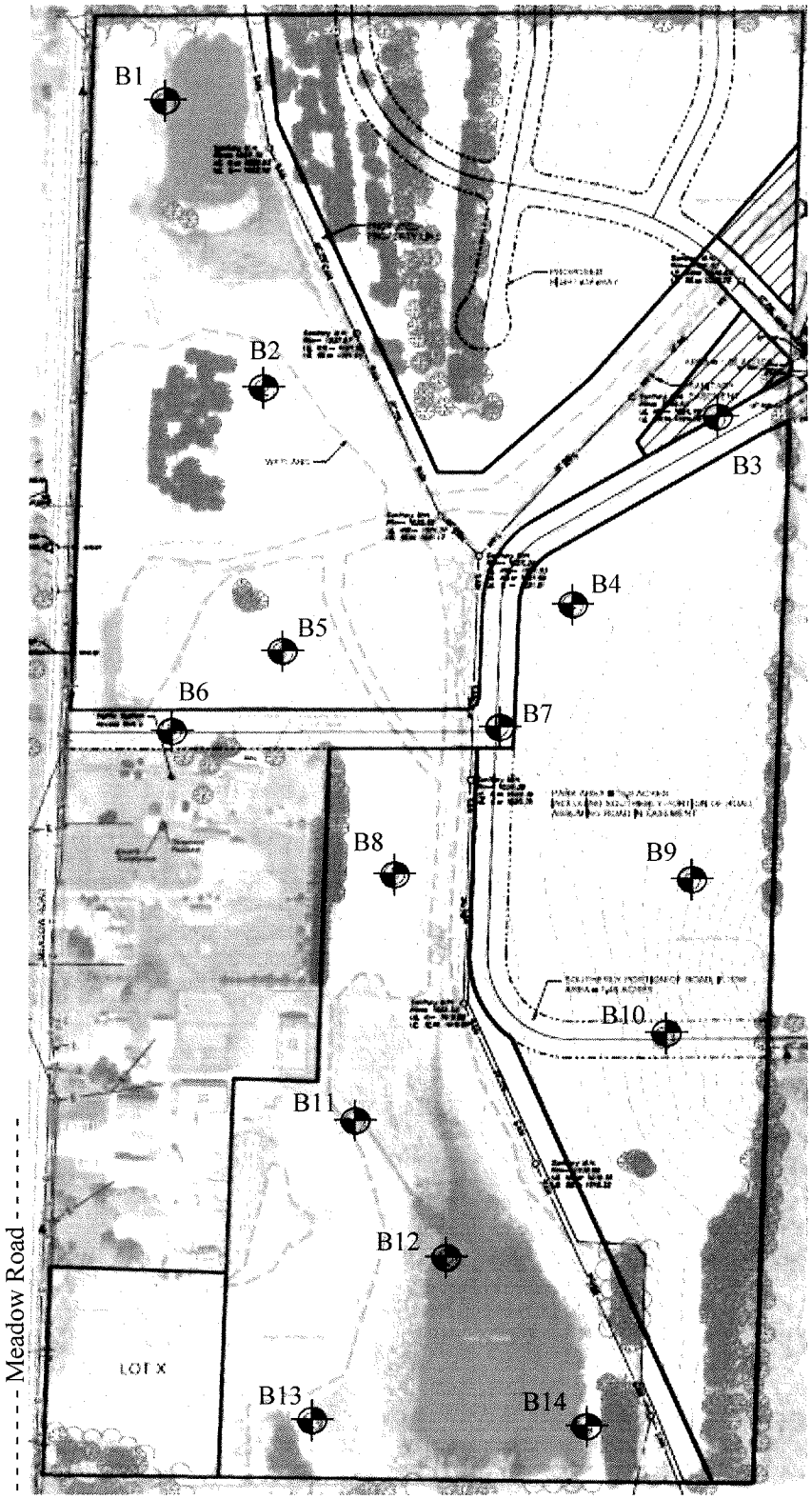
APPENDIX B

SOIL BORING LOCATION MAP
LOGS OF TEST BORINGS (14)
LOG OF TEST BORING - GENERAL NOTES
UNIFIED SOIL CLASSIFICATION SYSTEM

To Valley View Road ↑



Legend

⊕ Denotes Boring Location

Scale: Reduced

N

Notes

1. Soil borings performed by Badger State Drilling on December 11-12, 2018
2. Boring locations are approximate.

Job No. C17051-19	CGC, Inc.	SOIL BORING LOCATION MAP Lower Badger Mill Creek Ponds Madison, Wisconsin
Date: 12/22/17		

CGC Inc.

LOG OF TEST BORING

Project **Lower Badger Mill Creek Ponds**
N470806 E772426
Location **Madison, Wisconsin**

Boring No. **1**
Surface Elevation (ft) **1033.3**
Job No. **C17051-19**
Sheet **1** of **1**

2921 Perry Street, Madison, WI 53713 (608) 288-4100, FAX (608) 288-7887

SAMPLE No.	TYPE	Rec (in.)	Moist	N	Depth (ft)	VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES qu (qa) (tsf)	W	LL	PL	LI
						14 in. Dark Brown to Black TOPSOIL					
1		8	M	6		Loose, Light Brown to Gray SILT (ML)					
2		18	M	4	5	Medium Stiff, Brown Lean CLAY (CL)	(0.75)	22.2			
3		18	W	2		Very Loose, Brown Fine to Coarse SAND, Some Silt and Gravel, Trace CLAY (SM)					
4		18	W	3	10	Very Loose to Loose, Brown Fine to Medium SAND, Little to Some Silt (SP-SM/SM)					
5		16	W	8							
6		18	W	16	15	Medium Dense to Dense, Brown Fine to Medium SAND, Some Silt and Gravel, Scattered Cobbles and Boulders (SM)					
7		18	W	19	20						
8		14	W	34	25	End Boring at 25 ft Borehole backfilled with bentonite chips					
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **6.0'** Upon Completion of Drilling **10.8'**
Time After Drilling **30 min.**
Depth to Water **8.3'** ▼
Depth to Cave in **11'**

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start **12/12/17** End **12/12/17**
Driller **BSD** Chief **DB** Rig **D-50**
Logger **DC** Editor **ESF**
Drill Method **2.25 HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project: **Lower Badger Mill Creek Ponds**
N470291 E772609
Location: **Madison, Wisconsin**

Boring No. **2**
Surface Elevation (ft) **1035.0**
Job No. **C17051-19**
Sheet **1** of **1**

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SAMPLE No.	TYPE	Rec (in.)	Moist	N	Depth (ft)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	W	LL	PL	LI
						12 in. Brown Sandy TOPSOIL					
1		18	M	13		Medium Dense to Loose, Brown Fine to Coarse SAND, Some Silt and Gravel (SM)					
2		18	M	6	5						
3		18	M	8		Occasional Seams of Sandy Silt Near 7 ft					
4		18	M/W	2		Soft to Stiff, Gray Silty CLAY (CL-ML)	(0.5-1.0)	24.8	30	22	
5		18	M/W	4	10		(0.5-1.0)	25.1			
6		18	M/W	20		Medium Dense, Dark Brown to Gray SILT, Occasional Seams of Laminated Silt and Clay (ML)					
7		14	W	23	15	Medium Dense to Very Dense, Brown Fine to Coarse SAND and GRAVEL, Trace Silt, Scattered Cobbles (SP/GP)					
8		2	W	50/3"	20						
						End Boring at 23.9 ft					
					25	Borehole backfilled with bentonite chips					
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **16.0'** Upon Completion of Drilling **15.8'**
Time After Drilling **2 hrs**
Depth to Water **15.1'** ▼
Depth to Cave in **17.3'**

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start **12/12/17** End **12/12/17**
Driller **BSD** Chief **DB** Rig **D-50**
Logger **DC** Editor **ESF**
Drill Method **2.25 HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Lower Badger Mill Creek Ponds**
N470240 E773420
Location **Madison, Wisconsin**

Boring No. **3**
Surface Elevation (ft) **1042.1**
Job No. **C17051-19**
Sheet **1** of **1**

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SAMPLE No.	TYPE	Rec (in.)	Moist	N	Depth (ft)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	W	LL	PL	LI
						8 in. TOPSOIL					
1		10	M	6		Stiff, Brown Lean CLAY (CL)	(1.25)	26.2			
2		8	M	7	5	Loose, Brown Fine to Medium SAND, Little to Some Silt (SP-SM/SM)					
3		12	M	24		Medium Dense, Light Brown Fine SAND, Trace Silt (SP)					
4		14	M	12		Medium Dense, Light Brown to Gray SILT (ML)					
					10	End Boring at 10 ft Borehole backfilled with bentonite chips					
					15						
					20						
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling _____
Time After Drilling _____
Depth to Water _____ ▼
Depth to Cave in _____

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start **12/12/17** End **12/12/17**
Driller **BSD** Chief **MC** Rig **CME-55**
Logger **MG** Editor **ESF**
Drill Method **2.25 HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Lower Badger Mill Creek Ponds**
N469904 E773164
Location **Madison, Wisconsin**

Boring No. **4**
Surface Elevation (ft) **1041.3**
Job No. **C17051-19**
Sheet **1** of **1**

