

Table 1
SUMMARY OF MECP WATER WELL RECORDS
 Hydrogeological Level 1, 2 Assessment
 Proposed Lanco Pit Expansion
 Puslinch, Ontario

WELL ID	EASTING	NORTHING	YEAR DRILLED	CASING DIAMETER (mm)	DRILLING METHOD	WELL TYPE	WELL STATUS	WATER USE	DEPTH				TEST PUMPING			STRATIGRAPHY	
									TOTAL DEPTH (m)	BEDROCK (m)	WATER FOUND (m)	STATIC WATER LEVEL (m)	WATER LEVEL AFTER PUMPING (m)	RATE (L/min)	DURATION (HRS)	MATERIAL	DEPTH TO UNIT BASE (m)
6702287	567141.3	4809885.0	1964	152.4	Cable Tool	Bedrock	Water Supply	Livestock	22.9	16.5	21.9	3.4	7.6	76	1	PREVIOUSLY DUG MEDIUM SAND GRAVEL CLAY LIMESTONE	3.7 16.5 22.9
6702288	567978.3	4809489.0	1962	152.4	Cable Tool	Bedrock	Water Supply	Domestic	38.7	35.4	37.8	15.8	18.3	91	1	PREVIOUSLY DUG GRAVEL CLAY MEDIUM SAND LIMESTONE	15.2 18.3 35.4 38.7
6702325	567471.3	4810184.0	1964	152.4	Cable Tool	Bedrock	Water Supply	Livestock, Domestic	22.9	18	21.9	6.1	12.2	76	1	STONES GRAVEL MEDIUM SAND CLAY LIMESTONE	12.2 18.0 22.9
6702326	568032.3	4810227.1	1962	152.4	Cable Tool	Overburden	Water Supply	Domestic	14.6	0	14.6	7.9	10.7	61	1	GRAVEL STONES MEDIUM SAND GRAVEL GRAVEL	7.6 13.7 14.6
6703309	568134.3	4809933.0	1969	101.6	Cable Tool	Bedrock	Water Supply	Domestic	39.6	23.8	38.1	9.1	18.3	38	-	TOPSOIL CLAY STONES GRAVEL CLAY GRAVEL LIMESTONE	0.3 13.7 18.3 23.8 39.6
6703538	567884.3	4810143.0	1969	101.6	Rotary (Convent.)	Bedrock	Water Supply	Livestock, Domestic	52.4	21	50.9	13.7	13.7	38	1	GRAVEL MEDIUM SAND LIMESTONE ROCK LIMESTONE	21.0 29.9 39.6 52.4
6704693	568214.3	4809488.0	1973	152.4	Cable Tool	Overburden	Water Supply	Domestic	25.9	0	25.9	10.7	11.0	95	1	STONES GRAVEL GRAVEL CLAY GRAVEL SAND GRAVEL	9.1 23.8 25.3 25.9
6704719	568191.3	4809783.1	1973	-	Rotary (Convent.)	Bedrock	Water Supply	Domestic	40.2	22.3	30.5	8.5	10.7	38	4	GRAVEL BOULDERS LIMESTONE ROCK ROCK	22.3 32.6 39.6 40.2
6704794	567419.3	4810108.1	1973	-	Cable Tool	Bedrock	Water Supply	Domestic	30.5	17.1	19.8	1.5	3.0	76	1	TOPSOIL CLAY SAND STONES CLAY SAND STONES CLAY SAND GRAVEL ROCK ROCK	0.3 4.6 9.1 17.1 22.9 30.5
6705097	568464.3	4808857.9	1974	152.4	Rotary (Convent.)	Bedrock	Water Supply	Public	54.6	29.9	50.3	16.8	51.8	57	1	GRAVEL CLAY STONES GRAVEL LIMESTONE	6.1 29.9 54.6
6705330	568095.3	4809837.0	1974	127	Cable Tool	Bedrock	Water Supply	Domestic	31.1	27.4	31.1	9.8	18.3	76	1	TOPSOIL CLAY STONES CLAY GRAVEL SAND GRAVEL CLAY GRAVEL ROCK	0.3 6.1 16.8 24.4 27.4 31.1

