

RELINQUISHMENT REPORT

EL 8076

HARTS RANGE REGION, N.T.
NORTHEAST CORNER - ALICE SPRINGS [SF 53-14] 1:250,000
SOUTHEAST CORNER - ALCOOTA [SF 53-10] 1:250,000
SOUTHERN EDGE - HUCKITTA [SF 53-11] 1:250,000

**TO N.T. D.M.E
FOR PERIOD TO 12/1997**

**LICENCE HOLDER:
CHAMBIGNE GARNET PTY LTD**

**REPORT COMPILED BY:
CHAMBIGNE GARNET PTY LTD**

6-1-1998

CR 98 / 375

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1 SUMMARY

During December 1997, Chambigne Garnet Pty Ltd applied for a Mineral Lease from within EL8076. The MLA was applied for from the western most end of the EL over the Plenty River, moving east along the eastward flowing river and encompassing 18 blocks of the EL. The 18 blocks constituting the MLA were subsequently surrendered.

These 18 relinquished blocks of EL8076 were chiefly taken up to explore for alluvial garnet and other industrial minerals in the riverbed of the Plenty River and its associated colluvium.

Initial reconnaissance, exploration and subsequent re-examination of the Plenty River *in toto*, which also comprised the targets within the blocks relinquished, indicate economically recoverable garnet grades exist and exhibit substantial tonnages, as outlined in earlier annual reports. The small creeks and feeders to the Plenty River system commonly had shallow depths, narrow widths, and/or were uneven and rocky, making commercial large-scale sand recovery both difficult and commercially non-viable.

An additional factor which became apparent at the inception of planning for any and all of the MLA's over the Plenty River, and the subsequent extraction of the sands thereof, was the higher ratio of rehabilitation that would have been required per linear kilometre of creeks or feeders (or per ton of sand recovered), adding a proportionately higher charge to the production costs in these areas.

Creekbed and feeder-sand samples were inspected visually on site for approximate garnet grade and grade distribution (estimated from about 1% to local highs of 8% closer to the garnetiferous source rocks), but no samples were taken for analysis for the above reasons. Initially, isolated floaters and low-lying outcrops within relinquished portions of the EL were also examined

with a view to hard-rock garnet extraction, but a consideration of the costs soon led to the abandonment of this concept. No geological mapping or photointerpretation was carried out

2 INTRODUCTION AND TENURE

EL8076, comprising 148 graticular blocks of approximately 477km², was granted to Chambigne Resources Pty Ltd on the 20th of December, 1993. The aim of exploration was to delineate economic reserves of alluvial garnet within the riverbed of the Plenty River and its feeders, and associated colluvium.

74 blocks, comprising the western portions of the EL, and the headwaters of the Plenty River, were relinquished at the end of the second statutory year, formally notified 30 October 1995. 74 blocks remained within EL8076, targeting solely the larger and better defined course of the eastward-flowing Plenty River.

In July 1997 Chambigne Resources formally notified the NTDME of the surrender of 37 blocks from the EL subsequent to the lodging of MLA's within the tenement. A mix up in notification of the transfer of the tenement to Chambigne Garnet resulted in a re-application of the MLA's and a new notification of surrender of the same blocks later in the same year. 37 blocks remained in the EL.

3 LOCATION AND ACCESS

EL8076 was centred on the Plenty River, and at its western end, its feeders and colluvium. The westernmost portion of EL8076 commenced at 134° 58E', running more or less due east to 135° 19'. The precise locations of the graticular blocks comprising the EL are shown on **Appendix page 1**. **Appendix page 2** shows the relinquished and retained blocks.

For virtually all of its extent, the Plenty River flows eastwards, subparallel to the Plenty Highway, and located several to 10 kms to the north of it.

