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HYDROLOGICAL REVIEW SUMMARY

The form is to be completed by the Professional that prepared the Hydrological Review.
Use of the form by the City of Toronto is not to be construed as verification of engineering/hydrological content.

Refer to the Terms of Reference, Hydrological Review:
http://www1.toronto.ca/static_files/CityPlanning/PDF/geotechnical.pdf

For City Staff Use Only:	
Name of ECS Case Manager (Please print)	
Date Review Summary provided to to TW, EM&P	

IF ANY OF THE REQUIREMENTS LISTED BELOW HAVE NOT BEEN INLCUDED IN THE HYDROLOGICAL REVIEW, THE REVIEW WILL BE CONSIDERED INCOMPLETE.
THE GREY SHADED BOXES WILL REQUIRE A CONSISTANCY CHECK BY THE ECS CASE MANAGER.

Summary of Key Information:

SITE INFORMATION		Page # & Section # of Review	Review Includes this Information City Staff (Check)
Site Address	4620 Eglinton Avenue West, and part of 250 Wincott Drive, Toronto, ON M9R 2R5	page 3	
Postal Code			
Property Owner (on request for comments memo)	Montrin Richview GP Inc.	page 3	
Proposed description of the project (if applicable) (point towers, number of podiums)	3 Point Towers on a 2 storey podium	S.3-1	
Land Use (ex. commercial, residential, mixed, institutional, industrial)	Mixed Use	p.3 para 1	
Number of below grade levels for the proposed structure	Two	p.3 para 1	
HYDROLOGICAL REVIEW INFORMATION			
Date Hydrological Review was prepared:	March 8, 2019 - update for revised bldg.		
Who Performed the Hydrological Review (Consulting Firm)	Brown Associates Limited		

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Name of Author of Hydrological Review	Dr. Bruce A. Brown, P.Eng.		
Check the directories on the website for Professional Geoscientists and/or Professional Engineers of Ontario been checked to ensure that the Hydrological Report has been prepared by a qualified person who is a licensed Professional Geoscientist as set out in the Professional Geoscientist Act of Ontario or a Professional Engineer? PEO: http://peo.on.ca/index.php?ci_id=1798&la_id=1 APGO: https://www.apgo.net/search/registered-members	PEO Number 5458013	N/A	
Has the Hydrological Review been prepared in accordance with all the following: • Ontario Water Resources Act • Ontario Regulation 387/04 • Toronto Municipal Code Chapter 681-Sewers	Yes		

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		Page # & Section # of every occurrence in the Review	Review Includes this Information City Staff (Check)
Total Volume (L/day) Short Term Discharge of groundwater (construction dewatering) **with safety factor included**	Zero Discharge, therefore no safety factor. Owner providing standard letter confirming no discharge and use of private services if required._____		
Total Volume (L/day) Short Term Discharge of groundwater (construction dewatering) **without safety factor included**	No short term discharge. See Owner's standard letter attached. Water Table is 7m below deepest excavation.	S. 4.2 para 4	
Total Volume (L/day) Long Term drainage of groundwater (from foundation drainage, weeping tiles, sub slab drainage) **with safety factor included** If the development is part of a multiple tower complex, include total volume for each separate tower	Estimate 2 lpm each tower, total 4 lpm, entering perimeter drainage board only. . What safety factor was used? _____ 100%. Note only precipitation entering drainage board around perimeters and discharge to perimeter drains (above water table) estimated and included. Water Table is 7m below deepest excavation in sand and gravel. Report states no groundwater entering system.	S. 4.2 para 1	
List the nearest surface water (river, creek, lake)	Humber River, 1 km to east.	Ontario base mapping	

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Lowest basement elevation	152m	S.3.1 para 1	
Foundation elevation	151.6m	S.3.1 para 1	
Ground elevation	162m		
STUDY AREA MAP		**Page # & Section # of every occurrence in the Review**	**Review Includes this Information City Staff (Check)**
Study area map(s) have been included in the report.	Yes		
Study area map(s) been prepared according to the Hydrological Review Terms of Reference.	ⓧ **Yes**	Encl 1-0	N/A
The onsite well(s) referenced in the report have been installed at locations that represent the entire proximity of the site (it is required that the well(s) be installed at a minimum of 38mm diameter and 2 meters below the lowest elevation in the proposed building structure(s) if the site is larger than 30m X 30m.	ⓧ **Yes** 50mm wells installed up to 17.4m below lowest structure.	Encl 2-0	N/A