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									TOTAL DEPTH (m)	BEDROCK (m)	WATER FOUND (m)	STATIC WATER LEVEL (m)	WATER LEVEL AFTER PUMPING (m)	RATE (L/min)	DURATION (HRS)	MATERIAL	DEPTH TO UNIT BASE (m)
6705385	568509.3	4809913.1	1974	152.4	Rotary (Convent.)	Bedrock	Water Supply	Domestic	26.5	24.7	25.6	8.2	24.4	76	1	STONES GRAVEL SAND MUCK LIMESTONE	3.0 7.6 24.7 26.5
6706259	568234.3	4808223.0	1976	-	Rotary (Convent.)	Bedrock	Water Supply	Domestic	36.6	33.5	35.1	14.6	33.5	189	1	CLAY SANDY STONEY LIMESTONE	33.5 36.6
6706916	568814.3	4810342.9	1978	127	Rotary (Convent.)	Overburden	Water Supply	Livestock, Domestic	31.7	0	30.5	8.8	9.1	38	2	CLAY BOULDERS GRAVEL STONES	25.0 31.7
6707457	567794.3	4809923.0	1981	-	Rotary (Air)	Overburden	Water Supply	Domestic	26.5	0	26.5	7	12.2	76	1	TOPSOIL CLAY STONES CLAY SAND GRAVEL HARDPAN GRAVEL CLAY SAND GRAVEL STONES	0.3 6.1 16.8 19.8 22.3 26.5
6707481	568007.3	4809145.0	1981	152.4	Cable Tool	Bedrock	Water Supply	Domestic	16.8	5.8	15.2	11.9	12.8	76	1	SAND GRAVEL LOOSE LIMESTONE HARD	5.8 16.8
6708094	568594.3	4808242.9	1983	152.4	Rotary (Air)	Overburden	Water Supply	Public	20.7	0	20.7	14.6	19.8	76	1	CLAY TOPSOIL GRAVEL GRAVEL	18.3 20.7
6710498	568554.3	4808252.0	1990	152.4	Rotary (Convent.)	Overburden	Water Supply	Domestic	25.9	0	25.9	15.2	21.3	95	1	TOPSOIL GRAVEL CLAY SAND GRAVEL	0.6 23.2 25.5 25.9
6710562	568664.3	4809522.0	1990	152.4	Rotary (Air)	Overburden	Water Supply	Domestic	40.5	0	40.5	21.3	39.6	379	1	CLAY STONES GRAVEL STONES CLAY GRAVEL CLAY GRAVEL STONES	18.3 27.4 39.6 40.5
6711197	568579.3	4808241.0	1993	152.4	Rotary (Air)	Overburden	Water Supply	Domestic	32	0	32.0	12.5	13.7	38	1	TOPSOIL CLAY SAND GRAVEL CLAY SAND BOULDERS COARSE GRAVEL	0.3 25.9 30.2 31.4 32.0
6711317	568454.3	4809354.0	1993	152.4	Rotary (Air)	Bedrock	Water Supply	Domestic	24.7	24.1	24.4	12.5	23.5	284	1	BOULDERS STONES CLAY GRAVEL STONES LIMESTONE	15.2 24.1 24.7
6711670	568703.3	4808305.0	1994	-	Rotary (Air)	Overburden	Water Supply	Domestic	27.4	0	27.4	21.3	23.8	57	1	CLAY SAND GRAVEL COARSE GRAVEL	24.4 27.4
6712959	568993.8	4809368.0	1999	152.4	Air Percussion	Bedrock	Water Supply	Domestic	34.1	31.1	31.4	17.7	27.4	114	1	CLAY GRAVEL SAND GRAVEL CLAY SANDY SAND GRAVEL GRAVEL SAND LIMESTONE	4.6 7.3 10.7 24.4 31.1 34.1
6713019	567376.3	4808973.9	1999	152.4	Air Percussion	Bedrock	Water Supply	Domestic	27.4	22.9	23.8	10.7	-	-	-	CLAY SANDY CLAY SANDY GRAVEL GRAVEL SAND LIMESTONE	4.6 9.1 22.9 27.4