Access to the EL from Alice Springs is thus north along the Stuart Highway, turning east onto the Plenty Highway, towards and just before the Harts Range Police Station, and continuing eastwards thereafter. A number of roads and station tracks lead north off the Plenty Highway, and cross the Plenty River, affording easy access without bush bashing. With lowered tyre pressure, a 4WD vehicle can easily drive along the riverbed.

4 GEOLOGY OF EL8076

EL8076 lies in the flood plain of the Plenty River, with little in the way of massive outcrops; numerous smaller outcrops and rock bars, however, indicate that for the most part, the riverbed lies in the mid-Proterozoic metamorphic rocks of the Harts Range Group. To the west, in relinquished parts of the EL, some of the more northern shallow feeders cut through deeply weathered and essentially undifferentiated Lower Triassic rocks, but these have no significance in terms of the garnet genesis, and have a negative effect on the resource volumes.

Of the Harts Range Group rocks, the most significant are the Irindina Gneiss, and the Riddock Amphibolite; both are heterogeneous, and may carry from zero to 18 volume % garnet, though the average for the Gneiss is closer to 10%. From a consideration of the regional geology, petrology and topography, it is evident that the sources of most of the garnet in the river sands are the two rock units named previously. This is quite apparent in the southern portions of the feeders, which derive most of their sediment load from the Irindina Gneiss and Riddock Amphibolite.

There appears to be little if any contribution of grossular-andradite garnet from the rare calc-silicate rocks that are garnetiferous, and similarly, almandine-rich

garnets from the weakly garnetiferous lower grade schists to the north of the River have not contributed to the overall garnet composition or grade in the river sands.

The geological-lithological distribution of rocks adjacent to the relinquished portion of EL8076 can be seen on the Alice Springs and Alcoota 1:250,000 Geological maps. For a better appreciation of the distribution of petrological types, refer to the Geology of the Strangways Range Region and the Arltunga-Harts Range Special 1:100,000 geological maps. No purely geological mapping was carried out in any part of the relinquished blocks of the EL. Written summaries of the regional geology of the areas encompassed by the EL are presented in the notes to accompany the Geology of the Strangways Range Region, and the Arltunga-Harts Range Special 1:100,000 geological maps. The previous geological summary was compiled directly from the above mentioned references, which are not presented here.

5 EXPLORATION TO 12/97

Initial reconnaissance within the relinquished blocks comprised a visual inspection of the river system emanating from the headwaters of the Plenty River, and the colluvium or "wash" on the low-lying plains which feed into the river during heavy rains via "sheet-flow". These latter are predominantly sands and silts, with appreciable clay content and desiccated organic matter.

The colluvium from the northern creeks and feeders comprise sediments derived in part, or locally exclusively, from non-garnetiferous Tertiary rocks, and the associated creek beds thus have low garnet grades (typically 1 to 3 volume % by visual estimate on site). The southern feeders derive their sediment load from colluvium sourced from large and continuous outcrops of Irindina Gneiss and Riddock Amphibolite, both of which are garnetiferous. Consequently, these creeks are more garnetiferous, with grades locally as high as 8%, but typically closer to 6 volume %.

Garnet grades notwithstanding, the feeder creeks to the Plenty River are generally small, that is, they are narrow (2 to 6m) and usually quite shallow (0.5 to 1m), which in turn results in low tonnages per unit creek length. Additionally, they commonly have rocky outcrops and bars within the creekbeds, which would make effective extraction difficult, and economically even more marginal. No samples were collected during this initial reconnaissance.

Initially, hard-rock garnet extraction was also considered, and as a result, a number of the low-lying, nominally in-situ rock outcrops within the EL were examined for garnet grades. Almost invariably, the Irindina Gneiss and Riddock Amphibolite outcrops were garnetiferous, and partly to largely decomposed. It became apparent, when blasting, crushing, sorting and garnet separation costs were assessed, that such hard-rock extraction would be at best economically marginal. When environmental considerations and rehabilitation costs were factored in, hard-rock garnet extraction became absolutely non-viable, short of doubling in the garnet price. Consequently, all further hard-rock garnet exploration was halted.

