BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix L - Part 2

Hydrogeological Existing Conditions Review Report

Accessible formats and communication supports are available upon request:

York Region Transportation, Public Works
Phone: 1-877-464-9675 ext. 75000
TTY: 1-866-512-6228
Email: Transportation@york.ca

BURNSIDE

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Appendix A

Borehole Logs

PROJECT: 20146456

RECORD OF BOREHOLE: C1

SHEET 1 OF 1

LOCATION: N 4862071.08; E 632899.94

BORING DATE: January 13, 2021

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ●, rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp, W, Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		213.50							
0	Truck Mount B57 150 mm O.D. Hollow Stem Augers	ASPHALT (210 mm thick)		0.00 / 213.29							
		FILL - (SP) SAND, some gravel, trace fines; brown; moist		0.21	1	AS	-				
				212.67							
1		FILL - (CI) sandy SILTY CLAY, some gravel, dark brown and grey; cohesive, w>PL, firm to soft		0.83	2	SS	8		○		
					3	SS	3				
2				211.37							
		(CL) SILTY CLAY, brown to grey; cohesive, w>PL, stiff to very stiff		2.13	4	SS	10		○		
3		- Becoming grey at a depth of 2.9 m			5	SS	16				
4				209.46							
		(CL-ML) SILTY CLAY-CLAYEY SILT and SAND, some gravel; grey (TILL); cohesive, w<PL, hard		4.04	6	SS	50/ 0.13		○		
5											
6					7	SS	50/ 0.13				
7											
				205.65	8	SS	50/ 0.08		○		
8		END OF BOREHOLE		7.85							
		NOTES:									
		1. Water was encountered at a depth of 3.1 m during drilling.									
9		2. Water measured in open borehole at a depth of 4.3 m (El. 209.2m) upon completion of drilling.									
10											

DEPTH SCALE

1 : 50

GOLDER

LOGGED: YS

CHECKED: TO

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PROJECT: 20146456

LOCATION: N 4862076.92; E 632892.20

RECORD OF BOREHOLE: C2

SHEET 1 OF 1

BORING DATE: January 12, 2021

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ●, rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp, W, Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		213.50							
0	Truck Mount B57 150 mm O.D. Hollow Stem Augers	ASPHALT (315 mm thick)		0.00 / 213.18							
		Crushed granular; brown		0.32 / 212.76	1	AS	-				
1		FILL - (CI) sandy SILTY CLAY, some gravel, dark brown and grey; cohesive, w>PL, stiff to firm		0.74	2	SS	13		W	MH	
					3	SS	4				
2				211.37							
		(CL) SILTY CLAY, brown; cohesive, w>PL, very stiff to stiff		2.13	4	SS	16		W		
3					5	SS	14				
4				209.46							
		(CL-ML) SILTY CLAY-CLAYEY SILT and SAND, some gravel; grey (TILL); cohesive, w<PL, hard		4.04	6	SS	70				
5											
6					7	SS	50/ 0.13				
7											
				205.68	8	SS	50/ 0.05				
8		END OF BOREHOLE		7.82							
		NOTES:									
		1. Water was encountered at a depth of 6.1 m during drilling.									
		2. Water measured in open borehole at a depth of 4.3 m (El. 209.2m) upon completion of drilling.									
9											
10											

DEPTH SCALE

1 : 50

GOLDER

LOGGED: YS

CHECKED: TO

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PROJECT: 20146456

RECORD OF BOREHOLE: P1

SHEET 1 OF 1

LOCATION: N 4861296.93; E 633061.47

BORING DATE: January 20, 2021

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp W Wl; 10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		213.50							
0	Truck Mount B57, 150 mm O.D. Hollow Stem Augers	ASPHALT (340 mm thick)		0.00 / 213.16							
		Crushed granular; brown		0.34	1A	AS	-				
		FILL - (SP) SAND, some gravel; trace fines; brown; moist		0.51 / 212.79	1B						
1		(CL) SILTY CLAY and SAND, some gravel; brown (TILL); cohesive, w<PL, very stiff to hard		0.71	2	SS	22				
					3	SS	97		○ ⊢	MH	
2		END OF BOREHOLE		211.52 / 1.98							
		NOTE: 1. Borehole open and dry upon completion of drilling.									
3											
4											
5											
6											
7											
8											
9											
10											

DEPTH SCALE

1 : 50

GOLDER

LOGGED: YS

CHECKED: TO

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PROJECT: 20146456

RECORD OF BOREHOLE: P2

SHEET 1 OF 1

LOCATION: N 4861450.81; E 633030.53

BORING DATE: January 6, 2021

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80)	SHEAR STRENGTH Cu, kPa (nat V. + Q - ●, rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3})	WATER CONTENT PERCENT (Wp, W, Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		217.60									
0	Truck Mount B57, 200 mm O.D. Hollow Stem Augers	ASPHALT (200 mm thick)		0.00 / 217.40									
		Crushed granular; brown		0.20 / 216.85	1	AS	-						
1		FILL - (SP) SAND, trace fines; brown; non-cohesive, moist, compact		0.75 / 216.23	2	SS	17				○		
		(ML) SILT and SAND, trace gravel; brown; non-cohesive, moist, compact		1.37 / 215.62	3	SS	15				○	MH NP	
2		END OF BOREHOLE		1.98									
3		NOTES:											
		1. Borehole was open and dry upon completion of drilling.											
		2. NP= Non-plastic											
4													
5													
6													
7													
8													
9													
10													

DEPTH SCALE
1 : 50

GOLDER

LOGGED: YS
CHECKED: TO

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PROJECT: 20146456

LOCATION: N 4861664.23; E 632982.24

RECORD OF BOREHOLE: P3

BORING DATE: January 6, 2021

SHEET 1 OF 1

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80)	SHEAR STRENGTH Cu, kPa (nat V. +, rem V. ⊕, Q - ●, U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3})	WATER CONTENT PERCENT (Wp, W, Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		219.80									
0	Truck Mount B57 200 mm O.D. Hollow Stem Augers	ASPHALT (230 mm thick)		0.00 / 219.57									
		FILL - (SP) SAND, some gravel, trace fines; brown; moist		0.23 / 219.30	1	AS	-						
1		FILL - (CI) sandy SILTY CLAY, some gravel; brown and dark grey; cohesive, w>PL, stiff		0.50	2	SS	11						
					3	SS	10				W		
2		END OF BOREHOLE		217.82 / 1.98									
		NOTE: 1. Borehole was open and dry upon completion of drilling.											
3													
4													
5													
6													
7													
8													
9													
10													

DEPTH SCALE

1 : 50

GOLDER

LOGGED: YS

CHECKED: TO

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PROJECT: 20146456

RECORD OF BOREHOLE: P4

SHEET 1 OF 1

LOCATION: N 4861851.29; E 632945.93

BORING DATE: January 6, 2021

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ●, rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp, W, Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		216.50							
0	Truck Mount B57, 150 mm O.D. Hollow Stem Augers	ASPHALT (60 mm thick)		0.00							
		Crushed ganular; brown		0.06	1	AS	-				
				215.98							
		FILL - (CI) sandy SILTY CLAY, some sand, some gravel; dark grey, organic inclusions; cohesive, w>PL, stiff		0.52							
1					2	SS	8				
				215.13							
		(SM) SILTY SAND, some gravel; brown; non-cohesive, moist, compact		1.37							
					3	SS	19			MH	
2				214.52							
		END OF BOREHOLE		1.98							
		NOTE:									
		1. Borehole was open and dry upon completion of drilling.									
3											
4											
5											
6											
7											
8											
9											
10											

DEPTH SCALE

1 : 50

GOLDER

LOGGED: YS

CHECKED: TO

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PROJECT: 20146456

LOCATION: N 4862041.54; E 632903.86

RECORD OF BOREHOLE: P5

SHEET 1 OF 1

BORING DATE: January 6, 2021

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp — W — Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		213.50							
0	Truck Mount B57, 150 mm O.D. Hollow Stem Augers	ASPHALT (220 mm thick)		0.00 213.28							
		Crushed granular; brown		0.22 212.84	1	AS	-				
		FILL - (SP) SAND, some gravel, trace fines; brown; moist		0.66 212.65	2A	SS	12				
1		FILL - (CI) sandy SILTY CLAY, some gravel; black and grey, organic inclusions; cohesive, w>PL, stiff to firm		0.85	2B						
					3	SS	4		○		
2				211.52							
		END OF BOREHOLE NOTE: 1. Borehole was open and dry upon completion of drilling		1.98							
3											
4											
5											
6											
7											
8											
9											
10											

DEPTH SCALE

1 : 50

GOLDER

LOGGED: YS

CHECKED: TO

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PROJECT: 20146456

LOCATION: N 4862147.36; E 632884.51

RECORD OF BOREHOLE: P6

SHEET 1 OF 1

BORING DATE: January 6, 2021

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80)	SHEAR STRENGTH Cu, kPa (nat V. +, rem V. ⊕, Q - ●, U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3})	WATER CONTENT PERCENT (Wp, W, Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		214.10									
0	Truck Mount B57, 150 mm O.D. Hollow Stem Augers	ASPHALT (150 mm thick)		0.00									
		Crushed granular; brown		0.15 / 213.62	1A	AS	-						
		FILL - (SP) SAND, some gravel; trace fines; brown; moist		0.48 / 213.44	1B								
		FILL - (CI) SILTY CLAY, some sand, some gravel; dark brown, organic inclusions; cohesive, w~PL to w>PL, stiff		0.66	2	SS	9				W		
1													
					3	SS	9						
				212.12									
2		END OF BOREHOLE		1.98									
		NOTE:											
		1. Borehole was open and dry upon completion of drilling											
3													
4													
5													
6													
7													
8													
9													
10													

DEPTH SCALE

1 : 50

GOLDER

LOGGED: YS

CHECKED: TO

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PROJECT: 20146456

LOCATION: N 4862351.03; E 632840.88

RECORD OF BOREHOLE: P7

SHEET 1 OF 1

BORING DATE: January 6, 2021

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80)	SHEAR STRENGTH Cu, kPa (nat V. +, rem V. ⊕, Q - ●, U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3})	WATER CONTENT PERCENT (Wp, W, Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		219.20									
0	Truck Mount B57, 150 mm O.D. Hollow Stem Augers	ASPHALT (230 mm thick)		0.00 / 218.97									
		Crushed granular; brown		0.23	1A	AS	-						
		FILL - (SP) SAND, some gravel; trace fines; brown; moist		0.39 / 218.54	1B								
1		FILL - (CI) sandy SILTY CLAY, some gravel; brown and dark grey, organic inclusions; cohesive, w>PL, very stiff		0.66 / 217.83	2	SS	19						
		(ML) sandy SILT, some gravel; brown (TILL); non-cohesive, moist, compact		1.37 / 217.22	3	SS	22			○			
2		END OF BOREHOLE		1.98									
		NOTE:											
		1. Borehole was open and dry upon completion of drilling											
3													
4													
5													
6													
7													
8													
9													
10													

DEPTH SCALE

1 : 50

GOLDER

LOGGED: YS

CHECKED: TO

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PROJECT: 20146456

RECORD OF BOREHOLE: S1

SHEET 1 OF 2

LOCATION: N 4861359.73; E 633031.43

BORING DATE: January 15, 2021

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ●, rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp, W, Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		215.10							
0	Truck Mount B57 / 200 mm O.D. Hollow Stem Augers	ASPHALT (125 mm thick)		0.00							
		Crushed granular; brown		0.13 / 214.68	1	AS	-				50 mm Dia. PVC Monitoring Well
		FILL - (SP) SAND, brown, trace fines; non-cohesive, moist, dense		0.42							
1					2	SS	39				
					3	SS	37				
2				212.97							
		(SM) SILTY SAND, some gravel; brown (TILL); non-cohesive, moist, very dense		2.13	4	SS	64				
3					5	SS	71				
				211.06							January 29, 2021
4		(SM) SILTY SAND, some gravel; brown to grey; non-cohesive, wet, very dense		4.04							
					6	SS	79				Bentonite
5		- Becoming grey at a depth of 5.6 m									
6					7	SS	83				
7				208.01							
		(CL-ML) SILTY CLAY-CLAYEY SILT and SAND, some gravel; grey (TILL); cohesive, w<PL, hard		7.09							Sand
					8	SS	50/ 0.08				
8											Sand and Screen
9					9	SS	50/ 0.13				
				205.68							
		END OF BOREHOLE		9.42							
		NOTES:									
10		*CONTINUED NEXT PAGE*									

DEPTH SCALE

1 : 50

GOLDER

LOGGED: YS

CHECKED: TO

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PROJECT: 20146456

RECORD OF BOREHOLE: S1

SHEET 2 OF 2

LOCATION: N 4861359.73; E 633031.43

BORING DATE: January 15, 2021

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	SOIL PROFILE: STRATA PLOT	SOIL PROFILE: ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp W Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
10		*--- CONTINUED FROM PREVIOUS PAGE ---*									
		1. Water was encountered at a depth of 4.6 m during drilling. 2. Groundwater level was measured at a depth of 4.4 mbgs (El. 210.7m) after well installation. 3. Groundwater level was measured in monitoring well at a depth of 3.7 mbgs (El. 211.4m) on January 29, 2021.									
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

DEPTH SCALE

1 : 50

GOLDER

LOGGED: YS

CHECKED: TO

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PROJECT: 20146456

RECORD OF BOREHOLE: S2

SHEET 1 OF 1

LOCATION: N 4861546.26; E 633002.39

BORING DATE: January 15, 2021

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ●, rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp, W, Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		219.80							
0	Truck Mount B57 150 mm O.D. Hollow Stem Augers	ASPHALT (120 mm thick)		0.00							
		FILL - (SM) gravelly SILTY SAND, brown; non-cohesive, moist		0.12	1	AS	-			M	
				219.05							
1		FILL - (CI) sandy SILTY CLAY, some gravel; brown and black, organic inclusions; cohesive, w>PL, stiff		0.75	2	SS	11				
					3	SS	9				
2				217.67							
		(SM) SILTY SAND, trace to some gravel; brown; non-cohesive, moist to wet, dense to very dense		2.13	4	SS	35				
3					5	SS	54				
4		- Becoming wet at a depth of 4.6 m			6	SS	48				
5											
6					7	SS	50/ 0.1				
7				212.71							
		(GP) sandy GRAVEL, trace fines; grey; non-cohesive, wet, very dense		7.09							
				212.05	8	SS	50/ 0.13				
		END OF BOREHOLE		7.75							
8		NOTE:									
		1. Water was encountered at a depth of 4.6 m during drilling.									
9											
10											

DEPTH SCALE

1 : 50

GOLDER

LOGGED: YS

CHECKED: TO

GTA-BHS 001 S:\CLIENTS\REGION_OF_YORK\MAJOR_MACKENZIE_DRIVE\02_DATA\GINT\MARKHAM_WARDEN&KENNEDY_RD.GPJ GAL-MIS.GDT 3/23/21

PROJECT: 20146456

LOCATION: N 4861732.90; E 632961.79

RECORD OF BOREHOLE: S3

BORING DATE: January 13, 2021

SHEET 1 OF 2

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ●, rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp, W, Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		218.90							
0	Truck Mount B57 / 200 mm O.D. Hollow Stem Augers	ASPHALT (200 mm thick)		0.00 / 218.70							
		FILL - (SP) SAND, some gravel, trace fines; brown; moist		0.20 / 218.20	1	AS	-				50 mm Dia. PVC Monitoring Well
1		FILL - (CI) sandy SILTY CLAY, trace gravel, brown and black; organic inclusions; cohesive, w>PL, firm to stiff		0.70 / 216.77	2	SS	7		W	MH	
					3	SS	13				
2		(CL) SILTY CLAY and SAND, some gravel; brown (TILL); cohesive, w~PL, stiff		2.13 / 216.00	4	SS	13				
3		(SM) SILTY SAND, some gravel; brown (TILL); non-cohesive, moist, dense		2.90 / 214.86	5	SS	44				January 29, 2021 ▽
4		(CL-ML) SILTY CLAY-CLAYEY SILT and SAND, some gravel; grey (TILL); cohesive, w<PL, hard		4.04	6	SS	50/ 0.15				
5											Bentonite
6					7	SS	77				
7											Sand
8					8	SS	65				Sand and Screen
9					9	SS	90/ 0.13				
		END OF BOREHOLE		209.32 / 9.58							
10		NOTES:									
		CONTINUED NEXT PAGE									

DEPTH SCALE

1 : 50

GOLDER

LOGGED: YS

CHECKED: TO

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PROJECT: 20146456

RECORD OF BOREHOLE: S3

SHEET 2 OF 2

LOCATION: N 4861732.90; E 632961.79

BORING DATE: January 13, 2021

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	SOIL PROFILE: STRATA PLOT	SOIL PROFILE: ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp W Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
10		*--- CONTINUED FROM PREVIOUS PAGE ---*									
		1. Borehole was open and dry upon completion of drilling. 2. Groundwater level was measured in monitoring well at a depth of 3.5 mbgs (El. 215.4m) on January 29, 2021									
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

DEPTH SCALE

1 : 50

GOLDER

LOGGED: YS

CHECKED: TO

PROJECT: 20146456

LOCATION: N 4861956.56; E 632915.36

RECORD OF BOREHOLE: S4

BORING DATE: January 13, 2021

SHEET 1 OF 1

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp W Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		213.80							
0	Truck Mount B57 150 mm O.D. Hollow Stem Augers	ASPHALT (215 mm thick)		0.00 / 213.58							
		Crushed granular; brown		0.22 / 213.34	1A	AS	-		○	M	50 mm Dia. PVC Monitoring Well
		FILL - (SP) SAND, some gravel, trace fines; brown, moist		0.46	1B						
		FILL - (CI) sandy SILTY CLAY, some gravel; brown and black, organic inclusions; cohesive, w>PL, stiff		0.63	2	SS	11		○		
1					3	SS	9				
2				211.67							
		(SM) gravelly SILTY SAND, brown (TILL); non-cohesive, moist, compact		2.13 / 211.29	4	SS	15		○	MH	▽ January 29, 2021
		(SM) SILTY SAND, some gravel; grey; non-cohesive, moist, loose		2.51	5	SS	8				Bentonite
3											
4				209.76							
		(CL-ML) SILTY CLAY-CLAYEY SILT and SAND, some gravel; grey (TILL); cohesive, w<PL, hard		4.04	6	SS	89		○		
5											
6					7	SS	80				Sand
7											Sand and Screen
				205.95	8	SS	50/ 0.08		○		
		END OF BOREHOLE		7.85							
8		NOTES:									
		1. Water was encountered at a depth of 2.3 m during drilling.									
		2. Groundwater level was measured at a depth of 5.3 mbgs (El. 208.5m) after well installation.									
9		3. Groundwater level was measured in monitoring well at 2.4 mbgs (El. 211.5m) on January 29, 2021.									
10											

DEPTH SCALE

1 : 50

GOLDER

LOGGED: YS

CHECKED: TO

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PROJECT: 20146456

LOCATION: N 4862226.60; E 632859.96

RECORD OF BOREHOLE: S5

BORING DATE: January 12, 2021

SHEET 1 OF 1

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ●, rem V. ⊕ U - ○)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp, W, Wl; 10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		215.70							
0	Truck Mount B57 / 200 mm O.D. Hollow Stem Augers	ASPHALT (200 mm thick)		0.00 / 215.50							
		Crushed granular; brown		0.20 / 215.23	1A	AS	-				50 mm Dia. PVC Monitoring Well
		FILL - (SP) SAND, some gravel, trace fines; brown; moist		0.47 / 215.02	1B						
		FILL - (CI) sandy SILTY CLAY, some gravel; brown; cohesive, w>PL, stiff to very stiff		0.68	2	SS	14				
1											
					3	SS	16		○		
2				213.57							
		(CL-ML) SILTY CLAY-CLAYEY SILT and SAND, some gravel; brown to grey (TILL); cohesive, w<PL, hard		2.13	4	SS	86/ 0.23				
3					5	SS	50/ 0.13		○		Bentonite
4											
					6	SS	50/ 0.15				
5		- Becoming grey at a depth of 5.5 m									
6					7	SS	50/ 0.1		○		Sand
											January 29,2021
7											Sand and Screen
				207.85	8	SS	50/ 0.08				
8		END OF BOREHOLE		7.85							
		NOTES:									
		1. Borehole was open and dry upon completion of drilling.									
		2. Groundwater level was measured in monitoring well at a depth of 6.8 mbgs (El.208.9m) on January 29, 2021.									
9											
10											

DEPTH SCALE

1 : 50

GOLDER

LOGGED: YS

CHECKED: TO

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PROJECT: 20146456

LOCATION: N 4862442.27; E 632817.44

RECORD OF BOREHOLE: S6

BORING DATE: January 12, 2021

SHEET 1 OF 1

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ●, rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp, W, Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		221.40							
0	Truck Mount B57 150 mm O.D. Hollow Stem Augers	ASPHALT (255 mm thick)		0.00 / 221.14							
		FILL - (SP) SAND, some gravel, trace fines; brown; moist		0.26 / 220.65	1	AS	-				
1		FILL - (CI) sandy SILTY CLAY, some gravel; dark brown; cohesive, w~PL, stiff		0.75 / 220.03	2	SS	10				
		(ML) SILT and SAND, brown; non-cohesive, moist to wet, compact to dense		1.37 / 217.36	3	SS	18			MH	
2					4	SS	32				
3					5	SS	49				
4		(CL-ML) SILTY CLAY-CLAYEY SILT and SAND, some gravel; grey (TILL); cohesive, w<PL, hard		4.04	6	SS	57				
5		- Auger grinding between depths of 5.5 m and 5.8 m									
6					7	SS	96				
7					8	SS	50/0.1				
				213.53							
8		END OF BOREHOLE		7.87							
		NOTES:									
		1. Water measured in open borehole at a depth of 2.7 m upon completion of drilling.									
9											
10											

DEPTH SCALE

1 : 50

GOLDER

LOGGED: YS

CHECKED: TO

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LOG OF DRILLING OPERATIONS

BG-MW1

BURNSIDE

R.J. Burnside & Associates Limited
292 Speedvale Avenue West, Guelph, Ontario N1H 1C4
telephone (519) 823-4995 fax (519) 836-5477

Client: **Berczy Glen Landowners Group**	Project Name: **Berczy Glen Lands**	Logged by: **C. Dinulescu**
Project No.: **300033248**	Location: **Markham, ON**	Ground (m amsl): **220.2**
Drilling Co.: **Lantech Drilling Services Inc.**	Date Started: **9/18/2013**	Static Water Level Depth (m):
Drilling Method: **Hollow Stem Auger**	Date Completed: **9/18/2013**	Sand Pack Depth (m) : **4.57 - 6.86**

Depth Scale (ft)	Depth Scale (m)	Stratigraphic Description (Surface Elevation (m): 220.20)	Strat. Plot	Depth (m)		SAMPLE Num.	Type	Int.	N.Val.
		TOPSOIL - dark brown loam					SS		24
		SILTY CLAY - with sand, trace fine subrounded gravel, pockets of fine to medium grained sand, damp, weakly plastic, lught brown, soft, iron staining		0.95		1	SS		21
5.0	1.0	SANDY SILT - trace clay, trace fine gravel, light brown, weakly plastic, soft, damp		1.57		2	SS		24
	2.0	SAND - very fine to fine grained , trace silt, occasional gravel, uniform, light brown, damp to wet, loose.		2.21	bentonite seal	3	SS		82/10"
10.0	3.0					4	SS		55/6"
	4.0								
15.0	5.0	SANDY GRAVEL - trace clay, trace silt, well graded, wet to saturated, loose, fine to large.		4.70	silica sand pack	5	SS		105
20.0	6.0	SAND - medium to very coarse grained, trace fine gravel, trace silt, uniform, light brown, loose, saturated, well graded		5.64		6	SS		77
		SANDY GRAVEL - fine to coarse grained subangular to subrounded, trace silt, trace clay, cobbles, saturated, loose		6.25		7	SS		
		SAND - fine to coarse grained, trace silt, trace gravel, uniform, light brown, saturated, cobbles and boulders		6.45		8	SS		
		Stone refusal at 6.86 m		6.86	6.86				

Prepared By: **S. Charity** Checked By: **C. Dinulescu** Date Prepared: **10/7/2013**

This borehole log was prepared for hydrogeological and/or environmental purposes and does not necessarily contain information suitable for a geotechnical assessment of the subsurface conditions. Borehole data requires interpretation by R. J. Burnside & Associates Limited personnel before use by others.

LEGEND
▼ Water found @ time of drilling
▽ Static Water Level -

MONITORING WELL DATA
Pipe: 51 mm dia. PVC
Screen: 51 mm dia. PVC #10 slot

SAMPLE TYPE AC Auger Cutting; CS Continuous; RC Rock Core; SS Split Spoon; AR Air Rotary; WC Wash Cuttings

LOG OF DRILLING OPERATIONS

AG-MW12

BURNSIDE

R.J. Burnside & Associates Limited
292 Speedvale Avenue West, Guelph, Ontario N1H 1C4
telephone (519) 823-4995 fax (519) 836-5477

Client: **Angus Glen Developments Inc.**	Project Name: **Angus Glen MESP**	Logged by: **C. D.**
Project No.: **300034937**	Location: **Markham, ON**	Ground (m amsl): **217.20**
Drilling Co.: **Lantech Drilling Services Inc.**	Date Started: **2/25/2015**	Static Water Level Depth (m): **3.46**
Drilling Method: **Hollow Stem Auger**	Date Completed: **2/25/2015**	Sand Pack Depth (m) : **5.46 - 7.62**

Depth Scale (ft)	Depth Scale (m)	Stratigraphic Description (Surface Elevation (m): **217.20**)	Strat. Plot	Elev. Depth (m)	Sample Num.	Sample Type	Sample Int.	N.Val.
		TOPSOIL Dark brown sandy silt, weathered small pieces of rocks, dry			1	SS		frozen
	1.0				2	SS		29
5.0		FILL Gravel and Sand, fragments of rocks, loose to compact, dry, trace silt		215.76 1.44	3	SS		>100
	2.0				4	SS		>50/3"
10.0	3.0				5	SS		>50/4"
		Sandy Silt TILL Grey, stiff, dry, some clay, trace gravel (<2 cm diameter) subangular to subrounded, occasional pockets with medium sand		213.47 3.73	6	SS		>50/2"
15.0	4.0				7	SS		>50/4"
	5.0	becomes harder with depth						
20.0	6.0				8	SS		>50/5"
	7.0							
25.0				209.58 7.62	9	SS		>50/4"

Holeplug

Sandpack

Well Screen

7.62

Prepared By: **C. D.** Checked By: **J. S.** Date Prepared: **7/26/2015**

This borehole log was prepared for hydrogeological and/or environmental purposes and does not necessarily contain information suitable for a geotechnical assessment of the subsurface conditions. Borehole data requires interpretation by R. J. Burnside & Associates Limited personnel before use by others.

LEGEND
- Water found @ time of drilling
- Static Water Level - 6/16/2015

MONITORING WELL DATA
- Pipe: **51 mm dia. PVC**
- Screen: **51 mm dia. PVC #10 slot**

SAMPLE TYPE
- AC Auger Cutting
- CS Continuous
- RC Rock Core
- SS Split Spoon
- AR Air Rotary
- WC Wash Cuttings

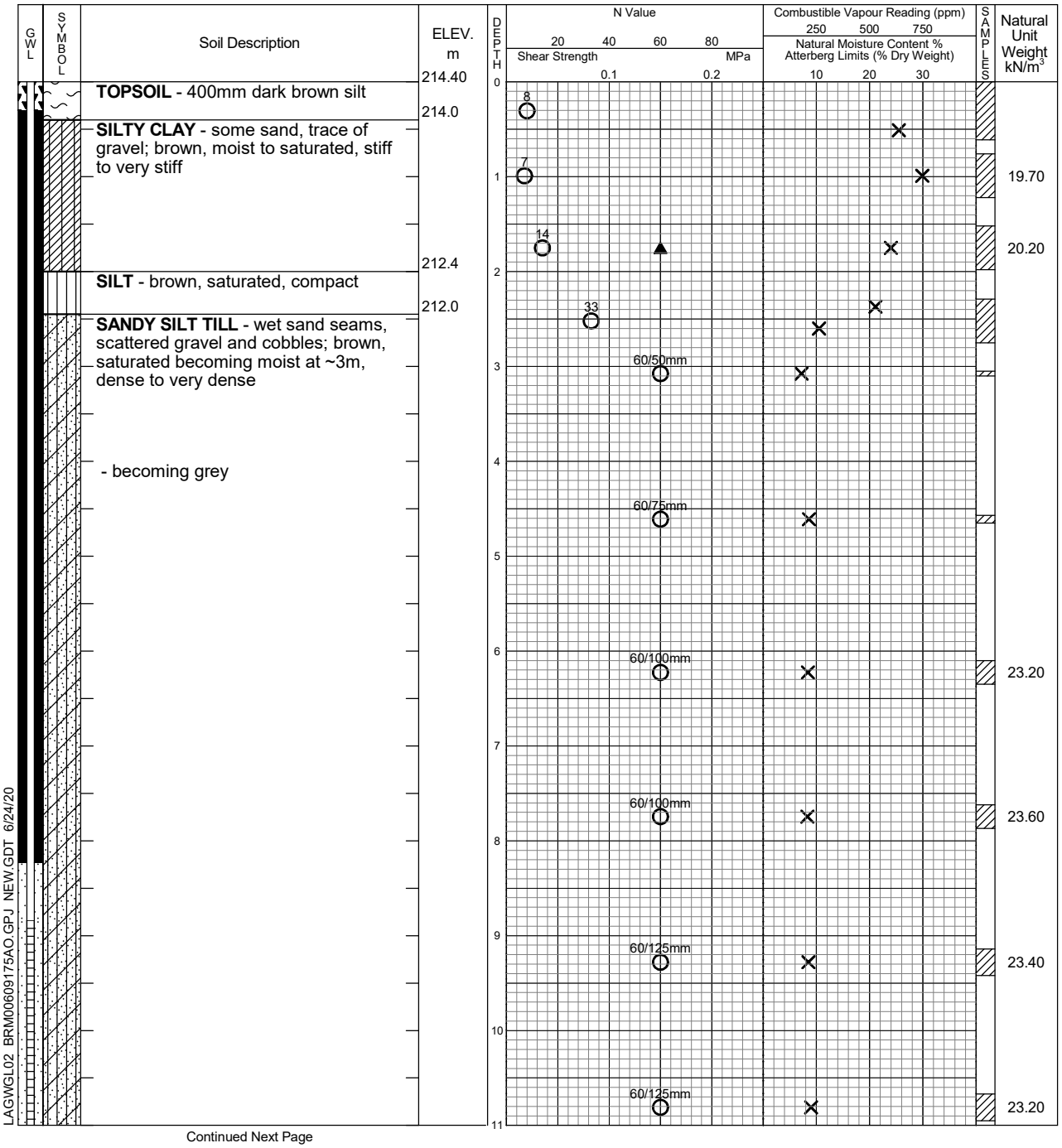
Log of Borehole 113

Project No. BRM-00609175-AO
Drawing No. 16
Project: Geotechnical Investigation - Berczy Warden Subdivision
Sheet No. 1 of 2
Location: 10206 and 10348 Warden Avenue, Markham, Ontario

Date Drilled: May 19 and 22, 2020
Drill Type: Dietrich 120
Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test (S)

Combustible Vapour Reading
Natural Moisture
Plastic and Liquid Limit
Undrained Triaxial at % Strain at Failure
Penetrometer



Continued Next Page

Time	Water Level (m)	Depth to Cave (m)
On completion	3.96	Borehole
After 4 hours	0.61	Well
After 5 days	0.58	Well

Log of Borehole 113

Project No. BRM-00609175-AO

Drawing No. 16

Project: Geotechnical Investigation - Berczy Warden Subdivision

Sheet No. 2 of 2

GWL	SYMBOL	Soil Description	ELEV. m	DEPTH	N Value / Shear Strength (MPa)	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	SAMPLES	Natural Unit Weight kN/m³
			203.40	11	20 40 60 80 / Shear Strength 0.1 0.2 MPa	250 500 750 / 10 20 30		
				12	50/150mm			23.30
			201.9					

END OF BOREHOLE

NOTES:

1. Groundwater monitoring well installed to 11.89m; sealed with bentonite from 0.3 to 8.23m.

Time	Water Level (m)	Depth to Cave (m)
On completion	3.96	Borehole
After 4 hours	0.61	Well
After 5 days	0.58	Well

LAGWGL02 BRM00609175AO.GPJ NEW.GDT 6/24/20

Log of Borehole 113A

Project No. BRM-00609175-AO
Drawing No. 17
Project: Geotechnical Investigation - Berczy Warden Subdivision
Sheet No. 1 of 1
Location: 10206 and 10348 Warden Avenue, Markham, Ontario

Date Drilled: May 22, 2020
Drill Type: Dietrich 120
Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test

Combustible Vapour Reading
Natural Moisture
Plastic and Liquid Limit
Undrained Triaxial at % Strain at Failure
Penetrometer

GWL	SYMBOL	Soil Description	ELEV. m	DEPTH
		TOPSOIL - 400mm dark brown silt	214.40	0
		SILTY CLAY - some sand, trace of gravel; brown, moist to saturated, stiff to very stiff	214.0	
		SILT - brown, saturated, compact	212.4	2
		SANDY SILT TILL - wet sand seams, scattered gravel and cobbles; brown, saturated becoming moist at ~3m, dense to very dense	212.0	
		- becoming grey		4
			207.2	7
		END OF BOREHOLE		

N Value: 20 40 60 80
Shear Strength: 0.1 0.2 MPa
Combustible Vapour Reading (ppm): 250 500 750
Natural Moisture Content % Atterberg Limits (% Dry Weight): 10 20 30
SAMPLES
Natural Unit Weight kN/m³

NOTES:
1. Groundwater monitoring well installed to 7.19m; sealed with bentonite from 0.3 to 3.53m.

