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Sifton Properties Limited

Conceptual Water Distribution Analysis

187 Dorchester Road

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Revision History

Rev #	Date	Revised By:	Revision Description
1	2019-07-17	JCB	Final Report Submitted
2	2020-07-06	JCB	Final Report Submitted – Updated Draft Plan of Subdivision

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AECOM: 2015-04-13

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1. Introduction

AECOM Canada Limited has been retained by Sifton Properties Limited to undertake the design study reports and to prepare the detailed servicing and grading design for the 187 Dorchester Road Residential Subdivision (Dorchester Subdivision); located in the town of Dorchester, ON, part of the Municipality of Thames Centre. The following represents the conceptual water servicing design study report prepared in support of the Dorchester Subdivision development.

To perform the hydraulic analyses, AECOM has created a hydraulic model using EPANET 2.0 software to complete the detailed design of the water distribution system for the Dorchester Subdivision. The model was created and used as the basis of the analysis to evaluate and assign watermain pipe sizing for the proposed development.

This report was prepared to determine the watermain pipe sizing through the Dorchester Subdivision development to meet the average day demands, peak hour demands, and maximum day demand plus fire flow conditions for the site development.

The hydraulic model incorporates connections to the existing 250 mm watermain along Dorchester Road and the 250 mm watermain on Byron Avenue. To estimate the average day demands throughout the Dorchester Subdivision, AECOM utilized the current Draft Plan of Subdivision (March 19, 2020).

1.1 Site Location

The Dorchester Subdivision will consist of approximately 21 ha of land including 166 residential lots, one medium-density/multi-family block, three medium-density/multi-family street-facing townhouses, and one commercial block.

The site is located near south limit of the town of Dorchester, ON, and is bound by existing commercial and residential buildings along Byron Avenue to the north, Dorchester Road to the west, the Dorchester Creek to the south, as well as existing residential subdivisions to the east.

1.2 Watermain Connection Locations

The existing watermain along Dorchester Road is a 250 mm diameter watermain which connects to the 250 mm watermain along Byron Avenue. There is an existing 200 mm connection provided at the proposed Byron Avenue entrance, directly south of the Canterbury Drive / Byron Avenue intersection.

Therefore, it is proposed to utilize the existing watermains along both Dorchester Road and Byron Avenue to create a looped system. The proposed development consists of five streets to service the residential lots, and the medium-density and commercial lots. This can be referenced on **Figure 1**, located in **Appendix A** of this report. The locations of the connections are as follows:

1. Dorchester Road – West side of subject development – existing 250 mm watermain (fed from the Municipal Wells south of Dorchester Creek); and,
2. Byron Avenue – North side of subject development – existing 250 mm watermain reduced to a 200 mm capped connection within the proposed right-of-way of Street C.

1.3 Scope of Work

The following is a brief summary identifying the scope of the work completed as part of this study:

a) Review the existing and planned infrastructure to prepare a hydraulic water model for the local area;
b) Calculate water demands and pressures at all nodes (junctions);
c) Calculate flow rate, velocity and water age for all pipes (links); and,
d) Conduct hydraulic analyses to confirm serviceability under Average Day Demand, Peak Hour Demand and Maximum Day Demand plus Fire Flow conditions.

1.4 Construction Phasing

There are no planned phases of construction proposed in association with the development and construction of the Dorchester Subdivision, and as a result the hydraulic model has been prepared using the full-site development as the only demand scenario. Although, there is no phasing strategy associated with the design study for draft plan approval, it is possible the subdivision may be constructed in separate stages; this is to be addressed during detailed design of the subdivision to confirm any temporary measures.

Refer to **Section 3.3** of this report regarding comments on water age and turnover.

1.5 Network Map

A ‘network map’ has been prepared that summarizes the nodes (junctions) identification, pipe (link) identification and the proposed watermain pipe sizes as incorporated into the hydraulic models.

For the water servicing network map, refer to **Figure 1** attached in **Appendix A** of this report.

2. Methodology

As the Municipality of Thames Centre does not have any published design guidelines for water distribution, the Municipality has directed AECOM to utilize the City of London design guidelines. The hydraulic design of the water distribution system has been prepared in accordance with *Chapter 7, Water Design Standards, Section 7.14, Hydraulic Modeling* of the City of London's 'Design Specifications and Requirements Manual-2019'.

Domestic Water Demands (*Section 7.3.2.2)* at each junction within the subdivision were based on the following:

- Average Daily Demand (A.D.D.) = 255 Litres/day/capita = 0.002951 L/s/c;
- Maximum Daily Demand = 3.5 x A.D.D.;
- Peak Hourly Demand = 7.8 x A.D.D.; and,
- Fire Flow = 76 L/s for low-density areas.

Population estimates for the Dorchester Subdivision site were based on the current site plan which is summarized below as follows:

Low-Density / Single-Family Residential

- 166 low-density / single-family residential lots

Medium-Density / Multi-Family Residential

- Area = 1.60 ha, 120 units, 288 population

Medium-Density / Multi-Family Residential – Street-Facing Townhouses

- Area = 1.45 ha, 109 units, 261 population

Mixed-Use/Commercial

- Area = 1.34 ha, 45 units (equivalent single-family residential), 134 population

Population density estimates were based on the following:

- Low-density / single-family residential = 3 persons lot / unit;
- Medium-density / multi-family residential = 2.4 people per unit (assumed 75 units / ha); and,
- Mixed-Used/Commercial = 100 people/ha.

2.1 Internal Population Estimate and Water Demands

Refer to **Table B-1**, attached in **Appendix B** of this report to review the average day demand, peak hour demand and maximum day demand plus fire flow demands assigned to each of the nodes throughout the Dorchester Subdivision site as included in the hydraulic model.

2.2 Design Criteria

Watermain design criteria established by the City of London were used in the analysis. The criteria for the watermain design are identified in section 7.3 of the *City of London's Design Specifications and Requirements Manual-2019.* The criteria are summarized below as follows:

"Watermains shall be sized to maintain the greater of:

- 7.3.1.i) Maximum day demand plus fire flow at a pressure not less than 140 kPa (20 psi) at any hydrant lateral or potential fire service connection. Pressures to be taken at the most critical locations;
- 7.3.1.ii) Maximum hourly demand at a pressure not less than 275 kPa (40 psi) in residential areas and not less than 310 kPa (45 psi) in industrial areas;
- 7.3.1.iii) Average day demand at a pressure not less than 275 kPa (40 psi) in residential areas;
- 7.3.1.iv) Maximum residual pressure must not exceed 690 kPa (100 psi, 70.3 m of water) and a minimum residual pressure shall not be below 275 kPa (40 psi);
- 7.3.1.v) Maximum hourly demand a t a pressure not less than 275 kPa (40 psi) in residential land usage areas and not less than 310 kPa (45 psi) in all other non-residential land usage areas; and,
- 7.3.6 - Maximum water velocities in any watermain pipes shall not exceed 1.5 m/s during maximum hour domestic flow or 2.4 m/s during fire flow conditions".

The following Hazen-Williams friction factors (C values) have been used in the hydraulic model:

Pipe Diameter	C-Factor
200 and 250 mm	110
100 and 150 mm	100

2.3 Boundary Conditions

To complete the hydraulic analysis, the watermains proposed to service the Dorchester Subdivision site were theoretically connected to the future upgraded low-pressure system watermains at the locations summarized in **Section 1.2** above and as shown on the network configuration map provided in **Appendix A** of this report.

The boundary conditions assigned in the hydraulic model are based on existing fire hydrant flow test data provided by the Municipality. Since there are no Municipal hydrants located on Dorchester Road between the wellhead and Byron Avenue, two hydrant tests were utilized on Byron Avenue, in proximity to Canterbury Drive and the proposed subdivision entrance. Hydrants D607 and D608 provided similar static and residual pressures when flowing two ports. The residual pressure of D608 was utilized as the boundary condition, as it was slightly less than that of the residual pressure at D607. This residual pressure of 41.8 psi was converted to metres of water, which is approximately 29.44 m, and applied to the ground elevation at the existing hydrant. This yields a hydraulic grade line of approximately 289.19 m to be used as an infinite reservoir in the EPANET 2.0 model. Refer to the hydrant flow tests in **Appendix A** for details.

3. Results

3.1 Average Day Demand, Peak Hour Demand Conditions, and Maximum Day Demand + Fire Flow

Hydraulic simulations were performed for the average day demand, peak hour demand, and maximum day demand plus fire flow conditions to assess the serviceability of the proposed development.

3.2 Hydraulic Modeling Analysis Results

3.2.1 Hydraulic Model (Nodes / Junctions)

A complete summary of the node identifications, demands, elevations and the maximum and minimum pressures for each of the demand scenarios are provided in **Table B-1**, located in **Appendix B** of this report.

A summary of the maximum and minimum results for the average day demand (A.D.D.), peak hour demand (P.H.D.) and maximum day demand plus fire flow conditions (M.D.D. + FF) is provided below in **Table 1** for each of the nodes / junctions in the hydraulic model.

Table 1 Minimum and Maximum Pressure Summary (Nodes / Junctions)

	Pressure (psi)								
	A.D.D.	**P.H.D.**	**M.D.D.+FF at HYD1**	**M.D.D.+FF at HYD3**	**M.D.D.+FF at HYD5**	**M.D.D.+FF at HYD8**	**M.D.D.+FF at HYD10**	**M.D.D.+FF at Node 2**	**M.D.D.+FF at Node 3**
Min.	43.92 (HYD5)	43.75 (HYD5)	42.10 (N7)	41.38 (N12)	39.26 (HYD5)	34.70 (HYD8)	40.88 (N19)	43.11 (HYD5)	43.11 (HYD5)
Max	47.41 (N3)	47.29 (N3)	46.49 (N3)	46.69 (N3)	46.77 (N3)	46.73 (N3)	46.72 (N3)	46.02 (N3)	45.03 (N2)

3.2.2 Hydraulic Model (Links)

A complete summary of the flow rates, velocities and water age for each pipe, under the average day demand and peak hour demand scenarios is provided in **Table C-1**, attached in **Appendix C** of this report.

The minimum and maximum flow rates, velocities, and water age calculated from the hydraulic model have been summarized below in **Table 2** for the average day demand and peak hour demand conditions for each pipe in the hydraulic model.

Table 2 Flow Rate, Velocity and Water Age Summary for Average Day Demand and Peak Hour Demand (Pipes)

Demands	Flow Rate (L/s)		Velocity (m/s)		Water Age (Hrs)	
	Min	Max	Min	Max	Min	Max
ADD	-1.33 (P17)	2.16 (P1)	0 (multiple)	0.040 (P1)	0.29 (P1)	28.20 (P26)
PHD	-10.36 (P17)	16.85 (P1)	0.01 (multiple)	0.34 (P1)	n/a	n/a

Average Day Demand

Based on a hydraulic analysis of the proposed water distribution system designed to service the site, all of the design criteria were satisfied under the average day demand condition.

Peak Hour Demand

A hydraulic analysis of the proposed water distribution system designed to service the site determined that all design criteria were satisfied under the peak hour demand condition.

Fire Flow Analysis Results

Fire flow calculations have been determined at several key fire hydrant locations within the proposed subdivision layout.

In accordance with Section 7.3.1(i) and Section 7.3.6 the City of London's *Design Specifications and Requirements Manual-2019,* all watermains shall be sized to maintain the greater of the two following design constraints during fire flow conditions:

1. Maximum day demand plus fire flow at a pressure not less than 140 kPa (20 psi) at any hydrant lateral or potential fire service connection. Pressures to be taken at most critical locations; and,

2. Maximum water velocities in any watermain pipes shall not exceed 1.5 m/s during maximum hour domestic flow or 2.4 m/s during fire flow conditions, unless otherwise approved by the City of London.

<u>Maximum Day Demand plus Fire Flow condition at Proposed Fire Hydrants</u>

A fire flow demand rate equal to 76 Litres / second was assigned to five (5) of the proposed 13 fire hydrants located within the proposed subdivision layout as well as the medium-density and commercial blocks, where their average day demand was added to the 76 Litres / second fire flow demand.

A complete summary of pressures at each node / junction in the hydraulic model under the maximum day demand plus fire flow condition for each hydrant is provided in **Table B-1**, attached in **Appendix B.** The theoretical pressure determined in the hydraulic model under the maximum day demand plus fire flow conditions are indicated below in **Table 3** for each of the fire hydrants.

The minimum and maximum velocities within the watermain distribution system pipe network determined in the hydraulic model under maximum day demand plus fire flow conditions are also summarized below in **Table 3**.

Table 3 Maximum Day Demand plus Fire Flow Conditions, Pressure Summary at Proposed Fire Hydrants and Minimum and Maximum Velocities in Pipe network

Hydrant	Demands	Pressure (psi)	Velocity Min.	Velocity Max.
HYD1	MDD+FF	42.46	0.02 (P31)	1.49 (P4)
HYD3	MDD+FF	41.46	0.00 (P31)	1.44 (P12)
HYD5	MDD+FF	39.26	0.04 (P3)	1.47 (P17)
HYD8	MDD+FF	34.70	0.04 (P3)	2.17 (P27-P28)
HYD10	MDD+FF	41.08	0.03 (P12-P13)	1.42 (P17)
Node 2	MDD+FF	43.76	0.01 (P31)	2.51 (P2)
Node 3	MDD+FF	44.82	0.01 (P31)	2.46 (P3)

As summarized in **Table 3** above and in **Table C-1** attached in **Appendix C**, there will be adequate pressure (greater than 20 psi) at each of the modelled fire hydrants under the maximum day plus fire flow demand scenarios at each proposed fire hydrant within the site.

The proposed watermain distribution system within the site has been sized to ensure the velocities in the watermain pipes are less than 2.40 m/s under maximum day demand plus fire flow conditions except for pipes P2 and P3. The velocity in pipes P2 and P3 will theoretically reach 2.51 m/s and 2.46 m/s, respectively, when a fire flow demand of 78.97 L/s and 77.38 L/s is applied at Hydrant Node 2 and Node 3, respectively. The theoretical velocity in pipes P2 and P3 will slightly exceed the design standard of 2.40 m/s; however, they do not excessively exceed this guideline and are still lower than the 3.0 m/s guidelines provided by the Ontario Ministry of the Environment, Conservation and Parks. It is proposed that during detailed design the watermain connections to these blocks should be updated to reflect actual expected demands and provide further detailed sizing.

3.3 Water Age / Water Turnover Analysis

In accordance with Section 7.3.5 of the City of London's Design Specifications and Requirements Manual - 2019 regarding Water Quality, all watermain networks shall be sized so that water shall not remain unused in the watermain system for more than three days (72 hours), under the average day demand condition. Based on the modeling results, no pipe length has a turnover time greater than 72 hours, with the maximum water age being 28.20 hours (P26).

As previously discussed, the system is to have two connections; one on Dorchester Road and the second on Byron Avenue, therefore creating a looped system; therefore, providing water turnover through the subdivision. Phasing of the subdivision has not been considered at this stage, and a water age / turnover analysis should be considered during detailed design if deemed necessary where any dead-end sections of watermain may occur.

3.4 Location and Spacing of Watermain Valves

The location and spacing of water valves are to be placed per *Section 7.7* of the City of London Design Standards and Specifications Manual – 2019 and will be confirmed during the detailed design of the subdivision. The locations of the proposed fire hydrants and the watermain distribution system throughout the subdivision are identified on the Network Map, **Figure 1**, attached in **Appendix A**.

For the purposes of this report, no watermain valve locations have been identified, and should be reserved for the detailed design of the proposed subdivision, once the proposed draft plan has been approved. However, as per City of London guidelines, the valves should be placed in logical locations such as at intersections and serve a maximum of 60 residential units and be placed no more than 250 m apart.

3.5 Proposed Watermain Sizing and Location

The following is a summary of the proposed watermain sizing for to be constructed within the Dorchester Subdivision site. Refer to overall network map provided as **Figure 1** attached in **Appendix A** for further information.

