

July 21, 2023

Jesse Winterowd
Winterbrook Planning
610 SW Alder Street, Suite 810
Portland, OR 97205

Subject: Supplemental information regarding use of concrete in the raw water pipeline tunnel
Re: Land Use Permitting

Dear Jesse:

Delve Underground was asked to provide additional information related to testimony about cellular concrete backfill and grout in the raw water pipeline tunnel located east of the Portland Water Bureau filtration facility site. We understand that concerns were raised related to the potential for concrete or grout used in the pipeline construction process to contaminate or otherwise interfere with ground water.

Concrete or grout materials used to fill the annular space around the tunnel pipes will be isolated within the tunnel. The materials are too thick to permeate and flow through the surrounding soils and are further encapsulated by the tunnel ground support system which consists of full perimeter steel sets and timber lagging.

Sincerely,



Mark Havekost, PE
Principal Engineer

cc: File