Time	Water Level (m)	Depth to Cave (m)
On completion	Dry	Borehole
After 4 hours	1.14	Well
After 5 days	1.09	Well

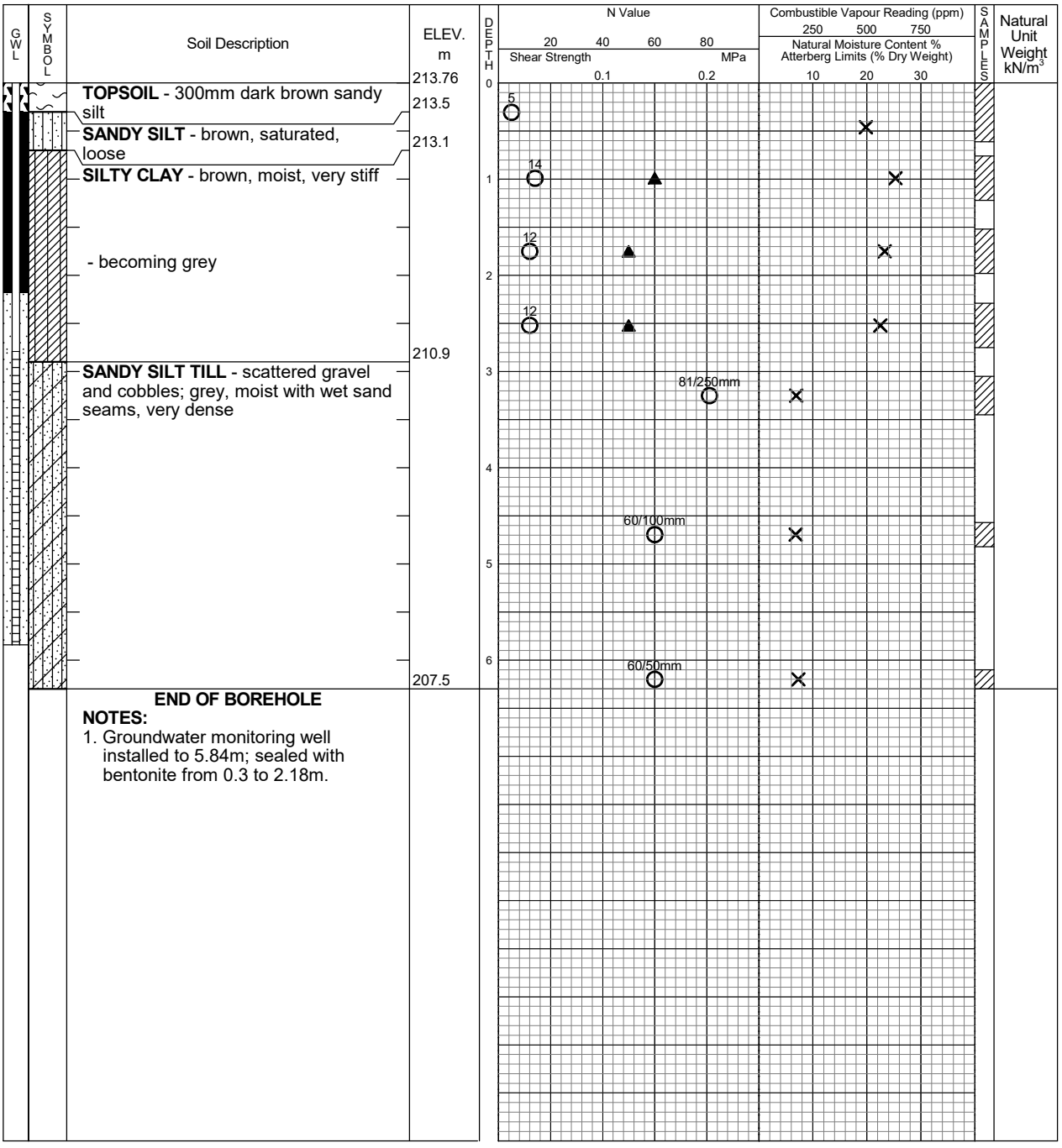
LAGWGL02 BRM00609175AO.GPJ NEW.GDT 6/24/20

Log of Borehole 116

Project No. BRM-00609175-AO
Drawing No. 20
Project: Geotechnical Investigation - Berczy Warden Subdivision
Sheet No. 1 of 1
Location: 10206 and 10348 Warden Avenue, Markham, Ontario

Date Drilled: May 13, 2020
Drill Type: Dietrich 120
Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test
Combustible Vapour Reading
Natural Moisture
Plastic and Liquid Limit
Undrained Triaxial at % Strain at Failure
Penetrometer



END OF BOREHOLE

NOTES:
1. Groundwater monitoring well installed to 5.84m; sealed with bentonite from 0.3 to 2.18m.

Time	Water Level (m)	Depth to Cave (m)
On completion	Dry	Borehole
After 9 days	0.97	Well
After 14 days	0.99	Well

LAGWGL02 BRM00609175AO.GPJ NEW.GDT 6/24/20

PROJECT: 14-1186-0012

LOCATION: See Figure 2

RECORD OF BOREHOLE: 14-16

SHEET 1 OF 2

BORING DATE: May 8, 2014

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80)	SHEAR STRENGTH Cu, kPa (nat V. + Q - ●, rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3})	WATER CONTENT PERCENT (Wp, W, Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		214.70									
0	TRACK MOUNTED CME 55 Hollow Stem Augers	FILL - (ML) CLAYEY SILT, some sand, organic inclusions; dark brown; cohesive, W<PL to W~PL, firm		0.00	1	SS	5						Concrete
				214.01									
1		(ML) sandy CLAYEY SILT; pale brown, with oxidation staining; cohesive, W<PL, stiff		0.69	2	SS	9						
				213.33									
2		(CI) SILTY CLAY, some sand; grey, with oxidation staining; cohesive, W>PL, firm to stiff		1.37	3	SS	7					PL	
		Very thinly bedded with fine sand below a depth of approximately 2.1 m below existing ground surface			4	SS	12						
				211.80									
3		(ML) sandy SILT, some clay to clayey, trace gravel, with pockets of medium sand; grey (TILL); non-cohesive, moist, very dense		2.90	5	SS	83						
4													
					6	SS	50/ .05						
5													Bentonite Seal
6					7	SS	50/ .13						
7													
					8	SS	50/ .08						
8													
9					9	SS	50/ .13						
10		*CONTINUED NEXT PAGE*											

DEPTH SCALE

1 : 50

Golder Associates

LOGGED: JG

CHECKED: AM

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PROJECT: 14-1186-0012

LOCATION: See Figure 2

RECORD OF BOREHOLE: 14-16

BORING DATE: May 8, 2014

SHEET 2 OF 2

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80)	SHEAR STRENGTH Cu, kPa (nat V. +, rem V. ⊕, Q - ●, U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3})	WATER CONTENT PERCENT (Wp, W, Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
10		*— CONTINUED FROM PREVIOUS PAGE —*											
10	TRACK MOUNTED CME 55 Hollow Stem Augers	(ML) sandy SILT, some clay to clayey, trace gravel, with pockets of medium sand; grey (TILL); non-cohesive, moist, very dense			10	SS	50/.13			○			Bentonite Seal
11													
12					11	SS	50/.13			○			
13		Becoming more moist below a depth of approximately 13.1 m below ground surface											
14					12	SS	99/.13			○			Silica Sand Filter
15		Augers grinding below a depth of approximately 14.9 m below ground surface. Inferred cobble/boulder											
				199.16	13	SS	50/.13			○			
		AUGER REFUSAL ON INFERRED COBBLE/BOULDER END OF BOREHOLE		15.54									1. Water level measured at a depth of 3.87 m below ground surface, June 20/14
16													
17													
18													
19													
20													

DEPTH SCALE

1 : 50

Golder Associates

LOGGED: JG

CHECKED: AM

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PROJECT: 19119989 (2000)
LOCATION: See Figure 1

RECORD OF BOREHOLE: 20-12

BORING DATE: July 10, 2020

SHEET 1 OF 2
DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m
		GROUND SURFACE		220.20			
0	Mobile B-45 220 mm O.D. Hollow Stem Augers	FILL - (CL) SILTY CLAY, some sand, trace rootlets, trace gravel; brown; cohesive, w<PL, stiff		0.00 / 219.59	1	SS	12
1		FILL - (CL) SILTY CLAY, trace gravel, some sand; brown; oxidation staining; cohesive, w<PL, firm		0.61 / 218.83	2	SS	7
2		(ML) sandy SILT, trace gravel; brown; oxidation staining; non-cohesive, moist to wet, compact to very dense		1.37	3	SS	21
3					4	SS	69
4					5	SS	73
5					6	SS	57
				214.64			
6		(SP) SAND, some gravel; brown; non-cohesive, wet, dense to very dense		5.56	7	SS	40
7							
8	110 mm Tricone with Mud				8	SS	50/ 0.05
				211.60			
9		(SM) gravelly SILTY SAND; grey (TILL), contains cobbles and boulders; non-cohesive, moist, very dense		8.60	9	SS	50/ 0.08
				210.24			
10		CONTINUED NEXT PAGE					

DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m: 20 40 60 80

SHEAR STRENGTH Cu, kPa: nat V. + q - ●; rem V. ⊕ U - ○; 20 40 60 80

HYDRAULIC CONDUCTIVITY, k, cm/s: 10^{-6} 10^{-5} 10^{-4} 10^{-3}

WATER CONTENT PERCENT: Wp — W — Wl; 10 20 30 40

ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
MH	

DEPTH SCALE
1 : 50

GOLDER
MEMBER OF WSP

LOGGED: MJB/BD
CHECKED: KN

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PROJECT: 19119989 (2000)
LOCATION: See Figure 1

RECORD OF BOREHOLE: 20-12

BORING DATE: July 10, 2020

SHEET 2 OF 2
DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80)	SHEAR STRENGTH Cu, kPa (20 40 60 80) nat V. + Q - ● rem V. ⊕ U - ○	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3})	WATER CONTENT PERCENT Wp W Wl (10 20 30 40)	ADDITIONAL LAB TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
10	Mobile B-45 110 mm Tricone with Mud	— CONTINUED FROM PREVIOUS PAGE —											
		(CL-ML) CLAYEY SILT and SAND, some gravel; grey (TILL), contains cobbles and boulders; cohesive, w<PL, hard		9.96									
11					10	SS	50/ 0.10						
12					11	SS	50/ 0.05						
13													
14					12	SS	50/ 0.08						
15													
					13	SS	50/ 0.10						
16													
				203.31	14	SS	50/ 0.13						
17		END OF BOREHOLE		16.59									
		NOTE: 1. Borehole open upon completion of drilling. 2. Heaving sand encountered at a depth of 7.6 m, drilling method changed to 110 mm tricone with mud.											
18													
19													
20													

DEPTH SCALE
1 : 50

GOLDER
MEMBER OF WSP

LOGGED: MJB/BD
CHECKED: KN

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PROJECT: 19119989 (2000)

LOCATION: See Figure 1

RECORD OF BOREHOLE: 20-13

BORING DATE: July 20, 2020

SHEET 1 OF 2

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp — W — Wl) (10 20 30 40)	ADDITIONAL LAB TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
0		GROUND SURFACE		218.30							
		TOPSOIL (690 mm)		0.00	1	SS	6				
				217.61							
1		(CL) SILTY CLAY, trace sand to sandy, trace gravel; brown, organic staining, oxidation staining; cohesive, w~PL, stiff		0.69	2	SS	10				
					3	SS	12				
2				216.17							
		(SM) SILTY SAND, some gravel; brown to grey (TILL), contains cobbles and boulders; non-cohesive, moist, dense to very dense		2.13	4	SS	31				
3					5	SS	73				
		- Becoming grey at a depth of 3.4 m									
4											
					6	SS	93/ 0.2				
5		- Auger grinding between depths of 5.5 m and 6.1 m									
6					7	SS	50/ 0.1			MH	
7											
					8	SS	50/ 0.13				
8											
9					9	SS	50/ 0.08				
10		CONTINUED NEXT PAGE									

Mobile B-45 — 220 mm O.D. Hollow Stem Augers

110 mm Tricone with Mud

DEPTH SCALE

1 : 50

GOLDER
MEMBER OF WSP

LOGGED: BD

CHECKED: KN

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PROJECT: 19119989 (2000)
LOCATION: See Figure 1

RECORD OF BOREHOLE: 20-13

BORING DATE: July 20, 2020

SHEET 2 OF 2
DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp — W — Wl) (10 20 30 40)	ADDITIONAL LAB TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
10		— CONTINUED FROM PREVIOUS PAGE —									
10	Mobile B-45 110 mm Tricone with Mud	(SM) SILTY SAND, some gravel; brown to grey (TILL), contains cobbles and boulders; non-cohesive, moist, dense to very dense			10	SS	50/ 0.08				
11											
12		- Auger grinding between depths of 12.2 m and 13.1 m			11	SS	50/ 0.08				
13											
14					12	SS	50/ 0.13				
15											
16					13	SS	50/ 0.13				
17				201.26	14	SS	50/ 0.13				
		END OF BOREHOLE		17.04							
		NOTE:									
		1. Borehole open upon completion of drilling.									
18											
19											
20											

DEPTH SCALE
1 : 50

GOLDER
MEMBER OF WSP

LOGGED: BD
CHECKED: KN

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PROJECT: 19119989 (2000)

LOCATION: N 4861885.83; E 632932.01

RECORD OF BOREHOLE: 21-1

BORING DATE: May 10, 2021

SHEET 1 OF 2

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT Wp W Wl (10 20 30 40)	ADDITIONAL LAB TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		216.45							
0	Track Mount Mobile B57 200 mm O.D. Hollow Stem Augers	ASPHALT (150 mm)		0.00							50 mm Diameter PVC Monitorig Well (Flush mount)
		FILL- (SP) gravelly SAND; brown; non-cohesive, moist, dense		0.15	1	SS	30				May 20, 2021
				215.68							
1		FILL - (CL) sandy SILTY CLAY; brown; cohesive, w~PL, firm		0.76	2	SS	8				
					3	SS	8				
2				214.32							
		(CL) sandy SILTY CLAY to SILTY CLAY and SAND, some gravel; brown to grey at 6.1 m (TILL), contains cobbles and boulders; cohesive, w<PL, very stiff to hard		2.13	4	SS	17				
3					5	SS	20				
4											
					6	SS	50/ 0.13				Bentonite
5											
6	Track Mount Mobile B57 130 mm Tricone Mud Rotary				7	SS	93/ 0.23				
7											
8					8	SS	83			MH	
9					9	SS	50/ 0.13				
10		CONTINUED NEXT PAGE									

DEPTH SCALE

1 : 50

GOLDER
MEMBER OF WSP

LOGGED: YS

CHECKED: YS

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PROJECT: 19119969 (2000)
LOCATION: N 4861885.63; E 632932.01

RECORD OF BOREHOLE: 21-1

BORING DATE: May 10, 2021

SHEET 2 OF 2
DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80)	SHEAR STRENGTH Cu, kPa (nat V. + Q - ●, rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3})	WATER CONTENT PERCENT (Wp — W — Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
10	Track Mount Mobile B57 130 mm Tricone Mud Rotary	— CONTINUED FROM PREVIOUS PAGE —											
		(CL) sandy SILTY CLAY to SILTY CLAY and SAND, some gravel; brown to grey at 6.1 m (TILL), contains cobbles and boulders; cohesive, w<PL, very stiff to hard			10	SS	50/ 0.07			O			
11													
					11	SS	50/ 0.07			O			Bentonite
12													
					12	SS	50/ 0.13			O			
13													Sand
					13	SS	100/ 0.25			O——		MH	
14													
					14	SS	50/ 0.07			O			
15													Screen
					15	SS	52			O			
16													
					16	SS	50/ 0.13			O			Sand
17				199.41									
		END OF BOREHOLE		17.04									
		NOTES: 1. Water encountered at a depth of 4.6 m during drilling. 2. Water level measured in monitoring well as follows: Date Depth (m) Elev. (m) 20-May-21 0.6 215.9											
18													
19													
20													

DEPTH SCALE
1 : 50

GOLDER
MEMBER OF WSP

LOGGED: YS
CHECKED: YS

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PROJECT: 19119989 (2000)
LOCATION: N 4861617.47; E 632979.74

RECORD OF BOREHOLE: 21-2

BORING DATE: May 7, 2021

SHEET 1 OF 2
DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV / DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. +, rem V. ⊕, Q - ●, U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp, W, Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		220.80							
0	Track Mount Mobile B57 / 200 mm O.D. Hollow Stem Augers	TOPSOIL (100 mm)		0.00							
		FILL - (CL) sandy SILTY CLAY; brown, rootlets, organic inclusions; cohesive, w~Pl, firm		0.10	1	SS	5				50 mm Diameter PVC Monitorig Well (Flush mount)
1					2	SS	8				
					3	SS	4				
2				218.67							
		(SM) SILTY SAND; brown; non-cohesive, moist, very dense		2.13	4	SS	66				Bentonite
3					5	SS	72				
4	Track Mount Mobile B57 / 130 mm Tricone Mud Rotary	(SP) gravelly SAND, some fines; brown; non-cohesive, wet, very dense		216.76 4.04	6	SS	61				May 20, 2021 Sand
5											
6					7	SS	63/ 0.25				Screen
7				213.75						MH	
		(CL) sandy SILTY CLAY, some gravel; grey (TILL), contains cobbles and boulders; cohesive, w<PL, hard		7.05	8	SS	50/ 0.10				
8											
9					9	SS	50/ 0.10				
10		CONTINUED NEXT PAGE									

DEPTH SCALE
1 : 50

GOLDER
MEMBER OF WSP

LOGGED: SC
CHECKED: YS

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PROJECT: 19119989 (2000)
LOCATION: N 4861617.47; E 632979.74

RECORD OF BOREHOLE: 21-2

BORING DATE: May 7, 2021

SHEET 2 OF 2
DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. +, rem V. ⊕, Q - ●, U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp, W, Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		— CONTINUED FROM PREVIOUS PAGE —									
10	Track Mount Mobile B57 130 mm Tricone Mud Rotary	(CL) sandy SILTY CLAY, some gravel; grey (TILL), contains cobbles and boulders; cohesive, w<PL, hard			10	SS	50/ 0.15				
11											
12					11	SS	50/ 0.10				
13											
14					12	SS	50/ 0.08			MH	
15					13	SS	50/ 0.05				
16					14	SS	50/ 0.08				
17					15	SS	50/ 0.10				
18					16	SS	50/ 010				
19		END OF BOREHOLE NOTES: 1. Water encountered at a depth of 4.6 m during drilling. 2. Water level measured in monitoring well as follows: Date Depth (m) Elev. (m) 20-May-21 4.7 216.1		202.42 16.38	17	SS	50/ 0.10				
20											

DEPTH SCALE
1 : 50

GOLDER
MEMBER OF WSP

LOGGED: SC
CHECKED: YS

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PROJECT: 19119989 (2000)
LOCATION: N 4861620.43; E 633018.12

RECORD OF BOREHOLE: 21-3

BORING DATE: May 4, 2021

SHEET 1 OF 3
DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. +, rem V. ⊕, Q - ●, U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp, W, Wl) (10 20 30 40)	ADDITIONAL LAB TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		220.62							
0	Track Mount Mobile B57 200 mm O.D. Hollow Stem Augers	TOPSOIL (680 mm)		0.00 / 220.14	1	SS	6				50 mm Diameter PVC Monitornig Well (Flush mount)
1		(CL) SILTY CLAY and SAND, some gravel; brown; cohesive, w<PL, stiff		0.68 / 219.45	2	SS	11				
2		(SM) SILTY SAND, trace gravel; brown (TILL); very dense		1.37 / 218.69	3	SS	50				Bentonite
		(ML) SILT and SAND; brown; non-cohesive, moist to wet, dense to very dense		2.13	4	SS	84				
3					5	SS	61				
4											Sand
											May 20, 2021
5					6	SS	32			WH NP	
				215.26							
6		(SP) gravelly SAND, trace fines; brown; non-cohesive, wet, very dense		5.56							Screen
					7	SS	84				
7											
					8	SS	71				
8											
9					9	SS	50/ 0.10				
10		CONTINUED NEXT PAGE									

DEPTH SCALE
1 : 50

GOLDER
MEMBER OF WSP

LOGGED: SC
CHECKED: YS

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PROJECT: 19119989 (2000)
LOCATION: N 4861620.43; E 633018.12

RECORD OF BOREHOLE: 21-3

BORING DATE: May 4, 2021

SHEET 2 OF 3
DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m; SHEAR STRENGTH Cu, kPa (nat V. +, rem V. ⊕, Q - ●, U - ○)	HYDRAULIC CONDUCTIVITY, k, cm/s; WATER CONTENT PERCENT (Wp, W, Wl)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
10	Track Mount Mobile B57, 200 mm O.D. Hollow Stem Augers	— CONTINUED FROM PREVIOUS PAGE —									
		(CL) sandy SILTY CLAY, some gravel; grey (TILL), contains cobbles and boulders; cohesive, w<PL to w~PL, hard		210.69 10.13							
11					10	SS	50/ 0.08				
12					11	SS	50/ 0.10				
13											
14	Track Mount Mobile B57, 130 mm Tricone Mud Rotary				12	SS	50/ 0.10			MH	
					13	SS	50/ 0.15				
15					14	SS	50/ 0.13				
16					15	SS	50/ 0.13				
					16	SS	50/ 0.15				
17											
18											
				202.40 18.42	17	SS	50/ 0.13				
		END OF BOREHOLE									
19		NOTES: 1. NP = Non-Plastic 2. Water encountered at a depth of 4.6 m during drilling.									
20		CONTINUED NEXT PAGE									

DEPTH SCALE
1 : 50

GOLDER
MEMBER OF WSP

LOGGED: SC
CHECKED: YS

GTA-BHS 001 S:\CLIENTS\SCS_CONSULTING\BERCZYGLEN_MARKHAM\02_DATA\GINT\BERCZYGLEN_MARKHAM.GPJ GAL-MIS.GDT 6/25/21

PROJECT: 19119989 (2000)

LOCATION: N 4861620.43; E 633018.12

RECORD OF BOREHOLE: 21-3

BORING DATE: May 4, 2021

SHEET 3 OF 3

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. +, rem V. ⊕, Q - ●, U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp, W, Wl) (10 20 30 40)	ADDITIONAL LAB TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
20		*— CONTINUED FROM PREVIOUS PAGE —*									
		3. Water level measured in monitoring well as follows: Date Depth (m) Elev. (m) 20-May-21 4.5 216.3									
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											

DEPTH SCALE

1 : 50

GOLDER
MEMBER OF WSP

LOGGED: SC

CHECKED: YS

GTA-BHS 001 S:\CLIENTS\SCS_CONSULTING\BERCZYGLEN_MARKHAM\02_DATA\GINT\BERCZYGLEN_MARKHAM.GPJ GAL-MIS GDT 6/25/21

LOG OF DRILLING OPERATIONS

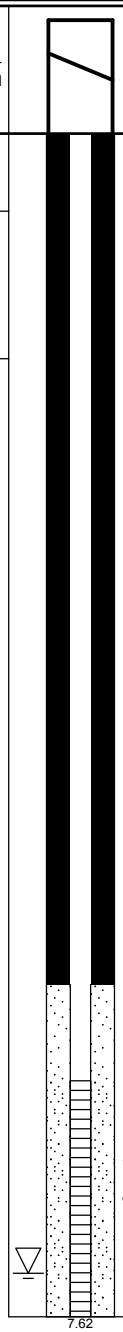
AG-MW1

R.J. Burnside & Associates Limited
292 Speedvale Avenue West, Guelph, Ontario N1H 1C4
telephone (519) 823-4995 fax (519) 836-5477

Client: **Angus Glen Developments Inc.**	Project Name: **Angus Glen MESP**	Logged by: **C. D.**
Project No.: **300036802**	Location: **Markham, ON**	Ground (m amsl): **225.80**
Drilling Co.: **Lantech Drilling Services Inc.**	Date Started: **3/2/2015**	Static Water Level Depth (m): **7.34**
Drilling Method: **Hollow Stem Auger**	Date Completed: **3/2/2015**	Sand Pack Depth (m) : **5.48 - 7.62**

Surface Elevation (m): **225.80**

Depth Scale (ft)	Depth Scale (m)	Stratigraphic Description	Strat. Plot	Elev. Depth (m)
		TOPSOIL Dark brown clayey silt, rootlets		225.30 0.50
		CLAY Silty Brown, soft, wet, grey clay mottling, low plasticity, trace fine sand, iron staining, occasional gravel (<1 cm diameter), subangular to subrounded, occasional pockets with fine to medium sand		224.35 1.45
		Sandy Silt TILL Brown, stiff, medium plasticity, dry, trace to some clay, trace gravel (<2 cm diameter) subangular to subrounded, iron staining, occasional cobble		
		sandier and harder with depth		
				217.57 8.23



SAMPLE Num.	Type	Int.	N.Val.
1	SS		8
2	SS		18
3	SS		15
4	SS		59
5	SS		91
6	SS		63
7	SS		>50/3"
8	SS		>50/6"
9	SS		>50/4"

Depth Scale (ft) (m): 0, 5.0 (1.0), 10.0 (2.0), 15.0 (3.0), 20.0 (4.0), 25.0 (5.0), 30.0 (6.0), 35.0 (7.0)

Prepared By: **C. D.** Checked By: **J. S.** Date Prepared: **3/3/2015**

This borehole log was prepared for hydrogeological and/or environmental purposes and does not necessarily contain information suitable for a geotechnical assessment of the subsurface conditions. Borehole data requires interpretation by R. J. Burnside & Associates Limited personnel before use by others.

LEGEND
- Water found @ time of drilling
- Static Water Level - 6/16/2015

MONITORING WELL DATA
- Pipe: **51 mm dia. PVC**
- Screen: **51 mm dia. PVC #10 slot**

SAMPLE TYPE
- AC Auger Cutting
- CS Continuous
- RC Rock Core
- SS Split Spoon
- AR Air Rotary
- WC Wash Cuttings

LOG OF DRILLING OPERATIONS

BG-MW1

BURNSIDE

R.J. Burnside & Associates Limited
292 Speedvale Avenue West, Guelph, Ontario N1H 1C4
telephone (519) 823-4995 fax (519) 836-5477

Client: **Berczy Glen Landowners Group**	Project Name: **Berczy Glen Lands**	Logged by: **C. Dinulescu**
Project No.: **300033248**	Location: **Markham, ON**	Ground (m amsl): **220.2**
Drilling Co.: **Lantech Drilling Services Inc.**	Date Started: **9/18/2013**	Static Water Level Depth (m):
Drilling Method: **Hollow Stem Auger**	Date Completed: **9/18/2013**	Sand Pack Depth (m) : **4.57 - 6.86**

Depth Scale (ft)	Depth Scale (m)	Stratigraphic Description (Surface Elevation (m): 220.20)	Strat. Plot	Depth (m)		SAMPLE Num.	Type	Int.	N.Val.
		TOPSOIL - dark brown loam					SS		24
		SILTY CLAY - with sand, trace fine subrounded gravel, pockets of fine to medium grained sand, damp, weakly plastic, lught brown, soft, iron staining		0.95		1	SS		21
5.0	1.0	SANDY SILT - trace clay, trace fine gravel, light brown, weakly plastic, soft, damp		1.57		2	SS		24
	2.0	SAND - very fine to fine grained , trace silt, occasional gravel, uniform, light brown, damp to wet, loose.		2.21	bentonite seal	3	SS		82/10"
10.0	3.0					4	SS		55/6"
	4.0								
15.0	5.0	SANDY GRAVEL - trace clay, trace silt, well graded, wet to saturated, loose, fine to large.		4.70	silica sand pack	5	SS		105
20.0	6.0	SAND - medium to very coarse grained, trace fine gravel, trace silt, uniform, light brown, loose, saturated, well graded		5.64		6	SS		77
		SANDY GRAVEL - fine to coarse grained subangular to subrounded, trace silt, trace clay, cobbles, saturated, loose		6.25		7	SS		
		SAND - fine to coarse grained, trace silt, trace gravel, uniform, light brown, saturated, cobbles and boulders		6.45		8	SS		
		Stone refusal at 6.86 m		6.86	6.86				

Prepared By: **S. Charity** Checked By: **C. Dinulescu** Date Prepared: **10/7/2013**

This borehole log was prepared for hydrogeological and/or environmental purposes and does not necessarily contain information suitable for a geotechnical assessment of the subsurface conditions. Borehole data requires interpretation by R. J. Burnside & Associates Limited personnel before use by others.

LEGEND
▼ Water found @ time of drilling
▽ Static Water Level -

MONITORING WELL DATA
Pipe: 51 mm dia. PVC
Screen: 51 mm dia. PVC #10 slot

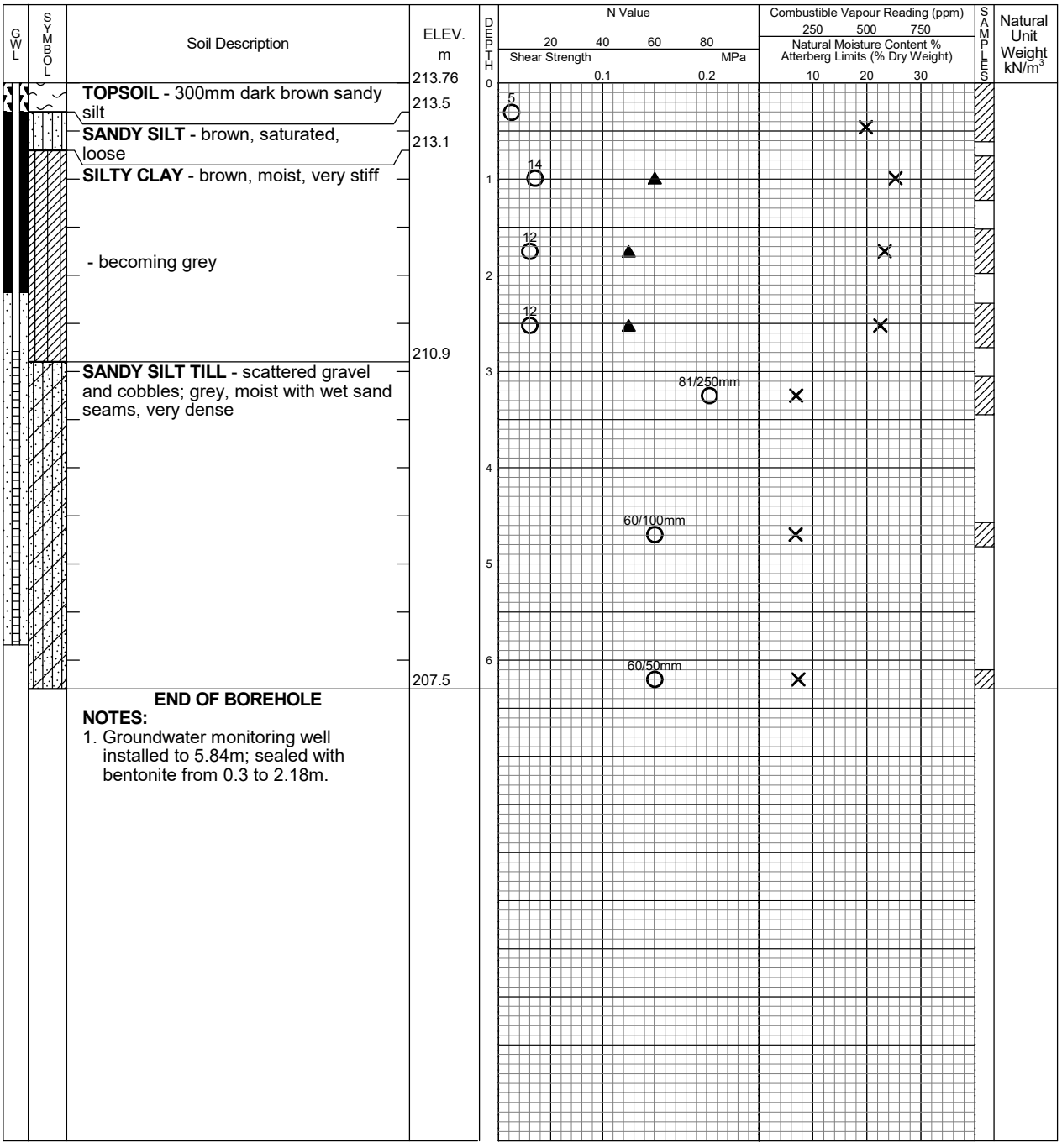
SAMPLE TYPE AC Auger Cutting; CS Continuous; RC Rock Core; SS Split Spoon; AR Air Rotary; WC Wash Cuttings

Log of Borehole 116

Project No. BRM-00609175-AO
Drawing No. 20
Project: Geotechnical Investigation - Berczy Warden Subdivision
Sheet No. 1 of 1
Location: 10206 and 10348 Warden Avenue, Markham, Ontario

Date Drilled: May 13, 2020
Drill Type: Dietrich 120
Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test
Combustible Vapour Reading
Natural Moisture
Plastic and Liquid Limit
Undrained Triaxial at % Strain at Failure
Penetrometer



END OF BOREHOLE

NOTES:
1. Groundwater monitoring well installed to 5.84m; sealed with bentonite from 0.3 to 2.18m.

