

Hill Community Development Corporation

**Dry Weather Flow Calculation Report For
New Granada Theater Redevelopment**

April 2020

PREPARED BY:

COSMOS TECHNOLOGIES, INC.



DATA

Project Flow⁽¹⁾ (Q₀): 14,972.00 gpd

Hydraulically restricted segment⁽²⁾: 42" RCP in Dinwiddie St., between MH010N032 and MH010N031

Type of sewer: Combined

Hydraulically restricted segment

Parameter	Variable	Peak Flow	Full Pipe	Unit
Upstream Invert		944	944	ft
Downstream Invert		943	943	ft
Pipe Length	L	39.68	39.68	ft
Flow depth ⁽³⁾	h	10	42	in
Manning number	n	0.013	0.013	
Diameter	D	42	42	in

Notes:

(1) Project Flow from PWSA Water and Sewer Use Application Calculations

(2) Provided by PWSA Reviewer: Robert Herring, P.E. on August 1, 2019

(3) Measured by eholdings on 9/6/19 at 7:54 AM

CALCULATIONS**Selected method:**

METHOD 1 - Measured PEAK Flow (preferred method)

Peaking Factor (PF):

3.5 for combined sewers

Hydraulically restricted segment

Parameter	Variable	Peak	Full Pipe	Unit
Slope	S	2.5%	2.5%	
Angle	Θ	2.04	6.28	rad
Area	A	1.76	9.621	sf
Wetted Perimeter	P	3.57	10.996	ft
Hydraulic radius	Rh	0.492	0.875	ft
Flow	Q	20	160	cfs
		8913	71691	gpm
		12,834,235	103,235,174	gpd

RESULTS

	a. Design and/or Permitted Capacity (gpd)		b. Present Flows (gpd)		c. Projected Flows in 5 years (gpd) (2 years for P.S. ⁽⁶⁾)	
	Average Q_f/PF	Peak $Q_f^{(4)}$	Average Q_p/PF	Peak $Q_p^{(5)}$	Average Q_1/PF	Peak $Q_1=(Q_p+Q_0)\times 1.05$
Collection	29,495,764	103,235,174	3,666,924	12,834,235	3,854,762	13,491,668
Conveyance	29,495,764	103,235,174	3,666,924	12,834,235	3,854,762	13,491,668
Treatment	29,495,764	103,235,174	3,666,924	12,834,235	3,854,762	13,491,668

*Notes:**(4) Flow (Q) of the Hydraulically restricted segment under Full Pipe conditions**(5) Flow (Q) of the Hydraulically restricted segment under Peak conditions**(6) P.S. stand for pump stations.*