### 7.4.12 Manyavu Pipeline

<table>
<thead>
<tr>
<th>Planning No.</th>
<th>105.25</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project No.</td>
<td></td>
</tr>
<tr>
<td>Project Status</td>
<td>Construction (as at January 2011)</td>
</tr>
</tbody>
</table>

**Project Description**

The rural community of Manyavu is situated in the Mkambathini Local Municipality. Currently, the community obtains potable water via eThekwini Municipality’s reticulation in the Cato Ridge/Ximba area. This supply is proving to be erratic. The major constraint in the supply to the Manyavu rural community stems from an inadequate supply by eThekwini Municipality. This occurs during periods of high demand in one of eThekwini Municipality’s adjacent areas, which receives water from the same bulk supply network. Umgungundlovu District Municipality requested that Umgeni Water find an alternative supply to the Manyavu rural community.

The optimal solution to sustain supply to the Manyavu rural community is the installation of a dedicated supply from Umlaas Road Reservoir to the Manyavu area via the existing 150 mm diameter Lion Park Pipeline. A new 160 mm diameter pipeline will be required to augment the existing Lion Park Pipeline (Figure 7.17).

The proposal entails utilising the existing infrastructure with modifications and consists of the following:

- From the existing 150 mm diameter Lion Park Pipeline, continue with a new 160 mm diameter pipeline along the P566 Provincial Road to tie into the existing 140 mm diameter uPVC Pipeline as shown in Figure 7.17.
- Install a new section of 140 mm diameter uPVC Pipeline along the 400 m contour next to the northern bank of the Msunduzi River to tie into Reservoir 9 as shown in Figure 7.17.
- Extend the new 140 mm diameter uPVC Pipeline to tie into the existing supply main to Reservoir 10.

Key information on this project is summarised in Table 7.19.

| Table 7.19  Project information: Manyavu Pipeline. |
|-------------|--------------------------------------------------|
| Project Components: | 160 mm diameter pipeline from the Lion Park Pipeline tying into Reservoir 9 in Manyavu. |
| Capacity: | 3 Ml/day. |
Figure 7.17 General layout of the Manyavu Pipeline.

Legend
- Purple: UW Pipeline
- Yellow: Proposed Pipeline
- Orange: Reservoir (Other)
- Black: WSA's for whom UW is BWSP

Source:
Municipal Demarcation Board (WSA's)
Umgeni Water (Infrastructures, Dams, Rivers)

Original Scale on A4 at 1:30,000
Institutional Arrangements

The new pipeline will be owned, operated and maintained by Umgeni Water.

Beneficiaries

The beneficiaries of this project will be the community of Manyavu (current population of approximately 15 000) in the Mkhambathini Local Municipality.

Implementation

The construction duration of this project is anticipated to be two years. The total cost is estimated to be R 25 million at 2010 prices.
7.4.13 WARTBURG PIPELINE AUGMENTATION, PHASE 1: CLARIDGE TO WARTBURG

<table>
<thead>
<tr>
<th>Planning No.</th>
<th>105.22</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project No.</td>
<td>UI99</td>
</tr>
<tr>
<td>Project Status</td>
<td>Design (as at January 2011)</td>
</tr>
</tbody>
</table>

Project Description

The existing Wartburg Pipeline (also known as the ‘69 Pipeline), is constructed of steel and is bitumen coated and cement mortar lined. This pipeline is approximately 26 km long and varies from 300 mm to 250 mm in diameter. Water flows under gravity from Claridge Reservoir for approximately 19 km to a break pressure tank (BPT) just before the town of Wartburg. A booster pump station pumps water from this point to the Wartburg Reservoir. There are two interlinked reservoirs at Wartburg that function as one, having a combined capacity of 2 Ml.

The ‘69 Pipeline is currently operating at its capacity of 8MI/day. Umgeni Water proposes to augment this system to meet the increasing demands in that supply area. In addition, the long-term proposal is to extend this pipeline to the rural areas of Efaye and Ozwathini. The new pipeline system would therefore be implemented in a phased manner.

Phase 1 of this project will address the immediate capacity constraints of the existing pipeline, and where necessary makes allowance for the future extension of the supply area in latter phases. The project involves the construction of a new pipeline from the existing Claridge Reservoir, which receives potable water from the D.V. Harris WTP, along the existing servitude to the Wartburg Reservoir situated within the town of Wartburg (Figure 7.18). This terminal reservoir will need to be upgraded as part of this project. The existing ‘69 Pipeline will serve as a reticulation pipeline and the new pipeline will be a dedicated supply to the Wartburg Reservoir via the Wartburg Pump Station. It is proposed that the section through the built up area of Claridge be an 800 mm diameter pipeline to cater for the ultimate demand and the remainder of the pipeline to Wartburg Reservoir will be a 450 mm diameter pipeline with provision made for further augmentation in the future.

Key information on this project is summarised in Table 7.20.

