



TECHNICAL MEMORANDUM

DATE: July 12, 2015

PROJECT: Tualatin – Hydraulic Analysis

TO: Mr. Jerald A. Postema – Public Works Director
City of Tualatin

FROM: Brian Ginter, P.E.
Murray, Smith & Associates, Inc.

RE: Water System Hydraulic Analysis – Sagert Farm Subdivision

Introduction

As requested, this memorandum has been prepared to present the findings of our analysis of the water service to the proposed Sagert Farm Subdivision located southwest of the intersection of SW Sagert Street and SW 65th Avenue. This memorandum presents the findings of this analysis for the City’s use in determining the water system improvements necessary to meet fire flow and pressure requirements.

Background

The City’s water system hydraulic model was used to perform a hydraulic analysis of pressure and fire flow performance in the City’s water system under peak demand conditions with fire flow events evaluated at each proposed hydrant in the subdivision. The hydraulic model was updated to include water system improvements and extension of distribution mains through the subdivision as presented in the preliminary design drawings (C201 and C401-C404) submitted to the City by 3J Consulting, Inc. for the Type II Land Use permitting process (drawings dated 5/27/2015). The proposed subdivision consists of 79 single family residential lots. The proposed subdivision is located within the City’s existing Pressure Zone B, served by the Norwood Reservoirs at a nominal hydraulic grade of 400 feet above mean sea level (msl).

Analysis and Findings

The hydraulic model was updated as described above and fire flow performance tested at each hydrant in the subdivision. The proposed subdivision water distribution piping is 8-inch diameter throughout, with connection to existing water mains at:

- SW Sagert Street and SW 65th Avenue
- SW Borland Road at SW 61st Terrace
- SW Sagert Road west of SW 61st Terrace

A summary of specific model conditions for this analysis is presented below:

Demand Conditions: 2030 Maximum Day Demand

Fire Flow: 1,500 gpm

Physical Condition: Existing facilities plus proposed subdivision improvements

Model nodes representing proposed hydrants in the subdivision, the fire flow capacity tested, and the calculated minimum pressure within the area influenced by the fire flow in Pressure Zone B are summarized in Table 1 below:

**Table 1
Fire Flow Analysis Results**

Model Node ID	Location	Fire Flow Rate (gpm)	Minimum Pressure (psi)
J10002	SW Sagert St. at SW 64 th Terr.	1,500	41
J10010	SW 61 st Terr. at SW Borland Rd.	1,500	40
J10012	SW 61 st Terr. south of SW Sagert St.	1,500	40
J10018	SW 'E' St. east of SW 63 rd Terr.	1,500	41

Based on the findings of this analysis and a review of overall system improvement needs presented in the Water System Master Plan, the proposed subdivision water distribution piping improvements are adequately sized and no recommended upsizing for system transmission needs are recommended.

Please do not hesitate to contact us if you have any questions or comments in this regard. We would be happy to meet with you personally to discuss the findings presented in this memorandum.