LEI ENGINEERING & SURVEYING

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MEMORANDUM

To: West Coast Home Solutions, LLC	**From:** Greg J. Zartman, P.E.
Date: February 28, 2023	**Pages**: 2
Job Number: 60-11	
Subject: Preliminary Stormwater Detention Facility Sizing and Conveyance Analysis for Young Street Multi-Family Development, Woodburn Oregon	

Dear West Coast Home Solutions,

This memorandum presents a preliminary analysis of the stormwater detention and conveyance requirements for the proposed Young Street multi-family development in Woodburn, Oregon.

The City of Woodburn Stormwater Design Standards, found in Chapter 11 of the City of Woodburn Storm Drainage Master Plan, were used to perform this preliminary analysis. The design standards state that detention sizing shall be done using either the City's Detention Facility Sizing Table or the Santa Barbara Urban Hydrograph method. For this preliminary analysis, the City's Detention Sizing Table was used.

The City's Detention Facility Sizing Table states that for a 10-acre site development, 18,883 cubic feet of detention is required. The planned Young Street multi-family development is 3.28 acres in size, so detention of approximately 6,194 cubic feet is required using a ratio to the 10-acre detention requirement. An underground detention facility is planned using ADS Stormtech SC-740 stormwater detention and infiltration devices. Approximately 597 lineal feet of Stormtech SC-740 pipe is required for the planned detention facility, as shown on the preliminary civil engineering plans. The project geotechnical engineer performed a geotechnical investigation at the site and found that 0.9 in/hr of infiltration can be expected at the site. This infiltration will be incorporated into the Stormtech stormwater detention system to reduce the amount of detention needed at the site. Stormwater will be routed from the new onsite detention facility to a 12" diameter public stormwater pipe in Young Street to the north.

An alternative underground detention facility is under consideration for the planned site development using a pipe gallery of ADS N-12 stormwater pipes.

Finally, a preliminary conveyance analysis was performed for the planned site development to determine conveyance requirements to pass the 100-year design storm event, as overflow, from the planned detention facility to the public system in Young Street. HydroCAD Version 10 was used to perform a preliminary analysis of the development given the planned 75% impervious surfaces for the 3.28-acre development. This analysis shown that the 100-year design storm produces 3.59 cfs of stormwater run-off, as overflow, which can be conveyed to the public stormwater pipe in Young Street with a 12" diameter ADS N-12 stormwater pipe, with a headwater to depth ratio of 0.6.

Please don't hesitate to call or email me with any questions. Thank you.

Sincerely,
LEI ENGINEERING & SURVEYING OF OREGON, LLC

Greg J. Zartman, P.E.
Principal Engineer