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Technical Memorandum

Date: December 11, 2020 **Project No.:** 300034976.0002

Project Name: Bolton Residential Expansion Study
Preliminary Capital Costs – Water and Wastewater, Option 3 Lands

Client Name: Bolton Option 3 Landowners Group

Submitted To: Mr. Aaron Wisson

Submitted By: Ian Drever

As requested, R.J. Burnside and Associates Limited (Burnside) has prepared a preliminary assessment of capital costs of the external water and wastewater services associated with the Option 3 lands. The assessment has considered the infrastructure necessary to service the Option 3 lands on an interim, nominal, and oversized basis. Each scenario is better described as follows:

- Interim – Provision of trunk water and sanitary services necessary to service an initial phase of 60 hectares (at the average density proposed in the most current Block Plan) of the Option 3 lands without the need for a new elevated storage tank within a new Zone 7 water system. The infrastructure provided would service the 60 hectares of the Option 3 lands, as well as the Rounding Out Areas, and also address water pressure deficiencies of existing residents in the northern portion of Pressure Zone 6.
- Nominal – Provision of water (including elevated tank) and sanitary services necessary to service the entirety of the Option 3 lands only, as well as the Rounding Out Areas, and also address water pressure deficiencies of existing residents in the northern portion of Pressure Zone 6.
- Oversized - Provision of water and sanitary services necessary to service the entirety of the Option 3 lands, in addition to the future Whitebelt areas within Pressure Zone 7, as well as the Rounding Out Areas, and also address water pressure deficiencies of existing residents in the northern portion of Pressure Zone 6. The trunk sanitary sewer is routed through the Employment lands in Option 5 to Humber Station Road, and north to King Street, consistent with the alignment shown in the Region's 2020 Water and Wastewater Master Plan. The oversized analysis includes the provision of trunk water and wastewater servicing to accommodate all of the Option 4 lands, and approximately half of the Employment lands in Option 5.

For each scenario, the variant is the extent to which water servicing is provided. The trunk sanitary sewer would be sized for the nominal catchment in the case of the interim and nominal water scenarios. It would be sized for the ultimate catchment in the oversized scenario.

Cost estimates have been prepared on a total capital cost basis. Population forecasts for the Option 3 lands have been provided by Gerrard Design, and are based on a preliminary Block Plan for Option 3 dated November 19, 2020. Population forecasts for the other BRES lands are based on estimated net developable areas provided by Gerrard Design and a population and employment density forecast of 65 persons and jobs per hectare. Forecasts of future Whitebelt populations are based on estimated net developable area by Burnside, and a population and employment density forecast of 65 persons and jobs per hectare. The table below summarizes total population and employment considered for this analysis:

Table 1: Total Population and Employment Considered

Area	Estimated Net Developable Area (ha)	Estimated Population and Employment Forecast
Option 3	170.8	14717
Option 4	156.8	10192
Option 5	182.0	11830
Rounding Out Areas	25.0	1625
Future Whitebelt Lands (Pressure Zone 7 only)	266.0	17290

Preliminary sizing of facilities from which estimates are derived is based on current Region of Peel criteria for Master Planning, as adopted through the 2020 Water and Wastewater Master Plan for the Lake Based System. More specifically, the following criteria are used:

- Water Consumption
  - Residential - 270 L/cap/d and a Maximum Day Peaking Factor of 1.8
  - Employment - 250 L/cap/d and a Maximum Day Peaking Factor of 1.4
  - Peak Hour Factor of 3.0
- Wastewater Generation
  - Residential - 290 L/cap/d
  - Employment - 270 L/cap/d
  - Inflow and Infiltration Allowance - 0.26 L/s/ha

The cost estimates include only those projects necessary to extend trunk servicing “to the door” of each servicing area. Servicing internal to the lands has not been included (with the exception of a trunk feedermain through the Option 3 lands to the Zone 7 Elevated Tank). Watermain

sizing for the Option 3 lands is based on a boundary condition Infowater model prepared by Burnside.

Preliminary cost estimates have been developed at a Master Plan Level of accuracy using the Cost Estimating Framework established by the Region of Peel and included as Appendix B to each of the 2020 Water and Wastewater Master Plans.

