

HYGIENE LOGGING TRIALS
RESULTS OF MONITORING
AMPHION

AUGUST 1988

Department Of
Conservation and Land Management

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CELL REPORT - CELL 87/69 AMPHION

SUMMARY:

Cell 87/69 Amphion, which is located south-east of Dwellingup covers approximately 2610 ha. The cell was interpreted for the presence of *Phytophthora cinnamomi* as a follow-up to a hygienic logging trial conducted between 1981 and 1983. The purpose of the interpretation was to determine if any dieback had been spread or introduced during this operation.

The interpretation, using 230mm colour photographs, was carried out by two teams of interpreters and completed in February 1988.

One new infection of approximately two hectares was found in logging Coupe 1. This Coupe was logged for poles in Autumn 1981 and for sawlogs in Summer 1981-82. Both were logged in dry soil conditions.

INTRODUCTION:

Cell 87/69 is located approximately 15km south-east of Dwellingup along the Pinjarra-Williams Road and covers an area of 2610 ha.

The cell was previously interpreted in 1980, using 70mm colour photography, as part of Cell 1. Following this initial interpretation a hygiene logging trial was undertaken. The present interpretation, making use of 230mm colour photography, is a follow-up to the trial to determine if any disease was introduced or spread from existing infections during logging operations.

During the period 1981-83, 814 ha of forest were cut in the logging operations. The majority of this area was within the Dwellingup complex, the remainder, which tended to be adjacent to the creek systems was in the Yarragil complex.

Large areas to the south and south-west of the cell were clean cut for dieback in the late 1960's and replanted with *Eucalyptus saligna*, *E. microcorys* and *E. megacarpa* in 1970. These areas are within the swamps and creek systems of the Yarragil complex (Appendix 1).

The cell had not been burnt for approximately twelve years.

PHOTOGRAPHY INTERPRETATION:

The cell was photographed on 17 May 1987, using the 230mm format colour photographs. These were initially interpreted for indicator species deaths, uninterpretable areas and suspect areas and check sites as per the Dieback Interpreters Manual (1986).

FIELD INTERPRETATION:

The field checking of the initial interpretation was carried out following the procedures set out in the Dieback Interpreters Manual using motorcycles and 4x4 vehicles. Field interpretation was conducted between 21 January and 25 February 1988 by two teams of interpreters from Kelmscott Inventory.

INTERPRETABILITY:

The majority of Cell 87/69 was interpretable, with the main indicator species being: *Banksia grandis*, *B. littoralis*, *Xanthorrhoea preissii*, *X. gracilis* and *Persoonia longifolia*. However, there were some large areas which, due to species composition and previous activities, could not be interpreted.

The categories of uninterpretable forest are as follows:

- (i) Areas clearfelled for dieback in the late 1960's and replanted in 1970 with *E. saligna*, *E. microcorys* and *E. megacarpa* (area approximately 80 ha).
- (ii) 150 ha of 1983 logging - this area contains a number of pockets of interpretable forest, 2-3 ha in size.
- (iii) Areas cleared for settlements (area approximately 55 ha).
- (iv) Areas which do not support sufficient indicators to conclusively indicate the absence of presence of *P. cinnamomi* (area approximately 45 ha).

DISEASE EXPRESSION:

In all areas of interpretable forest, disease expression was very good, where disease is present, most susceptible plant species exhibited disease symptoms.

DISEASE PRESENCE - DISCUSSION:

All but one of the dieback infections found and mapped within Cell 69 were associated with the areas clearfelled for dieback in the 1960's and replanted. Most of the infections were found extending out of these plots and into the surrounding bush. Two were in Coupe 5, adjacent to Plot 2, in an unlogged, control Coupe. Three infections were found within the actual plots where sufficient indicator species had recolonized the area to indicate disease presence.

A large area (approximately 2 ha) of *P. cinnamomi* was found on the northern cell boundary (Logging Coupe 1). This infection is associated with an old snig-track and follows the snig-track up the hill from the north eastern road junction, which forms the boundary of Coupe 1. Deaths within this infection range from a few months to approximately 5 years.