Subdivision Pipe Sizing

- Street ‘A’ – 250 mm watermain, transitioning to a 200 mm after the connection to the multi-family medium-density block and mixed-use/commercial block;
- Street ‘B’ – 200 mm watermain;
- Street ‘C’ – 200 mm watermain, 150 mm watermain between lots 34, 28-33, and 74;
- Street ‘D’ – 200 mm watermain;
- Street ‘E’ – 200 mm watermain;
- Medium-Density / Multi-Family Block – 200 mm capped water connection; and,
- Commercial Block – 200 mm capped water connection.

4. Conclusions

The conceptual water distribution system designed to service the Dorchester Subdivision for the purposes of Draft Plan of Subdivision approval will reasonably meet all applicable Municipality of Thames Centre design criteria (based on City of London Design Guidelines, 2019) for the average day demand, peak hour demand and maximum day demand plus fire flow conditions. Where average day demand and peak hour demand pressures are less than 40 psi.

The water distribution model assumes that the entire site has been constructed as a single-phase development.

Proposed connections to the existing Municipality of Thames Centre water distribution system are proposed as follows:

1. Street ‘A’: New connection through to the Dorchester Road 250 mm watermain; and,
2. Street ‘C’: New connection to existing 200 mm capped watermain to 250 mm watermain on Byron Avenue – 150 mm watermain between lots 34, 28-33, and 74.

Water age and turnover were evaluated for this conceptual report and meet the required guidelines; however, phasing of the subdivision is not yet available, and may require updating if deemed necessary where any dead-end sections of watermain may occur. The proposed subdivision watermain layout is a looped system, where continuous turnover will occur. If required, a water age and turnover analysis will be completed during detailed design where dead-end watermains occur due to construction staging.

5. References

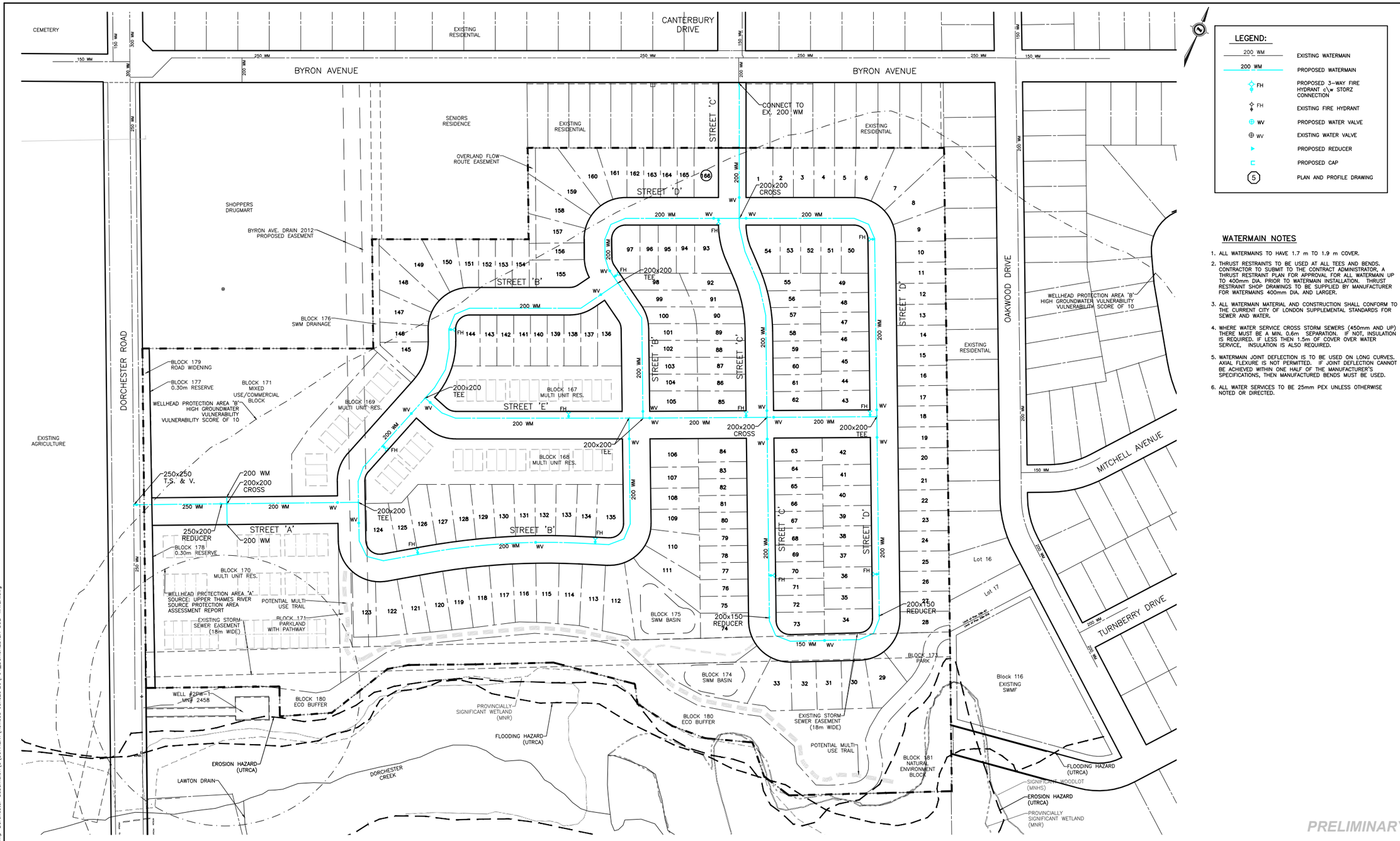
Corporation of the City of London. (2019). *Design Specifications & Requirements Manual.* London, ON: Corporation of the City of London. Retrieved from https://www.london.ca/business/Resources/Consultant-Resources/Documents/2018-Specs-and-Reqs/07-DSRM-2018-Water-Design-Standards.pdf

Appendix A

Water Distribution Analysis

187 Dorchester Road

- Water Area Plan – Network Map
- Hydrant Flow Tests
- EPANET Model
    - Average Day Demand Input / Output
    - Max. Day + Fire Flow Input / Output
    - Peak Hour Demand Input / Output



LEGEND:

200 WM	EXISTING WATERMAIN
200 WM	PROPOSED WATERMAIN
FH	PROPOSED 3-WAY FIRE HYDRANT c\w STORZ CONNECTION
FH	EXISTING FIRE HYDRANT
WV	PROPOSED WATER VALVE
WV	EXISTING WATER VALVE
	PROPOSED REDUCER
	PROPOSED CAP
5	PLAN AND PROFILE DRAWING

WATERMAIN NOTES

1. ALL WATERMAINS TO HAVE 1.7 m TO 1.9 m COVER.
2. THRUST RESTRAINTS TO BE USED AT ALL TEES AND BENDS. CONTRACTOR TO SUBMIT TO THE CONTRACT ADMINISTRATOR, A THRUST RESTRAINT PLAN FOR APPROVAL FOR ALL WATERMAIN UP TO 400mm DIA. PRIOR TO WATERMAIN INSTALLATION. THRUST RESTRAINT SHOP DRAWINGS TO BE SUPPLIED BY MANUFACTURER FOR WATERMAINS 400mm DIA. AND LARGER.
3. ALL WATERMAIN MATERIAL AND CONSTRUCTION SHALL CONFORM TO THE CURRENT CITY OF LONDON SUPPLEMENTAL STANDARDS FOR SEWER AND WATER.
4. WHERE WATER SERVICE CROSS STORM SEWERS (450mm AND UP) THERE MUST BE A MIN. 0.6m SEPARATION. IF NOT, INSULATION IS REQUIRED. IF LESS THEN 1.5m OF COVER OVER WATER SERVICE, INSULATION IS ALSO REQUIRED.
5. WATERMAIN JOINT DEFLECTION IS TO BE USED ON LONG CURVES. AXIAL FLEXURE IS NOT PERMITTED. IF JOINT DEFLECTION CANNOT BE ACHIEVED WITHIN ONE HALF OF THE MANUFACTURER'S SPECIFICATIONS, THEN MANUFACTURED BENDS MUST BE USED.
6. ALL WATER SERVICES TO BE 25mm PEX UNLESS OTHERWISE NOTED OR DIRECTED.

PRELIMINARY

EXISTING SERVICES	DRAWING #, SOURCE	DATE	AS CONSTRUCTED SERVICES	COMPLETION

DETAILS	
DESIGN	RJG/JCB
DRAWN BY	RJG
CHECKED	RDM
APPROVED	JCB
DATE	OCT. 2018

No.	REVISIONS	DATE	CONSULTANT

CONSULTANT OR DIVISION

AECOM
London, Ontario
519.673.0510

ENGINEER'S STAMP

MUNICIPALITY OF Thames Centre

SCALE

SCALE – 1 : 1250
10 0 25m

DORCHESTER SUBDIVISION
SIFTON PROPERTIES LIMITED

WATER AREA PLAN

PROJECT No.	SHEET No.	PLAN FILE No.
60568894	4	

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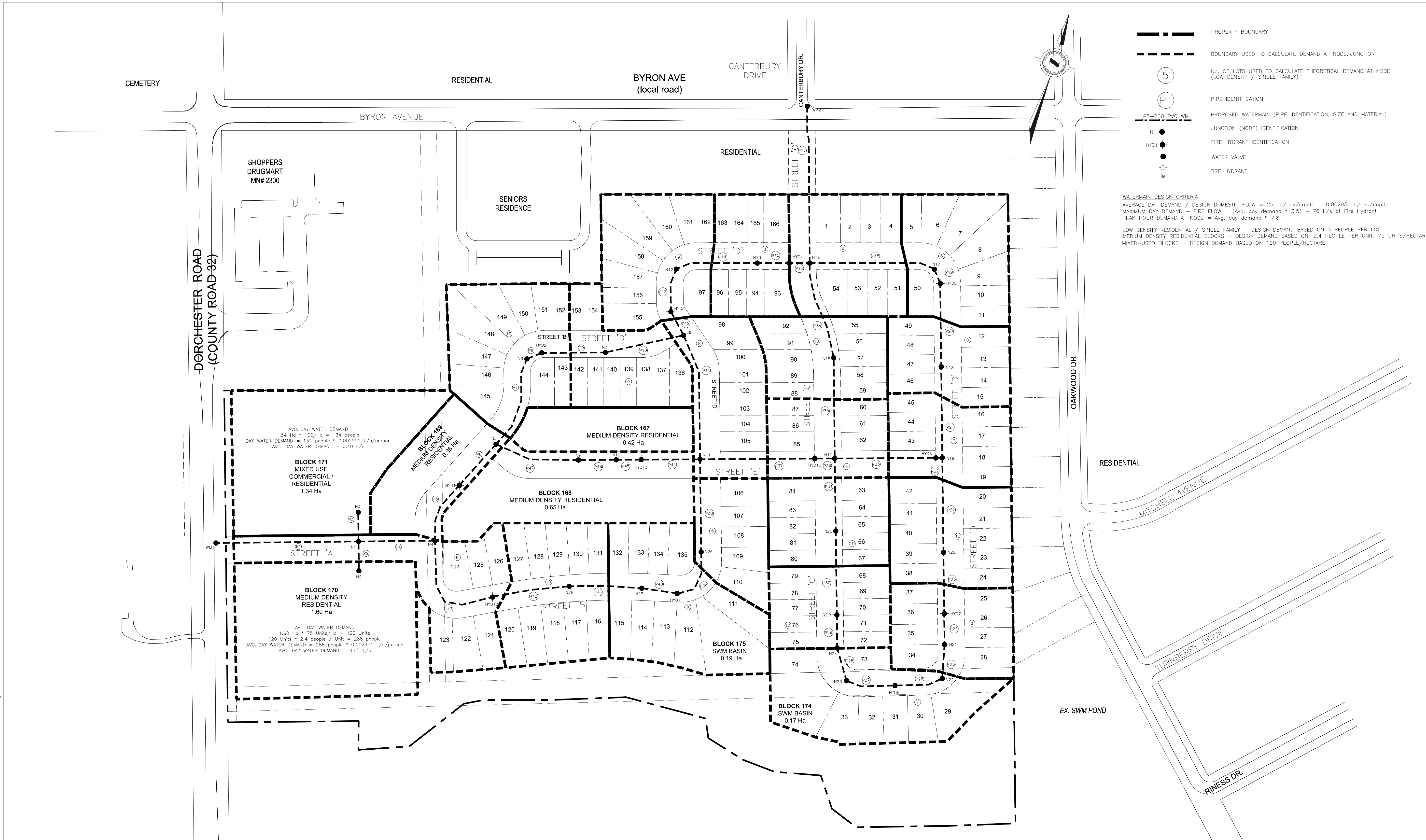

EXISTING SERVICES	DRAWING #, SOURCE	DATE	AS CONSTRUCTED SERVICES	COMPLETION	DETAILS	No.	REVISIONS	DATE	CONSULTANT
					DESIGN				
					DRAWN BY				
					CHECKED				
					APPROVED				
					DATE				

CONSULTANT OR DIVISION

AECOM
London, Ontario
519.673.0510

ENGINEER'S STAMP

SCALE
NTS

WATER DISTRIBUTION MODEL SCHEMATIC

187 DORCHESTER ROAD

PROJECT No.
60568894

SHEET No.
1

PLAN FILE No.

