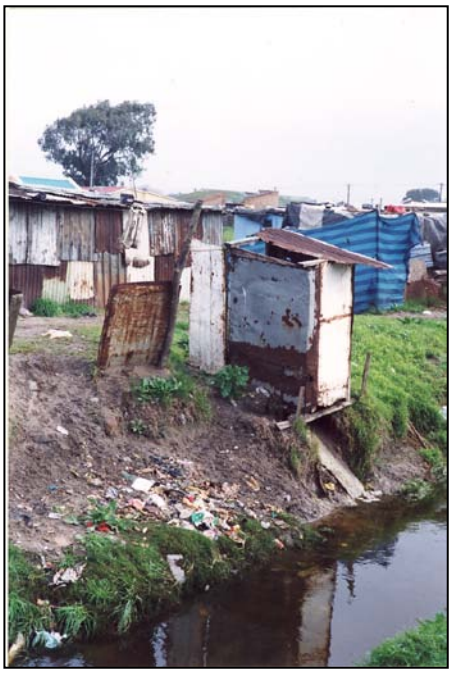
THE LOTUS RIVER CANAL
BETWEEN THE N2 AND NEW DUINEFONTEIN ROAD

PHASE 1 ARCHAEOLOGICAL STUDY



Prepared for

Ninham Shand Environmental Section

by the

Archaeology Contracts Office
University of Cape Town

August 2001

1. BRIEF

To undertake a specialist archaeological investigation of the 50m corridor of the waste site through which the Lotus River Canal passes and which could potentially be affected by the project, to satisfy the requirements of the NHRA (no.25 of 1999).

2. TERMS OF REFERENCE

- Review previous archaeological work done in the area;
- Undertake a site visit;
- Compile a report containing

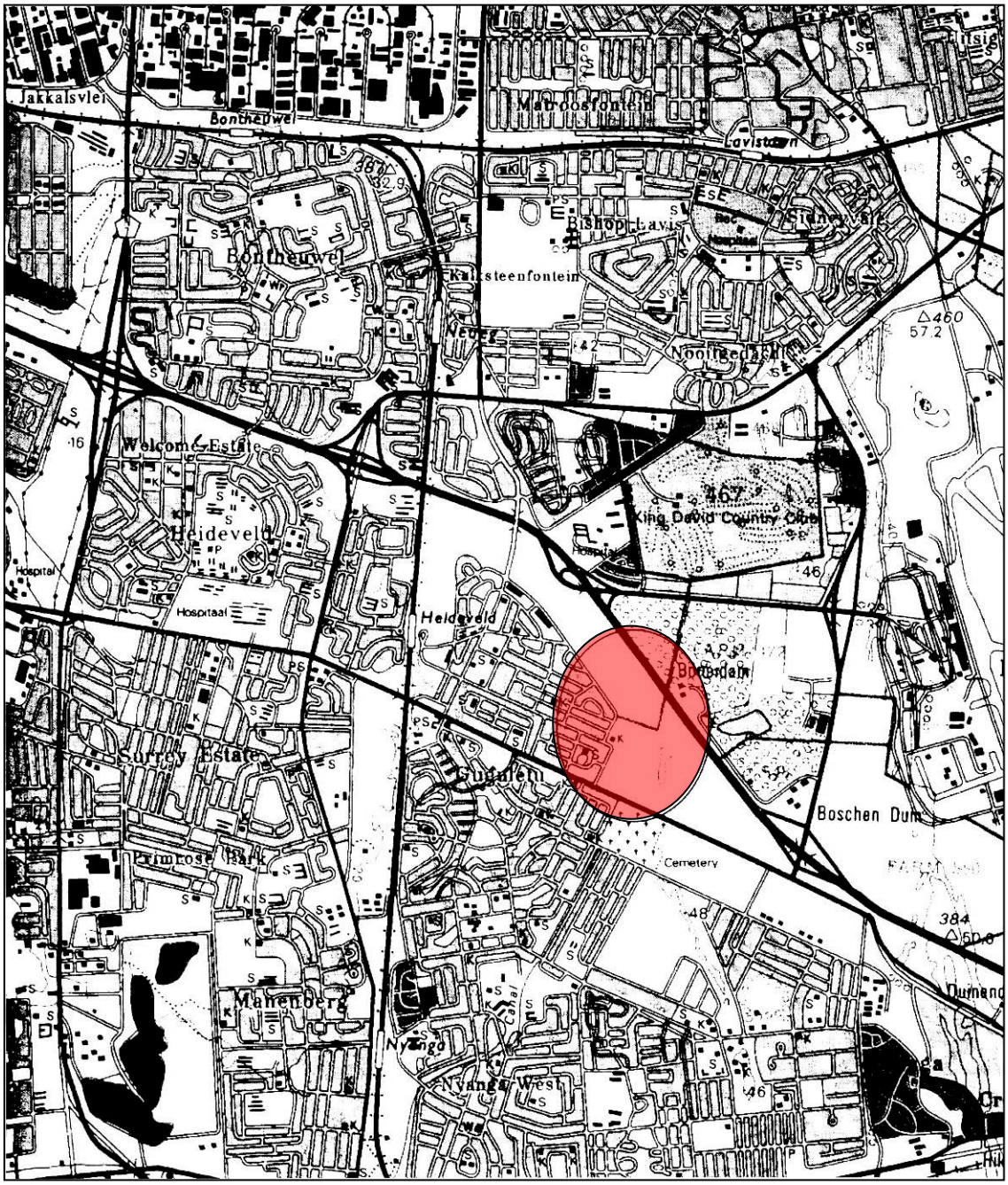
    - An overview of local and regional cultural/historical and/or archaeological context of the study area,
    - A description of the cultural/historical and/or archaeological aspects along the canal servitude and an indication of their local and regional importance,
    - A description and assessment of the significance of and degree of confidence in the potential impacts associated with the proposed upgrading (very low, low, medium, high and very high), and assumptions made in the assessment,
    - Photographs of cultural/historical and/or archaeological resources,
    - Detailed guideline measures to manage and mitigate any impacts,
    - Indicate cultural/historical or archaeological resources or areas on the orthophoto provided.