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WATER LEVEL AND WELLS		Page # & Section # of every occurrence in the Review	Review Includes this Information (City Staff Initial)
The groundwater level has been monitored using all wells located on site (within property boundary).	In all wells which reached water table. Some experienced refusal in coarse sand, gravel and cabbles above water table.	Borehole Logs. Appendix B	
The static water level measurements have been monitored at all monitoring wells for a minimum of 3 months with samples taken every 2 weeks for a minimum of 6 samples. The intent is for the qualified professional to use professional judgement to estimate the seasonally high groundwater level.	Static water levels measured by several consultants (Pinchin, Golder, Jacques-Whitford, Brown) from time to time over several years.	S.2.2	
All water levels in the wells have been measured with respect to masl.	Yes		
A table of geology/soil stratigraphy for the property has been included.	Soil Stratigraphy shown in graphical form in sections 3.2 and 3.3.	Encl 3-2 & Encl 3-3	
GEOLOGY AND PHYSICAL HYDROLOGY		**Page # & Section # of every occurrence in the Review**	**Review Includes this Information (City Staff Initial)**
The review has made reference to the soil materials including thickness, composition and texture, and bedrock environments.	Yes. Bedrock found at 137.62m geodetic. See above cross sections 3.2, 3.3.	See BH Log 17-1.	
Key aquifers and the site's proximity to nearby surface water has been identified.	(X) **Yes** There is no nearby surface water.	Encl 1-0	N/A

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PUMP TEST/SLUG TEST/DRAWDOWN ANALYSIS		**Page # & Section # of every occurrence in the Review**	**Review Includes this Information City Staff (Check)**
A summary of the pumping test data and analysis is included in the review.	Not applicable. Pumping only for recovery of water quality samples.		
The pump test been carried out for at least 24 hours if possible. If not, has a slug test been conducted?	Not applicable - groundwater at least10m below foundations.		
Have the monitoring well(s) have been monitored using digital devices? If yes how frequently?	No. Not applicable		
If a slug or pump test has been conducted has the static groundwater level been monitored at all monitoring well(s) multiple times to measure recovery? -prior to the slug or pumping test(s)? -post slug or pumping test(s)?	◯ **Yes** No. Not applicable.		N/A
The above noted slug or pump tests have been included in the report.	◯ **Yes** No. Not applicable		
WATER QUALITY		**Page # & Section # of every occurrence in the Review**	**Review Includes this Information City Staff (Check)**
The report includes baseline water quality samples from a laboratory. The water quality must be analyzed for all parameters listed in Tables 1 and 2 of Chapter 681 Sewers of the			

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Toronto Municipal Code (found in Appendix A) and the samples must have to be taken unfiltered within 9 months of the date of submission.	Unfiltered water sample obtained on February 16, 2018. Groundwater 10m below deepest P2 elevation.	S.3.3 page 8	
The water quality data templates in Appendix A have been completed for each sample taken for both sanitary/combined and storm sewer limits.	For sanitary discharge- See the sanitary/combined sewer parameter limit template For storm discharge- See the storm sewer parameter limit template		
Qualified professional to list all sample parameters that have violated the Bylaw limits for each sample taken for the sanitary/combined Bylaw limits **If there are any sample parameter Exceedances the groundwater can't be discharged as is.**	Water sample exceeds sanitary standard for suspended solids only (810 mg/L vs standard 350 mg/l. Filtered water samples meet storm sewer standards, confirming all exceedances are in the suspended particle phase. No groundwater discharge to sanitary or storm is anticipated.	Appendix E	
Qualified professional to list all sample parameters that have violated the Bylaw limits for each sample taken for the storm Bylaw limits. **If there are any sample parameter exceedances the groundwater can't be discharged as is.**	TSS 810 mg/l (350) Zn 65 ug/l (40) P 780 ug/l (400) Mn 730 ug/l (50) Cu 42 ug/l (40)		

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The water quality samples have been analyzed by a Canadian laboratory accredited and licensed by Standards Council of Canada and/or Canadian Association for Laboratory Accreditation. List of Canadian accredited laboratories: https://www.scc.ca/en/search/palcan	ⓧ **Yes** Maxxam Mississauga		N/A
A chain of custody record for the samples is included with the report.	Yes (Brown Associates)		
Has the chain of custody reference any filtered sample? If yes, the report has to be amended and re-submitted to include only non-filtered samples.	No.		
List any of the sample parameters that exceed the Bylaw limits with the reporting detection limit (RDL) included.	No issues with Laboratory RDLs.		
A true copy of the Certificate of Analysis report, is included with the report.	C of A 18/2/28 Attached.	Appendix E	
EVALUATION OF IMPACT		**Page # & Section # of every occurrence in the Review**	**Review Includes this Information City Staff (Check)**
Does the report recommend a back-up system or relief safety valve(s)? Does the associated Geotechnical report recommend a back-up system or relief safety valve(s)?	◯ **Yes** ⓧ **No** ◯ **Yes** ⓧ **No**		
The taking and discharging of groundwater on site has been analyzed to ensure that no	ⓧ **Yes**		N/A

negative impacts will occur to: the City sewage works in terms of quality and quantity (including existing infrastructure), the natural environment, and settlement issues.			
Has it been determined that there will be a negative impact to the natural environment, City sewage works, or surrounding properties has the study identified the following: the extent of the negative impact, the detail of the precondition state of all the infrastructure, City sewage works, and natural environment within the effected zone and the proposed remediation and monitoring plan?	◯ **Yes** **If yes, identify impact:** Ⓧ **No**		N/A

Summary of Additional Information and Key Items (if applicable):

Please see owner's letter confirming no discharge from excavation during construction.