2921 Perry Street, Madison, WI 53713 (608) 288-4100, FAX (608) 288-7887

SAMPLE No.	TYPE	Rec (in.)	Moist	N	Depth (ft)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	W	LL	PL	LI
						8 in. TOPSOIL					
1		10	M	7		Stiff, Brown Lean CLAY (CL)	(1.5)	24.0			
2		10	M	5	5	Loose to Medium Dense, Light Brown to Gray Sandy SILT (ML)					
3		16	M	12							
4		16	M	18		Medium Dense, Light Brown Silty Fine SAND (SM)					
					10	End Boring at 10 ft					
						Borehole backfilled with bentonite chips					
					15						
					20						
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling _____
Time After Drilling _____
Depth to Water _____ ▼
Depth to Cave in _____

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start **12/12/17** End **12/12/17**
Driller **BSD** Chief **MC** Rig **CME-55**
Logger **MG** Editor **ESF**
Drill Method **2.25 HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project: **Lower Badger Mill Creek Ponds**
N469819 E772638
Location: **Madison, Wisconsin**

Boring No. **5**
Surface Elevation (ft) **1036.1**
Job No. **C17051-19**
Sheet **1** of **1**

2921 Perry Street, Madison, WI 53713 (608) 288-4100, FAX (608) 288-7887

SAMPLE No.	TYPE	Rec (in.)	Moist	N	Depth (ft)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	W	LL	PL	LI
						8 in. Topsoil					
1	■	10	M	7		Soft to Stiff, Brown Lean CLAY, Some Sand (CL)	(0.5-1.0)	18.4			
2	■	16	M	9	5	Loose, Gray to Light Brown Fine to Medium SAND, Little to Some Silt (SP-SM/SM)					
3	■	18	M	7		Loose to Medium Dense, Light Brown to Gray SILT, Some Sand, Occasional Seams of Gray Silty Clay (ML/ML-CL)	(1.25)				
4	■	12	M	13	10		(0.5)				
5	■	10	M	14							
6	■	16	M	34	15	Medium Dense to Dense, Brown Fine to Coarse SAND and GRAVEL, Trace Silt, Scattered Cobbles (SP/GP)					
7	■	10	W	26	20						
8	■	18	W	40	25	Dense, Brown Sandy SILT (ML)					
						End Boring at 25 ft Borehole backfilled with bentonite chips					
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **18.5'** Upon Completion of Drilling _____
Time After Drilling _____ _____ _____ **5 hrs**
Depth to Water _____ _____ _____ ▼
Depth to Cave in _____ _____ _____ **16.5'**

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start **12/12/17** End **12/12/17**
Driller **BSD** Chief **MC** Rig **CME-55**
Logger **MG** Editor **ESF**
Drill Method **2.25 HSA; Autohammer**

LOG OF TEST BORING

CGC Inc.

Project: Lower Badger Mill Creek Ponds
N469680 E772440
Location: Madison, Wisconsin

Boring No. 6
Surface Elevation (ft) 1034.8
Job No. C17051-19
Sheet 1 of 1

2921 Perry Street, Madison, WI 53713 (608) 288-4100, FAX (608) 288-7887

SAMPLE No.	TYPE	Rec (in.)	Moist	N	Depth (ft)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	W	LL	PL	LI
						8 in. TOPSOIL					
1		10	M	11		Very Stiff to Hard, Brown Silty CLAY (CL-ML)	(3.0-4.5)	16.0			
2		10	M	6	5	Medium Stiff To Stiff, Brown Lean CLAY (CL)	(0.75-1.25)	23.8			
3		16	M	4		Soft to Medium Stiff Near 7 ft	(0.5)	26.8			
4		12	M	7	10	Loose, Brown Fine to Coarse SAND, Some Silt and Gravel, Trace CLAY (SM)					
5		8	M	52		Very Dense, Brown Fine to Coarse SAND and GRAVEL, Some Silt, Scattered Cobbles (SM/GM)					
6		16	M	31	15	Dense, Brown Fine to Medium SAND, Some Silt and Gravel, Scattered Cobbles and Boulders (SM)					
7		18	M	40	20	End Boring at 20 ft Borehole backfilled with bentonite chips					
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ NW Upon Completion of Drilling
Time After Drilling
Depth to Water ▼
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 12/12/17 End 12/12/17
Driller BSD Chief MC Rig CME-55
Logger MG Editor ESF
Drill Method 2.25 HSA; Autohammer

CGC Inc.

LOG OF TEST BORING

Project: **Lower Badger Mill Creek Ponds**
N469684 E773031
Location: **Madison, Wisconsin**

Boring No. **7**
Surface Elevation (ft) **1037.1**
Job No. **C17051-19**
Sheet **1** of **1**

2921 Perry Street, Madison, WI 53713 (608) 288-4100, FAX (608) 288-7887

SAMPLE No.	TYPE	Rec (in.)	Moist	N	Depth (ft)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	W	LL	PL	LI
						8 in. TOPSOIL					
1		12	M	6		Stiff, Brown Lean CLAY (CL)	(1.75)	25.9			
2		6	M	7	5	Loose, Light Brown Silty Fine to Medium SAND, Trace to Little Clay (SM)					
3		16	M	28		Medium Dense, Brown Fine SAND, Trace to Little Silt (SP/SP-SM)					
4		16	M	62	10	Very Dense, Brown Fine to Medium SAND, Some Silt and Gravel, Scattered Cobbles and Boulders (SM)					
5		18	M	58							
6		16	M	62	15						
7		10	M/W	65/11"	20	End Boring at 19.5 ft Borehole backfilled with bentonite chips					
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling
Time After Drilling
Depth to Water ▼
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start **12/12/17** End **12/12/17**
Driller **BSD** Chief **MC** Rig **CME-55**
Logger **MG** Editor **ESF**
Drill Method **2.25 HSA; Autohammer**

LOG OF TEST BORING

CGC Inc.

Project: Lower Badger Mill Creek Ponds
N469421 E772843
Location: Madison, Wisconsin

Boring No. 8
Surface Elevation (ft) 1035.8
Job No. C17051-19
Sheet 1 of 1

2921 Perry Street, Madison, WI 53713 (608) 288-4100, FAX (608) 288-7887

SAMPLE No.	TYPE	Rec (in.)	Moist	N	Depth (ft)	VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES qu (qa) (tsf)	W	LL	PL	LI
						13 in. Black Silty TOPSOIL					
1		8	M	14		Soft to Medium Stiff, Brown to Gray Mottled Lean CLAY, Trace Sand (CL)	(0.75)	21.4			
2		12	M	24	5		(0.5)	15.7			
3		18	M	11		Soft to Medium Stiff, Brown to Gray Silty CLAY, Trace to Little Sand (CL-ML)	(0.5)	26.3	27	21	
4		18	M	12	10	Medium Dense, Light Brown to Gray SILT, Occasional Seams of Brown Sandy Silt (ML)					
5		18	W	5		Soft to Medium Stiff, Brown to Gray Mottled Lean CLAY, Trace Sand (CL)	(0.75)				
6		18	M	12	15		(0.5)				
7		14	W	41	20	Dense, Light Brown Fine to Coarse SAND, Trace Silt (SP)					
8		14	W	66	25	Very Dense, Brown Fine to Medium SAND, Some Silt and Gravel, Scattered Cobbles and Boulders (SM)					
						End Boring at 25 ft Borehole backfilled with bentonite chips					
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽	12.3'	Upon Completion of Drilling	19.3'
Time After Drilling			4 hrs
Depth to Water			12' ▼
Depth to Cave in			20'

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 12/12/17 End 12/12/17
Driller BSD Chief DB Rig D-50
Logger DC Editor ESF
Drill Method 2.25 HSA; Autohammer

CGC Inc.

LOG OF TEST BORING

Project: Lower Badger Mill Creek Ponds
N469409 E773375
Location: Madison, Wisconsin

Boring No. 9
Surface Elevation (ft) 1048.2
Job No. C17051-19
Sheet 1 of 1

2921 Perry Street, Madison, WI 53713 (608) 288-4100, FAX (608) 288-7887

SAMPLE No.	TYPE	Rec (in.)	Moist	N	Depth (ft)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	W	LL	PL	LI
						8 in. TOPSOIL					
1		10	M	7		Stiff, Brown Lean CLAY (CL)	(1.75)	27.6			
2		14	M	8	5		(1.5)	20.2			
3		12	M	17		Medium Dense, Brown Fine to Medium SAND, Little to Some Silt and Gravel(SP-SM/SM)					
4		12	M	40		Dense,Brown Fine to Medium SAND, Some Silt and Gravel, Scattered Cobbles and Boulders (SM)					
					10	End Boring at 10 ft Borehole backfilled with bentonite chips					
					15						
					20						
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ NW Upon Completion of Drilling
Time After Drilling
Depth to Water ▼
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 12/12/17 End 12/12/17
Driller BSD Chief MC Rig CME-55
Logger MG Editor ESF
Drill Method 2.25 HSA; Autohammer

CGC Inc.

