



ENGINEERING AND ENVIRONMENTAL SERVICES

Water and Wastewater Services

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Mehrdad Shooshtary
Arcadis
410 Albert Street, Suite 101
Mehrdad.shooshtary@arcadis.com

Date: February 26, 2024

Dear Mehrdad Shooshtary,

Re: 249-253 Sunview Street

Please find the results of the modeling simulations for boundary conditions requested on February 21st, 2024. The results include a figure showing the location of the node from the Region's model. Attached are a series of spreadsheets containing results for Average Day, Maximum Day demands and available fire flows for node JCT_19728 located south of the subject site. The diurnal 24-hour demand distribution accounts for the minimum hour and peak hour peaking factors. The maximum pressure on the average day represents the minimum hour, and the minimum pressure on the maximum day represents the peak hour.

Table 1 – Modeling Results

Node	Elevation (mASL)	Demand		Fire Flow Results	
		Ave Day (L/s)	Max Day (L/s)	Design Flow (L/s)	Design Pressure (m)
JCT_19728	338.00	2.72	3.27	583.5	22.3

A fire flow analysis shows the maximum flow available at a node with an associated design pressure during the maximum day scenario while maintaining the minimum design pressure of 14 m (140 kPa) at all nodes within the pressure zone.

If you have any questions, please contact me

A handwritten signature in blue ink, appearing to read "KD", followed by a horizontal line.

Kevin Dolishny P.Eng.
Senior Engineer, Water Services
c. 226.751.4551
e. kdolishny@regionofwaterloo.ca

WAT 4

University Ave W and Lester St

JCT_19728 Average Day 24 Hour Simulation

Time	Demand (L/s)	Head (m)	Pressure (m)
00:00 hrs	1.94	380.31	42.31
01:00 hrs	1.64	380.34	42.34
02:00 hrs	1.57	382.44	44.44
03:00 hrs	1.55	382.57	44.57
04:00 hrs	1.43	382.89	44.89
05:00 hrs	1.35	383.12	45.12
06:00 hrs	1.81	382.52	44.52
07:00 hrs	2.84	379.38	41.38
08:00 hrs	3.49	378.60	40.60
09:00 hrs	3.54	378.48	40.48
10:00 hrs	3.54	378.96	40.96
11:00 hrs	3.59	378.92	40.92
12:00 hrs	3.52	378.98	40.98
13:00 hrs	3.38	378.48	40.48
14:00 hrs	3.23	378.44	40.44
15:00 hrs	3.06	378.46	40.46
16:00 hrs	3.07	378.43	40.43
17:00 hrs	3.10	378.95	40.95
18:00 hrs	3.21	378.98	40.98
19:00 hrs	3.25	379.11	41.11
20:00 hrs	3.12	379.01	41.01
21:00 hrs	2.92	378.68	40.68
22:00 hrs	2.70	378.76	40.76
23:00 hrs	2.34	379.15	41.15

Average Day HGL:

379.75

Minimum Hour:

383.12

JCT_19728 Maximum Day 24 Hour Simulation

Time	Demand (L/s)	Head (m)	Pressure (m)
00:00 hrs	2.12	379.14	41.14
01:00 hrs	1.70	379.97	41.97
02:00 hrs	1.54	379.93	41.93
03:00 hrs	1.67	381.58	43.58
04:00 hrs	1.71	381.88	43.88
05:00 hrs	1.62	382.04	44.04
06:00 hrs	2.76	380.24	42.24
07:00 hrs	4.25	378.35	40.35
08:00 hrs	4.72	377.35	39.35
09:00 hrs	4.44	378.85	40.85
10:00 hrs	3.99	377.51	39.51
11:00 hrs	3.89	377.75	39.75
12:00 hrs	3.81	379.11	41.11
13:00 hrs	3.64	378.88	40.88
14:00 hrs	3.35	377.70	39.70
15:00 hrs	3.36	377.84	39.84
16:00 hrs	3.52	379.21	41.21
17:00 hrs	3.50	379.65	41.65
18:00 hrs	3.93	379.57	41.57
19:00 hrs	4.28	377.53	39.53
20:00 hrs	4.36	378.13	40.13
21:00 hrs	4.07	378.00	40.00
22:00 hrs	3.40	379.13	41.13
23:00 hrs	2.84	380.13	42.13