This area was checked on the 1978 70mm film for Cell 1 and no evidence of *P. cinnamomi* was found. Therefore, the source of this infection is unknown. However, it is assumed that disease infection was spread during the logging operation. A breach of hygiene occurred on the 9th April 1981, during pole operations, however, this infection does not appear to be associated with the breach (see Appendix 6).

Since the Cell 1 interpretation in 1981, a better understanding of disease expression and activity has been gained and an uninterpretable category, for those areas supporting no dieback indicators, has been introduced. These changes in standards are responsible for the apparent discrepancies between the distribution of *P. cinnamomi* in the 1981 and 1988 interpretation, and the deletion of some *P. cinnamomi* from the 1981 interpretation.

A number of positive samples were recovered from internal roads in Amphion before 1983 as part of the monitoring programme of the Logging Trial (Hygienic Logging Trials Preliminary Results 1984). See Appendix 5. All internal tracks were checked during the course of the present interpretation. No plant deaths were noted adjacent to or downslope from the earlier sample sites.

SAMPLING:

Sixteen soil and tissue samples were taken to support the field interpretation. Six samples were taken from Armillaria infections to confirm the absence of *P. cinnamomi*. The laboratory results for these samples support the field interpretation. Other samples were taken to confirm the absence of dieback in isolated deaths or as standards to confirm the presence of dieback in obvious infections (see Appendix 2).

Field interpretation (only) was used to diagnose Armillaria infections but samples were taken to confirm the absence of *P. cinnamomi*.

ARMILLARIA LUTEOBUBALINA:

A number of Armillaria infections were found in Cell 87/69, the majority of which were located near Amphion Plot 2 (*E. saligna* and *E. megacarpa*). These infections were quite small, usually less than 50m in radius. The largest infection, approximately 6 ha in size, was found in a swamp leading into the private property Location 1009 on the southern cell boundary (Appendix 3).

There appears to be no pattern to these infections and there is little evidence to suggest that this disease was introduced during the hygienic logging trial.

Where it was possible all Armillaria infections have been mapped. However, the location of Armillaria was not the prime objective of this interpretation, therefore all infections found were discovered by chance whilst checking indicator deaths, or were diagnosed as dieback on the initial film interpretation. As a consequence, the extent of the disease indicated on the map may not be complete.

HYGIENE MAP:

All areas clear felled for dieback in the 1960's and replanted with *E. saligna*, *E. microcorys* and *E. megacarpa* have been classified as HPR. This is due to their classification as dieback in all earlier interpretations and their location downslope from existing dieback infections.

The roads used as cell boundaries have all been called N.E.Q. These tracks are open and appear to have been used frequently as access to several blocks of private property within or close to the northern boundary of the cell. Chadoora Road, which is the main internal track, is used as the main access track to these blocks. Since it is necessarily used in all weather conditions, it has been classified as N.E.Q. as is the large landing at it's northern end and the three other internal tracks also used as access to the private property. Two of these have quarantine gates. However, one is being bypassed and the other has been forced open.

COMMENTS AND RECOMMENDATIONS:

