

# Cosmopolitan Homes (49 & 57 Folkard Lane) Servicing Brief

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## 1 BACKGROUND

The Greer Galloway Group has been asked to provide a Servicing Design Brief for the proposed Cosmopolitan Homes development in Prince Edward County. The subject property is located on County Road 49, approximately 2.1 km north of its intersection with Bridge Street. The proposed development includes a single parcel of land totaling 3.09 hectares (7.6 acres).

The subject lands are currently vacant and zoned Urban Residential Type 1 (R1-44). There are no lands within the subject property that are classified as environmentally protected (EP).

This document will speak to the anticipated drinking water and sanitary servicing demands and the ability for the adjacent urban infrastructure to accommodate those demands in support of the proposed development.

Stormwater, traffic and other development related concerns will be addressed separately under separate cover.

The proposed development will incorporate 111 residential units including a combination of bungalow townhouses and 3-storey townhouses. There are a total of 17 townhouses proposed as part of this development. The proposed development will also include a convenience store in the northwest corner of the lot. The exact distribution of the units is shown in the below table:

<b>SITE AREA:</b>	<b>31 893.79 m<sup>2</sup></b>	<b>100%</b>
<b>NUMBER OF UNITS:</b>	<b>111 UNITS</b>	
3 STOREY REAR GARAGE TOWNHOUSES, TYPE 'A'	25 UNITS	
BUNGALOW TOWNHOUSES WITH LOFT, TYPE 'B'	9 UNITS	
3 STOREY TOWNHOUSES, TYPE 'C'	53 UNITS	
3 STOREY BACK-TO-BACK TOWNHOUSES, TYPE 'D'	24 UNITS	
<b>R3-75-H - 71 UNITS</b>	<b>SITE AREA</b>	<b>15 180.21 m<sup>2</sup> - 100%</b>
<b>COVERAGE</b>		
BLOCK 1, 3 STOREY REAR GARAGE TOWNHOUSES, TYPE 'A', 5 UNITS	377.30 m <sup>2</sup>	
BLOCK 2, 3 STOREY REAR GARAGE TOWNHOUSES, TYPE 'A', 4 UNITS	303.37 m <sup>2</sup>	
BLOCK 3, 3 STOREY REAR GARAGE TOWNHOUSES, TYPE 'A', 6 UNITS	450.92 m <sup>2</sup>	
BLOCK 4, 3 STOREY REAR GARAGE TOWNHOUSES, TYPE 'A', 4 UNITS	300.14 m <sup>2</sup>	
BLOCK 5, 3 STOREY REAR GARAGE TOWNHOUSES, TYPE 'A', 6 UNITS	450.92 m <sup>2</sup>	
BLOCK 6, 3 STOREY BACK-TO-BACK TOWNHOUSES, TYPE 'D', 10 UNITS	590.10 m <sup>2</sup>	
BLOCK 7, 3 STOREY BACK-TO-BACK TOWNHOUSES, TYPE 'D', 6 UNITS	472.90 m <sup>2</sup>	
BLOCK 8, 3 STOREY BACK-TO-BACK TOWNHOUSES, TYPE 'D', 6 UNITS	357.09 m <sup>2</sup>	
BLOCK 9, 3 STOREY TOWNHOUSES, TYPE 'C', 8 UNITS	617.67 m <sup>2</sup>	
BLOCK 10, 3 STOREY TOWNHOUSES, TYPE 'C', 10 UNITS	771.31 m <sup>2</sup>	
BLOCK 11, 3 STOREY TOWNHOUSES, TYPE 'C', 4 UNITS	310.99 m <sup>2</sup>	
	<b>5 002.91 m<sup>2</sup></b>	
<b>COVERED PORCH</b>		<b>305.28 m<sup>2</sup></b>
	<b>TOTAL</b>	<b>5 308.19 m<sup>2</sup> - 34.97%</b>
<b>PAVED AREA (DRIVEWAYS)</b>	<b>4 926.50 m<sup>2</sup></b>	<b>- 32.45 %</b>
<b>LANDSCAPE AREA</b>	<b>4 945.52 m<sup>2</sup></b>	<b>- 32.58 %</b>
SOFT LANDSCAPE	3 661.46 m <sup>2</sup>	
HARD LANDSCAPE	1 234.89 m <sup>2</sup>	
STAIRS	29.17 m <sup>2</sup>	
<b>PARKING SPACES - 108 SPACES, INCLUDED:</b>		
GARAGE - 86 SPACES; SURFACE PARKING - 12 SPACES.		
<b>R3-76-H - 40 UNITS</b>	<b>MINIMUM LOT AREA - 152.32 m<sup>2</sup></b>	
	<b>SITE AREA</b>	<b>13 385.42 m<sup>2</sup> - 100%</b>
<b>COVERAGE</b>		
BLOCK 12, BUNGALOW TOWNHOUSES WITH LOFT, TYPE 'B', 9 UNITS	1080.60 m <sup>2</sup>	
BLOCK 13, 3 STOREY TOWNHOUSES, TYPE 'C', 6 UNITS	464.43 m <sup>2</sup>	
BLOCK 14, 3 STOREY TOWNHOUSES, TYPE 'C', 7 UNITS	541.15 m <sup>2</sup>	
BLOCK 15, 3 STOREY TOWNHOUSES, TYPE 'C', 6 UNITS	464.43 m <sup>2</sup>	
BLOCK 16, 3 STOREY TOWNHOUSES, TYPE 'C', 6 UNITS	464.43 m <sup>2</sup>	
BLOCK 17, 3 STOREY TOWNHOUSES, TYPE 'C', 6 UNITS	464.43 m <sup>2</sup>	
	<b>3 479.47 m<sup>2</sup></b>	
<b>COVERED PORCH</b>		<b>146.73 m<sup>2</sup></b>
	<b>TOTAL</b>	<b>3 626.20 m<sup>2</sup> - 27.13 %</b>