LOG OF TEST BORING

Project **Lower Badger Mill Creek Ponds**
N469124 E773319
Location **Madison, Wisconsin**

Boring No. **10**
Surface Elevation (ft) **1044.1**
Job No. **C17051-19**
Sheet **1** of **1**

2921 Perry Street, Madison, WI 53713 (608) 288-4100, FAX (608) 288-7887

SAMPLE No.	TYPE	Rec (in.)	Moist	N	Depth (ft)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	W	LL	PL	LI
						8 in. TOPSOIL					
1		10	M	6		Meduim Stiff to Stiff, Brown Lean CLAY, Some Sand (CL)	(1.0)	23.6			
2		10	M	6	5	Thin (<2 in.) Seam of Clayey Sand with Trace Gravel Near 5 ft	(1.0)	20.3			
3		8	M	8		Loose to Medium Dense, Brown Fine to Medium SAND, Some Silt and Gravel, Scattered Cobbles and Boulders (SM)					
4		16	M	20	10	End Boring at 10 ft Borehole backfilled with bentonite chips					
					15						
					20						
					25						
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling _____
Time After Drilling _____
Depth to Water _____ ▼
Depth to Cave in _____

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start **12/12/17** End **12/12/17**
Driller **BSD** Chief **MC** Rig **CME-55**
Logger **MG** Editor **ESF**
Drill Method **2.25 HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project: **Lower Badger Mill Creek Ponds**
N468971 E772759
Location: **Madison, Wisconsin**

Boring No. **11**
Surface Elevation (ft) **1032.0**
Job No. **C17051-19**
Sheet **1** of **1**

2921 Perry Street, Madison, WI 53713 (608) 288-4100, FAX (608) 288-7887

SAMPLE No.	TYPE	Rec (in.)	Moist	N	Depth (ft)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	W	LL	PL	LI
						3 ft Black Clayey TOPSOIL					
1		18	M	6			(1.75)	35.6			
						Medium Dense, Gray SILT (ML)					
2		18	M	14	5						
						Stiff Brown to Gray Mottled Lean CLAY, Trace Sand (CL)					
3		18	M	5			(1.25)	29.1			
						Very Loose, Dark Brown Clayey Fine SAND, Trace Gravel (SC)					
4		18	W	2	10						
5		0	W	2							
6		16	W	2	15						
						Medium Dense to Dense, Brown Fine to Medium SAND, Some Silt and Gravel, Scattered Cobbles and Boulders (SM)					
7		14	W	27	20						
8		18	W	33							
					25	End Boring at 25 ft Borehole backfilled with bentonite chips					
					30						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **8.6'** Upon Completion of Drilling **10'**
Time After Drilling **6 hrs**
Depth to Water **7.3'** ▼
Depth to Cave in **16.4'**

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start **12/12/17** End **12/12/17**
Driller **BSD** Chief **DB** Rig **D-50**
Logger **DC** Editor **ESF**
Drill Method **2.25 HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project: **Lower Badger Mill Creek Ponds**
N468724 E772926
Location: **Madison, Wisconsin**

Boring No. **12**
Surface Elevation (ft) **1030.7**
Job No. **C17051-19**
Sheet **1** of **1**

2921 Perry Street, Madison, WI 53713 (608) 288-4100, FAX (608) 288-7887

SAMPLE No.	TYPE	Rec (in.)	Moist	N	Depth (ft)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	W	LL	PL	LI
						13 in. Black Silty TOPSOIL					
1		14	M	6		Stiff Brown Lean CLAY (CL)	(1.75)	23.1			
2		18	M	3	5	Medium Stiff to Stiff, Brown to Gray Mottled Lean CLAY, Trace Sand (CL)	(1.0)	29.0			
3		18	M/W	2		Very Soft, Gray Silty CLAY, Trace to Little Sand (CL-ML)	(<0.2)	34.3			
4		18	M/W	3	10		(<0.2)				
5		18	M/W	2			(<0.2)				
6		18	M	9	15	Stiff, Gray Silty CLAY (CL-ML)	(1.5)				
7		16	M/W	23	20	Medium Dense to Dense, Brown Fine to Medium SAND, Some Silt and Gravel, Scattered Cobbles and Boulders (SM)					
8		14	W	42	25	End Boring at 25 ft Borehole backfilled with bentonite chips					
					30						
					35						
					40						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **20.6'** Upon Completion of Drilling **9'**
Time After Drilling **24 hrs**
Depth to Water **6.8'** ▼
Depth to Cave in **21'**

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start **12/11/17** End **12/11/17**
Driller **BSD** Chief **DB** Rig **D-50**
Logger **DC** Editor **ESF**
Drill Method **2.25 HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project: **Lower Badger Mill Creek Ponds**
N468431 E772683
Location: **Madison, Wisconsin**

Boring No. **13**
Surface Elevation (ft) **1033.7**
Job No. **C17051-19**
Sheet **1** of **1**

2921 Perry Street, Madison, WI 53713 (608) 288-4100, FAX (608) 288-7887

SAMPLE No.	TYPE	Rec (in.)	Moist	N	Depth (ft)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	W	LL	PL	LI
						12 in. Black Silty TOPSOIL					
1		18	M	3		Soft to Medium Stiff, Brown Lean CLAY (CL)	(0.5)	40.6			
2		8	M	9	5	Stiff, Brown to Gray Mottled Lean CLAY, Trace Sand (CL)	(1.75)	31.1			
3		14	M	6			(1.75)	30.2			
4		18	W	2	10	Becomming Soft to Medium Stiff Near 9 ft	(0.5)	27.6			
5		18	W	3			(0.75)				
6		14	M	27	15	Medium Dense to Very Dense, Brown Fine to Medium SAND, Some Silt and Gravel, Scattered Cobbles and Boulders (SM)					
7		15	M	35	20						
8		14	M	58	25						
						End Boring at 25 ft Borehole backfilled with bentonite chips					
					30						
					35						
					40						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **15.4'**
Time After Drilling **24 hrs**
Depth to Water **5.9'** ▼
Depth to Cave in **21.3'**

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start **12/11/17** End **12/11/17**
Driller **BSD** Chief **DB** Rig **D-50**
Logger **DC** Editor **ESF**
Drill Method **2.25 HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project: **Lower Badger Mill Creek Ponds**
N468424 E773171
Location: **Madison, Wisconsin**

Boring No. **14**
Surface Elevation (ft) **1030.3**
Job No. **C17051-19**
Sheet **1** of **1**

2921 Perry Street, Madison, WI 53713 (608) 288-4100, FAX (608) 288-7887

SAMPLE No.	TYPE	Rec (in.)	Moist	N	Depth (ft)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	W	LL	PL	LI
						3 ft Black Silty TOPSOIL					
1		18	M	5				33.8			
						Loose to Medium Dense, Dark Brown to Gray SILT (ML)					
2		18	M	10	5			27.1			
						Very Stiff to Very Soft, Brown to Gray Mottled Lean CLAY, Trace Sand (CL)					
3		18	M	12			(2.5)	23.1			
4		18	M/W	2			(<0.2)	31.7			
					10						
5		18	M/W	2			(<0.2)				
						Loose, Brown Fine to Coarse SAND, Some Silt and Gravel, Trace CLAY (SM)					
6		18	M/W	6		Gravelly Layer with Cobbles Noted by Drillers from 17.6' to 18'					
					15						
7		10	M/W	15		Soft to Medium Stiff, Gray Silty CLAY, Little to Some Sand and Gravel (CL-ML)	(0.5)				
					20						
						Very Dense, Brown Fine to Medium SAND, Some Silt and Gravel, Scattered Cobbles and Boulders (SM)					
8		12	M/W	65							
					25	End Boring at 25 ft					
						Borehole backfilled with bentonite chips					
					30						
					35						
					40						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW**	Upon Completion of Drilling		**14.5'**	
Time After Drilling			**24 hrs**	
Depth to Water			**11.2'**	▼
Depth to Cave in			**18.6'**	

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start **12/11/17** End **12/11/17**
Driller **BSD** Chief **DB** Rig **D-50**
Logger **DC** Editor **ESF**
Drill Method **2.25 HSA; Autohammer**

CGC, Inc.

LOG OF TEST BORING

General Notes

DESCRIPTIVE SOIL CLASSIFICATION

Grain Size Terminology

Soil Fraction	Particle Size	U.S. Standard Sieve Size
Boulders	Larger than 12"	Larger than 12"
Cobbles	3" to 12"	3" to 12"
Gravel: Coarse	¾" to 3"	¾" to 3"
Fine	4.76 mm to ¾"	#4 to ¾"
Sand: Coarse	2.00 mm to 4.76 mm	#10 to #4
Medium	0.42 to mm to 2.00 mm	#40 to #10
Fine	0.074 mm to 0.42 mm	#200 to #40
Silt	0.005 mm to 0.074 mm	Smaller than #200
Clay	Smaller than 0.005 mm	Smaller than #200

Plasticity characteristics differentiate between silt and clay.

General Terminology

Physical Characteristics
Color, moisture, grain shape, fineness, etc.
Major Constituents
Clay, silt, sand, gravel
Structure
Laminated, varved, fibrous, stratified, cemented, fissured, etc.
Geologic Origin
Glacial, alluvial, eolian, residual, etc.

