



Submitted 5/19/15
Welcome CTR

May 19, 2015

RH2 ENGINEERING, INC.
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mailbox@rh2.com
1.800.720.8052

Mr. Mike Faught
Public Works Director
City of Ashland
51 Winburn Way
Ashland, OR, 97520

WASHINGTON
LOCATIONS

Sent via: Email and US Mail

Subject: Hydraulic Analyses for ODOT Welcome Center

BOTHELL
MAIN OFFICE
22722 29th Drive SE, Suite 210
Bothell, WA 98021

Dear Mr. Faught:

BELLINGHAM

This letter contains the results of the hydraulic analyses performed by RH2 Engineering, Inc., (RH2) for the proposed Oregon Department of Transportation (ODOT) Welcome Center. These analyses were performed using a computer model of the City of Ashland's (City) existing water system to determine the fire flow capability at the proposed site. This letter summarizes the results of the hydraulic analyses and the operational conditions used in the hydraulic model.

EAST WENATCHEE

ISSAQUAH

BACKGROUND

RICHLAND

A Welcome Center is currently being proposed by ODOT northeast of Interstate 5, south of the City's existing water system. It is anticipated that the fire flow requirement at the Welcome Center will be 1,500 gallons per minute (gpm) for 2 hours, and that an 8-inch water main will be installed to serve the proposed site as shown in **Figure 1**. The proposed water main will be connected to the existing 12-inch water main that crosses Interstate 5 in Crowson Road. The existing 12-inch water main in Crowson Road, and the proposed connection for the Welcome Center are located in the Crowson Zone Two, which has a maximum hydraulic grade of 2,218 feet (ft). Fire flow and normal domestic supply is provided to Crowson Zone Two from the Crowson Reservoir and Water Treatment Plant which are both in the Crowson Zone One that has a maximum hydraulic grade of 2,424 ft.

TACOMA

OREGON
LOCATIONS

HYDRAULIC ANALYSES CRITERIA

NORTHERN OREGON
MAIN OFFICE
6500 SW Macadam Ave. Suite 125
Portland, OR 97239

The computer model of the City's existing water system developed for the purposes of the TAP Emergency Supply Project was utilized as a basis for these analyses. The analyses assumed that the pressure zone improvements and the optimized PRV settings recommended for the TAP Emergency Supply Project were completed. All other PRV settings are as indicated in Table 1.4 of the City's *2012 Water Master Plan (WMP)*.

SOUTHERN OREGON
Central Point

The fire flow analyses were performed under 2015 Maximum Day Demand (MDD) conditions, with the Crowson Reservoir drawn down through the Crowson Service Area's operational and fire flow storage volumes, as indicated in the WMP. The operational and fire flow storage volume total of 1.77 million gallons (MG) results in a hydraulic gradient of 2,409.7 ft in the Crowson Reservoir. The estimated 2015 MDD in the WMP is approximately 7.27 million gallons per day (MGD).

CENTRAL OREGON
Bend



HYDRAULIC ANALYSES RESULTS

The existing water system computer model was modified to include the proposed water main extension to the Welcome Center as shown in **Figure 1**. Hydraulic analyses were performed to determine the fire flow capability of the water system with the proposed water main extension. The results of the analyses are shown in **Table 1**. The fire flow rates shown are based on a residual pressure of 20 pounds per square inch (psi) in the water main adjacent to the hydrant and water velocities in the distribution system at 8 feet per second (fps) or less. The results of the analyses indicate that an 8-inch water main extension from Crowson Road to the Welcome Center will provide the anticipated fire flow requirement of 1,500 gpm. The available fire flow with a larger diameter water main is also provided in **Table 1** in the event that the fire flow requirement changes over the course of the project design.

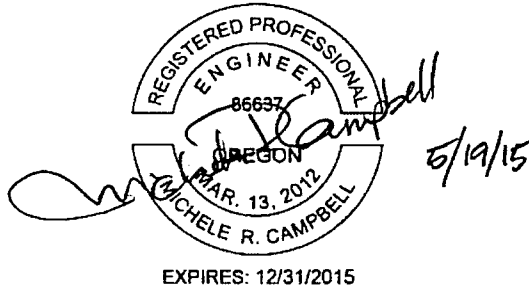
**Table 1
Fire Flow Analyses Results**

Node	Pressure (psi)	Available Fire Flow @ 20 psi (gpm)		
		8" Water Main Extension	12" Water Main Extension	16" Water Main Extension
J-103	53	2,027	2,618	2,617
J-104	53	1,679	2,400	2,618

If you have any questions regarding the analyses, please call me at (425) 951-5394. Thank you for the opportunity to assist you with this project.

