

Fred Tobias, Town Engineer
Town of Eagle
P.O. Box 509
Eagle, Colorado 81631

Subject: 410 Broadway (Lots 15 & 16, Block 22)
Water Demand Analysis

Fred:

410 Broadway, LLC has contracted Yarnell Consulting & Civil Design, LLC (YCCD) to design the grading, drainage, and utility elements of the proposed redevelopment of 410 Broadway with the associated parking and structure. This letter is intended to address the requirement of a "Water Demand Report" for the proposed Minor Development Permit.

Potable Water System

The proposed project will receive potable water service from an existing, public water main located within Broadway just west of the project site. Available pressures and volumes within the system are unknown but assumed to be adequate to continue providing domestic and fire suppression water service to the proposed building.

Presently, there is a single 4-inch combined domestic water and fire suppression service line into the west side of the property limits. The project has not commenced design of the internal plumbing system or even engaged a plumbing engineer at this point; therefore, the water demands cannot be estimated utilizing fixture counts. Alternatively, we propose to estimate the water demand based upon use. This approach is typically used for master planning large, municipal water systems and is a bit less accurate than fixture counts for a single building. However, it is the only option given the state of the project design.

There are proposed to be two (2) commercial spaces – each with a one-half (1/2) bath. These will be relatively low uses and are each estimated to utilize approximately 500 gallons per day (GPD). A total of 10 residential units are proposed. The owner estimates four (4) residents in each of the seven (7) two-bedroom units and three (3) residents in each of the three (3) one-bedroom units. This results in a total of 37 full-time residents in the building. If we assume 100 GPD per resident for water demand, this totals approximately 3,700 GPD for residential demand. When combining residential and commercial demands, the building is estimated to require 4,700 GPD. These flow rates will be confirmed with the plumbing engineer once on-board – prior to submitting for a building permit. There are minimal anticipated irrigation demands associated with this project.

Over a 16-hour day, this translates to approximately 4.9 gallons per minute (GPM). With a peaking factor of 10, the estimated maximum instantaneous demand is 49 GPM. With this flow rate easily being conveyed through a 4-inch service, no modifications are anticipated at this time for the existing water system outside of the building. This could change if the project's life safety engineer

(once on-board) determines that a 4-inch water service is insufficient to serve the fire suppression system. Our team will keep the Public Works Department abreast of this possible change as design progresses toward the building permit stage.

System limitations have not been disclosed to YCCD; therefore, it is assumed that this site redevelopment will not adversely impact the existing system beyond its designed capacity.

Sanitary Sewer

The site will continue to receive sanitary sewer service from an existing, public, 8-inch sanitary sewer system within the adjacent public alley right-of-way – west of and behind the subject parcel. Presently there is an existing 4-inch service to the building that is shared with the building to the south. As part of this project, the shared service will be disconnected at the main and a new, dedicated service connected to the main.

The project has not commenced design of the internal plumbing system; therefore, the required sanitary sewer service size cannot be confirmed at this stage. However, based upon YCCD's experience with similar projects, a 6-inch sanitary sewer service is likely to be required to serve the building.

Downstream system limitations have not been disclosed to YCCD; therefore, it is assumed that this site redevelopment will not adversely impact the existing system beyond its designed capacity.

Summary

In summary, the proposed redevelopment of 410 Broadway should have minimal impact on the existing, public water and sanitary sewer infrastructure.

Please let know if you have any further questions regarding this letter.

Sincerely,



Justin J. Yarnell, PE
Colorado PE Number 47241