Relative Density

Term	"N" Value
Very Loose	0 - 4
Loose	4 - 10
Medium Dense	10 - 30
Dense	30 - 50
Very Dense	Over 50

Relative Proportions Of Cohesionless Soils

Proportional Term	Defining Range by Percentage of Weight
Trace	0% - 5%
Little	5% - 12%
Some	12% - 35%
And	35% - 50%

Consistency

Term	q_u-tons/sq. ft
Very Soft	0.0 to 0.25
Soft	0.25 to 0.50
Medium	0.50 to 1.0
Stiff	1.0 to 2.0
Very Stiff	2.0 to 4.0
Hard	Over 4.0

Organic Content by Combustion Method

Soil Description	Loss on Ignition
Non Organic	Less than 4%
Organic Silt/Clay	4 – 12%
Sedimentary Peat	12% - 50%
Fibrous and Woody Peat	More than 50%

Plasticity

Term	Plastic Index
None to Slight	0 - 4
Slight	5 - 7
Medium	8 - 22
High to Very High	Over 22

The penetration resistance, N, is the summation of the number of blows required to effect two successive 6" penetrations of the 2" split-barrel sampler. The sampler is driven with a 140 lb. weight falling 30" and is seated to a depth of 6" before commencing the standard penetration test.

SYMBOLS

Drilling and Sampling

CS – Continuous Sampling
RC – Rock Coring: Size AW, BW, NW, 2"W
RQD – Rock Quality Designation
RB – Rock Bit/Roller Bit
FT – Fish Tail
DC – Drove Casing
C – Casing: Size 2 ½", NW, 4", HW
CW – Clear Water
DM – Drilling Mud
HSA – Hollow Stem Auger
FA – Flight Auger
HA – Hand Auger
COA – Clean-Out Auger
SS - 2" Dia. Split-Barrel Sample
2ST – 2" Dia. Thin-Walled Tube Sample
3ST – 3" Dia. Thin-Walled Tube Sample
PT – 3" Dia. Piston Tube Sample
AS – Auger Sample
WS – Wash Sample
PTS – Peat Sample
PS – Pitcher Sample
NR – No Recovery
S – Sounding
PMT – Borehole Pressuremeter Test
VS – Vane Shear Test
WPT – Water Pressure Test

Laboratory Tests

q_a – Penetrometer Reading, tons/sq ft
q_a – Unconfined Strength, tons/sq ft
W – Moisture Content, %
LL – Liquid Limit, %
PL – Plastic Limit, %
SL – Shrinkage Limit, %
LI – Loss on Ignition
D – Dry Unit Weight, lbs/cu ft
pH – Measure of Soil Alkalinity or Acidity
FS – Free Swell, %

Water Level Measurement

▽ - Water Level at Time Shown
NW – No Water Encountered
WD – While Drilling
BCR – Before Casing Removal
ACR – After Casing Removal
CW – Cave and Wet
CM – Caved and Moist

Note: Water level measurements shown on the boring logs represent conditions at the time indicated and may not reflect static levels, especially in cohesive soils.

CGC, Inc.

Madison - Milwaukee

Unified Soil Classification System

UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART

COARSE-GRAINED SOILS (more than 50% of material is larger than No. 200 sieve size)			
GRAVELS More than 50% of coarse fraction larger than No. 4 sieve size	Clean Gravels (Less than 5% fines)	GW	Well-graded gravels, gravel-sand mixtures, little or no fines
		GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines
	Gravels with fines (More than 12% fines)	GM	Silty gravels, gravel-sand-silt mixtures
		GC	Clayey gravels, gravel-sand-clay mixtures
SANDS 50% or more of coarse fraction smaller than No. 4 sieve size	Clean Sands (Less than 5% fines)	SW	Well-graded sands, gravelly sands, little or no fines
		SP	Poorly graded sands, gravelly sands, little or no fines
	Sands with fines (More than 12% fines)	SM	Silty sands, sand-silt mixtures
		SC	Clayey sands, sand-clay mixtures
FINE-GRAINED SOILS (50% or more of material is smaller than No. 200 sieve size.)			
SILTS AND CLAYS Liquid limit less than 50%		ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		OL	Organic silts and organic silty clays of low plasticity
SILTS AND CLAYS Liquid limit 50% or greater		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
		CH	Inorganic clays of high plasticity, fat clays
		OH	Organic clays of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS		PT	Peat and other highly organic soils

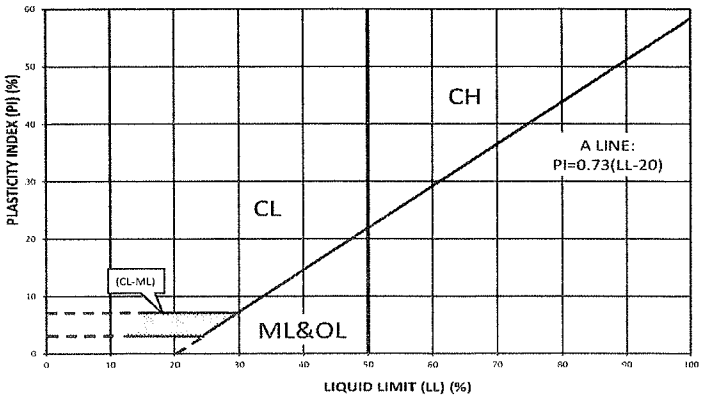
LABORATORY CLASSIFICATION CRITERIA

GW	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_C = \frac{D_{30}}{D_{10} \times D_{60}}$ between 1 and 3	
GP	Not meeting all gradation requirements for GW	
GM	Atterberg limts below "A" line or P.I. less than 4	Above "A" line with P.I. between 4 and 7 are borderline cases requiring use of dual symbols
GC	Atterberg limts above "A" line or P.I. greater than 7	
SW	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_C = \frac{D_{30}}{D_{10} \times D_{60}}$ between 1 and 3	
SP	Not meeting all gradation requirements for GW	
SM	Atterberg limits below "A" line or P.I. less than 4	Limits plotting in shaded zone with P.I. between 4 and 7 are borderline cases requiring use of dual symbols
SC	Atterberg limits above "A" line with P.I. greater than 7	

Determine percentages of sand and gravel from grain-size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve size), coarse-grained soils are classified as follows:

Less than 5 percent ..... GW, GP, SW, SP
More than 12 percent ..... GM, GC, SM, SC
5 to 12 percent ..... Borderline cases requiring dual symbols

PLASTICITY CHART



APPENDIX B

SOIL BORING LOCATION EXHIBIT
LOGS OF TEST BORINGS (3)
LOG OF TEST BORING – GENERAL NOTES
UNIFIED SOIL CLASSIFICATION SYSTEM

Legend

⊕ Denotes Boring Location

Notes

1. Soil Borings performed by Soil Essentials in August 2022 (B5, B6) or America's Drilling Co. in September 2022 (B7)
2. Boring locations are approximate

N

Scale: Reduced

Job No. C21051-31	CGC, Inc.	**SOIL BORING LOCATION MAP**
Date: 10/2022		**Blue Harvest Ln Bridge**
		Madison, Wisconsin

CGC Inc.

LOG OF TEST BORING

Project: Feather Edge Pond (Blue Harvest Lane Bridge)
Location: Madison, WI

Boring No. 5
Surface Elevation (ft) 1033.1
Job No. C21051-31
Sheet 1 of 2

2921 Perry Street, Madison, WI 53713 (608) 288-4100, FAX (608) 288-7887

SAMPLE No.	TYPE	Rec (in.)	Moist	N	Depth (ft)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	W	LL	PL	LOI
						9 in. Dark Brown Clayey TOPSOIL					
1		16	M	4		Stiff to Soft, Brown Lean CLAY, Trace Sand (CL - Possible Fill)	(1.5)				
2		17	M/W	2	5		(0.5)				
3		16	M	2		Very Soft, Stratified Brown, Dark Brown and Gray Lean to Silty CLAY, Trace Sand (CL/CL-ML)	(<0.2)				
4		14	M/W	3	10	Very Loose, Brown Silty Fine SAND, Some Gravel, Trace Clay (SM)					
5		4	M	85		Medium Dense, Brown Fine to Medium SAND, Some Silt and Gravel, Scattered Cobbles and Boulders (SM) (Rough drilling/cobbles/very dense conditions from 11'-13')					
6		6	M	20	15						
7		15	M	21	20						
8		14	M	17	25						
9		7	M	26	30						
10		15	W	11		Medium Dense, Brown Fine to Coarse SAND, Some Silt and Gravel, Scattered Cobbles (SM)					
					35						
11		17	M/W	16		Medium Dense, Brown Sandy SILT, Trace Gravel and Clay, Scattered Cobbles (ML)					
					40						

WATER LEVEL OBSERVATIONS

While Drilling ▽	33.5'	Upon Completion of Drilling		34.5'
Time After Drilling		24 Hours		
Depth to Water		20.8'		▼
Depth to Cave in		25.1'		

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 8/22/22 End 8/22/22
Driller SE Chief CRJ Rig 7822DT
Logger AR Editor ESF
Drill Method 2.25" HSA; Autohammer

CGC Inc.

LOG OF TEST BORING

Project: Feather Edge Pond (Blue Harvest Lane Bridge)
Location: Madison, WI

Boring No. 5
Surface Elevation 1033.1
Job No. C21051-31
Sheet 2 of 2

2921 PERRY STREET, MADISON, WIS. 53713 (608) 288-4100, FAX (608) 288-7887

SAMPLE No.	TYPE	Rec (in.)	Moist	N	Depth (ft)	VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES qu (qa) (tsf)	W	LL	PL	LI
						Medium Dense, Brown Sandy SILT, Trace Gravel and Clay, Scattered Cobbles (ML)					
12		15	M/W	11	45						
13		16	M/W	27	50						
14		15	W	28	55	Medium Dense, Brown Fine to Coarse SAND, Some Silt and Gravel, Scattered Cobbles (SM)					
15		0	-	11	60	Medium Dense, Brown Sandy SILT, Trace Gravel and Clay, Scattered Cobbles (ML)					
16		16	W	11							
17		11	W	32							
					65	Dense, Brown Fine to Coarse SAND, Some Silt and Gravel, Scattered Cobbles (SM)					
						End of Boring at 63 ft					
						Backfilled with Bentonite Chips					
					70						
					75						
					80						
					85						

CGC Inc.