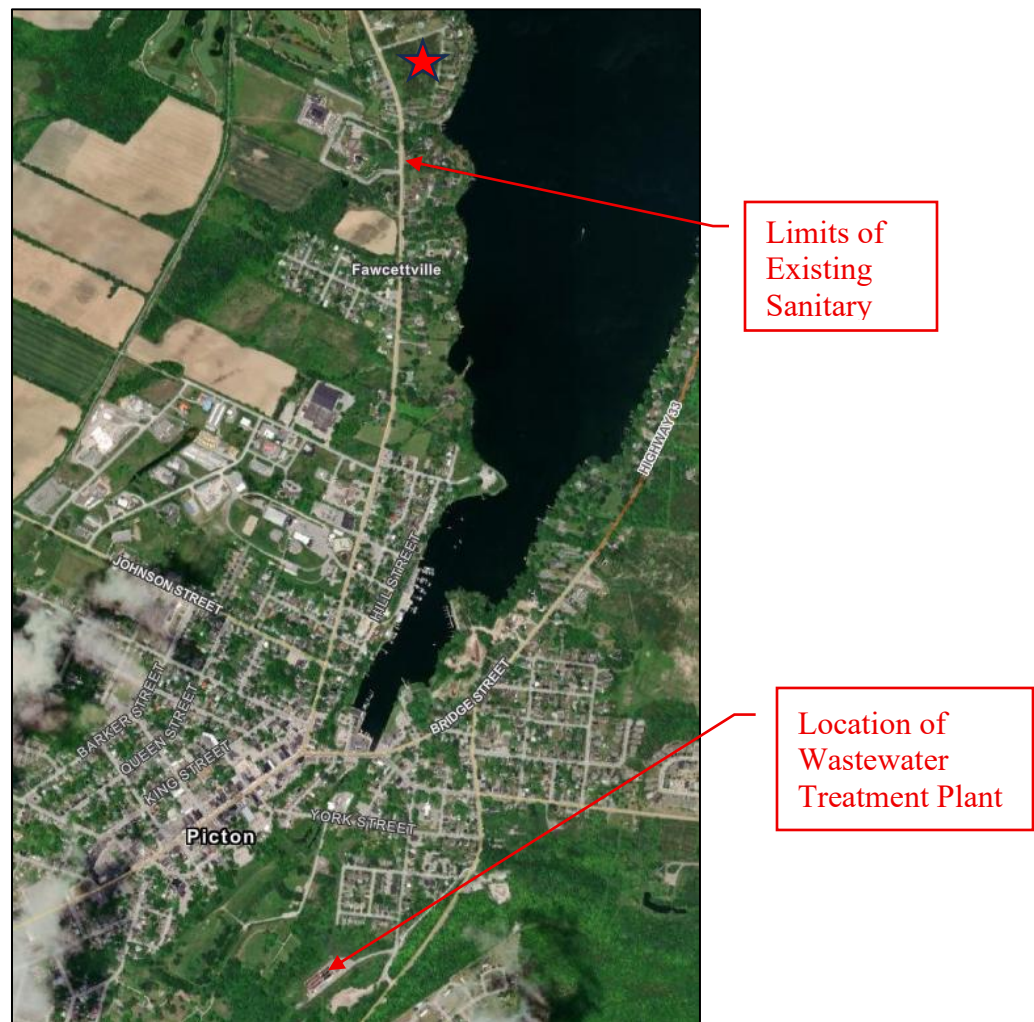
Image 2: Property Zoning (Prince Edward County Secondary Plan)





## 2 WASTEWATER CONVEYANCE AND TREATMENT

While the subject lands are not currently serviced by the existing Town of Picton wastewater collection system and treatment plant, they are in the urban boundary and included in the future service area.



