6.18 Water Network Configuration

All water distribution pipelines shall be sized to deliver the Peak Daily Demands (PDD) whilst ensuring the compliance with the requirement of this Design Guidelines and the applied standards and regulations.

The new networks shall be designed considering 24 hours continuous supply. If requested by AADC, the design of networks shall be also designed for delivering intermittent and restricted supply.

All system components shall be sized with due consideration to the demand growth projections of the various demand categories and determine 24hour demand pattern for all the categories based on best engineering judgments.

The designer shall apply the engineering judgment to set out and size pipes along routes to serve future requirements, also he shall collect from AADC the planned future water networks that may impact the considered design.

The water distribution network shall be designed preferably as loop/ grid network without branches or dead-ends. In locations where only single or few consumer connections, permanent blow-off arrangement is required.

District Area Meter (DMA), shall be considered in the design of water networks for the purposes of leakage control and demand management. The adverse impact of the DMAs of reducing the residual pressure in the networks and reducing the security of supply due to the closed DMA boundary valves shall also be considered while planning the DMAs

The water supply system shall be designed to provide two alternate sources to sectors and areas. Risk analysis shall be undertaken to assess the risk of supply interruptions in case of single feed lines or single source. In areas with few customers, single feed line pipeline may be considered.

The fire hydrant location must be in accordance with the Civil Defence requirements. However, each segment of pipe between cross-connections should have a hydrant to facilitate flushing and disinfection of pipeline particularly after repair works. Special attention shall be given to the fire flow requirements .

The layout of the pipeline shall be planned in a way avoiding the construction of the service connections across the roads such as by laying the pipelines at both sides of the roads.