The Cost Estimating Framework establishes 2020 unit rates for various sizes of water and wastewater infrastructure based on a historical review of construction costs within the Region. Base construction costs are calculated by multiplying the appropriate unit rate by the size or length of infrastructure required. For the purposes of this analysis, the 2020 unit rates established in the Water and Wastewater Master Plan have been used. Consistent with the Cost Estimating Framework approach, a number of factors and/or allowances are applied to the base construction cost to establish an overall capital cost for each component or segment of infrastructure as follows:

- Construction uplift allowance varying with the project environment ranging from greenfield to urban.
- Additional construction cost allowance varying with project complexity to address items such as mobilization, traffic management etc.
- Provisional allowance over and above the base construction cost for labour and materials.
- Varying allowances for the following soft costs associated with each project, based on project complexity or value:
  - Geotechnical and hydrogeological fees
  - Engineering design and contract administration fees, both external consultant and Region staff
  - Property and easement acquisitions
  - Environmental assessments and permitting
- Project contingency allowance varying based on project complexity.

Detailed calculations are attached to this memorandum. Estimated costs for water and wastewater for each scenario are summarized in the following table on a total cost basis.

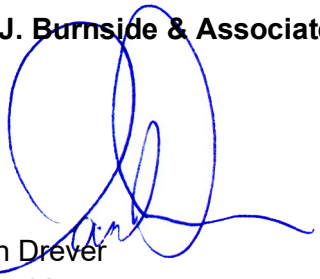
Table 2: Summary of Water and Wastewater Servicing Cost – Option 3 Lands

Scenario	Total Water Servicing Cost	Total Wastewater Servicing Cost	Population and Employment Serviced
Option 3 Interim	$15,871,960	$38,158,356	9845
Option 3 Nominal	$22,812,608	$38,156,356	19342
Option 3 Strategic Oversizing	$50,441,503	$47,650,432	48114

Servicing of the Option 3 lands provides the following additional infrastructure benefits:

- Effectively addresses water pressure issues for existing residents at the upper limit of Zone 6 through redefining the boundary between Zone 6 and the new Zone 7.
- Allows for the development of the Rounding Out Areas without creating additional water pressure issues within the existing Zone 6.
- Establishes trunk sanitary sewer through the Option 4 lands and Employment lands in Option 5, allowing these lands to be serviced at nominal additional cost through the extension of Zone 6 watermains.
- Allows for future servicing of the Option 1 and 2 lands through expansion of the Zone 7 Booster Pumping Station constructed to service Option 3.

R.J. Burnside & Associates Limited



Ian Drever
President
ID:lam

Enclosure(s) Water and Wastewater Estimating Summary Table
Water Capital Cost Estimating Spreadsheets (Tables A1, B1 and C1)
Wastewater Capital Cost Estimating Spreadsheets (Table A2, B2)

SUMMARY TABLE

Project #: 34976.0002

9-Dec-20

BRES SERVICING COSTS - WATER AND WASTEWATER SERVICING STRATEGIES

Option	Total Water Servicing Cost	Total Wastewater Servicing Cost	Population and Employment Serviced	Cost Per Capita	Comments
Option 3 Interim	$ 15,871,960	$ 38,158,356	9845	$ 5,488.10	Extends water and wastewater trunk servicing to a portion of Option 3 lands (60 ha.), plus Zone 7 water service for rounding out areas and 3000 existing residents
Option 3 Nominal	$ 22,812,608	$ 38,158,356	19342	$ 3,152.26	Extends water and wastewater trunk servicing to the entirety of the Option 3 lands, plus Zone 7 water service for rounding out areas and 3000 existing residents.
Option 3 Strategic Oversizing	$ 50,441,503	$ 47,650,432	48114	$ 2,038.74	Extends water and wastewater trunk servicing to the Option 3, 4 and 5 lands, plus Zone 7 water service for rounding out areas and 3000 existing residents, with pumping station and reservoir allowance for future Whitebelt lands