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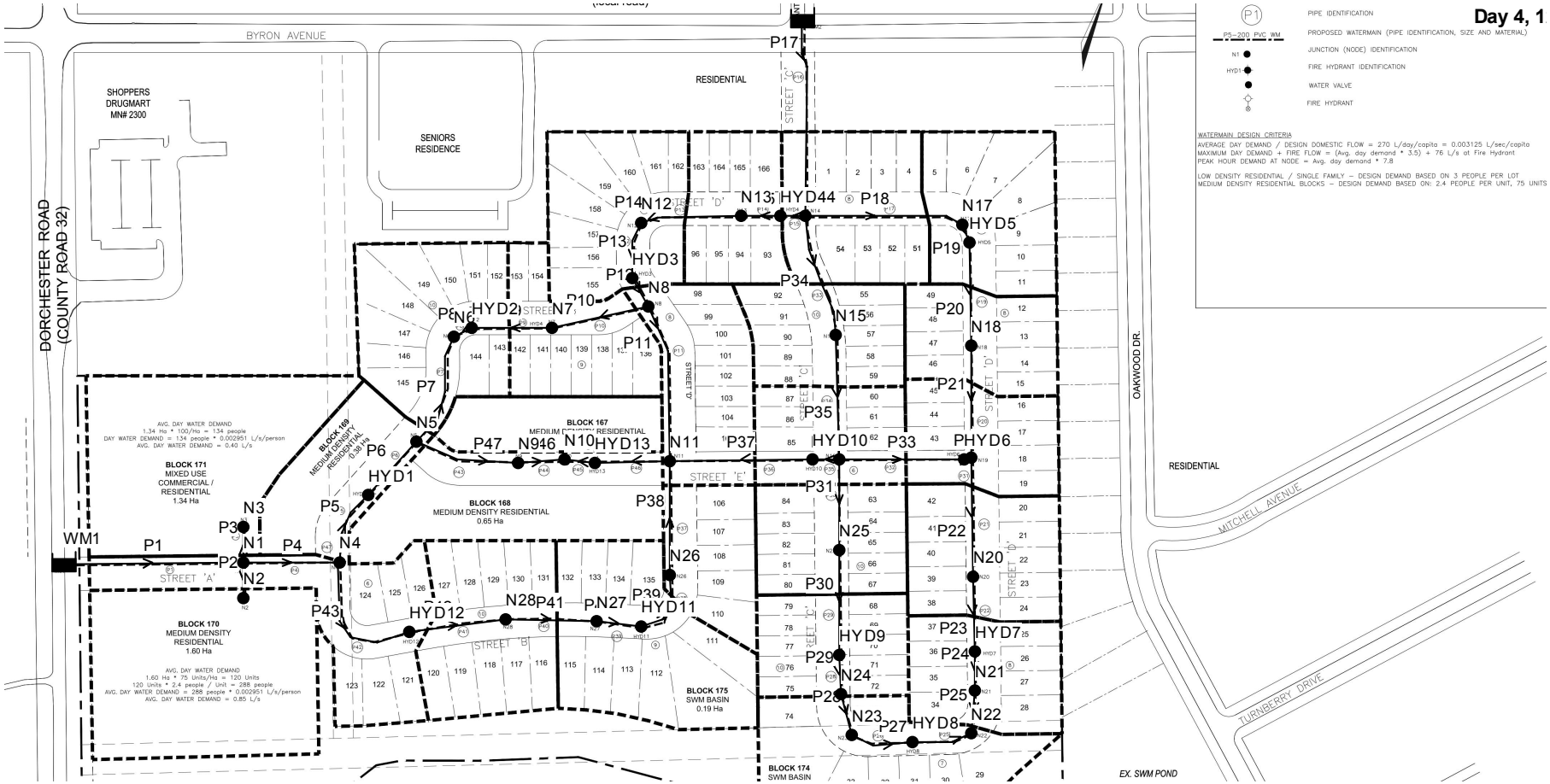
Day 4, 1
PIPE IDENTIFICATION
PROPOSED WATERMAIN (PIPE IDENTIFICATION, SIZE AND MATERIAL)
JUNCTION (NODE) IDENTIFICATION
FIRE HYDRANT IDENTIFICATION
WATER VALVE
FIRE HYDRANT
WATERMAIN DESIGN CRITERIA
AVERAGE DAY DEMAND / DESIGN DOMESTIC FLOW = 270 L/day/capita = 0.003125 L/sec/capita
MAXIMUM DAY DEMAND + FIRE FLOW = (Avg. day demand * 3.5) + 76 L/s at Fire Hydrant
PEAK HOUR DEMAND AT NODE = Avg. day demand * 7.8
LOW DENSITY RESIDENTIAL / SINGLE FAMILY – DESIGN DEMAND BASED ON 3 PEOPLE PER LOT
MEDIUM DENSITY RESIDENTIAL BLOCKS – DESIGN DEMAND BASED ON: 2.4 PEOPLE PER UNIT, 75 UNITS
BYRON AVENUE
DORCHESTER ROAD (COUNTY ROAD 32)
SHOPPERS DRUGMART MN# 2300
SENIORS RESIDENCE
RESIDENTIAL
OAKWOOD DR.
MITCHELL AVENUE
TURNBERRY DRIVE
EX. SWM POND
BLOCK 167
MEDIUM DENSITY RESIDENTIAL
BLOCK 168
MEDIUM DENSITY RESIDENTIAL
0.65 Ha
BLOCK 169
MEDIUM DENSITY RESIDENTIAL
0.36 Ha
BLOCK 170
MEDIUM DENSITY RESIDENTIAL
1.60 Ha
BLOCK 171
MIXED USE COMMERCIAL / RESIDENTIAL
1.34 Ha
BLOCK 174
SWM BASIN
BLOCK 175
SWM BASIN
0.19 Ha
STREET 'A'
STREET 'B'
STREET 'C'
STREET 'D'
STREET 'E'
WM1
P1
P2
P3
P4
P5
P6
P7
P8
P9
P10
P11
P12
P13
P14
P15
P16
P17
P18
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N28
N946
HYD1
HYD2
HYD3
HYD4
HYD5
HYD6
HYD7
HYD8
HYD9
HYD10
HYD11
HYD12
HYD13
HYD44

```
******************************************************************
*                          E P A N E T                           *
*                  Hydraulic and Water Quality                   *
*                  Analysis for Pipe Networks                    *
*                        Version 2.0                             *
******************************************************************
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Input File: MODEL-2020-06-01-AverageDayDemand-Dorchester-60568894.net

Link - Node Table:

Link ID	Start Node	End Node	Length m	Diameter mm
P1	WM1	N1	106.0	250
P2	N1	N2	21.7	200
P3	N1	N3	21.7	200
P4	N1	N4	56.8	200
P5	N4	HYD1	47.2	200
P6	HYD1	N5	41.1	200
P7	N5	N6	70.0	200
P8	N6	HYD2	11.8	200
P9	HYD2	N7	47.3	200
P10	N7	N8	59.5	200
P11	N8	N11	94.5	200
P12	N8	HYD3	19.9	200
P13	HYD3	N12	32.5	200
P14	N12	N13	61.0	200
P15	N13	HYD4	23.8	200
P16	HYD4	N14	15.1	200
P17	N14	WM2	116.6	200
P18	N14	N17	93.4	200
P19	N17	HYD5	11.5	200
P20	HYD5	N18	61.8	200
P21	N18	N19	67.7	200
P22	N19	N20	70.3	200
P23	N20	HYD7	45.4	200
P24	HYD7	N21	23.2	200
P25	N21	N22	25.2	150
P26	N22	HYD8	36.1	150
P27	HYD8	N23	36.7	150
P28	N23	N24	25.4	150
P29	N24	HYD9	24.5	200
P30	HYD9	N25	62.2	200
P31	N25	N16	53.9	200
P32	N19	HYD6	4.9	200
P33	HYD6	N16	75.0	200
P34	N14	N15	73.3	200
P35	N15	N16	74.7	200
P36	N16	HYD10	14.9	200
P37	HYD10	N11	85.1	200

Link - Node Table: (continued)

Link ID	Start Node	End Node	Length m	Diameter mm
P38	N11	N26	68.9	200
P39	N26	HYD11	41.5	200
P40	HYD11	N27	27.0	200
P41	N27	N28	54.4	200
P42	N28	HYD12	57.6	200
P43	HYD12	N4	83.4	200
P44	N11	HYD13	43.9	200
P45	HYD13	N10	18.4	200
P46	N10	N9	28.2	200
P47	N9	N5	63.7	200

Node Results:

Node ID	Demand LPS	Head m	Pressure m	Quality hours
N1	0.00	289.19	32.65	0.67
N2	0.85	289.19	32.69	0.89
N3	0.40	289.19	33.39	1.15
N4	0.05	289.19	32.38	1.21
N5	0.20	289.19	31.84	2.68
N6	0.09	289.19	31.51	18.44
N7	0.08	289.19	31.32	8.46
N8	0.07	289.19	31.63	4.40
N9	0.22	289.19	32.08	4.65
N10	0.34	289.19	31.94	15.48
N11	0.00	289.19	31.69	14.96
N12	0.08	289.19	31.42	2.90
N13	0.07	289.19	31.27	1.51
N14	0.07	289.19	31.39	0.77
N15	0.09	289.19	31.15	2.23
N16	0.05	289.19	31.49	4.11
N17	0.07	289.19	30.93	2.99
N18	0.07	289.19	31.18	5.16
N19	0.06	289.19	31.03	10.01
N20	0.09	289.19	31.27	13.14
N21	0.07	289.19	31.38	18.72
N22	0.06	289.19	31.32	26.11
N23	0.00	289.19	31.56	17.84
N24	0.09	289.19	31.23	13.01

N25	0.09	289.19	31.44	6.42
N26	0.04	289.19	31.98	10.32
N27	0.08	289.19	32.34	6.77
N28	0.09	289.19	32.12	4.86
HYD1	0.00	289.19	32.12	1.99
HYD2	0.00	289.19	31.49	17.09
HYD3	0.00	289.19	31.71	3.83

Node Results: (continued)

Node ID	Demand LPS	Head m	Pressure m	Quality hours	
HYD4	0.00	289.19	31.44	1.06	
HYD5	0.00	289.19	30.93	3.33	
HYD6	0.00	289.19	31.11	23.30	
HYD7	0.00	289.19	31.55	16.84	
HYD8	0.00	289.19	31.59	24.81	
HYD9	0.00	289.19	31.19	11.15	
HYD10	0.00	289.19	31.46	6.44	
HYD11	0.00	289.19	32.30	8.17	
HYD12	0.00	289.19	32.38	3.37	
HYD13	0.00	289.19	31.91	16.30	
WM1	-2.16	289.19	0.00	0.00	Reservoir
WM2	-1.33	289.19	0.00	0.00	Reservoir

Link Results:

Link ID	Flow LPS	VelocityUnit m/s	Headloss m/km	Status
P1	2.16	0.04	0.02	Open
P2	0.85	0.03	0.01	Open
P3	0.40	0.01	0.00	Open
P4	0.92	0.03	0.01	Open
P5	0.53	0.02	0.00	Open
P6	0.53	0.02	0.00	Open
P7	0.04	0.00	0.00	Open
P8	-0.05	0.00	0.00	Open
P9	-0.05	0.00	0.00	Open
P10	-0.13	0.00	0.00	Open
P11	0.11	0.00	0.00	Open
P12	-0.30	0.01	0.00	Open
P13	-0.30	0.01	0.00	Open
P14	-0.38	0.01	0.00	Open
P15	-0.46	0.01	0.00	Open
P16	-0.46	0.01	0.00	Open
P17	-1.33	0.04	0.02	Open
P18	0.37	0.01	0.00	Open
P19	0.30	0.01	0.00	Open
P20	0.30	0.01	0.00	Open
P21	0.22	0.01	0.00	Open
P22	0.20	0.01	0.00	Open
P23	0.11	0.00	0.00	Open
P24	0.11	0.00	0.00	Open
P25	0.04	0.00	0.00	Open
P26	-0.03	0.00	0.00	Open
P27	-0.03	0.00	0.00	Open
P28	-0.03	0.00	0.00	Open
P29	-0.11	0.00	0.00	Open

Link Results: (continued)

Link ID	Flow LPS	VelocityUnit m/s	Headloss m/km	Status
P30	-0.11	0.00	0.00	Open
P31	-0.20	0.01	0.00	Open
P32	-0.03	0.00	0.00	Open
P33	-0.03	0.00	0.00	Open
P34	0.44	0.01	0.00	Open
P35	0.35	0.01	0.00	Open
P36	0.06	0.00	0.00	Open
P37	0.06	0.00	0.00	Open
P38	-0.12	0.00	0.00	Open
P39	-0.17	0.01	0.00	Open
P40	-0.17	0.01	0.00	Open
P41	-0.25	0.01	0.00	Open
P42	-0.34	0.01	0.00	Open
P43	-0.34	0.01	0.00	Open
P44	0.29	0.01	0.00	Open
P45	0.29	0.01	0.00	Open
P46	-0.06	0.00	0.00	Open
P47	-0.28	0.01	0.00	Open

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******************************************************************
*                          E P A N E T                           *
*                  Hydraulic and Water Quality                   *
*                  Analysis for Pipe Networks                    *
*                        Version 2.0                             *
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Input File: MODEL-2020-06-01-MaxDay-HYD3-Dorchester-60568894.net

Link - Node Table:

Link ID	Start Node	End Node	Length m	Diameter mm
P1	WM1	N1	106.0	250
P2	N1	N2	21.7	200
P3	N1	N3	21.7	200
P4	N1	N4	56.8	200
P5	N4	HYD1	47.2	200
P6	HYD1	N5	41.1	200
P7	N5	N6	70.0	200
P8	N6	HYD2	11.8	200
P9	HYD2	N7	47.3	200
P10	N7	N8	59.5	200
P11	N8	N11	94.5	200
P12	N8	HYD3	19.9	200
P13	HYD3	N12	32.5	200
P14	N12	N13	61.0	200
P15	N13	HYD4	23.8	200
P16	HYD4	N14	15.1	200
P17	N14	WM2	116.6	200
P18	N14	N17	93.4	200
P19	N17	HYD5	11.5	200
P20	HYD5	N18	61.8	200
P21	N18	N19	67.7	200
P22	N19	N20	70.3	200
P23	N20	HYD7	45.4	200
P24	HYD7	N21	23.2	200
P25	N21	N22	25.2	150
P26	N22	HYD8	36.1	150
P27	HYD8	N23	36.7	150
P28	N23	N24	25.4	150
P29	N24	HYD9	24.5	200
P30	HYD9	N25	62.2	200
P31	N25	N16	53.9	200
P32	N19	HYD6	4.9	200
P33	HYD6	N16	75.0	200
P34	N14	N15	73.3	200
P35	N15	N16	74.7	200
P36	N16	HYD10	14.9	200
P37	HYD10	N11	85.1	200

Link - Node Table: (continued)

Link ID	Start Node	End Node	Length m	Diameter mm
P38	N11	N26	68.9	200
P39	N26	HYD11	41.5	200
P40	HYD11	N27	27.0	200
P41	N27	N28	54.4	200
P42	N28	HYD12	57.6	200
P43	HYD12	N4	83.4	200
P44	N11	HYD13	43.9	200
P45	HYD13	N10	18.4	200
P46	N10	N9	28.2	200
P47	N9	N5	63.7	200

Node Results:

Node ID	Demand LPS	Head m	Pressure m	Quality hours
N1	0.00	288.68	32.14	0.08
N2	2.97	288.68	32.18	0.17
N3	1.38	288.68	32.88	0.22
N4	0.19	288.01	31.20	0.17
N5	0.71	287.53	30.18	0.33
N6	0.31	287.32	29.64	0.42
N7	0.28	287.14	29.27	0.58
N8	0.25	286.97	29.41	0.72
N9	0.78	287.51	30.40	0.42
N10	1.21	287.50	30.25	0.51
N11	0.00	287.49	29.99	0.68
N12	0.28	286.91	29.14	0.33
N13	0.25	287.34	29.42	0.25
N14	0.25	287.63	29.83	0.08
N15	0.31	287.59	29.55	0.18
N16	0.19	287.56	29.86	0.54
N17	0.25	287.60	29.34	0.24
N18	0.25	287.59	29.58	0.44
N19	0.22	287.57	29.41	0.57
N20	0.31	287.57	29.65	0.99
N21	0.25	287.57	29.76	1.51
N22	0.22	287.57	29.70	1.64
N23	0.00	287.57	29.94	2.17
N24	0.31	287.56	29.60	2.35

N25	0.31	287.56	29.81	4.38
N26	0.15	287.59	30.38	0.58
N27	0.28	287.69	30.84	0.42
N28	0.31	287.78	30.71	0.33
HYD1	0.00	287.75	30.68	0.25
HYD2	0.00	287.28	29.58	0.50
HYD3	76.00	286.68	29.20	0.65

Node Results: (continued)

Node ID	Demand LPS	Head m	Pressure m	Quality hours	
HYD4	0.00	287.52	29.77	0.17	
HYD5	0.00	287.60	29.34	0.33	
HYD6	0.00	287.57	29.49	0.65	
HYD7	0.00	287.57	29.93	1.33	
HYD8	0.00	287.57	29.97	1.90	
HYD9	0.00	287.56	29.56	2.92	
HYD10	0.00	287.55	29.82	0.62	
HYD11	0.00	287.65	30.76	0.50	
HYD12	0.00	287.87	31.06	0.25	
HYD13	0.00	287.49	30.21	0.59	
WM1	-44.89	289.19	0.00	0.00	Reservoir
WM2	-43.32	289.19	0.00	0.00	Reservoir

Link Results:

Link ID	Flow LPS	VelocityUnit m/s	Headloss m/km	Status
P1	44.89	0.91	4.83	Open
P2	2.97	0.09	0.09	Open
P3	1.38	0.04	0.02	Open
P4	40.53	1.29	11.85	Open
P5	26.47	0.84	5.38	Open
P6	26.47	0.84	5.38	Open
P7	19.50	0.62	3.06	Open
P8	19.19	0.61	2.97	Open
P9	19.19	0.61	2.97	Open
P10	18.91	0.60	2.89	Open
P11	-26.73	0.85	5.48	Open
P12	45.39	1.44	14.61	Open
P13	-30.61	0.97	7.04	Open
P14	-30.89	0.98	7.16	Open
P15	-31.14	0.99	7.27	Open
P16	-31.14	0.99	7.27	Open
P17	-43.32	1.38	13.40	Open
P18	5.10	0.16	0.25	Open
P19	4.85	0.15	0.23	Open
P20	4.85	0.15	0.23	Open
P21	4.60	0.15	0.21	Open
P22	1.46	0.05	0.03	Open
P23	1.15	0.04	0.02	Open
P24	1.15	0.04	0.02	Open
P25	0.90	0.05	0.05	Open
P26	0.68	0.04	0.03	Open
P27	0.68	0.04	0.03	Open
P28	0.68	0.04	0.03	Open
P29	0.37	0.01	0.00	Open

Link Results: (continued)

Link ID	Flow LPS	VelocityUnit m/s	Headloss m/km	Status