The development property lands are shown by the star in the image above. The existing sewage collection system extends along Picton Main Street to just north of Finnegan Drive. All properties north of this area are presumed to be serviced by existing septic systems. It is the understanding of Greer Galloway that the County intends to extend the existing sanitary system to just north of the subject property as part of an upcoming infrastructure project. This expansion to the existing collection network will be required and will result in additional treatment loads at the wastewater treatment plant.

In the existing system, flows are collected and conveyed via a combination of gravity networks and pumping stations and ultimately directed to the Picton Wastewater Treatment Plant west of

Church / Pitt Street. Based on our preliminary review of the existing system, it is anticipated that the new sanitary sewer could be constructed in a manner that would permit the required Folkard Lane sanitary system to be conveyed via a gravity system. This is discussed in further detail in Section 2.2.

## 2.1 WASTEWATER TREATMENT PLANT

The Picton Wastewater Treatment Plant (WWTP) is located at 60 Church Street on the south side of Picton.

We have reviewed the documents available and provide the following summary of information:

Picton Master Servicing Plan (2024) – Wastewater Findings (October 2<sup>nd</sup> 2024 Public Meeting):

- Serves 4,573 people.
- Rated capacity of the plant is 6,000 m<sup>3</sup>/d.
- Sustainable plant capacity is 4,800 m<sup>3</sup>/d.

2023 Picton Wastewater Treatment Plant Annual Performance Report:

1. MECP Identifier Number: 120000667
2. Certificate of Approval #5464-AKATW7
3. Approved Capacity (Rated Capacity / Annual Average Daily Flow): 6,000 m<sup>3</sup>/day
4. Approved Capacity (Peak Daily Flow Rate): 26,400 m<sup>3</sup>/day
5. Flow records are summarized in the following report excerpts.

<b>Capacity Assessment: Influent and Effluent Quantities</b>				
Based on the 2023 flow data, the Picton Wastewater Treatment Plant maintained operations within approved capacity requirements as per Environmental Compliance Approval No. 5464-AKATW7.				
<b>Table 11: Influent Quantity; Flow Data, 2023</b>				
Month	Approved Capacity (Rated Capacity) <sup>1</sup>	Monthly Average	Approved Capacity (Peak Daily Flow Rate) <sup>2</sup>	Monthly Peak Flow
	m <sup>3</sup> /day	m <sup>3</sup> /day	m <sup>3</sup> /day	m <sup>3</sup> /day
January	6000	2402.90	26400	2899.08
February	6000	3694.28	26400	8700.72
March	6000	4448.13	26400	6242.90
April	6000	4214.77	26400	5778.94
May	6000	3367.21	26400	4882.22
June	6000	3046.50	26400	3936.16
July	6000	2433.36	26400	2973.17
August	6000	2007.21	26400	2352.67
September	6000	2013.84	26400	4172.76
October	6000	2117.46	26400	2713.45
November	6000	2542.48	26400	5308.81
December	6000	4932.96	26400	16448.88
<b>Annual</b>	<b>6000</b>	<b>3101.76</b>	<b>26400</b>	<b>5534.15</b>
<p><b>Note<sup>1</sup>:</b> As per ECA No. 5464-AKATW7, "Rated Capacity" is defined as the Annual Average Daily Flow for which the Sewage Treatment Plant is designed to handle. The Picton WWTP maintained an average daily flow within approved capacity requirements for the 2023 operational year.</p> <p><b>Note<sup>2</sup>:</b> As per ECA No. 5464-AKATW7, "Peak Flow Rate" is defined as the Peak Instantaneous Flow Rate, Peak Hourly Flow Rate or Peak Daily Flow Rate for which the Sewage Treatment Plant or treatment process unit or equipment is designed to handle, as appropriate. The Picton WWTP maintained Peak Daily Flow Rate within approved capacity requirements for the 2023 operational year.</p>				

**Table 12: Historical Influent Flows, 2014-2023**

Year	Total Influent Flow	Annual Average Daily Flow
	m <sup>3</sup>	m <sup>3</sup> /day
2014	1146429.54	3140.90
2015	865255.04	2370.56
2016	977265.12	2670.12
2017	1308584.33	3585.16
2018	1142974.13	3131.44
2019	1195875.12	3276.37
2020	1023748.86	2793.59
2021	858004.49	2350.70
2022	1130953.94	3098.50
2023	1290722.78	3536.23

We note that for the previous year, and historically, the wastewater treatment plant appears to operate under both its rated and sustainable capacity.

The current number of sanitary service connections is not specifically known however the 2024 Master Servicing Plan suggests the plant serves 4,573 people. If you presume, on average, each connection has 3 people this would reflect 1,524 service connections.

### Reserve Capacity Calculation

It is the position of the Province that the number of lots in approved plans of subdivision, developments committed by virtue of approved zoning, new official plans or site-specific official plan amendments, should not exceed the design capacity of the sewage and/or water system. To ensure that capacity is not exceeded it is necessary to determine what uncommitted reserve capacity is available.