3. ASSOCIATED QUERIES

- When did the dumping start? Which way did it develop?
- How deep is the deposit?

4. SITE LOCATION

1988. 1:50000 Topographical Map (1988), 3318DC Bellville, Chief Directorate: Surveys & Land Information, Mowbray, RSA.



5. HISTORIC MAPS AND PLANS

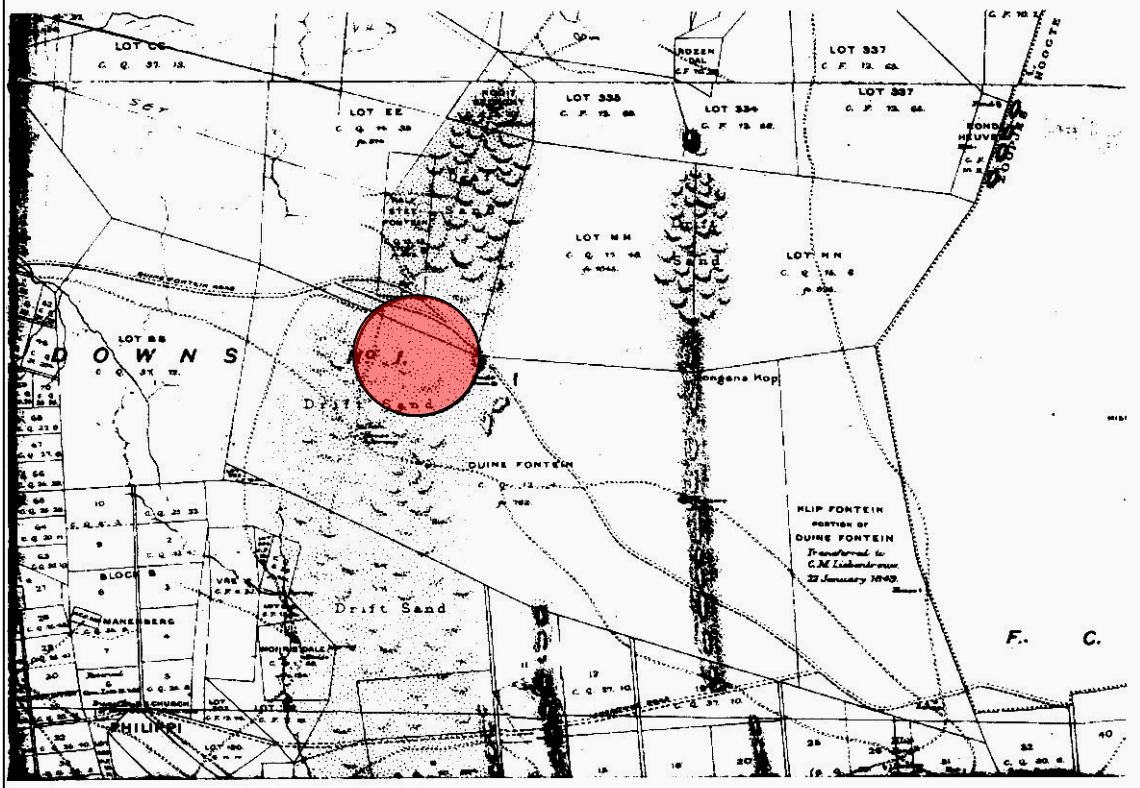
1901. Map of the Cape Division compiled (by Brink) from plans and diagrams filed in the office of the Surveyor General.