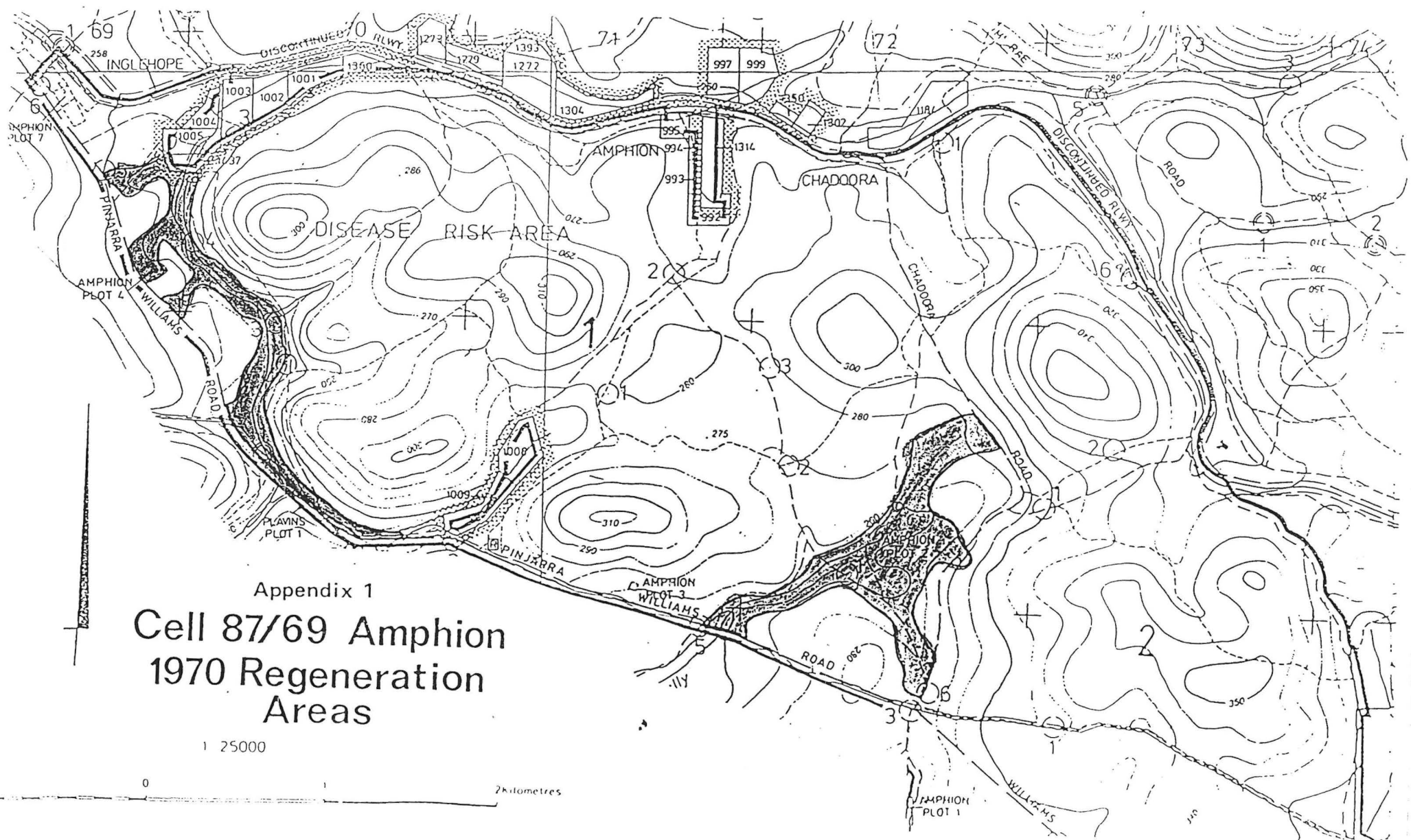
During the interpretation of Amphion, it became apparent that various internal tracks were being used as access to the private property to the north of the cell. Two of these tracks have quarantine gates, however, one is being by passed and the other has been forced open. It is recommended that these gates be fixed and the tracks around them blocked, as Chadoora Road provides adequate all weather access. It is also recommended that a gate be placed on the track north of location 1009 beyond the entrance to this block. This track passes through a dieback infection near the Pinjarra-Williams Road and increases the likelihood of the disease being introduced into the interior of the cell if it is used for access to the north of the cell.

At the time of field interpretation, the 150 ha of 1983 logging was classified as uninterpretable. Within this area, numerous small pockets of interpretable bush, usually 2-3 ha in size, were found surrounded by thick regrowth. As the total area of these pockets did not constitute 50% of the logging area and because it was not practicable to map the individual pockets, the whole area was mapped as uninterpretable. It is recommended that this area be reassessed with 1-2 years of the the 1988 interpretation to determine whether it is suitable for ground stripping or re-photographing.

