

5.2 Sewerage Infrastructure

5.2.1 External Sewerage Infrastructure

Consideration was previously given to several options regarding the discharge point of the proposed sewerage network. Discharge to the Bundamba Wastewater Treatment Plant (WWTP) via the existing Bundamba trunk sewer is detailed in PSP15. The installation of a local treatment plant was also previously considered. The external sewerage infrastructure requirements are currently under investigation by Ipswich Water. However, in the interim it is likely that the preferred strategy will involve a local pump station and rising main for the SUCE connecting to a pump station and rising main for the Urban Core that will pump to a proposed connection to the Bundamba Creek trunk sewer at Robertson Road.

5.2.2 Internal Sewerage Infrastructure

An internal sewerage network will be required to transport flow from within the site to the proposed external network. As the final surface levels and layouts have yet to be confirmed an internal sewerage network has not finalised at this stage. Further detailed planning will be required to develop the internal sewerage network to satisfy ICC's DSS.

However, it is expected that primarily an internal gravity sewer network will be capable of servicing the SUCE. Based on the projected flows, a network of 150mm to 600mm diameter gravity mains would be required to service the development.

Figure 7, Appendix A indicates the approximate location of an external pump station for the SUCE.

6. CONCLUSIONS

The SUCE development within the Ripley Valley represents the initial stages of a master planned community for the Ripley Valley eventually totalling over 120,000 people.

It is proposed that the SUCE will comprise of three (3) main transect zones representing distinct development zones along with recreational open space regions. The total residential area is approximately 244 hectares and will represent a projected development yield of 12,218EP at full development.

For the purposes of this report the following planning horizons within the supplied hydraulic model have been utilised as the basis for all planning and analysis:

- 2011 for SUCE development between zero and five years;
- 2016 for SUCE development between five and ten years;
- 2021 for SUCE development to ultimate (i.e. ten years plus);

6.1 Water Supply

- The Ripley area was previously supplied by a pump station (WP35), located at South Station Road.
- A second supply main, a 375mm diameter offtake from the SRWP has been recently been constructed and is in operation supplying the area.
- There is also an existing substantial trunk main network within the zone (i.e. water supply mains in excess of diameters over 300mm) delivering flow to the reservoirs and the network. A new DN600mm diameter main along Binnies Road (from Wensley Road to Lakeview Drive) has also recently been installed to improve supply to the area.
- The area is currently primarily serviced by a 10ML reservoir beyond the southern end of Wensley Road. The reservoir has a bottom water level (BWL) of approximately 102.8mAHD. A 16ML reservoir was recently constructed adjacent to the existing 10ML reservoir, creating a combined reservoir capacity of 26ML. Analysis of the model has indicated that no further storage would be required in the first 10 years to meet the DSS.
- Only areas below 75mAHD to 80mAHD are able to be serviced from the existing reservoir and meet Council's DSS (e.g. minimum pressure of 22m at maximum hour).
- The existing supply arrangement as shown on Figure 1, Appendix A can service development in the Ripley Valley up to approximately 6,000EP (i.e. equivalent to more than 5 years growth at an average of 1,000EP or 400ET per annum).
- Beyond the 6,000EP triggers an augmentation of the connection from the SRWP.
- The 2041 planning horizon in the model supplied by Ipswich Water indicates that a 900mm to 750mm diameter main is ultimately required from the offtake location, along Fischer Road and Wensley Road to the reservoirs. This is consistent with previous planning as part of the Ripley Valley Structure Plan and the Planning Scheme Policy. However, it is proposed to stage this augmentation subject to physical site considerations (i.e. space constraints).
- Development up to approximately 12,300EP, representative of the entire SUCE development forecast in the first 10 years in this report could be supplied with a 375mm diameter main from the SRWP along Fischer Road to Binnies Road. Should development up to 16,000EP proceed the 375mm diameter main would need to be upsized to a 450 diameter main.