Following reconnaissance, programs of systematic and comprehensive sampling, mineral separation and garnet analysis were performed in the western and eastern most extents of EL8076, where it was obvious the grades of garnet were consistent and tonnages per km along the riverbed orders of magnitude were high.

Given that this portion of the EL is a drainage system continuum between the measured resource immediately up-stream and the measured resource down stream and with almost nil effect to the river in relation to tonnage and grade from feeder creeks, it was considered appropriate that confirmation of garnet existence in visually acceptable percentages (based on knowledge gained from other comprehensively explored zones of the EL) as provided by competent qualified personnel, was all that was necessary.

The area of the relinquished 18 blocks was inspected on several occasions during its tenure. On each occasion numerous and random spot samples were taken and visually (microscope) inspected for garnet existence however for the reasons outlined above, no samples were sent to the Labs for analysis.

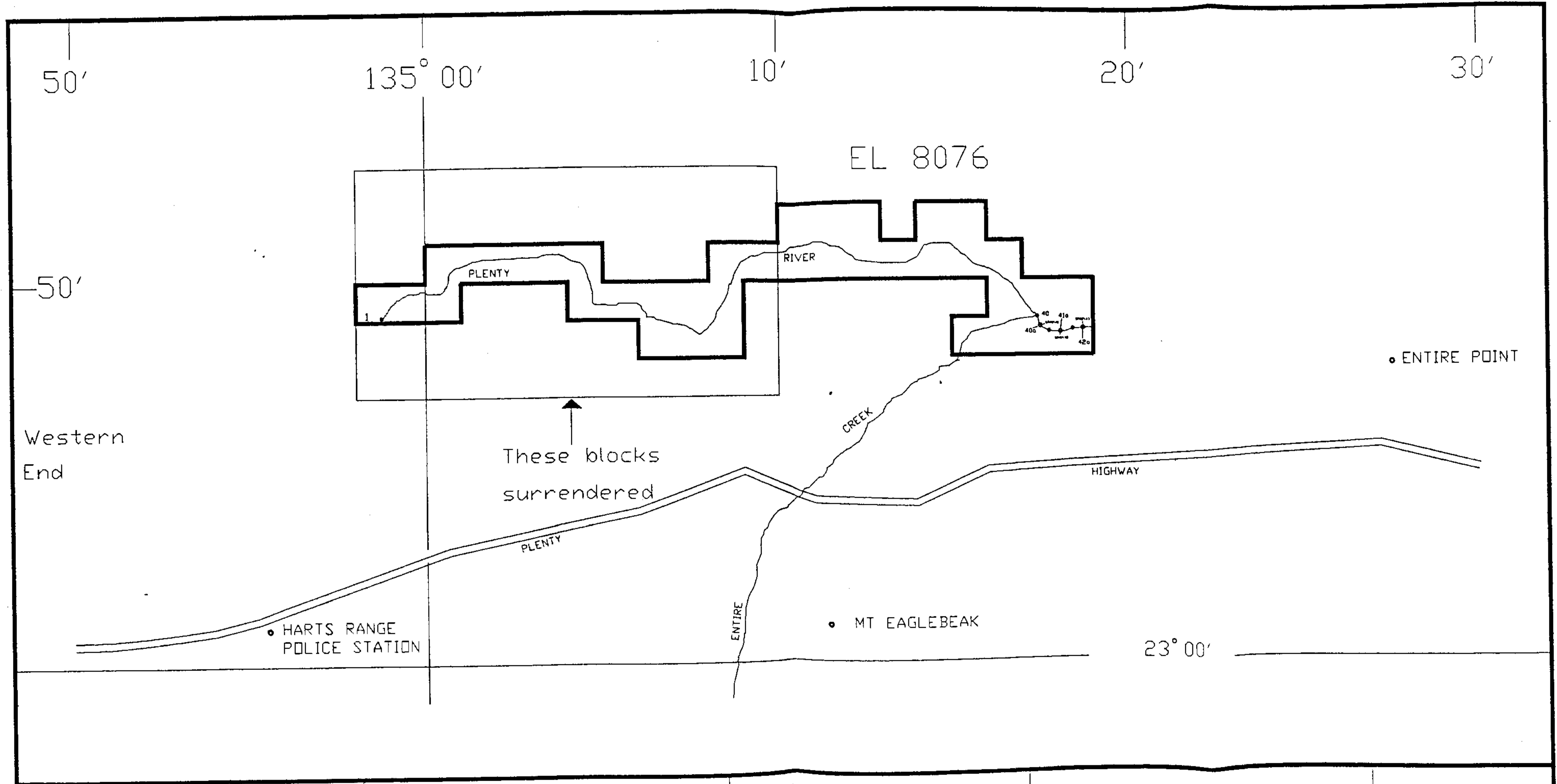
It was confirmed that visual estimates of garnet grade were consistent with the measured resource grades (approx. 12%) both up-stream and down stream of this portion of the EL, as envisaged and thus was the basis for the Mineral Lease Application.