P30	0.37	0.01	0.00	Open
P31	0.06	0.00	0.00	Open
P32	2.92	0.09	0.09	Open
P33	2.92	0.09	0.09	Open
P34	6.84	0.22	0.44	Open
P35	6.53	0.21	0.40	Open
P36	9.33	0.30	0.78	Open
P37	9.33	0.30	0.78	Open
P38	-13.13	0.42	1.47	Open
P39	-13.29	0.42	1.50	Open
P40	-13.29	0.42	1.50	Open
P41	-13.57	0.43	1.56	Open
P42	-13.88	0.44	1.63	Open
P43	-13.88	0.44	1.63	Open
P44	-4.27	0.14	0.18	Open
P45	-4.27	0.14	0.18	Open
P46	-5.48	0.17	0.29	Open
P47	-6.26	0.20	0.37	Open

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******************************************************************
*                          E P A N E T                           *
*                  Hydraulic and Water Quality                   *
*                  Analysis for Pipe Networks                    *
*                        Version 2.0                             *
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Input File: MODEL-2020-06-01-MaxDay-HYD5-Dorchester-60568894.net

Link - Node Table:

Link ID	Start Node	End Node	Length m	Diameter mm
P1	WM1	N1	106.0	250
P2	N1	N2	21.7	200
P3	N1	N3	21.7	200
P4	N1	N4	56.8	200
P5	N4	HYD1	47.2	200
P6	HYD1	N5	41.1	200
P7	N5	N6	70.0	200
P8	N6	HYD2	11.8	200
P9	HYD2	N7	47.3	200
P10	N7	N8	59.5	200
P11	N8	N11	94.5	200
P12	N8	HYD3	19.9	200
P13	HYD3	N12	32.5	200
P14	N12	N13	61.0	200
P15	N13	HYD4	23.8	200
P16	HYD4	N14	15.1	200
P17	N14	WM2	116.6	200
P18	N14	N17	93.4	200
P19	N17	HYD5	11.5	200
P20	HYD5	N18	61.8	200
P21	N18	N19	67.7	200
P22	N19	N20	70.3	200
P23	N20	HYD7	45.4	200
P24	HYD7	N21	23.2	200
P25	N21	N22	25.2	150
P26	N22	HYD8	36.1	150
P27	HYD8	N23	36.7	150
P28	N23	N24	25.4	150
P29	N24	HYD9	24.5	200
P30	HYD9	N25	62.2	200
P31	N25	N16	53.9	200
P32	N19	HYD6	4.9	200
P33	HYD6	N16	75.0	200
P34	N14	N15	73.3	200
P35	N15	N16	74.7	200
P36	N16	HYD10	14.9	200
P37	HYD10	N11	85.1	200

Link - Node Table: (continued)

Link ID	Start Node	End Node	Length m	Diameter mm
P38	N11	N26	68.9	200
P39	N26	HYD11	41.5	200
P40	HYD11	N27	27.0	200
P41	N27	N28	54.4	200
P42	N28	HYD12	57.6	200
P43	HYD12	N4	83.4	200
P44	N11	HYD13	43.9	200
P45	HYD13	N10	18.4	200
P46	N10	N9	28.2	200
P47	N9	N5	63.7	200

Node Results:

Node ID	Demand LPS	Head m	Pressure m	Quality hours
N1	0.00	288.74	32.20	0.08
N2	2.97	288.74	32.24	0.17
N3	1.38	288.74	32.94	0.22
N4	0.19	288.15	31.34	0.17
N5	0.71	287.78	30.43	0.33
N6	0.31	287.71	30.03	0.42
N7	0.28	287.66	29.79	0.58
N8	0.25	287.60	30.04	0.74
N9	0.78	287.70	30.59	0.42
N10	1.21	287.67	30.42	0.50
N11	0.00	287.61	30.11	0.67
N12	0.28	287.54	29.77	0.90
N13	0.25	287.47	29.55	0.99
N14	0.25	287.43	29.63	0.29
N15	0.31	287.34	29.30	0.38
N16	0.19	287.25	29.55	0.70
N17	0.25	286.07	27.81	0.38
N18	0.25	286.36	28.35	1.09
N19	0.22	286.85	28.69	1.00
N20	0.31	286.88	28.96	1.45
N21	0.25	286.91	29.10	1.28
N22	0.22	286.96	29.09	1.20
N23	0.00	287.12	29.49	1.03
N24	0.31	287.18	29.22	0.95

N25	0.31	287.22	29.47	0.78
N26	0.15	287.72	30.51	0.58
N27	0.28	287.82	30.97	0.42
N28	0.31	287.91	30.84	0.33
HYD1	0.00	287.95	30.88	0.25
HYD2	0.00	287.70	30.00	0.50
HYD3	0.00	287.58	30.10	0.82

Node Results: (continued)

Node ID	Demand LPS	Head m	Pressure m	Quality hours	
HYD4	0.00	287.44	29.69	1.07	
HYD5	76.00	285.91	27.65	0.75	
HYD6	0.00	286.88	28.80	0.78	
HYD7	0.00	286.90	29.26	1.37	
HYD8	0.00	287.04	29.44	1.12	
HYD9	0.00	287.19	29.19	0.87	
HYD10	0.00	287.30	29.57	0.75	
HYD11	0.00	287.78	30.89	0.50	
HYD12	0.00	288.01	31.20	0.25	
HYD13	0.00	287.65	30.37	0.58	
WM1	-41.99	289.19	0.00	0.00	Reservoir
WM2	-46.22	289.19	0.00	0.00	Reservoir

Link Results:

Link ID	Flow LPS	VelocityUnit m/s	Headloss m/km	Status
P1	41.99	0.86	4.27	Open
P2	2.97	0.09	0.09	Open
P3	1.38	0.04	0.02	Open
P4	37.63	1.20	10.33	Open
P5	23.25	0.74	4.23	Open
P6	23.25	0.74	4.23	Open
P7	10.46	0.33	0.96	Open
P8	10.15	0.32	0.91	Open
P9	10.15	0.32	0.91	Open
P10	9.87	0.31	0.87	Open
P11	-2.18	0.07	0.05	Open
P12	11.80	0.38	1.21	Open
P13	11.80	0.38	1.20	Open
P14	11.52	0.37	1.15	Open
P15	11.27	0.36	1.11	Open
P16	11.27	0.36	1.11	Open
P17	-46.22	1.47	15.11	Open
P18	45.20	1.44	14.50	Open
P19	44.96	1.43	14.36	Open
P20	-31.04	0.99	7.23	Open
P21	-31.29	1.00	7.34	Open
P22	-6.21	0.20	0.37	Open
P23	-6.52	0.21	0.40	Open
P24	-6.52	0.21	0.40	Open
P25	-6.77	0.38	2.09	Open
P26	-6.99	0.40	2.21	Open
P27	-6.99	0.40	2.21	Open
P28	-6.99	0.40	2.21	Open
P29	-7.30	0.23	0.50	Open

Link Results: (continued)

Link ID	Flow LPS	VelocityUnit m/s	Headloss m/km	Status
P30	-7.30	0.23	0.50	Open
P31	-7.61	0.24	0.54	Open
P32	-25.30	0.81	4.95	Open
P33	-25.30	0.81	4.95	Open
P34	12.04	0.38	1.25	Open
P35	11.72	0.37	1.19	Open
P36	-21.37	0.68	3.62	Open
P37	-21.37	0.68	3.62	Open
P38	-13.45	0.43	1.54	Open
P39	-13.61	0.43	1.57	Open
P40	-13.61	0.43	1.57	Open
P41	-13.89	0.44	1.63	Open
P42	-14.20	0.45	1.70	Open
P43	-14.20	0.45	1.70	Open
P44	-10.09	0.32	0.90	Open
P45	-10.09	0.32	0.90	Open
P46	-11.30	0.36	1.11	Open
P47	-12.08	0.38	1.26	Open

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******************************************************************
*                          E P A N E T                           *
*                  Hydraulic and Water Quality                   *
*                  Analysis for Pipe Networks                    *
*                        Version 2.0                             *
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Input File: MODEL-2020-06-01-MaxDay-HYD8-Dorchester-60568894.net

Link - Node Table:

Link ID	Start Node	End Node	Length m	Diameter mm
P1	WM1	N1	106.0	250
P2	N1	N2	21.7	200
P3	N1	N3	21.7	200
P4	N1	N4	56.8	200
P5	N4	HYD1	47.2	200
P6	HYD1	N5	41.1	200
P7	N5	N6	70.0	200
P8	N6	HYD2	11.8	200
P9	HYD2	N7	47.3	200
P10	N7	N8	59.5	200
P11	N8	N11	94.5	200
P12	N8	HYD3	19.9	200
P13	HYD3	N12	32.5	200
P14	N12	N13	61.0	200
P15	N13	HYD4	23.8	200
P16	HYD4	N14	15.1	200
P17	N14	WM2	116.6	200
P18	N14	N17	93.4	200
P19	N17	HYD5	11.5	200
P20	HYD5	N18	61.8	200
P21	N18	N19	67.7	200
P22	N19	N20	70.3	200
P23	N20	HYD7	45.4	200
P24	HYD7	N21	23.2	200
P25	N21	N22	25.2	150
P26	N22	HYD8	36.1	150
P27	HYD8	N23	36.7	150
P28	N23	N24	25.4	150
P29	N24	HYD9	24.5	200
P30	HYD9	N25	62.2	200
P31	N25	N16	53.9	200
P32	N19	HYD6	4.9	200
P33	HYD6	N16	75.0	200
P34	N14	N15	73.3	200
P35	N15	N16	74.7	200
P36	N16	HYD10	14.9	200
P37	HYD10	N11	85.1	200

Link - Node Table: (continued)

Link ID	Start Node	End Node	Length m	Diameter mm
P38	N11	N26	68.9	200
P39	N26	HYD11	41.5	200
P40	HYD11	N27	27.0	200
P41	N27	N28	54.4	200
P42	N28	HYD12	57.6	200
P43	HYD12	N4	83.4	200
P44	N11	HYD13	43.9	200
P45	HYD13	N10	18.4	200
P46	N10	N9	28.2	200
P47	N9	N5	63.7	200

Node Results:

Node ID	Demand LPS	Head m	Pressure m	Quality hours
N1	0.00	288.71	32.17	0.08
N2	2.97	288.71	32.21	0.17
N3	1.38	288.71	32.91	0.22
N4	0.19	288.09	31.28	0.17
N5	0.71	287.70	30.35	0.33
N6	0.31	287.63	29.95	0.42
N7	0.28	287.58	29.71	0.58
N8	0.25	287.53	29.97	0.67
N9	0.78	287.60	30.49	0.42
N10	1.21	287.57	30.32	0.50
N11	0.00	287.50	30.00	0.69
N12	0.28	287.53	29.76	0.83
N13	0.25	287.52	29.60	0.99
N14	0.25	287.52	29.72	0.15
N15	0.31	287.15	29.11	0.24
N16	0.19	286.79	29.09	0.62
N17	0.25	287.15	28.89	0.24
N18	0.25	286.86	28.85	0.40
N19	0.22	286.60	28.44	0.61
N20	0.31	285.85	27.93	0.70
N21	0.25	285.12	27.31	0.86
N22	0.22	283.85	25.98	0.95
N23	0.00	283.94	26.31	0.95
N24	0.31	285.25	27.29	0.87

N25	0.31	286.19	28.44	0.70
N26	0.15	287.62	30.41	0.58
N27	0.28	287.73	30.88	0.42
N28	0.31	287.83	30.76	0.33
HYD1	0.00	287.88	30.81	0.25
HYD2	0.00	287.62	29.92	0.50
HYD3	0.00	287.53	30.05	0.75

Node Results: (continued)

Node ID	Demand LPS	Head m	Pressure m	Quality hours	
HYD4	0.00	287.52	29.77	1.08	
HYD5	0.00	287.10	28.84	0.32	
HYD6	0.00	286.62	28.54	0.70	
HYD7	0.00	285.37	27.73	0.78	
HYD8	76.00	282.04	24.44	1.03	
HYD9	0.00	285.52	27.52	0.78	
HYD10	0.00	286.89	29.16	0.78	
HYD11	0.00	287.69	30.80	0.50	
HYD12	0.00	287.94	31.13	0.25	
HYD13	0.00	287.55	30.27	0.58	
WM1	-43.24	289.19	0.00	0.00	Reservoir
WM2	-44.97	289.19	0.00	0.00	Reservoir

Link Results:

Link ID	Flow LPS	VelocityUnit m/s	Headloss m/km	Status
P1	43.24	0.88	4.50	Open
P2	2.97	0.09	0.09	Open
P3	1.38	0.04	0.02	Open
P4	38.88	1.24	10.97	Open
P5	23.88	0.76	4.45	Open
P6	23.88	0.76	4.45	Open
P7	10.17	0.32	0.92	Open
P8	9.86	0.31	0.87	Open
P9	9.86	0.31	0.86	Open
P10	9.58	0.31	0.82	Open
P11	5.76	0.18	0.32	Open
P12	3.57	0.11	0.13	Open
P13	3.57	0.11	0.13	Open
P14	3.29	0.10	0.11	Open
P15	3.05	0.10	0.10	Open
P16	3.05	0.10	0.10	Open
P17	-44.97	1.43	14.37	Open
P18	22.42	0.71	3.96	Open
P19	22.17	0.71	3.88	Open
P20	22.17	0.71	3.88	Open
P21	21.92	0.70	3.80	Open
P22	38.44	1.22	10.74	Open
P23	38.13	1.21	10.58	Open
P24	38.13	1.21	10.58	Open
P25	37.88	2.14	50.64	Open
P26	37.66	2.13	50.10	Open
P27	-38.34	2.17	51.78	Open
P28	-38.34	2.17	51.78	Open
P29	-38.65	1.23	10.85	Open

Link Results: (continued)

Link ID	Flow LPS	VelocityUnit m/s	Headloss m/km	Status
P30	-38.65	1.23	10.85	Open
P31	-38.96	1.24	11.01	Open
P32	-16.73	0.53	2.30	Open
P33	-16.73	0.53	2.30	Open
P34	25.35	0.81	4.97	Open
P35	25.04	0.80	4.86	Open
P36	-30.84	0.98	7.14	Open
P37	-30.84	0.98	7.14	Open
P38	-14.07	0.45	1.67	Open
P39	-14.22	0.45	1.70	Open
P40	-14.22	0.45	1.70	Open
P41	-14.50	0.46	1.77	Open
P42	-14.82	0.47	1.84	Open
P43	-14.82	0.47	1.84	Open
P44	-11.01	0.35	1.06	Open
P45	-11.01	0.35	1.06	Open
P46	-12.22	0.39	1.29	Open
P47	-13.00	0.41	1.44	Open

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*                          E P A N E T                           *
*                  Hydraulic and Water Quality                   *
*                  Analysis for Pipe Networks                    *
*                        Version 2.0                             *
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Input File: MODEL-2020-06-01-MaxDay-HYD10-Dorchester-60568894.net