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Appendix A: See Appendix E of report

SANITARY/COMBINED **Sample Location:**

Inorganics		Sample Result	Sample Result with upper RDL included	
Parameter	mg/L			ug/L
BOD	300			300,000
Fluoride	10			10,000
TKN	100			100,000
pH	6.0 - 11.5			6.0 - 11.5
Phenolics 4AAP	1			1,000
TSS	350			350,000
Total Cyanide	2			2,000
Metals				
Chromium Hexavalent	2			2,000
Mercury	0.01			10
Total Aluminum	50			50,000
Total Antimony	5			5,000
Total Arsenic	1			1,000
Total Cadmium	0.7			700
Total Chromium	4			4,000
Total Cobalt	5			5,000
Total Copper	2			2,000
Total Lead	1			1,000
Total Manganese	5			5,000
Total Molybdenum	5			5,000
Total Nickel	2			2,000
Total Phosphorus	10			10,000
Total Selenium	1			1,000
Total Silver	5			5,000
Total Tin	5			5,000
Total Titanium	5			5,000
Total Zinc	2			2,000
Petroleum Hydrocarbons				
Animal/Vegetable Oil & Grease	150			150,000
Mineral/Synthetic Oil & Grease	15			15,000

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Volatile Organics		Sample Result	Sample Result with upper RDL included	
Parameter	mg/L			ug/L
Benzene	0.01			10
Chloroform	0.04			40
1,2-Dichlorobenzene	0.05			50
1,4-Dichlorobenzene	0.08			80
Cis-1,2-Dichloroethylene	4			4,000
Trans-1,3-Dichloropropylene	0.14			140
Ethyl Benzene	0.16			160
Methylene Chloride	2			2,000
1,1,2,2-Tetrachloroethane	1.4			1,400
Tetrachloroethylene	1			1,000
Toluene	0.016			16
Trichloroethylene	0.4			400
Total Xylenes	1.4			1,400
Semi-Volatile **Organics**				
Di-n-butyl Phthalate	0.08			80
Bis (2-ethylhexyl) Phthalate	0.012			12
3,3'-Dichlorobenzidine	0.002			2
Pentachlorophenol	0.005			5
Total PAHs	0.005			5
Misc **Parameters**				
Nonylphenols	0.02			20
Nonylphenol Ethoxylates	0.2			200

Sample Collected:
Temperature:

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STORM **Sample Location:** See Appendix E of Report

Inorganics		Sample Result	Sample Result with upper RDL included	
Parameter	**mg/L**			**ug/L**
pH	6.0 - 9.5			
BOD	15			15,000
Phenolics 4AAP	0.008			8
TSS	15			15,000
Total Cyanide	0.02			20
Metals				
Total Arsenic	0.02			20
Total Cadmium	0.008			8
Total Chromium	0.08			80
Chromium Hexavalent	0.04			40
Total Copper	0.04			40
Total Lead	0.12			120
Total Manganese	0.05			50
Total Mercury	0.0004			0.4
Total Nickel	0.08			80
Total Phosphorus	0.4			400
Total Selenium	0.02			20
Total Silver	0.12			120
Total Zinc	0.04			40
Microbiology				
E.coli	200			200,000
Volatile Organics				
Parameter	**mg/L**			**ug/L**
Benzene	0.002			2
Chloroform	0.002			2
1,2-Dichlorobenzene	0.0056			6
1,4-Dichlorobenzene	0.0068			7
Cis-1,2-Dichloroethylene	0.0056			6
Trans-1,3-Dichloropropylene	0.0056			6
Ethyl Benzene	0.002			2
Methylene Chloride	0.0052			5
1,1,2,2-Tetrachloroethane	0.017			17
Tetrachloroethylene	0.0044			4
Toluene	0.002			2
Trichloroethylene	0.0076			8
Total Xylenes	0.0044			4

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Semi-Volatile Organics		Sample Result	Sample Result with upper RDL included	
Di-n-butyl Phthalate	0.08			80
Bis (2-ethylhexyl) Phthalate	0.012			12
3,3'-Dichlorobenzidine	0.002			2
Pentachlorophenol	0.005			5
Total PAHs	0.005			5
Hexachlorocyclohexane	0.1			100
Misc Parameters				
Nonylphenols	0.001			1
Nonylphenol Ethoxylates	0.01			10

Sample Collected:
Temperature:

Consulting Firm that prepared Hydrological Report: Bruce A. Brown Associates Limited

Qualified Professional who completed the report summary: Dr. Bruce A. Brown, P.Eng.
Print Name

Qualified Professional who completed the report summary: _____
Signature

Date & Stamp