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									TOTAL DEPTH (m)	BEDROCK (m)	WATER FOUND (m)	STATIC WATER LEVEL (m)	WATER LEVEL AFTER PUMPING (m)	RATE (L/min)	DURATION (HRS)	MATERIAL	DEPTH TO UNIT BASE (m)
6713113	568182.3	4809170.0	1999	152.4	Rotary (Air)	Bedrock	Water Supply	Domestic	31.1	26.5	31.1	9.4	-	-	-	TOPSOIL CLAY STONES CLAY SAND GRAVEL SAND CLAY CLAY SAND GRAVEL LIMESTONE ROCK LIMESTONE	0.3 4.6 15.2 24.4 26.5 28.3 31.1
6713350	567775.6	4809071.0	2000	152.4	Rotary (Air)	Bedrock	Water Supply	Domestic	55.6	27.4	30.5	6.8	-	-	-	TOPSOIL CLAY STONES CLAY SAND GRAVEL GRAVEL SAND CLAY SAND GRAVEL LIMESTONE	0.6 4.6 12.2 21.3 27.4 55.8
6714163	568431.6	4809206.0	2002	152.4	Rotary (Air)	Bedrock	Water Supply	Domestic	36.9	36.6	36.9	20.4	-	-	-	CLAY STONES BOULDERS SILT GRAVEL CLAY SILT LIMESTONE	18.3 24.4 36.6 36.9
6714950	567796.0	4809424.0	2004	50	Rotary (Convent.)	Bedrock	Observation Wells	Not Used	21.5	21.6	-	0	-	-	-	STONES MEDIUM SAND GRAVEL MEDIUM SAND COARSE SAND FINE SAND MEDIUM SAND FINE SAND FINE SAND LIMESTONE	4.5 7.5 12.0 16.0 21.5 -
6715345	568220.0	4810231.9	2004	50	Other Method	Overburden	Observation Wells	-	20.6	0	-	0	-	-	-	TOPSOIL SILT SAND SILT SAND STONES SAND GRAVEL	0.4 17.2 20.6
6715390	568660.0	4810406.0	2005	60	Boring	Overburden	Test Hole	Not Used	21.3	0	-	0	-	-	-	TOPSOIL LOOSE GRAVEL SAND DENSE SILT GRAVEL PACKED	0.5 19.8 21.3
6715748	568315.0	4808604.0	2006	51	Boring	Overburden	Observation Wells	-	6.4	0	4.0	0	-	-	-	SILT TOPSOIL SAND SILT GRAVEL	0.4 6.4
7045560	568173.0	4808503.0	2007	51	Boring	Overburden	Observation Wells	-	9.2	0	6.0	0	-	-	-	SAND SILT SAND SILT GRAVEL	1.1 9.2
7103672	568456.0	4808275.0	2008	403.098	Rotary (Air)	-	Water Supply	Domestic	11.5	0	11.5	17.4	-	-	-	CLAY STONES GRAVEL CLAY SAND LIMESTONE	4.2 9.7 11.5
7122479	568169.0	4808532.0	2009	51	Boring	-	Observation Wells	Monitoring	9.1	0	6.0	0	-	-	-	SILT TOPSOIL SILT SAND LOOSE SAND SILT GRAVEL SILT SAND GRAVEL SILT CLAY	0.5 2.4 5.6 9.1 6.9
7141981	567688.0	4808317.0	2010	51	Boring	-	Test Hole	Monitoring	6.9	0	4.5	0	-	-	-	SILT TOPSOIL SILT SAND GRAVEL SAND SILT GRAVEL SILT CLAY	0.3 0.6 6.0 6.9
7141981	567712.0	4808424.0	2010	51	Boring	-	Test Hole	Monitoring	5.3	0	-	3	-	-	-	AS ABOVE	-
7141981	567765.0	4808332.0	2010	51	Boring	-	Test Hole	Monitoring	6	0	-	3	-	-	-	AS ABOVE	-
7141981	567751.0	4808262.0	2010	51	Boring	-	Test Hole	Monitoring	4.4	0	-	3	-	-	-	AS ABOVE	-

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WELL ID	EASTING	NORTHING	YEAR DRILLED	CASING DIAMETER (mm)	DRILLING METHOD	WELL TYPE	WELL STATUS	WATER USE	DEPTH				TEST PUMPING			STRATIGRAPHY	
									TOTAL DEPTH (m)	BEDROCK (m)	WATER FOUND (m)	STATIC WATER LEVEL (m)	WATER LEVEL AFTER PUMPING (m)	RATE (L/min)	DURATION (HRS)	MATERIAL	DEPTH TO UNIT BASE (m)
7143772	567765.0	4808332.0	2010	51	Boring	-	Test Hole	Monitoring	6.3	0	5.0	0	-	-	-	SILT SILT SAND GRAVEL SAND SILT SILT CLAY CLAY SILT	0.6 0.8 2.0 4.9 6.0 6.3
7143772	567715.0	4808263.1	2010	51	Boring	-	Test Hole	Monitoring	15	-	-	14.3	-	-	-	AS ABOVE	-
7143772	567744.0	4808419.0	2010	51	Boring	-	Test Hole	Monitoring	6	-	-	5.2	-	-	-	AS ABOVE	-
7158314	568377.0	4808226.0	2010	-	Boring	-	Test Hole	Monitoring	13.7	0	9.0	0	-	-	-	SILT TOPSOIL SAND SILT GRAVEL SILT SAND GRAVEL SILT	0.2 4.5 12.0 13.7
7185613	41098.0	567118.0	2012	-	-	-	Decommissioned	-	-	-	-	-	-	-	-	-	-
7243143	568097.0	4809917.0	2015	-	-	-	Abandoned-Other	Not Used	-	-	-	-	-	-	-	-	-
7243144	568091.0	4809898.0	2015	-	-	-	Abandoned-Other	Domestic	-	-	-	-	-	-	-	-	-
7285954	568795.0	4810369.0	2017	-	-	-	Abandoned-Other	Domestic, Livestock	-	-	-	-	-	-	-	-	-
7290538	568345.0	4809275.0	2017	50.8	-	-	Observation Well	Test Hole, Monitoring	28	0	-	0	-	-	-	TOPSOIL SAND GRAVEL SAND GRAVEL SILT SAND GRAVEL OTHER SILT SAND GRAVEL ROCK FRACTURED	0.3 11.6 23.2 25.1 28.0
7290539	567964.0	4809212.0	2017	50.8	ROTO SONIC	-	Observation Well	Test Hole, Monitoring	25.3	0	-	0	-	-	-	TOPSOIL SAND GRAVEL GRAVEL SAND OTHER SAND GRAVEL OTHER SAND GRAVEL WATER-BEARING ROCK FRACTURED	0.3 6.1 10.4 24.1 25.3
7294450	568597.0	4808727.0	2017	158.75	AIR ROTARY	-	Water Supply	Domestic	48.8	0	48.8	16.8	-	-	-	CLAY STONES CLAY GRAVEL CLAY BOULDERS CLAY SAND GRAVEL CLAY SAND ROCK ROCK	7.6 15.2 25.9 29.0 30.2 42.7 48.8

