

APPENDIX E

Well Logs (MW3 and MW5)

Project: 438 Lansdowne

Client: Cataraquai Region Conservation Authority

File: p:\438\field results\borehole logs

Driller: G.E.T

Equipment: CME 55, HQ Core, SS

Monitor Number: MW3

Ground Elevation (m): est. 111masl

Top of Monitor (m): --

Borehole Log: BH3

Sheet: 1 of 3

Field Observer: C.R

Field Instrument: N/A

Date: 06/09/18

SUBSURFACE PROFILE

Mon. Data	Depth	Lithology	Description	Sample #	Type	% Recovery	Vapours *(CGI/PID) (ppm)	Remarks
	ft m		Ground Surface					
	0							
	1		Clay					above grade piezometer stick up and casing, no screen
	2		mottled grey and brown, trace gravel					open borehole
	3							
	4							
	5							
	6							
	7		some brown sand at 2.0m					
	8							
	9		Sandstone					<i>Hole Fill Material:</i>
	10		fine to coarse grained, light grey, iron stained bands.					0.0m to 3.3m bentonite
	11							3.3m to 6.9m concrete slurry
	12							6.9m rubber gasket/seal
	13		angular, granite clasts (breccia) with thin (4cm) limestone seem connected to calcite infilled subvertical fracture at lower contact					6.9m to 34.0m open borehole
	14							
	15							
	16							oxidized fracture at 5.0m
	17		Pink Granite and/or Migmatic Gniess					
	18							
	19							
	20							
	21							
	22							
	23							oxidized fracture at 7.1m
	24							
	25							
	26							
	27							
	28							
	29							
	30							
	31							
	32							
	33							oxidized fracture at 10.0m
	34							
	35							
	36							
	37							
	38							
	39							
	40							
	41							
	42							
	43							fracture at 13.0m
	44							
	45							
	46							
	47							
	48							
	49							

This borehole log should not be separated from the accompanying report.



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Client: Cataraquai Region Conservation Authority

File: p:\438\field results\borehole logs

Driller: G.E.T

Equipment: CME 55, HQ Core, SS

Monitor Number: MW3

Ground Elevation (m): est. 111masl

Top of Monitor (m): --

Borehole Log: BH3

Sheet: 2 of 3

Field Observer: C.R

Field Instrument: N/A

Date: 06/09/18

SUBSURFACE PROFILE

Mon. Data	Depth	Lithology	Description	Sample #	Type	% Recovery	Vapours *(CGI/PID) (ppm)	Remarks
	50	[Lithology pattern]						
	51							
	52							
	53							
	54							
	55							
	56							
	57							
	58							
	59							
	60							
	61							
	62							
	63							
	64							
	65							
	66							
	67							
	68							
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	81							
	82							
	83							
	84							
	85							
	86							
	87							
	88							
	89							
	90							
	91							
	92							
	93							
	94							
	95							
	96							
	97							
	98							
	99							
								fracture at 26.2m

This borehole log should not be separated from the accompanying report.



Project: 438 Lansdowne

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Driller: G.E.T

Equipment: CME 55, HQ Core, SS

Monitor Number: MW3

Ground Elevation (m): est. 111masl

Top of Monitor (m): --

Borehole Log: BH3

Sheet: 3 of 3

Field Observer: C.R

Field Instrument: N/A

Date: 06/09/18

SUBSURFACE PROFILE

Mon. Data	Depth	Lithology	Description	Sample #	Type	% Recovery	Vapours *(CGI/PID) (ppm)	Remarks
	100	[Patterned Lithology]						competent bedrock
	101							
	102							
	103							
	104							
	105							
	106							
	107							
	108							
	109							
	110							
	111							
	112		End of Borehole at 34.0m					
	113							
	114							
	115							
	116							
	117							
	118							
	119							
	120							
	121							
	122							
	123							
	124							
	125							
	126							
	127							
	128							
	129							
	130							
	131							
	132							
	133							
	134							
	135							
	136							
	137							
	138							
	139							
	140							
	141							
	142							
	143							
	144							
	145							
	146							
	147							
	148							

This borehole log should not be separated from the accompanying report.