Time	Water Level (m)	Depth to Cave (m)
On completion	Dry	Borehole
After 9 days	0.97	Well
After 14 days	0.99	Well

LAGWGL02 BRM00609175AO.GPJ NEW.GDT 6/24/20

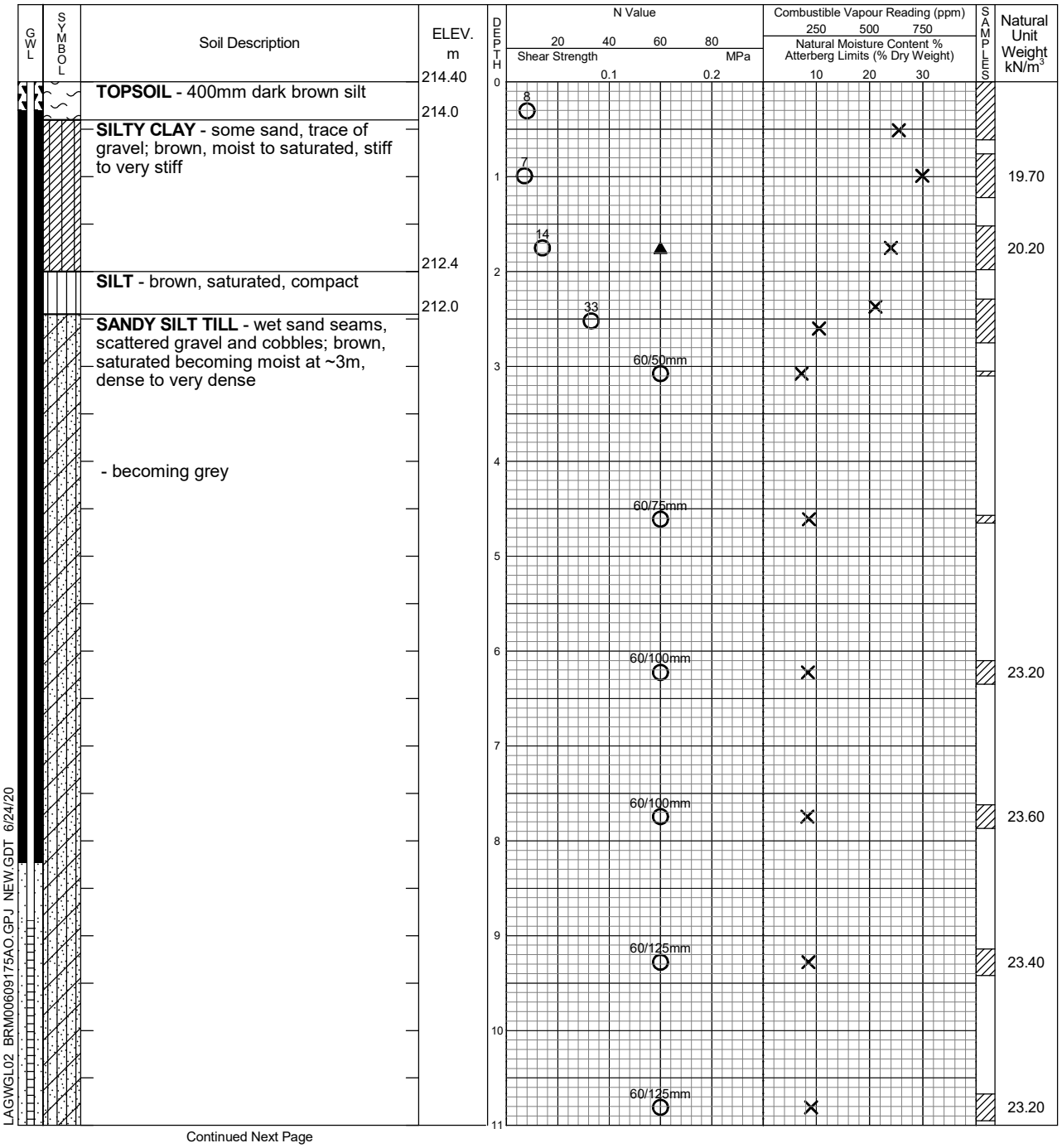
Log of Borehole 113

Project No. BRM-00609175-AO
Drawing No. 16
Project: Geotechnical Investigation - Berczy Warden Subdivision
Sheet No. 1 of 2
Location: 10206 and 10348 Warden Avenue, Markham, Ontario

Date Drilled: May 19 and 22, 2020
Drill Type: Dietrich 120
Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test (S)

Combustible Vapour Reading
Natural Moisture
Plastic and Liquid Limit
Undrained Triaxial at % Strain at Failure
Penetrometer



Continued Next Page

Time	Water Level (m)	Depth to Cave (m)
On completion	3.96	Borehole
After 4 hours	0.61	Well
After 5 days	0.58	Well

Log of Borehole 113

Project No. BRM-00609175-AO

Drawing No. 16

Project: Geotechnical Investigation - Berczy Warden Subdivision

Sheet No. 2 of 2

GWL	SYMBOL	Soil Description	ELEV. m	DEPTH	N Value / Shear Strength (MPa)	Combustible Vapour Reading (ppm) / Natural Moisture Content % / Atterberg Limits (% Dry Weight)	SAMPLES	Natural Unit Weight kN/m³
			203.40	11	20 40 60 80 / Shear Strength 0.1 0.2 MPa	250 500 750 / 10 20 30		
				12	50/150mm			23.30
			201.9					

END OF BOREHOLE

NOTES:

1. Groundwater monitoring well installed to 11.89m; sealed with bentonite from 0.3 to 8.23m.

Time	Water Level (m)	Depth to Cave (m)
On completion	3.96	Borehole
After 4 hours	0.61	Well
After 5 days	0.58	Well

LAGWGL02 BRM00609175AO.GPJ NEW.GDT 6/24/20

Log of Borehole 113A

Project No. BRM-00609175-AO
Drawing No. 17
Project: Geotechnical Investigation - Berczy Warden Subdivision
Sheet No. 1 of 1
Location: 10206 and 10348 Warden Avenue, Markham, Ontario

Date Drilled: May 22, 2020
Drill Type: Dietrich 120
Datum: Geodetic

Auger Sample
SPT (N) Value
Dynamic Cone Test
Shelby Tube
Field Vane Test

Combustible Vapour Reading
Natural Moisture
Plastic and Liquid Limit
Undrained Triaxial at % Strain at Failure
Penetrometer

GWL	SYMBOL	Soil Description	ELEV. m	DEPTH
		TOPSOIL - 400mm dark brown silt	214.40	0
		SILTY CLAY - some sand, trace of gravel; brown, moist to saturated, stiff to very stiff	214.0	
		SILT - brown, saturated, compact	212.4	2
		SANDY SILT TILL - wet sand seams, scattered gravel and cobbles; brown, saturated becoming moist at ~3m, dense to very dense	212.0	
		- becoming grey		4
			207.2	7
		END OF BOREHOLE		

N Value: 20 40 60 80
Shear Strength: 0.1 0.2 MPa
Combustible Vapour Reading (ppm): 250 500 750
Natural Moisture Content % Atterberg Limits (% Dry Weight): 10 20 30
SAMPLES
Natural Unit Weight kN/m³

NOTES:
1. Groundwater monitoring well installed to 7.19m; sealed with bentonite from 0.3 to 3.53m.

Time	Water Level (m)	Depth to Cave (m)
On completion	Dry	Borehole
After 4 hours	1.14	Well
After 5 days	1.09	Well

LAGWGL02 BRM00609175AO.GPJ NEW.GDT 6/24/20

LOG OF DRILLING OPERATIONS

AG-MW12

BURNSIDE

R.J. Burnside & Associates Limited
292 Speedvale Avenue West, Guelph, Ontario N1H 1C4
telephone (519) 823-4995 fax (519) 836-5477

Client: **Angus Glen Developments Inc.**	Project Name: **Angus Glen MESP**	Logged by: **C. D.**
Project No.: **300034937**	Location: **Markham, ON**	Ground (m amsl): **217.20**
Drilling Co.: **Lantech Drilling Services Inc.**	Date Started: **2/25/2015**	Static Water Level Depth (m): **3.46**
Drilling Method: **Hollow Stem Auger**	Date Completed: **2/25/2015**	Sand Pack Depth (m) : **5.46 - 7.62**

Depth Scale (ft)	Depth Scale (m)	Stratigraphic Description (Surface Elevation (m): **217.20**)	Strat. Plot	Elev. Depth (m)	Sample Num.	Sample Type	Sample Int.	N.Val.
		TOPSOIL Dark brown sandy silt, weathered small pieces of rocks, dry			1	SS		frozen
	1.0				2	SS		29
5.0		FILL Gravel and Sand, fragments of rocks, loose to compact, dry, trace silt		215.76 1.44	3	SS		>100
	2.0				4	SS		>50/3"
10.0	3.0				5	SS		>50/4"
		Sandy Silt TILL Grey, stiff, dry, some clay, trace gravel (<2 cm diameter) subangular to subrounded, occasional pockets with medium sand		213.47 3.73	6	SS		>50/2"
15.0	4.0				7	SS		>50/4"
	5.0	becomes harder with depth						
20.0	6.0				8	SS		>50/5"
	7.0							
25.0				209.58 7.62	9	SS		>50/4"

Holeplug

Sandpack

Well Screen

7.62

Prepared By: **C. D.** Checked By: **J. S.** Date Prepared: **7/26/2015**

This borehole log was prepared for hydrogeological and/or environmental purposes and does not necessarily contain information suitable for a geotechnical assessment of the subsurface conditions. Borehole data requires interpretation by R. J. Burnside & Associates Limited personnel before use by others.

LEGEND
- Water found @ time of drilling
- Static Water Level - 6/16/2015

MONITORING WELL DATA
- Pipe: **51 mm dia. PVC**
- Screen: **51 mm dia. PVC #10 slot**

SAMPLE TYPE
- AC Auger Cutting
- CS Continuous
- RC Rock Core
- SS Split Spoon
- AR Air Rotary
- WC Wash Cuttings

PROJECT: 14-1186-0012

LOCATION: See Figure 2

RECORD OF BOREHOLE: 14-16

SHEET 1 OF 2

BORING DATE: May 8, 2014

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80)	SHEAR STRENGTH Cu, kPa (nat V. + Q - ●, rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3})	WATER CONTENT PERCENT (Wp, W, Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		214.70									
0	TRACK MOUNTED CME 55 Hollow Stem Augers	FILL - (ML) CLAYEY SILT, some sand, organic inclusions; dark brown; cohesive, W<PL to W~PL, firm		0.00	1	SS	5						Concrete
				214.01									
1		(ML) sandy CLAYEY SILT; pale brown, with oxidation staining; cohesive, W<PL, stiff		0.69	2	SS	9						
				213.33									
2		(CI) SILTY CLAY, some sand; grey, with oxidation staining; cohesive, W>PL, firm to stiff		1.37	3	SS	7					PL	
		Very thinly bedded with fine sand below a depth of approximately 2.1 m below existing ground surface			4	SS	12						
				211.80									
3		(ML) sandy SILT, some clay to clayey, trace gravel, with pockets of medium sand; grey (TILL); non-cohesive, moist, very dense		2.90	5	SS	83						
4													
					6	SS	50/ .05						
5													Bentonite Seal
6					7	SS	50/ .13						
7													
					8	SS	50/ .08						
8													
9					9	SS	50/ .13						
10		*CONTINUED NEXT PAGE*											

DEPTH SCALE

1 : 50

Golder Associates

LOGGED: JG

CHECKED: AM

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PROJECT: 14-1186-0012

LOCATION: See Figure 2

RECORD OF BOREHOLE: 14-16

BORING DATE: May 8, 2014

SHEET 2 OF 2

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80)	SHEAR STRENGTH Cu, kPa (nat V. +, rem V. ⊕, Q - ●, U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3})	WATER CONTENT PERCENT (Wp, W, Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
10		*— CONTINUED FROM PREVIOUS PAGE —*											
10	TRACK MOUNTED CME 55 Hollow Stem Augers	(ML) sandy SILT, some clay to clayey, trace gravel, with pockets of medium sand; grey (TILL); non-cohesive, moist, very dense			10	SS	50/.13			○			Bentonite Seal
11													
12					11	SS	50/.13			○			
13		Becoming more moist below a depth of approximately 13.1 m below ground surface											
14					12	SS	99/.13			○			Silica Sand Filter
15		Augers grinding below a depth of approximately 14.9 m below ground surface. Inferred cobble/boulder											
				199.16	13	SS	50/.13			○			
		AUGER REFUSAL ON INFERRED COBBLE/BOULDER END OF BOREHOLE		15.54									1. Water level measured at a depth of 3.87 m below ground surface, June 20/14
16													
17													
18													
19													
20													

DEPTH SCALE

1 : 50

Golder Associates

LOGGED: JG

CHECKED: AM

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PROJECT: 20146456

RECORD OF BOREHOLE: KP1

SHEET 1 OF 1

LOCATION: N 4861996.50; E 634983.99

BORING DATE: January 21, 2021

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3})	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		204.50							
0	B57 Truck Mount, 150 mm O.D. Hollow Stem Auger	ASPHALT (140 mm thick)		0.00							
		Crushed granular; brown		0.14 / 204.05	1A	AS	-				
		FILL - (SP-SM) SAND, trace gravel, some fines; brown; non-cohesive, moist		0.45 / 203.80	1B						
1		(CI) SILTY CLAY, some sand; brown, oxidation staining; cohesive, w<PL, very stiff		0.70	2	SS	15		W	MH	
					3	SS	15				
2		END OF BOREHOLE		202.52 / 1.98							
3		NOTES: 1. Borehole caved to a depth of 1.3 m upon completion of drilling. 2. Borehole was dry upon completion of drilling.									
4											
5											
6											
7											
8											
9											
10											

SHEAR STRENGTH Cu, kPa — nat V. + Q - ● rem V. ⊕ U - ○ (20 40 60 80)

WATER CONTENT PERCENT (10 20 30 40) — Wp W Wl

DEPTH SCALE 1 : 50

GOLDER

LOGGED: JL

CHECKED: TO

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PROJECT: 20146456

RECORD OF BOREHOLE: KP2

SHEET 1 OF 1

LOCATION: N 4862126.14; E 634957.69

BORING DATE: January 21, 2021

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80)	SHEAR STRENGTH Cu, kPa (nat V. + Q - ●, rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3})	WATER CONTENT PERCENT (Wp, W, Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		207.80									
0	B57 Truck Mount, 150 mm O.D. Hollow Stem Auger	ASPHALT (160 mm thick)		0.00									
		Crushed granular with RAP; brown		0.16 / 207.37	1A	AS	-						
		FILL- (SP-SM) SAND, trace gravel, some fines; brown; non-cohesive, moist		0.43 / 207.04	1B								
1		FILL - (CL-ML) gravelly SILTY CLAY-CLAYEY SILT and SAND, brown; cohesive, w>PL, stiff to very stiff		0.76	2	SS	11				W	MH	
					3	SS	18						
2				205.82									
		END OF BOREHOLE		1.98									
3		NOTES:											
		1. Borehole caved to a depth of 1.5 m upon completion of drilling.											
		2. Borehole was dry upon completion of drilling.											
		3. RAP = Recycled asphalt pavement											
4													
5													
6													
7													
8													
9													
10													

DEPTH SCALE

1 : 50

GOLDER

LOGGED: JL

CHECKED: TO

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PROJECT: 20146456

RECORD OF BOREHOLE: KP3

SHEET 1 OF 1

LOCATION: N 4862283.37; E 634927.65

BORING DATE: January 21, 2021

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80)	SHEAR STRENGTH Cu, kPa (nat V. + Q - ●; rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3})	WATER CONTENT PERCENT (Wp — W — Wl; 10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		212.00									
0	B57 Truck Mount; 150 mm O.D. Hollow Stem Auger	Crushed granular; brown		0.00	1A	AS	-						
				211.60									
		FILL - (SM) SILTY SAND, trace gravel: brown; non-cohesive, moist		0.40	1B								
				211.24									
1		FILL - (CL) SILTY CLAY, some sand; dark grey and black, organic inclusions; cohesive, w~PL, stiff		0.76	2	SS	11						
				210.63									
		(CL) SILTY CLAY and SAND, some gravel; brown; cohesive, w<PL, very stiff		1.37	3	SS	20				W		
				210.02									
2		END OF BOREHOLE		1.98									
		NOTES:											
		1. Borehole caved to a depth of 1.2 m upon completion of drilling.											
		2. Borehole was dry upon completion of drilling.											
3													
4													
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6													
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8													
9													
10													

DEPTH SCALE

1 : 50

GOLDER

LOGGED: JL

CHECKED: TO

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PROJECT: 20146456

RECORD OF BOREHOLE: KP4

SHEET 1 OF 1

LOCATION: N 4862501.24; E 634887.30

BORING DATE: January 21, 2021

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80)	SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3})	WATER CONTENT PERCENT (Wp — W — Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		217.50									
0	B57 Truck Mount, 150 mm O.D. Hollow Stem Auger	ASPHALT (120 mm thick)		0.00									
		Crushed granular with RAP; brown		0.12 / 217.15	1A	AS	-						
		FILL - (SM) SILTY SAND, trace gravel: brown; non-cohesive, moist		0.35 / 216.75	1B								
1		FILL - (CL-ML) gravelly SILTY CLAY-CLAYEY SILT and SAND, brown; cohesive, w>PL, stiff		0.75 / 216.13	2	SS	13				○		
		(SM) SILTY SAND, some gravel; brown; non-cohesive, moist, compact		1.37 / 215.52	3	SS	16						
2		END OF BOREHOLE		1.98									

NOTES:

1. Borehole caved to a depth of 1.5 m upon completion of drilling.

2. Borehole was dry upon completion of drilling.

3. RAP = Recycled asphalt pavement

DEPTH SCALE

1 : 50

GOLDER

LOGGED: JL

CHECKED: TO

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PROJECT: 20146456

RECORD OF BOREHOLE: KP5

SHEET 1 OF 1

LOCATION: N 4862688.03; E 634846.61

BORING DATE: January 21, 2021

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80)	SHEAR STRENGTH Cu, kPa (nat V. + Q - ●; rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3})	WATER CONTENT PERCENT (Wp, W, Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		219.80									
0	B57 Truck Mount, 150 mm O.D. Hollow Stem Auger	Crushed granular; brown		0.00	1A								
				219.41									
		FILL - (SP) SAND, some gravel, trace fines: brown; non-cohesive, moist		0.39		AS	-						
		Recycled asphalt pavement		0.55 / 219.02	1B								
1		FILL - (CL) SILTY CLAY, some sand; dark brown; cohesive, w>PL, stiff		0.78	2	SS	9						
				218.43									
		(CL) SILTY CLAY and SAND, some gravel; brown; cohesive, w<PL, stiff		1.37	3	SS	8				○		
2				217.82									
		END OF BOREHOLE		1.98									
3		NOTES:											
		1. Borehole caved to a depth of 1.2 m upon completion of drilling.											
		2. Borehole was dry upon completion of drilling											
4													
5													
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10													

DEPTH SCALE

1 : 50

GOLDER

LOGGED: JL

CHECKED: TO

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PROJECT: 20146456

RECORD OF BOREHOLE: KP6

SHEET 1 OF 1

LOCATION: N 4862905.53; E 634805.64

BORING DATE: January 21, 2021

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80)	SHEAR STRENGTH Cu, kPa (nat V. + Q - ●, rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3})	WATER CONTENT PERCENT (Wp, W, Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		221.80									
0	B57 Truck Mount, 150 mm O.D. Hollow Stem Auger	ASPHALT (200 mm thick)		0.00 / 221.60									
		Crushed granular; brown		0.20 / 221.40	1A	AS	-					M	
		FILL - (SP) SAND, some gravel, trace fines; brown; non-cohesive, moist		0.40	1B								
				220.98	2A								
1		FILL - (CL) SILTY CLAY, some sand; dark brown; cohesive, w>PL, stiff		0.82	2B	SS	8				○		
				220.43									
		(SM) gravelly SILTY SAND; brown (TILL); non-cohesive, moist, compact		1.37	3	SS	28						
				219.82									
2		END OF BOREHOLE		1.98									
		NOTES:											
		1. Borehole caved to a depth of 1.3 m upon completion of drilling.											
		2. Borehole was dry upon completion of drilling.											
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DEPTH SCALE

1 : 50

GOLDER

LOGGED: JL

CHECKED: TO

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PROJECT: 20146456

RECORD OF BOREHOLE: KP7

SHEET 1 OF 1

LOCATION: N 4863105.31; E 634761.62

BORING DATE: January 21, 2021

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80)	SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3})	WATER CONTENT PERCENT (Wp — W — Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		222.80									
0	B57 Truck Mount; 150 mm O.D. Hollow Stem Auger	Crushed granular; brown		0.00	1A								
				222.25									
		FILL - (SP) SAND, some gravel, trace fines: brown; non-cohesive, moist		0.55	1B	AS	-						
		FILL - (SM) SILTY SAND and GRAVEL with RAP; brown; non-cohesive, moist, compact		0.65	2A	SS	18						
1				221.83	2B						○	M	
		FILL - (SM) SILTY SAND and GRAVEL; brown; non-cohesive, moist, compact		0.97									
				221.43									
		(CI) SILTY CLAY, trace sand; brown; cohesive, w>PL, very stiff		1.37	3	SS	15				○		
				220.82									
2		END OF BOREHOLE		1.98									
3		NOTES: 1. Borehole caved to a depth of 1.3 m upon completion of drilling. 2. Borehole was dry upon completion of drilling. 3. RAP = Recycled asphalt pavement											
4													
5													
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9													
10													

DEPTH SCALE

1 : 50

GOLDER

LOGGED: JL

CHECKED: TO

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PROJECT: 20146456

RECORD OF BOREHOLE: KP8

SHEET 1 OF 1

LOCATION: N 4863330.56; E 634715.76

BORING DATE: January 21, 2021

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80)	SHEAR STRENGTH Cu, kPa (nat V. + Q - ●, rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3})	WATER CONTENT PERCENT (Wp, W, Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		223.40									
0	B57 Truck Mount, 150 mm O.D. Hollow Stem Auger	ASPHALT (120 mm thick)		0.00									
		Crushed granular; brown		0.12 / 223.02	1A	AS	-						
		FILL - (SP) SAND, some gravel, trace fines: brown; non-cohesive, moist		0.38 / 222.78	1B								
		ASPHALT (260 mm)		0.62 / 222.52	2A	SS	69/ 0.18*						
1		FILL - (CL) gravelly SILTY CLAY and SAND, grey; cohesive, w>PL, hard to stiff		0.88	2B						○		
		- Auger grinding at a depth of 1.1 m			3	SS	11						
2		END OF BOREHOLE		221.42 / 1.98									

NOTES:

1. Borehole caved to a depth of 1.4 m upon completion of drilling.

2. Borehole was dry upon completion of drilling.

3. *N value may not be representative of the soil's consistency due to obstructions encountered.

3 4 5 6 7 8 9 10

DEPTH SCALE

1 : 50

GOLDER

LOGGED: JL

CHECKED: TO

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PROJECT: 20146456

RECORD OF BOREHOLE: KP9

SHEET 1 OF 1

LOCATION: N 4863498.29; E 634672.80

BORING DATE: January 21, 2021

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80)	SHEAR STRENGTH Cu, kPa (nat V. + Q - ●, rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3})	WATER CONTENT PERCENT (Wp, W, Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		223.20									
0	B57 Truck Mount, 150 mm O.D. Hollow Stem Auger	Crushed granular; brown		0.00	1A	AS	-						
				222.80									
		FILL - (SP) SAND, some gravel, trace fines: brown; non-cohesive, moist		0.40	1B								
				222.30	2A	SS	14						
1		FILL - (CL) gravelly SILTY CLAY and SAND, dark brown; cohesive, w<PL, stiff to very stiff		0.90	2B								
					3	SS	15						
2				221.22									
		END OF BOREHOLE		1.98									
		NOTES:											
		1. Borehole caved to a depth of 1.2 m upon completion of drilling.											
		2. Borehole was dry upon completion of drilling.											
3													
4													
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DEPTH SCALE

1 : 50

GOLDER

LOGGED: JL

CHECKED: TO

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PROJECT: 20146456

LOCATION: N 4863698.71; E 634626.76

RECORD OF BOREHOLE: KP10

SHEET 1 OF 1

BORING DATE: January 21, 2021

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80)	SHEAR STRENGTH Cu, kPa (nat V. + Q - ●; rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3})	WATER CONTENT PERCENT (Wp — W — Wl; 10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		223.50									
0	B57 Truck Mount; 150 mm O.D. Hollow Stem Auger	ASPHALT (180 mm thick)		0.00 / 223.32									
		Crushed granular; brown		0.18 / 223.14	1A	AS	-						
		FILL - (SP-SM) gravelly SAND, some fines: brown; non-cohesive, moist		0.36 / 222.75	1B						○	M	
1		FILL - (CL) gravelly SILTY CLAY and SAND, dark brown, organic inclusions; cohesive, w>PL, stiff		0.75	2	SS	12						
					3	SS	12				○		
2				221.52									
		END OF BOREHOLE		1.98									
		NOTES:											
		1. Borehole caved to a depth of 1.3 m upon completion of drilling.											
		2. Borehole was dry upon completion of drilling.											
3													
4													
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9													
10													

DEPTH SCALE

1 : 50

GOLDER

LOGGED: JL

CHECKED: TO

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PROJECT: 20146456

LOCATION: N 4863918.31; E 634575.98

RECORD OF BOREHOLE: KP11

SHEET 1 OF 1

BORING DATE: January 21, 2021

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp W Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		221.20							
0	B57 Truck Mount; 150 mm O.D. Hollow Stem Auger	ASPHALT (180 mm thick)		0.00 / 221.02							
		Crushed granular; brown		0.18	1A	AS	-				
		FILL - (SP-SM) gravelly SAND, some fines: brown; non-cohesive, moist		0.34 / 220.62	1B						
		FILL - (CL) gravelly SILTY CLAY and SAND; dark brown, organic inclusions; cohesive, w<PL, very stiff to hard		0.58							
1					2	SS	18		W	MH	
		- Auger resistance between a depth of 1.8 m and 1.9 m		219.22	3	SS	61*				
2		END OF BOREHOLE		1.98							
3											
4											
5											
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7											
8											
9											
10											

NOTES:

1. Borehole caved to a depth of 1.2 m upon completion of drilling.

2. Borehole was dry upon completion of drilling.

3. *N value may not be representative of the soil's consistency due to obstructions encountered

DEPTH SCALE

1 : 50

GOLDER

LOGGED: JL

CHECKED: TO

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PROJECT: 20146456

LOCATION: N 4864147.22; E 634531.61

RECORD OF BOREHOLE: KP12

BORING DATE: January 21, 2021

SHEET 1 OF 1

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		220.10					
0	B57 Truck Mount, 150 mm O.D. Hollow Stem Auger	Crushed granular; brown		0.00 / 219.65	1A				
		FILL - (SP-SM) gravelly SAND, some fines: brown; non-cohesive, moist		0.45 / 219.28	1B	AS	-		
1		(CI) SILTY CLAY, some sand, some gravel; brown; cohesive, w>PL, stiff		0.82 / 218.73	2	SS	8		
		(ML) sandy SILT; brown; non-cohesive, wet, compact		1.37 / 218.12	3	SS	22	MH	
2		END OF BOREHOLE		1.98					
		NOTES: 1. Borehole caved to a depth of 1.3 m upon completion of drilling. 2. Borehole was dry upon completion of drilling.							
3									
4									
5									
6									
7									
8									
9									
10									

DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m: 20 40 60 80

SHEAR STRENGTH Cu, kPa: 20 40 60 80 (nat V. + Q - ●; rem V. ⊕ U - ○)

HYDRAULIC CONDUCTIVITY, k, cm/s: 10^{-6} 10^{-5} 10^{-4} 10^{-3}

WATER CONTENT PERCENT: Wp — W — Wl; 10 20 30 40

DEPTH SCALE

1 : 50

GOLDER

LOGGED: JL

CHECKED: TO

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PROJECT: 20146456

LOCATION: N 4864251.68; E 634519.69

RECORD OF BOREHOLE: KP13

BORING DATE: January 21, 2021

SHEET 1 OF 1

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80)	SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3})	WATER CONTENT PERCENT (Wp — W — Wl; 10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		222.80									
0	B57 Truck Mount; 150 mm O.D. Hollow Stem Auger	ASPHALT (240 mm thick)		0.00 / 222.56									
		Crushed granular; brown		0.24	1A	AS	-						
		FILL - (SP-SM) gravelly SAND, some fines; brown; non-cohesive, moist, compact		0.40	1B								
1				221.75	2A	SS	15				○		
		FILL - (SM) SILTY SAND and GRAVEL; brown; non-cohesive, moist, compact		1.05 / 221.43	2B								
		(ML) sandy SILT, some gravel, brown; non-cohesive, moist, compact		1.37	3	SS	19						
2				220.82									
		END OF BOREHOLE		1.98									
		NOTE:											
		1. Borehole open and dry upon completion of drilling.											
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4													
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10													

DEPTH SCALE

1 : 50

GOLDER

LOGGED: JL

CHECKED: TO

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PROJECT: 20146456

RECORD OF BOREHOLE: KS1

SHEET 2 OF 2

LOCATION: N 4861907.72; E 635019.68

BORING DATE: January 20, 2021

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	SOIL PROFILE: STRATA PLOT	SOIL PROFILE: ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp — W — Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
10		*--- CONTINUED FROM PREVIOUS PAGE ---*									
		NOTES: 1. Water encountered at a depth of 9.0 m during drilling. 2. Groundwater level was measured in monitoring well at a depth of 2.0 mbgs (El. 202m) on January 29, 2021.									
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DEPTH SCALE

1 : 50

GOLDER

LOGGED: YS

CHECKED: TO

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PROJECT: 20146456

LOCATION: N 4862189.80; E 634962.05

RECORD OF BOREHOLE: KS2

BORING DATE: January 4, 2021

SHEET 1 OF 2

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ●, rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp W Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		209.30							
0	B57 Truck Mount; 200 mm O.D. Hollow Stem Auger	Crushed granular; brown		0.00 / 208.95	1A	AS	-				
		FILL - (SM) SILTY SAND, trace gravel: brown; non-cohesive, moist		0.35 / 208.54	1B						
1		FILL - (CL-ML) gravelly SILTY CLAY-CLAYEY SILT and SAND; brown; cohesive, w<PL, stiff		0.76 / 207.93	2	SS	8		○		
		FILL - (ML) sandy SILT; brown; non-cohesive, wet, compact		1.37 / 207.17	3	SS	14				▽ January 29, 2021
2		(ML) SILT and SAND, trace gravel; brown (TILL); non-cohesive, moist, very dense		2.13 / 205.26	4	SS	65		○	MH	Bentonite
3					5	SS	85				
4		(CL) SILTY CLAY and SAND, some gravel; grey (TILL); cohesive, w<PL, hard		4.04	6	SS	54		○		
5											
6					7	SS	91				Sand
7											
8					8	SS	92		○		Screen
9											
				200.03	9	SS	50/0.13				Sand
		END OF BOREHOLE		9.27							
10		NOTES: 1. Borehole was open and dry upon completion of drilling.									
		CONTINUED NEXT PAGE									

DEPTH SCALE

1 : 50

GOLDER

LOGGED: YS

CHECKED: TO

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PROJECT: 20146456

RECORD OF BOREHOLE: KS2

SHEET 2 OF 2

LOCATION: N 4862189.80; E 634962.05

BORING DATE: January 4, 2021

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	SOIL PROFILE: STRATA PLOT	SOIL PROFILE: ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp — W — Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
10		*--- CONTINUED FROM PREVIOUS PAGE ---*									
		2. Groundwater level was measured in monitoring well at a depth of 1.7 mbgs (El. 207.6m) on January 29, 2021.									
11											
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17											
18											
19											
20											