- For a demand of approximately 25,000EP in the first 10 years, a 600mm diameter main from the SRWP offtake to Reif Street and a 450 diameter main from Reif Street to Binnies Road are required.
- Further staging of the SRWP to Ripley Reservoir main (i.e. beyond the 10 years growth forecast in this report) will be considered in future reports as refined growth forecasts become available. However, the ultimate 900mm and 750mm required is likely to be provided by a combination of no more than two pipes given potential physical space constraints and pipe hydraulics. Therefore, future augmentations between the SRWP and Binnies Road (i.e. beyond that proposed for the first ten years in this report) will likely require replacement and upsizing of the existing 375/300mm main to achieve the required equivalent hydraulic diameter.
- The SRWP to Ripley Reservoir trunk main is proposed to act as a combined inlet/outlet main with connections to the existing network.
- PRVs are proposed at Reif Street and Montera Road. To manage turnover in the reservoir the PRV or control valve at Binnies Road will need to be controlled to maintain sufficient hydraulic grade to supply the top water level (TWL) of the Ripley Reservoirs (i.e. 110m AHD) and to ensure turnover in the reservoirs.
- An internal network of 300mm to 150mm diameter mains will be required to service the SUCE development.
- Two trunk mains will be required to ensure security of supply until an eastern low level Ripley Reservoir is required. The primary connection is a proposed 300mm main from the existing 450mm main along Wensley Road crossing the Centenary Highway Extension (CHE).
- A second 300mm main from the Ripley reservoir complex, to the west, is required to ensure security and is proposed in year 6 once development in the SUCE exceeds approximately 5,000EP or 2,000ET.
- An alternative to this main would be to bring forward the proposed eastern low level Ripley Reservoir near Bayliss Road. In the Ipswich Water model this is proposed as a 21ML reservoir with a similar BWL and TWL as the existing 10ML and 16ML low level reservoirs to the west.
- Due to the elevations within the development area, both a low level zone and a high level zone will ultimately need to be established. The high level zone will be required to service elevations typically above 75mAHD to 80mAHD.
- The existing high level reservoir (Volume = 0.12ML, TWL = 150m AHD) currently servicing the Deebling Heights area is proposed for future augmentation. This augmentation will not be required as an interim measure for the SUCE development in the first 10 years based on the current proposed staging. In the Ipswich Water model this is proposed as a 5ML reservoir in 2041. A 250mm main supplied from the augmented high level Ripley Reservoir has been proposed as an interim measure to service the high level zone in the SUCE once development occurs (currently scheduled to occur after the first 10 years).
- An alternative to this main would be to construct the eastern high level Reservoir near Bayliss Road. In the Ipswich Water model the proposed eastern high level Ripley Reservoir near Bayliss Road is 18ML. Future planning within the Ripley Valley had considered additional reservoirs, both low level and high level to service the future development on the south eastern Ripley Valley site. Whilst not proposed at this stage of development, the network has been sized to allow connection to these reservoirs once they are online.

- The proposed network configuration for the SUCE development is shown on Figures 3 – 5, Appendix A.

6.2 Sewerage

- Consideration was previously given to several options regarding the discharge point of the proposed sewerage network. Discharge to the Bundamba Wastewater Treatment Plant (WWTP) via the existing Bundamba trunk sewer is detailed in PSP5. The external sewerage infrastructure requirements are currently under investigation by Ipswich Water. However, in the interim it is likely that the preferred strategy will involve a local pump station and rising main for the SUCE connecting to a pump station and rising main from the Urban Core that will pump to a proposed connection to the Bundamba Creek trunk sewer at Robertson Road.
- Figure 7, Appendix A indicates the approximate location of an external pump station for the SUCE.

Appendix A FIGURES

- Figure 1 Existing Water Supply Infrastructure**
- Figure 2 Proposed External Water Supply Infrastructure**
- Figure 3 Proposed Internal Water Supply Infrastructure**
- Figure 4 Proposed Water Supply Zones**
- Figure 5 Proposed Water Supply Infrastructure Staging**
- Figure 6 Proposed Detailed Internal Water Supply Infrastructure**
- Figure 7 Proposed External Sewerage Infrastructure**