Project: 438 Lansdowne

Client: Cataraquai Region Conservation Authority

File: p:\438\field results\borehole logs

Driller: G.E.T

Equipment: CME 55, HQ Core, SS

Monitor Number: MW5

Ground Elevation (m): est. 111masl

Top of Monitor (m): -

Borehole Log: BH5

Sheet: 1 of 3

Field Observer: C.R

Field Instrument:

Date: 06/09/18

SUBSURFACE PROFILE							Sample #	Type	% Recovery	Vapours *(CGI/PID) (ppm)	Remarks
Mon. Data	Depth	Lithology	Description								
	0 ft 0 m		Ground Surface								
	1		Clay								above grade piezometer stick up and casing, no screen
	2										open borehole
	3		Sandstone								
	4										
	5			light grey with infilled vugs.							
	6			Some dark grey calcareous inter beds							
	7										
	8										oxidized fractures from 1.5m to 2.5m
	9										
	10										
	11										
	12										
	13										
	14										
	15										
	16										
	17										
	18										
	19										
	20										
	21										
	22										
	23										
	24										
	25										
	26										
	27			white							
	28										
	29										
	30										
	31										
	32										
	33										
	34										
	35										
	36										
	37										
	38										
	39										
	40										
	41										
	42										
	43										
	44										
	45										
	46										
	47										
											fracture at 11.5m
											oxidized fracture at 13.7m

This borehole log should not be separated from the accompanying report.



Project: 438 Lansdowne

Client: Cataraquai Region Conservation Authority

File: p:\438\field results\borehole logs

Driller: G.E.T

Equipment: CME 55, HQ Core, SS

Monitor Number: MW5

Ground Elevation (m): est. 111masl

Top of Monitor (m): -

Borehole Log: BH5

Sheet: 2 of 3

Field Observer: C.R

Field Instrument:

Date: 06/09/18

SUBSURFACE PROFILE

Mon. Data	Depth	Lithology	Description	Sample #	Type	% Recovery	Vapours *(CGI/PID) (ppm)	Remarks
	48		<i>Pink Granite and/or Migmatic Gniess</i>					
	49							
	50							
	51							
	52							
	53							
	54							
	55							
	56							
	57							
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	86							
	87							
	88							
	89							
	90							
	91							
	92							
	93							
								oxidized subvertical fracture at 17.5m
								subvertical fracture at 21.3m
								subvertical fracture at 23.0m
								highly fractured from 25.0m to 25.3m

This borehole log should not be separated from the accompanying report.



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Client: Cataraquai Region Conservation Authority

File: p:\438\field results\borehole logs

Driller: G.E.T

Equipment: CME 55, HQ Core, SS

Monitor Number: MW5

Ground Elevation (m): est. 111masl

Top of Monitor (m): -

Borehole Log: BH5

Sheet: 3 of 3

Field Observer: C.R

Field Instrument:

Date: 06/09/18

SUBSURFACE PROFILE

Mon. Data	Depth	Lithology	Description	Sample #	Type	% Recovery	Vapours *(CGI/PID) (ppm)	Remarks
	94	[Patterned Lithology]						
	95							
	96							
	97							
	98							
	99							
	100							
	101							
	102							
	103							
	104							
	105							
	106							
	107							
	108							
	109							
	110							
	111							
	112							
	113							
	114							
	115							
	116							
	117							
	118							
	119							
	120							
	121							
	122							
	123							
	124							
	125							
	126							
	127							
	128							
	129		End of Borehole at 38.5m					
	130							
	131							
	132							
	133							
	134							
	135							
	136							
	137							
	138							
	139							
	140							