DEPTH SCALE

1 : 50

GOLDER

LOGGED: YS

CHECKED: TO

PROJECT: 20146456

LOCATION: N 4862378.69; E 634920.57

RECORD OF BOREHOLE: KS3

BORING DATE: January 4, 2021

SHEET 1 OF 1

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp W Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		214.70							
0	B57 Truck Mount; 200 mm O.D. Hollow Stem Auger	Crushed granular; brown		0.00	1A						
				214.29		AS	-				
		FILL - (SM) SILTY SAND, trace gravel; brown; non-cohesive, moist		0.41	1B				○	M	
				214.00							
		FILL - (CL) SILTY CLAY and SAND, some gravel; dark brown; cohesive, w>PL, firm		0.70							
1					2	SS	7				
				213.33							
		(CL) SILTY CLAY and SAND, some gravel; grey (TILL); cohesive, w<PL, very stiff to hard		1.37							
					3	SS	27		○		
2											
					4	SS	60				
				211.80							Bentonite
3		(SM) SILTY SAND, some gravel; brown (TILL); non-cohesive, moist, very dense		2.90							
					5	SS	50/ 0.13		○		
				210.66							
4		(CL) SILTY CLAY and SAND, some gravel; grey (TILL); cohesive, w<PL, hard		4.04							
					6	SS	96/ 0.25				
5											
6											Sand
					7	SS	50/ 0.13		○		
7											Screen
					8	SS	50/ 0.13				Sand
				206.80							January 29, 2021
8		END OF BOREHOLE		7.90							
		NOTES:									
		1. Borehole was open and dry upon completion of drilling.									
		2. Groundwater level was measured in monitoring well at a depth of 7.7 mbgs (El. 206.9m) on January 29, 2021.									
9											
10											

DEPTH SCALE

1 : 50

GOLDER

LOGGED: YS

CHECKED: TO

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PROJECT: 20146456

RECORD OF BOREHOLE: KS4

SHEET 1 OF 2

LOCATION: N 4862601.12; E 634875.39

BORING DATE: January 18, 2021

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ●, rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp, W ○, Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		218.70							
0	B57 Truck Mount; 200 mm O.D. Hollow Stem Auger	Crushed granular; brown		0.00 / 218.28	1	AS	-				
		FILL - (SM) SILTY SAND, trace gravel; brown; non-cohesive, moist, loose		0.42 / 217.33	2	SS	6				
1		FILL - (CI) SILTY CLAY, some sand; brown; cohesive, w>PL, firm		1.37 / 216.57	3	SS	7				
2		FILL - (SM) SILTY SAND, tarce gravel; brown; non-cohesive, moist, loose		2.13 / 215.80	4	SS	6				
3		(SM) SILTY SAND, fine; brown; non-cohesive, moist to wet, very dense		2.90	5	SS	61			MH	
4					6	SS	50/ 0.15				
5											Bentonite
6					7	SS	73				▽ January 29, 2021
7		- 0.3m thick sand blowout was observed at 7.6 m			8	SS	50				
8											
9		- 0.9m thick sand blowout was observed at 9.1 m			9	SS	50/ 0.13				
10		*CONTINUED NEXT PAGE*									

DEPTH SCALE

1 : 50

GOLDER

LOGGED: YS

CHECKED: TO

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PROJECT: 20146456

LOCATION: N 4862601.12; E 634875.39

RECORD OF BOREHOLE: KS4

BORING DATE: January 18, 2021

SHEET 2 OF 2

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp W Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		--- CONTINUED FROM PREVIOUS PAGE ---									
10	B57 Truck Mount 200 mm O.D. Hollow Stem Auger	(SM) SILTY SAND, fine; brown; non-cohesive, moist to wet, very dense									
		- 1.5m thick sand blowout was observed at 10.7 m			10	SS	50				
11											
12					11	SS	65		○		Bentonite
13											
14					12	SS	50/0.13				
15											Sand
					13	SS	90		○		
16											Screen
				201.94							
		END OF BOREHOLE		16.76							
17		NOTES: 1. Water was encountered at a depth of 4.6 m during drillling. 2. Sand blowout was cleaned out using water prior to advancing augers. 3. Groundwater level was measured in monitoring well at a depth of 6.6 mbgs (El. 211.6m) on January 29, 2021. 4. SPT N-value could not be carried out at 16.7mbgs due to a 1.5m sand blowout. The sand could not be completely cleaned out during drilling.									
18											
19											
20											

DEPTH SCALE

1 : 50

GOLDER

LOGGED: YS

CHECKED: TO

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PROJECT: 20146456

LOCATION: N 4862815.63; E 634829.53

RECORD OF BOREHOLE: KS5

SHEET 1 OF 1

BORING DATE: January 15, 2021

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp — W — Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		221.30							
0	B57 Truck Mount, 150 mm O.D. Hollow Stem Auger	ASPHALT (280 mm thick)		0.00 / 221.02							
		Crushed granular; brown		0.28	1A	AS	-				
		FILL - (SP) SAND, some gravel, trace fines; brown; non-cohesive, moist		0.41 / 220.54	1B						
1		(CI) SILTY CLAY, some sand; brown; cohesive, w>PL, stiff to very stiff		0.76	2	SS	9		○		
					3	SS	24				
2				219.17							
		(SP) SAND, trace fines; brown; non-cohesive, moist to wet, very dense		2.13	4	SS	65		○		
3					5	SS	56				
4											
					6	SS	83		○		
5											
6					7	SS	50/0.13				
7											
				213.43	8	SS	50/0.10		○		
8		END OF BOREHOLE		7.87							
		NOTE:									
		1. Borehole was open and dry upon completion of drilling.									
9											
10											

DEPTH SCALE

1 : 50

GOLDER

LOGGED: YS

CHECKED: TO

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PROJECT: 20146456

RECORD OF BOREHOLE: KS6

SHEET 1 OF 1

LOCATION: N 4863022.33; E 634786.84

BORING DATE: January 22, 2021

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ●, rem V. ⊕ U - ○)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp, W, Wl; 10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		222.30							
0	B57 Truck Mount; 150 mm O.D. Hollow Stem Auger	ASPHALT (140 mm thick)		0.00							
		Crushed granular with RAP; brown		0.14 / 221.88	1A						
		FILL - (SP) SAND, some gravel, trace fines: brown; non-cohesive, moist		0.42	1B	AS	-				
				221.45	2A	SS	13				
1		FILL - (CL) SILTY CLAY, some sand; brown; cohesive, w>PL, stiff		0.85 / 220.93	2B						
		(ML) SILT and SAND, some gravel; brown (TILL); non-cohesive, moist, compact to dense		1.37	3	SS	19		○		
2					4	SS	37				
3					5	SS	37		○	MH	
4				218.26							
		(SM) SILTY SAND, some gravel; brown; non-cohesive, moist, very dense		4.04	6	SS	84				
5											
6					7	SS	70		○		
7											
				214.40	8	SS	50/0.13				
8		END OF BOREHOLE		7.90							
		NOTE:									
		1. Borehole was open and dry upon completion fo drilling.									
		2. RAP = Recycled asphalt pavement									
9											
10											

DEPTH SCALE

1 : 50

GOLDER

LOGGED: JL

CHECKED: TO

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PROJECT: 20146456

LOCATION: N 4863216.48; E 634749.77

RECORD OF BOREHOLE: KS7

BORING DATE: January 19, 2021

SHEET 1 OF 1

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ●, rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp, W, Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		223.00							
0	B57 Truck Mount, 200 mm O.D. Hollow Stem Auger	Crushed granular; brown		0.00	1	AS	-				
				222.43							
		FILL - (SP) SAND, some gravel, trace fines: brown; non-cohesive, moist, dense		0.57							
1					2	SS	32		○		
				221.63							
		FILL - (CL) gravelly SILTY CLAY and SAND; dark grey and brown, organic inclusions; cohesive, w>PL, stiff		1.37							
					3	SS	11				
2				220.87							
		(CL) SILTY CLAY and SAND, some gravel; brown; cohesive, w>PL, stiff		2.13							▽ January 29, 2021
					4	SS	10		○		
3											Bentonite
					5	SS	11				
4				218.96							
		(SM) SILTY SAND; brown; non-cohesive, wet, very dense		4.04							
					6	SS	58		○		
5											
6											Sand
					7	SS	89				
											Screen
7											
				215.10	8	SS	50/0.13		○		Sand
8		END OF BOREHOLE		7.90							
		NOTES:									
		1. Water was encountered at a depth of 4.6 m during drilling.									
		2. Groundwater level was measured in monitoring well at a depth of 2.2 mbgs (El. 220.8m) on January 29, 2021.									
9											
10											

DEPTH SCALE

1 : 50

GOLDER

LOGGED: JL

CHECKED: TO

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PROJECT: 20146456

RECORD OF BOREHOLE: KS8

SHEET 1 OF 2

LOCATION: N 4863405.94; E 634706.26

BORING DATE: January 22, 2021

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp W Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		223.50							
0	B57 Truck Mount; 200 mm O.D. Hollow Stem Auger	Crushed granular; brown		0.00	1A	AS	-				Sand
		FILL - (SP) SAND, some gravel, trace fines; brown; non-cohesive, moist		223.02 0.48	1B						
				222.65	2A						
1		FILL - (CI) SILTY CLAY, some sand, trace gravel; dark grey and brown, organic inclusions; cohesive, w>PL, stiff to firm		0.85	2B	SS	13				
					3	SS	9		W		
2					4	SS	7				Bentonite
				220.60							
3		(CL) SILTY CLAY and SAND, trace gravel; brown; cohesive, w>PL, firm		2.90	5	SS	7			MH	
				219.46							▽ January 29, 2021
4		(CL) SILTY CLAY and SAND, some gravel; brown to grey (TILL); cohesive, w<PL, hard		4.04	6	SS	40				
5		- Becoming grey at a depth of 5.6 m									
6					7	SS	80				
7											Grout
8					8	SS	48				
9					9	SS	31				
10		*CONTINUED NEXT PAGE*									

DEPTH SCALE

1 : 50

GOLDER

LOGGED: JL

CHECKED: TO

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PROJECT: 20146456

RECORD OF BOREHOLE: KS8

SHEET 2 OF 2

LOCATION: N 4863405.94; E 634706.26

BORING DATE: January 22, 2021

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80)	SHEAR STRENGTH Cu, kPa (nat V. + Q - ●, rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3})	WATER CONTENT PERCENT (Wp, W, Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
10		*--- CONTINUED FROM PREVIOUS PAGE ---*											
10	B57 Truck Mount; 200 mm O.D. Hollow Stem Auger	(CL) SILTY CLAY and SAND, some gravel; brown to grey (TILL); cohesive, w<PL, hard											
11					10	SS	80/ 0.28						Grout
12					11	SS	50/ 0.07						
13													Bentonite
14					12	SS	50/ 0.07						
15													Sand
16					13	SS	75						Screen
17				206.41	14	SS	130/ 0.18						Sand
		END OF BOREHOLE		17.09									
18		NOTES: 1. Water was encountered at a depth of 7.0 m during drilling. 2. Groundwater level was measured in monitoring well at a depth of 4.1 mbgs (El. 219.4m) on January 29, 2021.											
19													
20													

DEPTH SCALE

1 : 50

GOLDER

LOGGED: JL

CHECKED: TO

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PROJECT: 20146456

RECORD OF BOREHOLE: KS9

SHEET 1 OF 2

LOCATION: N 4863597.66; E 634660.05

BORING DATE: January 28, 2021

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m; SHEAR STRENGTH Cu, kPa (nat V. +, rem V. ⊕, Q - ●, U - ○)	HYDRAULIC CONDUCTIVITY, k, cm/s; WATER CONTENT PERCENT (Wp, W, Wl)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		222.90							
0	B57 Truck Mount; 200 mm O.D. Hollow Stem Auger	Crushed granular; brown		0.00	1A	AS	-				
				222.48							
		FILL - (SP) SAND, some gravel, trace fines; brown; non-cohesive, moist		0.42	1B						
				222.17							
		FILL - (CL) gravelly SILTY CLAY and SAND; brown and black, organic inclusions; cohesive, w<PL, stiff to very stiff		0.73	2	SS	28		○		
1					3	SS	10				
2				220.77							
		(SM) SILTY SAND; brown; non-cohesive, moist to wet, compact to dense		2.13	4	SS	19		○		
3					5	SS	29				
4					6	SS	42		○		
5											Bentonite
6					7	SS	35				
7											▽ January 29, 2021
8					8	SS	31		○		
				214.29							
		(CL) SILTY CLAY and SAND, some gravel; grey (TILL); cohesive, w>PL, very stiff		8.61							
9					9	SS	19				
10		*CONTINUED NEXT PAGE*									

DEPTH SCALE

1 : 50

GOLDER

LOGGED: YS

CHECKED: TO

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PROJECT: 20146456

LOCATION: N 4863597.66; E 634660.05

RECORD OF BOREHOLE: KS9

BORING DATE: January 28, 2021

SHEET 2 OF 2

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80)	SHEAR STRENGTH Cu, kPa (nat V. + Q - ●, rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3})	WATER CONTENT PERCENT (Wp, W, Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		--- CONTINUED FROM PREVIOUS PAGE ---											
10	B57 Truck Mount; 200 mm O.D. Hollow Stem Auger	(CL) SILTY CLAY and SAND, some gravel; grey (TILL); cohesive, w>PL, very stiff		211.24									
11					10	SS	18			○			
		(ML) SILT and SAND, some gravel; grey (TILL); non-cohesive, moist, compact		11.66									Bentonite
12					11	SS	25						
13				209.72									
		(SM) SILTY SAND and GRAVEL; grey; non-cohesive, wet, very dense		13.18									Sand
14					12	SS	52			○			Screen
				208.19									
		(CL) SILTY CLAY and SAND, some gravel; grey (TILL); cohesive, w<PL, hard		14.71									
15					13	SS	50/ 0.13						Sand
				207.38									
		END OF BOREHOLE		15.52									
16		NOTES:											
		1. Water was encountered at a depth of 6.1 m during drilling											
		2. Groundwater level was measured in monitoring well at a depth of 7.0 mbgs (El. 215.9m) on January 29, 2021											
17													
18													
19													
20													

DEPTH SCALE

1 : 50

GOLDER

LOGGED: YS

CHECKED: TO

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PROJECT: 20146456

LOCATION: N 4863803.25; E 634615.91

RECORD OF BOREHOLE: KS10

BORING DATE: January 20, 2021

SHEET 1 OF 2

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ●, rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp, W, Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		223.20							
0	B57 Truck Mount; 200 mm O.D. Hollow Stem Auger	ASPHALT (265 mm thick)		0.00 / 222.94							
		Crushed granular; brown		0.26 / 222.75	1	AS	-				
		FILL - (SP) SAND, some gravel, trace fines; brown; non-cohesive, moist, compact		0.45							
1					2	SS	11		○		
				221.94							
		FILL - (CL) gravelly SILTY CLAY and SAND, brown; cohesive, w>PL, firm		1.26							
2					3	SS	5				
					4	SS	7		○		
				220.30							
3		(SM) SILTY SAND, fine; brown; non-cohesive, moist to wet, compact to dense		2.90	5	SS	25				Bentonite
4											
					6	SS	47		○	MH	
5											
6											
					7	SS	32				
7											Sand
					8	SS	26		○		January 29, 2021
8											
											Screen
9											
					9	SS	21				Sand
				213.60							
		END OF BOREHOLE		9.60							
10		NOTES:									
		CONTINUED NEXT PAGE									

DEPTH SCALE

1 : 50

GOLDER

LOGGED: YS

CHECKED: TO

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PROJECT: 20146456

RECORD OF BOREHOLE: KS10

SHEET 2 OF 2

LOCATION: N 4863803.25; E 634615.91

BORING DATE: January 20, 2021

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE: DESCRIPTION	SOIL PROFILE: STRATA PLOT	SOIL PROFILE: ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ● / rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp — W — Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
10		*--- CONTINUED FROM PREVIOUS PAGE ---*									
		1. Water was encountered at a depth of 7.6 m during drilling. 2. Groundwater level was measured in monitoring well at a depth of 7.8 mbgs (El. 215.4m) on January 29, 2021									
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

DEPTH SCALE

1 : 50

GOLDER

LOGGED: YS

CHECKED: TO

PROJECT: 20146456

LOCATION: N 4864045.36; E 634563.11

RECORD OF BOREHOLE: KS11

BORING DATE: January 20, 2021

SHEET 1 OF 1

DATUM: Geodetic

SPT/DCPT HAMMER: MASS, 64kg; DROP, 760mm

HAMMER TYPE: AUTOMATIC

DEPTH SCALE METRES	BORING METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m (20 40 60 80) / SHEAR STRENGTH Cu, kPa (nat V. + Q - ●, rem V. ⊕ U - ○) (20 40 60 80)	HYDRAULIC CONDUCTIVITY, k, cm/s (10^{-6} 10^{-5} 10^{-4} 10^{-3}) / WATER CONTENT PERCENT (Wp, W, Wl) (10 20 30 40)	ADDITIONAL LAB. TESTING	PIEZOMETER OR STANDPIPE INSTALLATION
		GROUND SURFACE		218.70							
0	B57 Truck Mount; 200 mm O.D. Hollow Stem Auger	Crushed granular; brown		0.00 / 218.40	1A	AS	-		○	M	
		FILL - (SP) SAND, some gravel, trace fines; brown; non-cohesive, moist		0.30 / 218.19	1B						
		ASPHALT (240 mm thick)		0.51 / 217.95							
		FILL - (CL) gravelly SILTY CLAY and SAND, black and brown, containing rootlets and organic inclusions; cohesive, w~PL to w>PL, stiff to soft		0.75	2	SS	12				
1											
					3	SS	13		○		
2											
					4	SS	3				▽ January 29, 2021
											Bentonite
3					5	SS	4		○		
				214.66							
4		(CL) SILTY CLAY and SAND, some gravel; grey (TILL); cohesive, w<PL, hard		4.04							
					6	SS	39				
5											
											Sand
6					7	SS	50/ 0.07		○		
											Screen
7				210.98	8	SS	50/ 0.10				Sand
		END OF BOREHOLE		7.72							
8		NOTES:									
		1. Water was encountered at a depth of 2.3 m during drilling.									
		2. Groundwater level was measured in monitoring well at a depth of 2.5mbgs (El. 216.2m) on January 29, 2021									
9											
10											

DEPTH SCALE

1 : 50

GOLDER

LOGGED: YS

CHECKED: TO

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R.J. Burnside & Associates Limited
15 Townline, Orangeville, Ontario L9W 3R4
telephone (519) 941-5331 fax (519) 941-8120

LOG OF DRILLING OPERATIONS

RJB9

Client: **North Markham Landowners Group**	Project Name: **North Markham**	Logged by: **D. Weir**
Project No.: **PTN14385.0**	Location: **Markham**	Ground (m amsl): **220.00**
Drilling Co.: **Lantech Drilling Services Inc.**	Date Started: **6/5/2008**	Static Water Level (m amsl): **213.82**
Drilling Method: **Hollow Stem Auger**	Date Completed: **6/5/2008**	Sand Pack (m amsl): **214.21 - 212.38**

Depth Scale (ft)	Depth Scale (m)	Stratigraphic Description (Surface Elevation (m): 220.00)	Strat. Plot	Elev. Depth (m)		SAMPLE Num.	Type	Int.	N.Val.
		TOPSOIL silty sand, trace clay, trace rootlets, brown, moist, compact		219.39 / 0.61		1	SS		11
	1.0	SILTY SAND, trace gravel, trace clay, trace rootlets, brown, moist, compact		218.63 / 1.37		2	SS		18
5.0	2.0	SILTY SAND TILL, some clay, trace gravel, brown, moist, compact		217.87 / 2.13		3	SS		17
		SILTY SAND, trace gravel, brown, oxidized, moist, very dense			bentonite seal	4	SS		98/20cm
10.0	3.0					5	SS		50/3cm
	4.0					6	SS		50/10cm
15.0	5.0					7	SS		50/5cm
						8	SS		50/3cm
20.0	6.0	- wet at 6.10 m				9	SS		50/5cm
	7.0	SAND, trace silt, brown, oxidized, wet, very dense		213.29 / 6.71	silica sand pack	10	SS		50/8cm
25.0	8.0			211.77 / 8.23	7.62	11	SS		50/5cm

Prepared By: **J.Shaw** Checked By: **J. Thompson** Date Prepared: **11/5/2008**

This borehole log was prepared for hydrogeological and/or environmental purposes and does not necessarily contain information suitable for a geotechnical assessment of the subsurface conditions. Borehole data requires interpretation by R. J. Burnside & Associates Limited personnel before use by others.

LEGEND
- Water found @ time of drilling
- Static Water Level - 7/7/2008

MONITORING WELL DATA
- Pipe: **51 mm dia. PVC**
- Screen: **51 mm dia. PVC #10 slot**

SAMPLE TYPE
- AC Auger Cutting
- CS Continuous
- RC Rock Core
- SS Split Spoon
- AR Air Rotary
- WC Wash Cuttings

JOB NO: 1308-S161

LOG OF BOREHOLE NO: 224

FIGURE NO: 26A

JOB DESCRIPTION: Proposed Residential Development

JOB LOCATION: Area Bounded by Major Mackenzie Drive East, Kennedy Road, Elgin Mills Road East and McCowan Road City of Markham

METHOD OF BORING: Hollow-Stem

DATE: October 17, 2013

Depth Elev. (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value
0.0	Ground Surface			
222.8	**20 cm TOPSOIL**			
	Brown, stiff, weathered **SILTY CLAY** a trace of sand occ. wet sand and silt seams and layers with topsoil inclusions	1	DO	9
0.7				
222.1	clay layers	2	DO	6
	Brown, loose to compact **SANDY SILT, Till** some clay to clayey a trace of gravel occ. wet sand and silt seams and layers, cobbles and boulders	3	DO	21
	silt layers/ sand pockets/ weathered			
2.1				
220.7	Brown, very dense **FINE SAND** some silt occ. sandy silt and silt seams and layers	4	DO	58
		5	DO	54
3.4				
219.4	Brown, dense **SANDY SILT** a trace of clay occ. sand and silt seams and layers	6	DO	50
5.6				
217.2	Brown, very dense **FINE TO COARSE SAND** some gravel, a trace of silt	7	DO	60
7.0				
215.8	Very dense **SANDY SILT, Till** some clay, a trace of gravel occ. wet sand and silt seams and layers, cobbles and boulders	8	DO	84
8.0	brown grey			
214.8	Grey, hard **SILTY CLAY, Till** sandy, a trace of gravel occ. wet sand and silt seams and layers, cobbles and boulders *(Continued on Fig. 26B)*			
9.0				

Depth Scale (m): 0 1 2 3 4 5 6 7 8 9

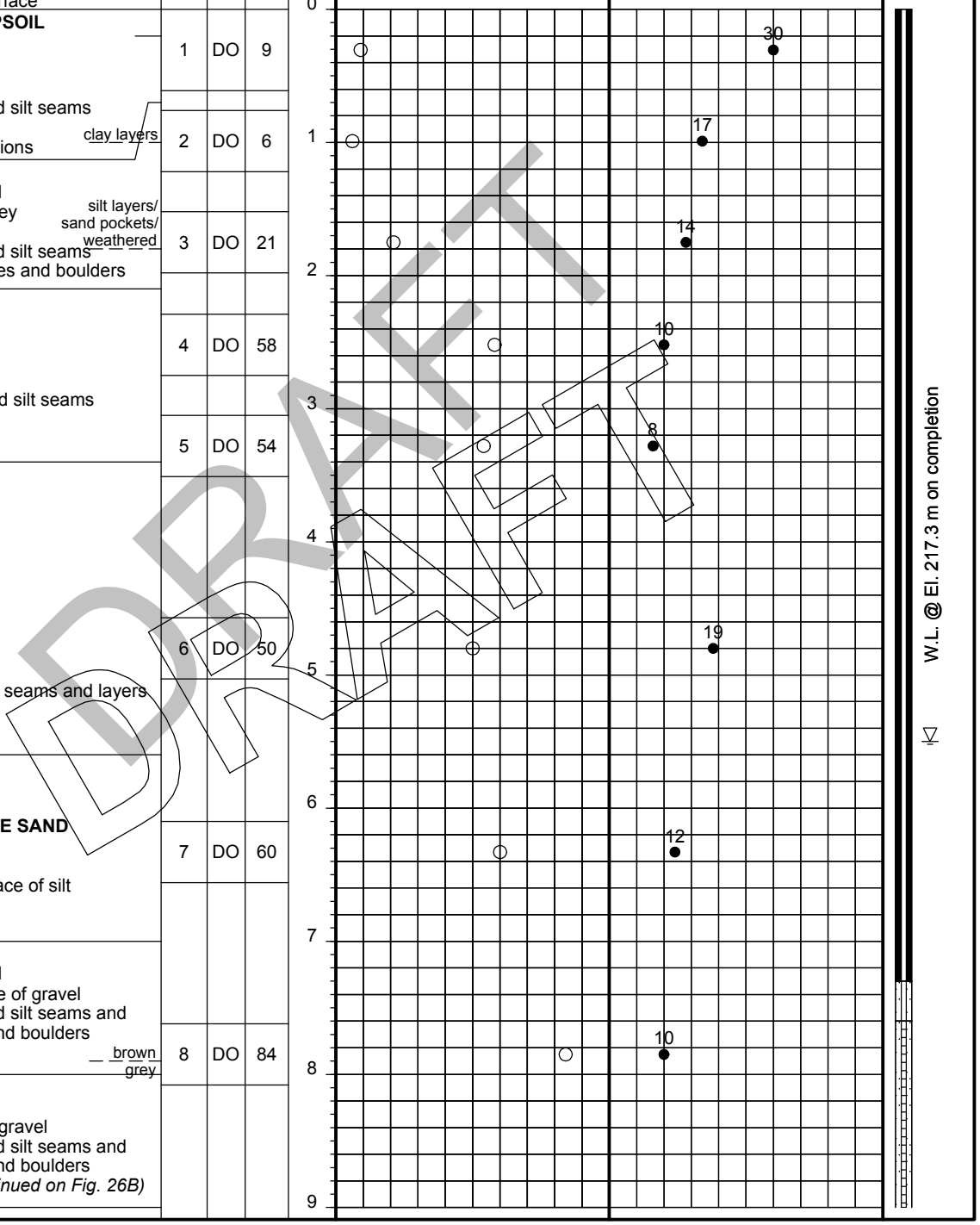
● Dynamic Cone (blows/30cm) 30 60 90 120

× Shear Strength (kN/m2) 50 100 150 200

○ Penetration Resistance (blows/30cm) 10 30 50 70 90

Atterberg Limits PL LL

● Moisture Content (%) 10 20 30 40



WATER LEVEL

W.L. @ El. 217.3 m on completion

JOB NO: 1308-S161

LOG OF BOREHOLE NO: 224

FIGURE NO: 26B

JOB DESCRIPTION: Proposed Residential Development

JOB LOCATION: Area Bounded by Major Mackenzie Drive East, Kennedy Road, Elgin Mills Road East and McCowan Road City of Markham

METHOD OF BORING: Hollow-Stem

DATE: October 17, 2013

Depth / Elev. (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value	Depth Scale (m)	Dynamic Cone (blows/30cm) 30 60 90 120 / Shear Strength (kN/m2) 50 100 150 200 / Penetration Resistance (blows/30cm) 10 30 50 70 90	Atterberg Limits PL LL / Moisture Content (%) 10 20 30 40	WATER LEVEL
9.0 / 213.8	*(Continued)* Grey, hard **SILTY CLAY, TiII** sandy, a trace of gravel occ. wet sand and silt seams and layers, cobbles and boulders	9	DO	50/ 15	9	50/ 15cm	13	
9.3 / 213.5	**END OF BOREHOLE**				10			
	Installed 50 mm Ø monitoring well to 9.1 m (1.5 m screen) Sand backfill from 7.3 m to 9.1 m Bentonite holeplug from 0.0 m to 7.3 m Provided with a protective steel casing with top and bottom caps, and lock				11			
					12			
					13			
					14			
					15			
					16			
					17			
					18			

W.L. @ El. 217.3 m on completion

JOB NO: 1308-S161

LOG OF BOREHOLE NO: 220

FIGURE NO: 20A

JOB DESCRIPTION: Proposed Residential Development

JOB LOCATION: Area Bounded by Major Mackenzie Drive East, Kennedy Road, Elgin Mills Road East and McCowan Road City of Markham

METHOD OF BORING: Hollow-Stem/Wash-Bore

DATE: October 23 & 24, 2013

Depth Elev. (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value	Depth Scale (m)
0.0	Ground Surface				0
208.9	**41 cm TOPSOIL**	1	DO	8	
	Brown, firm to stiff, weathered **SILTY CLAY, Till** some sand to sandy a trace of gravel occ. wet sand and silt seams and layers, cobbles and boulders	2	DO	9	1
1.9		3	DO	8	
207.0	Brown, compact to very dense weathered **SANDY SILT, Till** a trace to some clay a trace of gravel occ. wet sand and silt seams and layers, cobbles and boulders	4	DO	15	2
		5	DO	64	3
4.0					4
204.9	Brown, very dense **SILTY SAND, Till** traces of clay and gravel occ. wet sand and silt seams and layers, cobbles and boulders	6	DO	83	5
		7	DO	50/15	6
7.0					7
201.9	Brown, very dense **SILTY FINE SAND** a trace of clay occ. silt seams and layers	8	DO	50/15	8
8.6					
200.3	Grey, very dense **SANDY SILT, Till** *(Continued on Fig. 20B)*				9
9.0					

Dynamic Cone (blows/30cm): 30, 60, 90, 120

Shear Strength (kN/m2): 50, 100, 150, 200

Penetration Resistance (blows/30cm): 10, 30, 50, 70, 90

Atterberg Limits: PL — LL

Moisture Content (%): 10, 20, 30, 40

Moisture Content (%): 24, 23, 14, 11, 7, 7, 50/15cm 10, 50/15cm 15

WATER LEVEL

Not applicable due to wash-boring

Soil Engineers Ltd.

JOB NO: 1308-S161

LOG OF BOREHOLE NO: 220

FIGURE NO: 20B

JOB DESCRIPTION: Proposed Residential Development

JOB LOCATION: Area Bounded by Major Mackenzie Drive East, Kennedy Road, Elgin Mills Road East and McCowan Road City of Markham

METHOD OF BORING: Hollow-Stem/Wash-Bore

DATE: October 23 & 24, 2013

Depth / Elev. (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value	Depth Scale (m)	Dynamic Cone (blows/30cm) / Shear Strength (kN/m2) / Penetration Resistance (blows/30cm)	Atterberg Limits / Moisture Content (%)	WATER LEVEL
9.0 199.9	*(Continued)* Grey, very dense	9	DO	50/ 8	9		50/ 8cm 9	
	SANDY SILT, Till	10	DO	50/ 8	10		50/ 8cm 8	
	a trace to some clay a trace of gravel occ. wet sand and silt seams and layers, cobbles and boulders	11	DO	50/ 8	11			
13.1 195.8	Grey, very dense				12		50/ 8cm 10	
	SILTY FINE SAND	12	DO	88/ 23	13			
	a trace of clay occ. silt seams and layers				14		88/ 23cm 15	
14.6 194.3	Grey, hard	13	DO	50/ 8	15		50/ 8cm 8	
	SILTY CLAY, Till				16			
	sandy, a trace of gravel occ. wet sand and silt seams and layers, cobbles and boulders	14	DO	50/ 13	17		50/ 13cm 9	
18.0	*(Continued on Fig. 20C)*				18			

Not applicable due to wash-boring

Soil Engineers Ltd.

JOB NO: 1308-S161

LOG OF BOREHOLE NO: 220

FIGURE NO: 20C

JOB DESCRIPTION: Proposed Residential Development

JOB LOCATION: Area Bounded by Major Mackenzie Drive East, Kennedy Road, Elgin Mills Road East and McCowan Road City of Markham

METHOD OF BORING: Hollow-Stem/Wash-Bore

DATE: October 23 & 24, 2013

Depth / Elev. (m)	SOIL DESCRIPTION	SAMPLES Number	Type	N-Value
18.0				
190.9	*(Continued)* Grey, hard **SILTY CLAY, TiII** sandy, a trace of gravel occ. wet sand and silt seams and layers, cobbles and boulders	15	DO	50/ 5
19.2				
189.7	**END OF BOREHOLE** Refusal to augering, inferred boulder Installed 50 mm Ø monitoring well to 19.2 m (1.5 m screen) Sand backfill from 17.4 m to 19.2 m Bentonite holeplug from 0.0 m to 17.4 m Provided with a protective steel casing with top and bottom caps, and lock			

Depth Scale (m): 18, 19, 20, 21, 22, 23, 24, 25, 26, 27

● Dynamic Cone (blows/30cm) 30 60 90 120

× Shear Strength (kN/m2) 50 100 150 200

○ Penetration Resistance (blows/30cm) 10 30 50 70 90

Atterberg Limits PL LL

● Moisture Content (%) 10 20 30 40

50/ 5cm ○ 12 ●

WATER LEVEL

Not applicable due to wash-boring

Soil Engineers Ltd.