1902. 1-inch series.

1953-7. Cape Flats Regional Topographical Survey, sheet 1887 3318 P5 Bellville, Trig. Survey Office, printed in Pretoria 1958.

- The area is clearly marked as drift sands in 1902, though the Duinefontein Road was in use by this time. Joseph Storr Lister, Chief Conservator of Forests, consolidated the sand dunes with acacias in the 1880s. Before then the wagon road to Stellenbosch, Somerset West and Gordons Bay followed a more northerly route.
- The earliest Quitrent grants in the area were made for Kalksteenfontein and Duinefontein, but there are no structures or features marked near the site (quarries, dams, buildings, etc.) on any of the historical maps, even in the 1950s.

Historic maps and plans



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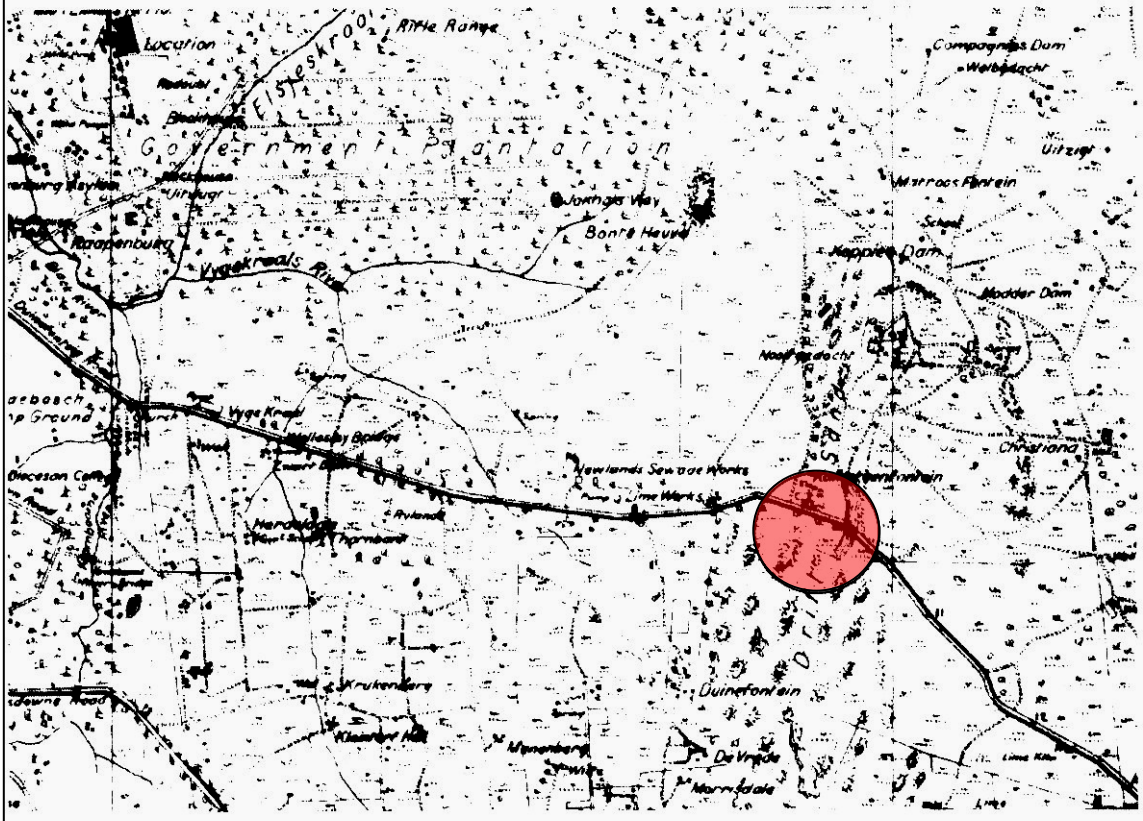

