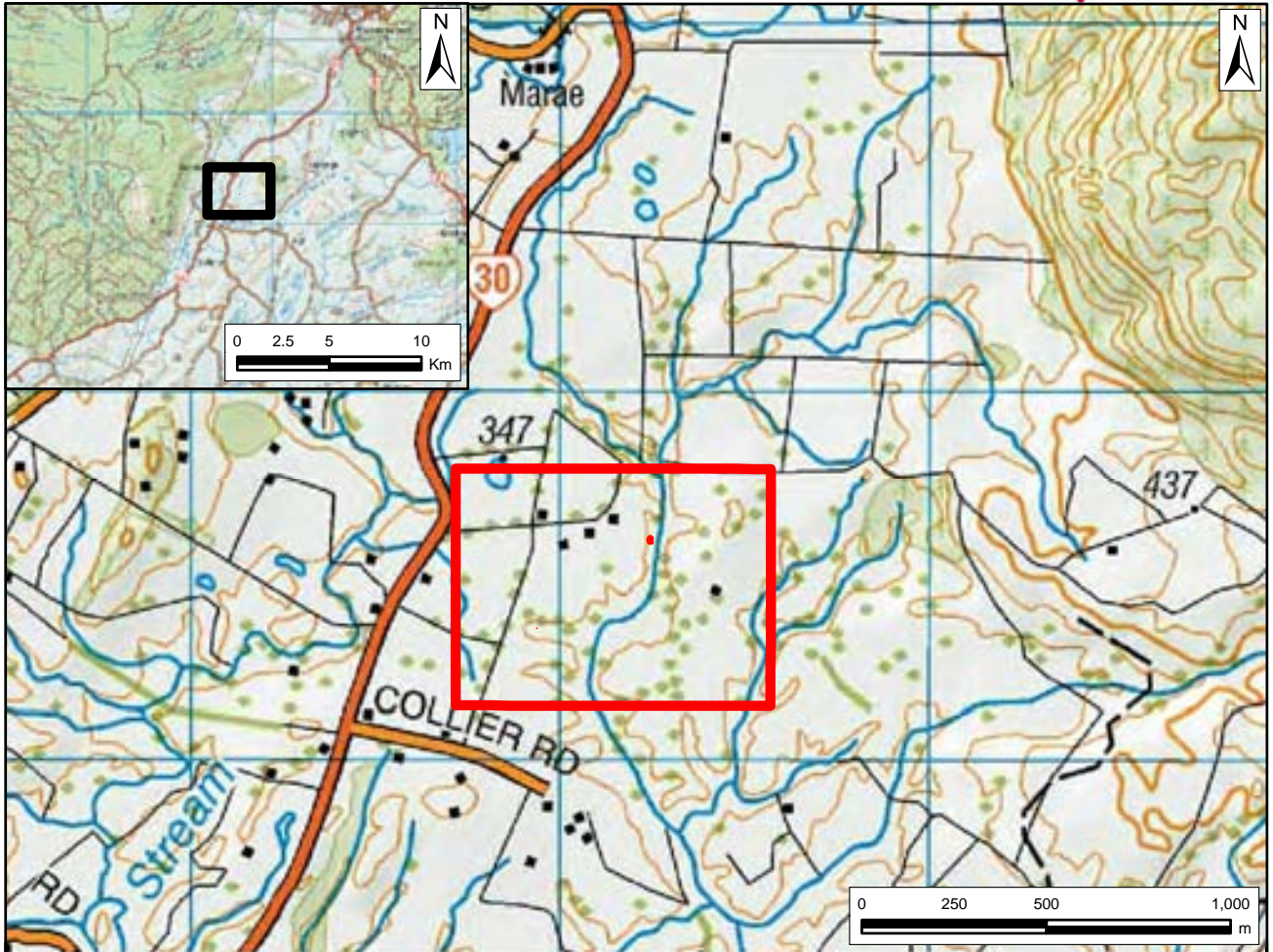


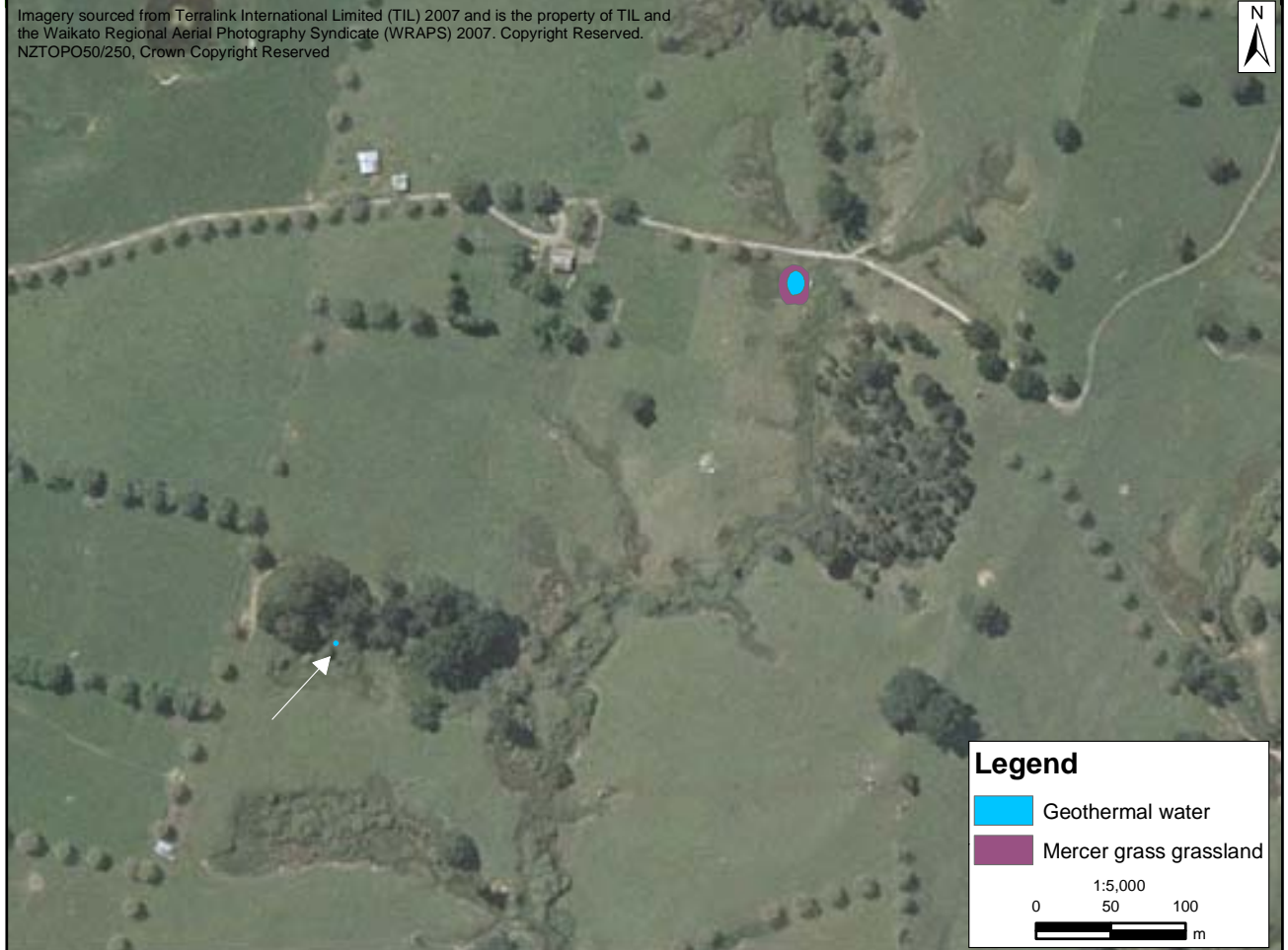
1.1 HOROHORO GEOTHERMAL FIELD

List of Geothermal Sites

HHV01	Horohoro
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HOROHORO

Site Number: HHV01¹
Grid Reference: NZTopo50 BF37 782 616
GPS Reference: NZTM E1878243 N5761598
Local Authority: Rotorua
Ecological District: Atiamuri
Geothermal Field: Horohoro
Bioclimatic Zone: Submontane
Tenure: Unprotected private land (Waipupumahana C - Maori freehold land)
Altitude: 340 m
Extent of Geothermal Habitat: <0.1 ha
Extent of Geothermal Vegetation: <0.1 ha
Date of Field Survey: 12 May 2003

