

ASTM D5084 - HYDRAULIC CONDUCTIVITY REPORT



TO: David Kelly, P.Eng.  
 JR Cousin Consultants Ltd  
 91 Scurfield Boulevard  
 Winnipeg, MB R3Y 1G4

PROJECT NO: WX11334 - 1200  
 CLIENT: JR Cousin Consultants Ltd  
 DATE SUBMITTED: 12-Jul-18

PROJECT: Stony Mountain Lagoon

TEST HOLE: TH-2 *WEST APERTURE* PERMEANT: De-Aired Tap Water  
 SAMPLE NO.: ST1 HYDRAULIC GRADIENT: 24.84  
 SAMPLE DEPTH: 25-27' *CELL - WITH CLAY*


CONSTANT HEAD METHOD ( $K = cQL/thA$ )

	Sample Height, L (cm)	Sample Dia. (cm)	Water Content (%)	Dry Density (kg/m <sup>3</sup> )	Degree of Saturation (%)	Cell Pressure (kPa)	Back Pressure (kPa)	Differential Pressure, h (kPa)
Initial	8.49	7.26	53.9%	1100	96.5%	241.4	196.5	20.7
Final	8.53	7.32	27.2%	1574	95.7%			

Date & Time		Time, t (seconds)	Flow (Q)		Temp. Corr, c	Hyd. Cond. Corrected, K (cm/s)
Start	End		Influent (ml)	Effluent (ml)		
7/27/18 4:00 PM	7/28/18 9:07 AM	61620	0.25	0.35	1.238	5.86E-09
7/28/18 9:07 AM	7/30/18 8:22 AM	170100	0.50	0.70	0.980	3.36E-09
7/30/18 8:22 AM	7/31/18 8:59 AM	88620	0.20	0.30	0.980	2.69E-09
7/31/18 8:59 AM	7/31/18 7:35 PM	38160	0.20	0.20	0.980	4.99E-09
7/31/18 7:35 PM	8/2/18 11:00 AM	141900	0.35	0.45	0.980	2.69E-09
8/2/18 11:00 AM	8/3/18 1:58 PM	97080	0.25	0.40	0.980	3.19E-09
8/3/18 1:58 PM	8/7/18 8:00 AM	324120	0.90	1.05	0.980	2.87E-09
8/7/18 8:00 AM	8/9/18 4:44 PM	204240	0.60	0.70	0.980	3.03E-09
8/9/18 4:44 PM	8/10/18 10:42 AM	64680	0.20	0.20	0.968	2.91E-09
8/10/18 10:42 AM	8/13/18 7:49 AM	248820	0.75	0.90	0.956	3.08E-09

Average Temperature  
 Corrected Value (cm/s): 2.97E-09

Wood Environment & Infrastructure Solutions

Per:   
 Jorden Wiwcharyk, P.Eng.  
 Geotechnical Engineer

*Reporting of these results constitutes a testing service only.  
 Engineering interpretation or evaluation of the test results is provided only on written request.*

ASTM D5084 - HYDRAULIC CONDUCTIVITY REPORT



TO: David Kelly, P.Eng.  
 JR Cousin Consultants Ltd  
 91 Scurfield Boulevard  
 Winnipeg, MB R3Y 1G4

PROJECT NO: WX11334 - 1200  
 CLIENT: JR Cousin Consultants Ltd  
 DATE SUBMITTED: 13-Jul-18

PROJECT: Stoney Mountain Lagoon

TEST HOLE: Test Hole 3 *EAST AERATION*  
 SAMPLE NO.: ST2 *CELL - CUTOFF*  
 SAMPLE DEPTH: 15-17'  
 PERMEANT: De-Aired Tap Water  
 HYDRAULIC GRADIENT: 25.27

CONSTANT HEAD METHOD ( $K = cQL/thA$ )

	Sample Height, L (cm)	Sample Dia. (cm)	Water Content (%)	Dry Density (kg/m <sup>3</sup> )	Degree of Saturation (%)	Cell Pressure (kPa)	Back Pressure (kPa)	Differential Pressure, h (kPa)
Initial	8.35	7.25	34.6%	1516	112.0%	241.4	196.5	20.7
Final	8.53	7.32	27.2%	1574	95.7%			

Date & Time		Time, t (seconds)	Flow (Q)		Temp. Corr, c	Hyd. Cond. Corrected, K (cm/s)
Start	End		Influent (ml)	Effluent (ml)		
7/27/18 4:00 PM	7/28/18 9:07 AM	61620	0.25	0.35	1.238	5.78E-09
7/28/18 9:07 AM	7/30/18 8:22 AM	170100	0.50	0.70	0.980	3.32E-09
7/30/18 8:22 AM	7/31/18 8:59 AM	88620	0.20	0.30	0.980	2.65E-09
7/31/18 8:59 AM	7/31/18 7:35 PM	38160	0.20	0.20	0.980	4.93E-09
7/31/18 7:35 PM	8/2/18 11:00 AM	141900	0.35	0.45	0.980	2.65E-09
8/2/18 11:00 AM	8/3/18 1:58 PM	97080	0.25	0.40	0.980	3.15E-09
8/3/18 1:58 PM	8/7/18 8:00 AM	324120	0.90	1.05	0.980	2.83E-09
8/7/18 8:00 AM	8/9/18 4:44 PM	204240	0.60	0.70	0.980	2.99E-09
8/9/18 4:44 PM	8/10/18 10:42 AM	64680	0.20	0.20	0.968	2.87E-09
8/10/18 10:42 AM	8/13/18 7:49 AM	248820	0.75	0.90	0.956	3.04E-09
8/13/18 7:49 AM	8/14/18 8:19 AM	88200	0.30	0.30	0.956	3.12E-09