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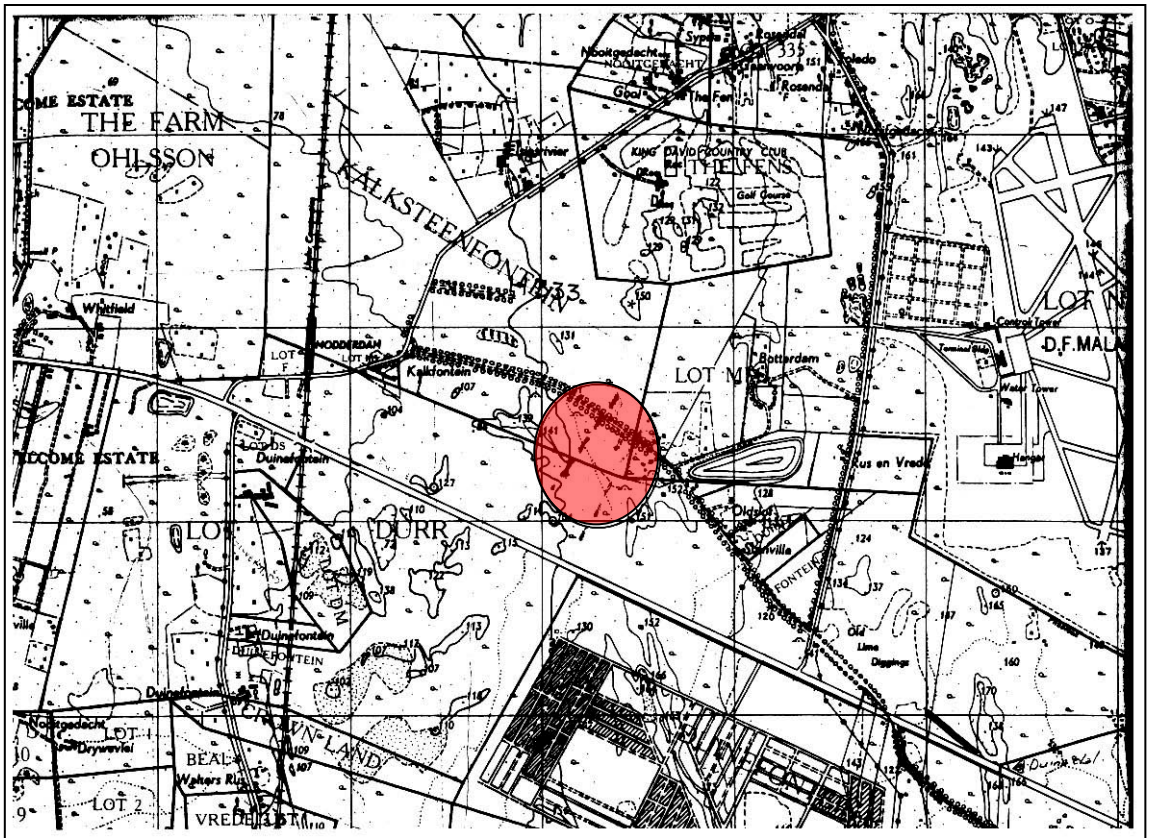

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6. AERIAL PHOTOGRAPHS

- The original Duinefontein Road is clearly marked by a row of trees on an aerial photograph of c1956 and they can still be seen on the orthophoto of 1973. By 1973 the rest of the landfill site is in use, except for a ridge of sand hills running north-south, from the old Duinefontein Road south eastwards to the corner where Klipfontein Road and the N2 intersect. Ten years later (1983) the site has been further cleared northwards across the old road, and the trees have been felled. The orthophoto of 1999 shows a few specimens still remaining in the built-up area.

- The 1989 orthophoto (reproduced in CIA 2000, p.3) shows the area covered in grass.

- Shacks have been built on the dump by 1999, most densely settled at the northeast end and sparsely scattered beside the canal.

7. MAPS CONSULTED

1:50 000 Topographical Map (1983 with partial revisions 1988), 3318DC Bellville, Chief Directorate: Surveys & Land Information, Mowbray, RSA.

1: 10 000 Orthophoto Map Series (c1956; 1973; 1983; 1989; 1999), 3318DC 22 Nyanga, Chief Directorate: Surveys & Land Information, Mowbray, RSA.