Peta Cameron
Interpreter,
KELMSCOTT

Rob Thomas
Interpreter,
KELMSCOTT

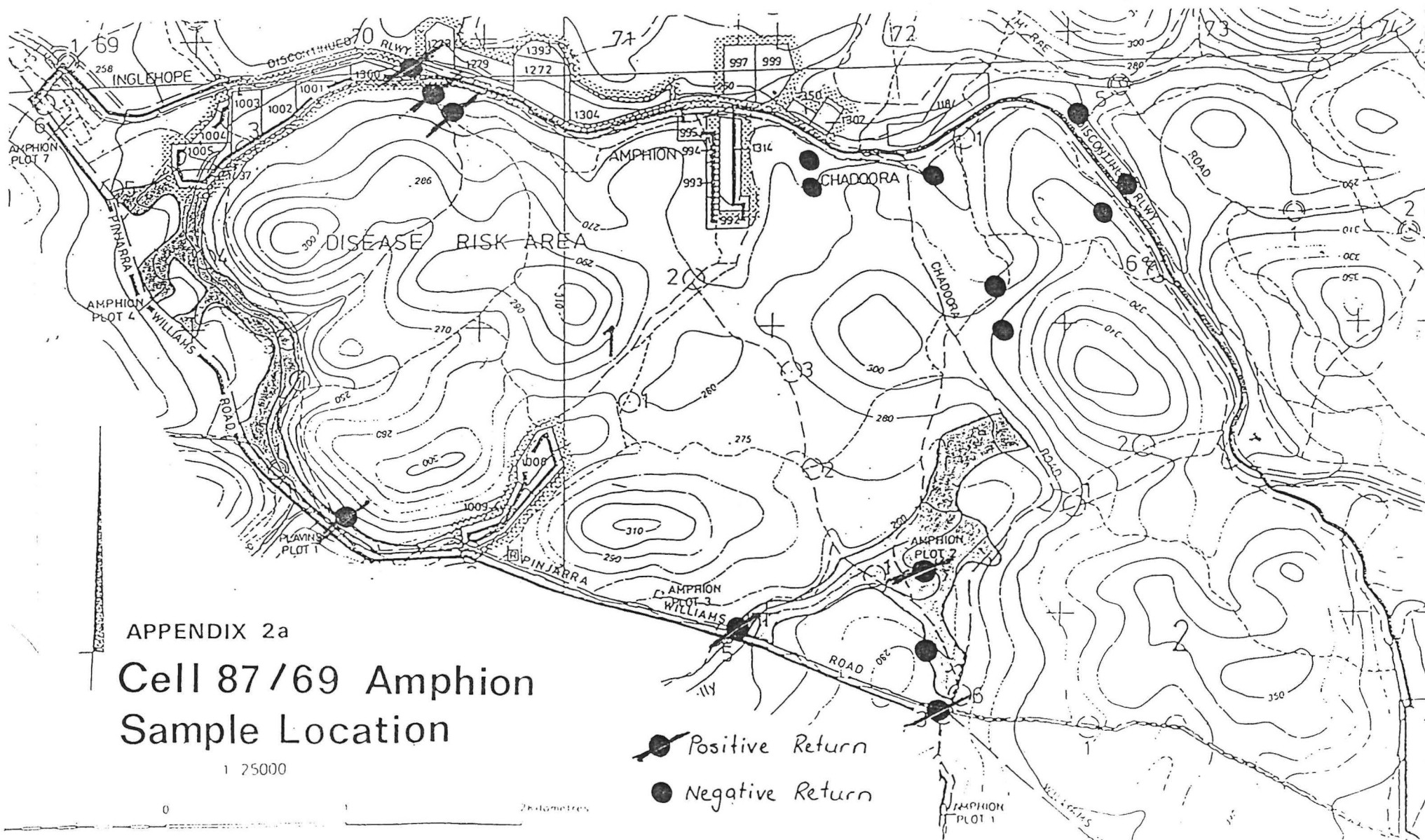
2 August 1988



Appendix 1
 Cell 87/69 Amphion