LOG OF TEST BORING

Project: Feather Edge Pond (Blue Harvest Lane Bridge)
Location: Madison, WI

Boring No. 6
Surface Elevation (ft) 1033.1
Job No. C21051-31
Sheet 1 of 2

2921 Perry Street, Madison, WI 53713 (608) 288-4100, FAX (608) 288-7887

SAMPLE No.	Type	Rec (in.)	Moist	N	Depth (ft)	VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES qu (qa) (tsf)	W	LL	PL	LOI
						9 in. Brown Clayey TOPSOIL					
1		16	M	6		Stiff to Very Soft, Stratified Brown, Dark Brown and Gray Lean to Silty CLAY, Trace Sand with thin (<1") Sandy Seams and Lenses (CL - Possible Fill to 5')	(1.5)				
2		15	M	4	5		(0.5)				
3		17	M/W	0			(<0.2)				
4		16	M/W	0	10		(<0.2)				
						Medium Dense, Brown Fine to Medium SAND, Some Silt and Gravel, Scattered Cobbles and Boulders (SM)					
5		15	M	14	15						
6		17	M	19	20						
						Medium Dense, Brown Sandy SILT to Silty Fine SAND, Some Gravel, Scattered Cobbles (ML/SM)					
7		15	M	23	25						
8		16	M	24	30						
9		17	W	18							
					35	Medium Dense, Brown Silty Fine SAND, Some Gravel, Trace Clay (SM)					
						Very Stiff, Brownish-Gray Lean CLAY, Scattered Sand, Gravel and Cobbles (CL)					
10		16	M/W	12	40		(2.5)				

WATER LEVEL OBSERVATIONS

While Drilling ▽ 33.5'	Upon Completion of Drilling			39.8'
Time After Drilling				
Depth to Water				▼
Depth to Cave in				48.1'

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 8/22/22 End 8/22/22
Driller SE Chief CRJ Rig 7822DT
Logger AR Editor ESF
Drill Method 2.25" HSA; Autohammer

CGC Inc.

LOG OF TEST BORING

Project: Feather Edge Pond (Blue Harvest Lane Bridge)
Location: Madison, WI

Boring No. 6
Surface Elevation 1033.1
Job No. C21051-31
Sheet 2 of 2

2921 PERRY STREET, MADISON, WIS. 53713 (608) 288-4100, FAX (608) 288-7887

SAMPLE						VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	TYPE	Rec (in.)	Moist	N	Depth (ft)		qu (qa) (tsf)	W	LL	PL	LI
						Very Stiff, Brownish-Gray Lean CLAY, Scattered Sand, Gravel and Cobbles (CL)					
11		15	M/W	9	45	Loose, Grayish-Brown SILT (ML)					
12		16	W	31	50	Dense to Medium Dense, Brown Fine to Coarse SAND, Some Silt and Gravel, Scattered Cobbles (SM)					
13		0	-	11	55						
14		12	M/W	16	60	Stiff, Grayish-Brown Lean CLAY, Trace Sand, Scattered Gravel and Cobbles (CL)	(1.5)				
						End of Boring at 60 ft Backfilled with Bentonite Chips					
					65						
					70						
					75						
					80						
					85						

CGC Inc.

LOG OF TEST BORING

Project: Feather Edge Pond (Blue Harvest Lane Bridge)
Location: Madison, WI

Boring No. 7
Surface Elevation (ft) 1033.1
Job No. C21051-31
Sheet 1 of 3

2921 Perry Street, Madison, WI 53713 (608) 288-4100, FAX (608) 288-7887

SAMPLE No.	TYPE	Rec (in.)	Moist	N	Depth (ft)	VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES qu (qa) (tsf)	W	LL	PL	LOI
						7 in. TOPSOIL					
1		10	M	9		Stiff to Soft Brown Lean Clay, Trace Sand (CL - Possible Fill to 3')	(1.0)				
2		16	M	4	5	Numerous Sand Partings Beginning Near 4'	(0.5)				
3		10	M/W	4							
4		14	M	3	10	Loose to Very Loose, Brown Silty Fine SAND, Trace Gravel and Clay (SM) Increasing Clay Content with Depth					
5		14	M	42	15	Dense to Very Dense, Brown Fine to Medium SAND, Some Silt and Gravel, Scattered Cobbles and Boulders (SM)					
6		18	M	45	20						
7		12	M	64	25						
8		8	W	65	30						
9		8	W	42	35	Very Dense, Brown Fine to Coarse SAND, Some Silt and Gravel, Scattered Cobbles (SM)					
10		8	W	19	40	Stiff, Brown Lean CLAY, Trace to Little Sand and Gravel (CL)	(1.25)				

WATER LEVEL OBSERVATIONS

While Drilling ▽ 33.5' Upon Completion of Drilling
Time After Drilling
Depth to Water
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start 9/8/22 End 9/9/22
Driller ADC Chief KD Rig CME 55
Logger DB Editor ESF
Drill Method 4.25" HSA to 10 ft; 3-7/8 in. RB with Mud to 92.5'

CGC Inc.

LOG OF TEST BORING

Project: Feather Edge Pond (Blue Harvest Lane Bridge)
Location: Madison, WI

Boring No. 7
Surface Elevation 1033.1
Job No. C21051-31
Sheet 2 of 3

2921 PERRY STREET, MADISON, WIS. 53713 (608) 288-4100, FAX (608) 288-7887

SAMPLE No.	Type	Rec (in.)	Moist	N	Depth (ft)	VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES qu (qa) (tsf)	W	LL	PL	LI
						Stiff, Brown Lean CLAY, Trace to Little Sand and Gravel (CL)					
11		18	W	11	45	Medium Dense, Stratified Brown and Light Brown Sandy SILT and Silty Fine SAND, Trace Clay (ML/SM)					
12		10	W	88	50	Very Dense, Brown Fine to Coarse Sand, Some Silt and Gravel, Trace Clay (SM)					
13		12	W	73	55						
14		18	W	12	60	Very Soft, Brown Lean CLAY, Trace Sand (CL)	(<0.2)				
15		6	W	61/9"	65	Very Dense, Brown Fine to Coarse SAND and GRAVEL, Some Silt (SM/GM)					
16		6	W	24	70	(Medium Dense with Scattered Clay Lenses Near 69')					
17		10	W	31	75						
18		10	W	36	80						
19		8	W	82/10"	85						

CGC Inc.

LOG OF TEST BORING

Project: Feather Edge Pond (Blue Harvest Lane Bridge)
Location: Madison, WI

Boring No. 7
Surface Elevation 1033.1
Job No. C21051-31
Sheet 3 of 3

2921 PERRY STREET, MADISON, WIS. 53713 (608) 288-4100, FAX (608) 288-7887

SAMPLE No.	Type	Rec (in.)	Moist	N	Depth (ft)	VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES qu (qa) (tsf)	W	LL	PL	LI
						Very Dense, Brown Fine to Coarse SAND and GRAVEL, Some Silt (SM/GM)					
20		4	W	98 /11"	90						
21		10	W	70 /10"							
						End of Boring at 92.5 ft					
					95	Backfilled with Bentonite Slurry and Chips					
					100						
					105						
					110						
					115						
					120						
					125						

CGC, Inc.

LOG OF TEST BORING

General Notes

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Fine	0.074 mm to 0.42 mm	#200 to #40
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CGC, Inc.

Madison - Milwaukee

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	Gravels with fines (More than 12% fines)	GM	Silty gravels, gravel-sand-silt mixtures
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		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		OL	Organic silts and organic silty clays of low plasticity
SILTS AND CLAYS Liquid limit 50% or greater		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
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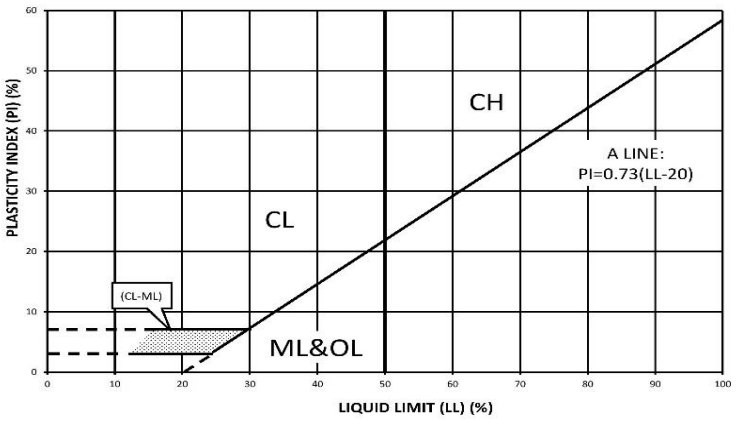
Determine percentages of sand and gravel from grain-size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve size), coarse-grained soils are classified as follows:

Less than 5 percent ..... GW, GP, SW, SP
More than 12 percent ..... GM, GC, SM, SC
5 to 12 percent ..... Borderline cases requiring dual symbols

