



# Concept Sewer and Water Design Memo

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To: City of Spokane  
Planning Department

From: Zak Sargent, PE  
Spokane, WA

Reference: Deep Pine Overlook - PUD  
Concept Sewer and Water

Date: September 30, 2016

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This memorandum summarizes the concept layout for the water and sewer utilities to serve the proposed 94-lot development. Both sewer and water will be placed within the proposed streets per City of Spokane Standard Drawing W-113. The proposed lines for each utility will connect to existing City main lines located along US-195.

## Concept Sewer

Conforming to City of Spokane standards, sewer lines will be a minimum of 10-feet in depth and located along roadway centerlines. During final design, grades and sizes of pipes will be determined and confirmed. The following is a summary of the anticipated gravity collection system:

- Lots 89-94 will be collected by an 8-inch line running southeast along Cedar Street. Lots 72-88 and 36-46 will be collected by an 8-inch line running north along Cedar Street.
- Lots 13-16 will be collected in an 8-inch line running southwest Walnut Street. to the lift station. This line will also collect the lines located within Cedar Street from above.
- Lots 64-71 and 31-35 will be collected in an 8-inch line running southeast along Cedar Street. Lots 56-63 and 53-55 will be collected in an 8-inch line running northwest in Cedar Court. These lines will connect to a manhole at the intersection of Walnut and Cedar Court, which will outlet to the southwest along 32<sup>nd</sup> Ave.
- The 8-inch line from the intersection of Walnut and Cedar Court will continue to the west then north along Walnut Street picking up Lots 47-52, 1-12, and 17-30 to the lift station.

Individual residences will have gravity sewer connections and feed to the gravity based collection system. The collected flow will be brought to a lift station located across from Lot 13. This lift station will then pump and discharge to the existing City manhole located approximately 90-feet south of the project entrance north of US-195 on ramp. This manhole is served by an 8-inch line connecting across US-195 to a 27-inch sewer main. Discharging to this manhole will require a bridge crossing. Based on current layouts and projections, the lift station was conceptually sized using DOE "Orange Book" and City of Spokane Design Standards, 2007. The following is a summary of these calculations:

- Estimated 32,900 gpd average flow based on 350 gal/day/lot.
- A peaking factor of 4 was used to determine the peak flow of 131,600 gpd.
- Approximate maximum pumping capacity 120 gpm at 46-feet of total dynamic head.

## Design with community in mind



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**Reference: Deep Pine Overlook - PUD**

- Approximately 1,370 gallons of reserve volume storage will be required. Providing 1 hour along with a portable generator.

During final design, we will work with the City to adjust pumping rates and storage volumes to ensure that the proposed improvement fits within existing capacity limits.

**Concept Water**

Conforming to City of Spokane standards, water lines will be a minimum of 5.5-feet in depth and located a minimum of 9.5-feet from roadway centerlines to the north or east. Water will be fed to the system via a connection to an existing City 24-inch water main located approximately 280-feet north of the project entrance. Conceptually, it is anticipated that the development water supply will be through 8-inch lines feeding the residences and hydrants.

Hydrant spacing will be in conformance with fire department requirements ensuring hydrants are within 250-feet of all properties. Additional fire requirements are that all hydrants are capable of 1,000 gpm and that all residential units will have individual sprinkler systems.

As designs are still conceptual, the following will be completed during the final design stage:

- Stantec will work the City on a hydraulic study to verify that adequate water service can be provided for both domestic and fire flow.
- Plan and Profile construction plans conforming to City of Spokane Department of Engineering Services standards.
- Roadways will be designed to comply with fire access requirements as outlined in the Pre-Development Conference notes and the 2009 IFC with State and Local Amendments.

Additionally, any and all easement legal descriptions for the required sewer and water installations will be provided at the time of final design.