8. RELEVANT STUDY

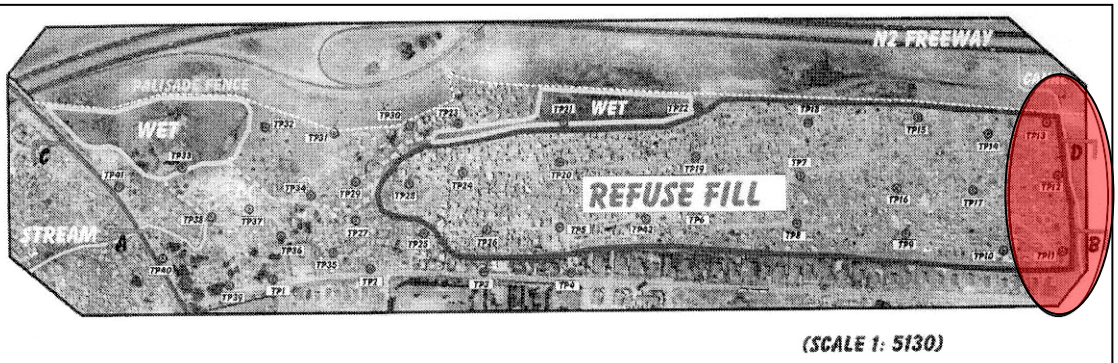
Cowburn Isherwood & Ass. (CIA). July 2000. Geotechnical Report: proposed upgrade of Kanana informal settlement Cape Town. Prepared for New Rest & Kanana Development Trust (c/o Department of Civil Engineering, UCT).

[Added comments in square brackets].

- The site in this study is situated immediately to the south of the N2 and approximately 1 kilometre to the east of Modderdam Road intersection. [NB This is alongside the current study area; ie Lotus River Canal forms its southeastern boundary]. There were no informal dwellings in 1989 (see orthophoto) and thick vegetation in northwestern extremity indicates a wet, low-lying area. About 60% of the site has been raised above natural ground level by dumping of domestic refuse prior to establishment of the Kanana community. The imported fill of refuse and builders rubble is highly variable in content. It is likely that the refuse site was established to fill in a borrowpit site [no evidence given]. At present a large number of dwellings are situated directly on top of this uncompacted fill, which extends to depths in excess of 3 metres [the depth of their tests].

- The geology of the Kanana site is light grey to pale red sandy soil and white sand with finely crushed shell. Limestone and calcrete often underlie the sands. The sand originated from coastal deposits with Aeolian deposits near the surface. Peat and clay originates from lagoon sedimentary deposits. The groundwater table often occurs within 3m of the surface. Trial pits only penetrated the superficial deposits of sand and calcrete.

- Method of investigation: 42 trial pits dug with backhoe; dynamic cone penetrometer tests next to selected trial pits; sampling of representative disturbed soil samples.
  [Pits TP11, 12 and 13 are those alongside the Lotus River Canal].

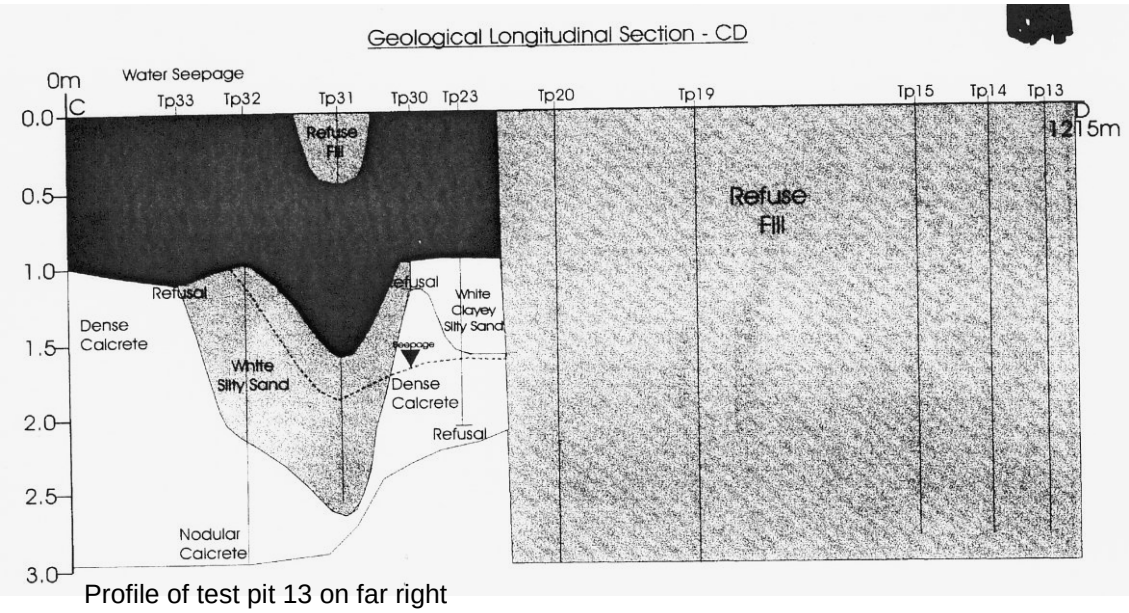


Test pits 11-13 alongside canal.