PLASTICITY CHART



APPENDIX A

SOIL BORING LOCATION EXHIBITS (2)
LOGS OF TEST BORINGS (7)
LOG OF TEST BORING – GENERAL NOTES
UNIFIED SOIL CLASSIFICATION SYSTEM

Legend

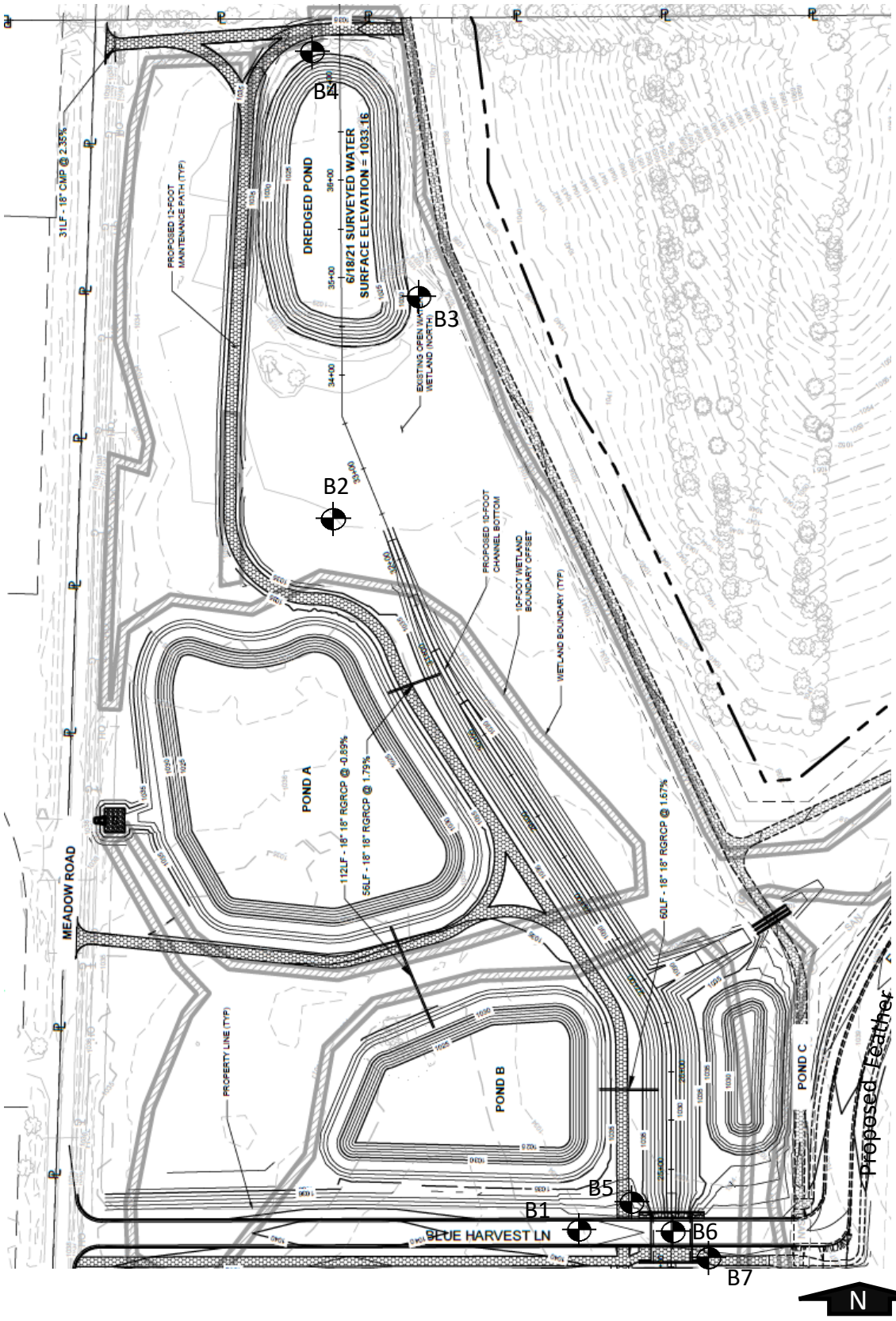
Denotes Boring Location

Notes

1. Soil borings B1 through B4 performed by Badger State Drilling in February 2022.
2. Soil borings B5 and B6 performed by Soil Essentials in August 2022, and B7 performed by B in September 2022.
3. Boring locations are approximate

Scale: Reduced

Job No. C21051-31	CGC, Inc.	**SOIL BORING LOCATION MAP** **Feather Edge Pond** **Madison, Wisconsin**
Date: 10/2022		



Legend

Denotes Boring Location

Notes

1. Soil borings B1 through B4 performed by Badger State Drilling in February 2022.
2. Soil borings B5 and B6 performed by Soil Essentials in August 2022, and B7 performed by B in September 2022.
3. Boring locations are approximate

Scale: Reduced

Job No. C21051-31	CGC, Inc.	**SOIL BORING LOCATION MAP** **Feather Edge Pond** **Madison, Wisconsin**
Date: 10/2022		

CGC Inc.

LOG OF TEST BORING

Project **Feather Edge Pond**
N469744.5 E772822.3
Location **Madison, WI**

Boring No. **1**
Surface Elevation (ft) **1033.4**
Job No. **C21051-31**
Sheet **1** of **1**

2921 Perry Street, Madison, WI 53713 (608) 288-4100, FAX (608) 288-7887

SAMPLE No.	TYPE	Rec (in.)	Moist	N	Depth (ft)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	W	LL	PL	LOI
						12 in. TOPSOIL					
1		18	M	7		FILL: Stiff Brown Clay to 3'					
						Loose Brown Silty Sand with Clay and Gravel to 5'					
2		18	M	7	5						
						Loose, Brown Fine to Medium SAND, Some Silt, Trace Gravel, Scattered Thin (<1/2 in.) Clay Seams (SM)					
3		12	M/W	5							
4		14	M	5	10						
						Medium Dense to Very Dense, Brown Fine to Medium SAND, Some Silt and Gravel, Scattered Cobbles and Boulders (SM)					
5		18	M	20							
6		14	M	77/8"		Hard Drilling Noted Near 14'					
7		18	M	45	15						
					20	End of Boring at 20 ft					
						Backfilled with Bentonite Chips					
					25						
					30						
					35						
					40						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start **2/17/22** End **2/17/22**
Driller **BSD** Chief **KD** Rig **D-50**
Logger **GB** Editor **ESF**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Feather Edge Pond**
N470419.5 E772526.1
Location **Madison, WI**

Boring No. **2**
Surface Elevation (ft) **1033.6**
Job No. **C21051-31**
Sheet **1** of **1**

2921 Perry Street, Madison, WI 53713 (608) 288-4100, FAX (608) 288-7887

SAMPLE					VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	TYPE	Rec (in.)	Moist	N	Depth (ft)		qu (qa) (tsf)	W	LL	PL	LOI
						12 in. TOPSOIL					
1		16	M	9		FILL: Loose Brown Silt with Clay and Sand					
2		18	M	10	5	Medium Stiff to Stiff, Brown and Gray (Mottled) Lean CLAY, Trace Sand (CL)					
3		18	M	10		Loose to Dense, Brown Fine to Medium SAND, Some Silt and Gravel, Scattered Cobbles and Boulders (SM)					
4		18	M	45	10						
5		0		50/1"		Large Cobble/Possible Boulder Noted Near 11'					
6		29	M/W	29	15						
7		31	M	31							
					20	End of Boring at 20 ft Backfilled with Bentonite Chips					
					25						
					30						
					35						
					40						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start **2/17/22** End **2/17/22**
Driller **BSD** Chief **KD** Rig **D-50**
Logger **GB** Editor **ESF**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Feather Edge Pond**
N470654.2 E772620.2
Location **Madison, WI**

Boring No. **3**
Surface Elevation (ft) **1031.3**
Job No. **C21051-31**
Sheet **1** of **1**

2921 Perry Street, Madison, WI 53713 (608) 288-4100, FAX (608) 288-7887

SAMPLE No.	TYPE	Rec (in.)	Moist	N	Depth (ft)	VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES qu (qa) (tsf)	W	LL	PL	LOI
						8 in. TOPSOIL					
1	■	18	M	10		Medium Stiff, Brown Silty CLAY, Scattered Sand Partings (CL-ML) (Possible Fill)	(0.75)				
2	■	18	M/W	9		Loose, Brown SILT, Trace Sand and Clay (ML)					
					5						
3	■	18	M/W	8		Medium Stiff, Brown Silty CLAY, Scattered Sand Partings (CL-ML)	(0.75)				
4	■	18	M/W	9							
					10						
5	■	18	M/W	13		Stratified Medium Dense, Brown Silty SAND and Sandy SILT, Trace Clay (SM/ML)					
6	■	18	M/W	70		Very Dense to Dense, Brown Fine to Medium SAND, Some Silt and Gravel, Scattered Cobbles and Boulders (SM)					
					15						
7	■	18	M	37							
					20	End of Boring at 20 ft Backfilled with Bentonite Chips					
					25						
					30						
					35						
					40						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start **2/17/22** End **2/17/22**
Driller **BSD** Chief **KD** Rig **D-50**
Logger **GB** Editor **ESF**
Drill Method **2.25" HSA; Autohammer**

LOG OF TEST BORING

CGC Inc.