 1970 Regeneration
 Areas

1 25000

0 1 2 kilometres



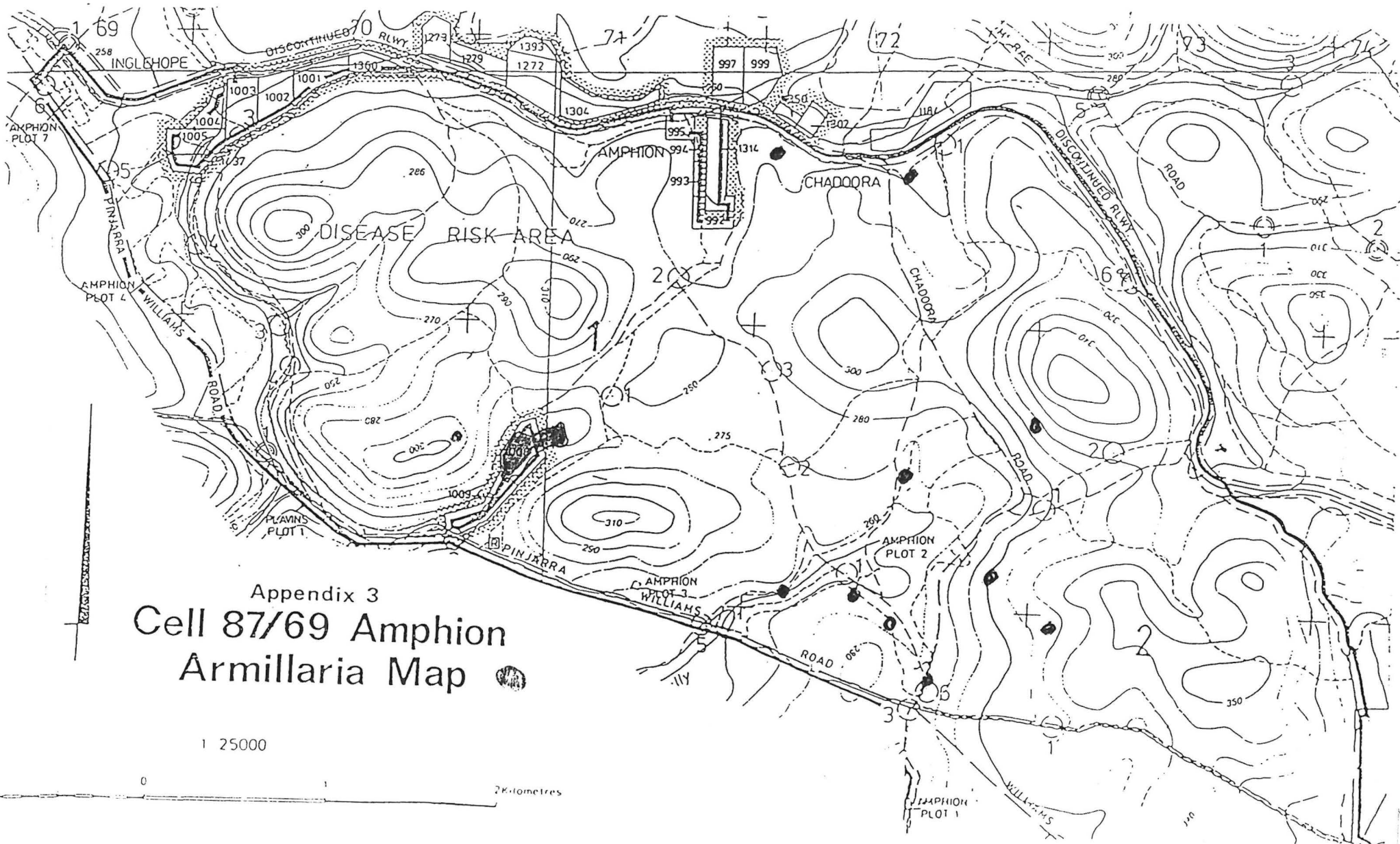
APPENDIX 2a

Cell 87/69 Amphion Sample Location

1:25000