TABLE A1

BRES SERVICING COSTS - WATER SERVICING STRATEGIES

Water - Strategic Oversizing

Project #: 34976.0002
9-Dec-20

Option 3

Project #	Project Description	Type	Size	Unit	Unit	Unit Rate	Length (m) or Capacity (L/s or ML)	Base Cost ($)	Construction Uplift ($)	Additional Costs ($) Low/High	Crossings ($)	Construction Total ($)	Geotech/Hydrog Requirements ($) Medium	Property / Easement ($) Medium	Engineering (Internal Staff) ($) <$10M	Engineering Consulting External ($) <$10M	Soft Costs Total ($)	Sub-Total Cost ($)	Engineering / Contingency ($) Medium	Non-refundable HST 1.76%	Total Estimated Cost (2020$)	Cost Per Capita Serviced Population (2020$)
1	Z6 Feedermain from ex. 1050 mm main on Coleraine to Zone 7 BPS	WM	600	mm	$ per m	$ 1,337	1,038	$ 1,387,806	$ 277,561	$ 277,561	$ 480,000	$ 2,422,928	$ 48,459	$ 48,459	$ 193,834	$ 363,439	$ 654,191	$ 3,077,119	$ 461,568	$ 62,281	$ 3,600,968	$ 92
2	Z7 BPS at King/Coleraine	PS	219.22	L/s	$ per l/s	$ 13,000	219	$ 2,849,828	$ 284,983	$ 427,474		$ 3,562,284	$ 71,246	$ 71,246	$ 213,737	$ 534,343	$ 890,571	$ 4,452,855	$ 667,928	$ 90,126	$ 5,210,910	$ 134
3	Z7 Feedermain on King through Option 3 lands to E.T.	WM	600	mm	$ per m	$ 1,337	3,050	$ 4,077,850	$ 407,785	$ 611,678	$ 480,000	$ 5,577,313	$ 55,773	$ 83,660	$ 446,185	$ 836,597	$ 1,422,215	$ 6,999,527	$ 1,049,929	$ 141,670	$ 8,191,127	$ 210
4	E.T for Option 3	ET	8.9	ML	$ per ML	$ 900,000	9	$ 7,999,985	$ -	$ 799,999		$ 8,799,984	$ 176,000	$ 176,000	$ 703,999	$ 1,319,998	$ 2,375,996	$ 11,175,979	$ 1,676,397	$ 226,202	$ 13,078,578	$ 336
5	Z7 Feedermain from E.T. to Gore/King	WM	600	mm	$ per m	$ 1,337	1,980	$ 2,647,260	$ -	$ 264,726		$ 2,911,986	$ 29,120	$ 43,680	$ 232,959	$ 436,798	$ 742,556	$ 3,654,542	$ 548,181	$ 73,968	$ 4,276,692	$ 110
6	Z7 Feedermain King Street from Gore Road to Humber Station Road	WM	400	mm	$ per m	$ 873	1,330	$ 1,161,090	$ 116,109	$ 174,164		$ 1,451,363	$ 14,514	$ 21,770	$ 116,109	$ 217,704	$ 370,097	$ 1,821,460	$ 273,219	$ 36,866	$ 2,131,545	$ 55
	Sub-total Water Option 3							$ 20,123,819	$ 1,086,438	$ 2,555,601	$ 960,000	$ 24,725,858	$ 395,111	$ 444,814	$ 1,906,823	$ 3,708,879	$ 6,455,626	$ 31,181,483	$ 4,677,223	$ 631,113	$ 36,489,819	$ 936

Option 4

Project #	Project Description	Type	Size	Unit	Unit	Unit Rate	Length (m) or Capacity (L/s or ML)	Base Cost ($)	Construction Uplift ($)	Additional Costs ($) Low/High	Crossings ($)	Construction Total ($)	Geotech/Hydrog Requirements ($) Medium	Property / Easement ($) Medium	Engineering (Internal Staff) ($) <$10M	Engineering Consulting External ($) <$10M	Soft Costs Total ($)	Sub-Total Cost ($)	Engineering / Contingency ($) Medium	Non-refundable HST 1.76%	Total Estimated Cost (2020$)	Cost Per Capita Serviced Population (2020$)
1	Z6 Feedermain from North Bolton E.T. to Humber Station Road	WM	600	mm	$ per m	$ 1,337	800	$ 1,069,600	$ -	$ 106,960		$ 1,176,560	$ 5,883	$ 11,766	$ 94,125	$ 176,484	$ 288,257	$ 1,464,817	$ 219,723	$ 29,648	$ 1,714,188	$ 168
2	Z6 Feedermain on Humber Station Road (total length 1550 m)	WM	600	mm	$ per m	$ 1,337	1,550	$ 2,072,350	$ 207,235	$ 310,853	$ 160,000	$ 2,750,438	$ 27,504	$ 41,257	$ 220,035	$ 412,566	$ 701,362	$ 3,451,799	$ 517,770	$ 69,864	$ 4,039,433	$ 396
	Sub-total Water Option 4							$ 3,141,950	$ 207,235	$ 417,813	$ 160,000	$ 3,926,998	$ 33,387	$ 53,022	$ 314,160	$ 589,050	$ 989,619	$ 4,916,616	$ 737,492	$ 99,512	$ 5,753,621	$ 565