- Results. Raised areas revealed highly variable fill including domestic waste and rubble. About 60% of the site is covered by poor quality fill consisting of domestic refuse. The refuse includes paper, plastic, metal, glass, clothing material and organic waste. The fill was generally loose in consistency and was highly variable in terms of material type. Very localised areas of reasonable quality fill were encountered: builders rubble including bricks, concrete cobbles and clayey sand.

- Recommendations that domestic refuse fill will have to be removed and reburied as it is not suitable for building on; that the full thickness of the fill deposit should be determined.

- References:
  1:50 000 Geological Series (1984), 3318DC Bellville, Government Printer, 1984, RSA.
  1:50 000 Topographical Map (1986), 3318DC Bellville, Chief Directorate: Surveys & Land Information, Mowbray, RSA.
  1: 10 000 Orthophoto Map Series (1991), 3318DC 22 Nyanga, Chief Directorate: Surveys & Land Information, Mowbray, RSA.



Profile of test pit 13 on far right

9. ORAL HISTORY

1. Peter Novello, Cape Town Municipality, waste management, referred us to Mr William Coordom, now retired, for information about the dumping history of the site. Mr Coordom was interviewed on 24 July 2001.

    - Dumping started in 1965 and was completely unregulated (ie no controls on content, impact on nearby housing, methods such as compacting or layering, or previous and ongoing groundwater testing).
    - The access route was along Klipfontein Road, and the dump started at the easternmost corner and extended towards Cape Town.
    - The dune ridge was used as cover material.
    - Initially they dumped right across the area of the site, but the canal was re-excavated in 1973 or 1974 and the existing slope established on the east bank. The bed of the canal is on or slightly below original ground level.
    - At its final stage the uncompacted dump was as much as 45 feet high. This was measured at a vertical edge of the dump following complaints from local residents (the uncontrolled dumping issue was taken up by Mrs Stott on behalf of the community). In Mr Coordom's opinion, the current estimated height of 7 metres is consistent with gradual compaction and subsidence over time.
    - The dump was closed in 1977, though Guguletu Municipality continued to use a portion in the west section.

2. Antonia Malan visited the site on Saturday 21 July 2001, accompanied by Morrison. Morrison is the community-based project manager for the New Rest & Kanana Development Trust, working in conjunction with the Department of Civil Engineering at UCT (Professor John Abbott).

The older settlement known as Kanana lies on the western side of the Lotus River Canal; the newer settlement known as Barcelona lies on the eastern side. Settlement started expanding from the New Rest area (near the existing core infrastructure of hostels and houses) during the 1990s. Each settlement is organised as a cohesive group of households and is identified by its name. The older ones tend to have a more urbanised 'civic' system, but a new settlement like Barcelona remains under a 'tribal' style of control.

10. SITE VISIT

A foot survey was undertaken along both sides of the canal, between the N2 and Klipfontein Road. The canal extends along two stretches of land: the N2 end passes through the dump and has high banks on both sides (about 6 or 7 metres); the Klipfontein Road stretch passes between a high bank on the east and lower sandy soils along the west. Both banks have houses built on them, but there is a wider corridor on the east side. The house lots on the low-lying west side of the lower stretch extend right up to the canal.

There was no need to undertake test excavations as the steep banks of dump material are loose and eroding, giving good visibility of the matrix. Both sides of the upper stretch of the canal show evidence of dump waste (black plastic bags, polystyrene, etc.), eroding out of the banks right down into the water level. There are some calcrete rocks in the base of the canal, which presumably indicate the original land surface. Only the east side of the lower stretch of the canal shows similar evidence of the dump, continuing right up to the Klipfontein Road.

The west side has scatters and occasional pits of recent rubbish. There are quite substantial rocks in the base of the canal at the Klipfontein Road end.

Photographs are appended.

11. ARCHAEOLOGICAL EVIDENCE

- There is no evidence of archaeologically significant material visible from the top down to the level of the canal bottom. The test pits sampled by the geotechnical team on the north western side of the canal indicate that the dump is over 3 metres in depth, but the height of the canal banks suggest that there may be as much as 7 metres of fill.
- There is no evidence on historical maps for sites of historical interest (structures, dams, quarries, etc.) being in this area. There is a possibility that traces of the original Duinefontein Road may be found at the extreme northern end of the canal, where it intersects with the N2, but this is of very low archaeological significance.
- The probability of pre-colonial archaeology on this particular site is unlikely.
- Should any materials be uncovered during excavations, (eg stone tools, potsherds), SAHRA should be notified.