Project **Feather Edge Pond**
N470949.2 E772501.7
Location **Madison, WI**

Boring No. **4**
Surface Elevation (ft) **1035.6**
Job No. **C21051-31**
Sheet **1** of **1**

2921 Perry Street, Madison, WI 53713 (608) 288-4100, FAX (608) 288-7887

SAMPLE No.	TYPE	Rec (in.)	Moist	N	Depth (ft)	VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES qu (qa) (tsf)	W	LL	PL	LOI
						8 in. TOPSOIL					
1	■	8	M/W	7		FILL: Loose Brown Silt with Clay and Sand					
2	■	18	M	7	5	Stiff, Brown and Gray (Mottled) Lean CLAY, Trace Sand (CL)	(1.5)				
3	■	12	M	9		Loose to Medium Dense, Brown Fine to Coarse SAND, Some Silt and Gravel (SM)					
4	■	10	M	17	10						
5	■	18	M	13		Medium Dense, Brown Fine to Medium SAND, Some Silt and Gravel, Scattered Cobbles and Boulders (SM)					
6	■	18	M	27	15						
7	■	18	M	21							
					20	End of Boring at 20 ft Backfilled with Bentonite Chips					
					25						
					30						
					35						
					40						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start **2/16/22** End **2/16/22**
Driller **BSD** Chief **KD** Rig **D-50**
Logger **GB** Editor **ESF**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project: **Feather Edge Pond (Blue Harvest Lane Bridge)**
Location: **Madison, WI**

Boring No. **5**
Surface Elevation (ft) **1033.1**
Job No. **C21051-31**
Sheet **1** of **2**

2921 Perry Street, Madison, WI 53713 (608) 288-4100, FAX (608) 288-7887

SAMPLE No.	TYPE	Rec (in.)	Moist	N	Depth (ft)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	W	LL	PL	LOI
						9 in. Dark Brown Clayey TOPSOIL					
1	■	16	M	4		Stiff to Soft, Brown Lean CLAY, Trace Sand (CL - Possible Fill)	(1.5)				
2	■	17	M/W	2	5		(0.5)				
3	■	16	M	2		Very Soft, Stratified Brown, Dark Brown and Gray Lean to Silty CLAY, Trace Sand (CL/CL-ML)	(<0.2)				
4	■	14	M/W	3	10	Very Loose, Brown Silty Fine SAND, Some Gravel, Trace Clay (SM)					
5	■	4	M	85		Medium Dense, Brown Fine to Medium SAND, Some Silt and Gravel, Scattered Cobbles and Boulders (SM)					
6	■	6	M	20	15	(Rough drilling/cobbles/very dense conditions from 11'-13')					
7	■	15	M	21	20						
8	■	14	M	17	25						
9	■	7	M	26	30						
10	■	15	W	11		Medium Dense, Brown Fine to Coarse SAND, Some Silt and Gravel, Scattered Cobbles (SM)					
11	■	17	M/W	16	35	Medium Dense, Brown Sandy SILT, Trace Gravel and Clay, Scattered Cobbles (ML)					
					40						

WATER LEVEL OBSERVATIONS

While Drilling ▽	**33.5'**	Upon Completion of Drilling		**34.5'**
Time After Drilling		**24 Hours**		
Depth to Water		**20.8'**		▼
Depth to Cave in		**25.1'**		

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start **8/22/22** End **8/22/22**
Driller **SE** Chief **CRJ** Rig **7822DT**
Logger **AR** Editor **ESF**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Feather Edge Pond (Blue Harvest Lane Bridge)**

Location **Madison, WI**

Boring No. **5**

Surface Elevation **1033.1**

Job No. **C21051-31**

Sheet **2** of **2**

2921 PERRY STREET, MADISON, WIS. 53713 (608) 288-4100, FAX (608) 288-7887

SAMPLE						VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	TYPE	Rec (in.)	Moist	N	Depth (ft)		qu (qa) (tsf)	W	LL	PL	LI
						Medium Dense, Brown Sandy SILT, Trace Gravel and Clay, Scattered Cobbles (ML)					
12	■	15	M/W	11	45						
13	■	16	M/W	27	50						
14	■	15	W	28	55	Medium Dense, Brown Fine to Coarse SAND, Some Silt and Gravel, Scattered Cobbles (SM)					
15	■	0	-	11	60	Medium Dense, Brown Sandy SILT, Trace Gravel and Clay, Scattered Cobbles (ML)					
16	■	16	W	11							
17	■	11	W	32		Dense, Brown Fine to Coarse SAND, Some Silt and Gravel, Scattered Cobbles (SM)					
					65	End of Boring at 63 ft Backfilled with Bentonite Chips					
					70						
					75						
					80						
					85						

LOG OF TEST BORING

CGC Inc.

Project **Feather Edge Pond (Blue Harvest Lane Bridge)**
Location **Madison, WI**

Boring No. **6**
Surface Elevation (ft) **1033.1**
Job No. **C21051-31**
Sheet **1** of **2**

2921 Perry Street, Madison, WI 53713 (608) 288-4100, FAX (608) 288-7887

SAMPLE No.	TYPE	Rec (in.)	Moist	N	Depth (ft)	VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES qu (qa) (tsf)	W	LL	PL	LOI
						9 in. Brown Clayey TOPSOIL					
1		16	M	6		Stiff to Very Soft, Stratified Brown, Dark Brown and Gray Lean to Silty CLAY, Trace Sand with thin (<1") Sandy Seams and Lenses (CL - Possible Fill to 5')	(1.5)				
2		15	M	4	5		(0.5)				
3		17	M/W	0			(<0.2)				
4		16	M/W	0	10		(<0.2)				
						Medium Dense, Brown Fine to Medium SAND, Some Silt and Gravel, Scattered Cobbles and Boulders (SM)					
5		15	M	14	15						
6		17	M	19	20						
						Medium Dense, Brown Sandy SILT to Silty Fine SAND, Some Gravel, Scattered Cobbles (ML/SM)					
7		15	M	23	25						
8		16	M	24	30						
9		17	W	18							
					35	Medium Dense, Brown Silty Fine SAND, Some Gravel, Trace Clay (SM)					
						Very Stiff, Brownish-Gray Lean CLAY, Scattered Sand, Gravel and Cobbles (CL)					
10		16	M/W	12	40		(2.5)				

WATER LEVEL OBSERVATIONS

While Drilling ▽ **33.5'** Upon Completion of Drilling **39.8'**
Time After Drilling
Depth to Water ▼
Depth to Cave in **48.1'**

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start **8/22/22** End **8/22/22**
Driller **SE** Chief **CRJ** Rig **7822DT**
Logger **AR** Editor **ESF**
Drill Method **2.25" HSA; Autohammer**

CGC Inc.

LOG OF TEST BORING

Project **Feather Edge Pond (Blue Harvest Lane Bridge)**

Location **Madison, WI**

Boring No. **6**

Surface Elevation **1033.1**

Job No. **C21051-31**

Sheet **2** of **2**

2921 PERRY STREET, MADISON, WIS. 53713 (608) 288-4100, FAX (608) 288-7887

SAMPLE						VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	TYPE	Rec (in.)	Moist	N	Depth (ft)		qu (qa) (tsf)	W	LL	PL	LI
						Very Stiff, Brownish-Gray Lean CLAY, Scattered Sand, Gravel and Cobbles (CL)					
						Loose, Grayish-Brown SILT (ML)					
11	■	15	M/W	9	45						
						Dense to Medium Dense, Brown Fine to Coarse SAND, Some Silt and Gravel, Scattered Cobbles (SM)					
12	■	16	W	31	50						
13	■	0	-	11	55						
						Stiff, Grayish-Brown Lean CLAY, Trace Sand, Scattered Gravel and Cobbles (CL)	(1.5)				
14	■	12	M/W	16	60						
						End of Boring at 60 ft Backfilled with Bentonite Chips					
					65						
					70						
					75						
					80						
					85						

LOG OF TEST BORING

CGC Inc.

Project: **Feather Edge Pond (Blue Harvest Lane Bridge)**
Location: **Madison, WI**

Boring No. **7**
Surface Elevation (ft) **1033.1**
Job No. **C21051-31**
Sheet **1** of **3**

2921 Perry Street, Madison, WI 53713 (608) 288-4100, FAX (608) 288-7887

SAMPLE No.	TYPE	Rec (in.)	Moist	N	Depth (ft)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	W	LL	PL	LOI
						7 in. TOPSOIL					
1	■	10	M	9		Stiff to Soft Brown Lean Clay, Trace Sand (CL - Possible Fill to 3')	(1.0)				
2	■	16	M	4	5	Numerous Sand Partings Beginning Near 4'	(0.5)				
3	■	10	M/W	4		Loose to Very Loose, Brown Silty Fine SAND, Trace Gravel and Clay (SM)					
4	■	14	M	3	10	Increasing Clay Content with Depth					
5	■	14	M	42	15	Dense to Very Dense, Brown Fine to Medium SAND, Some Silt and Gravel, Scattered Cobbles and Boulders (SM)					
6	■	18	M	45	20						
7	■	12	M	64	25						
8	■	8	W	65	30						
9	■	8	W	42	35	Very Dense, Brown Fine to Coarse SAND, Some Silt and Gravel, Scattered Cobbles (SM)					
10	■	8	W	19	40	Stiff, Brown Lean CLAY, Trace to Little Sand and Gravel (CL)	(1.25)				

WATER LEVEL OBSERVATIONS

While Drilling ▽ **33.5'** Upon Completion of Drilling _____
Time After Drilling _____
Depth to Water _____ ▼
Depth to Cave in _____

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start **9/8/22** End **9/9/22**
Driller **ADC** Chief **KD** Rig **CME**
Logger **DB** Editor **ESF** **55**
Drill Method **4.25" HSA to 10 ft; 3-7/8 in. RB with Mud to 92.5'**

CGC Inc.