VEGETATION		LANDFORM	EXTENT
CODE	TYPE		
08.04	Mercer grassland	Hillslopes	<0.1 ha
08.04.03	Mercer grass grassland Pasture dominated by Mercer grass (<i>Paspalum distichum</i>), catsear (<i>Hypochoeris radicata</i>), and browntop (<i>Agrostis capillaris</i>) surrounds an area of geothermal water. At the eastern end of the pool a small 2 × 1 m patch dominated by wetland sedges most notably <i>Eleocharis acuta</i> . There are a few small patches of bare ground. On the banks surrounding the pool there is occasional <i>Lycopodiella cernua</i> , <i>Histiopteris incisa</i> , <i>Blechnum penna-marina</i> , <i>Gleichenia microphylla</i> , and mingimingi.		
22.01	Geothermal water	Open water	<0.1 ha
22.01.01	Geothermal water Two hot springs are present. One spring is under a shelter belt and has no geothermal vegetation around it.		

Indigenous Flora: *Lycopodiella cernua*, a plant that is characteristic of geothermal areas, is present. *Nephrolepis flexuosa* (classed as „At Risk-Declining’ in de Lange *et al.* 2009) was recorded by Given in 1995 but was not present in 2003.

Fauna: Common indigenous and introduced bird species typical of the habitat are present.

Current Condition (2003 Assessment): Pool 1: The vegetation is highly modified with only occasional indigenous species present.

Pool 2: No indigenous geothermal vegetation present.

¹ Previously identified as U16/9 in Wildland Consultants (2004).

**Threats/Modification/
Vulnerability:**

*Invasive pest plants
(2003 Assessment):*

The geothermal pools are surrounded by exotic pasture species.

*Human impacts
(2003 Assessment):*

Modified outlet trench with concrete platform and temporary pool for bathing facilities. An overflow trench is also present. Site has lost most of its ecological values because pastoral farming operations have resulted in the disappearance of indigenous vegetation cover.

*Grazing
(2003 Assessment):*

The site is not fenced to exclude livestock and livestock have modified the vegetation surrounding the hot pools.

*Adjoining land use
(2003 Assessment):*

Farmland.

Site Change:

Recent change:

Not assessed. Changes unlikely to be significant.

Historical:

This site is too small to identify any evidence of change since 1948 (Historical photo SN 255 Run 715 Photo 69, 1948).

**Management
Requirements:**

Site lacks characteristic geothermal species apart from *Lycopodiella cernua* and mingimingi. Indigenous values could be restored by fencing the pools to exclude grazing animals, and undertaking restoration planting.

Significance Level:

Local (Table 1 - Criterion 5; Table 2 - Factor 19).

**Significance
Justification:**

The site is of local significance because it comprises a small example of geothermal habitat, a nationally uncommon habitat type.

Notes:

The small geothermal pools and small areas of geothermal substrate have potential for restoration if stock are excluded.

Given (1995 & 1996) assessed the botanical value of many of the geothermal sites in the Waikato Region. In these studies, this site was ranked as „D’ in 1995 and „C’ in 1996 (an A ranking was given to the most significant sites).

Waikato Regional Council (unpublished) named this site as Waipupumahana. It is used for recreational bathing; water in the larger pool is 40-50°C.

References:

Given 1995 & 1996; Unpublished Atiamuri PNAP data 1995; Waikato Regional Council unpublished; Wildland Consultants 2004.