subvertical fractures from 32.0m to 33.0m

subvertical fracture at 37.7m

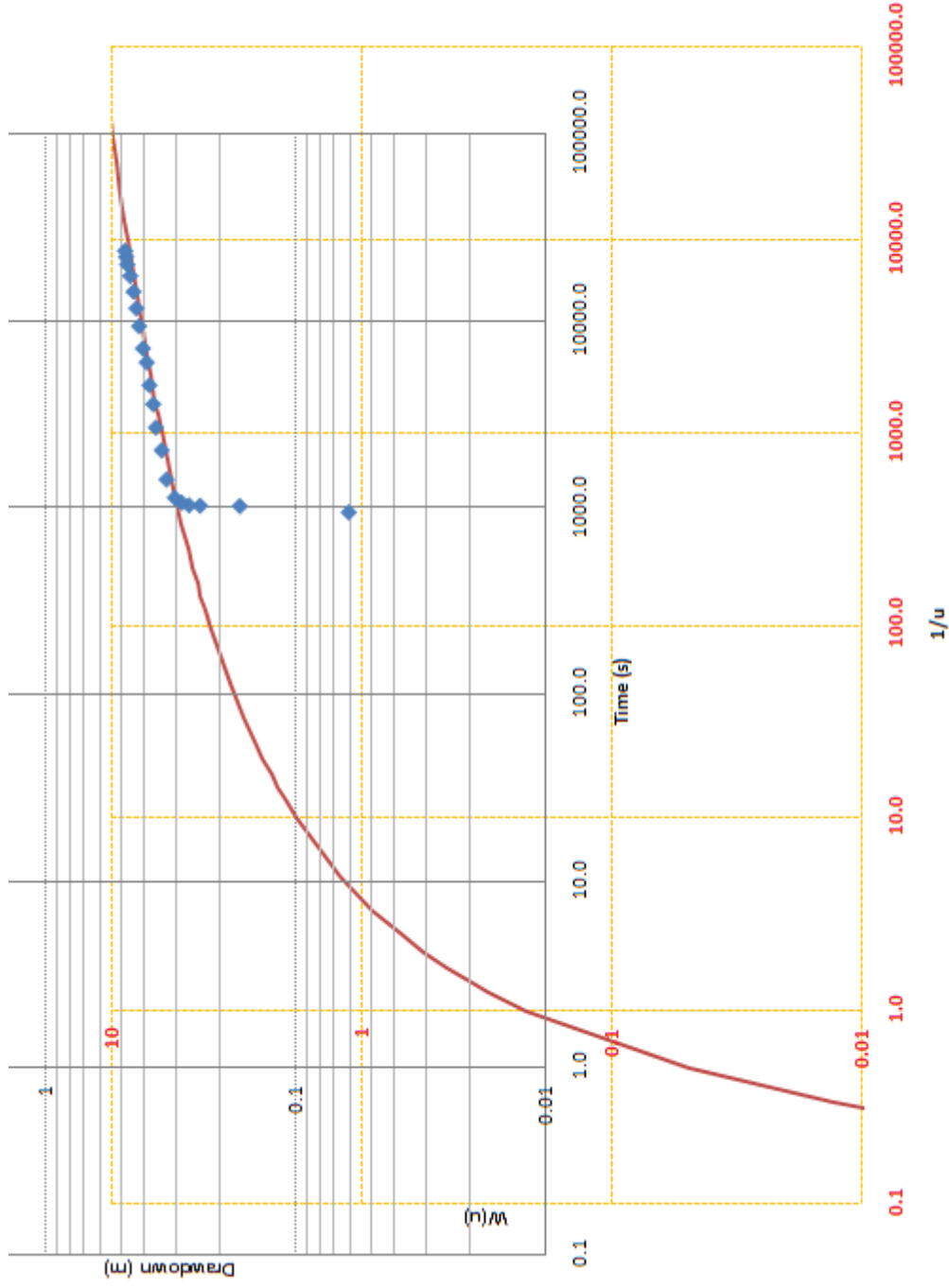
This borehole log should not be separated from the accompanying report.