Option 5

Project #	Project Description	Type	Size	Unit	Unit	Unit Rate	Length (m) or Capacity (L/s or ML)	Base Cost ($)	Construction Uplift ($)	Additional Costs ($) Low/High	Crossings ($)	Construction Total ($)	Geotech/Hydrog Requirements ($) Medium	Property / Easement ($) Medium	Engineering (Internal Staff) ($) <$10M	Engineering Consulting External ($) <$10M	Soft Costs Total ($)	Sub-Total Cost ($)	Engineering / Contingency ($) Medium	Non-refundable HST 1.76%	Total Estimated Cost (2020$)	Cost Per Capita Serviced Population (2020$)
2	Z6 Feedermain on Healey Road from Humber Station Road to Coleraine Drive	WM	600	mm	$ per m	$ 1,337	1,375	$ 1,838,375	$ 183,838	$ 275,756		$ 2,297,969	$ 22,980	$ 34,470	$ 183,838	$ 344,695	$ 585,982	$ 2,883,951	$ 432,593	$ 58,371	$ 3,374,915	$ 285
3	Z6 Feedermain on Coleraine Drive from Healey Road to exisitng Zone 6 Feedermair	WM	600	mm	$ per m	$ 1,337	675	$ 902,475	$ 180,495	$ 180,495		$ 1,263,465	$ 25,269	$ 25,269	$ 101,077	$ 189,520	$ 341,136	$ 1,604,601	$ 240,690	$ 32,477	$ 1,877,768	$ 159
4	Z6 Feedermain on Humber Station Road from Healey Road to 1200 m north	WM	600	mm	$ per m	$ 1,337	1,200	$ 1,604,400	$ 160,440	$ 240,660		$ 2,005,500	$ 20,055	$ 30,083	$ 160,440	$ 300,825	$ 511,403	$ 2,516,903	$ 377,535	$ 50,942	$ 2,945,380	$ 249
	Sub-total Water Option 5							$ 4,345,250	$ 524,773	$ 696,911	$ -	$ 5,566,934	$ 68,304	$ 89,821	$ 445,355	$ 835,040	$ 1,438,520	$ 7,005,454	$ 1,050,818	$ 141,790	$ 8,198,062	$ 693