JOB NO: 1308-S161

LOG OF BOREHOLE NO: 220N

FIGURE NO: 21

JOB DESCRIPTION: Proposed Residential Development

JOB LOCATION: Area Bounded by Major Mackenzie Drive East, Kennedy Road, Elgin Mills Road East and McCowan Road City of Markham

METHOD OF BORING: Hollow-Stem

DATE: October 24, 2013

Depth / Elev. (m)	SOIL DESCRIPTION	SAMPLES Number	SAMPLES Type	SAMPLES N-Value	Depth Scale (m)	Dynamic Cone (blows/30cm) 30 60 90 120 / Shear Strength (kN/m2) 50 100 150 200 / Penetration Resistance (blows/30cm) ○ 10 30 50 70 90	Atterberg Limits PL LL / Moisture Content (%) ● 10 20 30 40	WATER LEVEL
0.0 208.9	Ground Surface				0			
	50 mm NESTED PVC WELL				1 2 3 4			
4.6 204.3	**END OF BOREHOLE** Installed 50 mm Ø monitoring well to 4.6 m (1.5 m screen) Sand backfill from 2.7 m to 4.6 m Bentonite holeplug from 0.0 m to 2.7 m Provided with a protective steel casing with top and bottom caps, and lock				5 6 7 8 9			

LOG OF DRILLING OPERATIONS

AG-MW6D

R.J. Burnside & Associates Limited
292 Speedvale Avenue West, Guelph, Ontario N1H 1C4
telephone (519) 823-4995 fax (519) 836-5477

Client: **Angus Glen Developments Inc.**	Project Name: **Angus Glen MESP**	Logged by: **I. Murphy**
Project No.: **300034937**	Location: **Markham, ON**	Ground (m amsl): **223.80**
Drilling Co.: **Lantech Drilling Services Inc.**	Date Started: **3/18/2015**	Static Water Level Depth (m): **6.78**
Drilling Method: **PQ Coring**	Date Completed: **3/18/2015**	Sand Pack Depth (m) : **14.32 - 17.98**

Depth Scale (ft)	Depth Scale (m)	Stratigraphic Description	Strat. Plot	Elev. Depth (m)		SAMPLE Num.	SAMPLE Type	SAMPLE Int.	Depth Scale (ft)	Depth Scale (m)
		Surface Elevation (m): **223.80**								
		See MW6s-AG for stratigraphy			bentonite seal					
5.0	1.0								5.0	1.0
	2.0				steel casing					2.0
10.0	3.0								10.0	3.0
	4.0									4.0
15.0	5.0								15.0	5.0
	6.0				grout				20.0	6.0
20.0	7.0									7.0
25.0	8.0	SAND (SP) With silt, fine to medium grained, poorly graded, brown, wet, dilatant		216.18 7.62			CORE		25.0	8.0
30.0	9.0	trace gravel, saturated, dilatant at 9.8 m					CORE		30.0	9.0
	10.0	SILT (ML) With fine grained sand, low plasticity, brown, moist, some oxidation, tarce clay at 10.4 m (grey, dry)		213.89 9.91						10.0
35.0	11.0	SILT (TILL) Trace clay, trace fine sand, trace pebbles, occasional cobble, non-plastic, grey, dry		213.13 10.67			CORE		35.0	11.0

Prepared By: **C. D.** Checked By: **J. S.** Date Prepared: **7/26/2015**

This borehole log was prepared for hydrogeological and/or environmental purposes and does not necessarily contain information suitable for a geotechnical assessment of the subsurface conditions. Borehole data requires interpretation by R. J. Burnside & Associates Limited personnel before use by others.

LEGEND
- Water found @ time of drilling
- Static Water Level - 6/16/2015

MONITORING WELL DATA
- Pipe: **51 mm dia. PVC**
- Screen: **51 mm dia. PVC #10 slot**

SAMPLE TYPE
- AC Auger Cutting
- CS Continuous
- RC Rock Core
- SS Split Spoon
- AR Air Rotary
- WC Wash Cuttings

LOG OF DRILLING OPERATIONS

AG-MW6D

R.J. Burnside & Associates Limited
292 Speedvale Avenue West, Guelph, Ontario N1H 1C4
telephone (519) 823-4995 fax (519) 836-5477

Client: **Angus Glen Developments Inc.**	Project Name: **Angus Glen MESP**	Logged by: **I. Murphy**
Project No.: **300034937**	Location: **Markham, ON**	Ground (m amsl): **223.80**
Drilling Co.: **Lantech Drilling Services Inc.**	Date Started: **3/18/2015**	Static Water Level Depth (m): **6.78**
Drilling Method: **PQ Coring**	Date Completed: **3/18/2015**	Sand Pack Depth (m) : **14.32 - 17.98**

Depth Scale (ft)	Depth Scale (m)	Stratigraphic Description	Strat. Plot	Elev. Depth (m)		SAMPLE Num.	SAMPLE Type	SAMPLE Int.	Depth Scale (ft)	Depth Scale (m)
		Surface Elevation (m): **223.80**								
40.0	13.0	stone at 11.3 m			grout		CORE		40.0	13.0
45.0	14.0				bentonite seal		CORE		45.0	14.0
	15.0									15.0
50.0	16.0				silica sand pack		CORE		50.0	16.0
55.0	17.0	sand lens at 16.5 m - very fine grained, poorly graded, grey, dry			well screen		CORE		55.0	17.0
				205.82 17.98	17.98					

Prepared By: **C. D.** Checked By: **J. S.** Date Prepared: **7/26/2015**

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LEGEND
- Water found @ time of drilling
- Static Water Level - 6/16/2015

MONITORING WELL DATA
- Pipe: **51 mm dia. PVC**
- Screen: **51 mm dia. PVC #10 slot**

SAMPLE TYPE
- AC Auger Cutting
- CS Continuous
- RC Rock Core
- SS Split Spoon
- AR Air Rotary
- WC Wash Cuttings

LOG OF DRILLING OPERATIONS

AG-MW6S

BURNSIDE
R.J. Burnside & Associates Limited
292 Speedvale Avenue West, Guelph, Ontario N1H 1C4
telephone (519) 823-4995 fax (519) 836-5477

Client: **Angus Glen Developments Inc.**	Project Name: **Angus Glen MESP**	Logged by: **C.D.**
Project No.: **300034937**	Location: **Markham, ON**	Ground (m amsl): **223.80**
Drilling Co.: **Lantech Drilling Services Inc.**	Date Started: **3/17/2015**	Static Water Level Depth (m): **dry**
Drilling Method: **Hollow Stem Auger**	Date Completed: **3/17/2015**	Sand Pack Depth (m) : **5.5 - 7.62**

Surface Elevation (m): **223.80**

Stratigraphic Description	Elev. / Depth (m)
TOPSOIL Dark brown, clayey, fine rootlets	222.95 / 0.85
CLAY Silty Brown, firm, moist, trace to some fine sand, medium plasticity.	222.16 / 1.64
SAND Silty Fill like, brown, fine to medium, compact, moist, well graded, some gravel (<2 cm diameter, subangular to subrounded)	220.07 / 3.73
SAND Brown, fine to medium, compact to dense, moist, uniform, trace silt, occasional gravel from 6.6 m - fine to coarse, dense, saturated	216.18 / 7.62

SAMPLE Num.	Type	Int.	N.Val.
1	SS		46
2	SS		38
3	SS		51
4	SS		>50/4"
5	SS		>50/5"
6	SS		>50/5"
7	SS		>50/3"
8	SS		>50/3"
9	SS		>50/4"

Depth Scale (ft) (m): 1.0, 5.0, 2.0, 3.0, 10.0, 4.0, 15.0, 5.0, 6.0, 20.0, 7.0, 25.0

Prepared By: **C. D.** Checked By: **J. S.** Date Prepared: **7/26/2015**

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LEGEND	MONITORING WELL DATA	SAMPLE TYPE
▼ Water found @ time of drilling	Pipe: **51 mm dia. PVC**	AC Auger Cutting; CS Continuous; RC Rock Core
▽ Static Water Level - 6/16/2015	Screen: **51 mm dia. PVC #10 slot**	SS Split Spoon; AR Air Rotary; WC Wash Cuttings

LOG OF DRILLING OPERATIONS

AG-MW7

BURNSIDE

R.J. Burnside & Associates Limited
292 Speedvale Avenue West, Guelph, Ontario N1H 1C4
telephone (519) 823-4995 fax (519) 836-5477

Client: **Angus Glen Developments Inc.**	Project Name: **Angus Glen MESP**	Logged by: **C. D.**
Project No.: **300034937**	Location: **Markham, ON**	Ground (m amsl): **212.00**
Drilling Co.: **Lantech Drilling Services Inc.**	Date Started: **2/24/2015**	Static Water Level Depth (m): **0.37**
Drilling Method: **Hollow Stem Auger**	Date Completed: **2/24/2015**	Sand Pack Depth (m) : **5.43 - 7.62**

Depth Scale (ft)	Depth Scale (m)	Stratigraphic Description (Surface Elevation (m): 212.00)	Strat. Plot	Elev. Depth (m)	Sample Num.	Sample Type	Sample Int.	Sample N.Val.
		TOPSOIL Darl brown loam, rootlets		211.66 0.34	1	SS		13
	1.0	SAND Brown, fine to coarse, loose, dry, well graded, trace small gravel			2	SS		62
5.0				210.52 1.48	3	SS		31
	2.0	Becomes wet at 0.7 m and very coarse, some gravel (<2 cm diameter) subrounded to rounded, occasional cobbles			4	SS		53
		SAND Silty Brown, fine to medium, compact, friable, moist						
10.0	3.0	to wet, well graded, trace clay, trace gravel (<2 cm diameter) subrounded to rounded, occasional iron staining		209.00 3.00	5	SS		54
	4.0	Becomes dense with depth			6	SS		>50/5"
15.0		SAND Silty Till like, brown, fine to medium, dense, moist, well graded, some clay, trace gravel (<2 cm diameter) subangular to rounded			7	SS		>100
	5.0							
		from 3.8 m - inferred seams of silt and pockets with coarse sand, wet						
20.0	6.0				8	SS		>50/4"
	7.0	SAND Brown, fine to coarse, loose, saturated, well graded, trace silt		205.14 6.86	9	SS		>50/4"
25.0				204.38 7.62				

Holeplug
Sandpack
Well Screen
7.62

Prepared By: **C. D.** Checked By: **J. S.** Date Prepared: **7/26/2015**

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LEGEND
- Water found @ time of drilling
- Static Water Level - 6/16/2015

MONITORING WELL DATA
- Pipe: **51 mm dia. PVC**
- Screen: **51 mm dia. PVC #10 slot**

SAMPLE TYPE
- AC Auger Cutting
- CS Continuous
- RC Rock Core
- SS Split Spoon
- AR Air Rotary
- WC Wash Cuttings

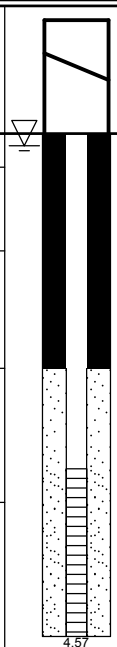
LOG OF DRILLING OPERATIONS

AG-MW4

R.J. Burnside & Associates Limited
292 Speedvale Avenue West, Guelph, Ontario N1H 1C4
telephone (519) 823-4995 fax (519) 836-5477

Client: **Angus Glen Developments Inc.**	Project Name: **Angus Glen MESP**	Logged by: **I. Murphy**
Project No.: **300034937**	Location: **Markham, ON**	Ground (m amsl): **223.00**
Drilling Co.: **Lantech Drilling Services Inc.**	Date Started: **3/2/2015**	Static Water Level Depth (m): **0.11**
Drilling Method: **Hollow Stem Auger**	Date Completed: **3/2/2015**	Sand Pack Depth (m) : **2.14 - 4.57**

Depth Scale (ft)	Depth Scale (m)	Stratigraphic Description (Surface Elevation (m): 223.00)	Strat. Plot	Elev. Depth (m)	SAMPLE Num.	Type	Int.	N.Val.
		SANDY SILT (TOPSOIL) Fine grained, poorly graded, low plastic fines, brown, frozen		222.70 0.30	1	SS		56
	1.0	SILT (ML) Trace fine sand, non-plastic, hard, dark brown, dry, trace clay at 0.9 m		221.93 1.07	2	SS		5
5.0	2.0	CLAYEY SILT (CL/ML) Trace fine sand, medium plasticity, firm, light brown, moist, sand gravel lens at about 1.7 m, brown, moist		220.87 2.13	3	SS		20
					4	SS		102
10.0	3.0	SANDY SILT (ML) Trace clay, very fine grained sand, low plasticity, hard, moist, light brown, trace gravel at 2.9 m, some oxidation		219.65 3.35	5	SS		50+
	4.0	SILT (TILL) Trace clay, trace fine sand, trace pebbles, non-plastic, hard, brown, dry stone at 4.1 m grey, moist, hard at 4.4 m			6	SS		50+
15.0	5.0	grey, dry at 4.6 m		217.82 5.18	7	SS		50+



Prepared By: **C. D.** Checked By: **J. S.** Date Prepared: **7/26/2015**

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LEGEND
- Water found @ time of drilling
- Static Water Level - 6/16/2015

MONITORING WELL DATA
- Pipe: **51 mm dia. PVC**
- Screen: **51 mm dia. PVC #10 slot**

SAMPLE TYPE
- AC Auger Cutting
- CS Continuous
- RC Rock Core
- SS Split Spoon
- AR Air Rotary
- WC Wash Cuttings

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix B

MECP Well Records

Water Well Records

Friday, November 05, 2021
2:19:13 PM

TOWNSHIP CON LOT	UTM	DATE CNTR	CASING DIA	WATER	PUMP TEST	WELL USE	SCREEN	WELL	FORMATION
MARKHAM TOWN (MARKHA	17 633466 4861552 W	2010/08 6032						7150735 (Z108907) A068253 A	0025
MARKHAM TOWN (MARKHA	17 633455 4861602 W	2009/11 6032	1.97			MO		7137567 (Z108621) A068253	SAND SLTY SILT 0015 GREY SILT SNDY 0015 BRWN SAND SLTY 0021 GREY SILT SNDY 0021
MARKHAM TOWN (MARKHA	17 632687 4863134 W	2013/08 5459				NU		7208224 (Z168219) A	
MARKHAM TOWN (MARKHA	17 632640 4862901 W	2014/05 7472	2.04			MO	0023 10	7224871 (Z189533) A163625	BRWN LOAM SILT LOOS 0005 BRWN SILT FSND PCKD 0015 BRWN FSND GRVL PCKD 0033
MARKHAM TOWN (MARKHA	17 632440 4862460 W	2014/05 7472	0.75			MO	0016 10	7224877 (Z189522) A163652	BRWN LOAM SILT LOOS 0005 BRWN SILT FSND PCKD 0015 BRWN FSND GRVL PCKD 0026
MARKHAM TOWN (MARKHA	17 632695 4862628 W	2014/05 7472	2.04			MO	0023 10	7224878 (Z189521) A163651	BRWN LOAM SILT LOOS 0005 BRWN SILT FSND PCKD 0015 BRWN FSND GRVL PCKD 0035
MARKHAM TOWN (MARKHA	17 632628 4862297 W	2014/05 7472	0.75			MO	0025 1	7224879 (Z189520) A163654	BRWN LOAM SILT LOOS 0005 BRWN SILT FSND PCKD 0015 BRWN FSND GRVL PCKD 0026
MARKHAM TOWN (MARKHA	17 632785 4862154 W	2014/05 7472	2.04			MO	0056 10	7224880 (Z189519) A163655	BRWN LOAM SILT LOOS 0005 BRWN SILT FSND PCKD 0015 BRWN FSND GRVL PCKD 0030 GREY SILT FSND DNSE 0066
MARKHAM TOWN (MARKHA	17 632646 4861509 W	2014/05 7472	2.04			MO	0023 10	7224883 (Z189540) A166019	BRWN LOAM SILT LOOS 0005 BRWN SILT FSND PCKD 0015 BRWN FSND GRVL PCKD 0030 GREY SILT FSND DNSE 0033
MARKHAM TOWN (MARKHA	17 632552 4861976 W	2014/05 7472	2.04			MO	0023 10	7224891 (Z189517) A163657	BRWN LOAM SILT LOOS 0005 BRWN SILT FSND PCKD 0015 BRWN FSND GRVL PCKD 0033
MARKHAM TOWN (MARKHA	17 633077 4862769 W	2014/07 7230						7226765 (C26684) A153726 P	
MARKHAM TOWN (MARKHA	17 633222 4861212 W	2014/09 7360	0.75	UT 0011		MO	0035 5	7230120 (Z187267) A167940	BRWN SAND LTCL 0020 GREY SAND SILT 0040
MARKHAM TOWN (MARKHA	17 632739 4862956 W	2015/03 6809						7260112 (C29950) A177532 P	

TOWNSHIP CON LOT	UTM	DATE CNTR	CASING DIA	WATER	PUMP TEST	WELL USE	SCREEN	WELL	FORMATION
MARKHAM TOWN (MARKHA	17 632653 4862166 W	2014/05 7472	2.04			MO	0023 10	7224890 (Z189518) A163653	BRWN LOAM SILT LOOS 0005 BRWN SILT FSND PCKD 0015 BRWN FSND GRVL PCKD 0033
MARKHAM TOWN (MARKHA 04 003	17 632960 4861474 W	2005/09 1663	6.25	FR 0030	15/22/54/1:20	DO	0030 2	6929528 (Z36748) A023460	BRWN CLAY 0001 BRWN SAND GRVL STNS 0002 GREY CLAY GRVL STNS 0025 BLUE CLAY 0030 GREY MSND 0031 GREY FSND SILT 0038 BLUE CLAY 0040
MARKHAM TOWN (MARKHA 04 020	17 632703 4860955 W	2006/04 1663	2.46	FR 0243	105//15/1:0	DO	0243 5	6930332 (Z36806) A042046	BRWN CLAY GRVL 0026 GREY CLAY GRVL 0086 BRWN MSND 0091 GREY CLAY SILT SAND 0118 GREY CLAY SILT 0219 GREY CLAY GRVL 0243 BRWN MSND 0248 BRWN FSND SILT 0266 GREY CLAY STNS GRVL 0280
MARKHAM TOWN (MARKHA 04 020	17 633021 4860841 W	2006/05 5459	5					6930577 (Z35892) A032905 A	
MARKHAM TOWN (MARKHA 04 020	17 633072 4860867 W	2006/12 3108				NU		7039919 (Z30633) A	
MARKHAM TOWN (MARKHA 04 021	17 632744 4861433 W	2008/05 1350	6.13	FR 0088	18/46/16/1:	DO		7106315 (Z76178) A071732	BRWN CLAY 0007 GREY CLAY SAND 0040 GREY GRVL CLAY 0068 BRWN SILT SAND 0088 BRWN SAND 0094
MARKHAM TOWN (MARKHA 04 021	17 632862 4861174 W	2008/01 5459			///:			7102254 (Z75605) A063170 A	
MARKHAM TOWN (MARKHA 04 023	17 632587 4862028 W	2004/11 5459	6.11		11/165/10/1:	DO	0310 6	6928626 (Z16081) A022179	BRWN CLAY SAND STNS 0032 GREY CLAY STNS 0081 GREY CLAY SILT 0186 GREY CLAY SNDY 0224 GREY CLAY STNS 0234 GREY CLAY SILT 0272 GREY SAND STNS 0321
MARKHAM TOWN (MARKHA 05 020	17 633532 4861119 W	2007/06 4102			///:			7047516 (Z63433) A	
MARKHAM TOWN (MARKHA 05 020	17 633524 4861114 W	2007/06 4102			///:			7047517 (Z63435) A	
MARKHAM TOWN (MARKHA CON 04 019	17 633131 4860770 W	1987/10 5459		FR 0005	/1/10/6:0	DO		6919178 (NA)	BRWN FILL 0006 BRWN CLAY 0015 BLUE CLAY STNS 0035 BLUE CLAY SOFT 0045 GREY GRVL 0082
MARKHAM TOWN (MARKHA CON 04 019	17 633150 4860786 W	1966/04 5420	5	FR 0189	48/75/5/5:0	DO	0190 4	6903329 ()	LOAM 0002 BRWN CLAY BLDR 0045 BLUE CLAY STNS 0080 BLUE CLAY 0173 GRVL MSND CLAY 0189 GREY FSND 0194
MARKHAM TOWN (MARKHA CON 04 019	17 633095 4860833 W	1968/08 5420	5	FR 0185	68/168/9/10:0	DO	0185 8	6908770 ()	BRWN CLAY STNS 0018 HPAN BLDR 0065 BLUE CLAY STNS 0115 HPAN 0135 BLUE CLAY 0172 GRVL SILT 0174 BLUE CLAY 0185 MSND GRVL 0189 MSND GRVL 0192 SILT 0196
MARKHAM TOWN (MARKHA CON 04 020	17 633045 4860813 W	1968/05 5420	5	FR 0198	70/180/4/4:0	DO	0198 4	6908799 ()	PRDG 0044 STNS CLAY 0065 GRVL CLAY 0067 BLUE CLAY STNS 0198 MSND 0202
MARKHAM TOWN (MARKHA CON 04 020	17 632815 4860833 W	1971/07 5459	6	FR 0216	85/130/10/1:0	DO	0216 4	6910649 ()	BLUE CLAY BLDR 0080 BLUE CLAY MSND 0216 BLUE MSND 0220
MARKHAM TOWN (MARKHA CON 04 020	17 632895 4860993 W	1972/10 5459	30	FR 0018	17///:	DO		6911356 ()	BLCK LOAM 0002 BRWN CLAY SAND 0012 BRWN SAND 0018 BRWN GRVL 0023

TOWNSHIP CON LOT	UTM	DATE CNTR	CASING DIA	WATER	PUMP TEST	WELL USE	SCREEN	WELL	FORMATION
MARKHAM TOWN (MARKHA CON 04 020	17 632830 4860838 W	1989/06 5459	6	FR 0199	/199/25/2:0	DO	0199 6	6920494 (58337)	BRWN CLAY SNDY 0007 GREY CLAY SNDY 0048 GREY CLAY SLTY 0091 GREY STNS SAND 0092 GREY CLAY SLTY 0114 GREY CLAY SNDY 0162 GREY SAND SLTY 0163 GREY CLAY SLTY 0197 GREY SAND CLN 0208 GREY CLAY SNDY 0220
MARKHAM TOWN (MARKHA CON 04 020	17 632945 4861073 W	1973/04 5459	6	FR 0118	40/80/4/3:30	DO	0129 6	6911436 ()	BRWN CLAY 0018 BLUE CLAY STNS 0103 SAND CLAY 0118 SAND 0130
MARKHAM TOWN (MARKHA CON 04 020	17 632995 4861093 W	1973/04 5459	6	FR 0108	40/75/5/2:0	DO	0134 4	6911437 ()	BRWN CLAY 0018 BLUE CLAY STNS 0108 SAND 0134
MARKHAM TOWN (MARKHA CON 04 020	17 633010 4861168 W	1988/09 5459	6	FR 0210	30/216/15/4:0	DO	0210 6	6919813 (37773)	BRWN CLAY STNS 0024 GRVL 0035 BLUE CLAY STNS 0068 BLUE CLAY SOFT 0180 BLUE CLAY STNS 0210 SAND CSND 0216
MARKHAM TOWN (MARKHA CON 04 020	17 632895 4861043 W	1973/06 5459	30	UK 0008	7//3/:	DO		6911552 ()	LOAM 0002 BRWN SAND 0008 BRWN SAND 0014 CLAY 0015
MARKHAM TOWN (MARKHA CON 04 020	17 632975 4861003 W	1980/07 5459	6	FR 0156	45/145/10/:	DO	0150 6	6915726 ()	BLCK LOAM 0002 BRWN CLAY SOFT 0019 BLUE CLAY STNS 0023 BLUE CLAY SOFT 0099 BLUE CLAY SAND SOFT 0110 BLUE CLAY HARD 0150 BLUE SAND 0156
MARKHAM TOWN (MARKHA CON 04 020	17 632926 4861060 W	1991/10 5459			//5/2:0	IR		6921661 (85092) A	BLCK LOAM 0002 BRWN CLAY STNS SNDY 0012 GREY CLAY STNS 0110 GREY CLAY SNDY 0127 GREY SAND SILT 0137 GREY CLAY SNDY
MARKHAM TOWN (MARKHA CON 04 020	17 632915 4861043 W	1981/04 5459	6	FR 0156	75/150/10/:	DO	0157 3	6916005 ()	BLCK LOAM 0002 BRWN CLAY STNS 0020 BLUE CLAY GRVL 0045 BLUE CLAY HARD 0082 BLUE CLAY SOFT 0144 BLUE FSND 0156 BRWN SAND 0160
MARKHAM TOWN (MARKHA CON 04 020	17 633056 4861042 W	1975/06 5459	6	FR 0178	55/175/6/3:0	DO	0179 3	6912796 ()	LOAM 0002 BRWN CLAY 0017 BLUE CLAY 0045 BLUE CLAY 0140 BLUE CLAY 0178 BLUE MSND 0182
MARKHAM TOWN (MARKHA CON 04 020	17 632771 4861007 W	1975/10 5459	6	UK 0096	39/105/5/4:0	DO	0103 6	6912948 ()	BRWN CLAY 0007 BRWN SAND GRVL 0028 BLUE CLAY STNS 0096 BLUE FSND 0109
MARKHAM TOWN (MARKHA CON 04 020	17 632855 4861033 W	1973/11 5459	6	FR 0092	45/105/20/1:30	DO	0098 6	6911851 ()	BRWN CLAY 0022 BLUE CLAY STNS 0092 SAND 0105
MARKHAM TOWN (MARKHA CON 04 020	17 633066 4861071 W	1974/04 5459	6	FR 0128	30/120/10/3:0	DO	0128 4	6912460 ()	BRWN CLAY 0016 BLUE CLAY 0128 BLUE FSND 0132
MARKHAM TOWN (MARKHA CON 04 020	17 633059 4860807 W	1974/07 5459	6	FR 0193	87/205/25/1:30	DO	0201 4	6912312 ()	BRWN CLAY 0012 BLUE CLAY STNS 0183 BLUE SAND 0186 FSND 0191 CLAY 0193 GREY SAND 0205
MARKHAM TOWN (MARKHA CON 04 020	17 633135 4860833 W	1973/10 5459	6	FR 0097	22/100/5/3:0	DO	0096 7	6911661 ()	BRWN CLAY 0018 BLUE CLAY STNS 0097 FSND 0104
MARKHAM TOWN (MARKHA CON 04 020	17 632642 4860954 W	1985/08 5459	6	FR 0198	38/200/40/3:0	DO	0204 6	6917886 ()	LOAM DKCL 0004 BRWN CLAY 0016 BLUE CLAY HARD 0078 BLUE CLAY STNS 0110 BLUE CLAY SOFT 0198 BLUE SAND MGRD 0210
MARKHAM TOWN (MARKHA CON 04 020	17 633036 4861130 W	1966/08 1413	5	FR 0124	25/73/10/2:0	DO	0120 4	6903360 ()	BLUE CLAY STNS 0103 FSND 0106 BLUE MSND 0107 FSND 0118 CSND 0124
MARKHAM TOWN (MARKHA CON 04 020	17 632957 4861038 W	1994/09 5459	6	FR 0160	55/160/10/1:30	DO	0162 6	6922877 (141527)	BRWN CLAY HARD 0014 GREY CLAY STNS 0021 GREY CLAY HARD 0048 GREY CLAY SAND 0130 GREY CLAY SOFT 0147 GREY CLAY SAND SOFT 0160 GREY SAND 0168

TOWNSHIP CON LOT	UTM	DATE CNTR	CASING DIA	WATER	PUMP TEST	WELL USE	SCREEN	WELL	FORMATION
MARKHAM TOWN (MARKHA CON 04 020	17 632964 4860763 W	2016/09 4102						7272281 (Z135977) A	
MARKHAM TOWN (MARKHA CON 04 020	17 633089 4860845 W	1964/03 5420	34	FR 0021	4///:	DO		6903351 ()	LOAM 0001 BRWN CLAY 0009 BLUE CLAY STNS 0021 GRVL MSND 0025
MARKHAM TOWN (MARKHA CON 04 020	17 632892 4861033 W	2011/05 5459	6		9/31/76/1:	DO	0249 3	7165968 (Z115955) A102810	BRWN SAND SOFT 0010 GREY GRVL SAND SLTY 0022 GREY FSND SILT SOFT 0155 GREY MSND SILT SOFT 0161 GREY CLAY SILT SOFT 0245 GREY GRVL FSND LOOS 0252
MARKHAM TOWN (MARKHA CON 04 020	17 632866 4861066 W	1975/10 5459	6	UK 0138	52/135/15/4:0	DO	0138 3	6912962 ()	BRWN CLAY 0014 BRWN GRVL 0025 BLUE CLAY 0115 BLUE SAND 0117 BLUE CLAY 0121 BLUE FSND 0135 BLUE CLAY SAND 0138 BLUE SAND GRVL 0141
MARKHAM TOWN (MARKHA CON 04 020	17 632875 4861043 W	1976/07 5459	6	FR 0097	56/105/20/3:30	DO	0105 3	6913438 ()	BRWN CLAY 0007 BRWN SAND CLAY 0026 BLUE CLAY STNS 0061 BLUE CLAY HARD 0097 GREY CGVL 0110
MARKHAM TOWN (MARKHA CON 04 020	17 633055 4861023 W	1975/12 5459	6	FR 0116	60/95/8/3:30	DO	0115 3	6913336 ()	FILL 0003 BRWN CLAY STNS 0026 BLUE CLAY HARD 0040 BLUE CLAY SOFT 0116 BLUE CSND 0118
MARKHAM TOWN (MARKHA CON 04 020	17 633031 4861033 W	2009/10 5459	6	FR 0129	68/79/10/1:0	DO	0123 6	7134478 (Z101426) A075281	BRWN TILL HARD 0018 GREY CLAY SILT STNS 0110 BRWN FSND LOOS 0130
MARKHAM TOWN (MARKHA CON 04 021	17 632595 4861063 W	1978/10 1350	6	FR 0181	80/185/3/2:0	ST DO	0187 5	6914819 ()	YLLW CLAY 0030 GREY SILT CLAY SOFT 0052 GREY SILT 0055 GREY CLAY 0110 GREY CLAY GRVL STNS 0181 GREY FSND 0192
MARKHAM TOWN (MARKHA CON 04 021	17 632656 4861095 W	1974/06 5459	6	FR 0203	71/195/6/4:0	DO	0203 3	6912303 ()	LOAM 0002 BRWN CLAY 0020 BLUE CLAY STNS 0147 GRVL 0148 BLUE CLAY 0203 SAND 0206
MARKHAM TOWN (MARKHA CON 04 021	17 633015 4861263 W	1966/03 5420	5	FR 0174	50/160/4/20:0	DO	0173 4	6903368 ()	PRDG 0030 BLUE CLAY STNS 0080 BLUE CLAY 0120 BLUE CLAY STNS 0174 CSND GRVL 0177
MARKHAM TOWN (MARKHA CON 04 021	17 632826 4861474 W	1992/06 3903	6	FR 0120	44/101/7/6:0	CO	0115 5	6921955 (104234)	BRWN GRVL CLAY LYRD 0020 GREY CLAY STNS HARD 0098 GREY SAND FSND LOOS 0120
MARKHAM TOWN (MARKHA CON 04 021	17 632969 4861486 W	1999/07 3108	6 5	FR 0108	44/108/30/1:30	DO	0108 9	6924955 (188976)	BRWN CLAY STNS 0018 BLUE CLAY GRVL STNS 0055 BLUE CLAY GRVL 0096 BLUE CLAY SAND 0102 BLUE SAND 0118
MARKHAM TOWN (MARKHA CON 04 021	17 632972 4861586 W	1996/05 3108	6 5	FR 0188	35/195/12/4:0	DO	0191 6	6923597 (156509)	BRWN CLAY GRVL 0025 BLUE CLAY GRVL 0079 BLUE CLAY HARD 0115 BLUE CLAY SOFT 0118 BLUE CLAY HARD 0163 GREN CLAY 0188 FSND 0197
MARKHAM TOWN (MARKHA CON 04 021	17 633003 4861400 W	1985/04 3108	6	FR 0100	55/115/10/3:0	DO	0115 3	6917614 ()	BRWN CLAY 0005 BRWN SAND GRVL 0018 BLUE CLAY GRVL STNS 0038 BLUE CLAY SNDY 0089 BLUE SAND 0118
MARKHAM TOWN (MARKHA CON 04 022	17 632828 4861772 W	1961/11 4813	5	FR 0072	10/60/6/3:0	DO		6903369 ()	BLCK LOAM 0003 BRWN CLAY 0027 GRVL 0072 STNS MSND 0096 GRVL 0103
MARKHAM TOWN (MARKHA CON 04 022	17 632775 4861691 W	2012/09 1413	6.25	FR 0146	48/130/30/1:	DO	0143 3	7189685 (Z154124) A132724	BRWN SAND CLAY TILL 0005 BRWN CLAY HARD 0022 GREY CLAY STNS HARD 0038 BRWN SAND MGRD 0042 GREY CLAY HARD DNSE 0137 BLCK SAND GRVL CLN 0146
MARKHAM TOWN (MARKHA CON 04 023	17 632761 4861696 W	1998/08 1413	6	FR 0042	6/37/14/1:0	DO ST	0039 3	6924547 (188839)	BRWN CLAY DNSE 0008 BRWN CLAY SAND GRVL 0037 BRWN SAND MGRD 0042