- Positive Return
- Negative Return

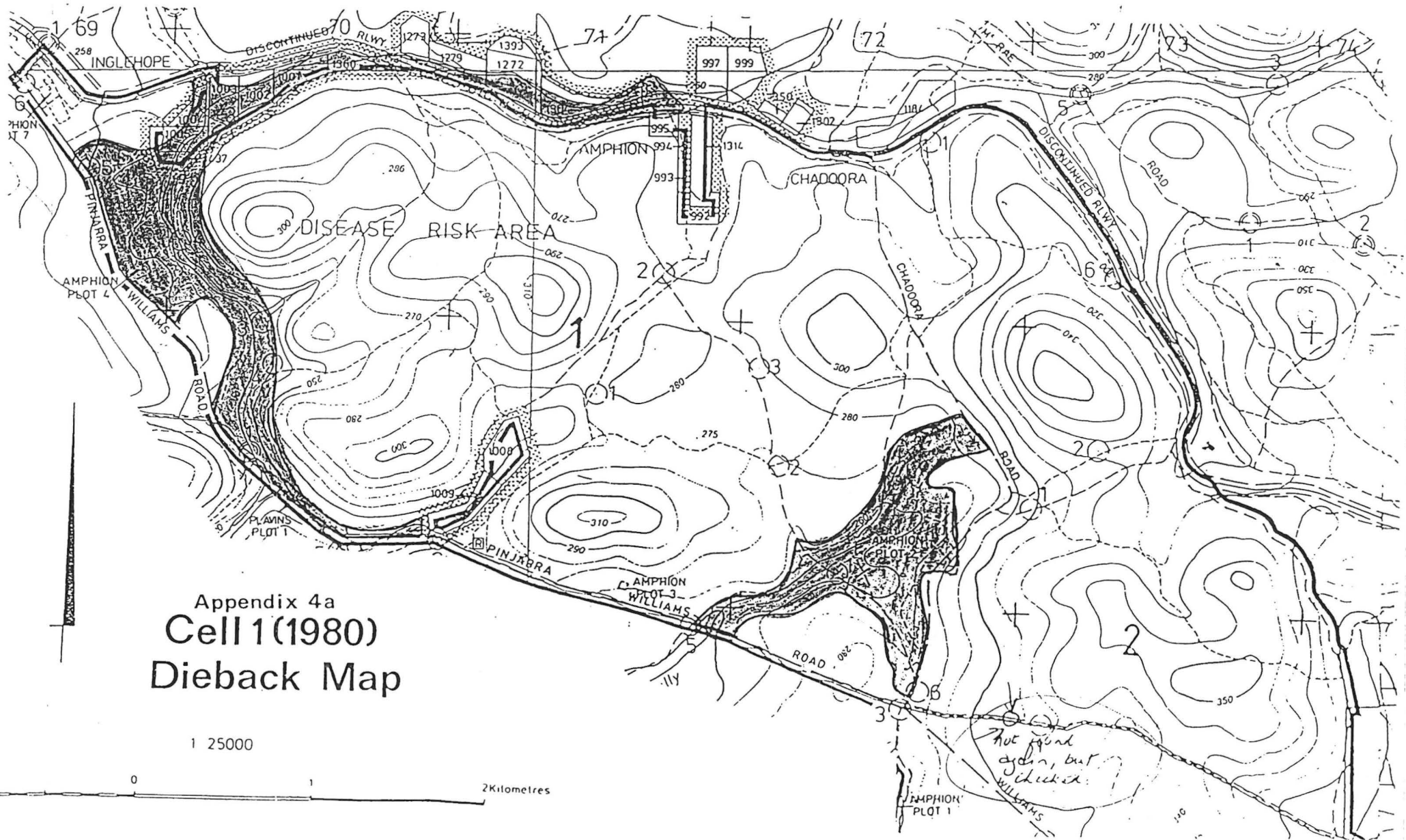
2 Kilometres



Appendix 3
 Cell 87/69 Amphion
 Armillaria Map

1:25000