Link - Node Table:

Link ID	Start Node	End Node	Length m	Diameter mm
P1	WM1	N1	106.0	250
P2	N1	N2	21.7	200
P3	N1	N3	21.7	200
P4	N1	N4	56.8	200
P5	N4	HYD1	47.2	200
P6	HYD1	N5	41.1	200
P7	N5	N6	70.0	200
P8	N6	HYD2	11.8	200
P9	HYD2	N7	47.3	200
P10	N7	N8	59.5	200
P11	N8	N11	94.5	200
P12	N8	HYD3	19.9	200
P13	HYD3	N12	32.5	200
P14	N12	N13	61.0	200
P15	N13	HYD4	23.8	200
P16	HYD4	N14	15.1	200
P17	N14	WM2	116.6	200
P18	N14	N17	93.4	200
P19	N17	HYD5	11.5	200
P20	HYD5	N18	61.8	200
P21	N18	N19	67.7	200
P22	N19	N20	70.3	200
P23	N20	HYD7	45.4	200
P24	HYD7	N21	23.2	200
P25	N21	N22	25.2	150
P26	N22	HYD8	36.1	150
P27	HYD8	N23	36.7	150
P28	N23	N24	25.4	150
P29	N24	HYD9	24.5	200
P30	HYD9	N25	62.2	200
P31	N25	N16	53.9	200
P32	N19	HYD6	4.9	200
P33	HYD6	N16	75.0	200
P34	N14	N15	73.3	200
P35	N15	N16	74.7	200
P36	N16	HYD10	14.9	200
P37	HYD10	N11	85.1	200

Link - Node Table: (continued)

Link ID	Start Node	End Node	Length m	Diameter mm
P38	N11	N26	68.9	200
P39	N26	HYD11	41.5	200
P40	HYD11	N27	27.0	200
P41	N27	N28	54.4	200
P42	N28	HYD12	57.6	200
P43	HYD12	N4	83.4	200
P44	N11	HYD13	43.9	200
P45	HYD13	N10	18.4	200
P46	N10	N9	28.2	200
P47	N9	N5	63.7	200

Node Results:

Node ID	Demand LPS	Head m	Pressure m	Quality hours
N1	0.00	288.71	32.17	0.08
N2	2.97	288.70	32.20	0.17
N3	1.38	288.70	32.90	0.22
N4	0.19	288.07	31.26	0.17
N5	0.71	287.68	30.33	0.33
N6	0.31	287.62	29.94	0.42
N7	0.28	287.58	29.71	0.58
N8	0.25	287.54	29.98	0.72
N9	0.78	287.58	30.47	0.42
N10	1.21	287.53	30.28	0.50
N11	0.00	287.46	29.96	0.70
N12	0.28	287.54	29.77	0.71
N13	0.25	287.54	29.62	0.30
N14	0.25	287.54	29.74	0.08
N15	0.31	287.19	29.15	0.17
N16	0.19	286.83	29.13	0.44
N17	0.25	287.30	29.04	0.17
N18	0.25	287.11	29.10	0.33
N19	0.22	286.95	28.79	0.42
N20	0.31	286.93	29.01	0.56
N21	0.25	286.92	29.11	0.75
N22	0.22	286.91	29.04	0.83
N23	0.00	286.86	29.23	1.00
N24	0.31	286.85	28.89	1.08

N25	0.31	286.84	29.09	1.33
N26	0.15	287.58	30.37	0.58
N27	0.28	287.70	30.85	0.42
N28	0.31	287.80	30.73	0.33
HYD1	0.00	287.86	30.79	0.25
HYD2	0.00	287.61	29.91	0.50
HYD3	0.00	287.54	30.06	0.99

Node Results: (continued)

Node ID	Demand LPS	Head m	Pressure m	Quality hours	
HYD4	0.00	287.54	29.79	0.17	
HYD5	0.00	287.27	29.01	0.25	
HYD6	0.00	286.94	28.86	0.50	
HYD7	0.00	286.93	29.29	0.66	
HYD8	0.00	286.88	29.28	0.91	
HYD9	0.00	286.84	28.84	1.16	
HYD10	76.00	286.66	28.93	0.65	
HYD11	0.00	287.65	30.76	0.50	
HYD12	0.00	287.91	31.10	0.25	
HYD13	0.00	287.51	30.23	0.58	
WM1	-43.60	289.19	0.00	0.00	Reservoir
WM2	-44.61	289.19	0.00	0.00	Reservoir

Link Results:

Link ID	Flow LPS	VelocityUnit m/s	Headloss m/km	Status
P1	43.60	0.89	4.57	Open
P2	2.97	0.09	0.09	Open
P3	1.38	0.04	0.02	Open
P4	39.24	1.25	11.16	Open
P5	23.91	0.76	4.46	Open
P6	23.91	0.76	4.46	Open
P7	9.40	0.30	0.79	Open
P8	9.09	0.29	0.74	Open
P9	9.09	0.29	0.74	Open
P10	8.81	0.28	0.70	Open
P11	9.58	0.30	0.82	Open
P12	-1.02	0.03	0.01	Open
P13	-1.02	0.03	0.01	Open
P14	-1.30	0.04	0.02	Open
P15	-1.54	0.05	0.03	Open
P16	-1.54	0.05	0.03	Open
P17	-44.61	1.42	14.15	Open
P18	17.84	0.57	2.59	Open
P19	17.59	0.56	2.53	Open
P20	17.59	0.56	2.53	Open
P21	17.34	0.55	2.46	Open
P22	4.24	0.13	0.18	Open
P23	3.93	0.13	0.16	Open
P24	3.93	0.13	0.16	Open
P25	3.68	0.21	0.67	Open
P26	3.46	0.20	0.60	Open
P27	3.46	0.20	0.60	Open
P28	3.46	0.20	0.60	Open
P29	3.15	0.10	0.10	Open

Link Results: (continued)

Link ID	Flow LPS	VelocityUnit m/s	Headloss m/km	Status
P30	3.15	0.10	0.10	Open
P31	2.84	0.09	0.09	Open
P32	12.89	0.41	1.42	Open
P33	12.89	0.41	1.42	Open
P34	24.98	0.80	4.83	Open
P35	24.67	0.79	4.72	Open
P36	40.21	1.28	11.68	Open
P37	-35.79	1.14	9.41	Open
P38	-14.40	0.46	1.74	Open
P39	-14.56	0.46	1.78	Open
P40	-14.56	0.46	1.78	Open
P41	-14.84	0.47	1.84	Open
P42	-15.15	0.48	1.91	Open
P43	-15.15	0.48	1.91	Open
P44	-11.81	0.38	1.21	Open
P45	-11.81	0.38	1.21	Open
P46	-13.02	0.41	1.45	Open
P47	-13.80	0.44	1.61	Open

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*                          E P A N E T                           *
*                  Hydraulic and Water Quality                   *
*                  Analysis for Pipe Networks                    *
*                        Version 2.0                             *
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Input File: MODEL-2020-06-01-MaxDay-Node2-Dorchester-60568894.net

Link - Node Table:

Link ID	Start Node	End Node	Length m	Diameter mm
P1	WM1	N1	106.0	250
P2	N1	N2	21.7	200
P3	N1	N3	21.7	200
P4	N1	N4	56.8	200
P5	N4	HYD1	47.2	200
P6	HYD1	N5	41.1	200
P7	N5	N6	70.0	200
P8	N6	HYD2	11.8	200
P9	HYD2	N7	47.3	200
P10	N7	N8	59.5	200
P11	N8	N11	94.5	200
P12	N8	HYD3	19.9	200
P13	HYD3	N12	32.5	200
P14	N12	N13	61.0	200
P15	N13	HYD4	23.8	200
P16	HYD4	N14	15.1	200
P17	N14	WM2	116.6	200
P18	N14	N17	93.4	200
P19	N17	HYD5	11.5	200
P20	HYD5	N18	61.8	200
P21	N18	N19	67.7	200
P22	N19	N20	70.3	200
P23	N20	HYD7	45.4	200
P24	HYD7	N21	23.2	200
P25	N21	N22	25.2	150
P26	N22	HYD8	36.1	150
P27	HYD8	N23	36.7	150
P28	N23	N24	25.4	150
P29	N24	HYD9	24.5	200
P30	HYD9	N25	62.2	200
P31	N25	N16	53.9	200
P32	N19	HYD6	4.9	200
P33	HYD6	N16	75.0	200
P34	N14	N15	73.3	200
P35	N15	N16	74.7	200
P36	N16	HYD10	14.9	200
P37	HYD10	N11	85.1	200

Link - Node Table: (continued)

Link ID	Start Node	End Node	Length m	Diameter mm
P38	N11	N26	68.9	200
P39	N26	HYD11	41.5	200
P40	HYD11	N27	27.0	200
P41	N27	N28	54.4	200
P42	N28	HYD12	57.6	200
P43	HYD12	N4	83.4	200
P44	N11	HYD13	43.9	200
P45	HYD13	N10	18.4	200
P46	N10	N9	28.2	200
P47	N9	N5	63.7	200

Node Results:

Node ID	Demand LPS	Head m	Pressure m	Quality hours
N1	0.00	288.21	31.67	0.32
N2	78.97	287.32	30.82	0.41
N3	1.38	288.21	32.41	0.46
N4	0.19	288.34	31.53	1.16
N5	0.71	288.42	31.07	0.95
N6	0.31	288.45	30.77	0.75
N7	0.28	288.47	30.60	0.58
N8	0.25	288.49	30.93	0.50
N9	0.78	288.44	31.33	0.95
N10	1.21	288.45	31.20	0.87
N11	0.00	288.48	30.98	0.70
N12	0.28	288.54	30.77	0.33
N13	0.25	288.61	30.69	0.25
N14	0.25	288.65	30.85	0.08
N15	0.31	288.61	30.57	0.17
N16	0.19	288.57	30.87	0.53
N17	0.25	288.62	30.36	0.23
N18	0.25	288.60	30.59	0.41
N19	0.22	288.58	30.42	0.53
N20	0.31	288.58	30.66	0.92
N21	0.25	288.58	30.77	1.40
N22	0.22	288.58	30.71	1.52
N23	0.00	288.58	30.95	1.97
N24	0.31	288.57	30.61	2.13

N25	0.31	288.57	30.82	3.71
N26	0.15	288.45	31.24	0.79
N27	0.28	288.41	31.56	0.95
N28	0.31	288.39	31.32	1.04
HYD1	0.00	288.38	31.31	1.03
HYD2	0.00	288.45	30.75	0.67
HYD3	0.00	288.51	31.03	0.42

Node Results: (continued)

Node ID	Demand LPS	Head m	Pressure m	Quality hours	
HYD4	0.00	288.63	30.88	0.17	
HYD5	0.00	288.62	30.36	0.31	
HYD6	0.00	288.58	30.50	0.61	
HYD7	0.00	288.58	30.94	1.24	
HYD8	0.00	288.58	30.98	1.75	
HYD9	0.00	288.57	30.57	2.58	
HYD10	0.00	288.56	30.83	0.61	
HYD11	0.00	288.43	31.54	0.87	
HYD12	0.00	288.37	31.56	1.12	
HYD13	0.00	288.46	31.18	0.78	
WM1	-63.78	289.19	0.00	0.00	Reservoir
WM2	-24.43	289.19	0.00	0.00	Reservoir

Link Results:

Link ID	Flow LPS	VelocityUnit m/s	Headloss m/km	Status
P1	63.78	1.30	9.25	Open
P2	78.97	2.51	40.76	Open
P3	1.38	0.04	0.02	Open
P4	-16.58	0.53	2.26	Open
P5	-10.41	0.33	0.96	Open
P6	-10.41	0.33	0.96	Open
P7	-5.95	0.19	0.34	Open
P8	-6.26	0.20	0.37	Open
P9	-6.26	0.20	0.37	Open
P10	-6.54	0.21	0.40	Open
P11	3.80	0.12	0.15	Open
P12	-10.59	0.34	0.99	Open
P13	-10.59	0.34	0.99	Open
P14	-10.87	0.35	1.03	Open
P15	-11.11	0.35	1.08	Open
P16	-11.11	0.35	1.08	Open
P17	-24.43	0.78	4.64	Open
P18	5.57	0.18	0.30	Open
P19	5.32	0.17	0.28	Open
P20	5.32	0.17	0.28	Open
P21	5.07	0.16	0.25	Open
P22	1.57	0.05	0.03	Open
P23	1.26	0.04	0.02	Open
P24	1.26	0.04	0.02	Open
P25	1.01	0.06	0.06	Open
P26	0.79	0.04	0.04	Open
P27	0.79	0.04	0.04	Open
P28	0.79	0.04	0.04	Open
P29	0.48	0.02	0.00	Open

Link Results: (continued)

Link ID	Flow LPS	VelocityUnit m/s	Headloss m/km	Status
P30	0.48	0.02	0.00	Open
P31	0.17	0.01	0.00	Open
P32	3.28	0.10	0.11	Open
P33	3.28	0.10	0.11	Open
P34	7.51	0.24	0.52	Open
P35	7.19	0.23	0.48	Open
P36	10.46	0.33	0.96	Open
P37	10.46	0.33	0.96	Open
P38	7.10	0.23	0.47	Open
P39	6.95	0.22	0.45	Open
P40	6.95	0.22	0.45	Open
P41	6.67	0.21	0.42	Open
P42	6.36	0.20	0.38	Open
P43	6.36	0.20	0.38	Open
P44	7.15	0.23	0.48	Open
P45	7.15	0.23	0.48	Open
P46	5.95	0.19	0.34	Open
P47	5.17	0.16	0.26	Open

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******************************************************************
*                          E P A N E T                           *
*                  Hydraulic and Water Quality                   *
*                  Analysis for Pipe Networks                    *
*                        Version 2.0                             *
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Input File: MODEL-2020-06-01-MaxDay-Node3-Dorchester-60568894.net

Link - Node Table:

Link ID	Start Node	End Node	Length m	Diameter mm
P1	WM1	N1	106.0	250
P2	N1	N2	21.7	200
P3	N1	N3	21.7	200
P4	N1	N4	56.8	200
P5	N4	HYD1	47.2	200
P6	HYD1	N5	41.1	200
P7	N5	N6	70.0	200
P8	N6	HYD2	11.8	200
P9	HYD2	N7	47.3	200
P10	N7	N8	59.5	200
P11	N8	N11	94.5	200
P12	N8	HYD3	19.9	200
P13	HYD3	N12	32.5	200
P14	N12	N13	61.0	200
P15	N13	HYD4	23.8	200
P16	HYD4	N14	15.1	200
P17	N14	WM2	116.6	200
P18	N14	N17	93.4	200
P19	N17	HYD5	11.5	200
P20	HYD5	N18	61.8	200
P21	N18	N19	67.7	200
P22	N19	N20	70.3	200
P23	N20	HYD7	45.4	200
P24	HYD7	N21	23.2	200
P25	N21	N22	25.2	150
P26	N22	HYD8	36.1	150
P27	HYD8	N23	36.7	150
P28	N23	N24	25.4	150
P29	N24	HYD9	24.5	200
P30	HYD9	N25	62.2	200
P31	N25	N16	53.9	200
P32	N19	HYD6	4.9	200
P33	HYD6	N16	75.0	200
P34	N14	N15	73.3	200
P35	N15	N16	74.7	200
P36	N16	HYD10	14.9	200
P37	HYD10	N11	85.1	200

Link - Node Table: (continued)

Link ID	Start Node	End Node	Length m	Diameter mm
P38	N11	N26	68.9	200
P39	N26	HYD11	41.5	200
P40	HYD11	N27	27.0	200
P41	N27	N28	54.4	200