APPENDIX F

Pumping Test Analysis

MW5 Test at 13:30



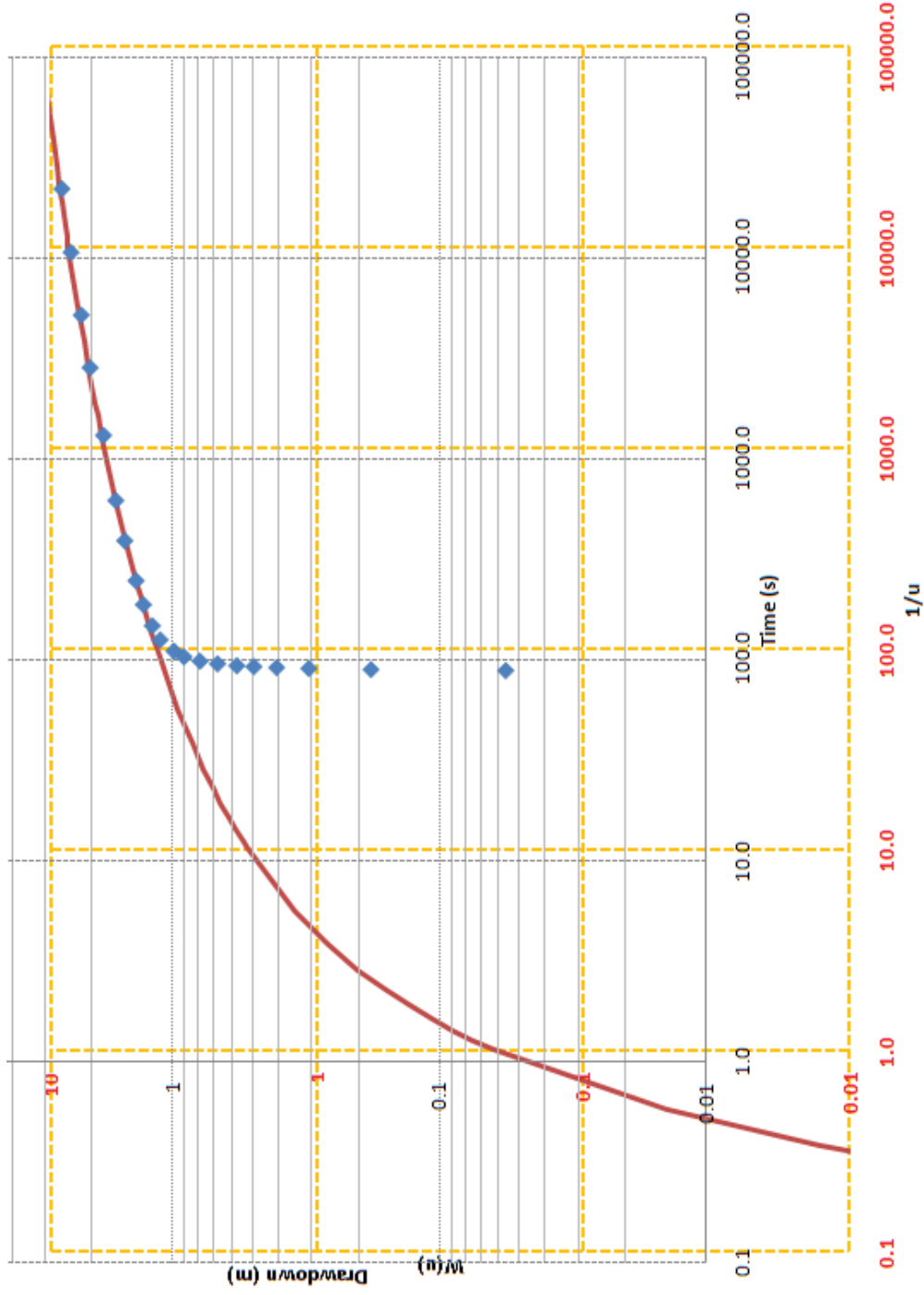
Theis $T = Q \cdot W(u) / (4 \cdot \pi \cdot s)$
 $S = u \cdot T \cdot r / (r^2)$