To determine what capacity available at a municipal wastewater treatment plant the Ministry of Environment “Procedure D-5-1 Calculating and Reporting Uncommitted Reserve Capacity at Sewage and Water Treatment Plants” has been followed and summarized below:

$$C_u = C_r - (L \times F \times P)/H$$

$C_u$  = Uncommitted Hydraulic Reserve Capacity (m<sup>3</sup>/d)

$C_r$  = Hydraulic Reserve Capacity (m<sup>3</sup>/d)

L = Number of Unconnected Approved Lots

P = Existing Connected Population

H = Number of Households or Residential Connections

Wastewater Treatment Plant:

F = Average Day Flow per Capita (m<sup>3</sup>/capita/day)

(Note: In this calculation average day flow is used for wastewater treatment plants while max day flow is used for water treatment plants.)

From the Picton WWTP 2023 Annual Report we know:

Plant Rated Capacity = 6,000 m<sup>3</sup>/d  
Sustainable Plant Capacity = 4,800 m<sup>3</sup>/d  
Average Daily Flow = 3,101 m<sup>3</sup>/d\*

‘Sustainable’ Hydraulic Reserve Capacity (C<sub>r</sub>) = 1,699 m<sup>3</sup>/d

The number of unconnected approved lots includes:

1. Vacant lots/units in registered plans of subdivision and condominium.
2. Lots/units in draft approved plans of subdivision and condominium.
3. The maximum development potential of lands as permitted under existing zoning.
4. Registered plans of condominium.
5. Vacant lots created by consent in serviced areas.

For the purpose of this document the number of unconnected approved lots is assumed to be zero. This assumption is made to calculate the actual current hydraulic capacity available for additional development and acknowledges that only the Municipality will be aware of the status of all lands within the serviced boundary and therefore they are best equipped to determine if the calculated uncommitted reserve capacity is ultimately deemed acceptable.

Number of Unconnected Approved Lots (L) = 0

The existing Hydraulic Demand per lot is calculated by dividing Average Daily Flow 3,101 m<sup>3</sup>/d by the number of service connections 1,524 which equals 2.03 m<sup>3</sup>/d/connection.

If we consider the sustainable capacity, there is a Hydraulic Reserve Capacity of 1,699 m<sup>3</sup>/d. With a demand per connection of 2.03 m<sup>3</sup>/d there would be capacity at the wastewater treatment plant for approximately 837 additional connections.

The proposed development will include 111 residential connections and 1 commercial connection.

It is understood that Picton, and Prince Edward County in general, is seeing a great deal of development activity. While there appears to be capacity for the proposed development, it is likely that the wastewater reserve capacity at the treatment plant will be exceeded in the very near future by developments that are, or will soon be, requesting capacity allocations.

Additionally, it is understood that the County is aware of this development and may already be considering the potential impacts on the wastewater distribution system. The below image is

from a Public Consultation presentation from October 2024 and illustrates that the County is aware of the development. It should be noted that the number of proposed units has since been reduced from 164 to 111.

Development Name	Status	Total Units	Estimated Builds (Units)		Imminent?	Strong likelihood of immine	
			2025-2032	2033-2043		2025-2032	2033-2043
Talbot Ridge	Construction	25	25		Yes	25	0
West Meadows	Construction	550	550		Yes	550	0
Port Picton	Final Plan and Construction	200	200		Yes	200	0
Block 43 Condo	Site Plan Approved and Construction	8	8		Yes	8	0
Loyalist Heights	Second Submission	390	390		Yes	390	0
Barker Street/Anderson	Approved	500	400	100		0	0
Vineridge	Awaiting OLT Decision	560	300	260	Yes	300	260
Base 31	OPA Submission	7500	800	2000	Yes	800	2000
Talbot on the Trail	Construction	100	100		Yes	100	0
Cosmopolitan	Approved	164	164		Yes	164	0
Cork & Vine	Draft Plan Approved	2400	550	1850	Yes	550	1850
Tulip Subdivision	Third Submission	450	250	200		0	0
WBE PH1	Draft Plan Approved	176	150	26		0	0
80 Maple	Site Plan - needs Services	96	96		Yes	96	0
Former Duke Dome	Site Plan Approved	56	56		Yes	56	0
Sterling	Zoning Approved	253	253		Yes	253	0
Cold Creek	Technical Circulation	904	450	454	Yes	450	454
Fawcett	Statutory Public meeting	88	88		Yes	88	0
Wellings	Approved	65	65		Yes	65	0
Nicholas	Technical Circulation	104	104		Yes	104	0
Kaitlin (Wllngtn West)	Technical Circulation	60	60			0	0
<b>TOTAL</b>		<b>14649</b>	<b>5059</b>	<b>4890</b>		<b>4199</b>	<b>4564</b>

## 2.2 WASTEWATER COLLECTION & CONVEYANCE

The County has previously completed a Municipal Class Environmental Assessment Report, Picton Sanitary Sewer and Watermain Extension Study (2006) and Addendum (2011).