12. SUMMARY OF KEY FINDINGS

There are no sites of archaeological significance in the 50m corridor of the waste site through which the Lotus River Canal passes, which could potentially be affected by the project, and the probability of finding in situ pre-colonial material on the site is very low.

Extent	Very local
Probability	Improbable
Significance	None
Confidence in prediction	High
Duration	n/a
Intensity	n/a
Status	n/a

Impacts during construction and operational phases

13. CONCLUSION

There are no sites of archaeological significance in the 50m corridor of the waste site through which the Lotus River Canal passes, which could potentially be affected by the project.

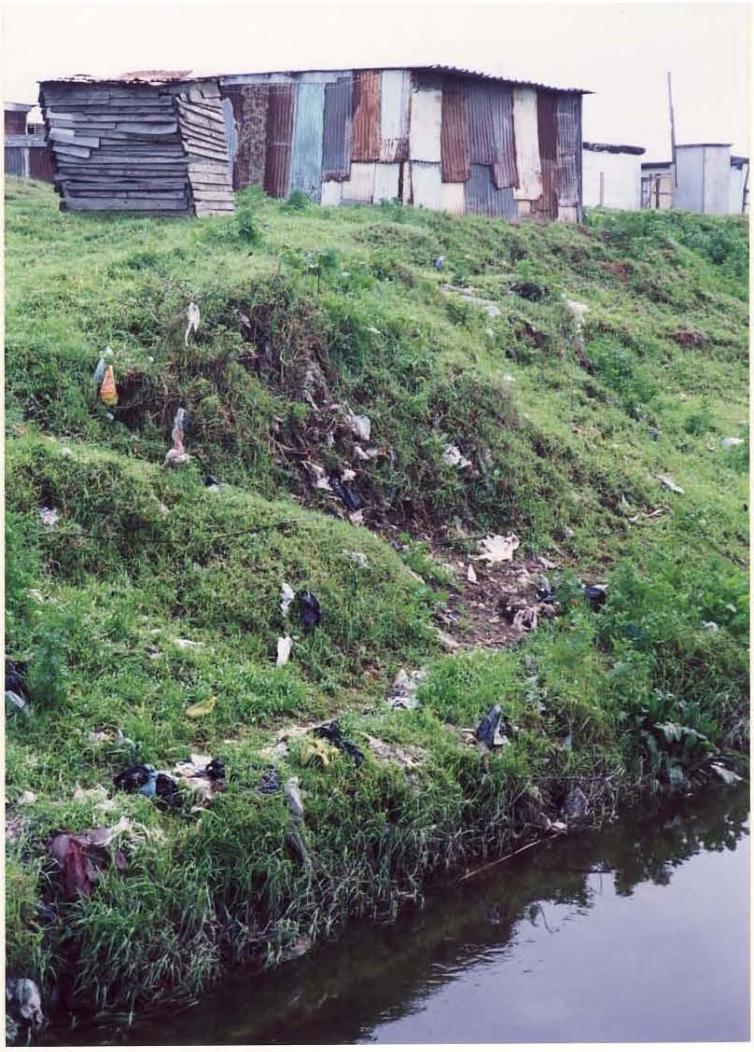
14. ACKNOWLEDGEMENTS

We are grateful to Nicholas Graham, Department of Civil Engineering, UCT, for providing the CIA report, aerial maps and general assistance, and to Morrison and Mr Coordom for sparing time and sharing information.

Dr Antonia Malan
Historical Archaeology Research Group

Photographs

1. Lotus River Canal, looking north towards N2.
2. East bank, showing height of dump material from canal level to top (for scale, see woman standing on top of the bank).
3. West bank, showing exposed in situ material down to water line.
4. Lotus River Canal, south end, at intersection with Klipfontein Road.
5. West bank, at point where the canal kinks in the middle reaches.



3.

