



LEE'S SUMMIT MISSOURI

Aug. 21, 2018

Melissa DeGonia, P.E.
Olsson Associates
1301 Burlington St.
North Kansas City, MO 64116

**RE: Request for Waiver – Woodside Ridge Preliminary Development Plan - PL2018-103
City Engineer Approval of Specified Items**

**References: a) Woodside Ridge Preliminary Stormwater Drainage Study dated June 2018
b) Letter dated June 22, 2018 from Olsson Associates**

The City of Lee's Summit approves your request for the design exceptions listed below based on the request in the referenced letter dated June 22, 2018. Specifically, 5608.4(C)1 of the Design and Construction Manual is waived in terms of the requirement that the applicant provide detention in accordance with the Comprehensive Control Strategy at Point A1 shown on Exhibit A of the waiver request dated June 22, 2018. These exceptions may be incorporated into subsequent submittals necessary to complete the standard review and approval of construction plans by City Staff.

1. The request is a waiver to the peak rate control during the 2, 10, and 100 year storm events, and 40 hour extended detention for the 90% mean annual event to Point of Interest A1 shown on Exhibit 4 of the "Preliminary Stormwater Drainage Study" dated June 2018, and Point A1 shown on Exhibit A (attached) of the letter dated June 22, 2018 (attached).
2. Future peak flow rates to the above-referenced Point of Interest A1 shall be less than the existing peak flow rates to Point A1. In summary, the future peak flow rates will be reduced by 35 cfs for the 2 year event, 55 cfs for the 10 year event, and 76 cfs for the 100 year event.
3. The waiver is based on the findings contained in the "Woodside Ridge Preliminary Stormwater Drainage Study" dated June 2018.

SIGNED:

George M. Binger III, P.E.
City Engineer / Deputy Director of Public Works



MEMO

<input type="checkbox"/>	Overnight
<input type="checkbox"/>	Regular Mail
<input type="checkbox"/>	Hand Delivery
<input type="checkbox"/>	Other: _____

TO:	City of Lee's Summit Development Center
FROM:	Melissa G. DeGonia, PE
RE:	Woodside Ridge Detention Requirements
DATE:	June 22, 2018
OA PROJECT #:	018-1140
PHASE:	400
TASK:	400006



The following is a request for A waiver for detention requirements within Watershed A, relating specifically to Point A1. Refer to attached exhibit for watershed characteristics in relation to the property and proposed improvements.

Per APWA Section 5608.4 and City of Lee's Summit criteria, the performance criteria for detention is to provide detention to limit peak flow rates at downstream points of interest to maximum release rates:

- 50% storm peak rate less than or equal to 0.5 cfs per site acre
- 10% storm peak rate less than or equal to 2.0 cfs per site acre
- 1% storm peak rate less than or equal to 3.0 cfs per site acre

In lieu of matching these "allowable" release rates, the Future Conditions peak flow rates will be reduced to less than the Existing Conditions.

This waiver is requested due to several challenges in relation to detention design, described below. Due to these limitations, it is not possible to collect and detain as much runoff as would be necessary to reduce the peak flow rates fully to the standard onsite release rates.

- The watershed consists of steep slopes which are heavily vegetated, making detention basins difficult to construct.
- The tributary flowing through Watershed A generally follows the property line, which results in stormwater generally sheet flowing directly to the tributary, instead of channelizing to create points of discharge where detention can be effective.

- For several reasons, detention within the channel is not feasible or advisable.
 - The channel is protected by a stream setback zone, and should therefore not be disturbed without necessity.
 - The onsite area is a small portion of the watershed, so there is a significant amount of offsite bypass contributing to the main tributary.
 - Constructing a dam would capture most of the offsite runoff which would excessively cut back peak flow rates in the channel, possibly resulting in increased erosion in the channel and diminution of the existing natural habitat.
 - The channel straddles the property line in most places, so detention would be partially offsite, on several existing lots.
 - An existing sanitary sewer trunk main follows the channel, and would be located underneath any new detention facility in the channel.

While the "allowable" release rates will not be met at Point A1, peak flow rates will be reduced significantly from the Existing Conditions rates in all storm events. Additionally, over 90% of the paved areas within Watershed A are captured and diverted to a detention facility or the existing pond, providing runoff control for most of the new developed area in the watershed, and water quality treatment for most of the proposed streets.

Below is a summary of proposed flow rates in relation to existing and the "allowable" release rates. For more information, reference the Woodside Ridge Preliminary Stormwater Drainage Study.

Table 1. Future vs. Allowable Release Rates

	Q₁ (cfs)	Q₁₀ (cfs)	Q₁₀₀ (cfs)
Future	898.31	1528.00	2519.41
Allowable	839.45	1489.65	2426.53
Difference	58.86	38.35	92.88

Table 2. Future vs. Existing Release Rates

	Q₁ (cfs)	Q₁₀ (cfs)	Q₁₀₀ (cfs)
Future	898.31	1528.00	2519.41
Existing	932.86	1582.99	2595.35
Difference	-34.55	-54.99	-75.94