TOWNSHIP CON LOT	UTM	DATE CNTR	CASING DIA	WATER	PUMP TEST	WELL USE	SCREEN	WELL	FORMATION
MARKHAM TOWN (MARKHA CON 04 023	17 632632 4862887 W	1996/02 1413	6	FR 0156	12/140/50/1:0	DO	0149 7	6923540 (166535)	BLCK LOAM SOFT 0002 BRWN SAND SOFT 0010 BRWN CLAY STNS HARD 0037 GREY CLAY STNS HARD 0117 GREY CLAY DNSE 0146 GREY SAND STNS CLN 0156
MARKHAM TOWN (MARKHA CON 04 023	17 632388 4861997 W	2017/08 7215						7306222 (C38955) A212527 P	
MARKHAM TOWN (MARKHA CON 04 023	17 632437 4861911 W	2019/05 7464						7338170 (C42859) A250701 P	
MARKHAM TOWN (MARKHA CON 04 024	17 632705 4862582 W	1994/05 3108	6	FR 0215	43/150/45/1:0	DO	0221 7	6922583 (143793)	LOAM 0003 BRWN CLAY SAND 0019 BRWN CLAY GRVL 0022 BLUE CLAY 0179 BLUE CLAY SAND 0215 BLUE SAND 0230
MARKHAM TOWN (MARKHA CON 04 025	17 632399 4863018 W	1954/06 4529	6 4	FR 0149 FR 0327	60/200/8/9:0	ST DO		6903370 ()	PRDG 0149 GREY FSND CLAY 0187 GREY CLAY STNS 0230 GREY CLAY MSND 0325 SHLE 0327
MARKHAM TOWN (MARKHA CON 04 025	17 632491 4863095 W	1960/04 1622	5					6903371 () A	LOAM 0001 BRWN CLAY 0022 BLUE CLAY GRVL 0205
MARKHAM TOWN (MARKHA CON 04 025	17 632508 4863076 W	1960/05 1622	5	FR 0070	43/83/18/15:0	ST DO	0075 8	6903373 ()	LOAM 0001 BRWN CLAY 0022 BLUE CLAY GRVL 0070 CSND 0083
MARKHAM TOWN (MARKHA CON 04 025	17 632255 4862862 W	2019/02 7230	2.04	UT 0017	///:	MT	0015 10	7331793 (Z304549) A265038	BRWN FILL BSLT GRVL 0002 GREY SILT SAND GRVL 0007 BRWN TILL GRVL DNSE 0025
MARKHAM TOWN (MARKHA CON 04 025	17 632415 4863023 W	1978/10 5459	6	FR 0165	25/165/40/1:0	DO	0165 3	6914855 ()	BRWN CLAY STNS 0011 GREY STNS 0019 BLUE CLAY STNS 0159 GREY SAND STNS 0170
MARKHAM TOWN (MARKHA CON 04 025	17 632615 4863083 W	1978/07 5459	6	FR 0158	26/158/40/1:0	DO	0158 3	6915049 ()	BRWN CLAY STNS FILL 0003 BRWN CLAY STNS 0006 GREY STNS SAND 0012 BRWN CLAY STNS 0023 BLUE CLAY STNS 0156 GREY SAND CLN CGRD 0165
MARKHAM TOWN (MARKHA CON 05 019	17 633292 4860941 W	1962/05 3414	4	FR 0047	12/44/5/8:0	DO		6903545 ()	CLAY MSND STNS 0001 GREY CLAY BLDR 0047 GRVL 0048
MARKHAM TOWN (MARKHA CON 05 019	17 633482 4860995 W	1965/10 5420	5	FR 0094	22/90/12/4:0	DO	0092 4	6903552 ()	CLAY BLDR 0055 CLAY MSND STNS 0092 GRVL MSND 0096
MARKHAM TOWN (MARKHA CON 05 019	17 633205 4860797 W	1966/02 5420	5	FR 0102	30/55/14/15:0	DO	0098 4	6903553 ()	CLAY BLDR 0045 CLAY STNS 0102 MSND 0104
MARKHAM TOWN (MARKHA CON 05 019	17 633265 4860803 W	1968/06 5420	5	FR 0120	31/110/4/8:0	DO	0120 8	6908769 ()	PRDG 0023 BLUE CLAY STNS 0038 BLUE CLAY 0110 BLUE CLAY BLDR 0120 MSND SILT GRVL 0130
MARKHAM TOWN (MARKHA CON 05 019	17 633235 4860783 W	1968/05 5420	34	FR 0030	///:	DO		6908789 ()	LOAM 0001 BRWN CLAY 0011 BLUE CLAY BLDR 0034
MARKHAM TOWN (MARKHA CON 05 020	17 633290 4861044 W	1964/02 4610	5 5	FR 0176 FR 0205	22/190/4/5:0	DO	0201 7	6903563 ()	LOAM 0001 MSND CLAY 0008 HPAN BLDR 0071 BLUE CLAY GRVL 0175 MSND CLAY 0205 MSND GRVL 0208 SHLE 0235
MARKHAM TOWN (MARKHA CON 05 020	17 633492 4861138 W	1975/09 5459	6	UK 0119	35/100/25/3:0	DO	0120 3	6912961 ()	LOAM 0002 BRWN CLAY 0008 STNS 0010 BLUE CLAY 0085 BLUE GRVL SAND 0090 BLUE CLAY 0119 BLUE CSND 0123

TOWNSHIP CON LOT	UTM	DATE CNTR	CASING DIA	WATER	PUMP TEST	WELL USE	SCREEN	WELL	FORMATION
MARKHAM TOWN (MARKHA CON 05 020	17 632865 4860808 W	1991/05 3108	6	FR 0188	96/185/50/2:0	DO	0189 4	6921447 (74245)	LOAM 0001 BRWN CLAY GRVL 0014 BLUE CLAY SAND 0067 BLUE CLAY HARD 0107 BLUE CLAY GRVL 0114 SAND 0115 BLUE CLAY HARD 0158 SAND 0159 BLUE CLAY SOFT 0188 SAND 0193
MARKHAM TOWN (MARKHA CON 05 020	17 633235 4861043 W	1979/08 5459	6	FR 0202	/202/40/3:0	DO	0202 6	6915451 ()	BRWN CLAY 0011 GREY SAND STNS 0016 BRWN CLAY STNS 0027 BLUE CLAY STNS 0126 BLUE CLAY 0135 BLUE CLAY SAND 0190 GREY SAND STNS 0194 BLUE CLAY STNS 0199 GREY STNS SAND CLN 0213
MARKHAM TOWN (MARKHA CON 05 020	17 633322 4861230 W	1967/11 5420	5	FR 0155	20/80/9/3:0	DO	0155 4	6903572 ()	CLAY 0118 MSND 0159
MARKHAM TOWN (MARKHA CON 05 020	17 633322 4860982 W	1965/07 5420	5	FR 0066	13/22/4/6:0	DO		6903570 ()	LOAM 0002 CLAY BLDR 0045 BLUE CLAY 0066 CLAY 0076
MARKHAM TOWN (MARKHA CON 05 020	17 633277 4861242 W	1965/06 5420	5					6903569 () A	CLAY BLDR 0055 CLAY MSND 0175 MSND CLAY 0176 GRVL MSND CLAY 0210
MARKHAM TOWN (MARKHA CON 05 020	17 633362 4861203 W	1965/01 5420	5	FR 0176	40/175/4/20:0	DO	0175 4	6903568 ()	LOAM 0002 BRWN CLAY MSND STNS 0040 BLUE CLAY STNS 0065 BLUE CLAY MSND 0120 HPAN MSND 0167 BLUE CLAY 0176 MSND 0179
MARKHAM TOWN (MARKHA CON 05 020	17 633443 4861165 W	1964/10 4813	5	FR 0108	50/101/14/6:0	DO	0112 4	6903567 ()	CLAY STNS 0030 BLUE CLAY 0090 SILT 0108 MSND 0116
MARKHAM TOWN (MARKHA CON 05 020	17 633335 4861263 W	1969/07 3414	6 4	SA 0138	35/45/10/3:0	DO	0134 4	6909326 ()	CLAY 0002 BRWN CLAY 0012 FSND 0040 MSND 0080 BLDR GRVL CLAY 0135 MSND 0138
MARKHAM TOWN (MARKHA CON 05 020	17 633272 4861066 W	1963/05 5420	5	FR 0183	25/185/2/7:0	DO	0183 4	6903565 ()	CLAY STNS 0007 BLDR CLAY 0050 CLAY STNS 0137 FSND 0183 MSND 0187
MARKHAM TOWN (MARKHA CON 05 020	17 633196 4861112 W	1962/11 3414	4	FR 0070	32/66/4/20:0	DO		6903562 ()	CLAY STNS 0029 CLAY MSND 0038 BLUE CLAY 0054 CLAY GRVL 0070
MARKHAM TOWN (MARKHA CON 05 020	17 633130 4860944 W	2004/02 5459	5.90	FR 0141	150///:	DO		6927778 (Z05072) A004963	BRWN SAND STNS SOFT 0025 GREY GRVL FSND LOOS 0080 GREY FSND SILT LOOS 0130 GREY CLAY SOFT STNY 0141 GREY GRVL FSND LOOS 0144
MARKHAM TOWN (MARKHA CON 05 020	17 633265 4860995 W	2004/04 5459				NU		6927780 (Z05044) A004922 A	
MARKHAM TOWN (MARKHA CON 05 020	17 633290 4861003 W	2004/04 5459				NU		6927781 (Z05043) A004921 A	
MARKHAM TOWN (MARKHA CON 05 020	17 633229 4860973 W	1964/08 3519	5	FR 0002	40/50/4/8:0	DO		6903566 ()	LOAM 0002 HPAN 0110
MARKHAM TOWN (MARKHA CON 05 020	17 633295 4860863 W	1973/07 5459						6911559 ()	BRWN CLAY 0020 CLAY GRVL 0045 BLUE CLAY 0130 HPAN 0145 CLAY SILT GRVL 0155 CLAY SHLE 0160 BLUE SHLE 0200
MARKHAM TOWN (MARKHA CON 05 020	17 633135 4861123 W	1976/04 5459	6	FR 0125	40/125/12/:	DO	0127 6	6913631 ()	BRWN CLAY 0016 BLUE CLAY STNS 0114 BLUE CLAY FSND 0125 BLUE MSND 0134
MARKHAM TOWN (MARKHA CON 05 020	17 633264 4861241 W	1975/01 5459	6	FR 0160	20/140/10/3:30	DO	0165 3	6912760 ()	GREY CLAY STNS 0040 BLUE CLAY 0045 BLUE CLAY GRVL 0055 BLUE CLAY 0160 BLUE FSND 0168

TOWNSHIP CON LOT	UTM	DATE CNTR	CASING DIA	WATER	PUMP TEST	WELL USE	SCREEN	WELL	FORMATION
MARKHAM TOWN (MARKHA CON 05 020	17 633472 4861023 W	1974/06 5459	6	FR 0146	46/140/5/4:0	DO	0148 4	6912364 ()	PRDG 0032 BLUE CLAY STNS 0076 BLUE CLAY 0146 BLUE MSND 0152
MARKHAM TOWN (MARKHA CON 05 020	17 633217 4860916 W	1974/05 5459	6	FR 0127	32/125/5/2:0	DO	0128 4	6912318 ()	BRWN CLAY 0018 BLUE CLAY SAND STNS 0122 SAND 0127 SAND 0132
MARKHAM TOWN (MARKHA CON 05 020	17 633175 4860843 W	1982/06 2407	6	FR 0051	6/30/4/10:0	DO		6916470 ()	BLUE HPAN STNS SAND 0051
MARKHAM TOWN (MARKHA CON 05 020	17 633195 4861223 W	1973/09 5459	6	FR 0074	15/70/8/4:0	DO		6911860 ()	CLAY SAND 0020 CLAY STNS 0028 GRVL 0035 BLUE CLAY 0070 CLAY 0077
MARKHAM TOWN (MARKHA CON 05 020	17 633215 4861003 W	1968/03 4102	30	FR 0012	12//5/:	DO		6908773 ()	BRWN CLAY 0012 BRWN CLAY MSND 0015 BLUE CLAY 0040
MARKHAM TOWN (MARKHA CON 05 020	17 633175 4862023 W	1984/10 1413	6	FR 0137	36/60/16/3:30	DO	0131 6	6917251 ()	BRWN CLAY STNS HARD 0018 GREY CLAY STNS HARD 0090 GREY SILT SOFT 0092 BLUE CLAY DNSE 0110 GREY SILT SOFT 0120 GREY CSND CLN 0137
MARKHAM TOWN (MARKHA CON 05 020	17 633315 4861213 W	1970/11 3903	6	UK 0138	30/90/8/4:0	DO	0138 4	6910100 ()	BLCK CLAY MSND STNS 0006 YLLW CLAY STNS 0021 BLUE CLAY STNS 0065 STNS MSND 0067 BLUE CLAY SILT STNS 0115 GREY MSND GRVL 0142
MARKHAM TOWN (MARKHA CON 05 020	17 633255 4860863 W	1973/07 5459	6	FR 0127	32/80/15/3:0	DO	0130 3	6911557 ()	BRWN CLAY 0018 BLUE CLAY STNS 0127 CSND 0130
MARKHAM TOWN (MARKHA CON 05 020	17 633425 4861238 W	1990/12 5459	6			NU		6921413 (85034) A	LOAM 0002 BRWN CLAY STNY HARD 0012 GREY CLAY STNY HARD 0330
MARKHAM TOWN (MARKHA CON 05 020	17 633275 4861243 W	1972/05 5459	30	FR 0005	5///:	DO		6911441 ()	LOAM 0002 GRVL 0010 SAND STNS GRVL 0014
MARKHAM TOWN (MARKHA CON 05 020	17 633205 4861223 W	1973/05 5459	30	UK 0010	5///:	DO		6911440 ()	GRVL 0010 GRVL 0015 CSND 0017
MARKHAM TOWN (MARKHA CON 05 020	17 633140 4861013 W	1971/08 3903	6	UK 0128	40/60/8/8:0	DO	0132 3	6910415 ()	BRWN CLAY STNS 0021 BLUE CLAY STNS 0048 BLUE CLAY STNS 0128 GREY MSND GRVL 0135
MARKHAM TOWN (MARKHA CON 05 020	17 633264 4861034 W	1989/04 1591	6 6	FR 0180	42/115/5/2:0	DO		6920379 (58510)	GREY SAND 0015 GREY SILT 0130 GREY SAND 0145 GREY SILT 0180 GREY CGVL SLTY 0190 GREY SHLE 0300
MARKHAM TOWN (MARKHA CON 05 020	17 633455 4861223 W	1991/03 5459	6	FR 0158	///3:0	DO	0158 6	6921420 (85054)	BRWN CLAY SNDY 0014 GREY CLAY SAND STNS 0067 GREY CLAY SILT 0113 GREY SAND STNS 0119 GREY CLAY SILT 0147 GREY CLAY SAND STNS 0158 GREY SAND FSND 0164 GREY CLAY SAND STNS 0168 GREY CLAY SILT 0175
MARKHAM TOWN (MARKHA CON 05 020	17 633235 4860823 W	1973/07 5459	6	FR 0154	20/135/10/2:30	DO	0155 8	6911526 ()	BRWN CLAY 0022 BLUE CLAY 0154 FSND 0163
MARKHAM TOWN (MARKHA CON 05 020	17 633195 4861023 W	1983/05 5459	6	FR 0217	35/217/10/2:0	DO	0217 3	6917027 ()	BRWN CLAY 0005 BLUE CLAY STNS 0093 BLUE CLAY SILT 0111 GREY SAND STNS SILT 0137 BLUE CLAY SILT 0184 GREY SAND SILT 0205 WHIT CLAY STNS 0209 GREY SAND STNS CLN 0221
MARKHAM TOWN (MARKHA CON 05 021	17 633525 4861453 W	1971/02 1413						6910254 ()	BRWN SILT MSND STNS 0012 GREY SILT MSND CLAY 0080 GREY FSND SILT 0110 GREY MSND SILT 0132 GREY MSND SILT GRVL 0142 GREY MSND GRVL 0156 GREY CLAY SILT STNS 0195 GREY CLAY 0204 GREY CLAY SILT STNS 0212 GREY SHLE 0247

TOWNSHIP CON LOT	UTM	DATE CNTR	CASING DIA	WATER	PUMP TEST	WELL USE	SCREEN	WELL	FORMATION
MARKHAM TOWN (MARKHA CON 05 021	17 632824 4862520 W	2013/07 5459	2			NU		7206236 (Z168259) A	
MARKHAM TOWN (MARKHA CON 05 022	17 633294 4862156 W	1999/07 5459	6	FR 0334	-56/14/18/1:		0340 8	6924993 (195530)	BRWN CLAY STNS 0012 GREY CLAY STNS 0048 GREY CLAY SOFT 0070 GREY SAND CLAY 0090 GREY SAND GRVL 0095 GREY CLAY SAND 0116 GREY SAND GRVL 0121 BLUE CLAY SOFT 0139 GREY CLAY STNS 0221 GREY SAND 0228 GREY CLAY 0301 GREY SILT 0322 GREY CLAY 0340 GREY GRVL CMTD 0350 GREY ROCK 0350
MARKHAM TOWN (MARKHA CON 05 022	17 633345 4862164 W	1999/08 5459						6924962 (195532)	BRWN CLAY STNS 0014 GREY CLAY STNS 0058 BLUE CLAY SOFT 0076 GREY CSND 0080 GREY CLAY SAND 0093 GREY SAND CLAY 0113 GREY CLAY SOFT 0142 GREY SAND 0156 GREY CLAY STNS 0251 GREY CLAY SOFT 0303 GREY SILT 0318 GREY CSND 0324 GREY CLAY SAND 0340 GREY SAND CLAY 0349 GREY CSND 0355 BLCK SHLE 0361
MARKHAM TOWN (MARKHA CON 05 023	17 632931 4862070 W	2009/06 6809	2			MT	0025 5	7129457 (Z096744) A079818	BLCK LOAM 0001 BRWN CLAY SILT 0010 GREY SAND WBRG 0012 GREY SILT SAND BLDR 0030
MARKHAM TOWN (MARKHA CON 05 023	17 633315 4862177 W	2018/03 7221				NU		7309012 (Z272655) A	BRWN CLAY STNS SOFT 0011 GREY CLAY HARD 0073 GREY CLAY SILT SOFT 0096 GREY CLAY HARD 0220 GREY SAND FSND 0231 GREY CLAY HARD 0302 GREY CLAY SILT SOFT 0324 GREY CLAY TILL HARD 0358 GREY CLAY HARD 0418
MARKHAM TOWN (MARKHA CON 05 024	17 632984 4862809 W	1960/11 4623	10	FR 0030 FR 0156	3/95/27/50:0	DO	0172 6	6903577 ()	GRVL CLAY BLDR 0030 GRVL 0033 GRVL CLAY BLDR 0095 BLUE CLAY MSND 0156 MUCK MSND CLAY 0178 CSND 0184 CLAY STNS 0187
MARKHAM TOWN (MARKHA CON 05 024	17 632910 4862769 W	2012/09 5459	48					7190781 (Z159430) A	
MARKHAM TOWN (MARKHA CON 05 024	17 632781 4862677 W	1987/07 5459	8	FR 0154	/154/300/4:0	ST	0154 25	6919168 (09826)	BRWN CLAY SNDY 0007 GREY CLAY SNDS 0028 GREY CLAY SILT 0132 GREY CLAY SNDS 0146 GREY SAND CLN 0180
MARKHAM TOWN (MARKHA CON 05 025	17 632525 4863163 W	1988/10 3108	6	FR 0164	35//12/48:0	DO	0164 3	6919926 (26217)	LOAM 0003 BRWN CLAY 0007 SAND GRVL 0042 GRVL CLAY 0089 BLUE CLAY 0104 CLAY HPAN 0157 CLAY 0164 SAND 0167
MARKHAM VILLAGE 04 021	17 632866 4861176 W	2008/01 5459			///:			7102253 (Z75604) A063171 A	

TOWNSHIP CON LOT	UTM	DATE CNTR	CASING DIA	WATER	PUMP TEST	WELL USE	SCREEN	WELL	FORMATION

Notes:
UTM: UTM in Zone, Easting, Northing and Datum is NAD83; L: UTM estimated from Centroid of Lot; W: UTM not from Lot Centroid
DATE CNTR: Date Work Completedand Well Contractor Licence Number
CASING DIA: .Casing diameter in inches
WATER: Unit of Depth in Fee. See Table 4 for Meaning of Code

PUMP TEST: Static Water Level in Feet / Water Level After Pumping in Feet / Pump Test Rate in GPM / Pump Test Duration in Hour : Minutes
WELL USE: See Table 3 for Meaning of Code
SCREEN: Screen Depth and Length in feet
WELL: WEL (AUDIT #) Well Tag . A: Abandonment; P: Partial Data Entry Only
FORMATION: See Table 1 and 2 for Meaning of Code

1. Core Material and Descriptive terms

Code	Description	Code	Description	Code	Description	Code	Description	Code	Description
BLDR	BOULDERS	FCRD	FRACTURED	IRFM	IRON FORMATION	PORS	POROUS	SOFT	SOFT
BSLT	BASALT	FGRD	FINE-GRAINED	LIMY	LIMY	PRDG	PREVIOUSLY DUG	SPST	SOAPSTONE
CGRD	COARSE-GRAINED	FGVL	FINE GRAVEL	LMSN	LIMESTONE	PRDR	PREV. DRILLED	STKY	STICKY
CGVL	COARSE GRAVEL	FILL	FILL	LOAM	TOPSOIL	QRTZ	QUARTZITE	STNS	STONES
CHRT	CHERT	FLDS	FELDSPAR	LOOS	LOOSE	QSND	QUICKSAND	STNY	STONEY
CLAY	CLAY	FLNT	FLINT	LTCL	LIGHT-COLOURED	QTZ	QUARTZ	THIK	THICK
CLN	CLEAN	FOSS	FOSILIFEROUS	LYRD	LAYERED	ROCK	ROCK	THIN	THIN
CLYY	CLAYEY	FSND	FINE SAND	MARL	MARL	SAND	SAND	TILL	TILL
CMTD	CEMENTED	GNIS	GNEISS	MGRD	MEDIUM-GRAINED	SHLE	SHALE	UNKN	UNKNOWN TYPE
CONG	CONGLOMERATE	GRNT	GRANITE	MGVL	MEDIUM GRAVEL	SHLY	SHALY	VERY	VERY
CRYS	CRYSTALLINE	GRSN	GREENSTONE	MRBL	MARBLE	SHRP	SHARP	WBRG	WATER-BEARING
CSND	COARSE SAND	GRVL	GRAVEL	MSND	MEDIUM SAND	SHST	SCHIST	WDFR	WOOD FRAGMENTS
DKCL	DARK-COLOURED	GRWK	GREYWACKE	MUCK	MUCK	SILT	SILT	WTHD	WEATHERED
DLMT	DOLOMITE	GVLY	GRAVELLY	OBDN	OVERBURDEN	SLTE	SLATE		
DNSE	DENSE	GYPS	GYPSUM	PCKD	PACKED	SLTY	SILTY		
DRTY	DIRTY	HARD	HARD	PEAT	PEAT	SNDS	SANDSTONE		
DRY	DRY	HPAN	HARDPAN	PGVL	PEA GRAVEL	SNDY	SANDYOAPSTONE		

2. Core Color

Code	Description
WHIT	WHITE
GREY	GREY
BLUE	BLUE
GREN	GREEN
YLLW	YELLOW
BRWN	BROWN
RED	RED
BLCK	BLACK
BLGY	BLUE-GREY

3. Well Use

Code	Description	Code	Description
DO	Domestic	OT	Other
ST	Livestock	TH	Test Hole
IR	Irrigation	DE	Dewatering
IN	Industrial	MO	Monitoring
CO	Commercial	MT	Monitoring TestHole
MN	Municipal		
PS	Public		
AC	Cooling And A/C		
NU	Not Used		

4. Water Detail

Code	Description	Code	Description
FR	Fresh	GS	Gas
SA	Salty	IR	Iron
SU	Sulphur		
MN	Mineral		
UK	Unknown		

Water Well Records

Monday, November 08, 2021
1:44:42 PM

TOWNSHIP CON LOT	UTM	DATE CNTR	CASING DIA	WATER	PUMP TEST	WELL USE	SCREEN	WELL	FORMATION
MARKHAM TOWN (MARKHA	17 635278 4862040 W	2015/05 7383	2			TH	0010 10	7261032 (Z208400) A179051	
MARKHAM TOWN (MARKHA	17 635064 4861902 W	2006/05 6032	1.97			NU	0010 10	6930839 (Z05116) A005200	BRWN LOAM CLAY 0008 GREY TILL GRVL SAND 0020
MARKHAM TOWN (MARKHA	17 634793 4862858 W	2015/03 6809						7260145 (C29948) A177533 P	
MARKHAM TOWN (MARKHA	17 634944 4862916 W	2014/09 7215						7250028 (C26805) A169148 P	
MARKHAM TOWN (MARKHA	17 635099 4862019 W	2013/11 7230						7218632 (C24338) A153753 P	
MARKHAM TOWN (MARKHA	17 635151 4863208 W	2013/09 6946						7209255 (C22383) A130259 P	
MARKHAM TOWN (MARKHA	17 635020 4861722 W	2008/01 5459			///:			7103270 (Z75616) A063138 A	
MARKHAM TOWN (MARKHA	17 634311 4864104 W	2012/12 5459	2					7193828 (Z159485) _NO_TAG A	
MARKHAM TOWN (MARKHA	17 634799 4861625 W	2008/02 5459			///:			7103271 (Z75617) A063139 A	
MARKHAM TOWN (MARKHA	17 634900 4862595 W	2008/06 6809	2			MO		7111114 (Z80083) A066770	BRWN LOAM 0002 BRWN SAND SILT 0017 GREY SAND WBRG 0025
MARKHAM TOWN (MARKHA 05 023	17 634733 4863076 W	2005/06 1663	6.21	FR 0102	85/122/17/1:0	DO	0171 5	6929295 (Z24753) A013038	BRWN CLAY 0016 BRWN CLAY GRVL STNS 0098 GREY SAND GRVL 0101 GREY CLAY GRVL 0115 GREY FSND 0130 GREY SAND GRVL 0138 GREY CLAY STNS 0168 GREY FSND 0177 GREY CLAY SILT 0200
MARKHAM TOWN (MARKHA 06 025	17 634705 4863735 W	2005/05 1413	6.25	FR 0043	10/33/16/1:	DO	0042 3	6929074 (Z27529) A022617	BRWN CLAY SOFT 0010 BRWN SAND CLAY LYRD 0035 BRWN SAND 0045
MARKHAM TOWN (MARKHA CON 05 019	17 635015 4861470 W	1996/09 3108						6923713 (166663) A	

TOWNSHIP CON LOT	UTM	DATE CNTR	CASING DIA	WATER	PUMP TEST	WELL USE	SCREEN	WELL	FORMATION
MARKHAM TOWN (MARKHA CON 05 019	17 634979 4861462 W	1996/09 3108						6923715 (166661) A	
MARKHAM TOWN (MARKHA CON 05 020	17 634965 4861823 W	1999/02 5459	6 6	FR 0146	12/160/2/5:30	DO		6924816 (195444)	BRWN CLAY 0020 GREY CLAY STNS 0048 GREY CLAY 0098 GREY CLAY SILT 0099 GREN CLAY 0116 GREY CLAY 0140 GREY SHLE 0175
MARKHAM TOWN (MARKHA CON 05 020	17 635069 4861879 W	1999/11 5019						6925330 (212825) A	
MARKHAM TOWN (MARKHA CON 05 020	17 635069 4861879 W	1999/11 5019						6925331 (212824) A	
MARKHAM TOWN (MARKHA CON 05 020	17 634935 4861823 W	1979/11 1350	6	FR 0065	5/35/10/2:0	DO		6915314 ()	GREY CLAY 0018 GREY SILT CLAY STNS 0065 GREY GRVL HPAN 0080
MARKHAM TOWN (MARKHA CON 05 020	17 634995 4861743 W	1977/07 3109	30 30	FR 0016	12///:	DO		6914160 ()	LOAM 0002 BRWN CLAY STNY 0016 SAND GRVL 0036
MARKHAM TOWN (MARKHA CON 05 021	17 634870 4862249 W	1996/06 3108	6 5	FR 0110	31/72/90/1:30	IR	0116 15	6923625 (156508)	BRWN CLAY SAND GRVL 0032 BLUE CLAY GRVL 0110 BLUE SAND 0132
MARKHAM TOWN (MARKHA CON 05 021	17 634820 4861858 W	1993/03 3108	8 6	FR 0075	/75/80/12:30	IR	0077 15	6922233 (095350)	CLAY STNS FILL 0005 BLUE CLAY 0010 SAND 0020 SAND CLAY 0023 BLUE CLAY GRVL 0040 BLUE CLAY 0049 SAND GRVL 0092 SAND GRVL CLAY 0097 BLUE CLAY 0105
MARKHAM TOWN (MARKHA CON 05 021	17 634901 4862010 W	1995/12 5459	24			NU		6923480 (166860) A	
MARKHAM TOWN (MARKHA CON 05 021	17 634697 4861832 W	2016/06 7221	8			IR		7266025 (Z230666) A173475	
MARKHAM TOWN (MARKHA CON 05 021	17 634929 4861986 W	1994/08 3108	6	FR 0079	6/78/5/6:0	DO	0079 4	6922816 (143817)	LOAM 0003 BRWN CLAY GRVL 0034 BLUE CLAY 0079 SAND 0083 BLUE CLAY SAND 0085 BLUE CLAY 0195 BLUE SAND 0200 BLUE CLAY SAND 0226 BLUE CLAY HARD 0233 BLUE SHLE 0235
MARKHAM TOWN (MARKHA CON 05 021	17 634992 4861883 W	2010/02 1663	2			MO	0037 5	7141955 (Z110272) A095582	BRWN SAND GRVL FILL 0008 GREY CLAY 0010 YLLW CLAY SILT 0012 BRWN CLAY GRVL 0015 GREY SAND GRVL STNS 0018 GREY CLAY SAND LYRD 0023 GREY CLAY SILT SNDY 0042
MARKHAM TOWN (MARKHA CON 05 022	17 634680 4862296 W	1965/12 4813	7	FR 0138	50/70/20/4:0	ST DO	0142 8	6903576 ()	BRWN CLAY 0010 GREY CLAY 0036 BLDR CLAY 0100 BLUE CLAY 0138 GRVL 0150
MARKHAM TOWN (MARKHA CON 05 022	17 634750 4862522 W	1962/11 5420	34	FR 0009	10///:	ST DO		6903575 ()	LOAM 0001 YLLW CLAY 0008 GRVL 0025
MARKHAM TOWN (MARKHA CON 05 024	17 634752 4863093 W	1960/11 1413	5	FR 0100	60/70/8/3:0	ST DO		6903578 ()	BRWN CLAY 0015 BLUE CLAY STNS 0100 GRVL 0101
MARKHAM TOWN (MARKHA CON 05 024	17 634675 4863183 W	1968/09 5420						6908817 () A	LOAM 0001 BRWN CLAY 0015 BLUE CLAY 0055
MARKHAM TOWN (MARKHA CON 05 024	17 634750 4863135 W	5459						7340440 (Z304006) A	

TOWNSHIP CON LOT	UTM	DATE CNTR	CASING DIA	WATER	PUMP TEST	WELL USE	SCREEN	WELL	FORMATION
MARKHAM TOWN (MARKHA CON 05 026	17 634415 4863843 W	1983/08 4738						6916794 () A	BRWN CLAY SAND SOFT 0030 BRWN SAND LOOS 0032 GREY CLAY STNS MGRD 0126 GREY GRVL SAND LOOS 0128 GREY CLAY STNS MGRD 0277
MARKHAM TOWN (MARKHA CON 05 026	17 634335 4863823 W	1977/12 3109	30 24	FR 0033	10///12:0	DO		6914375 ()	LOAM 0002 BRWN CLAY SLTY 0010 FSND 0015 BLUE CLAY STNY 0032 GRVL 0035
MARKHAM TOWN (MARKHA CON 05 026	17 634355 4863803 W	1980/10 5459	6	FR 0119	10/119/40/2:0	DO	0119 3	6915745 ()	BRWN CLAY STNS 0006 BRWN CLAY SNDY 0022 BRWN CLAY STNS 0027 GREY SAND STNS 0030 BLUE CLAY STNS 0038 GREY SAND STNS 0049 BLUE CLAY SNDY 0098 BLUE CLAY SILT 0117 GREY SAND STNS 0124
MARKHAM TOWN (MARKHA CON 05 026	17 634415 4863843 W	1983/08 4738	6		0/20/10/2:0	DO	0101 3	6916795 ()	BRWN CLAY STNS SOFT 0011 BRWN SAND LOOS 0013 GREY CLAY SAND SOFT 0036 GREY GRVL CLAY LOOS 0038 GREY CLAY STNS HARD 0101 GREY SAND GRVL LOOS 0104
MARKHAM TOWN (MARKHA CON 05 026	17 634422 4863823 W	1988/05 5459	6	FR 0119	15/119/7/6:0	DO	0119 6	6919603 (NA)	BRWN CLAY 0013 GRVL 0020 SAND 0032 GREY CLAY 0098 GREY CLAY SAND 0113 GREY CLAY 0119 GREY CSND 0125
MARKHAM TOWN (MARKHA CON 05 026	17 634197 4863774 W	1992/08 5459	6	FR 0090	/20/20/2:30	DO	0090 3	6922053 (116141)	BRWN STNS SAND CLAY 0010 GREY CLAY STNS HARD 0062 GREY CLAY 0070 GREY CLAY SOFT 0090 GREY SAND MSND 0093
MARKHAM TOWN (MARKHA CON 05 026	17 634467 4863868 W	1993/10 5459						6922426 (58256) A	
MARKHAM TOWN (MARKHA CON 05 027	17 634455 4864343 W	1981/05 5459	6	FR 0125	60/120/15/4:0	DO	0123 3	6915993 ()	LOAM 0002 BRWN CLAY 0006 BLUE CLAY 0012 CLAY STNS 0028 PGVL 0033 CLAY SAND 0090 BLUE CLAY SOFT 0095 CLAY STNS 0117 GRVL 0125
MARKHAM TOWN (MARKHA CON 06 018	17 635267 4861523 W	1997/11 1663						6924236 (186427) A	
MARKHAM TOWN (MARKHA CON 06 018	17 635267 4861523 W	1997/11 1663						6924243 (186426) A	
MARKHAM TOWN (MARKHA CON 06 018	17 635268 4861523 W	1997/11 1663						6924244 (186424) A	
MARKHAM TOWN (MARKHA CON 06 018	17 635268 4861523 W	1997/11 1663						6924245 (186425) A	
MARKHAM TOWN (MARKHA CON 06 020	17 635080 4861866 W	2013/07 5459				NU		7206235 (Z168251) A	
MARKHAM TOWN (MARKHA CON 06 020	17 635385 4861780 W	1962/09 5420	34	FR 0020	18///:	ST DO		6903815 ()	LOAM 0001 YLLW CLAY STNS 0012 CLAY MSND 0020 GRVL 0029
MARKHAM TOWN (MARKHA CON 06 020	17 635079 4861866 W	2009/11 5459	0.79					7136856 (Z75633) A061041 A	
MARKHAM TOWN (MARKHA CON 06 021	17 635069 4862056 W	1975/10 5459	6	UK 0014	14/30/10/3:0	DO	0026 4	6912949 ()	BRWN CLAY 0014 BRWN GRVL SAND 0030
MARKHAM TOWN (MARKHA CON 06 021	17 635262 4861993 W	1999/12 1663				NU		6925247 (206298) A	