P42	N28	HYD12	57.6	200
P43	HYD12	N4	83.4	200
P44	N11	HYD13	43.9	200
P45	HYD13	N10	18.4	200
P46	N10	N9	28.2	200
P47	N9	N5	63.7	200

Node Results:

Node ID	Demand LPS	Head m	Pressure m	Quality hours
N1	0.00	288.21	31.67	0.32
N2	2.97	288.21	31.71	0.41
N3	77.38	287.36	31.56	0.41
N4	0.19	288.34	31.53	1.16
N5	0.71	288.42	31.07	0.95
N6	0.31	288.45	30.77	0.75
N7	0.28	288.47	30.60	0.58
N8	0.25	288.49	30.93	0.50
N9	0.78	288.44	31.33	0.95
N10	1.21	288.45	31.20	0.87
N11	0.00	288.48	30.98	0.70
N12	0.28	288.54	30.77	0.33
N13	0.25	288.61	30.69	0.25
N14	0.25	288.65	30.85	0.08
N15	0.31	288.61	30.57	0.17
N16	0.19	288.57	30.87	0.53
N17	0.25	288.62	30.36	0.23
N18	0.25	288.60	30.59	0.41
N19	0.22	288.58	30.42	0.53
N20	0.31	288.58	30.66	0.92
N21	0.25	288.58	30.77	1.40
N22	0.22	288.58	30.71	1.52
N23	0.00	288.58	30.95	1.97
N24	0.31	288.57	30.61	2.13

N25	0.31	288.57	30.82	3.71
N26	0.15	288.45	31.24	0.79
N27	0.28	288.41	31.56	0.95
N28	0.31	288.39	31.32	1.04
HYD1	0.00	288.38	31.31	1.03
HYD2	0.00	288.45	30.75	0.67
HYD3	0.00	288.51	31.03	0.42

Node Results: (continued)

Node ID	Demand LPS	Head m	Pressure m	Quality hours	
HYD4	0.00	288.63	30.88	0.17	
HYD5	0.00	288.62	30.36	0.31	
HYD6	0.00	288.58	30.50	0.61	
HYD7	0.00	288.58	30.94	1.24	
HYD8	0.00	288.58	30.98	1.75	
HYD9	0.00	288.57	30.57	2.58	
HYD10	0.00	288.56	30.83	0.61	
HYD11	0.00	288.43	31.54	0.87	
HYD12	0.00	288.37	31.56	1.12	
HYD13	0.00	288.46	31.18	0.78	
WM1	-63.78	289.19	0.00	0.00	Reservoir
WM2	-24.43	289.19	0.00	0.00	Reservoir

Link Results:

Link ID	Flow LPS	VelocityUnit m/s	Headloss m/km	Status
P1	63.78	1.30	9.25	Open
P2	2.97	0.09	0.09	Open
P3	77.38	2.46	39.25	Open
P4	-16.58	0.53	2.26	Open
P5	-10.41	0.33	0.96	Open
P6	-10.41	0.33	0.96	Open
P7	-5.95	0.19	0.34	Open
P8	-6.26	0.20	0.37	Open
P9	-6.26	0.20	0.37	Open
P10	-6.54	0.21	0.40	Open
P11	3.80	0.12	0.15	Open
P12	-10.59	0.34	0.99	Open
P13	-10.59	0.34	0.99	Open
P14	-10.87	0.35	1.03	Open
P15	-11.11	0.35	1.08	Open
P16	-11.11	0.35	1.08	Open
P17	-24.43	0.78	4.64	Open
P18	5.57	0.18	0.30	Open
P19	5.32	0.17	0.28	Open
P20	5.32	0.17	0.28	Open
P21	5.07	0.16	0.25	Open
P22	1.57	0.05	0.03	Open
P23	1.26	0.04	0.02	Open
P24	1.26	0.04	0.02	Open
P25	1.01	0.06	0.06	Open
P26	0.79	0.04	0.04	Open
P27	0.79	0.04	0.04	Open
P28	0.79	0.04	0.04	Open
P29	0.48	0.02	0.00	Open

Link Results: (continued)

Link ID	Flow LPS	VelocityUnit m/s	Headloss m/km	Status
P30	0.48	0.02	0.00	Open
P31	0.17	0.01	0.00	Open
P32	3.28	0.10	0.11	Open
P33	3.28	0.10	0.11	Open
P34	7.51	0.24	0.52	Open
P35	7.19	0.23	0.48	Open
P36	10.46	0.33	0.96	Open
P37	10.46	0.33	0.96	Open
P38	7.10	0.23	0.47	Open
P39	6.95	0.22	0.45	Open
P40	6.95	0.22	0.45	Open
P41	6.67	0.21	0.42	Open
P42	6.36	0.20	0.38	Open
P43	6.36	0.20	0.38	Open
P44	7.15	0.23	0.48	Open
P45	7.15	0.23	0.48	Open
P46	5.95	0.19	0.34	Open
P47	5.17	0.16	0.26	Open

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*                          E P A N E T                           *
*                  Hydraulic and Water Quality                   *
*                  Analysis for Pipe Networks                    *
*                        Version 2.0                             *
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Input File: MODEL-2020-06-01-MaxDay-HYD1-Dorchester-60568894.net

Link - Node Table:

Link ID	Start Node	End Node	Length m	Diameter mm
P1	WM1	N1	106.0	250
P2	N1	N2	21.7	200
P3	N1	N3	21.7	200
P4	N1	N4	56.8	200
P5	N4	HYD1	47.2	200
P6	HYD1	N5	41.1	200
P7	N5	N6	70.0	200
P8	N6	HYD2	11.8	200
P9	HYD2	N7	47.3	200
P10	N7	N8	59.5	200
P11	N8	N11	94.5	200
P12	N8	HYD3	19.9	200
P13	HYD3	N12	32.5	200
P14	N12	N13	61.0	200
P15	N13	HYD4	23.8	200
P16	HYD4	N14	15.1	200
P17	N14	WM2	116.6	200
P18	N14	N17	93.4	200
P19	N17	HYD5	11.5	200
P20	HYD5	N18	61.8	200
P21	N18	N19	67.7	200
P22	N19	N20	70.3	200
P23	N20	HYD7	45.4	200
P24	HYD7	N21	23.2	200
P25	N21	N22	25.2	150
P26	N22	HYD8	36.1	150
P27	HYD8	N23	36.7	150
P28	N23	N24	25.4	150
P29	N24	HYD9	24.5	200
P30	HYD9	N25	62.2	200
P31	N25	N16	53.9	200
P32	N19	HYD6	4.9	200
P33	HYD6	N16	75.0	200
P34	N14	N15	73.3	200
P35	N15	N16	74.7	200
P36	N16	HYD10	14.9	200
P37	HYD10	N11	85.1	200

Link - Node Table: (continued)

Link ID	Start Node	End Node	Length m	Diameter mm
P38	N11	N26	68.9	200
P39	N26	HYD11	41.5	200
P40	HYD11	N27	27.0	200
P41	N27	N28	54.4	200
P42	N28	HYD12	57.6	200
P43	HYD12	N4	83.4	200
P44	N11	HYD13	43.9	200
P45	HYD13	N10	18.4	200
P46	N10	N9	28.2	200
P47	N9	N5	63.7	200

Node Results:

Node ID	Demand LPS	Head m	Pressure m	Quality hours
N1	0.00	288.54	32.00	0.08
N2	2.97	288.53	32.03	0.17
N3	1.38	288.54	32.74	0.22
N4	0.19	287.65	30.84	0.17
N5	0.71	287.27	29.92	0.98
N6	0.31	287.41	29.73	0.75
N7	0.28	287.52	29.65	0.58
N8	0.25	287.65	30.09	0.50
N9	0.78	287.41	30.30	1.03
N10	1.21	287.48	30.23	0.95
N11	0.00	287.65	30.15	0.78
N12	0.28	287.77	30.00	0.33
N13	0.25	287.93	30.01	0.25
N14	0.25	288.02	30.22	0.08
N15	0.31	287.95	29.91	0.17
N16	0.19	287.87	30.17	0.49
N17	0.25	287.97	29.71	0.18
N18	0.25	287.93	29.92	0.35
N19	0.22	287.89	29.73	0.43
N20	0.31	287.89	29.97	0.72
N21	0.25	287.89	30.08	1.06
N22	0.22	287.88	30.01	1.14
N23	0.00	287.88	30.25	1.41
N24	0.31	287.87	29.91	1.50

N25	0.31	287.87	30.12	2.23
N26	0.15	287.65	30.44	1.86
N27	0.28	287.65	30.80	1.28
N28	0.31	287.65	30.58	0.92
HYD1	76.00	286.97	29.90	0.58
HYD2	0.00	287.43	29.73	0.67
HYD3	0.00	287.70	30.22	0.42

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Node Results: (continued)

Node ID	Demand LPS	Head m	Pressure m	Quality hours	
HYD4	0.00	287.99	30.24	0.17	
HYD5	0.00	287.96	29.70	0.27	
HYD6	0.00	287.89	29.81	0.52	
HYD7	0.00	287.89	30.25	0.94	
HYD8	0.00	287.88	30.28	1.27	
HYD9	0.00	287.87	29.87	1.71	
HYD10	0.00	287.84	30.11	0.57	
HYD11	0.00	287.65	30.76	1.51	
HYD12	0.00	287.65	30.84	0.61	
HYD13	0.00	287.53	30.25	0.86	
WM1	-51.24	289.19	0.00	0.00	Reservoir
WM2	-36.97	289.19	0.00	0.00	Reservoir

Link Results:

Link ID	Flow LPS	VelocityUnit m/s	Headloss m/km	Status
P1	51.24	1.04	6.17	Open
P2	2.97	0.09	0.09	Open
P3	1.38	0.04	0.02	Open
P4	46.88	1.49	15.51	Open
P5	45.07	1.43	14.42	Open
P6	-30.93	0.98	7.18	Open
P7	-15.28	0.49	1.95	Open
P8	-15.59	0.50	2.02	Open
P9	-15.59	0.50	2.02	Open
P10	-15.87	0.51	2.09	Open
P11	1.00	0.03	0.01	Open
P12	-17.12	0.54	2.40	Open
P13	-17.12	0.54	2.40	Open
P14	-17.40	0.55	2.47	Open
P15	-17.65	0.56	2.54	Open
P16	-17.65	0.56	2.54	Open
P17	-36.97	1.18	9.99	Open
P18	8.05	0.26	0.59	Open
P19	7.80	0.25	0.56	Open
P20	7.80	0.25	0.56	Open
P21	7.55	0.24	0.53	Open
P22	2.12	0.07	0.05	Open
P23	1.81	0.06	0.04	Open
P24	1.81	0.06	0.04	Open
P25	1.56	0.09	0.14	Open
P26	1.34	0.08	0.10	Open
P27	1.34	0.08	0.10	Open
P28	1.34	0.08	0.10	Open
P29	1.03	0.03	0.01	Open

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Link Results: (continued)

Link ID	Flow LPS	VelocityUnit m/s	Headloss m/km	Status
P30	1.03	0.03	0.01	Open
P31	0.72	0.02	0.01	Open
P32	5.22	0.17	0.27	Open
P33	5.22	0.17	0.27	Open
P34	11.03	0.35	1.06	Open
P35	10.72	0.34	1.01	Open
P36	16.47	0.52	2.23	Open
P37	16.47	0.52	2.23	Open
P38	-0.88	0.03	0.01	Open
P39	-1.03	0.03	0.01	Open
P40	-1.03	0.03	0.01	Open
P41	-1.31	0.04	0.02	Open
P42	-1.63	0.05	0.03	Open
P43	-1.63	0.05	0.03	Open
P44	18.35	0.58	2.73	Open
P45	18.35	0.58	2.73	Open
P46	17.14	0.55	2.41	Open
P47	16.36	0.52	2.21	Open

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*                          E P A N E T                            *
*                  Hydraulic and Water Quality                    *
*                  Analysis for Pipe Networks                     *
*                        Version 2.0                              *
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Input File: MODEL-2020-06-01-PeakHourDemand-Dorchester-60568894.NET

Link - Node Table:

Link ID	Start Node	End Node	Length m	Diameter mm
P1	WM1	N1	106.0	250
P2	N1	N2	21.7	200
P3	N1	N3	21.7	200
P4	N1	N4	56.8	200
P5	N4	HYD1	47.2	200
P6	HYD1	N5	41.1	200
P7	N5	N6	70.0	200
P8	N6	HYD2	11.8	200
P9	HYD2	N7	47.3	200
P10	N7	N8	59.5	200
P11	N8	N11	94.5	200
P12	N8	HYD3	19.9	200
P13	HYD3	N12	32.5	200
P14	N12	N13	61.0	200
P15	N13	HYD4	23.8	200
P16	HYD4	N14	15.1	200
P17	N14	WM2	116.6	200
P18	N14	N17	93.4	200
P19	N17	HYD5	11.5	200
P20	HYD5	N18	61.8	200
P21	N18	N19	67.7	200
P22	N19	N20	70.3	200
P23	N20	HYD7	45.4	200
P24	HYD7	N21	23.2	200
P25	N21	N22	25.2	150
P26	N22	HYD8	36.1	150
P27	HYD8	N23	36.7	150
P28	N23	N24	25.4	150
P29	N24	HYD9	24.5	200
P30	HYD9	N25	62.2	200
P31	N25	N16	53.9	200
P32	N19	HYD6	4.9	200
P33	HYD6	N16	75.0	200
P34	N14	N15	73.3	200
P35	N15	N16	74.7	200
P36	N16	HYD10	14.9	200
P37	HYD10	N11	85.1	200

Link - Node Table: (continued)

Link ID	Start Node	End Node	Length m	Diameter mm
P38	N11	N26	68.9	200
P39	N26	HYD11	41.5	200
P40	HYD11	N27	27.0	200
P41	N27	N28	54.4	200
P42	N28	HYD12	57.6	200
P43	HYD12	N4	83.4	200
P44	N11	HYD13	43.9	200
P45	HYD13	N10	18.4	200
P46	N10	N9	28.2	200
P47	N9	N5	63.7	200

Node Results:

Node ID	Demand LPS	Head m	Pressure m	Quality hours
N1	0.00	289.11	32.57	0.09
N2	6.63	289.10	32.60	0.17
N3	3.08	289.10	33.30	0.17
N4	0.41	289.08	32.27	0.17
N5	1.58	289.06	31.71	0.36
N6	0.69	289.06	31.38	2.41
N7	0.62	289.06	31.19	1.17
N8	0.55	289.07	31.51	0.65
N9	1.74	289.06	31.95	0.61
N10	2.69	289.06	31.81	2.03
N11	0.00	289.06	31.56	1.95
N12	0.62	289.07	31.30	0.44
N13	0.55	289.07	31.15	0.26
N14	0.55	289.08	31.28	0.10
N15	0.69	289.07	31.03	0.29
N16	0.41	289.06	31.36	0.53
N17	0.55	289.07	30.81	0.38
N18	0.55	289.07	31.06	0.70
N19	0.48	289.06	30.90	1.32
N20	0.69	289.06	31.14	1.72
N21	0.55	289.06	31.25	2.44
N22	0.48	289.06	31.19	3.37
N23	0.00	289.06	31.43	2.29
N24	0.69	289.06	31.10	1.67

N25	0.69	289.06	31.31	0.82
N26	0.34	289.07	31.86	1.34
N27	0.62	289.07	32.22	0.88
N28	0.69	289.07	32.00	0.64
HYD1	0.00	289.07	32.00	0.27