TABLE A2

BRES SERVICING COSTS - WASTEWATER SERVICING STRATEGIES

Wastewater - Strategic Oversizing

Project #: 34976.0002
9-Dec-20

Option 3

Project #	Project Description	Type	Size	Unit	Unit Cost ($/m) < 5m, or $/L/s)	Unit Cost ($/m) > 5m depth	Unit	Length (m) <5m depth or Capacity (L/s or ML)	Length (m) >5m depth	Base Cost ($)	Construction Uplift ($) Suburban	Additional Costs ($) Medium	# Minor Creek Crossings	Minor Creek Crossing ($)	# Minor Rd / Utility Corridor Crossing	Minor Rd / Utility Corridor Crossing ($)	# Major Creek/ Major Road Crossing	Major Creek/ Major Road Crossing ($)	Crossings ($)	Trenchless Length (m)	Trenchless Cost ($)	Provisional Allowance 10%	Construction Total ($)	Geotech/Hydrog Requirements ($) **Medium**	Property / Easement ($) **Medium**	Engineering (Internal Staff) ($) **<$10M**	Engineering Consulting External ($) **<$10M**	Soft Costs Total($)	Sub-Total Cost ($)	Engineering / Contingency ($) Medium	Non-refundable HST 1.76%	Total Estimated Cost (2020$)	Cost Per Capita Serviced Population (2020$) - Option 3 Only	Cost Per Capita Serviced Population (2020$) - Option 3 and 4 Only	Cost Per Capita Serviced Population (2020$) - Option 3, 4 and 5 Only
1	750 mm diameter sewer on Coleraine Drive from existing trunk sewer to Holland Drive	WWM	750	mm	$ 1,440	$ 3,757	$ per m	-	2,040	$ 7,664,280	$ 1,532,856	$ 1,532,856	1	$ 164,000					$ 164,000			$ 1,089,399	$ 11,983,391	$ 239,668	$ 239,668	$ 719,003	$ 1,438,007	$ 2,636,346	$ 14,619,737	$ 2,192,961	$ 295,903	$ 17,108,601	$ 1,163	$ 687	$ 466
2	750 mm diameter sewer from Coleraine Drive/Holland Road to Humber Station Road	WWM	750	mm	$ 1,440	$ 3,757	$ per m	-	1,365	$ 5,128,305	$ 512,831	$ 769,246							$ -			$ 641,038	$ 7,051,419	$ 70,514	$ 105,771	$ 564,114	$ 1,057,713	$ 1,798,112	$ 8,849,531	$ 1,327,430	$ 179,115	$ 10,356,076	$ 704	$ 416	$ 282
3	675 mm diameter sewer on Humber Station Road from 1100 m north of Healey Road to King Street	WWM	675	mm	$ 1,295	$ 3,573	$ per m	-	1,900	$ 6,788,700	$ 678,870	$ 1,018,305			1	$ 486,000			$ 486,000			$ 897,188	$ 9,869,063	$ 98,691	$ 148,036	$ 789,525	$ 1,480,359	$ 2,516,611	$ 12,385,673	$ 1,857,851	$ 250,686	$ 14,494,210	$ 985	$ 582	$ 378
4	675 mm diameter sewer on King Street from Humber Station Road to Option 3 Collector Road	WWM	675	mm	$ 1,295	$ 3,573	$ per m	-	680	$ 2,429,640	$ 242,964	$ 364,446			1	$ 486,000			$ 486,000			$ 352,305	$ 3,875,355	$ 38,754	$ 58,130	$ 310,028	$ 581,303	$ 988,216	$ 4,863,571	$ 729,536	$ 98,439	$ 5,691,545	$ 387	$ 228	$ 155
	Sub-Total Wastewater Option 3									$ 22,010,925	$ 2,967,521	$ 3,684,853	1	$ 164,000	2	$ 972,000		$ -	$ 1,136,000		$ -	$ 2,979,930	$ 32,779,228	$ 447,626	$ 551,605	$ 2,382,670	$ 4,557,382	$ 7,939,284	$ 40,718,513	$ 6,107,777	$ 824,143	$ 47,650,432	$ 3,238	$ 1,913	$ 1,280

Note: Excludes ROA's and per capita whitebelt)

TABLE B1

BRES SERVICING COSTS - WATER SERVICING STRATEGIES

Water - Nominal (Servicing November 19, 2020 Land Use Plan)