6 EXPENDITURE TO 12/97 - RELINQUISHED BLOCKS

The periods of field exploration over the life of the EL, in the relinquished blocks were carried out as part of larger field efforts and as a consequence, the expenditures calculated on a pro rata basis.

For the relinquished blocks, this expenditure estimate comprised: \$4,118.00

appendices to follow



Explore\8076\
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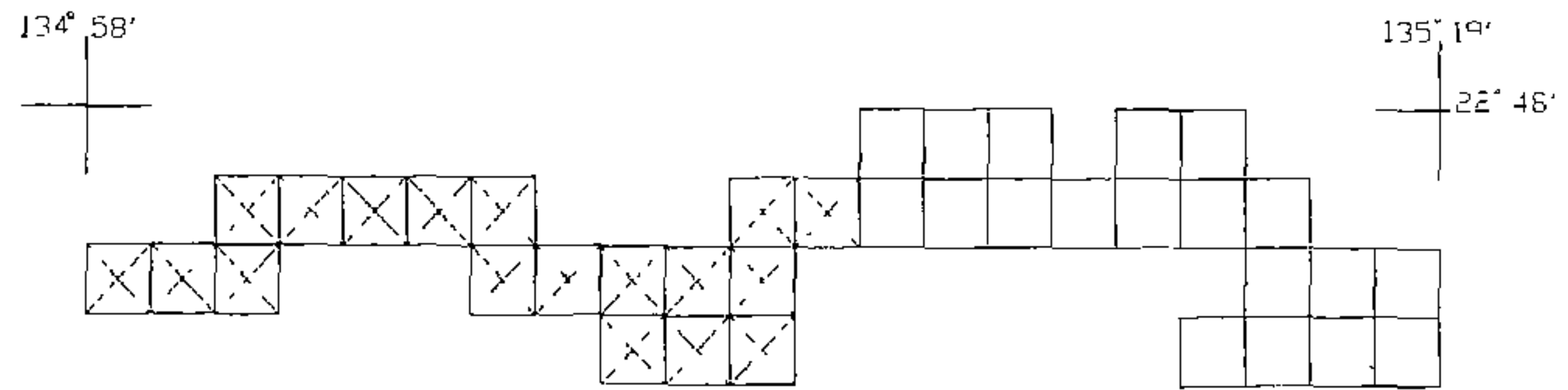
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CHAMBIGNE GARNET

MAP OF EL8076

DRAWING NUMBER

APPENDIX PAGE 1



BLOCKS FOR RETENTION

BLOCKS FOR REDUCTION (18 BLOCKS)

CHAMBIGNE GARNET P/L
EL8076

APPENDIX PAGE 2

BLOCK REDUCTION
1997