HYD2	0.00	289.06	31.36	2.27
HYD3	0.00	289.07	31.59	0.56

Node Results: (continued)

Node ID	Demand LPS	Head m	Pressure m	Quality hours	
HYD4	0.00	289.08	31.33	0.18	
HYD5	0.00	289.07	30.81	0.47	
HYD6	0.00	289.06	30.98	2.99	
HYD7	0.00	289.06	31.42	2.19	
HYD8	0.00	289.06	31.46	3.18	
HYD9	0.00	289.06	31.06	1.43	
HYD10	0.00	289.06	31.33	0.83	
HYD11	0.00	289.07	32.18	1.06	
HYD12	0.00	289.07	32.26	0.45	
HYD13	0.00	289.06	31.78	2.13	
WM1	-16.85	289.19	0.00	0.00	Reservoir
WM2	-10.36	289.19	0.00	0.00	Reservoir

Link Results:

Link ID	Flow LPS	VelocityUnit m/s	Headloss m/km	Status
P1	16.85	0.34	0.79	Open
P2	6.63	0.21	0.41	Open
P3	3.08	0.10	0.10	Open
P4	7.14	0.23	0.48	Open
P5	4.10	0.13	0.17	Open
P6	4.10	0.13	0.17	Open
P7	0.32	0.01	0.00	Open
P8	-0.37	0.01	0.00	Open
P9	-0.37	0.01	0.00	Open
P10	-1.00	0.03	0.01	Open
P11	0.82	0.03	0.01	Open
P12	-2.38	0.08	0.06	Open
P13	-2.38	0.08	0.06	Open
P14	-3.00	0.10	0.10	Open
P15	-3.55	0.11	0.13	Open
P16	-3.55	0.11	0.13	Open
P17	-10.36	0.33	0.95	Open
P18	2.86	0.09	0.09	Open
P19	2.30	0.07	0.06	Open
P20	2.30	0.07	0.06	Open
P21	1.75	0.06	0.04	Open
P22	1.53	0.05	0.03	Open
P23	0.84	0.03	0.01	Open
P24	0.84	0.03	0.01	Open
P25	0.28	0.02	0.01	Open
P26	-0.20	0.01	0.00	Open
P27	-0.20	0.01	0.00	Open
P28	-0.20	0.01	0.00	Open
P29	-0.90	0.03	0.01	Open

Link Results: (continued)

Link ID	Flow LPS	VelocityUnit m/s	Headloss m/km	Status
P30	-0.90	0.03	0.01	Open
P31	-1.59	0.05	0.03	Open
P32	-0.27	0.01	0.00	Open
P33	-0.27	0.01	0.00	Open
P34	3.40	0.11	0.12	Open
P35	2.71	0.09	0.08	Open
P36	0.44	0.01	0.00	Open
P37	0.44	0.01	0.00	Open
P38	-0.97	0.03	0.01	Open
P39	-1.31	0.04	0.02	Open
P40	-1.31	0.04	0.02	Open
P41	-1.94	0.06	0.04	Open
P42	-2.63	0.08	0.07	Open
P43	-2.63	0.08	0.07	Open
P44	2.23	0.07	0.06	Open
P45	2.23	0.07	0.06	Open
P46	-0.46	0.01	0.00	Open
P47	-2.20	0.07	0.05	Open

Appendix B

Water Distribution Analysis

187 Dorchester Road

- **Overall Junction Summary of Demands, Pressures, and Elevations – Nodes and Junctions**

AECOM

Dorchester Subdivision (Sifton) - Watermain Hydraulic Analysis

Project Number: 60568894

Site Location: 187 Dorchester Road, Thames Centre, Ontario
Client: Sifton Properties Ltd.

June 1, 2020

Table B-1: Node Information Summary - EPANET Water Model

Node ID	Elevation	Units	Population	Average Day			Max Day+Fire = (3.5 x Avg)+76 L/s Fire at Node HYD1			Max Day+Fire = (3.5 x Avg)+76 L/s Fire at Node HYD3			Max Day+Fire = (3.5 x Avg)+76 L/s Fire at Node HYD5			Max Day+Fire = (3.5 x Avg)+76 L/s Fire at Node HYD8			Max Day+Fire = (3.5 x Avg)+76 L/s Fire at Node HYD10			Max Day+Fire = (3.5 x Avg)+76 L/s Fire at Node 2			Max Day+Fire = (3.5 x Avg)+76 L/s Fire at Node 3			Peak Hour = 7.8 x Avg		
	Ground	Serviced	Serviced	Demand	Pressure[1]		Demand	Pressure[1]		Demand	Pressure[1]		Demand	Pressure[1]		Demand	Pressure[1]		Demand	Pressure[1]		Demand	Pressure[1]		Demand	Pressure[1]		Demand	Pressure[1]	
	m	by Node	by Node	L/s	m	psi	L/s	m	psi	L/s	m	psi	L/s	m	psi	L/s	m	psi	L/s	m	psi	L/s	m	psi	L/s	m	psi	L/s	m	psi
Low Density Residential Lots																														
N1	256.54	0	0	0.000	32.65	46.36	0.00	32.00	45.44	0.00	32.14	45.64	0.00	32.20	45.72	0.00	32.17	45.68	0.00	32.17	45.68	0.00	31.67	44.97	0.00	31.67	44.97	0.00	32.57	46.25
N4	256.81	6	18	0.053	32.38	45.98	0.19	30.84	43.79	0.19	31.20	44.30	0.19	31.34	44.50	0.19	31.28	44.42	0.19	31.26	44.39	0.19	31.53	44.77	0.19	31.53	44.77	0.41	32.27	45.82
N6	257.68	10	30	0.089	31.51	44.74	0.31	29.73	42.22	0.31	29.64	42.09	0.31	30.03	42.64	0.31	29.95	42.53	0.31	29.94	42.51	0.31	30.77	43.69	0.31	30.77	43.69	0.69	31.38	44.56
N7	257.81	9	27	0.080	31.32	44.47	0.28	29.65	42.10	0.28	29.27	41.56	0.28	29.79	42.30	0.28	29.71	42.19	0.28	29.71	42.19	0.28	30.60	43.45	0.28	30.60	43.45	0.62	31.19	44.29
N8	257.56	8	24	0.071	31.63	44.91	0.25	30.09	42.73	0.25	29.41	41.76	0.25	30.04	42.66	0.25	29.97	42.56	0.25	29.98	42.57	0.25	30.93	43.92	0.25	30.93	43.92	0.55	31.51	44.74
N11	257.50	0	0	0.000	31.69	45.00	0.00	30.15	42.81	0.00	29.99	42.59	0.00	30.11	42.76	0.00	30.00	42.60	0.00	29.96	42.54	0.00	30.98	43.99	0.00	30.98	43.99	0.00	31.56	44.82
N12	257.77	9	27	0.080	31.42	44.62	0.28	30.00	42.60	0.28	29.14	41.38	0.28	29.77	42.27	0.28	29.76	42.26	0.28	29.77	42.27	0.28	30.77	43.69	0.28	30.77	43.69	0.62	31.30	44.45
N13	257.92	8	24	0.071	31.27	44.40	0.25	30.01	42.61	0.25	29.42	41.78	0.25	29.55	41.96	0.25	29.60	42.03	0.25	29.62	42.06	0.25	30.69	43.58	0.25	30.69	43.58	0.55	31.15	44.23
N14	257.80	8	24	0.071	31.39	44.57	0.25	30.22	42.91	0.25	29.83	42.36	0.25	29.63	42.07	0.25	29.72	42.20	0.25	29.74	42.23	0.25	30.85	43.81	0.25	30.85	43.81	0.55	31.28	44.42
N15	258.04	10	30	0.089	31.15	44.23	0.31	29.91	42.47	0.31	29.55	41.96	0.31	29.30	41.61	0.31	29.11	41.34	0.31	29.15	41.39	0.31	30.57	43.41	0.31	30.57	43.41	0.69	31.03	44.06
N16	257.70	6	18	0.053	31.49	44.72	0.19	30.17	42.84	0.19	29.86	42.40	0.19	29.55	41.96	0.19	29.09	41.31	0.19	29.13	41.36	0.19	30.87	43.84	0.19	30.87	43.84	0.41	31.36	44.53
N17	258.26	8	24	0.071	30.93	43.92	0.25	29.71	42.19	0.25	29.34	41.66	0.25	27.81	39.49	0.25	28.89	41.02	0.25	29.04	41.24	0.25	30.36	43.11	0.25	30.36	43.11	0.55	30.81	43.75
N18	258.01	8	24	0.071	31.18	44.28	0.25	29.92	42.49	0.25	29.58	42.00	0.25	28.35	40.26	0.25	28.85	40.97	0.25	29.10	41.32	0.25	30.59	43.44	0.25	30.59	43.44	0.55	31.06	44.11
N19	258.16	7	21	0.062	31.03	44.06	0.22	29.73	42.22	0.22	29.41	41.76	0.22	28.69	40.74	0.22	28.44	40.38	0.22	28.79	40.88	0.22	30.42	43.20	0.22	30.42	43.20	0.48	30.90	43.88
N20	257.92	10	30	0.089	31.27	44.40	0.31	29.97	42.56	0.31	29.65	42.10	0.31	28.96	41.12	0.31	27.93	39.66	0.31	29.01	41.19	0.31	30.66	43.54	0.31	30.66	43.54	0.69	31.14	44.22
N21	257.81	8	24	0.071	31.38	44.56	0.25	30.08	42.71	0.25	29.76	42.26	0.25	29.10	41.32	0.25	27.31	38.78	0.25	29.11	41.34	0.25	30.77	43.69	0.25	30.77	43.69	0.55	31.25	44.38
N22	257.87	7	21	0.062	31.32	44.47	0.22	30.01	42.61	0.22	29.70	42.17	0.22	29.09	41.31	0.22	25.98	36.89	0.22	29.04	41.24	0.22	30.71	43.61	0.22	30.71	43.61	0.48	31.19	44.29
N23	257.63	0	0	0.000	31.56	44.82	0.00	30.25	42.96	0.00	29.94	42.51	0.00	29.49	41.88	0.00	26.31	37.36	0.00	29.23	41.51	0.00	30.95	43.95	0.00	30.95	43.95	0.00	31.43	44.63
N24	257.96	10	30	0.089	31.23	44.35	0.31	29.91	42.47	0.31	29.60	42.03	0.31	29.22	41.49	0.31	27.29	38.75	0.31	28.89	41.02	0.31	30.61	43.47	0.31	30.61	43.47	0.69	31.10	44.16
N25	257.75	10	30	0.089	31.44	44.64	0.31	30.12	42.77	0.31	29.81	42.33	0.31	29.47	41.85	0.31	28.44	40.38	0.31	29.09	41.31	0.31	30.82	43.76	0.31	30.82	43.76	0.69	31.31	44.46
N26	257.21	5	15	0.044	31.98	45.41	0.15	30.44	43.22	0.15	30.38	43.14	0.15	30.51	43.32	0.15	30.41	43.18	0.15	30.37	43.13	0.15	31.24	44.36	0.15	31.24	44.36	0.35	31.86	45.24
N27	256.85	9	27	0.080	32.34	45.92	0.28	30.80	43.74	0.28	30.84	43.79	0.28	30.97	43.98	0.28	30.88	43.85	0.28	30.85	43.81	0.28	31.56	44.82	0.28	31.56	44.82	0.62	32.22	45.75
N28	257.07	10	30	0.089	32.12	45.61	0.31	30.58	43.42	0.31	30.71	43.61	0.31	30.84	43.79	0.31	30.76	43.68	0.31	30.73	43.64	0.31	31.32	44.47	0.31	31.32	44.47	0.69	32.00	45.44
Total (Residential Lots)		**166**	**498**	1.470			5.14																							
Medium-Density Block																														
N2	256.50	120	288	0.850	32.69	46.42	2.98	32.03	45.48	2.98	32.18	45.70	2.98	32.24	45.78	2.98	32.21	45.74	2.98	32.20	45.72	78.97	30.82	43.76	2.98	31.71	45.03	6.63	32.60	46.29
N5	257.35	29	68	0.202	31.84	45.21	2.98	29.92	42.49	2.98	30.18	42.86	2.98	30.43	43.21	2.98	30.35	43.10	2.98	30.33	43.07	0.71	31.07	44.12	0.71	31.07	44.12	1.57	31.71	45.03
N9	257.11	32	76	0.223	32.08	45.55	2.98	30.30	43.03	2.98	30.40	43.17	2.98	30.59	43.44	2.98	30.49	43.30	2.98	30.47	43.27	0.78	31.33	44.49	0.78	31.33	44.49	1.74	31.95	45.37
N10	257.25	49	117	0.345	31.94	45.35	2.98	30.23	42.93	2.98	30.25	42.96	2.98	30.42	43.20	2.98	30.32	43.05	2.98	30.28	43.00	1.21	31.20	44.30	1.21	31.20	44.30	2.69	31.81	45.17
Mixed-Use Block																														
N3	255.80	45	134	0.395	33.39	47.41	1.38	32.74	46.49	1.38	32.88	46.69	1.38	32.94	46.77	1.38	32.91	46.73	1.38	32.90	46.72	1.38	32.41	46.02	77.38	31.56	44.82	3.08	33.30	47.29
Fire Hydrants																														
HYD1	257.07	0	0	0.000	32.12	45.61	76.00	29.90	42.46	0.00	30.68	43.57	0.00	30.88	43.85	0.00	30.81	43.75	0.00	30.79	43.72	0.00	31.31	44.46	0.00	31.31	44.46	0.00	32.00	45.44
HYD2	257.70	0	0	0.000	31.49	44.72	0.00	29.73	42.22	0.00	29.58	42.00	0.00	30.00	42.60	0.00	29.92	42.49	0.00	29.91	42.47	0.00	30.75	43.67	0.00	30.75	43.67	0.00	31.36	44.53
HYD3	257.48	0	0	0.000	31.71	45.03	0.00	30.22	42.91	76.00	29.20	41.46	0.00	30.10	42.74	0.00	30.05	42.67	0.00	30.06	42.69	0.00	31.03	44.06	0.00	31.03	44.06	0.00	31.59	44.86
HYD4	257.75	0	0	0.000	31.44	44.64	0.00	30.24	42.94	0.00	29.77	42.27	0.00	29.69	42.16	0.00	29.77	42.27	0.00	29.79	42.30	0.00	30.88	43.85	0.00	30.88	43.85	0.00	31.33	44.49
HYD5	258.26	0	0	0.000	30.93	43.92	0.00	29.70	42.17	0.00	29.34	41.66	76.00	27.65	39.26	0.00	28.84	40.95	0.00	29.01	41.19	0.00	30.36	43.11	0.00	30.36	43.11	0.00	30.81	43.75
HYD6	258.08	0	0	0.000	31.11	44.18	0.00	29.81	42.33	0.00	29.49	41.88	0.00	28.80	40.90	0.00	28.54	40.53	0.00	28.86	40.98	0.00	30.50	43.31	0.00	30.50	43.31	0.00	30.98	43.99
HYD7	257.64	0	0	0.000	31.55	44.80	0.00	30.25	42.96	0.00	29.93	42.50	0.00	29.26	41.55	0.00	27.73	39.38	0.00	29.29	41.59	0.00	30.94	43.93	0.00	30.94	43.93	0.00	31.42	44.62
HYD8	257.60	0	0	0.000	31.59	44.86	0.00	30.28	43.00	0.00	29.97	42.56	0.00	29.44	41.80	76.00	24.44	34.70	0.00	29.28	41.58	0.00	30.98	43.99	0.00	30.98	43.99	0.00	31.46	44.67
HYD9	258.00	0	0	0.000	31.19	44.29	0.00	29.87	42.42	0.00	29.56	41.98	0.00	29.19	41.45	0.00	27.52	39.08	0.00	28.84	40.95	0.00	30.57	43.41	0.00	30.57	43.41	0.00	31.06	44.11