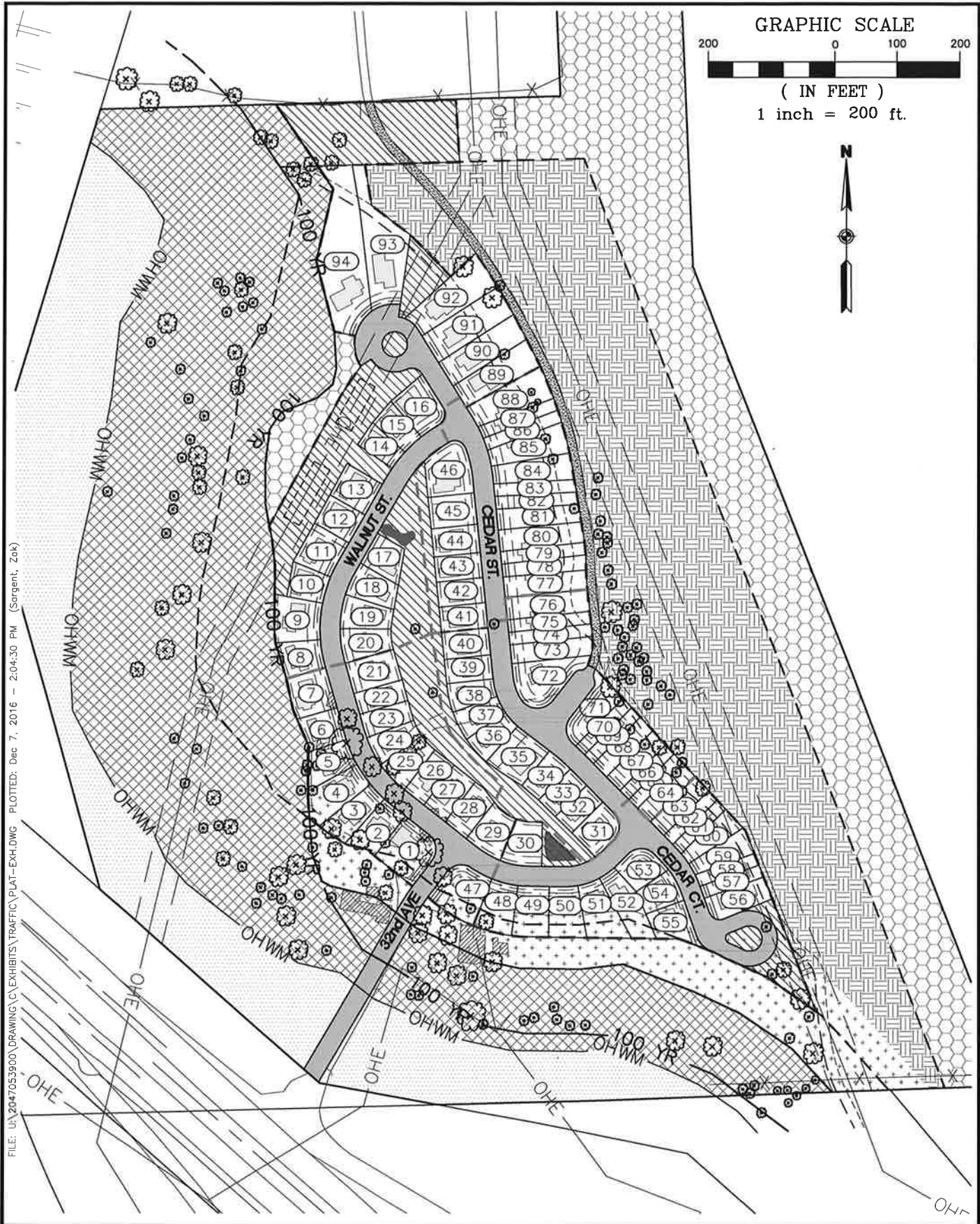
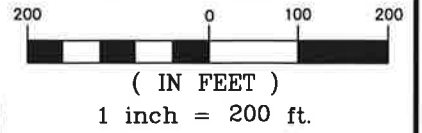
**STANTEC CONSULTING SERVICES INC.**

A handwritten signature in blue ink that reads "Zak Sargent".

Zak Sargent, PE  
Senior Civil Engineer  
Phone: (509) 340-1708  
Fax: (509) 328-0423  
zak.sargent@stantec.com

**Design with community in mind**

GRAPHIC SCALE



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**Stantec**  
 47 West Mallon Avenue, Suite 309  
 Spokane, WA  
 www.stantec.com

**DEEP PINE OVERLOOK**  
 City of Spokane, Washington

JRP LAND, LLC

Date 10/30/16  
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 Checked AEG  
 W.O. 2047053900

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