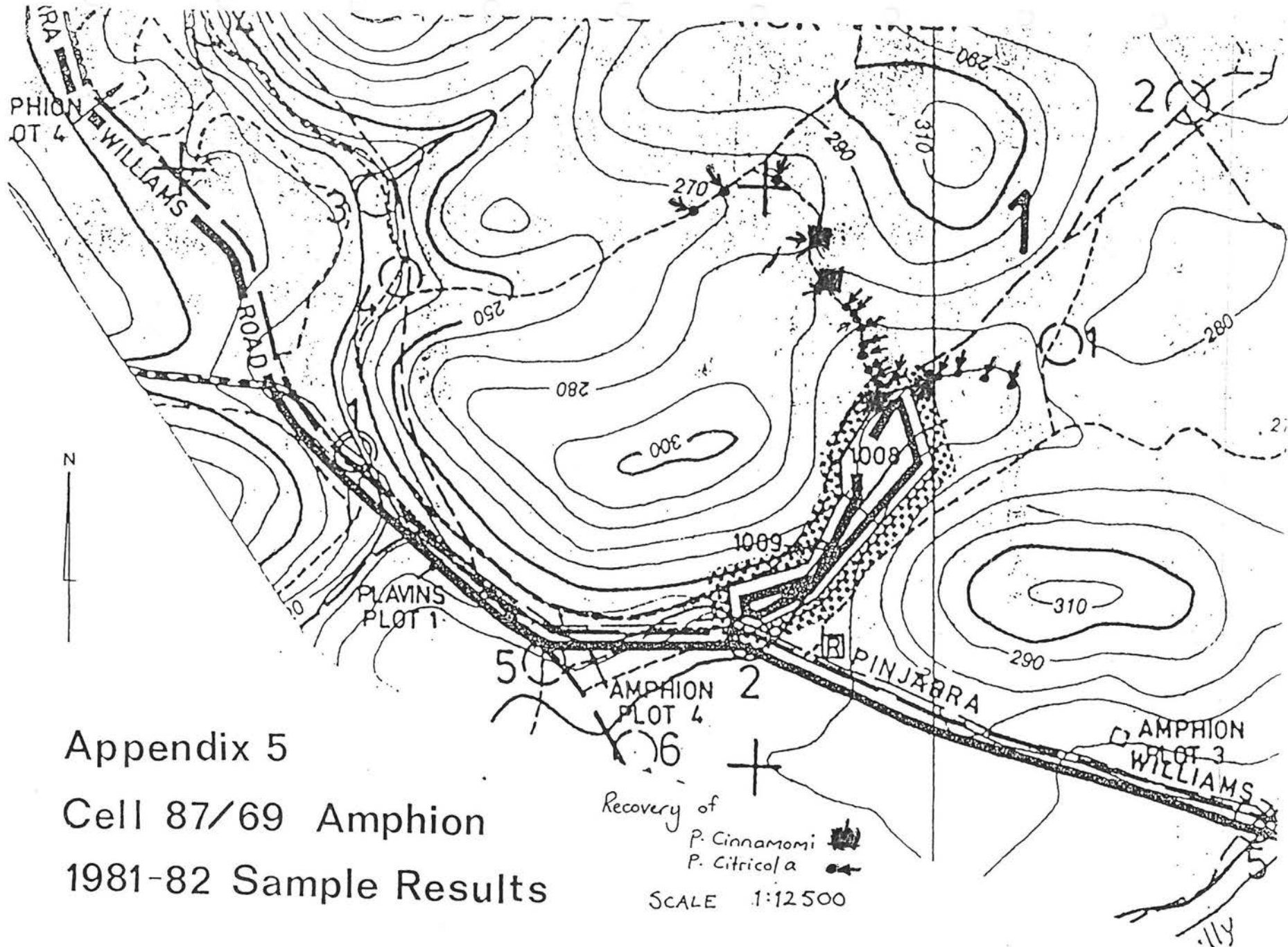


Appendix 4a
 Cell 1 (1980)
 Dieback Map

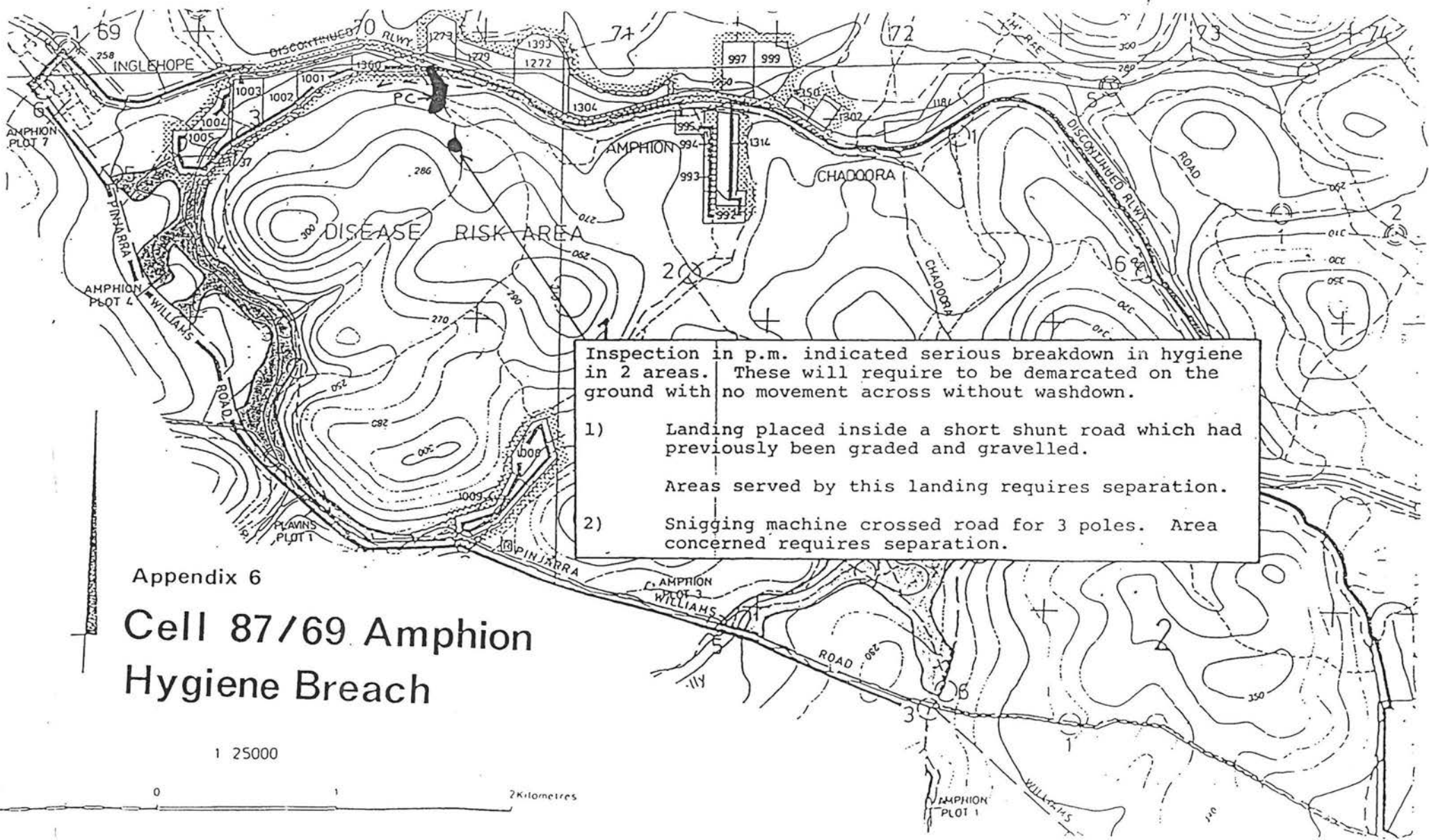
1:25000

0 1 2 Kilometres

Not found again, but checked.
 WILLIAMS



Appendix 5
 Cell 87/69 Amphion
 1981-82 Sample Results



Appendix 6

Cell 87/69 Amphion Hygiene Breach

1 25000

0 1 2 Kilometres