



Date: February 19, 2025

To: SDDANR
Reviewer

Engineer: Brandon Kruse, PE
Towey Design Group, Inc.

RE: City of Deadwood Watermain Extension Design Letter

Dear Review Team.

This letter is a design letter for the City of Deadwood Watermain Extension along Railroad Avenue. This project includes approximately 4600 LF of watermain to connect Zone 2 to the City Shop PRV. This connection provides additional redundancy in the system in case the existing high pressure (284 psi) watermain or the Denver Street Pumps fail.

WATERMAIN ROUTING

The proposed watermain connects to the existing fire hydrant located off of Sherman Street and Highway 14A. The watermain route goes within the public and private parking lots to avoid the Whitewood Creek Box Culvert then continues east up Railroad Avenue. There is a sanitary main located within Railroad Ave. The proposed watermain alignment is placed such that there are minimal crossings and maximum distance between water and sewer. This information is based on a topographic survey and based on GIS data. At the end of Railroad Ave, the watermain then travels down Sampson Street towards the city shop. The watermain connects to the existing PRV located near the City shop which serves Sampson Street homes. This connection will guarantee water will not stagnate in the proposed line while a future booster pump to feed the Deadwood hill tank is waiting to be constructed.

Fire Hydrants are located at safe locations along Railroad Ave the average spacing between hydrants is approximately 900'±. There will be a connection point at the Dudley Street water main, this connection will be valved off (valve shut) and be used as a back up to feed the upper portion of Deadwood's Zone 6 pressure zone.

Watermain Purpose

The watermain is part of a regional water facilities plan completed in 2023. This watermain is the first step in improving the redundancy of the water supply system in the City of Deadwood. This watermain will help provide water cheaper and more efficiently to the Sampson Street homes, as well as provide enough water for future developments. This watermain is also proposed to be the supply for a future booster pump system to help feed the Deadwood Hill Tank located just above the Lodge at Deadwood. The proposed watermain will contain a residual pressure of approximately 120 psi, with a pressure of 140 psi at the short portion near the City Shop PRV.



SAMPSON STREET

Sampson Street is a 13' wide road connecting Railroad Ave to the City Shop. This road has existing storm water runoff and vehicle clearance issues with vehicles bottoming out on the existing pavement. The watermain trench, is proposed to be on the east side of the road, away from the existing sanitary sewer. The existing storm sewer will be removed and relocated to the west side of the road. Additional inlet and storm pipe will be added to Sampson Ave to help improve the existing storm water management along Sampson Street.

CONCLUSION

The proposed improvements appear to meet local City design criteria. To the best of our knowledge and belief, there is no location where drainage leaving this site will adversely impact downstream river systems. In locations where the watermain is close to either hill side extreme caution should be taken before excavating near either hillside.

If you have any questions, feel free to contact us at 605.600.3758 or at brandon@toweydesigngroup.com.