Maximum Day HGL:

379.14

Peak Hour:

377.35

Available Flow (L/s)	Residual Pressure (m)
0.0	41.2
20.0	40.9
40.0	40.6
60.0	40.3
80.0	40.0
100.0	39.6
120.0	39.2
140.0	38.8
160.0	38.4
180.0	37.9
200.0	37.4
220.0	36.9
240.0	36.3
260.0	35.7
280.0	35.1
300.0	34.4
320.0	33.7
340.0	33.0
360.0	32.3
380.0	31.5
400.0	30.7
420.0	29.9
440.0	29.1
460.0	28.2
480.0	27.3
500.0	26.4
520.0	25.5
540.0	24.5
560.0	23.5
583.5	22.3

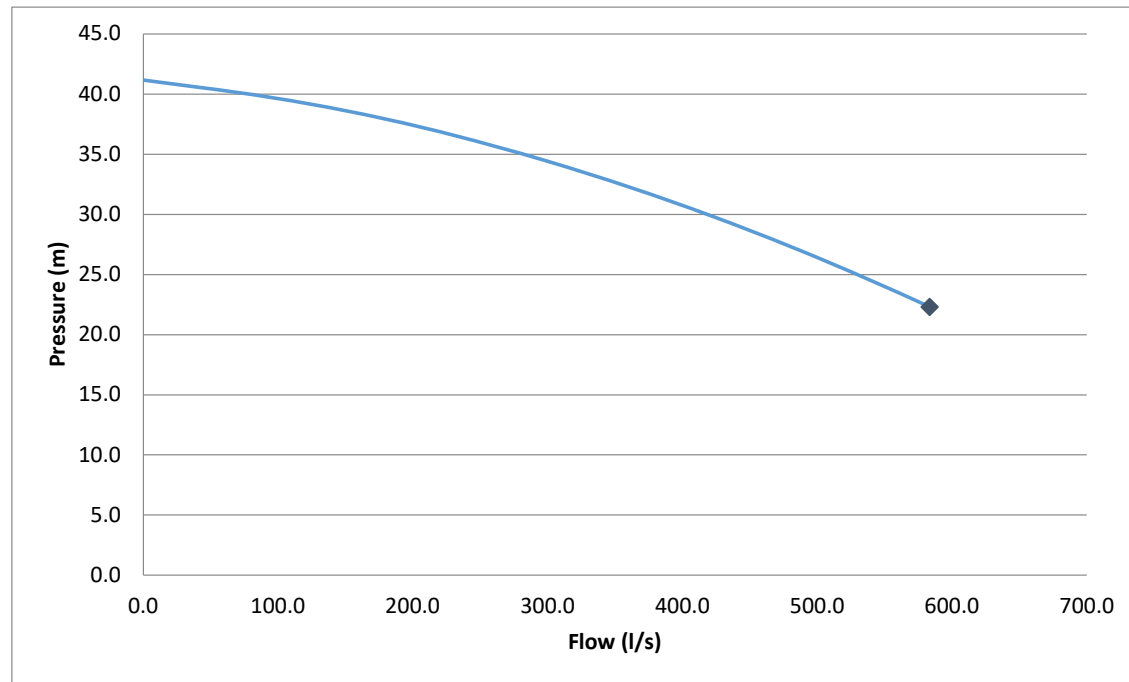
Fire Flow Analysis

Fire Flow Node:	JCT_19728
Design Flow (L/s):	583.5
Design Pressure (m):	22.3

Design Flow: The final adjusted flow at the node to maintain the minimum design pressure (14m (140 kPa)) at ALL locations within the pressure zone.

Design Pressure: The lowest allowable pressure at the node to maintain the minimum design pressure (14m (140 kPa)) at ALL locations within the pressure zone.

Critical Node ID: The constraining node within the pressure zone that drops to the minimum design pressure of (14m (140 kPa)) during the design flow.



Time: 2:24 PM Date: 2024-02-22 Author: isouthcott Document Path: I:\Info\Water\Modeling Requests\2024\Arcadis\249-253 Sunview Street\249-253 Sunview Street.aprx



Region of Waterloo

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- Junction
- Pipe
- Subject Site
- Assessment Parcels (MPAC)
- Regional Municipal Boundaries

249-253 Sunview Street