Project #: 34976.0002
9-Dec-20

Option 3

Project #	Project Description	Type	Size	Unit	Unit	Unit Rate	Length (m) or Capacity (L/s or ML)	Base Cost ($)	Construction Uplift ($)	Additional Costs ($) **Low/High**	Crossings ($)	Construction Total ($)	Geotech/Hydrog Requirements ($) **Medium**	Property / Easement ($) **Medium**	Engineering (Internal Staff) ($) **<$10M**	Engineering Consulting External ($) **<$10M**	Soft Costs Total ($)	Sub-Total Cost ($)	Engineering / Contingency ($) Medium	Non-refundable HST 1.76%	Total Estimated Cost ($2020)	Cost Per Capita Serviced Population (2020$)
1	Z6 Feedermain from ex. 1050 mm main on Coleraine to Zone 7 BPS	WM	600	mm	$ per m	$ 1,337	1,038	$ 1,387,806	$ 277,561	$ 277,561	$ 480,000	$ 2,422,928	$ 48,459	$ 48,459	$ 193,834	$ 363,439	$ 654,191	$ 3,077,119	$ 461,568	$ 62,281	$ 3,600,968	$ 186
2	Z7 BPS at King/Coleraine	PS	108.80	L/s	$ per l/s	$ 23,000	109	$ 2,502,371	$ 250,237	$ 375,356		$ 3,127,964	$ 62,559	$ 62,559	$ 250,237	$ 469,195	$ 844,550	$ 3,972,514	$ 595,877	$ 80,404	$ 4,648,795	$ 240
3	Z7 Feedermain on King through Option 3 lands to E.T.	WM	400	mm	$ per m	$ 873	3,050	$ 2,662,650	$ 266,265	$ 399,398	$ 381,000	$ 3,709,313	$ 37,093	$ 55,640	$ 296,745	$ 556,397	$ 945,875	$ 4,655,187	$ 698,278	$ 94,221	$ 5,447,686	$ 282
4	E.T for Option 3	ET	5.9	ML	$ per ML	$ 900,000	5.9	$ 5,316,810	$ -	$ 531,681		$ 5,848,491	$ 116,970	$ 116,970	$ 467,879	$ 877,274	$ 1,579,092	$ 7,427,583	$ 1,114,137	$ 150,334	$ 8,692,055	$ 449
5	Z7 Feedermain from E.T. to Option 3 lands	WM	400	mm	$ per m	$ 873	300	$ 261,900	$ -	$ 26,190		$ 288,090	$ 2,881	$ 4,321	$ 23,047	$ 43,214	$ 73,463	$ 361,553	$ 54,233	$ 7,318	$ 423,104	$ 22
	Sub-total Water Option 3							$ 12,131,537	$ 794,063	$ 1,610,185	$ 861,000	$ 15,396,786	$ 267,962	$ 287,949	$ 1,231,743	$ 2,309,518	$ 4,097,171	$ 19,493,957	$ 2,924,093	$ 394,558	$ 22,812,608	$ 1,179

TABLE B2

BRES SERVICING COSTS - WASTEWATER SERVICING STRATEGIES

Wastewater - Nominal (Servicing November 19, 2020 Land Use Plan)

Project #: 34976.0002
9-Dec-20

Option 3

Project #	Project Description	Type	Size	Unit	Unit Cost ($/m) < 5m, or $/L/s)	Unit Cost ($/m) > 5m depth	Unit	Length (m) <5m depth or Capacity (L/s or ML)	Length (m) >5m depth	Base Cost ($)	Construction Uplift ($) **Suburban**	Additional Costs **Medium**	# Minor Creek Crossings	Minor Creek Crossing ($)	# Minor Rd / Utility Corridor Crossing	Minor Rd / Utility Corridor Crossing ($)	# Major Creek/ Major Road Crossing	Major Creek/ Major Road Crossing ($)	Crossings ($)	Trenchless Length (m)	Trenchless Cost ($)	Provisional Allowance 10%	Construction Total ($)	Geotech/Hydrog Requirements ($) **Medium**	Property / Easement ($) **Medium**	Engineering (Internal Staff) ($) **<$10M**	Engineering Consulting External ($) **<$10M**	Soft Costs Total($)	Sub-Total Cost ($)	Engineering / Contingency ($) **Medium**	Non-refundable HST 1.76%	Total Estimated Cost (2020$)	Cost Per Capita Serviced Population (2020$)
1	525 mm diameter sewer on Coleraine Drive from existing trunk sewer to Holland Drive	WWM	525	mm	$ 820	$ 2,955	$ per m		2,040	$ 6,028,200	$ 1,205,640	$ 904,230	1	$ 130,000					$ 130,000			$ 826,807	$ 9,094,877	$ 90,949	$ 136,423	$ 727,590	$ 1,364,232	$ 2,319,194	$ 11,414,071	$ 1,712,111	$ 231,021	$ 13,357,202	$ 908
2	525 mm diameter sewer from Coleraine Drive/Holland Road to Humber Station Road	WWM	525	mm	$ 820	$ 2,955	$ per m		1,365	$ 4,033,575	$ 403,358	$ 605,036							$ -			$ 504,197	$ 5,546,166	$ 55,462	$ 83,192	$ 443,693	$ 831,925	$ 1,414,272	$ 6,960,438	$ 1,044,066	$ 140,879	$ 8,145,383	$ 553
3	525 mm diameter sewer on Humber Station Road from 1100 m north of Healey Road to King Street	WWM	525	mm	$ 820	$ 2,955	$ per m		1,900	$ 5,614,500	$ 561,450	$ 842,175			1	$ 390,000			$ 390,000			$ 740,813	$ 8,148,938	$ 81,489	$ 122,234	$ 651,915	$ 1,222,341	$ 2,077,979	$ 10,226,917	$ 1,534,037	$ 206,993	$ 11,967,947	$ 813
4	525 mm diameter sewer on King Street from Humber Station Road to Option 3 Collector Road	WWM	525	mm	$ 820	$ 2,955	$ per m		680	$ 2,009,400	$ 200,940	$ 301,410			1	$ 390,000			$ 390,000			$ 290,175	$ 3,191,925	$ 31,919	$ 47,879	$ 255,354	$ 478,789	$ 813,941	$ 4,005,866	$ 600,880	$ 81,079	$ 4,687,824	$ 319
	Sub-Total Wastewater Option 3									$ 17,685,675	$ 2,371,388	$ 2,652,851	1	$ 130,000	2	$ 780,000	0	$ -	$ 910,000	0	$ -	$ 2,361,991	$ 25,981,905	$ 259,819	$ 389,729	$ 2,078,552	$ 3,897,286	$ 6,625,386	$ 32,607,291	$ 4,891,094	$ 659,972	$ 38,158,356	$ 2,593