The Picton Master Servicing Plan for Water, Wastewater, and Stormwater Management currently underway will be updating the County’s plans as it relates to collection and conveyance plans. Until greater clarity on these plans is available, we will reference the 2011 plans.

When considering the sanitary servicing of the subject lands the following adjacent existing infrastructure is referenced in these earlier studies and relevant to this development:

1. Gravity sewer main ending just north of Finnegan Drive.

As we do not have access to the County’s sanitary network modelling, existing flows across the network are not known and comment cannot be provided.

The following is provided to estimate the anticipated development wastewater demands:

- Total number of residential units: 111

- 2008 Ministry of Environment Design Guidelines for Sewage Works recommends average daily domestic demands in the range of 225 – 450 l/capita/day.
- Being a new development with new fixtures, etc. it is likely that the demands will fall in the low end of this range.
- For the purpose of this estimate a conservative per capita daily demand in the middle of this range of 350 litres has been assumed.
- Assuming average occupancy of 3 people per residential unit, a total population of 333 people results – this is felt conservative as some of the housing styles are more likely to have fewer than 3 occupants but will be assumed for the purpose of this document.
- At 350 l/capita/day an average daily demand of 116,550 l/d (1.35 l/s) can be expected.
- A peaking factor of 4.06 (calculated based on the Harmon formula) would result in a peak daily demand of 5.48 l/s.
- As per MOE design guidelines, an allowance for extraneous demands resulting system leakage, unintended connections, etc. of an additional 0.87 l/s (0.28L/s/ha) is allowed for.
- Total peak daily demands in the order of 6.35 l/s have been calculated.
- This flow is roughly equivalent to the minimum sanitary gravity sewer size of 200mm installed at its minimum slope of 1.0% flowing 19% full; or a 300mm gravity sanitary sewer installed at its minimum slope of 1.0% flowing 7% full. It should be noted that there will be some additional flow from the proposed convenience store development. These flows are anticipated to be minimal and will not substantially affect the proposed sanitary infrastructure.

As previously noted, the servicing for this development is dependent on the construction of a future sanitary main on County Road 49 (Picton Main Street). To facilitate the use of gravity sewers at this development, two service connections will be required. These service connections will be located at each of the proposed entrances. The elevation of the County sewer will need to be a maximum of 90.48 m at the north entrance and 88.90 m at the south entrance to ensure the proper operation of the onsite gravity sewers. It is understood that this has been discussed with the County and that the necessary provisions are being made to accommodate this requirement.

A series of gravity sewer mains will be constructed following the internal road network within the development. These sewers will provide servicing to all 18 buildings within the development and will connect to the future sanitary main on County Road 49. While the following will be confirmed during detailed design, anticipated development sanitary sewer works are likely to include:

- A series of 200mm - 300mm diameter PVC gravity sanitary sewer mains.

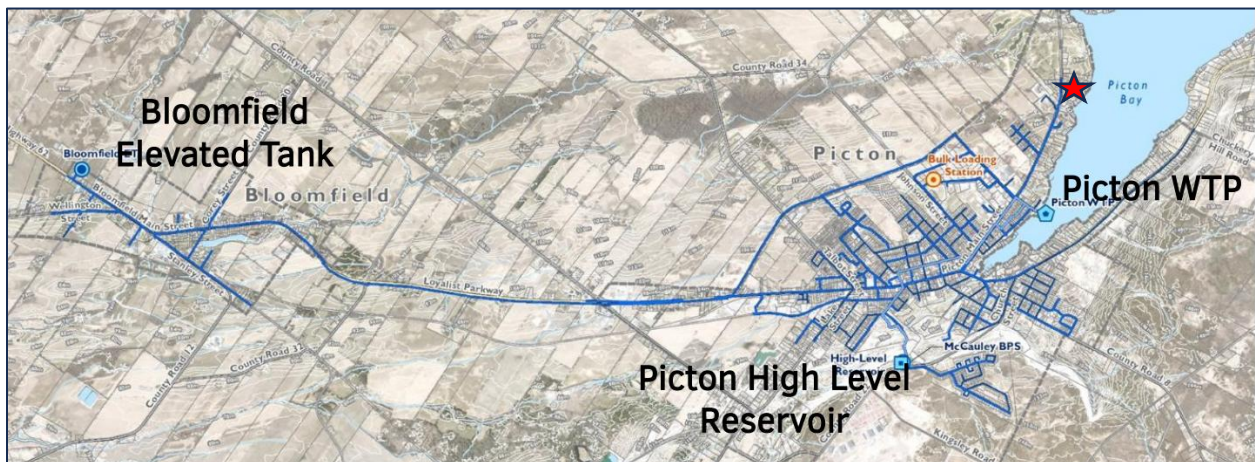
- Two service connections to the municipal sanitary main,
- 111 individual 125 mm diameter sanitary connections to the proposed buildings.
- 1200 mm manhole junction structures at all changes in horizontal sewer alignment or at maximum intervals as prescribed in the MOE design guidelines.