Average Temperature  
 Corrected Value (cm/s): 2.93E-09

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Per:

Jorden Wiwcharyk, P.Eng  
 Geotechnical Engineer

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ASTM D5084 - HYDRAULIC CONDUCTIVITY REPORT



TO: Oswald Wohlgenut, M.Sc  
 JR Cousin Consultants Ltd  
 91 Scurfield Boulevard  
 Winnipeg, MB R3Y 1G4

PROJECT NO: WX11334.1200  
 CLIENT: JR Cousin Consultants Ltd  
 DATE SUBMITTED: 6-Sep-18

PROJECT: Stony Mountain

TEST HOLE: TH05 *cell 5- cutoff* PERMEANT: De-Aired Tap Water  
 SAMPLE NO.: ST1 HYDRAULIC GRADIENT: 29.08  
 SAMPLE DEPTH:


CONSTANT HEAD METHOD ( $K = cQL/thA$ )

	Sample Height, L (cm)	Sample Dia. (cm)	Water Content (%)	Dry Density (kg/m <sup>3</sup> )	Degree of Saturation (%)	Cell Pressure (kPa)	Back Pressure (kPa)	Differential Pressure, h (kPa)
Initial	7.25	7.28	24.4%	1612	90.6%	241.4	196.5	20.7
Final	7.30	7.30	51.3%	1650	90.1%			

Date & Time		Time, t (seconds)	Flow (Q)		Temp. Corr, c	Hyd. Cond. Corrected, K (cm/s)
Start	End		Influent (ml)	Effluent (ml)		
10/12/18 7:45 AM	10/15/18 9:18 AM	264780	1.20	1.70	1.238	5.59E-09
10/15/18 9:18 AM	10/15/18 4:12 PM	24840	0.10	0.10	0.980	3.26E-09
10/15/18 4:12 PM	10/16/18 7:45 AM	55980	0.20	0.30	0.980	3.61E-09
10/16/18 7:45 AM	10/16/18 4:17 PM	30720	0.10	0.10	0.980	2.63E-09
10/16/18 4:17 PM	10/17/18 8:28 AM	58260	0.30	0.30	0.980	4.17E-09
10/17/18 8:28 AM	10/17/18 4:58 PM	30600	0.10	0.30	0.980	5.29E-09
10/17/18 4:58 PM	10/18/18 8:10 AM	54720	0.30	0.10	0.992	2.99E-09
10/18/18 8:10 AM	10/19/18 7:40 AM	84600	0.30	0.60	0.986	4.33E-09
10/19/18 7:40 AM	10/22/18 10:58 AM	271080	1.00	1.20	0.968	3.24E-09
10/22/18 10:58 AM	10/23/18 8:01 AM	75780	0.30	0.20	0.968	2.64E-09

Average Temperature  
 Corrected Value (cm/s): 3.30E-09

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 Geotechnical Engineer

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PROJECT NO: WX11334 - 1200  
CLIENT: JR Cousin Consultants Ltd  
DATE SUBMITTED: 6-Sep-18

PROJECT: Stoney Mountain Lagoon

TEST HOLE: Test Hole 5 *WEST SIDE 51-52*  
SAMPLE NO.: ST2 *CATOFF*  
SAMPLE DEPTH: 5-7'  
PERMEANT: De-Aired Tap Water  
HYDRAULIC GRADIENT: 25.26


CONSTANT HEAD METHOD (K = cQL/thA)

	Sample Height, L (cm)	Sample Dia. (cm)	Water Content (%)	Dry Density (kg/m <sup>3</sup> )	Degree of Saturation (%)	Cell Pressure (kPa)	Back Pressure (kPa)	Differential Pressure, h (kPa)
Initial	8.35	7.25	36.7%	1492	114.8%	241.4	196.5	20.7
Final	8.53	7.32	27.2%	1574	95.7%			

Date & Time		Time, t (seconds)	Flow (Q)		Temp. Corr, c	Hyd. Cond. Corrected, K (cm/s)
Start	End		Influent (ml)	Effluent (ml)		
9/29/18 8:05 AM	9/29/18 9:07 AM	3720	0.25	0.35	1.238	9.58E-08
9/29/18 9:07 AM	9/30/18 8:22 AM	83700	0.50	0.70	0.980	6.75E-09
9/30/18 8:22 AM	10/1/18 8:59 AM	88620	0.20	0.30	0.980	2.65E-09
10/1/18 8:59 AM	10/1/18 7:35 PM	38160	0.20	0.20	0.980	4.93E-09
10/1/18 7:35 PM	10/2/18 11:00 AM	55500	0.35	0.45	0.980	6.78E-09
10/2/18 11:00 AM	10/3/18 1:58 PM	97080	0.25	0.40	0.980	3.15E-09
10/3/18 1:58 PM	10/4/18 8:00 AM	64920	0.90	1.05	0.980	1.41E-08
10/4/18 8:00 AM	10/5/18 4:44 PM	117840	0.60	0.70	0.980	5.19E-09
10/5/18 4:44 PM	10/7/18 10:42 AM	151080	0.20	0.20	0.968	1.23E-09
10/7/18 10:42 AM	10/8/18 7:49 AM	76020	0.75	0.90	0.956	9.96E-09
10/8/18 7:49 AM	10/9/18 8:19 AM	88200	0.30	0.30	0.956	3.12E-09

Average Temperature  
Corrected Value (cm/s): 7.63E-09

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Geotechnical Engineer

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