Sincerely,

RH2 ENGINEERING, INC.



Michele R. Campbell, P.E.
Project Manager

TVP/MRC/dvl/jm

Attachments: ODOT Welcome Center Hydraulic Analyses, 5/15/2015

submitted 3/19/15
Welcome CTR

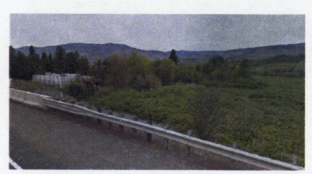
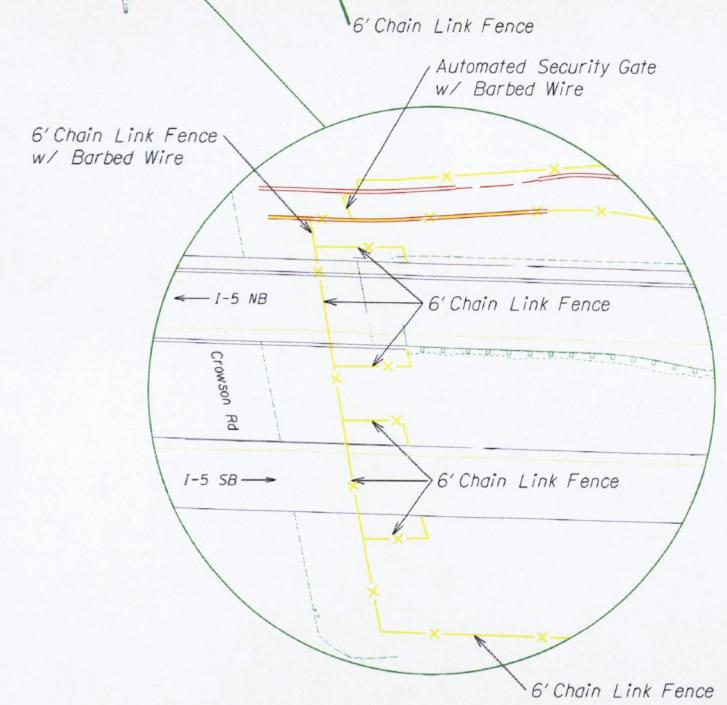


Photo A:
Looking East toward
Blackberries & Tolman Creek



Photo B:
Looking South
Perimeter Irrigation Ditch & Fence

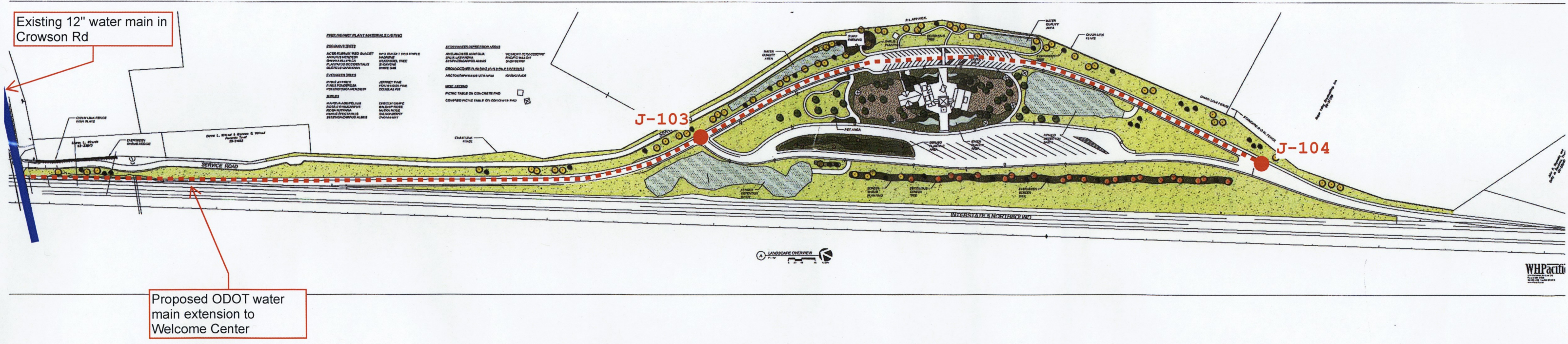
SISKIYOU SAFETY REST AREA
& WELCOME CENTER
FENCE LAYOUT



submitted 5/19/15
Welcome CTR

City of Ashland
ODOT Welcome Center Hydraulic Analyses
FIGURE 1
Fire Flow Analyses Results

RH2 Engineering, Inc.
5/15/2015



Node	Available Fire Flow @ 20 psi (gpm)		
	8" Water Main Extension	12" Water Main Extension	16" Water Main Extension
J-103	2,027	2,618	2,617
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