LOG OF TEST BORING

Project **Feather Edge Pond (Blue Harvest Lane Bridge)**

Location **Madison, WI**

Boring No. **7**

Surface Elevation **1033.1**

Job No. **C21051-31**

Sheet **2** of **3**

2921 PERRY STREET, MADISON, WIS. 53713 (608) 288-4100, FAX (608) 288-7887

SAMPLE						VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	TYPE	Rec (in.)	Moist	N	Depth (ft)		qu (qa) (tsf)	W	LL	PL	LI
						Stiff, Brown Lean CLAY, Trace to Little Sand and Gravel (CL)					
11	■	18	W	11	45	Medium Dense, Stratified Brown and Light Brown Sandy SILT and Silty Fine SAND, Trace Clay (ML/SM)					
12	■	10	W	88	50	Very Dense, Brown Fine to Coarse Sand, Some Silt and Gravel, Trace Clay (SM)					
13	■	12	W	73	55						
14	■	18	W	12	60	Very Soft, Brown Lean CLAY, Trace Sand (CL)	(<0.2)				
15	■	6	W	61/9"	65	Very Dense, Brown Fine to Coarse SAND and GRAVEL, Some Silt (SM/GM)					
16	■	6	W	24	70	(Medium Dense with Scattered Clay Lenses Near 69')					
17	■	10	W	31	75						
18	■	10	W	36	80						
19	■	8	W	82 /10"	85						

CGC Inc.

LOG OF TEST BORING

Project **Feather Edge Pond (Blue Harvest Lane Bridge)**

Location **Madison, WI**

Boring No. **7**

Surface Elevation **1033.1**

Job No. **C21051-31**

Sheet **3** of **3**

2921 PERRY STREET, MADISON, WIS. 53713 (608) 288-4100, FAX (608) 288-7887

SAMPLE						VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	TYPE	Rec (in.)	Moist	N	Depth (ft)		qu (qa) (tsf)	W	LL	PL	LI
						Very Dense, Brown Fine to Coarse SAND and GRAVEL, Some Silt (SM/GM)					
20	■	4	W	98 /11"	90						
21	■	10	W	70 /10"							
						End of Boring at 92.5 ft					
					95	Backfilled with Bentonite Slurry and Chips					
					100						
					105						
					110						
					115						
					120						
					125						

CGC, Inc.

LOG OF TEST BORING

General Notes

DESCRIPTIVE SOIL CLASSIFICATION

Grain Size Terminology

Soil Fraction	Particle Size	U.S. Standard Sieve Size
Boulders	Larger than 12"	Larger than 12"
Cobbles	3" to 12"	3" to 12"
Gravel: Coarse	¾" to 3"	¾" to 3"
Fine	4.76 mm to ¾"	#4 to ¾"
Sand: Coarse	2.00 mm to 4.76 mm	#10 to #4
Medium	0.42 to mm to 2.00 mm	#40 to #10
Fine	0.074 mm to 0.42 mm	#200 to #40
Silt	0.005 mm to 0.074 mm	Smaller than #200
Clay	Smaller than 0.005 mm	Smaller than #200

Plasticity characteristics differentiate between silt and clay.

General Terminology

Physical Characteristics
Color, moisture, grain shape, fineness, etc.
Major Constituents
Clay, silt, sand, gravel
Structure
Laminated, varved, fibrous, stratified, cemented, fissured, etc.
Geologic Origin
Glacial, alluvial, eolian, residual, etc.

Relative Density

Term	"N" Value
Very Loose	0 - 4
Loose	4 - 10
Medium Dense	10 - 30
Dense	30 - 50
Very Dense	Over 50

Relative Proportions Of Cohesionless Soils

Proportional Term	Defining Range by Percentage of Weight
Trace	0% - 5%
Little	5% - 12%
Some	12% - 35%
And	35% - 50%

Consistency

Term	q_u-tons/sq. ft
Very Soft	0.0 to 0.25
Soft	0.25 to 0.50
Medium	0.50 to 1.0
Stiff	1.0 to 2.0
Very Stiff	2.0 to 4.0
Hard	Over 4.0

Organic Content by Combustion Method

Soil Description	Loss on Ignition
Non Organic	Less than 4%
Organic Silt/Clay	4 – 12%
Sedimentary Peat	12% - 50%
Fibrous and Woody Peat	More than 50%

Plasticity

Term	Plastic Index
None to Slight	0 - 4
Slight	5 - 7
Medium	8 - 22
High to Very High	Over 22

The penetration resistance, N, is the summation of the number of blows required to effect two successive 6" penetrations of the 2" split-barrel sampler. The sampler is driven with a 140 lb. weight falling 30" and is seated to a depth of 6" before commencing the standard penetration test.

SYMBOLS

Drilling and Sampling

CS – Continuous Sampling
RC – Rock Coring: Size AW, BW, NW, 2"W
RQD – Rock Quality Designation
RB – Rock Bit/Roller Bit
FT – Fish Tail
DC – Drove Casing
C – Casing: Size 2 ½", NW, 4", HW
CW – Clear Water
DM – Drilling Mud
HSA – Hollow Stem Auger
FA – Flight Auger
HA – Hand Auger
COA – Clean-Out Auger
SS - 2" Dia. Split-Barrel Sample
2ST – 2" Dia. Thin-Walled Tube Sample
3ST – 3" Dia. Thin-Walled Tube Sample
PT – 3" Dia. Piston Tube Sample
AS – Auger Sample
WS – Wash Sample
PTS – Peat Sample
PS – Pitcher Sample
NR – No Recovery
S – Sounding
PMT – Borehole Pressuremeter Test
VS – Vane Shear Test
WPT – Water Pressure Test

Laboratory Tests

q_a – Penetrometer Reading, tons/sq ft
q_a – Unconfined Strength, tons/sq ft
W – Moisture Content, %
LL – Liquid Limit, %
PL – Plastic Limit, %
SL – Shrinkage Limit, %
LI – Loss on Ignition
D – Dry Unit Weight, lbs/cu ft
pH – Measure of Soil Alkalinity or Acidity
FS – Free Swell, %

Water Level Measurement

▽ - Water Level at Time Shown
NW – No Water Encountered
WD – While Drilling
BCR – Before Casing Removal
ACR – After Casing Removal
CW – Cave and Wet
CM – Caved and Moist

Note: Water level measurements shown on the boring logs represent conditions at the time indicated and may not reflect static levels, especially in cohesive soils.

CGC, Inc.

Madison - Milwaukee

Unified Soil Classification System

UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART

COARSE-GRAINED SOILS (more than 50% of material is larger than No. 200 sieve size)			
GRAVELS More than 50% of coarse fraction larger than No. 4 sieve size	Clean Gravels (Less than 5% fines)	GW	Well-graded gravels, gravel-sand mixtures, little or no fines
		GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines
	Gravels with fines (More than 12% fines)	GM	Silty gravels, gravel-sand-silt mixtures
		GC	Clayey gravels, gravel-sand-clay mixtures
SANDS 50% or more of coarse fraction smaller than No. 4 sieve size	Clean Sands (Less than 5% fines)	SW	Well-graded sands, gravelly sands, little or no fines
		SP	Poorly graded sands, gravelly sands, little or no fines
	Sands with fines (More than 12% fines)	SM	Silty sands, sand-silt mixtures
		SC	Clayey sands, sand-clay mixtures
FINE-GRAINED SOILS (50% or more of material is smaller than No. 200 sieve size.)			
SILTS AND CLAYS Liquid limit less than 50%		ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		OL	Organic silts and organic silty clays of low plasticity
SILTS AND CLAYS Liquid limit 50% or greater		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
		CH	Inorganic clays of high plasticity, fat clays
		OH	Organic clays of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS		PT	Peat and other highly organic soils

LABORATORY CLASSIFICATION CRITERIA

GW	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_C = \frac{D_{30}}{D_{10} \times D_{60}}$ between 1 and 3	
GP	Not meeting all gradation requirements for GW	
GM	Atterberg limts below "A" line or P.I. less than 4	Above "A" line with P.I. between 4 and 7 are borderline cases requiring use of dual symbols
GC	Atterberg limts above "A" line or P.I. greater than 7	
SW	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_C = \frac{D_{30}}{D_{10} \times D_{60}}$ between 1 and 3	
SP	Not meeting all gradation requirements for GW	
SM	Atterberg limits below "A" line or P.I. less than 4	Limits plotting in shaded zone with P.I. between 4 and 7 are borderline cases requiring use of dual symbols
SC	Atterberg limits above "A" line with P.I. greater than 7	

Determine percentages of sand and gravel from grain-size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve size), coarse-grained soils are classified as follows:

Less than 5 percent ..... GW, GP, SW, SP
More than 12 percent ..... GM, GC, SM, SC
5 to 12 percent ..... Borderline cases requiring dual symbols

PLASTICITY CHART