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Associate City Engineer

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From: David W. Roache, P.E.  
Vice President of  
Development

Re: Washington Place  
Infiltration and Inflow Calculations

Pursuant to our meeting this morning regarding infiltration and inflow, the following methodology is proposed for calculating the net additional sewer flow that will be generated by the project and the resultant contribution at an 8:1 mitigation rate.

### Proposed Building Program

Washington Place is an approximately 224,000 GSF development consisting of 39,675 SF of commercial (Retail) space, a 2,300 SF community room, and 165 rental apartments. These rental apartments will include a mix of studio, 1-, 2-, and 3-bedroom units with a total of 229 bedrooms.

### Existing Development

On the property where the proposed development is to be located, there is currently over 81,000 GSF of development including 20 apartments with 37 bedrooms and 62,000 SF of retail and office space. By studying the water usage from October 2013 through April 2016, it was determined that the average existing water usage for the aggregate development was 4,247 GPD.

### Proposed Sewage Generation Rates

Washington Place will use exceptionally water-efficient fixtures and appliances all of which will be EPA WaterSense or Energy Star rated. Based on calculations performed by our team and studying the water usage on site it is proposed that a generation rate of 61 GPD/bedroom be used for the calculation of the residential flow. For the commercial flow it is anticipated that it will be a fairly typical retail center with no hair salons, laundromats or other high intensity users. For that reason, it is proposed that the conservative DEP Title V rate of 50 GPD/1000 SF be used.

### Infiltration and Inflow Calculation Proposal

As summarized in **Table 3** below, the projected net sewage generation rate for Washington Place is 11,821 GPD:

Table 3	GSF	Bedrooms	GPD/KSF	GPD/Bedroom	Total
<u>Program Use</u>					
Residential	181,895	229	-	61	13,969
Retail	39,675	-	50	-	1,984
Community Room	2,300	-	50	-	115
Less Existing					-4,247
<b>Total</b>	<b>223,870</b>	<b>229</b>			<b>11,821</b>

Applying an 8:1 Ratio at \$8.40 per GPD, the proposed contribution is:

$$11,821 \times 8 \times \$8.40 = \underline{\$794,371}.$$