TABLE C1

BRES SERVICING COSTS - WATER SERVICING STRATEGIES

Water - Interim (Servicing Initial Phase of 60 hectares)

Project #: 34976.0002
9-Dec-20

Option 3

Project #	Project Description	Type	Size	Unit	Unit	Unit Rate	Length (m) or Capacity (L/s or ML)	Base Cost ($)	Construction Uplift ($)	Additional Costs ($) **Low/High**	Crossings ($)	Construction Total ($)	Geotech/Hydrog Requirements ($) **Medium**	Property / Easement ($) **Medium**	Engineering (Internal Staff) ($) **<$10M**	Engineering Consulting External ($) **<$10M**	Soft Costs Total ($)	Sub-Total Cost ($)	Engineering / Contingency ($) Medium	Non-refundable HST 1.76%	Total Estimated Cost ($2020)	Cost Per Capita Serviced Population (2020$)
1	Z6 Feedermain from ex. 1050 mm main on Coleraine to Zone 7 BPS	WM	600	mm	$ per m	$ 1,337	1,038	$ 1,387,806	$ 277,561	$ 277,561	$ 480,000	$ 2,422,928	$ 48,459	$ 48,459	$ 193,834	$ 363,439	$ 654,191	$ 3,077,119	$ 461,568	$ 62,281	$ 3,600,968	$ 366
2	Z7 BPS at King/Coleraine	PS	55.38	L/s	$ per l/s	$ 23,000	55	$ 1,273,697	$ 127,370	$ 191,055		$ 1,592,121	$ 31,842	$ 31,842	$ 127,370	$ 238,818	$ 429,873	$ 2,021,994	$ 303,299	$ 40,925	$ 2,366,218	$ 240
3	Standy Fire Pump arrangement at Zone 7 BPS	PS	220.00	L/s	$ per l/s	$ 12,000	220	$ 2,640,000	$ 264,000	$ 396,000		$ 3,300,000	$ 66,000	$ 66,000	$ 264,000	$ 495,000	$ 891,000	$ 4,191,000	$ 628,650	$ 84,826	$ 4,904,476	$ 498
4	Z7 Feedermain on King from Z7 BPS to Option 3 Collector Road	WM	600	mm	$ per m	$ 1,337	1,750	$ 2,339,750	$ 233,975	$ 350,963	$ 480,000	$ 3,404,688	$ 34,047	$ 51,070	$ 272,375	$ 510,703	$ 868,195	$ 4,272,883	$ 640,932	$ 86,483	$ 5,000,298	$ 508
	Sub-total Water Option 3							$ 7,641,253	$ 902,906	$ 1,215,578	$ 960,000	$ 10,719,737	$ 180,348	$ 197,371	$ 857,579	$ 1,607,961	$ 2,843,259	$ 13,562,996	$ 2,034,449	$ 274,515	$ 15,871,960	$ 1,612