APPENDIX H:

ENGINEERING REPORTS:

DEVELOPMENT OF ERF 217 RAWSONVILLE

BULK WATER & SEWER SERVICES
REPORT AND MAPS
COMMUNITY ENGINEERING SERVICES (CES)
MAY 2007 (6 pgs)
22 May 2007

V&V Consulting Engineers (Pty) Ltd
P. O. Box 2903
Durbanville
7551

Attention: Mr Roynard Taljaard

Dear Sir,

DEVELOPMENT OF ERF 217, RAWSONVILLE: BULK WATER & SEWER SERVICES

Your request regarding comments on the bulk water and sewer supply to the proposed development (Erf 217, Rawsonville), refers.

This document should inter alia be read in conjunction with the Water Master Plan (performed for the Breede Valley Municipality) dated June 2006 and the Sewer Master Plan dated June 2006.

The proposed development was conceptually taken into consideration for the recently completed master plans for the water and sewer networks.

1. WATER DISTRIBUTION SYSTEM

1.1 Distribution zone

The master planning indicated that this development area should be accommodated in the existing Rawsonville zone. The connection to the existing system should be done on the new 160 mm diameter pipe in Botha Street as shown on Figure 1.

The development is situated inside the water priority area.

1.2 Water demand

The original water analysis for the master plan was done with a total annual average daily demand (AADD) for development (future area R6) of 63,0 kIG

For this re-analysis, the AADD and fire flows for the proposed development was calculated as follows:

- 95 Single residential units @ 0.7 kIGXQLW = 66.5 kIG
- Fire flow criteria (low risk) = 15 kIG# 7 m
1.3 Present situation

Accommodation of the development in the present system will require upgrading of the existing system, to comply with the pressure and fire flow criteria as set out in the master plan.

Network upgrade

- Item BRW1.2: 740 m x 160 mm Ø supply pipeline R 496 000 *
- Item BRW1.3: 400 m x 160 mm Ø supply pipeline R 314 000 *
- Item BRW1.4: 130 m x 110 mm Ø supply pipeline R 118 000 *

Total R 928 000 *

Bulk infrastructure upgrades

- Item BRW.B1: New 1,0 M³ reservoir R 2 417 000 *
- Item BRW.B5**: Upgrade booster pump station to 37 kWP R 537 000 *

Total R 2 954 000 *

(* Including P & S, Contingencies and Fees, but excluding VAT ² Year 2007 Rand Value. This is a rough estimate which does not include major unforeseen costs).

** The duty point of the existing booster pump station is unknown and the pump station must be upgraded when pressure problems in the network occur.

Take note that the route of the proposed pipeline is schematically shown on Figure 1, but has to be finalised subsequent to a detail pipeline route investigation.

2. SEWER NETWORK

2.1 Drainage area

The development falls within the existing Rawsonville drainage area. The recommended position for the sewer connection for the proposed development is shown on Figure 2.

The development is inside the sewer priority area.

2.2 Sewer flow

The original sewer analysis for the master plan was done with a peak day dry weather flow (PDDWF) for development (future area R6) of 43,0 kHG.

For this re-analysis, the PDDWF for the proposed development was calculated as 46,5 kHG

2.3 Present situation

There is sufficient capacity in the sewer reticulation system to accommodate the proposed development.
2.4 **Implementation of the masterplan**

No adjustments to the proposed master plan items of June 2006 are required to accommodate the measured flow from the development, except for Item 1, required to connect to the existing system.

**Item 1:** 160 m x 160 mm Ø new outfall sewer  
R 133 000 *  

(* Including P & G, Contingencies and Fees, but excluding VAT. Year 2007 Rand Value. This is a rough estimate, which does not include major unforeseen costs).  

Take note that the route of the proposed pipeline is schematically shown on Figure 2, but has to be finalised subsequent to a detail pipeline route investigation.

**Alternative solution**

A detailed survey of the invert levels of the manholes in Botha Street as well as the topography of Erf 217 must be done. If it is found that the sewer system can not gravitate to any of the manholes in Botha Street, an internal pumping station and rising main should be implemented as an alternative. The rising main should discharge into one of the manholes in Botha Street.

3. **INCREMENTAL COSTS TO THE DEVELOPER**

3.1 **Water**

The incremental cost of the proposed development on the relevant master plan items were calculated as follows:

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>BRW 1.2</td>
<td>66.5 kWhG / 167.5 kWhG</td>
<td>496 000</td>
</tr>
<tr>
<td>BRW 1.3</td>
<td>66.5 kWhG / 167.5 kWhG</td>
<td>000</td>
</tr>
<tr>
<td>BRW 1.4</td>
<td>66.5 kWhG / 167.5 kWhG</td>
<td>46 850</td>
</tr>
<tr>
<td>BRW B1</td>
<td>(66.5 kWhG / 1000 kWhG</td>
<td>2 417 000</td>
</tr>
<tr>
<td>BRW B2</td>
<td>66.5 kWhG / 253.5 kWhG</td>
<td>140 870</td>
</tr>
</tbody>
</table>

**Total**  
R 830 760

3.2 **Sewer**

The incremental cost of the proposed development on the relevant master plan items were calculated as follows:

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>100 %</td>
<td>R 133 000</td>
</tr>
</tbody>
</table>
4. CONCLUSION

The developer of Erf 217 will be liable for the larger amount of R 830 760 or the Bulk Services Levy (as calculated by the Breede Valley Municipality) as a contribution towards water infrastructure and the larger amount of R 133 000 or the Bulk Services Levy (as calculated by the Breede Valley Municipality) as a contribution towards sewer infrastructure.

Over and above this contribution, the developer will also be liable for the construction of a internal pumping station and rising main if it is required.

We trust you find the above of value.

Yours sincerely
COMMUNITY ENGINEERING SERVICES
REG. NO.: CK96/13328/07

Per: JJ STREICHER

Copy to: The Manager: Civil Engineering Services
Breede Valley Municipality
Private Bag X3046
Worcester
6849

Attention: Mr Wouter Visser