All collection works will be new construction and sized as required consistent with current standards and good practices under Ministry of Environment, Conservation and Parks Environmental Compliance Approval.

### 3 WATER SUPPLY & TREATMENT

#### 3.1 PICTON WATER TREATMENT PLANT

The Picton Water Treatment Plant is located at 30 Spencer Street and serves both the Town of Picton as well as the Village of Bloomfield approximately 7 km to the west.



The Cosmopolitan Homes development lands are shown by the star in the image above. The existing water distribution system extends to the subject property, and is scheduled to be upgraded as part of an upcoming infrastructure project.

Flows are conveyed from the water treatment plant location on the shore of Picton Bay at the end of Spencer Street. Water storage is provided by an at grade reservoir located on the escarpment on County Road 22.

As part of the development of the subject lands, an expansion to the existing distribution network will be required in addition to additional treatment demand at the water treatment plant.

Similar to the earlier wastewater comments, Prince Edward County has undertaken the Picton Master Servicing Plan for Water, Wastewater, and Stormwater Management.

Picton Master Servicing Plan – Drinking Water Findings (October 2<sup>nd</sup> 2024 Public Meeting)

- Constructed in 1928, upgraded in 2009.
- Serves 4,573 people.
- Rated capacity of the plant is 10,400 m<sup>3</sup>/d.
- Stress test capacity – 6,000 m<sup>3</sup>/d.
- Sustainable plant capacity based on staff experience = 5,200 m<sup>3</sup>/d.

2023 Picton Water Treatment Plant & Water Distribution System Annual Report

1. *Drinking Water System Number 220000987*
2. *Max Daily Capacity: 10,400 m<sup>3</sup>/day*
3. *Flow records are provided in the excerpt from the report below:*

<b>Picton DWS: Treated Water Flows 2023</b>				
<b>Month</b>	<b>Total Flow</b>	<b>Minimum Daily Flow</b>	<b>Average Daily Flow</b>	<b>Maximum Daily Flow</b>
	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>	m <sup>3</sup>
January	65279.50	1103.19	2105.79	3128.25
February	55053.71	1540.25	1966.20	2503.90
March	57144.74	1313.38	1843.38	2581.77
April	60396.31	1556.05	2013.21	3440.84
May	74468.93	1733.14	2402.22	3100.09
June	82282.84	1947.67	2742.76	5256.26
July	85567.50	2065.08	2760.24	3251.84
August	81733.88	1825.55	2636.58	3178.62
September	83006.37	2237.79	2766.88	3398.47
October	73130.73	1743.95	2359.06	2931.39
November	64007.10	1694.07	2133.57	2596.93
December	65092.37	1458.28	2099.75	2691.85
<b>Annual Total</b>	<b>847163.97</b>	<b>1103.19</b>	<b>2319.14</b>	<b>5256.26</b>

<b>Picton DWS: Treated Water Flow Comparison</b>		
Rated Capacity as per MDWL/DWWP	10400 m <sup>3</sup>	<b>% of Maximum</b>
Actual Maximum Daily Capacity	5256.26 m <sup>3</sup>	<b>50.54 %</b>
Actual Mean Daily Capacity	2319.14 m <sup>3</sup>	<b>22.29 %</b>

**Reserve Capacity Calculation**

The process for determining the reserve capacity of the drinking water plant is like that of the wastewater treatment plant and follows MOE Procedure D-5-1. The calculation is summarized below:

$$C_u = C_r - (L \times F \times P)/H$$

C<sub>u</sub> = Uncommitted Hydraulic Reserve Capacity (m<sup>3</sup>/d)

C<sub>r</sub> = Hydraulic Reserve Capacity (m<sup>3</sup>/d)

L = Number of Unconnected Approved Lots

P = Existing Connected Population

H = Number of Households or Residential Connections

Water Treatment Plant:

F = Maximum Daily Flow per Capita (m<sup>3</sup>/capita/day)

(Note: In this calculation max day flow is used for water treatment plants while average day flow is used for wastewater treatment plants.)

As noted previously, we know:

Plant Rated Capacity = 10,400 m<sup>3</sup>/d

Street Test Capacity = 6,000 m<sup>3</sup>/d

Sustainable Plant Capacity = 5,200 m<sup>3</sup>/d

2023 Maximum Daily Flow = 5,256 m<sup>3</sup>/d

\* It appears the sustainable plant capacity has already been exceeded when the sustainable capacity based on staff experience is considered.

