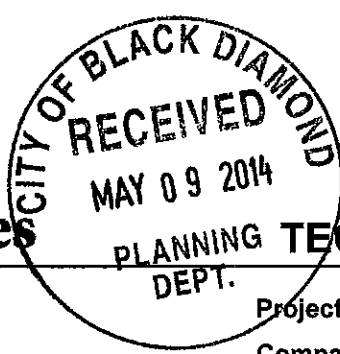


28f.

Response to comments regarding wetland hydroperiod
analysis, memorandum from Scott Stoneman and
James Johnson, (Golder Associates) to Colin Lund,
May 8, 2014



**Golder
Associates**



TECHNICAL MEMORANDUM

Date: May 8, 2014
To: Colin Lund
From: Scott Stoneman, PE; James G. Johnson, LG, LEG
cc: Al Fure, Triad Associates Inc.
RE: **THE VILLAGES - RESPONSE TO COMMENT REGARDING WETLAND HYDROPERIOD ANALYSIS**

Project No.: 063-1076-001.212
Company: BD Villages LP
Email: sstoneman@golder.com

This technical memorandum addresses Comment #6 of the Phase II Plat C Preliminary Plat Review regarding the wetland hydrologic analysis prepared by Triad Associates Inc. (Triad).

1.0 COMMENT #6

Hydrologic regimes play a major role in the biotic composition, structure, and function of wetland ecosystems. Pursuant to Section 7.4.3(B) and (G) of The Villages MPD Development Agreement (DA), post-construction hydrologic support of wetlands is required because wetlands could be adversely affected by hydrologic alteration caused by development. The preliminary drainage analysis prepared by Triad Associates has modeled the water budget in each subbasin in order to design roof drain infiltration trenches which will contribute water to wetland areas post-construction. We recommend that this approach be reviewed by the MDRT hydrogeologist to verify that no impact to wetland hydrology has been demonstrated and is consistent with wetland protection provisions relating to wetland hydroperiods described in the 2005 Ecology Stormwater Manual for Western Washington.

2.0 RESPONSE TO COMMENT #6

The City of Black Diamond adopted the 2005 Edition of the Department of Ecology's Stormwater Management Manual for Western Washington (SWMMWW), with the exception of Volume 1, which was replaced by Appendix 1 of the Western Washington Phase II Municipal Stormwater Permit (Phase II Permit), titled "Minimum Technical Requirements for New Development and Redevelopment."

The hydroperiod analysis methodology as referenced in Comment #6 was intentionally omitted from the Phase II Permit supplemental guideline adopted by the City of Black Diamond. Regardless, Golder Associates Inc. (Golder) conducted a review of the hydrologic methodology used by Triad in their Preliminary Drainage Analysis and found it to maintain the average annual recharge volume to the wetlands from pre-developed to developed project conditions. It is our opinion that the methodology used by Triad maintains the hydrologic conditions of discharges to the wetlands and meets the requirements of the 2005 Ecology Stormwater Manual for Western Washington as adopted by the City of Black Diamond

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and amended by the Phase II Permit. Therefore, we believe no substantial impact to wetland hydrology is demonstrated by Triad's preliminary drainage analysis.

We do recommend that during final engineering review of Phase 2 Plat C, an update to the preliminary drainage analysis be conducted by Triad to account for any subtle design changes from the preliminary plat design to the final engineering construction drawings.

GOLDER ASSOCIATES INC.



Scott Stoneman, PE
Senior Water Resources Engineer



James G. Johnson, LG, LEG
Principal

SS/JGJ/cb