TOWNSHIP CON LOT	UTM	DATE CNTR	CASING DIA	WATER	PUMP TEST	WELL USE	SCREEN	WELL	FORMATION
MARKHAM TOWN (MARKHA CON 06 021	17 635231 4862020 W	1961/11 5420	34	FR 0012	3//5/:	DO		6903817 ()	LOAM 0001 YLLW CLAY 0007 CLAY GRVL 0012 GRVL 0016
MARKHAM TOWN (MARKHA CON 06 021	17 635308 4862039 W	1961/11 5420	34	FR 0020	10//2/:	DO		6903818 ()	LOAM 0001 YLLW CLAY 0012 BLUE CLAY 0020 CLAY MSND 0021
MARKHAM TOWN (MARKHA CON 06 021	17 635116 4862128 W	1962/06 5420	34	FR 0010	10///:	ST DO		6903819 ()	LOAM 0001 YLLW CLAY MSND 0005 GRVL 0012 CSND 0026
MARKHAM TOWN (MARKHA CON 06 021	17 635102 4861955 W	1963/06 5420	34	FR 0022	16///:	DO		6903820 ()	LOAM 0001 BRWN CLAY 0012 BLUE CLAY STNS 0033
MARKHAM TOWN (MARKHA CON 06 021	17 635215 4861963 W	1973/08 5459	30	FR 0018	14///:	DO		6911865 ()	BLCK LOAM 0002 BRWN CLAY STNS 0018 BRWN GRVL 0022 BLUE CLAY 0026
MARKHAM TOWN (MARKHA CON 06 021	17 635360 4862164 W	1975/10 5459						6912958 () A	PRDG 0028 BLUE CLAY STNS 0050 BLUE CLAY 0140 BLUE CLAY 0189 BLUE CLAY SHLE STNS 0200
MARKHAM TOWN (MARKHA CON 06 021	17 634746 4862214 W	1994/06 3108	8	FR 0100	6/80/60/7:0	PS	0105 15	6922691 (143797)	BRWN CLAY 0007 BRWN CLAY GRVL 0015 BRWN CLAY SAND 0020 BLUE CLAY SAND 0044 BLUE CLAY HARD 0064 GRVL 0070 BLUE CLAY GRVL 0075 SILT 0100 SAND 0120 HPAN 0127
MARKHAM TOWN (MARKHA CON 06 022	17 635044 4862503 W	2000/01 5459	6	FR 0139	55/75/20/1:30	DO	0145 3	6925228 (211643)	BLCK LOAM 0002 BRWN CLAY STNS SAND 0017 GREY CLAY STNS HARD 0112 GREY CLAY SLTY 0139 GREY SAND CGVL 0148
MARKHAM TOWN (MARKHA CON 06 023	17 634993 4862959 W	1964/02 3108	7	FR 0140	55/115/7/2:30	ST DO	0143 4	6903828 ()	LOAM 0001 CLAY STNS 0035 CLAY STNS CLAY 0090 BLUE CLAY 0130 BLUE CLAY MSND 0135 FSND 0140 MSND FSND 0147
MARKHAM TOWN (MARKHA CON 06 023	17 634822 4862966 W	1963/01 3108	7	FR 0180	45/110/10/12:0	ST DO	0181 4	6903827 ()	GRVL CLAY 0004 BRWN CLAY STNS 0036 BRWN MSND 0040 BRWN CLAY 0047 BRWN MSND 0053 BLUE CLAY 0080 GREY CLAY STNS 0116 BLUE CLAY 0145 BLUE CLAY STNS 0180 BLUE MSND 0185
MARKHAM TOWN (MARKHA CON 06 024	17 634765 4863358 W	1962/10 5420	4	FR 0189	34/50/8/6:0	ST DO		6903829 ()	PRDG 0024 CLAY MSND 0053 CLAY STNS 0112 STNS CLAY STNS 0179 MSND GRVL 0183 CLAY MSND 0188 GRVL 0189
MARKHAM TOWN (MARKHA CON 06 024	17 634769 4863182 W	2012/12 5459	2					7193824 (Z159486) A	
MARKHAM TOWN (MARKHA CON 06 025	17 634717 4863781 W	1961/12 3108	4	FR 0075	30/60/4/2:0	ST DO	0078 4	6903831 ()	PRDG 0027 BLUE CLAY 0040 CLAY MSND 0075 MSND 0090
MARKHAM TOWN (MARKHA CON 06 025	17 634678 4863860 W	1959/10 1413	6	FR 0043	23/26/3/:	DO		6903830 ()	BLUE CLAY 0015 MSND GRVL 0023 MSND 0043
MARKHAM TOWN (MARKHA CON 06 025	17 634641 4863734 W	1988/02 3108	6	FR 0175	27/100/15/2:0	DO	0175 3	6919388 (13897)	LOAM 0002 BRWN CLAY SAND GRVL 0014 BRWN SAND 0038 BLUE CLAY SAND GRVL 0071 BLUE CLAY 0089 BLUE CLAY SNDY 0129 BLUE CLAY GRVL 0175 BLUE SAND 0178
MARKHAM TOWN (MARKHA CON 06 025	17 634674 4863696 W	2012/04 1413	6.25	FR 0128	22/110/50/1:	DO	0125 3	7181506 (Z147583) A124868	BRWN CLAY HARD 0017 BRWN SAND SILT PCKD 0034 GREY CLAY STNS SOFT 0062 GREY CLAY STNS HARD 0110 GREY CLAY DNSE 0119 GREY SAND GRVL CGRD 0128
MARKHAM TOWN (MARKHA CON 06 025	17 634612 4863825 W	2009/10 5459	2			MO	0020 10	7134480 (Z101430) A064966 A	PRDR 0030

TOWNSHIP CON LOT	UTM	DATE CNTR	CASING DIA	WATER	PUMP TEST	WELL USE	SCREEN	WELL	FORMATION
MARKHAM TOWN (MARKHA CON 06 026	17 634562 4864306 W	1959/11 1413	5	FR 0038	15/20/10/1:0	DO		6903834 ()	PRDG 0018 CLAY SILT 0030 CSND GRVL 0038
MARKHAM TOWN (MARKHA CON 06 026	17 634628 4863952 W	1963/07 5420	34	FR 0025	25//5/:	DO		6903836 ()	LOAM 0001 YLLW CLAY 0010 FSND 0025 GRVL 0037
MARKHAM TOWN (MARKHA CON 06 026	17 634586 4864204 W	1997/11 1350	6	MN 0033	8/25/10/1:0	DO	0030 3	6924113 (181069)	BRWN CLAY BLDR HARD 0013 GREY CLAY SAND SOFT 0015 GREY CLAY 0030 GREY SAND GRVL 0036
MARKHAM TOWN (MARKHA CON 06 027	17 634608 4864080 W	2016/12 5459	6	FR 0112	-3/-15/10/1:	DO	0109 3	7279714 (Z210594) A102760	BRWN SAND SOFT 0010 GREY CLAY SOFT 0025 GREY GRVL SAND LOOS 0030 GREY CLAY SOFT 0105 BRWN SAND LOOS 0112
MARKHAM VILLAGE	17 634636 4863899 W	2006/10 5459	2.35	FR 0410	90/438/2/1:0	DO	0554 20	7040063 (Z56410) A050977	BLCK LOAM DNSE 0016 BRWN CLAY STNS SILT 0056 BRWN SAND GRVL LOOS 0128 GREY CLAY STNS SILT 0420 GREY CLAY STNS SOFT 0443 BRWN CLAY STNS SILT 0525 BRWN GRVL LOOS FSND 0581
WHITCHURCH-STOUFFVIL CON 06 001	17 634080 4863907 W	1987/11 3136	6	FR 0057	33/57/15/2:0	DO	0059 6	6919239 (NA)	BRWN CLAY STNS 0018 GREY CLAY GRVL STNS 0057 GREY GRVL 0065

TOWNSHIP CON LOT	UTM	DATE CNTR	CASING DIA	WATER	PUMP TEST	WELL USE	SCREEN	WELL	FORMATION

Notes:
UTM: UTM in Zone, Easting, Northing and Datum is NAD83; L: UTM estimated from Centroid of Lot; W: UTM not from Lot Centroid
DATE CNTR: Date Work Completedand Well Contractor Licence Number
CASING DIA: .Casing diameter in inches
WATER: Unit of Depth in Fee. See Table 4 for Meaning of Code

PUMP TEST: Static Water Level in Feet / Water Level After Pumping in Feet / Pump Test Rate in GPM / Pump Test Duration in Hour : Minutes
WELL USE: See Table 3 for Meaning of Code
SCREEN: Screen Depth and Length in feet
WELL: WEL (AUDIT #) Well Tag . A: Abandonment; P: Partial Data Entry Only
FORMATION: See Table 1 and 2 for Meaning of Code

1. Core Material and Descriptive terms

Code	Description	Code	Description	Code	Description	Code	Description	Code	Description
BLDR	BOULDERS	FCRD	FRACTURED	IRFM	IRON FORMATION	PORS	POROUS	SOFT	SOFT
BSLT	BASALT	FGRD	FINE-GRAINED	LIMY	LIMY	PRDG	PREVIOUSLY DUG	SPST	SOAPSTONE
CGRD	COARSE-GRAINED	FGVL	FINE GRAVEL	LMSN	LIMESTONE	PRDR	PREV. DRILLED	STKY	STICKY
CGVL	COARSE GRAVEL	FILL	FILL	LOAM	TOPSOIL	QRTZ	QUARTZITE	STNS	STONES
CHRT	CHERT	FLDS	FELDSPAR	LOOS	LOOSE	QSND	QUICKSAND	STNY	STONEY
CLAY	CLAY	FLNT	FLINT	LTCL	LIGHT-COLOURED	QTZ	QUARTZ	THIK	THICK
CLN	CLEAN	FOSS	FOSILIFEROUS	LYRD	LAYERED	ROCK	ROCK	THIN	THIN
CLYY	CLAYEY	FSND	FINE SAND	MARL	MARL	SAND	SAND	TILL	TILL
CMTD	CEMENTED	GNIS	GNEISS	MGRD	MEDIUM-GRAINED	SHLE	SHALE	UNKN	UNKNOWN TYPE
CONG	CONGLOMERATE	GRNT	GRANITE	MGVL	MEDIUM GRAVEL	SHLY	SHALY	VERY	VERY
CRYS	CRYSTALLINE	GRSN	GREENSTONE	MRBL	MARBLE	SHRP	SHARP	WBRG	WATER-BEARING
CSND	COARSE SAND	GRVL	GRAVEL	MSND	MEDIUM SAND	SHST	SCHIST	WDFR	WOOD FRAGMENTS
DKCL	DARK-COLOURED	GRWK	GREYWACKE	MUCK	MUCK	SILT	SILT	WTHD	WEATHERED
DLMT	DOLOMITE	GVLY	GRAVELLY	OBDN	OVERBURDEN	SLTE	SLATE		
DNSE	DENSE	GYPS	GYPSUM	PCKD	PACKED	SLTY	SILTY		
DRTY	DIRTY	HARD	HARD	PEAT	PEAT	SNDS	SANDSTONE		
DRY	DRY	HPAN	HARDPAN	PGVL	PEA GRAVEL	SNDY	SANDYOAPSTONE		

2. Core Color

Code	Description
WHIT	WHITE
GREY	GREY
BLUE	BLUE
GREN	GREEN
YLLW	YELLOW
BRWN	BROWN
RED	RED
BLCK	BLACK
BLGY	BLUE-GREY

3. Well Use

Code	Description	Code	Description
DO	Domestic	OT	Other
ST	Livestock	TH	Test Hole
IR	Irrigation	DE	Dewatering
IN	Industrial	MO	Monitoring
CO	Commercial	MT	Monitoring TestHole
MN	Municipal		
PS	Public		
AC	Cooling And A/C		
NU	Not Used		

4. Water Detail

Code	Description	Code	Description
FR	Fresh	GS	Gas
SA	Salty	IR	Iron
SU	Sulphur		
MN	Mineral		
UK	Unknown		

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

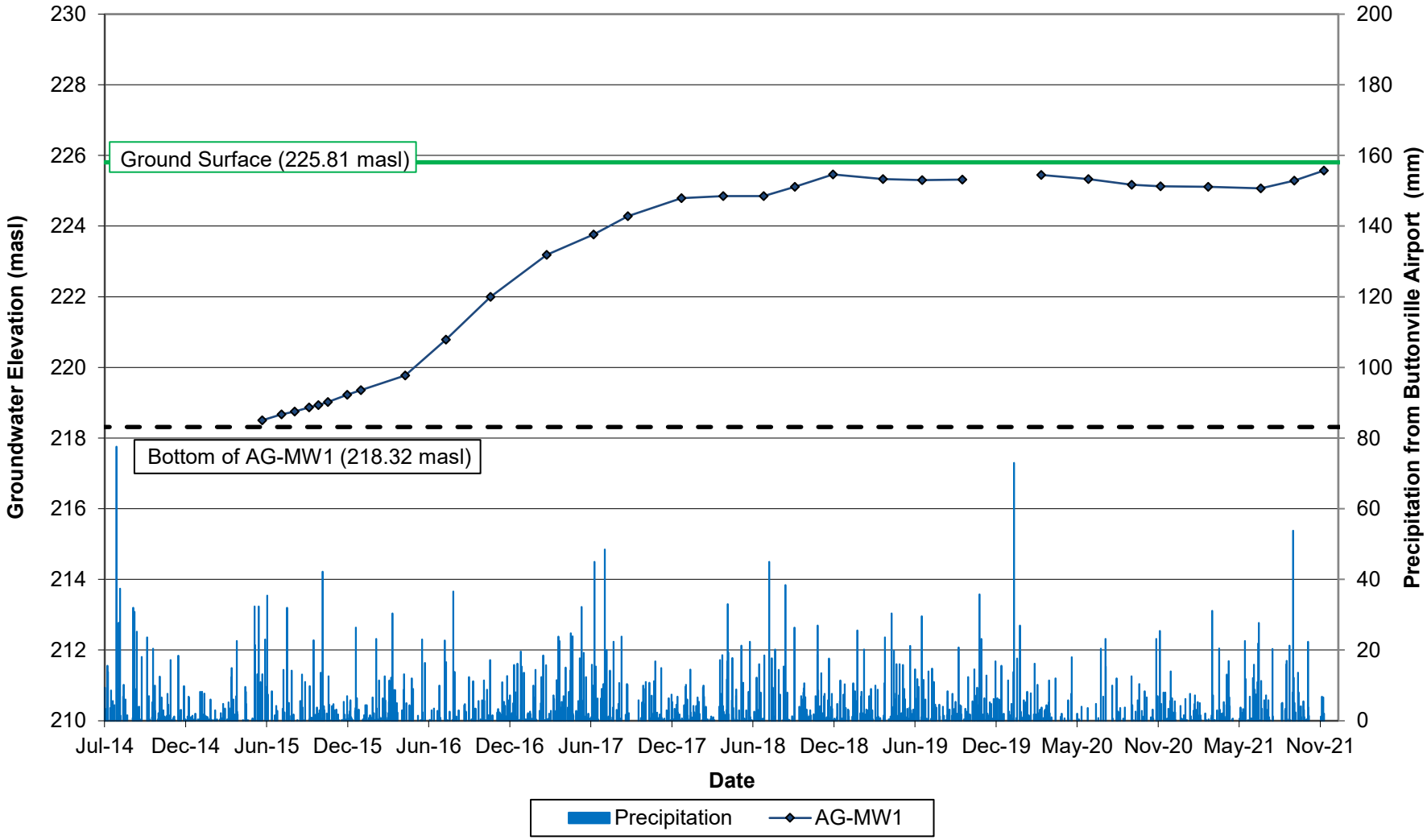
Appendix C

Hydrographs

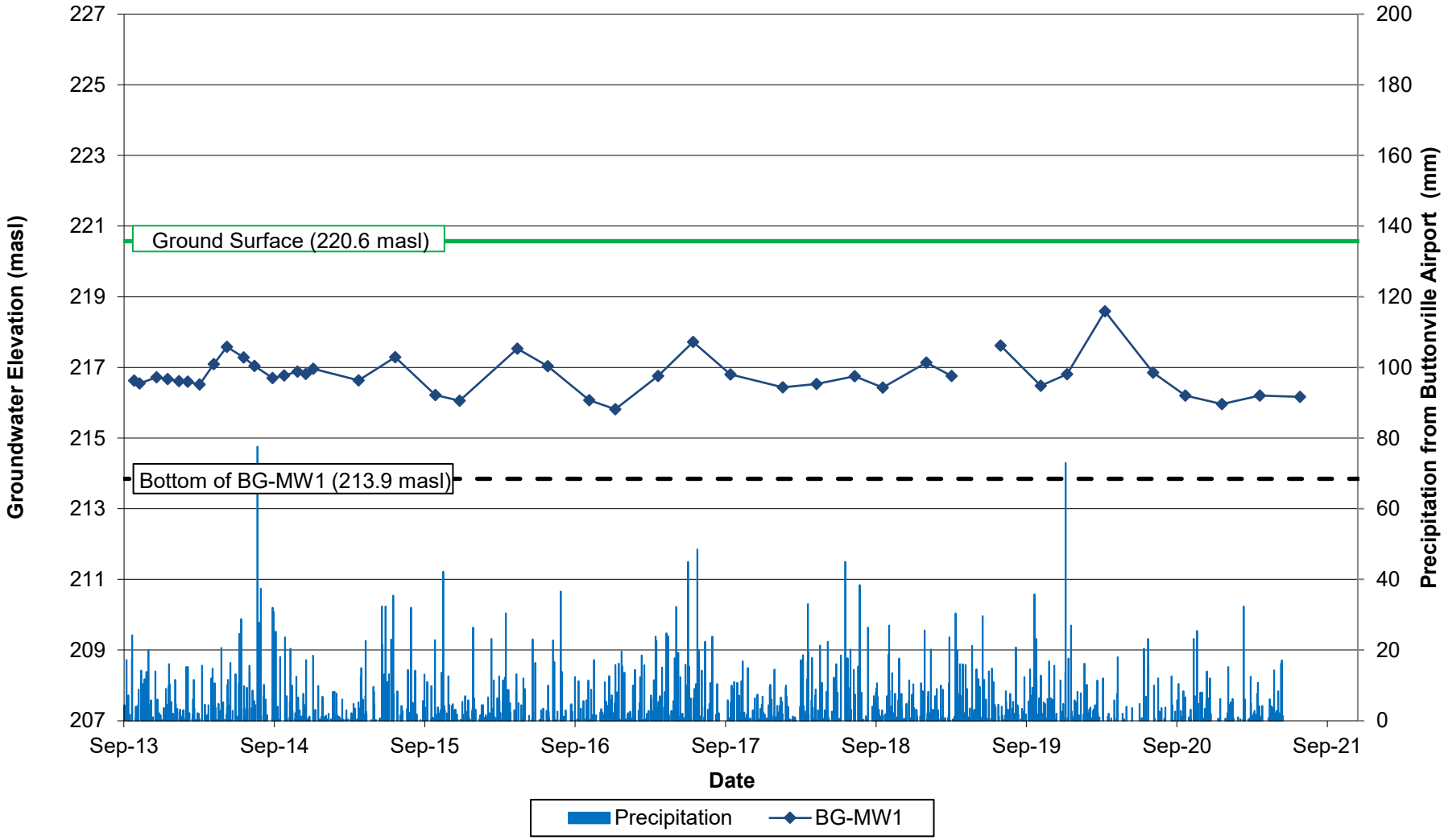
Table C-1: Groundwater Levels

			May 18 and May 20, 2021	
Monitoring Well	**Ground Elevation (masl)**	**Well Depth (mbgs)**	**Water Level (mbgs)**	**Water Elevation (masl)**
Warden Avenue				
S1	215.1	8.87	2.01	213.09
S3	218.9	8.95	3.3	215.6
S4	213.8	7.39	1.23	212.57
C4	221.3	8.85	2.49	218.81
S5	215.7	7.35	0.43	215.27
S8	225.4	8.92	0.6	224.8
S9	227.2	7.32	0.81	226.39
S11	230	6.71	3.03	226.97
BH21-1	216.45	17	0.6	215.85
BH21-2	220.8	6.7	4.7	216.1
BH21-3	220.82	7.3	4.5	216.3
Kennedy Road				
KS1	204	8.92	1.73	202.27
KS2	209.3	8.88	1.53	207.77
KS3	214.7	7.49	7	207.7
KS4	218.7	16.2	6.23	212.47
KS7	223	7.06	2.13	220.87
KS8	223.5	16.17	3.12	220.38
KS9	222.9	14.25	7.5	215.4
KS10	223.2	8.34	7.56	215.64
KS11	218.7	7.33	2.39	216.31