NOTES: mm = millimeters
 m = meters
 l/min = litres per minute
 "-" = no data available

Table 2
SUMMARY OF PRIVATE WELL SURVEY RESULTS
 Hydrogeological Level 1, 2 Assessment
 Proposed Land Pit Expansion
 Puslinch, Ontario

MN ¹	STREET	RESPONSE DATE ²	EASTING ³	NORTHING ³	APPROXIMATE YEAR CONSTRUCTED	WELL TYPE	CASING TYPE	CASING DIAMETER (mm)	REPORTED WELL DEPTH (m)	REPORTED WATER QUALITY	WATER USE	COMMENTS
4092	Sideroad 25 S	28/Sep/2017	588857	4808245	2003	Drilled	Steel	152	32.0	Good, elevated iron	Domestic	Originally drilled in 1993.
4093	Sideroad 25 S	-	-	-	-	-	-	-	-	-	-	No response.
4095	Sideroad 25 S	-	-	-	-	-	-	-	-	-	-	No response.
4103	Sideroad 25 S	-	-	-	-	-	-	-	-	-	-	No access (locked gate, no mailbox).
4106	Sideroad 25 S	-	-	-	-	-	-	-	-	-	-	Cemetery. No letter delivered.
4135	Sideroad 25 S	-	-	-	-	-	-	-	-	-	-	House being built, no mailbox. No letter delivered.
4195	Sideroad 25 S	04/Oct/2017	588483	4809086	2002	Drilled	Steel	152	38.9	Excellent, elevated iron	Domestic	-
4207	Sideroad 25 S	-	-	-	-	-	-	-	-	-	-	No response.
4219	Sideroad 25 S	28/Sep/2017	588641	4809309	Approx. 1970s	Drilled	Concrete casement	-	36.6	Good	Domestic and gardening	No longer used for drinking water.
4222	Sideroad 25 S	-	-	-	-	-	-	-	-	-	-	Property owned by CBM, house occupied by tenant or vacant.
4228	Sideroad 25 S	-	-	-	-	-	-	-	-	-	-	Property owned by CBM, no buildings on-site.
4248	Sideroad 25 S	28/Sep/2017	588188	4809492	Approx. 1970s	Drilled	Steel	152	24.4	Good	Domestic and gardening	Property owned by CBM (Wahl Residence). Previous rainwater infiltration, fixed shortly after.
4225	Sideroad 25 S	-	-	-	-	-	-	-	-	-	-	No response.
7098 (a)	Concession 1	17/Oct/2017	568189.7	4808082.7	1976	Drilled	Steel	152	36.6	-	Domestic	Main well for Crieff Hills Community. Also supplies MN 7064 and MN 7120.
7098 (b)	Concession 1	17/Oct/2017	567789.5	4808078.7	1977	Drilled	Steel	152	20.1	-	Not used	Backup well for Crieff Hills Community, currently offline.
7150	Concession 1	27/Sep/2017	588574, 588452	4808276, 4808283	Approx. 1990s and 2000s	Drilled	Steel	152	24.4 and 36.6	Good	Commercial / Domestic	Two supply wells for Sunset Villa. Also have eight monitoring wells on property.
7156	Concession 1	-	-	-	-	-	-	-	-	-	-	Church. No response.
7180	Concession 1	24/Sep/2017	588773	4808247	-	Bored	Steel, Concrete	1067	-	Good	Domestic	-
7176	Concession 1	-	-	-	-	-	-	-	-	-	-	No response.

NOTES: 1. MN is the Municipal Number.

2. Notification letter delivered on September 21, 2017; initial door to door survey completed on September 28, 2017.

A response date after September 28, 2017 indicates the survey was subsequently completed by telephone interview or received by email.

3. Approximate UTM coordinates (NAD 83) estimated from mapping.

4. "-" indicates information not available or not applicable.