Similar to the wastewater treatment plant, it appears likely that the imminent development demands will exceed plant capacity in the near future, if it hasn't already. This will be confirmed as part of the Picton Master Servicing Plan currently underway.

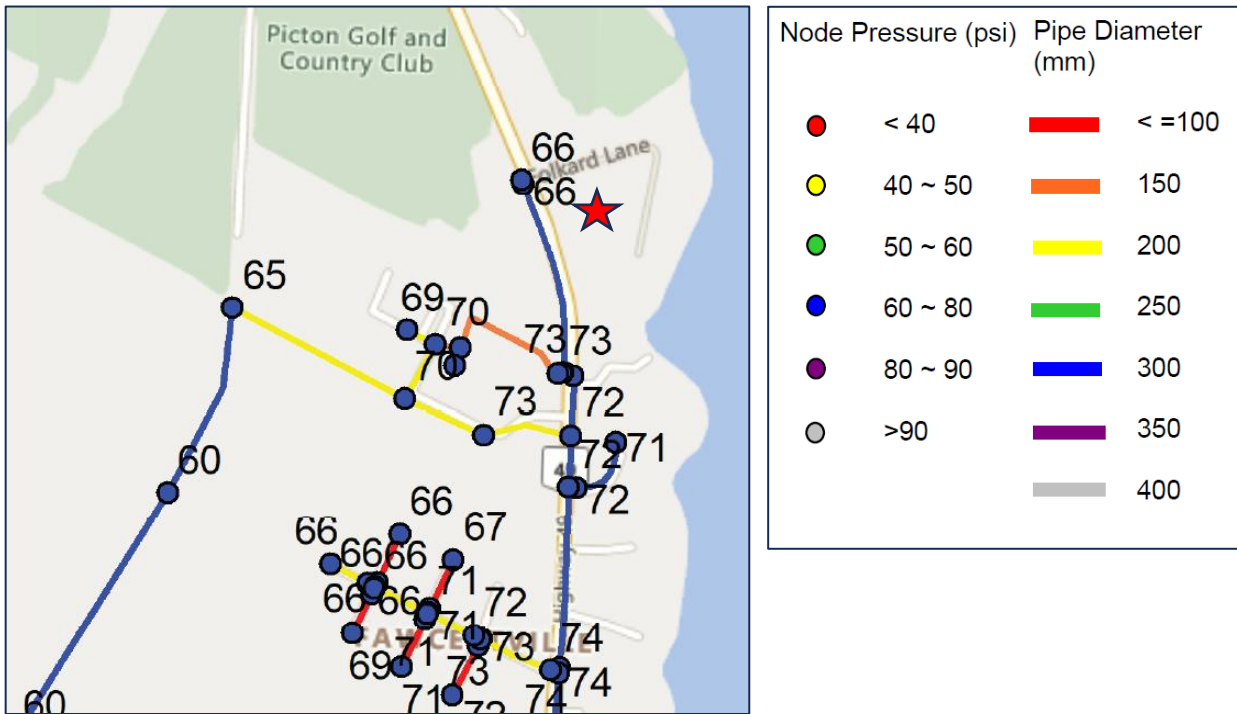
### **3.2 WATER DISTRIBUTION SYSTEM**

We understand the Municipality maintains a computer model of the Picton / Bloomfield water distribution system. We recommend the model be updated to include the proposed development to confirm the anticipated conditions.

The following can be provided based on the records and information provided by the County:

Water Network Conditions – December 2022

During ADD (Assumed to mean Average Day Demands)

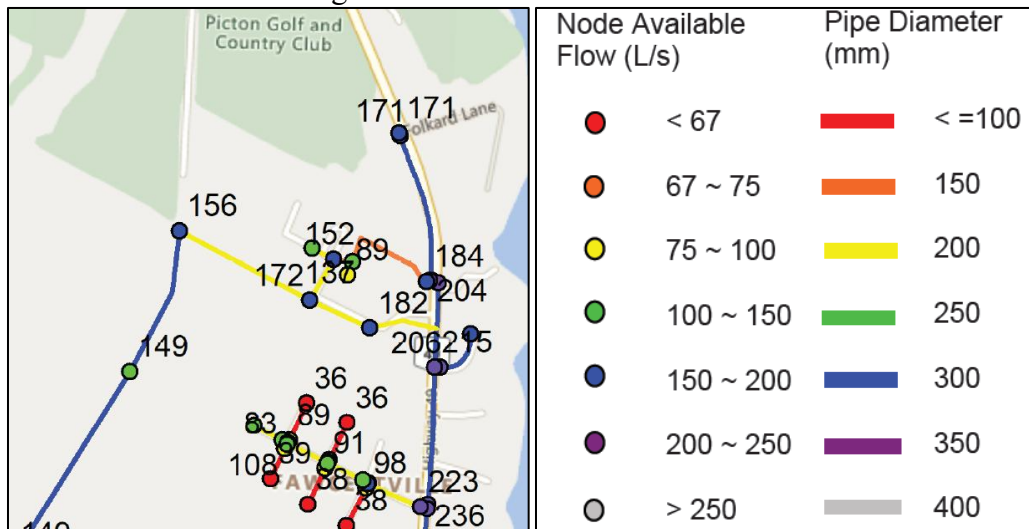


The approximate location of the subject lands are denoted by the star in the above image.