<table>
<thead>
<tr>
<th>Table 7.20</th>
<th>Project information: Wartburg Pipeline Augmentation, Phase 1: Claridge to Wartburg.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Components:</td>
<td>1.3 km long section of 800 mm and 24.7 km section of 450 mm diameter pipeline, pump station to supply Wartburg Reservoir, 5 Ml storage reservoir at Wartburg.</td>
</tr>
<tr>
<td>Capacity:</td>
<td>17 Ml/day</td>
</tr>
</tbody>
</table>

Institutional Arrangements

The new infrastructure will be owned, operated and maintained by Umgeni Water and will be part of the bulk water agreement contract with Umgungundlovu District Municipality.
Beneficiaries
This project will initially benefit the residents of uMshwati Local Municipality. Once Phases 2 and 3 are constructed then communities within Ndwedwe Local Municipality will also benefit.

Implementation
The duration of this project is anticipated to take three years to complete. The total cost is estimated to be R 87 million at 2009 prices.
Figure 7.18 General layout of the Wartburg Pipeline Augmentation Phase 1: Claridge to Wartburg.
7.4.14  Bruyns Hill Reservoir Upgrade

<table>
<thead>
<tr>
<th>Planning No.</th>
<th>105.22</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project No.</td>
<td>UI0301</td>
</tr>
<tr>
<td>Project Status</td>
<td>Construction (as at January 2011)</td>
</tr>
</tbody>
</table>

Project Description

The Bruyns Hill Reservoir is situated within the Umgungundlovu District Municipality and uMshwathi Local Municipality (Figure 7.19). This reservoir is a distribution reservoir on the Wartburg Sub-System and receives treated water from the D.V. Harris WTP (Section 5.2.1). The Bruyns Hill Reservoir provides bulk storage for the greater Swayimana area. Water is sold to the Umgungundlovu Municipality at the reservoir outlet. The Bruyns Hill Reservoir is supplied via a 250 mm uPVC pipeline from the Wartburg Reservoir. The capacity of this pipeline is 3.2 Ml/day.

The flow in the existing 250 mm diameter uPVC pipeline from the Bruyns Hill Pump Station to the Bruyns Hill Reservoir is restricted due to the low pressure rating of the pipe. Therefore a new 250 mm diameter pipeline is required for this section.

Water demands from the Swayimana area have consistently increased over the past few years with the AADD (12-month moving average) equalling 2.9 Ml/day as at October 2010.

Key information on this project is summarised in Table 7.21.

| Table 7.21  Project information: Bruyns Hill Reservoir Upgrade. |
|-------------|----------------|
| Project Components: | New 6Ml reservoir |
| Capacity: | 6Ml |

Institutional Arrangements

The new Bruyns Hill Reservoir will be owned, operated and maintained by Umgeni Water.

Beneficiaries

The upgrade to the Bruyns Hill Reservoir will benefit the approximate 37 457 residents (approximately 8 537 households) of Swayimana (DWA WSNIS 2009) as there will be sufficient storage for peak balancing and emergencies.

Future beneficiaries of this upgrade will include any expansions to the existing Swayimana supply system.

Implementation

The duration of this project is anticipated to be four years. The total cost is anticipated to be R15 million at 2010 prices.
Figure 7.19 General layout of the Bruyns Hill Reservoir Upgrade

Legend
- UW Reservoir
- UW Pump Station
- UW Pipeline
- Proposed Reservoir
- Proposed Pipeline

Source:
Umgemi Water (Infrastructure, Dams, Rivers)

Original Scale on A4 at 1:50,000

0  1  2 km
7.4.15 Cool Air Reservoir Upgrade

Planning No. 105.22
Project No. 105.22
Project Status Planning (as at January 2011)

Project Description

Cool Air Reservoir serves as reticulation storage for Cool Air as well as distribution storage for supply to Dalton Reservoir (Figure 7.20). Its current capacity is 0.5 Ml. Table 7.22 indicates the storage requirement at Cool Air Reservoir.

Table 7.22 Storage Requirement at Cool Air

<table>
<thead>
<tr>
<th>Reservoir Function</th>
<th>2020 Demand (Ml/day)</th>
<th>Time (hours)</th>
<th>Required Storage (Ml)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reticulation</td>
<td>0.7</td>
<td>36</td>
<td>1.1</td>
</tr>
<tr>
<td>Distribution</td>
<td>0.5</td>
<td>15</td>
<td>0.3</td>
</tr>
<tr>
<td><strong>TOTAL STORAGE REQUIREMENT</strong></td>
<td></td>
<td></td>
<td><strong>1.4</strong></td>
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</tbody>
</table>

A new 1 Ml reservoir is required to augment the existing 0.5 Ml storage.

Key information on this project is summarised in Table 7.23.

Table 7.23 Project information: Cool Air Reservoir Upgrade

<table>
<thead>
<tr>
<th>Project Components:</th>
<th>New reservoir</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity:</td>
<td>1.0 Ml</td>
</tr>
</tbody>
</table>

Institutional Arrangements

The new reservoir will be owned, operated and maintained by Umgeni Water.

Beneficiaries

The Communities Cool Air and Dalton in the uMshwati LocalMunicipality will benefit.

Implementation

The duration of this project is anticipated to be one year to complete. The total cost is estimated to be R2 million at 2010 prices.
Figure 7.20 General layout of the Cool Air Reservoir Upgrade