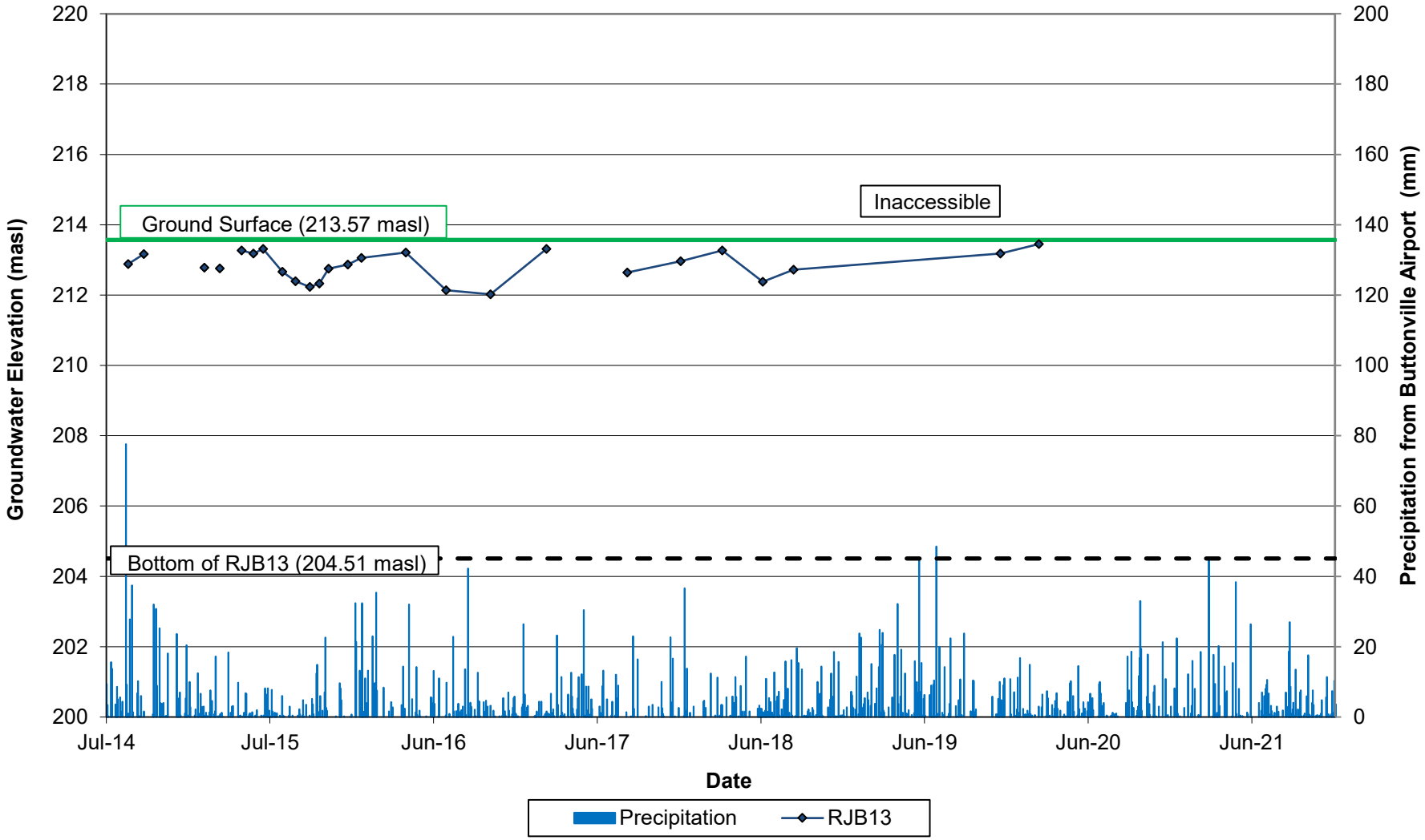
Groundwater Elevations
AG-MW1

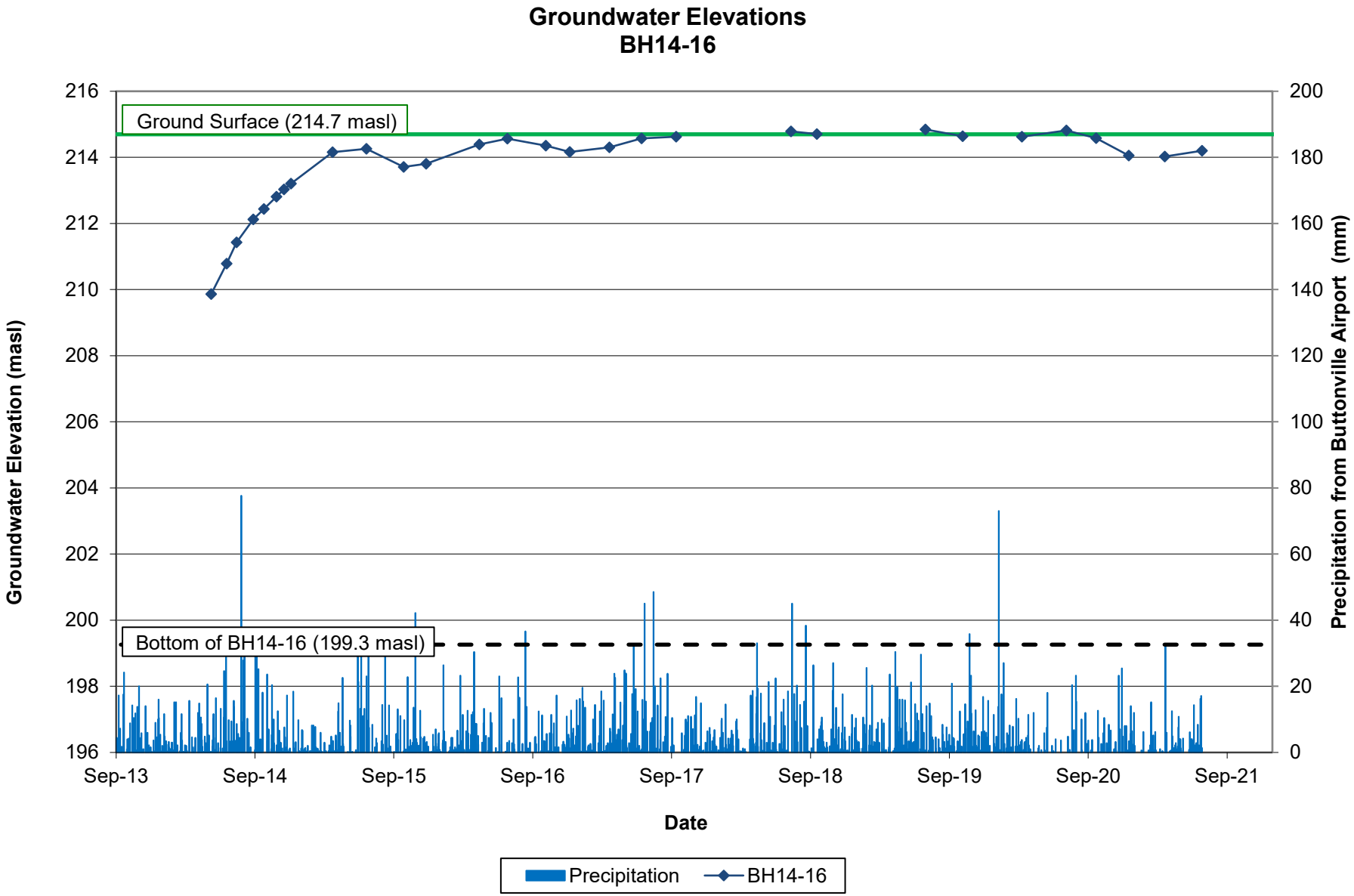


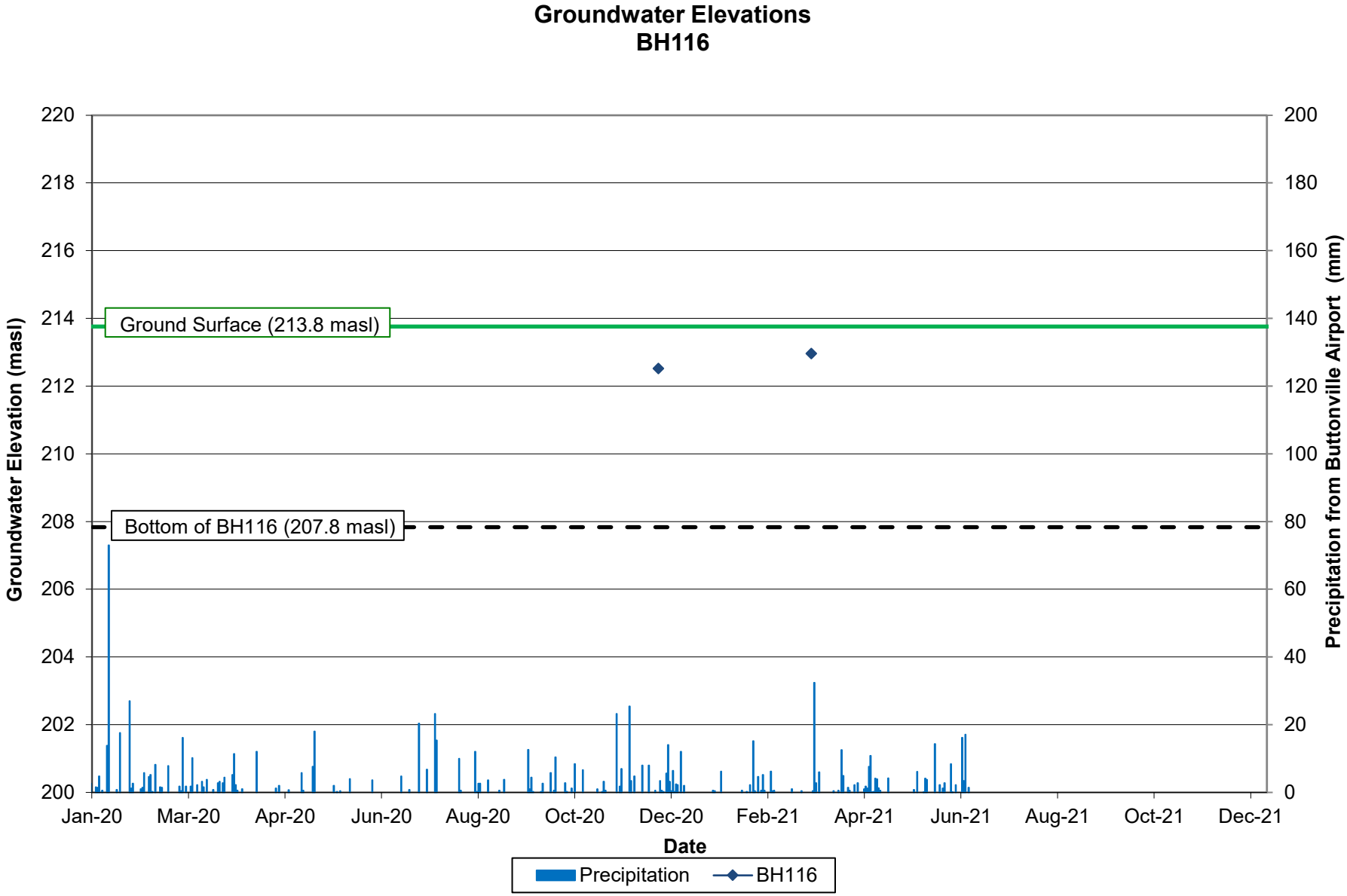
Groundwater Elevations
BG-MW1



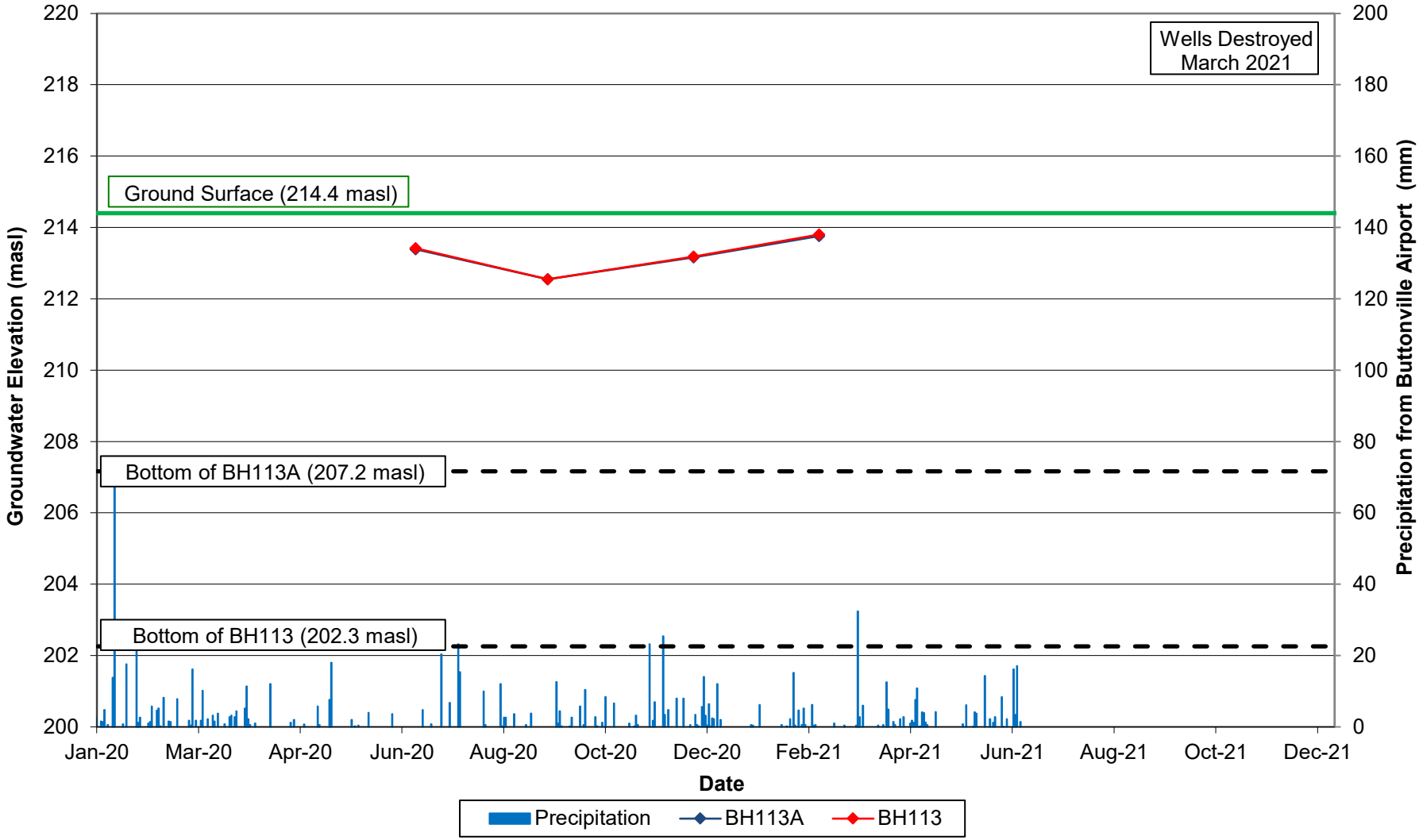
Groundwater Elevations
RJB13



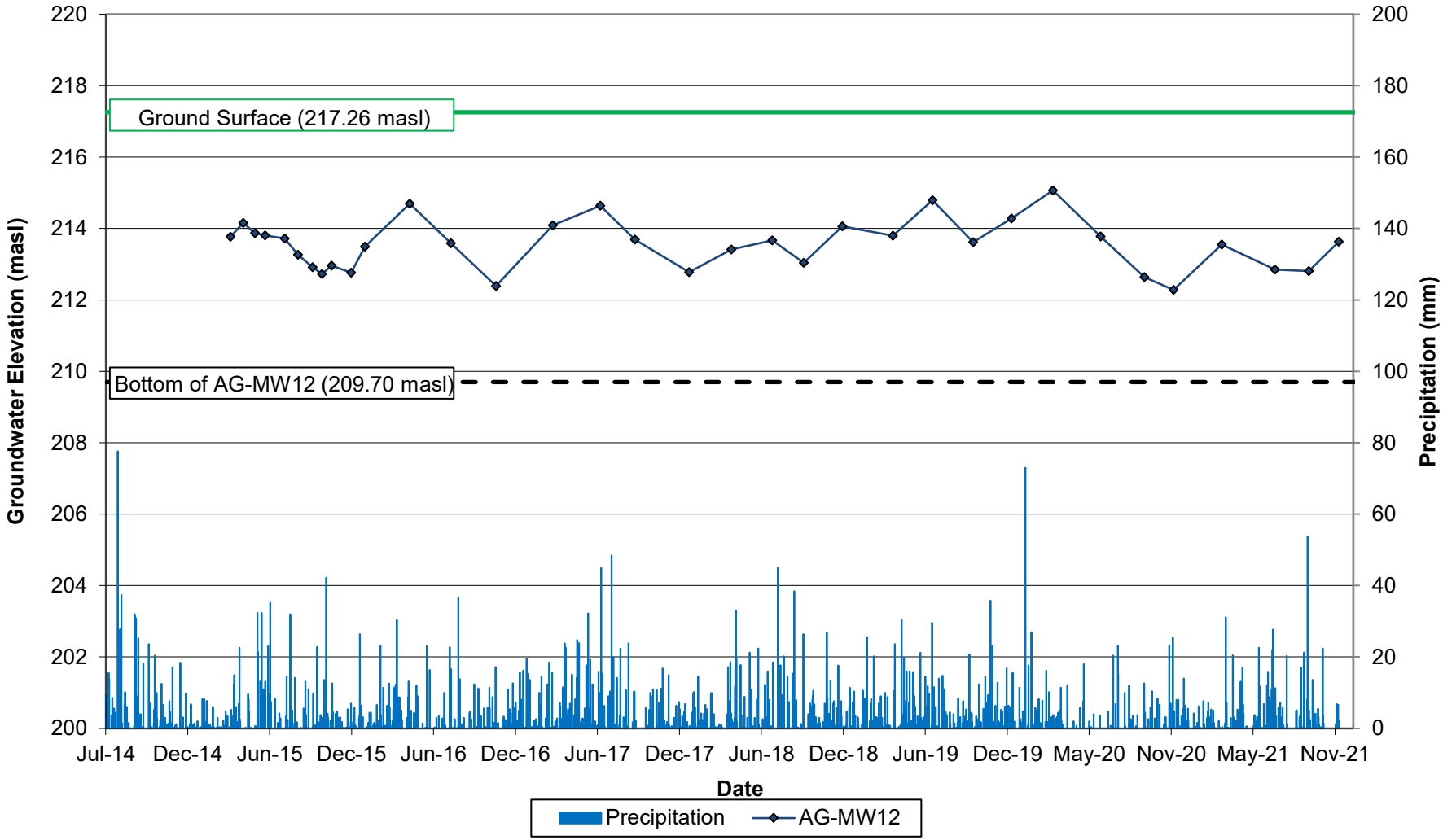

Groundwater Elevations
BH14-16
Ground Surface (214.7 masl)
Bottom of BH14-16 (199.3 masl)
Groundwater Elevation (masl)
Precipitation from Buttonville Airport (mm)
Date
Precipitation
BH14-16
216
214
212
210
208
206
204
202
200
198
196
200
180
160
140
120
100
80
60
40
20
0
Sep-13
Sep-14
Sep-15
Sep-16
Sep-17
Sep-18
Sep-19
Sep-20
Sep-21


Groundwater Elevations
BH116
Groundwater Elevation (masl)
Precipitation from Buttonville Airport (mm)
Ground Surface (213.8 masl)
Bottom of BH116 (207.8 masl)
220
218
216
214
212
210
208
206
204
202
200
200
180
160
140
120
100
80
60
40
20
0
Jan-20
Mar-20
Apr-20
Jun-20
Aug-20
Oct-20
Dec-20
Feb-21
Apr-21
Jun-21
Aug-21
Oct-21
Dec-21
Date
Precipitation
BH116

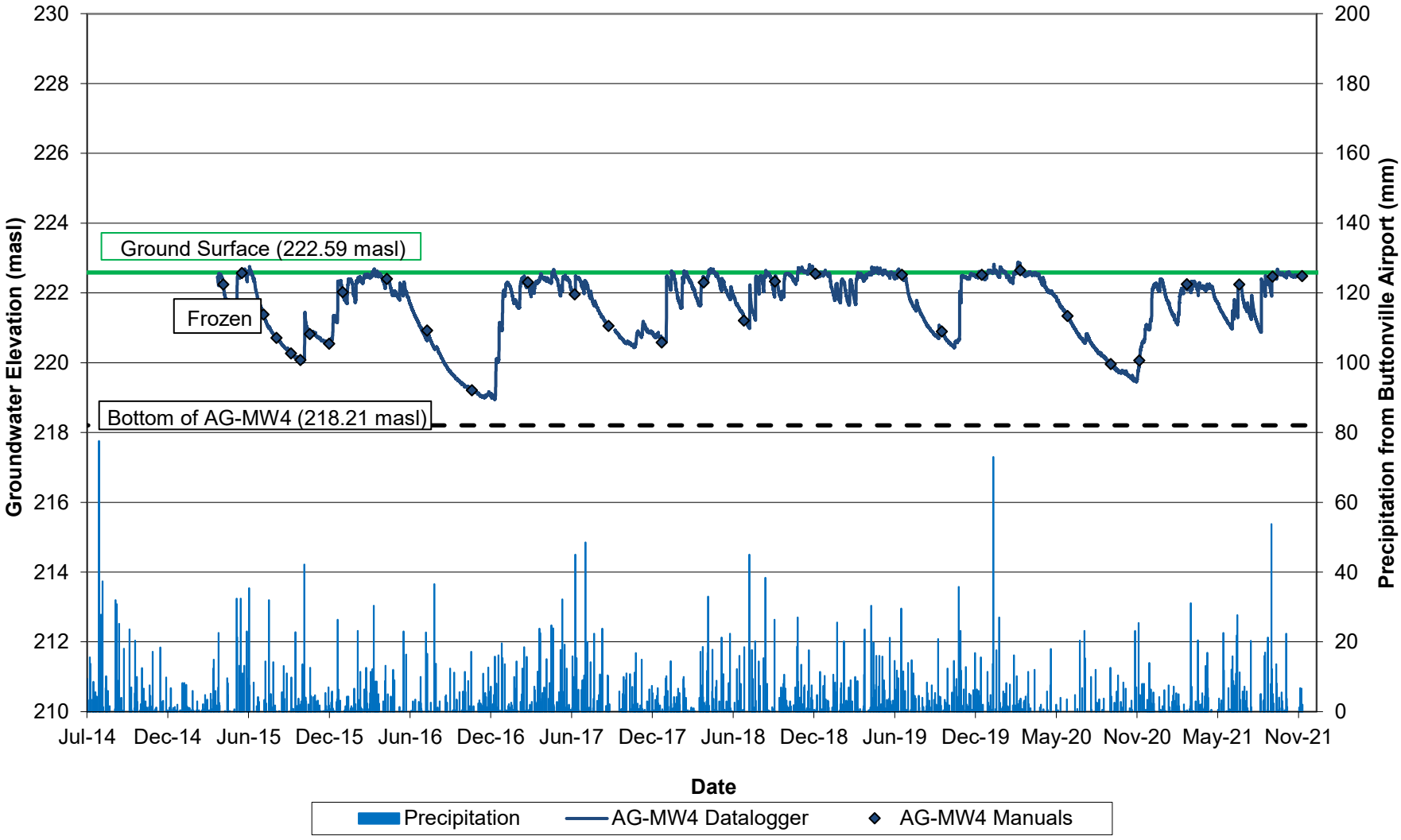
Groundwater Elevations
BH113A/113



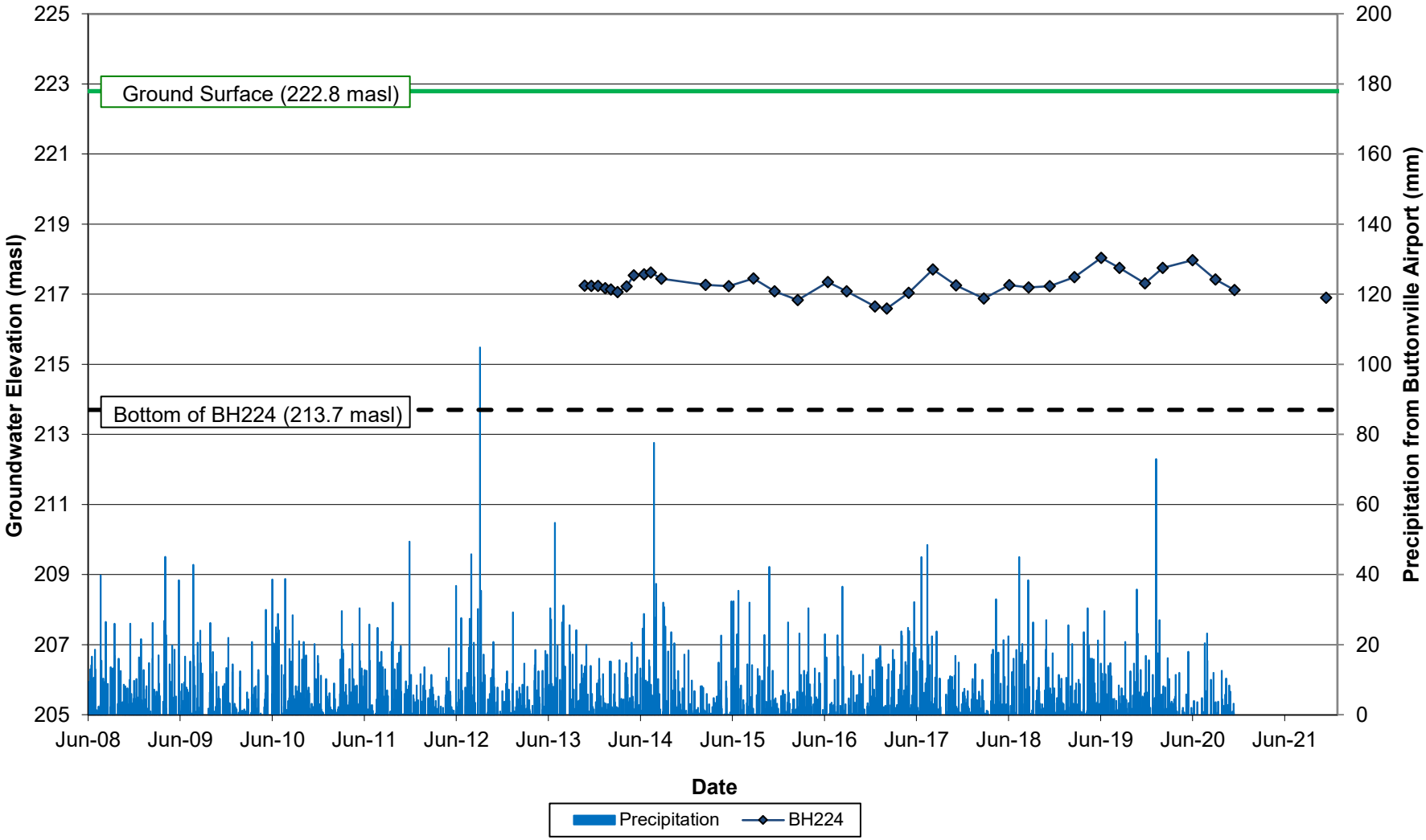
Groundwater Elevations
AG-MW12



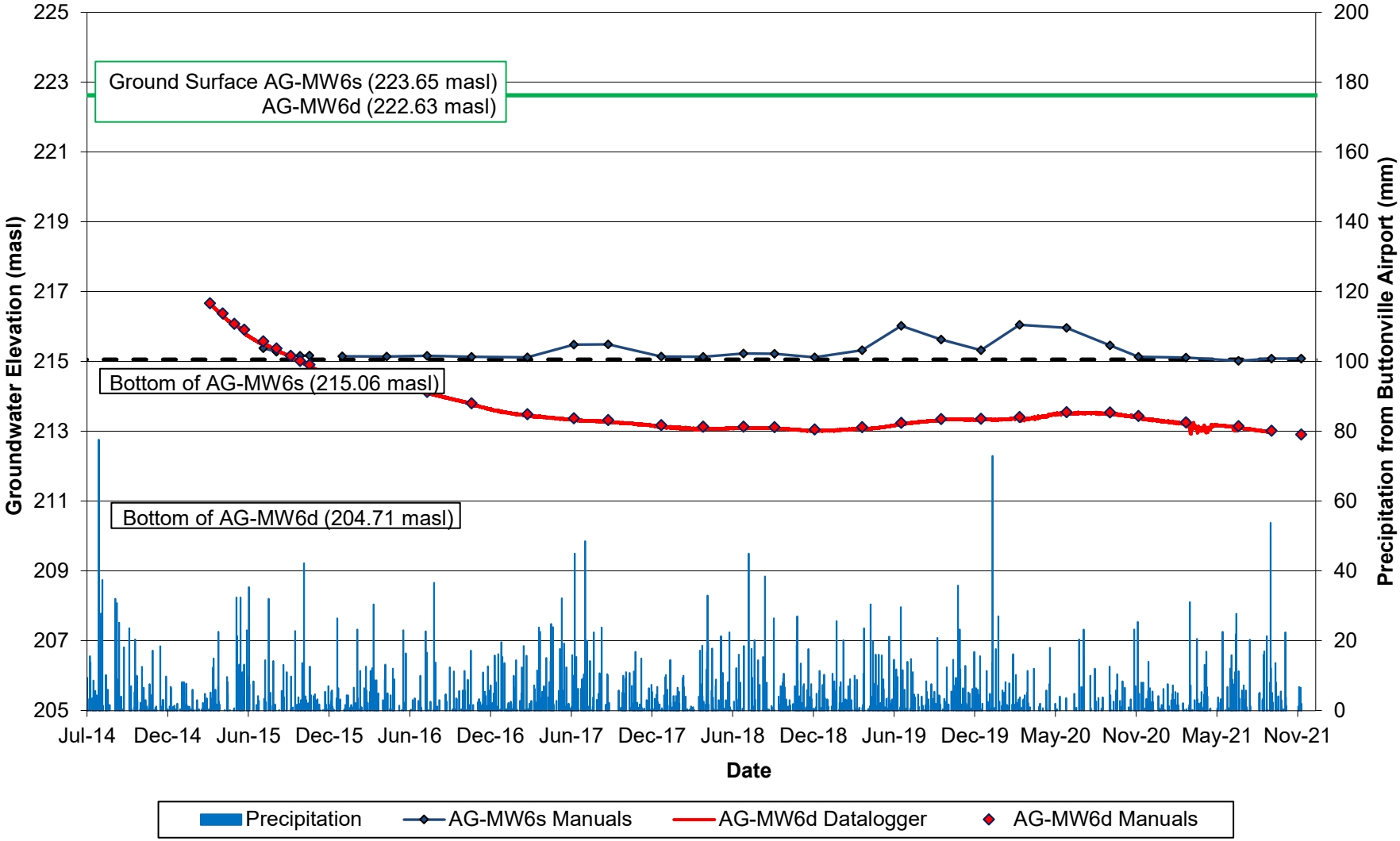
Groundwater Elevations
AG-MW4



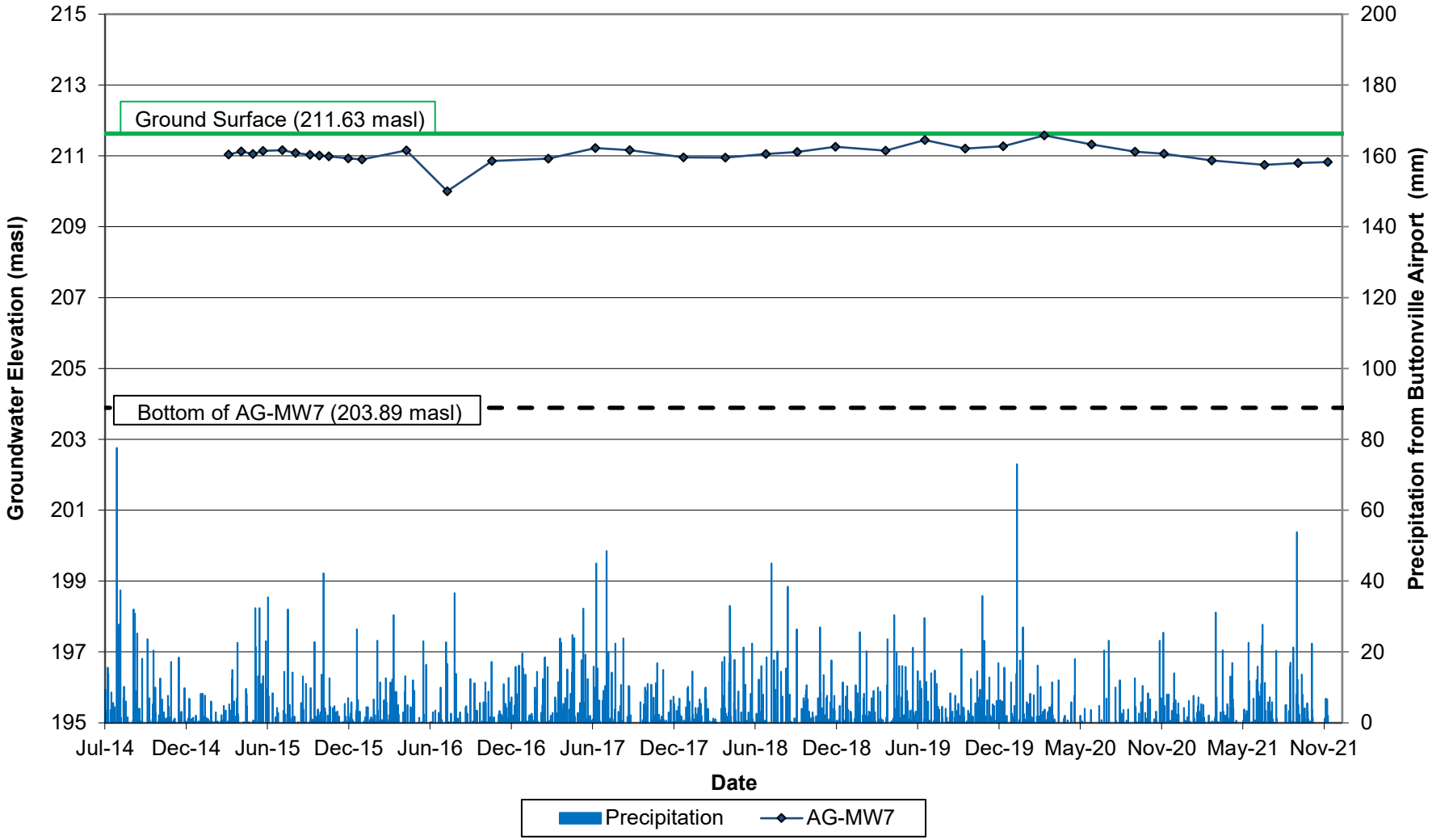
Groundwater Elevations
BH224

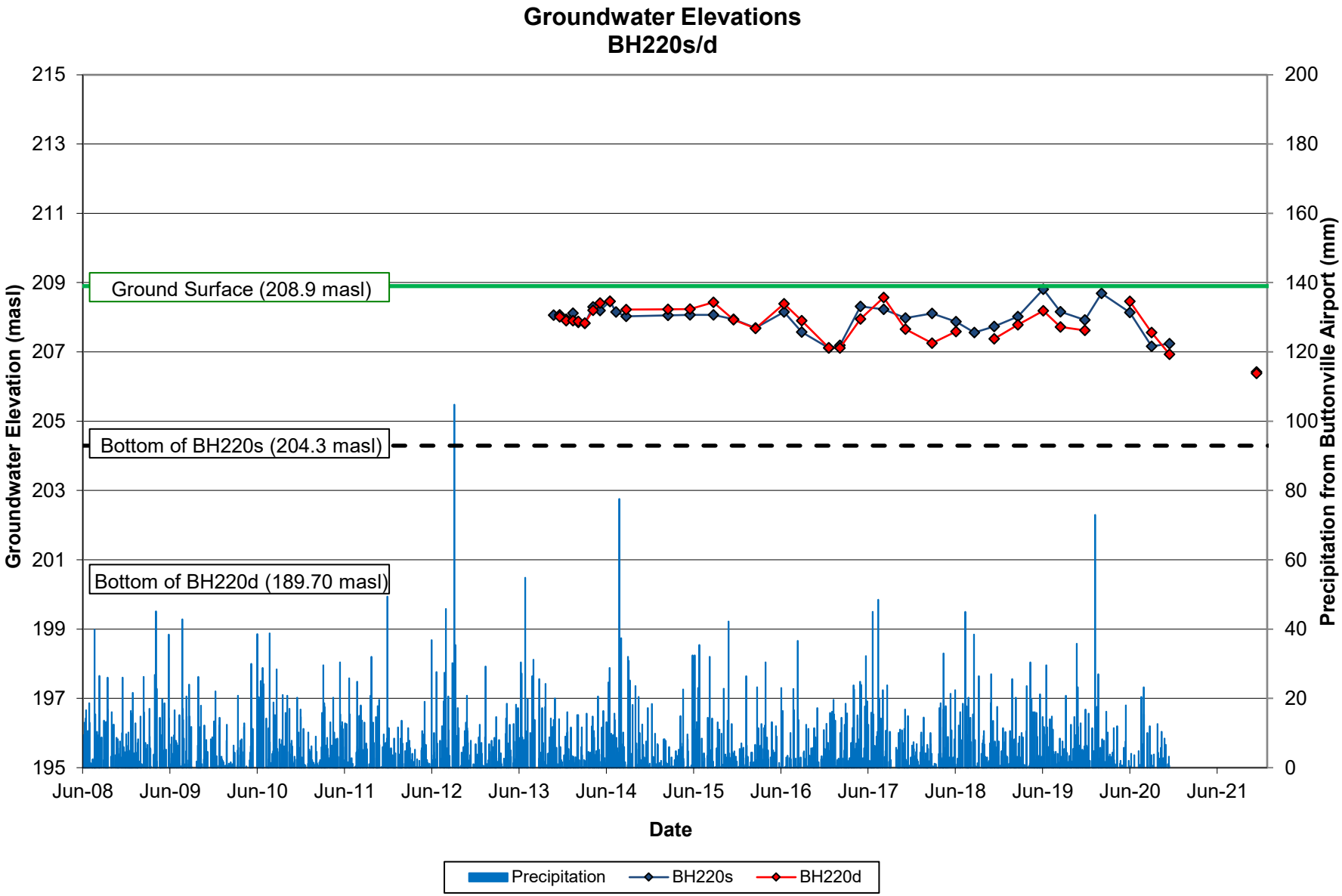


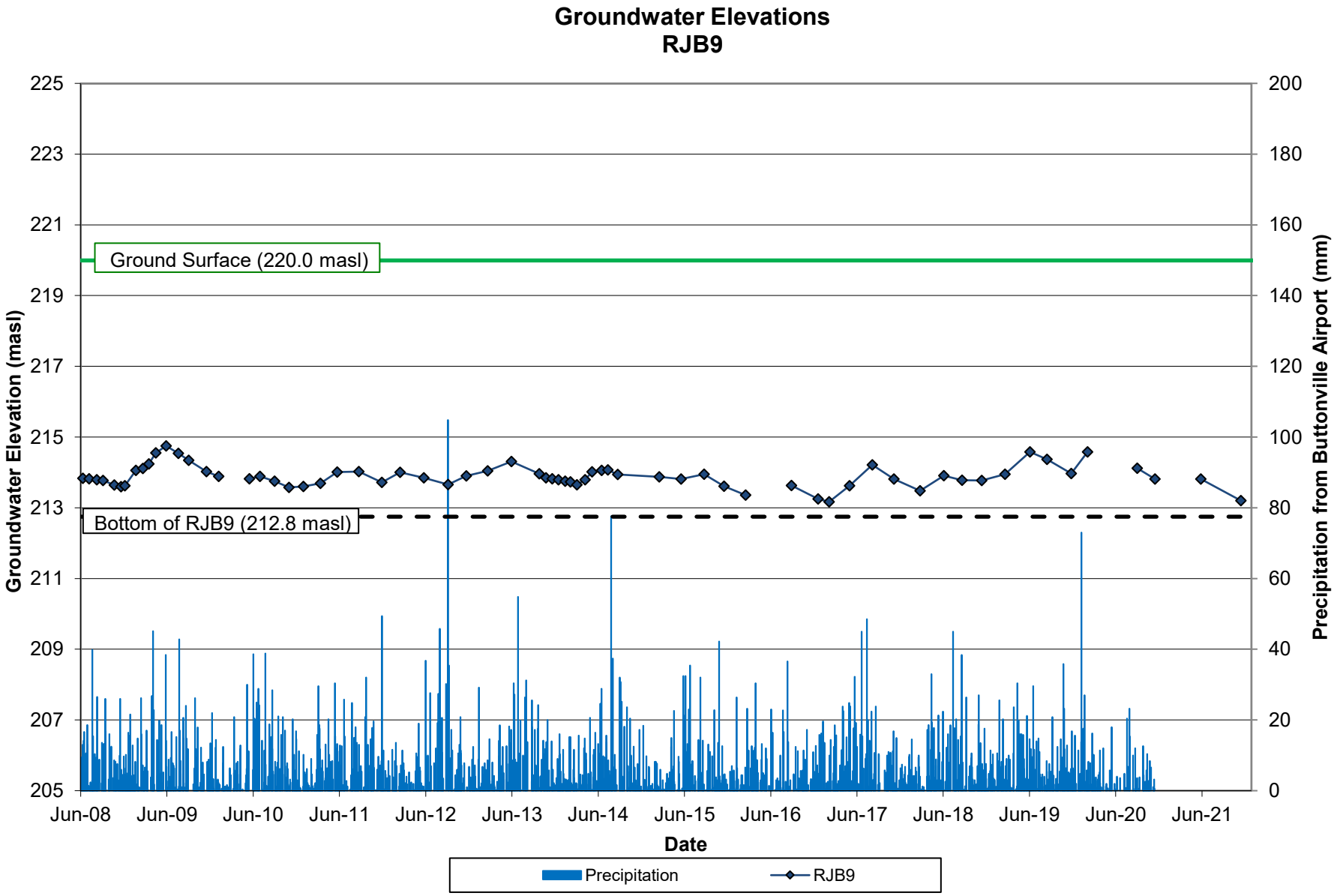
Groundwater Elevations
AG-MW6s/d



Groundwater Elevations
AG-MW7




Groundwater Elevations
BH220s/d
Groundwater Elevation (masl)
Precipitation from Buttonville Airport (mm)
Ground Surface (208.9 masl)
Bottom of BH220s (204.3 masl)
Bottom of BH220d (189.70 masl)
215
213
211
209
207
205
203
201
199
197
195
200
180
160
140
120
100
80
60
40
20
0
Jun-08
Jun-09
Jun-10
Jun-11
Jun-12
Jun-13
Jun-14
Jun-15
Jun-16
Jun-17
Jun-18
Jun-19
Jun-20
Jun-21
Date
Precipitation
BH220s
BH220d


Groundwater Elevations
RJB9
Ground Surface (220.0 masl)
Bottom of RJB9 (212.8 masl)
Groundwater Elevation (masl)
Precipitation from Buttonville Airport (mm)
225
223
221
219
217
215
213
211
209
207
205
200
180
160
140
120
100
80
60
40
20
0
Jun-08
Jun-09
Jun-10
Jun-11
Jun-12
Jun-13
Jun-14
Jun-15
Jun-16
Jun-17
Jun-18
Jun-19
Jun-20
Jun-21
Date
Precipitation
RJB9

R.J. Burnside & Associates Limited