From these images, the following general observations can be made in the area of the development:

- Nodes immediately adjacent to the development indicate pressure at 66 psi.
- Nodes further south along Main Street see pressures increase to the 70-75 psi range.
- Existing pipe size on Picton Main Street is 300 mm.
- 

Data on available Fire Flow during MDD is shown below:



From these images, the following general observations can be made in the area of the development:

- Nodes immediately adjacent to the proposed development suggest fire flow capacity of 171 l/s (2710 USgpm).

Regarding anticipated static pressure for the proposed development, it is noted that the pressure is largely a function of elevation and with the proposed development being similar in elevation to the immediately adjacent points, it is likely that pressures similar to or higher than these will be found. MOE standards recommend normal operating pressures in the 50 psi to 70 psi range with a minimum of 40 psi. The available information suggests operating pressures for the development will meet these requirements.

It is noted that 3-storey townhouses are proposed as part of the development. It is recommended that the municipal model be updated to include this provision to ensure that the height the proposed units does not result in an unacceptable reduction in pressure at the upper floors.

Regarding fire flow for the proposed development, preliminary calculations have been completed based on the Fire Underwriters Survey (FUS) requirements. We understand the County references the FUS when assessing development approval processes.

For reference, calculations have been completed for a representative building in this development. The following assumptions have been made with respect to the proposed building in this calculation:

- Wood Frame Type 5
- Storeys: 3
- Largest townhouse building – 771 m<sup>2</sup> (10 units)
- No fire separations between units.
- Limited combustible interior.
- No sprinkler.

The FUS states that the required fire flow is calculated on the following basis:

$$RFF = 220C\sqrt{A}$$

RFF = the Required Fire Flow in litres per minute (LPM).

C = the Construction Coefficient related to the type of construction of the building.

A= the Total Effective Floor Area (effective building area) in square meters of the building.

The C value for Wood Frame Construction Type 5 is 1.5.

The Total Effective Floor Area is 771 m<sup>2</sup>.

Therefore, the unadjusted RPF is 9,163 LPM or 153 L/s.

The County maintains a computer model of their water distribution network which is not publicly available. We recommend the subject development be added to this community network to better determine the anticipated conditions prior to any conclusions being made regarding the ability to provide fire flow for the subject development.

#### **4 CONCLUSIONS**

The following summarizes the findings of this report as it relates to the proposed Cosmopolitan Homes Development:

##### ***Sanitary Servicing***

1. The Picton Master Servicing Plan suggests the wastewater treatment plant's actual capacity is significantly less than the rated capacity and will not provide sufficient capacity for many of the planned developments. Until this master plan is completed, the ability to service the subject lands and other developments will remain unclear. It should be noted that the proposed development has been included in planning documents published by the County in consideration of available servicing capacity.
2. The subject lands can be adequately serviced by gravity sewers if the proposed sanitary sewer on Main Street is constructed at the elevations noted in this report.
3. A sanitary main following the service roads on the property will connect to individual services for each unit. Two connections to the future sanitary main on County Road 49 will be required to convey flows to the municipal system.

##### ***Water Servicing***

1. The Picton Master Servicing Plan suggests the water treatment plant's actual capacity is significantly less than the rated capacity and will not provide sufficient capacity for many of the planned developments. Until this master plan is completed, the ability to service the subject lands and other developments will remain unclear. It should be noted that the proposed development has been included in planning documents published by the County in consideration of available servicing capacity.
2. There is an existing 300 mm watermain that fronts the proposed development. This watermain is anticipated to be replaced as part of an upcoming infrastructure project.
3. Pressures ranging from 50 psi to 70 psi with a minimum of 40 psi are required by the MOE. Based on existing records, it appears these pressure requirements can be met by the proposed development, but this should be confirmed by the municipal water network model.
4. Based on existing records, it appears fire flows in the range of 2710 USgpm are possible in the development, but this should be confirmed by the municipal water network model.

While example fire flow calculations are provided in this report, results must be confirmed based on actual building construction design. Should any concerns exist as it relates to the ability of the municipal network to supply the required fire flow, further consultation with the County will be required.

This report is provided in support of the proposed development on Folkard Lane. Understanding this is the initial step in the development application and approval process changes in the development plans can be expected. The statements made in this report are of a general nature and some variation in development conditions can occur without requiring revision or amendment.

Respectfully Submitted,



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