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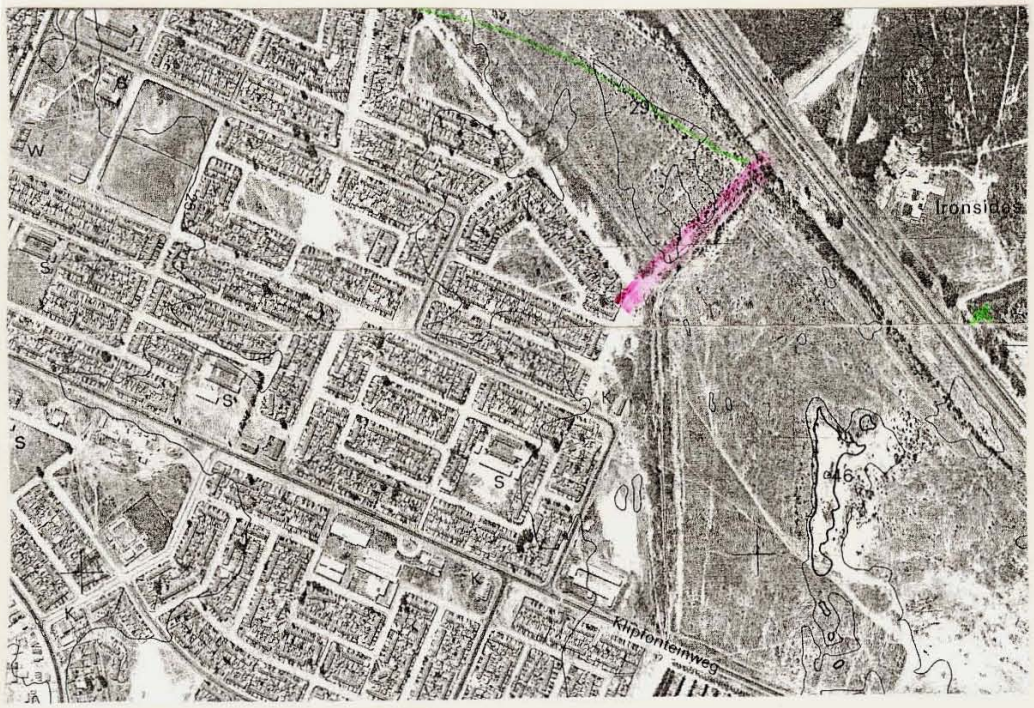
5

Aerial photographs

[pink = canal; green = trees along old Duinefontein Road]

1. c 1956. 2. 1973. 3. 1983. 4. 1989. 5. 1999.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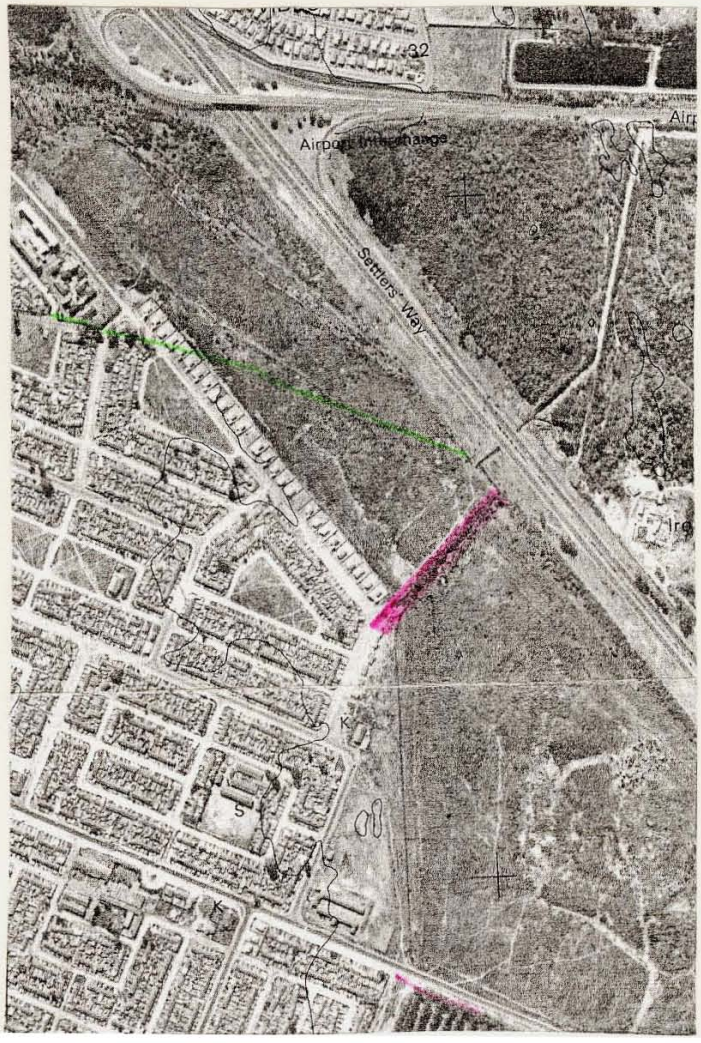
Klipfontein Weg
1983


Airport Interchange
Settlers Way
1989


1999


KLIPFONTEIN
ROAD