$W(u)$
 $1/u = u$

time 1 s
 s 0.05 m
 Q 0.0005 m³/s

T 8.0E-04 m²/s
 Sat thick. 68.75 m²/day
 K 30.94 m
 2.6E-05 m/s

MW-3 at 9:51



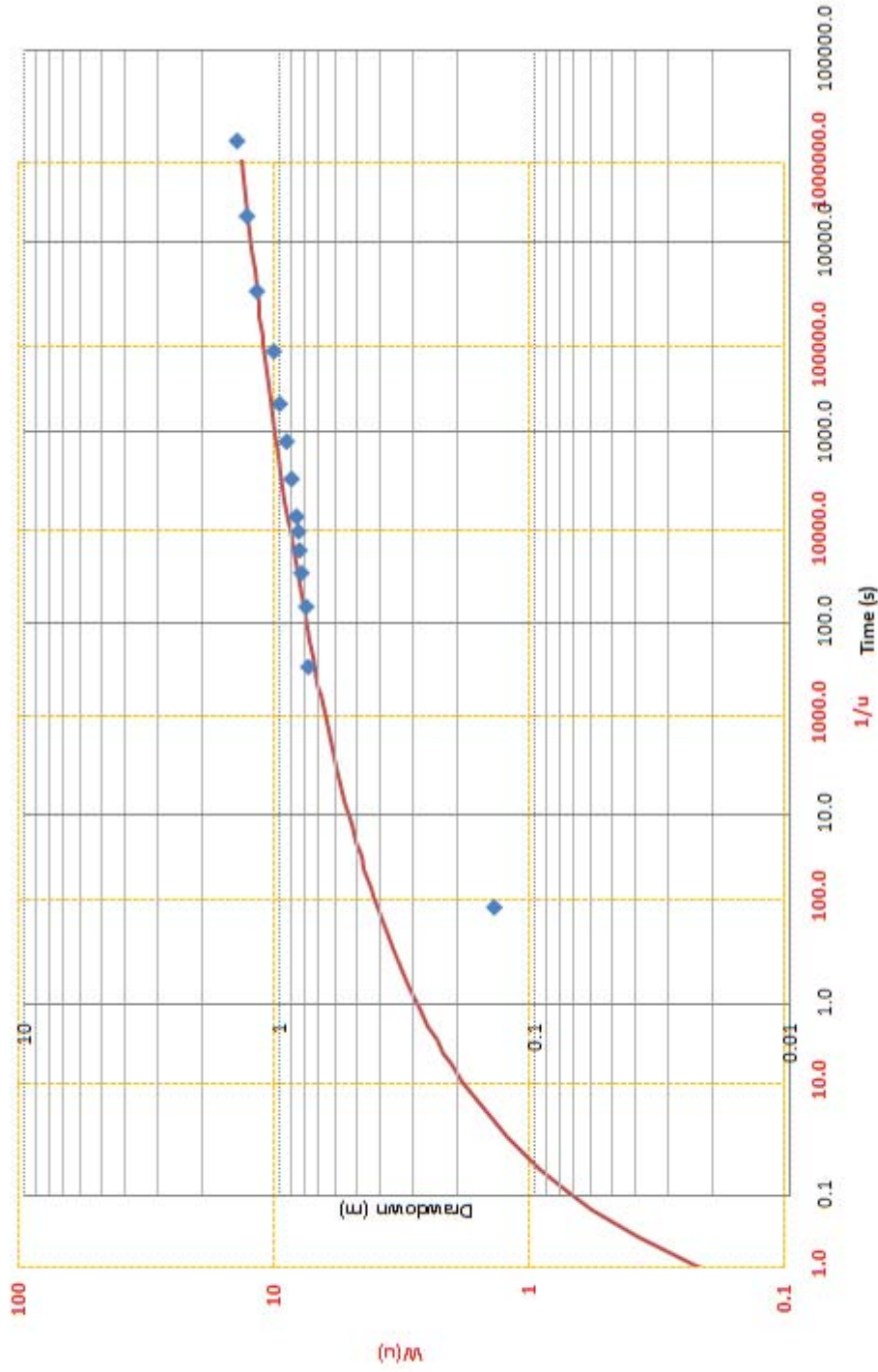
Theis $T = Q * W(u) / (4 * \pi * s)$
 $S = u * T * t / (r^2)$

$W(u)$
 $1/u = u$

time	1 s
s	0.3 m
Q	0.0005 m ³ /s

T	1.3E-04 m ² /s
Sat thick.	11.46 m ² /day
K	29.32 m
	4.5E-06 m/s

MUN1 at 18:44 15 Sep 2009



Theis $T = Q \cdot W(u) / (4 \cdot \pi \cdot s)$
 $S = u \cdot T \cdot t / (r^2)$

$W(u)$ 10
 $1/u = u$ 10

time 0.2 s
 s 1.1 m
 Q 0.0083 m³/s

T 6.0E-03 m²/s
 518.8 m²/day
 Sat thick. 35.36 m
 K 1.7E-04 m/s

May 26, 2011