

Appendix J

Revised Preliminary Water System
Report



**PRELIMINARY
WATER SYSTEM REPORT**
For
SALEM HUNT
Town of North Salem, New York
December 5, 2006
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Prepared by:
Insite Engineering, Surveying & Landscape Architecture, P.C.
3 Garrett Place
Carmel, New York 10512

1.0 INTRODUCTION

The Salem Hunt project site is a 39.99± acre parcel located on the west side of June Road in the Town of North Salem in Westchester County. The subject parcel is located in the R-MF/4 (Residential – Multi-family) zoning district and is designated as Tax Map Number 5-1735-19. It is proposed to develop the site with 65 two bedroom attached residential townhouse units. The proposed units will gain access to the site by way of a proposed 20' wide access road off of June Road. Water will be supplied to the site by drilled wells that will serve as a public water supply for the proposed development. Wastewater will be disposed of with a wastewater treatment plant (WWTP) followed by a subsurface sewage disposal system (SSDS) servicing the entire development. This report is prepared to address the water supply system for the proposed residential housing. The project will also require the formation of a water works corporation and to obtain a water supply permit for public water supply and distribution system.

2.0 DESIGN FLOW

The average daily water design flow for the proposed project is based on the hydraulic loading rates listed in the New York State Department of Environmental Conservation (NYSDEC's) 1988 publication *Design Standard for Wastewater Treatment Works – Intermediate Sized Sewerage Facilities*.

Daily design flow = 65 two bedroom units x 300 gpd/unit = 19,500 gpd

+ 400 gpd (additional flow for community building)

+600 gpd (community pool needs (topping off/cleaning))

Total average daily design flow = 20,500 gpd = 14.2 gpm

Peak Flow (10 x avg) = 142 gpm

3.0 WATER SOURCE

The proposed water source is from three wells on site. For details associated with the water source for the project see a report entitled "Well Testing Report" prepared by Tim Miller Associates, Inc.

4.0 WATER CONTROL BUILDING

A control/treatment building will contain meters, raw water sampling spigots, and chlorinator equipment for each well source. The discharge from the two supply wells will be piped to this building. At this time no other treatment is proposed. In the vicinity of the control/treatment building will be a vented potable water storage tank to provide a minimum of 15 minutes of chlorine contact time at peak design flow, supplemental storage to meet the peak flow requirements, and cycling of the well pumps. Two booster pumps will be located in the control building to provide pressure for the potable distribution system. A generator will be installed to provide emergency backup power for the pump station.

5.0 DISINFECTION

Disinfection will be provided by liquid chlorine. A separate chemical solution crock and feed pump will inject chlorine into each of the two raw well water sources prior to the vented storage tank. The chemical solution crocks and chemical feed pumps will be located in the water control building. The vented storage tank will then provide chlorine contact prior to the water being pumped to the distribution system. The chlorine contact time provided is calculated as follows:

Minimum required chlorine contact	=	15 min
Peak flow (see Section 2.0)	=	142 gpm
Minimum volume required (15 min x 142 gpm)	=	2,130 gallons
Vented storage tank volume (see Section 6.0)	=	25,000 gallons
Baffling factor	=	0.5
Minimum effective volume provided (0.5 x 25,000)	=	12,500 gallons > 2,130 gallons

6.0 STORAGE TANK

25,000 gallons of vented storage tank volume is proposed to provide chlorine contact and supplemental storage during times of peak flow. The Health Department's policy requires that the volume of the storage tank be equal to or greater than the average daily flow.

Average daily flow (see Section 2.0)	=	20,500 gallons
Total tank volume	=	25,000 gallons

The storage tank/tanks are proposed to be buried in the vicinity of the water control building.

7.0 BOOSTER PUMPS

A pre-assembled duplex booster pump station is proposed to provide distribution system pressure. The pumps are proposed to be variable speed such that a hydro-pneumatic tank will not be necessary. The pumps will be designed to maintain a constant output pressure with variable flow rates.

8.0 DISTRIBUTION SYSTEM

The distribution system is proposed to be 4" Φ PVC, Class 200 water pipe. The distribution system is proposed to originate at the water control building and be "looped". Each residential unit is proposed to have its own 1" Φ type "K" copper water service line with curb stop. Flushing hydrants are proposed to allow water main flushing.

No fire hydrants are proposed since the system is not designed to provide fire protection. Based on a request from the local fire department, there will be two 25,000 gallon underground water storage tanks in the vicinity of the proposed clubhouse provided for Fire Department use.