HYD10	257.73	0	0	0.000	31.46	44.67	0.00	30.11	42.76	0.00	29.82	42.34	0.00	29.57	41.99	0.00	29.16	41.41	76.00	28.93	41.08	0.00	30.83	43.78	0.00	30.83	43.78	0.00	31.33	44.49
HYD11	256.89	0	0	0.000	32.30	45.87	0.00	30.76	43.68	0.00	30.76	43.68	0.00	30.89	43.86	0.00	30.80	43.74	0.00	30.76	43.68	0.00	31.54	44.79	0.00	31.54	44.79	0.00	32.18	45.70
HYD12	256.81	0	0	0.000	32.38	45.98	0.00	30.84	43.79	0.00	31.06	44.11	0.00	31.20	44.30	0.00	31.13	44.20	0.00	31.10	44.16	0.00	31.56	44.82	0.00	31.56	44.82	0.00	32.26	45.81
HYD13	257.28	0	0	0.000	31.91	45.31	0.00	30.25	42.96	0.00	30.21	42.90	0.00	30.37	43.13	0.00	30.27	42.98	0.00	30.23	42.93	0.00	31.18	44.28	0.00	31.18	44.28	0.00	31.78	45.13
Min.	255.80				30.93	43.92		29.65	42.10		29.14	41.38		27.65	39.26		24.44	34.70		28.79	40.88		30.36	43.11		30.36	43.11		30.81	43.75
Max.	258.26				33.39	47.41		32.74	46.49		32.88	46.69		32.94	46.77		32.91	46.73		32.90	46.72		32.41	46.02		31.71	45.03		33.30	47.29
	Total:	**439**	**1,181**																											

[1] System pressure in watermain.

Shaded cell denotes fire flow applied at Hydrant

NODES: AVERAGE DAY DEMAND CALCULATION SHEET
Low-Density: 3.0 persons/lot, Medium-Density: 75 units/ha, 2.4 people/unit, Commercial: 100people/ha
Average Day Demand = 255 L/day/person = 0.002951 L/s/person
166 Low-Density / Single Family lots, Estimated Population = 498 people
Medium-Density, Area = 1.60 Hectares, Estimated Population = 288 people
Medium-Density (Street-Facing Towns), Area = 1.45 Hectares, Estimated Population = 261 people
Commercial Block, Area = 1.34 Hectares, Estimated Population = 134 people
1 m of head to 1.42 psi
Boundary Condition = 289.19 m of hydraulic head.

Appendix C

Water Distribution Analysis

187 Dorchester Road

- **Overall Pipe Summary of Flow Rate, Velocity, and Water Age – Pipes**

Dorchester Subdivision (Sifton) - Watermain Hydraulic Analysis

60568894

Site Location: 187 Dorchester Road, Thames Centre, Ontario
Client: Sifton Properties Ltd.

June 1, 2020

Table C-1: Pipe Information Summary - EPANET Water Model

Pipe ID	Street	Pipe		Upstream Node	Downstream Node	Roughness	Average Day Demand			Max Day+Fire = (3.5 x Avg)+76 L/s Fire Flow at Node HYD1		Max Day+Fire = (3.5 x Avg)+76 L/s Fire Flow at Node HYD3		Max Day+Fire = (3.5 x Avg)+76 L/s Fire Flow at Node HYD5		Max Day+Fire = (3.5 x Avg)+76 L/s Fire Flow at Node HYD8		Max Day+Fire = (3.5 x Avg)+76 L/s Fire Flow at Node HYD10		Max Day+Fire = (3.5 x Avg)+76 L/s Fire Flow at Node 2		Max Day+Fire = (3.5 x Avg)+76 L/s Fire Flow at Node 3		Peak Hour = 7.8 x Avg day demand	
		Length m	Diameter mm				Flow L/s	Velocity m/s	Water Age hrs	Flow L/s	Velocity m/s	Flow L/s	Velocity m/s	Flow L/s	Velocity m/s	Flow L/s	Velocity m/s	Flow L/s	Velocity m/s	Flow L/s	Velocity m/s	Flow L/s	Velocity m/s	Flow L/s	Velocity m/s
P1	STREET A	106.0	250	WM1	N1	110	2.16	0.040	0.29	51.24	1.04	44.89	0.91	41.99	0.86	43.24	0.88	43.60	0.89	63.78	1.30	63.78	1.30	16.85	0.34
P2	MEDIUM-DENSITY	21.7	200	N1	N2	110	0.85	0.030	0.74	2.97	0.09	2.97	0.09	2.97	0.09	2.97	0.09	2.97	0.09	78.97	2.51	2.97	0.09	6.63	0.21
P3	COMMERCIAL	21.7	200	N1	N3	110	0.40	0.010	0.87	1.38	0.04	1.38	0.04	1.38	0.04	1.38	0.04	1.38	0.04	1.38	0.04	77.38	2.46	3.08	0.10
P4	STREET A	56.8	200	N1	N4	110	0.92	0.030	0.90	46.88	1.49	40.53	1.29	37.63	1.20	38.88	1.24	39.24	1.25	-16.58	0.53	-16.58	0.53	7.14	0.23
P5	STREET B	47.2	200	N4	HYD1	110	0.53	0.020	1.56	45.07	1.43	26.47	0.84	23.25	0.74	23.88	0.76	23.91	0.76	-10.41	0.33	-10.41	0.33	4.10	0.13
P6	STREET B	41.1	200	HYD1	N5	110	0.53	0.020	2.30	-30.93	0.98	26.47	0.84	23.25	0.74	23.88	0.76	23.91	0.76	-10.41	0.33	-10.41	0.33	4.10	0.13
P7	STREET B	70.0	200	N5	N6	110	0.04	0.000	10.06	-15.28	0.49	19.50	0.62	10.46	0.33	10.17	0.32	9.40	0.30	-5.95	0.19	-5.95	0.19	0.32	0.01
P8	STREET B	11.8	200	N6	HYD2	110	-0.05	0.000	18.12	-15.59	0.50	19.19	0.61	10.15	0.32	9.86	0.31	9.09	0.29	-6.26	0.20	-6.26	0.20	-0.37	0.01
P9	STREET B	47.3	200	HYD2	N7	110	-0.05	0.000	12.73	-15.59	0.50	19.19	0.61	10.15	0.32	9.86	0.31	9.09	0.29	-6.26	0.20	-6.26	0.20	-0.37	0.01
P10	STREET B	59.5	200	N7	N8	110	-0.13	0.000	6.39	-15.87	0.51	18.91	0.60	9.87	0.31	9.58	0.31	8.81	0.28	-6.54	0.21	-6.54	0.21	-1.00	0.03
P11	STREET D	94.5	200	N8	N11	110	0.11	0.000	8.25	1.00	0.03	-26.73	0.85	-2.18	0.07	5.76	0.18	9.58	0.30	3.80	0.12	3.80	0.12	0.82	0.03
P12	STREET D	19.9	200	N8	HYD3	110	-0.30	0.010	4.07	-17.12	0.54	45.39	1.44	11.80	0.38	3.57	0.11	-1.02	0.03	-10.59	0.34	-10.59	0.34	-2.38	0.08
P13	STREET D	32.5	200	HYD3	N12	110	-0.30	0.010	3.32	-17.12	0.54	-30.61	0.97	11.80	0.38	3.57	0.11	-1.02	0.03	-10.59	0.34	-10.59	0.34	-2.38	0.08
P14	STREET D	61.0	200	N12	N13	110	-0.38	0.010	2.16	-17.40	0.55	-30.89	0.98	11.52	0.37	3.29	0.10	-1.30	0.04	-10.87	0.35	-10.87	0.35	-3.00	0.10
P15	STREET D	23.8	200	N13	HYD4	110	-0.46	0.010	1.24	-17.65	0.56	-31.14	0.99	11.27	0.36	3.05	0.10	-1.54	0.05	-11.11	0.35	-11.11	0.35	-3.55	0.11
P16	STREET C	15.1	200	HYD4	N14	110	-0.46	0.010	0.87	-17.65	0.56	-31.14	0.99	11.27	0.36	3.05	0.10	-1.54	0.05	-11.11	0.35	-11.11	0.35	-3.55	0.11
P17	STREET D	116.6	200	N14	WM2	110	-1.33	0.040	0.34	-36.97	1.18	-43.32	1.38	-46.22	1.47	-44.97	1.43	-44.61	1.42	-24.43	0.78	-24.43	0.78	-10.36	0.33
P18	STREET D	93.4	200	N14	N17	110	0.37	0.010	1.84	8.05	0.26	5.10	0.16	45.20	1.44	22.42	0.71	17.84	0.57	5.57	0.18	5.57	0.18	2.86	0.09
P19	STREET D	11.5	200	N17	HYD5	110	0.30	0.010	3.12	7.80	0.25	4.85	0.15	44.96	1.43	22.17	0.71	17.59	0.56	5.32	0.17	5.32	0.17	2.30	0.07
P20	STREET D	61.8	200	HYD5	N18	110	0.30	0.010	4.21	7.80	0.25	4.85	0.15	-31.04	0.99	22.17	0.71	17.59	0.56	5.32	0.17	5.32	0.17	2.30	0.07
P21	STREET D	67.7	200	N18	N19	110	0.22	0.010	6.44	7.55	0.24	4.60	0.15	-31.29	1.00	21.92	0.70	17.34	0.55	5.07	0.16	5.07	0.16	1.75	0.06
P22	STREET D	70.3	200	N19	N20	110	0.20	0.010	11.53	2.12	0.07	1.46	0.05	-6.21	0.20	38.44	1.22	4.24	0.13	1.57	0.05	1.57	0.05	1.53	0.05
P23	STREET D	45.4	200	N20	HYD7	110	0.11	0.000	14.95	1.81	0.06	1.15	0.04	-6.52	0.21	38.13	1.21	3.93	0.13	1.26	0.04	1.26	0.04	0.84	0.03
P24	STREET D	23.2	200	HYD7	N21	110	0.11	0.000	17.74	1.81	0.06	1.15	0.04	-6.52	0.21	38.13	1.21	3.93	0.13	1.26	0.04	1.26	0.04	0.84	0.03
P25	STREET D	25.2	150	N21	N22	100	0.04	0.000	20.39	1.56	0.09	0.90	0.05	-6.77	0.38	37.88	2.14	3.68	0.21	1.01	0.06	1.01	0.06	0.28	0.02
P26	STREET C	36.1	150	N22	HYD8	100	-0.03	0.000	28.20	1.34	0.08	0.68	0.04	-6.99	0.40	37.66	2.13	3.46	0.20	0.79	0.04	0.79	0.04	-0.20	0.01
P27	STREET C	36.7	150	HYD8	N23	100	-0.03	0.000	21.28	1.34	0.08	0.68	0.04	-6.99	0.40	-38.34	2.17	3.46	0.20	0.79	0.04	0.79	0.04	-0.20	0.01
P28	STREET C	25.4	150	N23	N24	100	-0.03	0.000	15.38	1.34	0.08	0.68	0.04	-6.99	0.40	-38.34	2.17	3.46	0.20	0.79	0.04	0.79	0.04	-0.20	0.01
P29	STREET C	24.5	200	N24	HYD9	110	-0.11	0.000	12.04	1.03	0.03	0.37	0.01	-7.30	0.23	-38.65	1.23	3.15	0.10	0.48	0.02	0.48	0.02	-0.90	0.03
P30	STREET C	62.2	200	HYD9	N25	110	-0.11	0.000	8.74	1.03	0.03	0.37	0.01	-7.30	0.23	-38.65	1.23	3.15	0.10	0.48	0.02	0.48	0.02	-0.90	0.03
P31	STREET E	53.9	200	N25	N16	110	-0.20	0.010	5.23	0.72	0.02	0.06	0.00	-7.61	0.24	-38.96	1.24	2.84	0.09	0.17	0.01	0.17	0.01	-1.59	0.05
P32	STREET E	4.9	200	N19	HYD6	110	-0.03	0.000	23.89	5.22	0.17	2.92	0.09	-25.30	0.81	-16.73	0.53	12.89	0.41	3.28	0.10	3.28	0.10	-0.27	0.01
P33	STREET C	75.0	200	HYD6	N16	110	-0.03	0.000	13.67	5.22	0.17	2.92	0.09	-25.30	0.81	-16.73	0.53	12.89	0.41	3.28	0.10	3.28	0.10	-0.27	0.01
P34	STREET C	73.3	200	N14	N15	110	0.44	0.010	1.46	11.03	0.35	6.84	0.22	12.04	0.38	25.35	0.81	24.98	0.80	7.51	0.24	7.51	0.24	3.40	0.11
P35	STREET E	74.7	200	N15	N16	110	0.35	0.010	3.13	10.72	0.34	6.53	0.21	11.72	0.37	25.04	0.80	24.67	0.79	7.19	0.23	7.19	0.23	2.71	0.09
P36	STREET E	14.9	200	N16	HYD10	110	0.06	0.000	5.23	16.47	0.52	9.33	0.30	-21.37	0.68	-30.84	0.98	40.21	1.28	10.46	0.33	10.46	0.33	0.44	0.01
P37	STREET B	85.1	200	HYD10	N11	110	0.06	0.000	13.04	16.47	0.52	9.33	0.30	-21.37	0.68	-30.84	0.98	-35.79	1.14	10.46	0.33	10.46	0.33	0.44	0.01
P38	STREET B	68.9	200	N11	N26	110	-0.12	0.000	12.70	-0.88	0.03	-13.13	0.42	-13.45	0.43	-14.07	0.45	-14.40	0.46	7.10	0.23	7.10	0.23	-0.97	0.03
P39	STREET B	41.5	200	N26	HYD11	110	-0.17	0.010	9.21	-1.03	0.03	-13.29	0.42	-13.61	0.43	-14.22	0.45	-14.56	0.46	6.95	0.22	6.95	0.22	-1.31	0.04
P40	STREET B	27.0	200	HYD11	N27	110	-0.17	0.010	7.43	-1.03	0.03	-13.29	0.42	-13.61	0.43	-14.22	0.45	-14.56	0.46	6.95	0.22	6.95	0.22	-1.31	0.04
P41	STREET B	54.4	200	N27	N28	110	-0.25	0.010	5.77	-1.31	0.04	-13.57	0.43	-13.89	0.44	-14.50	0.46	-14.84	0.47	6.67	0.21	6.67	0.21	-1.94	0.06
P42	STREET B	57.6	200	N28	HYD12	110	-0.34	0.010	4.07	-1.63	0.05	-13.88	0.44	-14.20	0.45	-14.82	0.47	-15.15	0.48	6.36	0.20	6.36	0.20	-2.63	0.08
P43	STREET E	83.4	200	HYD12	N4	110	-0.34	0.010	2.25	-1.63	0.05	-13.88	0.44	-14.20	0.45	-14.82	0.47	-15.15	0.48	6.36	0.20	6.36	0.20	-2.63	0.08
P44	STREET E	43.9	200	N11	HYD13	110	0.29	0.010	15.59	18.35	0.58	-4.27	0.14	-10.09	0.32	-11.01	0.35	-11.81	0.38	7.15	0.23	7.15	0.23	2.23	0.07
P45	STREET E	18.4	200	HYD13	N10	110	0.29	0.010	16.54	18.35	0.58	-4.27	0.14	-10.09	0.32	-11.01	0.35	-11.81	0.38	7.15	0.23	7.15	0.23	2.23	0.07
P46	STREET E	28.2	200	N10	N9	110	-0.06	0.000	6.69	17.14	0.55	-5.48	0.17	-11.30	0.36	-12.22	0.39	-13.02	0.41	5.95	0.19	5.95	0.19	-0.46	0.01
P47	STREET E	63.7	200	N9	N5	110	-0.28	0.010	3.62	16.36	0.52	-6.26	0.20	-12.08	0.38	-13.00	0.41	-13.80	0.44	5.17	0.16	5.17	0.16	-2.20	0.07
Min.		4.9	150			100	-1.33	0.000	0.29	-36.97	0.02	-43.32	0.00	-46.22	0.04	-44.97	0.04	-44.61	0.03	-24.43	0.01	-24.43	0.01	-10.36	0.01
Max.		116.6	250			110	2.16	0.040	28.20	51.24	1.49	45.39	1.44	45.20	1.47	43.24	2.17	43.60	1.42	78.97	2.51	77.38	2.46	16.85	0.34

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