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July 31, 2017

File No. 17-035-01

WSP Canada Inc.
1600 Buffalo Place,
Winnipeg, MB
R3T 6B8

ATTENTION: Dana Bredin, P. Eng.

RE: Hydraulic Conductivity Test Results, St-Pierre-Jolys Lagoon Expansion

ENG-TECH Consulting Limited (ENG-TECH) received the two (2) Shelby tube samples from the above site. The samples were extracted on July 13, 2017 and one sample was selected for hydraulic conductivity testing by MB Sustainable Development.

ENG-TECH prepared the sample labelled ST1 (middle) for testing in accordance with ASTM D5084-16a, *Standard Test Method for Measurement of Hydraulic Conductivity of Saturated Porous Materials using a Flexible Wall Permeameter*. The final hydraulic conductivity value (k_{20}) of 0.9×10^{-8} cm/sec was obtained for the sample identified as ST1 (middle). The hydraulic conductivity test data is outlined in Table 1, while the graphical representation of the hydraulic conductivity versus elapsed time is shown in Figure 1.

ENG-TECH trusts the above is all the information you require. If you have any questions, please contact the undersigned.

Sincerely,
ENG-TECH Consulting Limited

A handwritten signature in black ink, appearing to read "Clark Hryhoruk".

Clark Hryhoruk, M.Sc., P.Eng.
President, Geotechnical Engineer

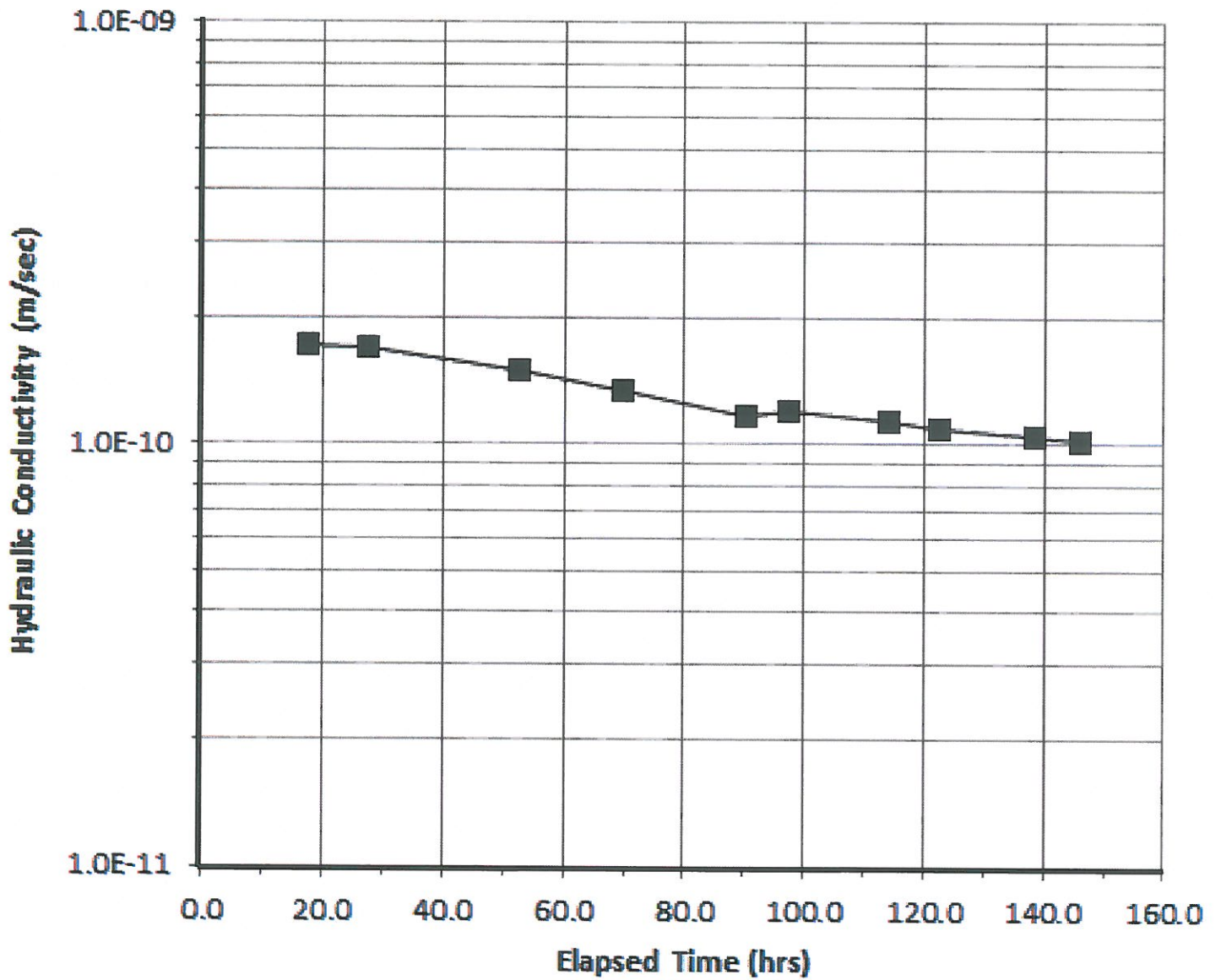
CDH/pfpc

cc: Randal Dueck (Earth Max Construction Inc.)

Attachments: Table 1 – Hydraulic Conductivity Test Data
Figure 1 – Hydraulic Conductivity Versus Elapsed Time (ST1 - middle)

**TABLE 1
HYDRAULIC CONDUCTIVITY TEST DATA
ST-PIERRE-JOLYS LAGOON EXPANSION**

SAMPLE IDENTIFICATION	ST1 (middle)
INITIAL VALUES	
ENG-TECH Reference No.	17-035-01-3
Length of Sample in Tube (cm)	38.1
Length (cm)	7.06
Diameter (cm)	7.21
Area (cm ²)	40.8
Volume (cm ³)	288.1
Water Content (%)	34.1
Bulk Dry Density (kg/m ³)	1885
Specific Gravity (G _s) (assumed)	2.70
Void Ratio	0.92
Degree of Saturation (%)	Approx. 100
FINAL VALUES	
Length (cm)	7.35
Diameter (cm)	7.38
Area (cm ²)	42.8
Volume (cm ³)	314.2
Water Content (%)	39.5
Bulk Dry Density (kg/m ³)	1827
Specific Gravity (G _s) (assumed)	2.70
Void Ratio	1.06
Degree of Saturation (%)	100
CONSOLIDATION PHASE	
Confining Pressure (kPa)	103.4
Pore Water Pressure (kPa)	82.7
Effective Stress (kPa)	20.7
PERMEATION PHASE	
Confining Pressure (kPa)	103.4
Pore Water Pressure (kPa)	82.7
Effective Stress (kPa)	20.7
Hydraulic Gradient	15.3
Permeant Fluid	Distilled Water
HYDRAULIC CONDUCTIVITY AT TEST TEMPERATURE OF 27 °C (cm/sec)	1.0×10^{-8}
HYDRAULIC CONDUCTIVITY AT TEMPERATURE OF 20 °C (K₂₀) (cm/sec)	0.9×10^{-8}



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ENG. STAMP:



CLIENT:
 WSP CANADA INC.

DATE:
 JULY 2017

DRAWN BY:
 PFPC

FIGURE No.:
 1

REV.:

PROJECT:
 ST-PIERRE-JOLYS
 LAGOON EXPANSION

FILE No.:
 17-035-01

SCALE:
 N/A

HYDRAULIC CONDUCTIVITY
 VERSUS ELAPSED TIME
 (ST1 - middle)